Final Technical Report

Northeast Area Development Plan

Phoenix-Mesa Gateway Airport

June 2012

PhxMesa **Gateway** Airport

JACOBS

In Association with:
Jacobs Consultancy
DWL Architects & Planners, Inc.
Elliott D. Pollack & Company

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Putting the pieces together

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Section 1: Executive Summary

1.1 Introduction

Over the past 15 years, the Phoenix-Mesa Gateway Airport (PMGA) has been in a continual planning and development program, responding to the dynamic air travel market in the Phoenix metropolitan area. In February 2010, the City of Mesa (City) and the Phoenix-Mesa Gateway Airport Authority (Authority) formed a partnership to contract for professional services associated with the study of the Northeast Development Area at the Phoenix-Mesa Gateway Airport, formerly known as Williams Air Force Base. The City and PMGA Authority desired a study to develop a phased, revenue generating land use and ground transportation plan for an approximate 660 acre parcel, with an adjoining 31 acre privately-owned parcel, both located in the Northeast Area of the Airport. In doing so, the co-sponsors of the study, contracted with Jacobs Engineering Group, Inc. in association with DWL Architects & Planners, Inc., Elliott D. Pollack & Company, and Jacobs Consultancy to conduct a technical study, inclusive of regular stakeholder involvement, which would ideally map out a financially feasible plan of development that would keep pace with anticipated aeronautical growth, while being augmented and ultimately supported in part by on-airport, non-aeronautical commercial development. This report presents the analysis, findings, and recommendations in support of those objectives.

1.2 Purpose and Need

Following the methodical and collaborative preparation of "The Mesa Gateway Strategic Development Plan" in December 2008, it has been clear to area leadership that the focal point of the Mesa Gateway area is the Phoenix-Mesa Gateway Airport. Its 3,020 acre footprint is equivalent to some of the most complex airports operating in the United States. However, unlike many of these facilities, PMGA is already equipped with many of the infrastructure assets of larger airports, but without the existing constraints and pre-existing circumstances that often impact the strategic development of airports, such as limited land, adjacent incompatible development, latent aviation demand, and a robust surrounding surface access network. In all cases, PMGA has the assets it needs to achieve its own success – the availability of unconstrained land and the lack of physical constraints.

That said, the future opportunities of the PMGA are a key asset to the Mesa Gateway area. In support of this, the region was established as the second major airport serving the greater Phoenix metropolitan area, with the intent that it would complement rather than compete with Sky Harbor International Airport. As aviation demand and the corresponding airport capacities keep pace in the future, there is a vision that ancillary operating and development potential both on and off-airport could illustrate a means to become an integral part of the communities that will occupy the Mesa Gateway area and the region. Better articulated, the stated vision is:

> *"Mesa Gateway will be an internationally recognized destination for those looking for a sustainable place in which to live, work, learn and recreate. It will provide industries with an economically efficient business climate and its workforce and residents with access to the global resources desired of a knowledge-based economy."*

Therefore, stemming from a recently completed Airport Master Plan in 2009, the PMGA was equipped with a holistic roadmap to provide the basic facility needs necessary to accommodate upwards of almost 10 million annually enplaned commercial passengers per year. This plan provided an overview of potential demand, the aeronautical capacities required to satisfy that demand and a timely development program of new or expanded facilities. Another valuable product of the Master Plan was the identification of the airport envelope, thereby not only reserving sufficient land area for aeronautical and non-aeronautical needs, but also bracketing land areas needed to protect the valuable airspace and operating environs far into the future to secure its optimal role.

With an approved and functional master plan, the PMGA will ensure its continued and vital link to the national air transportation system for the community, while encouraging existing public and private investments in its facilities. Ultimately, the underlying premise of the Northeast Area Development Plan (NADP) is to secure early and steady private sector investment to generate revenue to sustain the development of the infrastructure in support of aviation uses in the short, mid and long-term. Successful airport development will be sensitive to industry changes, and the PMGA Authority and the City will remain constantly vigilant to determine how best to phase development in order to generate revenue and minimize unnecessary capital expenditures.

The City's role in airport development, is that of providing supporting infrastructure, protecting the assets from encroachment and incompatible land uses, and promoting a robust business development environment. As stated in The Mesa 2008 Strategic Development Plan, the City is committed to realizing the role of the Airport by taking the steps necessary to ensure that the Airport thrives. These steps include:

- Establishing the "aviation envelope" that will support the regional interests of airport and airline users. Unless specific lands are absolutely essential for uninterrupted regional airport operations, they should be considered for development.
- Promote compatible land uses. A wide range of commercial, recreational, and residential uses can occupy land in close proximity to the Airport and its active airspace.
- Transfer the focal point of the passenger and commercial experience to the east side of the property, where a new passenger terminal should be developed as a regional landmark.

1.3 Study Process

As indicated, the study process was initiated in early February 2010 and was scoped to provide findings and recommendations in a relatively short timeframe. The technical approach employed for the NADP aimed to validate previous forecast projections, develop programmatic needs for the airside, terminal and landside components (specifically the surrounding street plan that highlights connections to/from the Airport infrastructure), evaluate development alternatives in a top-down and iterative manner, specify revenue-generating opportunities, and identify a feasible phasing plan for future investment and development.

An integral element of the study process was a comprehensive stakeholder involvement effort that integrated the City, regional leadership, State agencies, Phoenix Sky Harbor representatives, the airlines, and many of the adjacent land owners/developers. Over the course of the study, four discrete stakeholder meetings were orchestrated to engage the membership, to seek their input, and to develop a plan that had large scale buy-in (see Appendix A for a summary of each meeting). Due to conceptual refinement issues surrounding surface access both on and off-airport property, detailed analysis was required to carefully understand future demand growth and its possible impact on infrastructure timing and configurations. As a result, the overall study process of approximately 12 months was expanded to an 18-month schedule. Once conceptual refinement was complete, and a phased capital program was developed, a financial feasibility analysis was conducted to determine any shortfall in funding and the need to possibly be more prudent with development timing. Following modifications in timing and an assessment of the future real estate market in the Mesa Gateway area, a validated capital program and operating objectives were recommended.

1.4 Findings

The NADP study is the culmination of approximately 18 months of collaboration on a plan that: meets the long-range aviation needs of the region, works harmoniously with the surrounding communities, provides the Airport with a diversity of revenue, and achieves these objectives in a financially feasible manner. Recognizing that the vast majority of improvements are largely contingent upon future commercial passenger demand at the PMGA, the forecast of air travel in the Phoenix metropolitan area is expected to continue a trend of solid growth. This is further bolstered by the anticipated regional growth east of the downtown Phoenix area, which prior to the national economy passing into a recession, was on pace to be one of the Nation's strongest markets. As the study team developed bubble diagrams of the 660+ acres and its connectivity to the region, the question continued to arise, as to how large of a terminal complex to plan for, with emphasis that the aeronautical elements be protected long-term, prior to siting and configuring any commercial development property. The Master Plan completed in 2009 carried a "high" enplanement scenario to approximately five (5) million annual enplaned passengers (MAEP), but through detailed discussion with the owner and stakeholders, it was strongly felt that the ultimate growth scenario could likely eclipse the 5 MAEP mark, and as such there was agreement that an upper threshold of 10 MAEP was more appropriate for sizing facilities, determining demand and bracketing aeronautical land use areas.

The Jacobs team initially validated the aviation forecasts and the programming assumptions carried forward in the recent Master Plan. A noted area of refinement to the programming came in the way of terminal square footage required by the end of the 20-year planning horizon. The recommended square footage was increased by approximately 115,000 square feet, and was largely attributed to airline operational space, including outbound and inbound baggage handling areas. Virtually all elements of the airfield were carried forward from the Master Plan Airport Layout Plan set, while surrounding development proposals were included in the analysis of the proposed roadway network and land uses. Following an initial development of nine (9) unique "bubble-diagram" concepts with the stakeholder committee, it was screened to three (3) "illustrative" schemes that were narrowed to one "preferred" alternative for further refinement. Section 7 describes this iterative process in a concise manner, and specifically Subsection 7.6 addresses the refinement process, whereby a "refined" concept was finalized and ultimately carried into the implementation phase of the study. Section 8 presents the implementation plan for the "refined" concept through approximately three phases of work taking place over the ensuing 20-year period, with a final ultimate phase evolving well beyond the 20-year planning horizon.

Section 2: Project Description

2.1 Introduction

This section outlines the Project background, goals, objectives and stakeholder involvement crucial to the development of the Phoenix Mesa Gateway Airport Authority's Northeast Area Development Plan (NADP). A thorough understanding of the study's purpose and background provides a solid foundation from which the study team can create a plan that meets the goals and objectives of the stakeholders. In addition, an understanding of previous planning efforts, including local and regional plans that affect the NADP, ensures a planning effort that is compatible with and supportive of the local area's vision for growth.

2.2 Study Background

The Phoenix Mesa Gateway Airport (PMGA) is recognized as a major economic engine for the City of Mesa and the entire Phoenix region. The Airport has evolved from a former military base to a flourishing civil aviation facility.

Prior to 2007, PMGA had experienced only limited commercial air service, with annual enplanement totals never exceeding 6,400. By the end of 2009, annual enplanement totals equaled 287,807 as Allegiant Airlines increased operational activity at the Airport and continues to add capacity and destinations due to the success it has experienced at the PMGA.

The current PMGA Master Plan identifies the final capacity of the existing West Terminal facility as 850,000 annual enplanements to be served by 10 total gates at ultimate build out. The Master Plan forecast indicates that this level of activity will likely be reached by the year 2017; however, recent growth rates at PMGA indicate that the existing terminal area's capacity could be reached as early as 2014. As a result, the PMGA Authority has commissioned the Jacobs Engineering Group, Inc. team to study, analyze and provide a phased land use plan for the development of a commercial terminal area on the northeast side of PMGA.

The NADP study will: assess current conditions at the Airport; review recent master plan forecasts balanced against changing trends; validate previous programming of relevant airport elements and update as needed; evaluate the existing as well as proposed street system serving the airport environs; conduct extensive alternatives analyses aimed toward refinement of a preferred concept; and define a financially feasible implementation strategy for the 20-year build-out of the recommended concept.

2.3 Project Goals & Objectives

The NADP goals drove development alternatives and served as the ultimate criteria for the selection of the recommended development alternative and other major decisions throughout the NADP process. In addition, action-oriented and attainable objectives are outlined in order to represent the policy and planning guidelines for identifying and evaluating the development alternatives by more clearly defining the future needs of various Airport stakeholders. The specific goals and objectives outlined in this section are divided among four distinct categories as follows:

Surface Infrastructure (Transportation/Utilities)

- Provide balanced travel routes focused on primary services for: internal trips, through travel, specific trips to the Airport, and amenities
- Ensure easy access w/ multiple layers of transportation access and modes
- Multi-modal system establishment, that is pedestrian and bicycle friendly
- Penetrate SR-24 corridor (no negative impacts on regional freeway system)
- Provide suitable Ray Road / Ellsworth Road area employment center connections to the Airport
- Adequately serve surrounding private properties
- Easy / clear / communicative wayfinding and branding
- Prioritized plan for infrastructure
- Long-range utility planning

Economic Development

- Proactive economic development efforts to maximize opportunities – both Airport and private
- Boundary-less growth that is flexible between Airport / community
- Quality, well-rounded destination development with convention facilities, hotels, multi-story offices, national attractions, and light industry
- Urban center - airport oriented employment villages that are pedestrian friendly
- Premier / diverse job center for east valley with high wage strategy
- High visibility with provisions for branding, special features & markers, corporate amenities
- Sustainable concepts built into development (energy, e.g. Biofuel, solar)
- Industry leading site design and construction techniques encouraged for new development
- Discourages residential development in proximity of the Airport

Aviation / Airport Related

- Support and advance the vision for the Airport
- Preserve the ultimate Airport capacity
- Appropriate non-aeronautical land uses that embrace aviation growth goals
- Keep diverse travel profile in mind - leisure primary and business secondary
- Integrated parking solutions that maximize revenue and accommodate peak periods
- Sound implementation plan supporting staged growth
- Pursue myriad funding sources, including Public/Private Partnership (PPP)

Lifestyle Oriented

- Clear, strong identity – a positive Sense of Place & Community
- Stress free, comfortable, non-intimidating, fun place to come
- Livable community that is a vibrant, active hub of activity
- Development that places value on green space and water features
- Ensure that collaboration between communities & Airport continues
- Remain cognizant of aviation noise impacts on community
- ASU plans integrated into region and business development plan

2.4 Previous Planning Efforts and Concepts

City of Mesa – Mesa Gateway Strategic Development Plan[1]

The Gateway Strategic Development Plan notes that the City of Mesa is committed to realizing the role of the Airport by taking the steps necessary to ensure the Airport thrives. In order to accomplish this goal the plan identifies the following steps:

- Establishing the "aviation envelope" that will support the regional interests of airport and airline users. Unless specific lands are absolutely essential for uninterrupted regional airport operations, they should be considered for development.
- Promote compatible land uses. A wide range of commercial, recreational, and residential uses can occupy land in close proximity to the Airport and its active airspace.
- Transfer the focal point of the passenger and commercial experience to the east side of the property, where a new passenger terminal should be developed as a regional landmark.

Airport Master Plan[2]

The PMGA Authority updated its Airport Master Plan in 2008. The intent of the update was to address the continuously evolving nature of PMGA from a military airfield to a public commercial service airport. The Master Plan forecast indicates that enplanements at PMGA are projected to reach 2.2 million within 20 years and potentially 5 million enplanements at some point beyond that. As a result, development of the east side of the Airport with a replacement passenger terminal is recommended.

The Master Plan and in turn, the associated Airport Layout Plan, show that the east side of the Airport is reserved for passenger terminal complex expansion. In addition, those areas on the east side that are not reserved for direct aviation related activities are planned for commercial development. The plan also indicates that the commercial development should be compatible and complementary to the aviation nature of the facility such as hotels, a convention center, restaurants, and shops.

The Airport Master Plan update includes the following projects relative to the NADP within the final capital improvement plan:

Short Term

- Completion of east side parallel Taxiway C
- East side terminal complex planning studies
- Acquisition of 31 acres on the east side

Intermediate Term

- Initial construction of the east side terminal building
- East side aircraft ramp
- East side fuel farm and other support facilities
- East side road construction
- Extension of Runway 12L-30R approximately 1,000 feet to the northwest

Long Term

- Expansion of the east side terminal building
- East side ARFF facilities
- East side parking garage

1.City of Mesa, "Mesa Gateway Strategic Development Plan", December 8, 2008
2.Coffman and Associates, Inc., "Airport Master Plan for Phoenix-Mesa Gateway Airport", December, 2008

West Terminal Expansion Study[3]

The Phoenix-Mesa Gateway West Terminal Expansion Study was an attempt to determine the maximum capacity of the existing west terminal site based on total enplanements forecast in the Draft Airport Master Plan. This study attempted to determine what facilities would be required for construction immediately and how much should be constructed at the west terminal site. The objective of this study was to identify the existing conditions, review the established forecasts, analyze the existing capacity, develop and analyze alternatives and refine a preferred alternative.

The study concluded that the limiting factors for the capacity of the West Terminal site include automobile parking, curb frontage, terminal building square footage, number of gates/aircraft parking, usable apron, baggage operations and the orientation of Sossaman Road. In addition, the study noted that PMGA has targeted a low-cost market, which translates to operating with less building square footage than a full service facility. The study assumed that until the move to the East Terminal, the capacity of the terminal building will likely be less than the building is operating under.

Parking Supply and Demand Analysis[4]

The PMGA Authority completed a parking supply/demand analysis in 2008, in order to respond to changing conditions at the Airport, including the initiation of passenger air service by Allegiant Air in October 2007. The Study provided alternatives to meet the 850,000 annual enplanement level, which has been identified as the capacity of the west side terminal area. These alternatives included:

- Constructing one or more parking structures;
- Horizontally expanding a previously constructed parking structure;
- Constructing or expanding a remote parking lot with shuttle service; and,
- Encouraging the use of alternative modes of transportation.

Regional Transit Plan

Planning for the Central Mesa corridor began Spring 2007 with an Alternatives Analysis. The Alternatives Analysis gathered technical data and community input to help determine which route and transit technology would best serve Mesa. Eight transit options were evaluated. The result of the analysis determined that the preferred option was an approximately three-mile extension of light rail from the current end-of-line, running east on Main Street through downtown Mesa to Mesa Drive.

In August 2010, the Federal Transit Administration (FTA) approved the Central Mesa Light Rail Extension into Project Development which marks the first step in receiving federal project approval and ultimately federal funds to build the 3.1-mile extension on Main Street from Sycamore to Mesa Drive. The extension is scheduled to open in 2016. Additionally, a currently unfunded Phase II of the extension would bring the line to Gilbert Road.

State Route 24 Study

State Route (SR)-24 conceptually begins at Loop 202 (Santan Freeway) near the Phoenix-Mesa Gateway Airport and heads east towards Pinal County as part of the Regional Transportation Plan approved by Maricopa County voters in 2004. The recommended development plan and alignment of SR-24 brings the road near the northeastern-most point of PMGA. This location, timing of the improvements, and access to/from the SR-24 will be considered throughout the NADP analysis.

3.DWL Architects, "Phoenix-Mesa Gateway Airport, West Terminal Expansion Study", September, 2008
4.Carl Walker, Inc., "Parking Supply and Demand Analysis", April 2008

2.5 Planning Approach

Planning and development for aeronautical and non-aeronautical related uses should be balanced and ideally synergized to promote timely and efficient development.

The outcome of this process is a formalized plan that meets the multi-faceted needs of both on-airport and off-airport development. The NADP supports Mesa's long-range Gateway Strategic Plan, demonstrating a commitment to growth and development to meet future needs of the region. The NADP provides both a short and long-term roadmap for on-going capacity expansion, investment planning, revenue generation, financial diversification, and customer service improvements at PMGA. The NADP consists of three major phases:

1. Confirmation of programming from previous planning analyses;
2. Alternatives development; and
3. Phasing and implementation plan.

The Jacobs team fostered an interactive process that ensured the goals and objectives for the study were achieved and that a consensus-building effort was formulated through the planning process. This consensus-building process helped to ensure the timely implementation of the study's recommendations.

2.6 Stakeholder Involvement

The fundamental aspect of any planning project is stakeholder involvement. The final preferred development plan and process should reflect the input of a broad range of airport stakeholders. The Jacobs team and the PMGA Authority jointly identified a list of stakeholders for this study effort. Stakeholders who provided input included representatives from:

- Airport Management
- City of Mesa
- City of Phoenix
- Allegiant Air
- Salt River Project
- Airport Tenants
- Landowners and Developers of Adjacent Properties

The stakeholders gathered with the consultant team throughout regular intervals in the Project. Stakeholder workshops and committee meetings were used to identify, refine and evaluate a range of alternatives for accommodating the facility requirements. These meetings included: Identification of Project Vision/Goals & Objectives; presentation and input on Project alternatives, and the presentation and input on the proposed Project implementation.

Section 3: Existing Conditions

3.1 Introduction

This section and the subsequent two sections of the Study will assess current conditions at the Airport, review recent master plan forecasts balanced against changing trends, and validate previous programming of relevant airport elements and update as needed.

This section and the subsequent two sections are intended to confirm and update, as needed, the existing conditions and aviation activity projections, to validate and expand upon the programmatic requirements for the various components envisioned for the northeast area, and to establish design guidance to be utilized in subsequent concept and preliminary design activities. The future design evolution sequence will utilize this document as the basis for methodology, approach, and desired intent. Major elements reviewed here include the airfield, terminal and concourse, landside access, public transportation, on and off-airport land use, and supporting utilities infrastructure.

3.2 Airport Site Description

Phoenix-Mesa Gateway Airport is located approximately 25 miles southeast of the City of Phoenix. PMGA is positioned on approximately 3,020 acres in the southeast portion of the City of Mesa, Arizona, in the southeast portion of Maricopa County. PMGA is located completely within the City of Mesa, immediately adjacent to the Town of Gilbert to the west, Town of Queen Creek to the south; and majority of the City of Mesa to the east and north, as shown in Exhibit 3-1: Airport Vicinity Map. The terrain in the immediate vicinity of the Airport is mostly flat, undeveloped terrain, particularly to the east and south. PGMA is bordered by Sossaman Road on the west, East Pecos Road to the south, South Ellsworth Road to the east and 202 Loop - Santan Freeway - to the north.

3.2.2 Passenger Terminal Area

The West Passenger Terminal Area is approximately mid-field, bordered on the east by the Middle Apron and on the west by South Sossaman Road, a four-lane urban arterial road. The West Passenger Terminal Area has airport-owned leasible land and buildings north and south of the area as well as Arizona State Polytechnic University, Chandler-Gilbert Community College and other commercial and governmental business activity property to the west. The landside approach to the West Passenger Terminal Area is directly off South Sossaman Road via the access roadway, which provides connection to the terminal departure and arrival curbs, long term parking and rental car return. The West Passenger Terminal Area consists of several existing buildings including the Passenger Terminal, the Terminal Annex, the West Terminal Expansion – Phase 1 and Hangar 24. (reference Exhibit 3-2: Existing Passenger Terminal Facilities)

Exhibit 3-1: Airport Vicinity Map

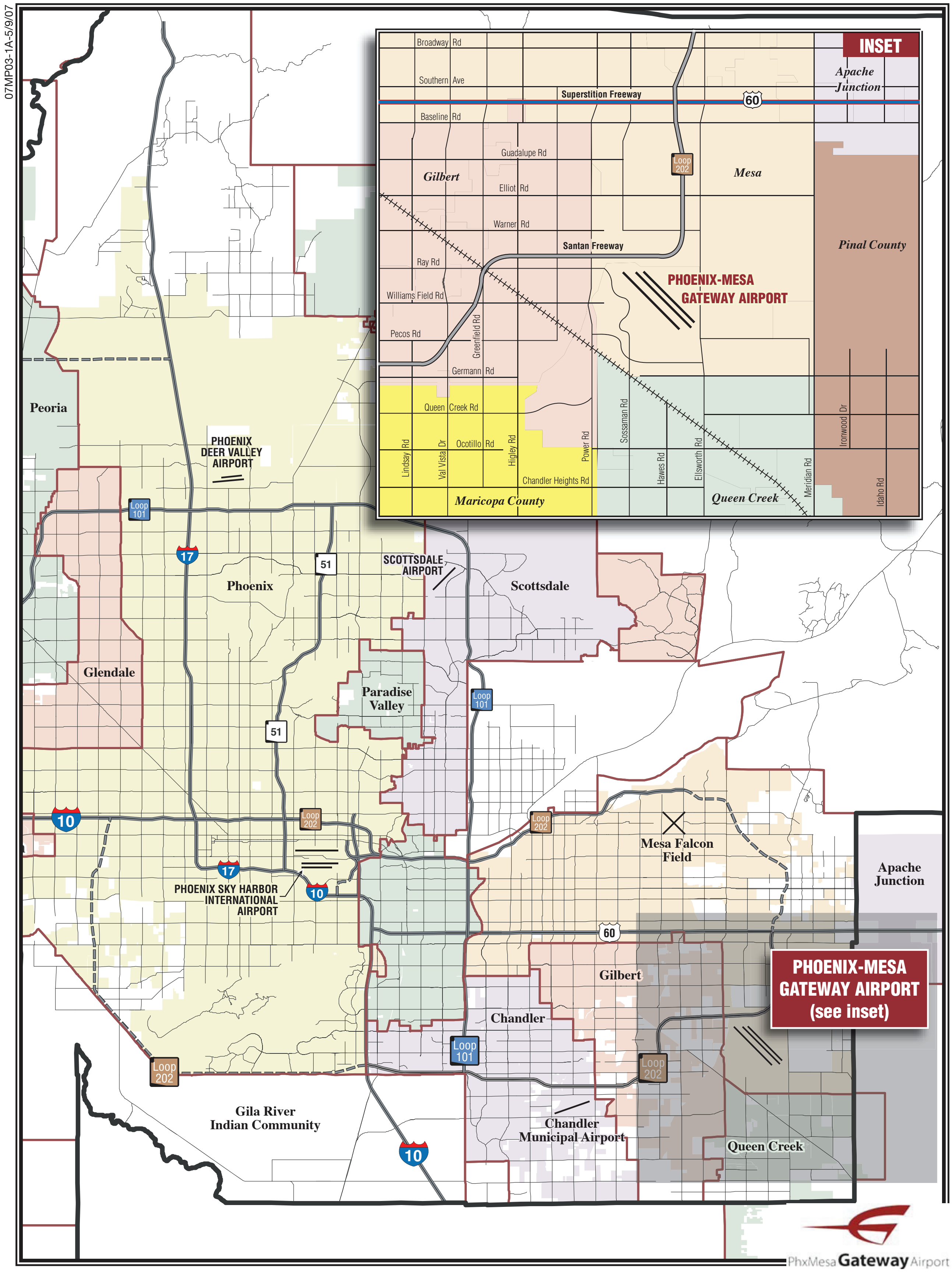
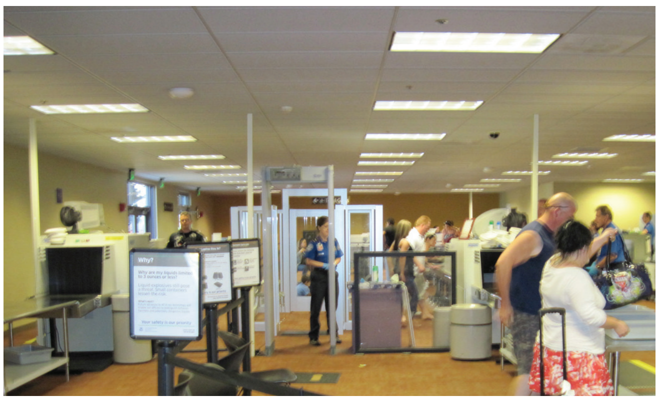


Exhibit 3-2: Existing Passenger Terminal Facilities

Passenger Terminal (6033-1 S. Sossaman Rd.)

Passenger Terminal Ticketing (6033-1 S. Sossaman Rd.)

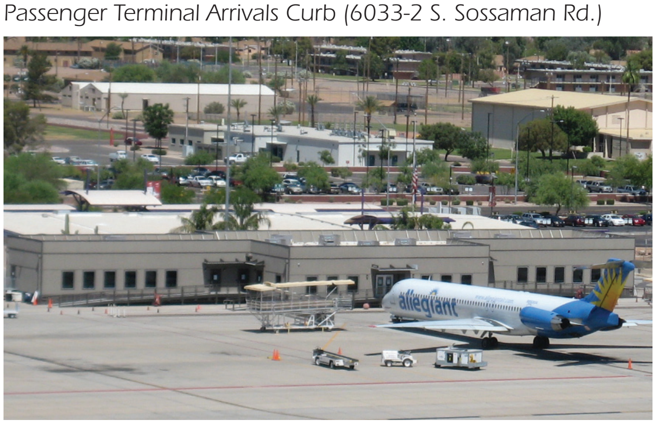


Passenger Terminal Checkpoint (6033-1 S. Sossaman Rd.)

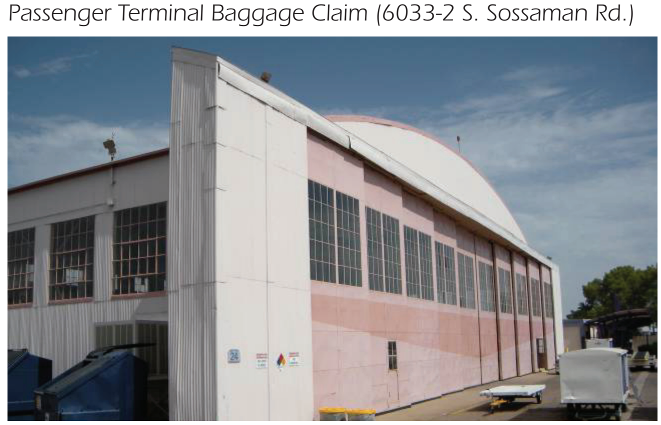
Passenger Terminal Courtyard (6033-2 S. Sossaman Rd.)

Passenger Terminal Arrivals Curb (6033-2 S. Sossaman Rd.)

Passenger Terminal Baggage Claim (6033-2 S. Sossaman Rd.)



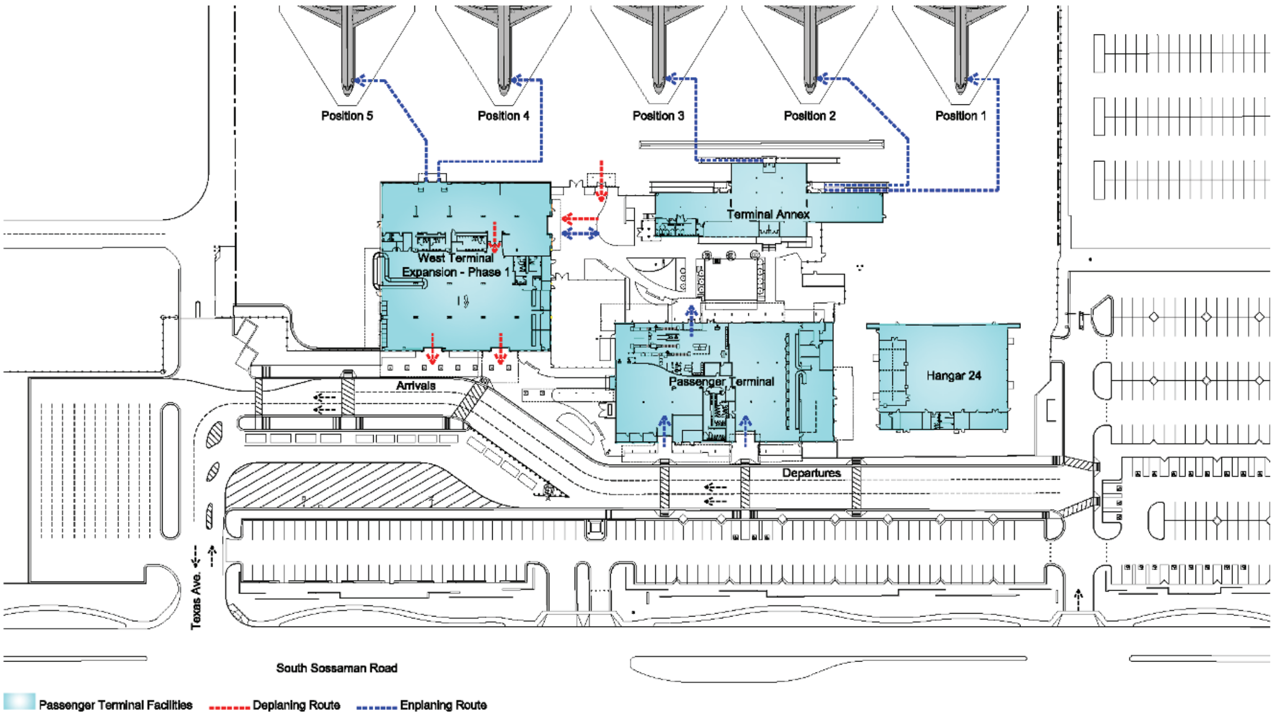
Terminal Annex (6033-3 S. Sossaman Rd.)



Hangar 24 (6033-4 S. Sossaman Rd.)

3.2.2.1 Terminal Building & Concourse

The terminal buildings consist of the following: Passenger Terminal, Terminal Annex, West Terminal Expansion – Phase 1 and Hangar 24. These four buildings combined together along with an outdoor courtyard to create the passenger and support facilities for commercial air service.



Source: DWL Architects and Planners, Inc., 2010.

Passenger Terminal

The passenger terminal building was originally constructed in 1968 as part of the former Williams Air Force Base. It was remodeled into a passenger terminal building in 1998. Subsequent remodels have taken place in 2000 and 2008. Along with the West Terminal Expansion - Phase I project, another remodel was completed in November 2010. In the Phase 1 remodel, to allow for the continued growth and expansion, the ticketing area, airline ticketing offices, explosive detection system area, and the security checkpoint are being expanded and modified, while relocating baggage claim and rental car counters to the West Terminal Expansion building.

Entrance to Passenger Terminal


Ticketing

Program Summary

Passenger Terminal	square feet
Ticketing	6,740
Airline Ticket Office	1,014
Explosive Detection System	2,483
Security Screening Checkpoint	4,865
SSCP Queue	2,290
Concessions	712
Aviation Offices	1,004
Circulation	2,121
Support Spaces	2,029
Existing Building Total	**23,258**

The buildings are single story with at-grade passenger loading into the aircraft. The airlines provide mobile stairs and ramps for the boarding operation.


Ramp Operations

Outdoor Courtyard

Located after the security screening checkpoint, between the passenger terminal and terminal annex is a landscaped outdoor space that provides a place for passenger transitioning from building to building. The courtyard provides a place for enplaning passengers to enjoy the Arizona climate and for children to play while waiting for their flight.

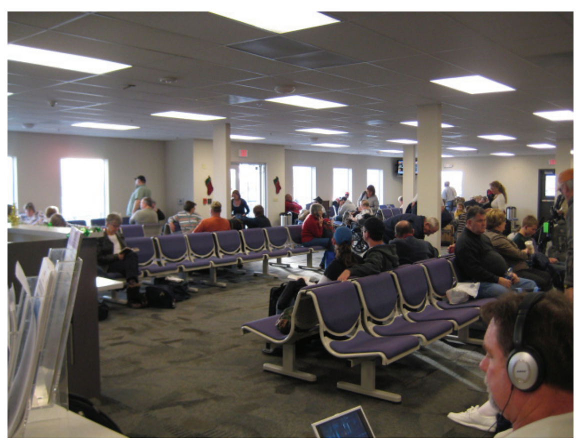
As part of the West Terminal Expansion – Phase 1 project, the courtyard was expanded to connect the existing courtyard to West Terminal Expansion. The expansion provides passengers with shaded landscape gardens and connection to the new building's concession spaces.

Courtyard

Terminal Annex

The 9,557 square foot modular terminal annex building was constructed in 2008 to accommodate the expansion of Allegiant Airlines and help alleviate the over-crowding of the passenger terminal building. The terminal annex has four gates, associated seating areas for each gate, and concessions spaces for the waiting passengers.

Entrance to Terminal Annex



Holdroom

Retail Concession

Program Summary	
Terminal Annex	square feet
Holdrooms	6,280
Concessions	1,044
Support Spaces	676
Circulation / Structure	1,935
New Building Total	**9,935**

West Terminal Expansion – Phase 1

The West Terminal Project Expansion project included a new 25,000 square foot building and was completed in November 2010. The construction project was considered Phase 1 of the West Terminal build out. The expansion provides additional capacity for the Phoenix-Mesa Gateway Airport including two additional aircraft gates (for a total of six gates), associated boarding areas, retail and food/beverage concessions. The new building also contains the arrival lobby, baggage claim and rental car for the Airport.

Program Summary	
West Terminal	square feet
Holdrooms	3,583
Concessions	3,512
Arrival Lobby	4,790
Baggage Claim	5,898
Bag Service Office	96
Rental Car	1,831
Support Spaces	2,303
Circulation / Structure	3,756
New Building Total	**25,769**

Hangar 24

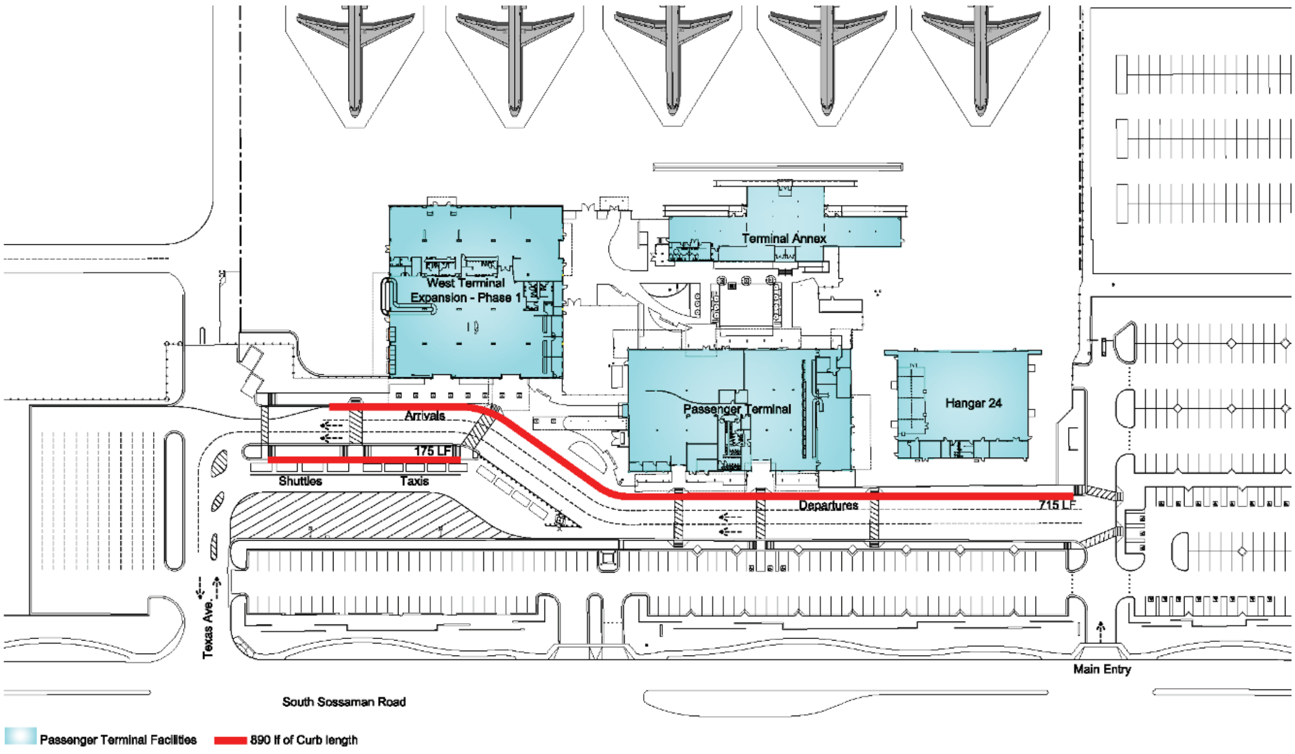
Hangar 24 was originally constructed as part of the former Williams Air Force Base. Currently, the 12,256 square foot hangar serves as airline operations, maintenance and provisions storage.

Exterior

Interior

3.2.2.2 Curbfront Areas

The West Terminal curbfront is accessed from South Sossaman Road. The single level roadway has two through lanes and a single lane for pickup and drop-off adjacent to the terminal for a total of three lanes. The primary curbfront, which measures approximately 715 feet and is for departures and arrivals, with the departures curb occupying the first roadway segment adjacent to the passenger terminal building, while the arrivals curb occupies the next segment adjacent to the West Terminal Expansion – Phase 1. In addition to the primary curb there is a secondary outer curb, measuring approximately 175 feet, which provides staging for taxis and shuttles. The resulting total curbfront area is estimated to be approximately 890 linear feet.



Source: DWL Architects and Planners, Inc., 2010.

3.2.2.3 Public Parking Facilities

Vehicle parking for the passenger terminal area includes public, employee, and rental car ready/return spaces. Exhibit 3-3: Existing Parking Facilities, identifies existing on-airport auto parking facilities associated with the commercial passenger operations. Currently, both free short-term and pay public parking exists in the terminal area. The free parking consists of approximately 90 short-term spaces east of Sossaman Road and west of the terminal building along with a 180-space cell phone lot west of Sossaman Road and south of the terminal building. Combined, these represent approximately 270 temporary, free vehicle spaces. Public pay parking near the terminal building constitutes approximately 2,458 vehicle spaces, and is located in three distinct lots. West of Sossaman Road is a 180 space lot that has approximately 86 spaces allocated for employee parking, with the remaining 94 spaces serving long term public patrons. Immediately south of the terminal building, there is a dedicated public pay lot of 814 spaces, and this is complimented by another public pay overflow lot positioned in a fenced apron area immediately east of the terminal that is sized to accommodate approximately 1,550 vehicles. Directly north of the terminal building are 60 spaces which are reserved for rental car ready/return.

Additional auto parking is provided at PGMA for airport tenants and other on-airport operations not related to the commercial passenger terminal. These additional parking areas will not be addressed in this analysis.

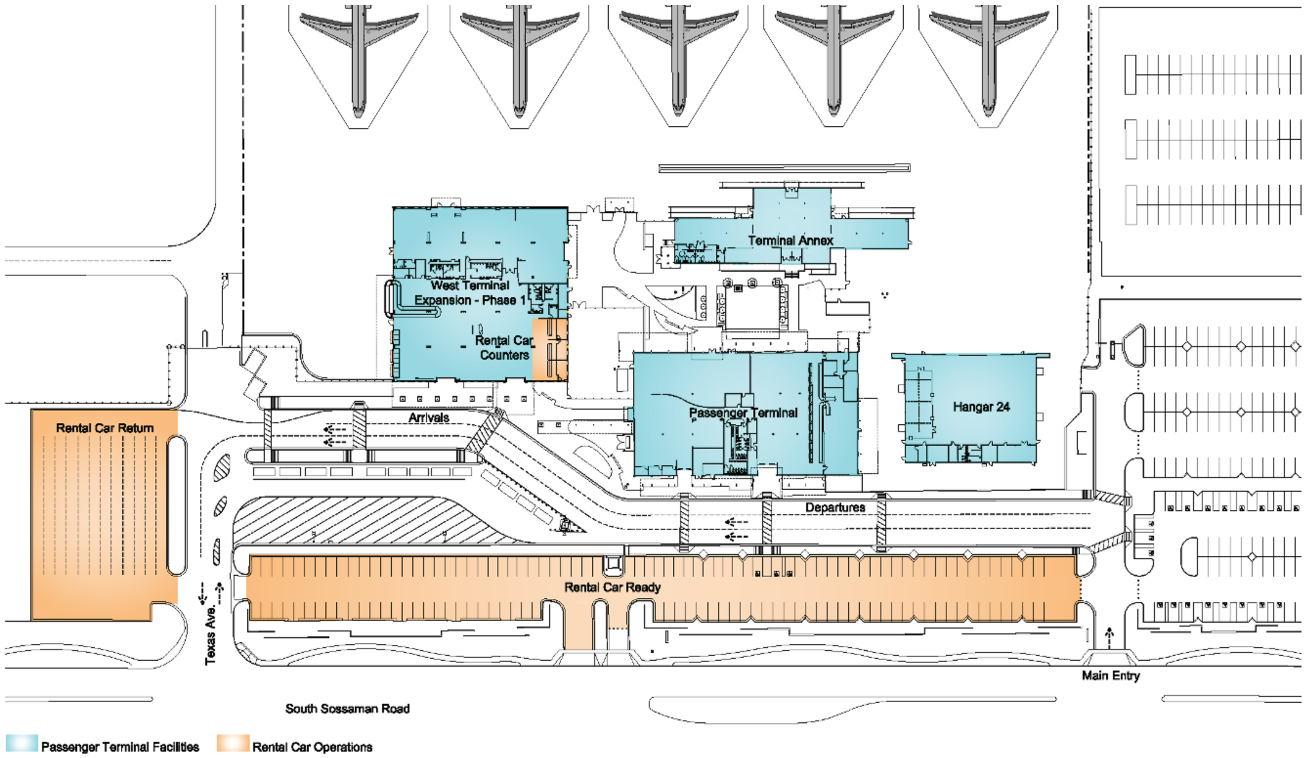
Exhibit 3-3: Existing Parking Facilities

Source: Phoenix-Mesa Gateway Airport Authority, 2010.

3.2.2.4 Rental Car Operations

Convenient passenger access to the rental car area is one of the goals at PMGA. The easy access begins with the rental car counters within the arrival lobby of the West Terminal Expansion – Phase 1 building. The arriving passengers would continue to the rental car ready lot in front of the terminal building. The departing passengers would drop-off their party along the curb and proceed to the rental car return lot just north of the access roadway, within walking distance of the terminal.

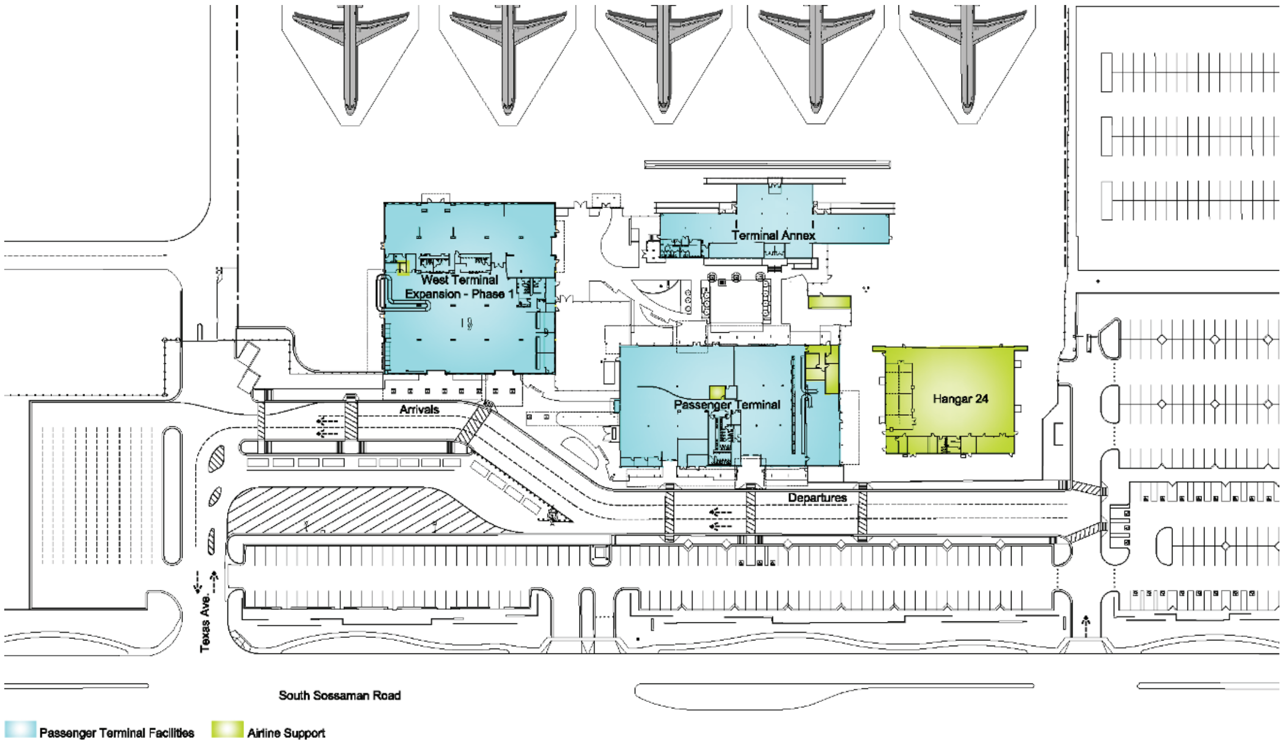
There are approximately 150 spaces located in the rental car ready lot and 12 lanes for the rental car return. The rental car lots are part of the ongoing construction, with the final configuration opened November 2010.



Source: DWL Architects and Planners, Inc., 2010.

3.2.2.5 Airline Support Facilities

Support facilities are provided in various locations throughout the West Passenger Terminal Area. The airline ticketing offices (ATO) are located in the passenger terminal, with the majority located behind the ticket counters. Within the West Terminal Expansion – Phase 1 building is a bag service office (BSO) adjacent to baggage claim area. Located with direct airside access is the Airline Operations building or termed the “line shack” by airport staff. Maintenance facilities, provisions storage and additional airline operations offices are located in Hangar 24.



Source: DWL Architects and Planners, Inc., 2010.

3.2.3 Airfield Components

The PMGA airfield consists of three parallel runways oriented from northwest to southeast with a series of associated taxiways. The existing airfield facilities are discussed in the following section and shown in Exhibit 3-4: Existing Airfield Facilities.

Runways

Runway 12R-30L is the longest of the three measuring 10,401 feet long by 150 feet wide. The concrete runway pavement has a strength rating at 55,000 pounds single wheel loading (SWG), 95,000 pounds dual wheel loading (DWG), 185,000 dual tandem wheel loading (DTG), and 550,000 pounds double dual tandem (DDTG). Both ends of the runway provide 1,000-foot long paved overrun areas. This runway has available instrument approaches utilizing GPS technology.

Runway 12C-30C measures 10,201 feet long by 150 feet wide with pavement strength ratings equal to Runway 12R-30L discussed above. The runway was reconstructed in 2005, with the center 5,700 feet constructed of asphalt, while the remaining portions are constructed of concrete. Both ends of the runway have a 1,000-foot paved overrun. Runway 12C-30C provides the most sophisticated instrument approach offered at the Airport, with an instrument landing system (ILS) approach to Runway 30C. Several other non-precision instrument approaches are available to both runway ends.

Runway 12L-30R is 9,301 feet long by 150 feet wide and is constructed entirely of concrete. This runway was reconstructed in 1999 and provides the greatest strength ratings of the three with 75,000 pounds SWG, 210,000 DWG, 590,000 pounds DTG, and 850,000 pounds DDTG. Currently, this runway only accommodates visual approaches, although is intended to serve as the primary heavy aircraft runway. Runway 12L-30R provides 400-foot paved overrun areas beyond each runway end. All three runways are equipped with 35 foot wide paved shoulders.

Exhibit 3-4: Existing Airfield Facilities

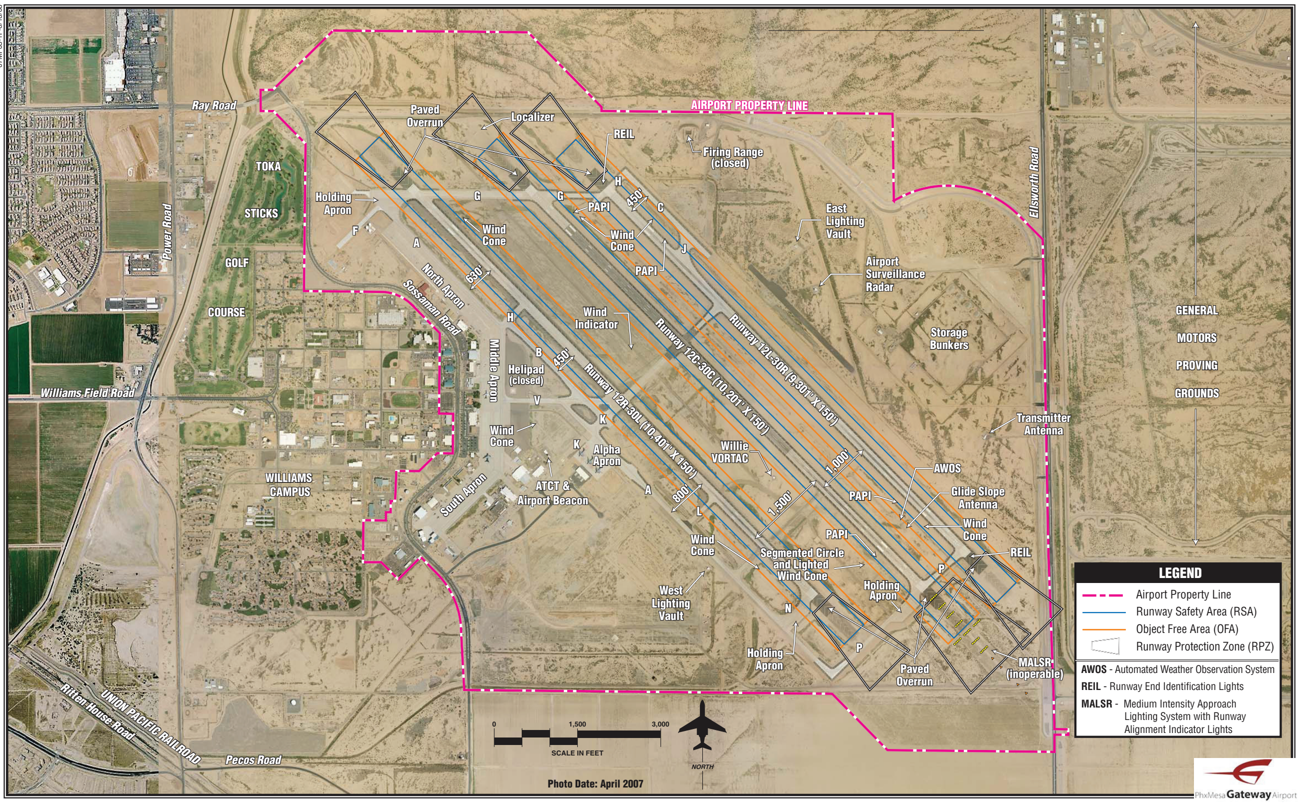


Exhibit 1F
EXISTING AIRFIELD FACILITIES

Table 3-1: Phoenix-Mesa Gateway Airport Airside Facilities

Runway Data Table			
	RUNWAY - 12L-30R	RUNWAY - 12C-30C	RUNWAY - 12R-30L
Runway Category	D-V	D-V	D-V
Runway Length	9,301	10,201	10,401
Runway Width	150	150	150
Pavement Type	CONCRETE	CONCRETE & ASPHALT	CONCRETE
Pavement Strength			
SWG	75,000	55,000	55,000
DWG	210,000	95,000	95,000
DTWG	590,000	185,000	185,000
DDTW	850,000	550,000	550,000
Runway Lighting	HIRL	HIRL	MIRL
Runway Marking	PRECISION	PRECISION	PRECISION
Approach Aids	REIL, PAPI-4L	PAPI-4L MALSR(30C)	N/A
Instrument Approach Aids	VISUAL ONLY	VOR/DME or TACAN 30C RNAV GPS RWY 12C & 30C ILS RWY 30C	RNAV GPS RWY 12R & 30L
Weather and Navigational Aids	Automated Weather Observation System (AWOS) Lighted Wind Cone Rotating Beacon Airport Traffic Control Tower (ATCT) Airport Surveillance Radar (ASR-8) Segmented Circle Localizer and Glideslope Antennas		

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

Taxiways

In addition to three runways, PMGA airfield also includes a series of parallel and connector taxiways, which facilitate the ease of aircraft movement on the airfield. Taxiways A and B provide primary access between the airfield and west side apron area. Taxiway A is not a full parallel taxiway, as it is separated into two disjointed sections, with a void between Taxiways H and V. The previous Master Plan recommended constructing the missing section of Taxiway A. The northern section of Taxiway A extends from Taxiway G to Taxiway H and is offset 612 feet from Runway 12R-30L, centerline to centerline. Taxiway A continues south from Taxiway V to Taxiway P at an offset distance of 787.5 feet. Both sections of Taxiway A are 75 feet wide. Taxiway B is 75 feet wide and offset 450 feet from Runway 12R-30L centerline.

Taxiway G is oriented from east to west, intersecting with all three Runway 12 ends. The segment from Taxiway B to Runway 12C is 150 feet wide. The portion from Runway 12C to Runway 12L is 75 feet wide. Taxiway H is 100 feet wide and extends from Runway 12R-30L to the north apron. Taxiway V is 100 feet wide and extends from the center portion of Runway 12R-30L to the middle apron. Taxiway K extends from Taxiway A to Runway 12L-30R. This taxiway is 150 feet wide except for that portion between Runway 12C-30L and Runway 12L-30R which is 100 feet wide. Taxiway L is 75 feet wide extending from Taxiway A to Runway 12R-30L.

Taxiway N provides access from Taxiway A to the Runway 30L threshold. This taxiway is 225 feet wide and has a hold apron. Taxiway P extends from Taxiway A to the Runway 30C and Runway 30R thresholds. Taxiway P has a hold apron prior to the Runway 30 C threshold and is 75 feet wide. Taxiway C is the eastside partial parallel that is 2,200 feet long and offset 450 feet from the Runway 12L-30R centerline. Taxiway J provides acute-angled access from Runway 12L-30R to Taxiway C. Taxiway W is located on the eastern portion of the middle apron. This taxiway is 75 feet wide. Taxiway T traverses the southeast portion of the south apron and is also 75 feet wide.

Aircraft Parking Apron

The main aircraft parking apron at PMGA totals approximately 233,000 square yards of concrete pavement and is divided in three sections as shown in Exhibit 3-5: Terminal Area Map. The north apron is approximately 89,000 square yards and primarily serves as a tie-down location for locally based aircraft. The middle apron is approximately 90,000 square yards and primarily serves the commercial passenger terminal area, and U.S. government functions.

When commercial passenger aircraft are on the ramp, a restricted area of approximately 12,000 square yards is in effect, which encompasses the immediate ramp area fronting the terminal building and the hangar to the south. The south apron is approximately 54,000 square yards and primarily serves existing industrial and commercial tenants, as well as several corporate aviation hangars.

3.2.4 Local and Regional Infrastructure

There have been several strategic planning efforts in this dynamic growing region. The following studies were reviewed and referenced to document the existing transportation infrastructure in the study area including data related to off-airport roadways, transit, bicycle and pedestrian networks, and regional connectivity:

- Mesa Proving Grounds Master Transportation Plan, DMJM Harris/AECOM, September 2008
- Superstition Vistas Scenario Report, September 2009
- Mesa Gateway Strategic Development Plan, HDR, January 2009

3.2.4.1 Regional Roadway Network

The study area for the Phoenix-Mesa Gateway Airport Northeast Area Development Study (PGMA-NADP) is bound by Warner Road to the north, Power Road to the west, Germann Road to the south and Ellsworth/Signal Butte Roads to the east. Refer to Exhibit 3-6: PGMA-NADP Study Area Map.

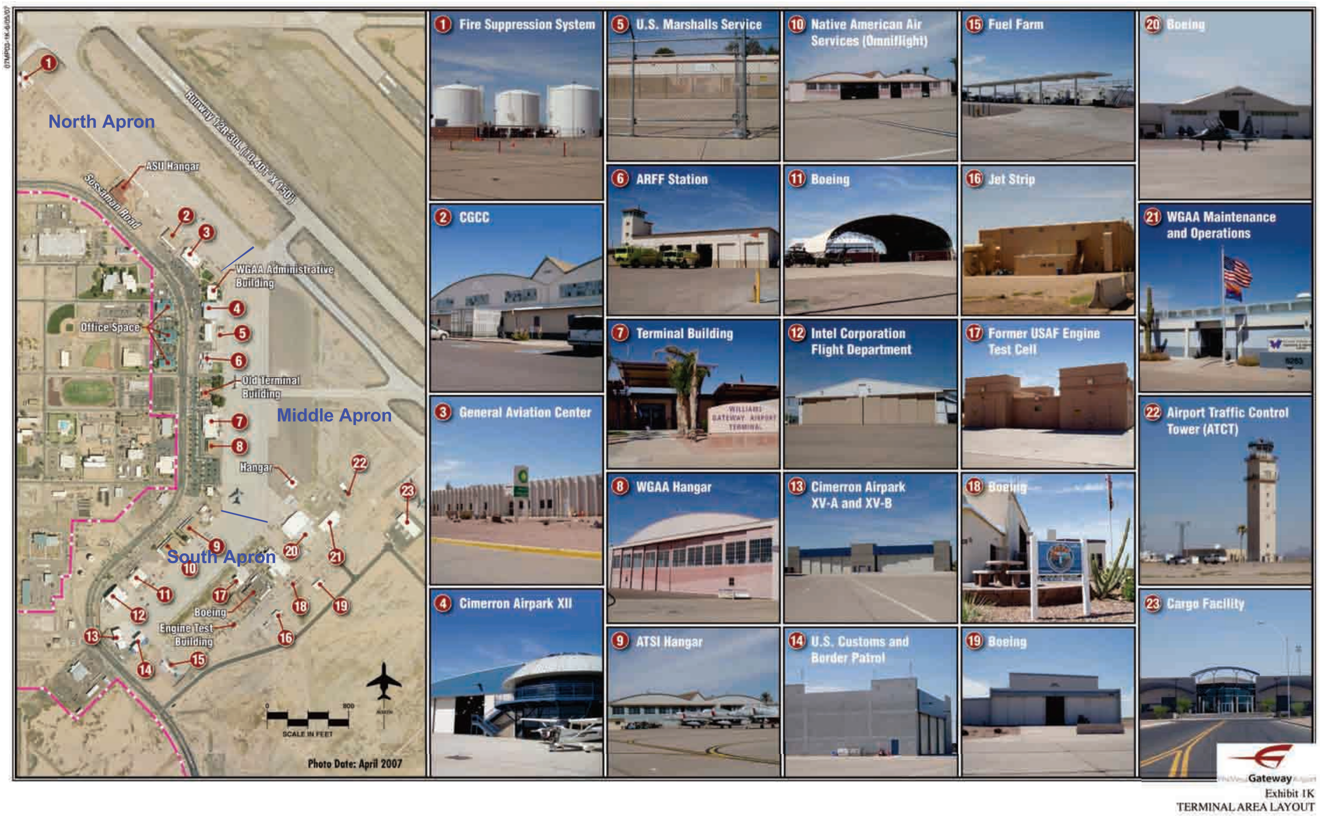
The major roadways that currently border the study area include Warner Road, Ray Road, Sossaman Road, Pecos Road, Germann Road, Hawes Road, Williams Field Road, Power Road, Ellsworth Road and L202 Santan Freeway.

L202 Santan Freeway provides regional access to the study area with traffic interchanges (TIs) located at Power Road, Elliot Road and Hawes Road close to the site. All of these TI ramp intersections are built out to their ultimate configuration. The segment of L202 adjacent to the study area has seven (7) travel lanes: three (3) northbound travel lanes and four (4) southbound travel lanes.

Warner Road is a two-lane east-west roadway and serves as the north boundary of the study area. It currently has one (1) lane in each direction with a posted speed limit of 45 mph. It extends between Sossaman Road and Ellsworth Roads and does not connect to Power Road to the west.

Ray Road is a east-west arterial and has 3 lanes in the eastbound direction and 2 lanes in the westbound direction between Recker Road and Power Road. The posted speed limit is 45 mph. East of Power Road it becomes a 4 lane arterial with two lanes in each direction and extends to Ellsworth Road further to the east. The new section of Ray Road from Sossaman Road to Ellsworth Road has one (1) travel lane in each direction with new traffic signals at the

Exhibit 3-5: Terminal Area Map



intersections of Ray Road with Sossaman Road and Ellsworth Road. Recently constructed Hawes Road provides access from L202 directly to Ray Road.

Sossaman Road is a north-south arterial (parkway), with 2 lanes in each direction, connecting Ray Road to Pecos Road. The posted speed limit is 35 mph. South of Pecos Road, Sossaman Road is a two-lane roadway. The intersections with Tahoe Avenue and Texas Avenue are signalized.

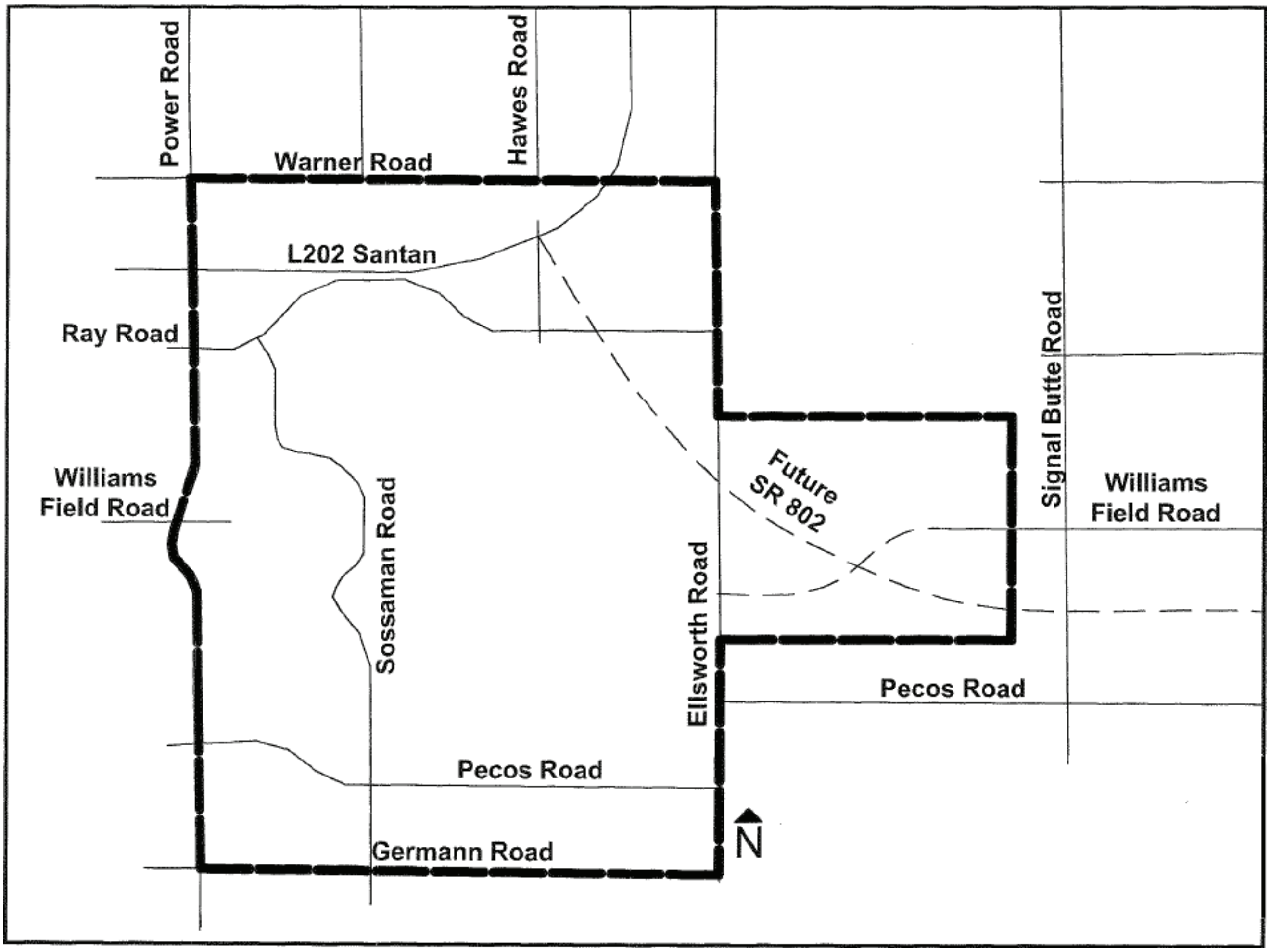
Ellsworth Road borders the study area to the east and is a north-south major arterial. The roadway has recently been constructed to provide two (2) lanes in each direction with a raised center median and a bike lane on the eastern side of the road. The posted speed on Ellsworth Road is 45 mph.

Signal Butte Road borders the study area to the east and serves as a north-south major arterial. It currently has one (1) lane in each direction along with a center turn lane. The posted speed limit is 35 mph.

Williams Field Road is an east-west major arterial and consists of one (1) lane of traffic in each direction with a posted speed limit of 45 mph.

Pecos Road is an east-west arterial with (1) one lane in each direction. The posted speed limit is 45 mph. The intersection with Power Road is signalized. The intersections with Sossaman Road and Ellsworth Road are signalized. Pecos Road currently ends at Ellsworth Road at the west end and is signalized.

Exhibit 3-6: PMGA-NADP Study Area Map



Germann Road is an east-west arterial with (3) three lanes in each direction between Power Road and 187th Street. East of 187th Street it has (1) one lane in each direction all the way to Ellsworth Road. The posted speed limit is 45 mph between Power Road and Ellsworth Road except from 188th Street to Rittenhouse Road where the posted speed limit is 35 mph. The intersections with Power Road, Rittenhouse Road, and Ellsworth Road are signalized.

Hawes Road, which was recently constructed, extends south of L202 to Ray Road. This new section of Hawes Road has one (1) travel lane in each direction.

Power Road is a north-south major arterial with (2) two lanes in each direction between Warner Road and Williams Field Road. South of Williams Field Road to Pecos Road the roadway becomes (1) one lane in each direction. South of Pecos Road it has (3) three lanes in the southbound direction, and (2) two lanes in the northbound direction to Rittenhouse Road. South of Rittenhouse Road there are (3) three lanes in each direction. The posted speed limit is 45 mph. The intersections with Warner Road, the L202 Ramps, Orchid Lane, Ray Road, Galveston Street, Williams Field Road, Pecos Road, Rittenhouse Road, and Germann Road are signalized.

3.2.4.2 Airport Roadways

The Airport, which sits on over 3,000 acres, is strategically located near the southeastern edge of Maricopa County, and approximately six miles northwest of neighboring Pinal County. Following the closure of Williams Air Force Base in 1991, the PMGA, which has been considered a reliever facility for Sky Harbor International Airport and as an aerospace center focused on research and education in metropolitan Phoenix. The towns of Queen Creek to the south and Gilbert to the west are immediately adjacent.

The Airport's airside operations are centered on three parallel facilities that run northwest to southeast. Landside operations are diverse, with a 23,700 square foot passenger terminal and associated amenities, aircraft storage hangars, fuel farms, cargo facilities, aviation training facilities, and a Federal Aviation Administration (FAA) repair station.

3.2.4.3 Public Transportation

The Regional Transportation Plan identifies a moderate expansion of the regional transit network within the study area.

Existing Transit Service

Based on the 2007 Existing Transportation Conditions Memorandum documented as part of the Mesa Gateway Strategic Development Plan, the following documents the transit network within the PMGA-NADP study area.

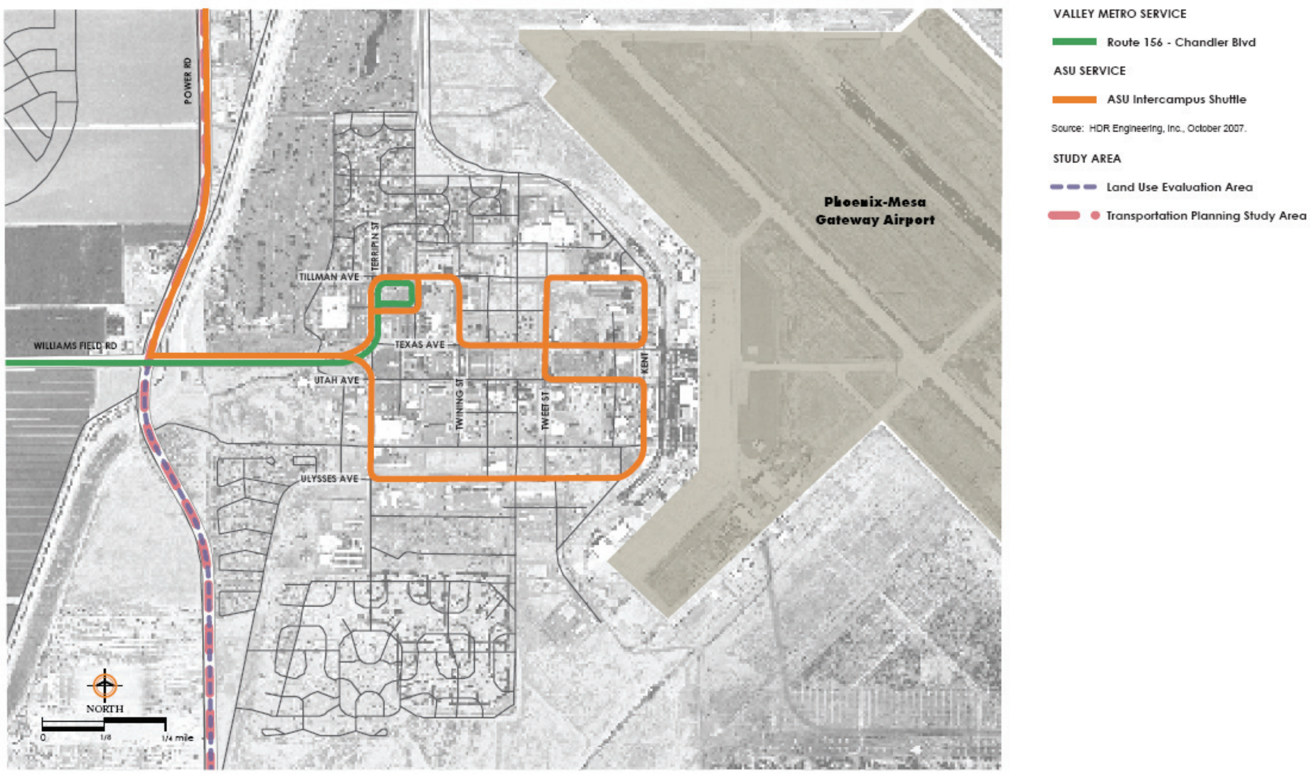
The existing public transit services operating within the study area include a limited number of Valley Metro bus routes and an intercampus shuttle that operates between Arizona State University's (ASU) Tempe campus and the Polytechnic campus which is located west of the current airport passenger terminal. As of January 2011, the Valley Metro bus system also extends service to the airport passenger terminal facilities.

Valley Metro bus service is limited to the western portion of the Mesa Gateway Transportation Planning Study Area. Service is limited to five local bus routes and one express route. All of the routes with the exception of one serve the Superstition Springs Mall located near Power Road and US 60. The only route that does not serve the mall is Route 156 (Williams Field Road/ Chandler Boulevard). This route was extended to serve the ASU Polytechnic Campus in July 2007. The route primarily operates on Williams Field Road/Chandler Boulevard between the ASU Polytechnic campus and Desert Foothills Parkway in Phoenix. Destinations served by Route 156 include Gilbert Mercy Hospital, Chandler-Gilbert Community College, Chandler Regional Hospital, and Chandler Fashion Mall.

Service is provided between ASU's Tempe campus and Polytechnic campus through the university's intercampus shuttle. The shuttle provides non-stop express service between both campuses with one exception stop at the Gilbert Gateway Towne Center located near Power Road and Ray Road.

The existing transit network in the study area is illustrated by Exhibit 3-7: Existing Transit Network.

Exhibit 3-7: Existing Transit Network

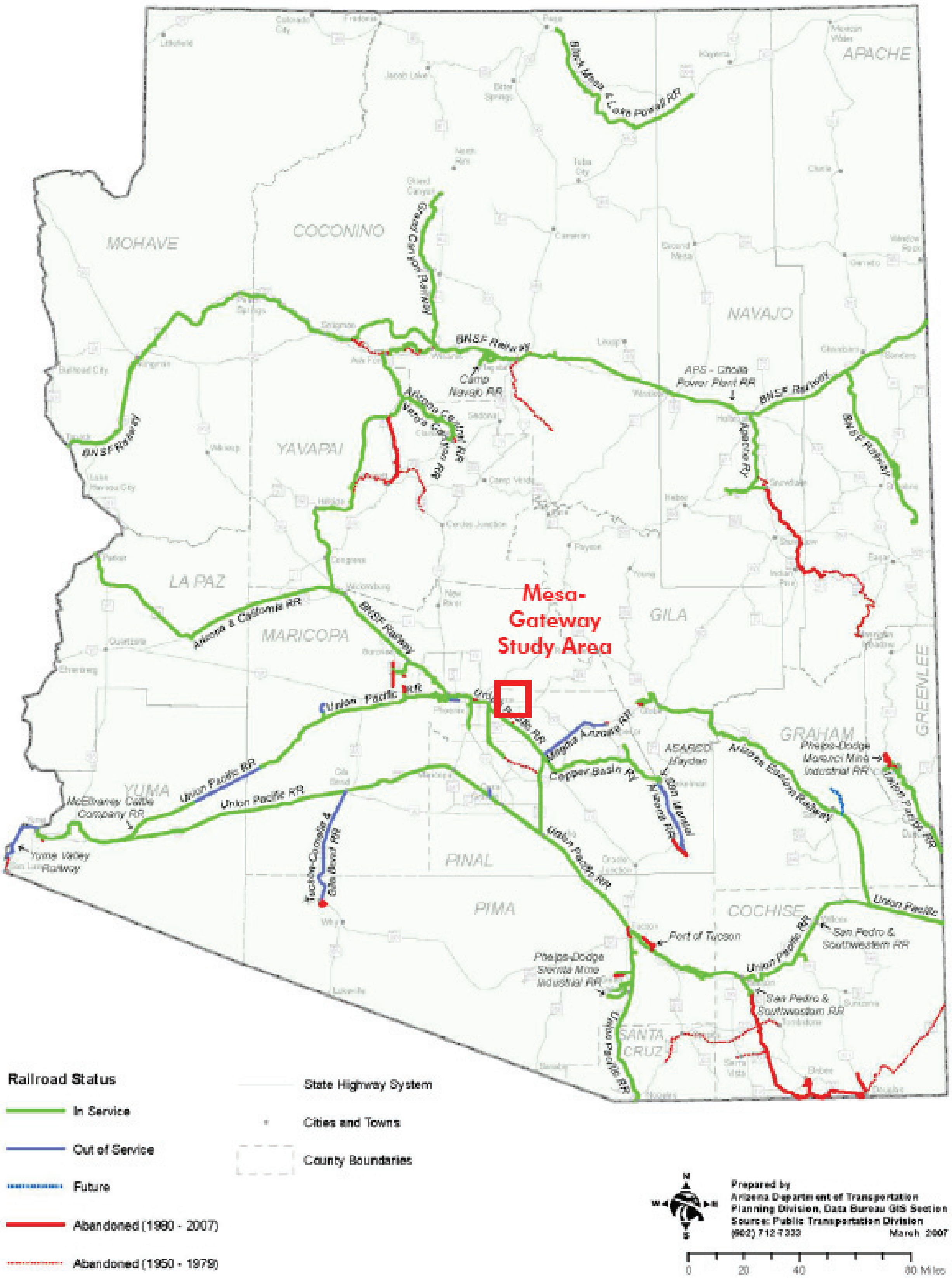


Source: Mesa Gateway Strategic Development Plan, October 2007

Existing Railroads

The Union Pacific Railroad is located close to the study area. Currently, Union Pacific Railroad runs six to eight trains per day in the corridor near the study area (reference Exhibit 3-8: Existing Railroads). Maricopa Association of Governments (MAG) is conducting a commuter rail study to study the feasibility of implementing passenger rail service between outlying suburbs and central Phoenix.

Exhibit 3-8: Existing Railroads



Existing Bicycle Facilities

The City of Mesa's Transportation Plan incorporates the Bicycle Plan as an important multi-modal element of its transportation network. Bicycles are allowed on all roadways within Mesa with the exception of the freeways. Bicycle destinations include schools, parks, shopping centers, and some employment sites.

Bike lanes in the City of Mesa are of two types: either as a painted shoulder, or a shared lane with parking. Bike lanes are typically 6 feet in width or 12 feet in width if shared with parked cars. The existing bike paths are along the Crosscut Canal (2 miles) and the RWCD Canal (2 miles).

Recent Improvements (2009)

- Ellsworth Rd: Baseline Rd to Guadalupe Rd (1 mile of bike lanes)
- Gilbert Rd: Main St to Brown Rd (1 mile of bike lanes)
- Mesa Dr: McKellips Rd to University Dr (2 miles of bike lanes)
- Sossaman Rd: US-60 to Baseline Rd (0.5 mile of bike lanes)
- Sossaman Rd: Power Rd to Velocity Way(2.5 miles of bike lanes)
- Southern Ave: Stapley Dr to Harris Ave (0.5 miles of bike lanes)
- University Dr: Dobson Rd to Alma School Rd (1 mile of bike lanes)
- University Dr: Robson to Mesa Dr (0.8 mile of bike lanes)
- University Dr: Hall to Gilbert Rd (0.4 mile of bike lanes)
- Val Vista Rd: Hampton Ave to Baseline Rd (0.75 mile of bike lanes)

Existing Pedestrian Facilities

Pedestrian travel in the City of Mesa typically occurs on sidewalks adjacent to a city street. The current City of Mesa Design Guidelines require four-foot sidewalks on residential streets and six-foot sidewalks on collector and arterial streets, including the sidewalk on Main Street and Country Club Drive.

Many trip destinations are located along arterial streets where sidewalks typically abut the curb. Some areas have sidewalks that are separated from the curb, which provides a more attractive walking experience than areas where the sidewalk abuts the curb.

3.2.4.4 Site Utilities – Airport Area

This section will provide an overview of existing utility infrastructure in the Mesa Gateway area in support of development for the PMGA NADP. This overview includes a discussion of municipal utility services and features, namely: water, wastewater, drainage, electric, gas, and fiber optic lines.

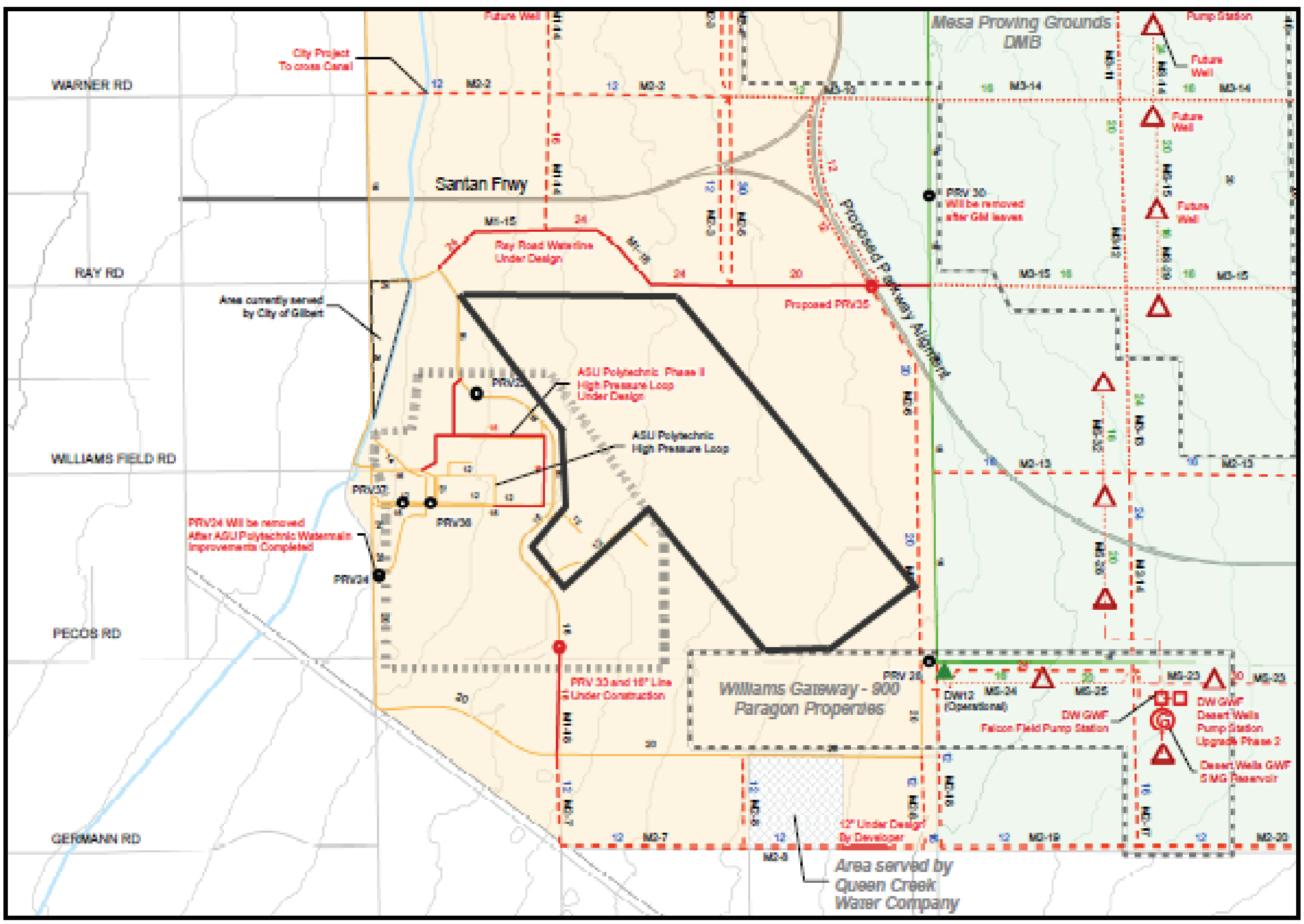
It is important that utility infrastructure is considered as part of the strategic planning process to ensure sufficient support is in place or planned for proposed land use for the Phoenix-Mesa Gateway area.

Water

Aside from a very small area south of the PMGA, which is served by Queen Creek private water company, the City of Mesa is the designated municipal provider of water service for the study area. The Mesa Gateway area falls into the region designated as "Off Project" which refers to land outside of the boundaries which can be served by the Salt River Project (SRP). This zone receives an average of 45 million gallons of water per day (MGD) from the Central Arizona Project (CAP) Canal through the City's Brown Road CAP water treatment plant. In addition, groundwater supplies from wells supplement the CAP water. In the last 10 years, the "Off Project" area demand has more than doubled.

The Airport area is within the Falcon Field Pressure Zone. There is an existing 16pinch water line running north-south along Sossaman Road which supplies the airport with two 12-inch lines. New 20-inch and 24-inch water lines are being installed along the north boundary of the Airport. See Exhibit 3-9 for the water services map.

Exhibit 3-9: Water Services



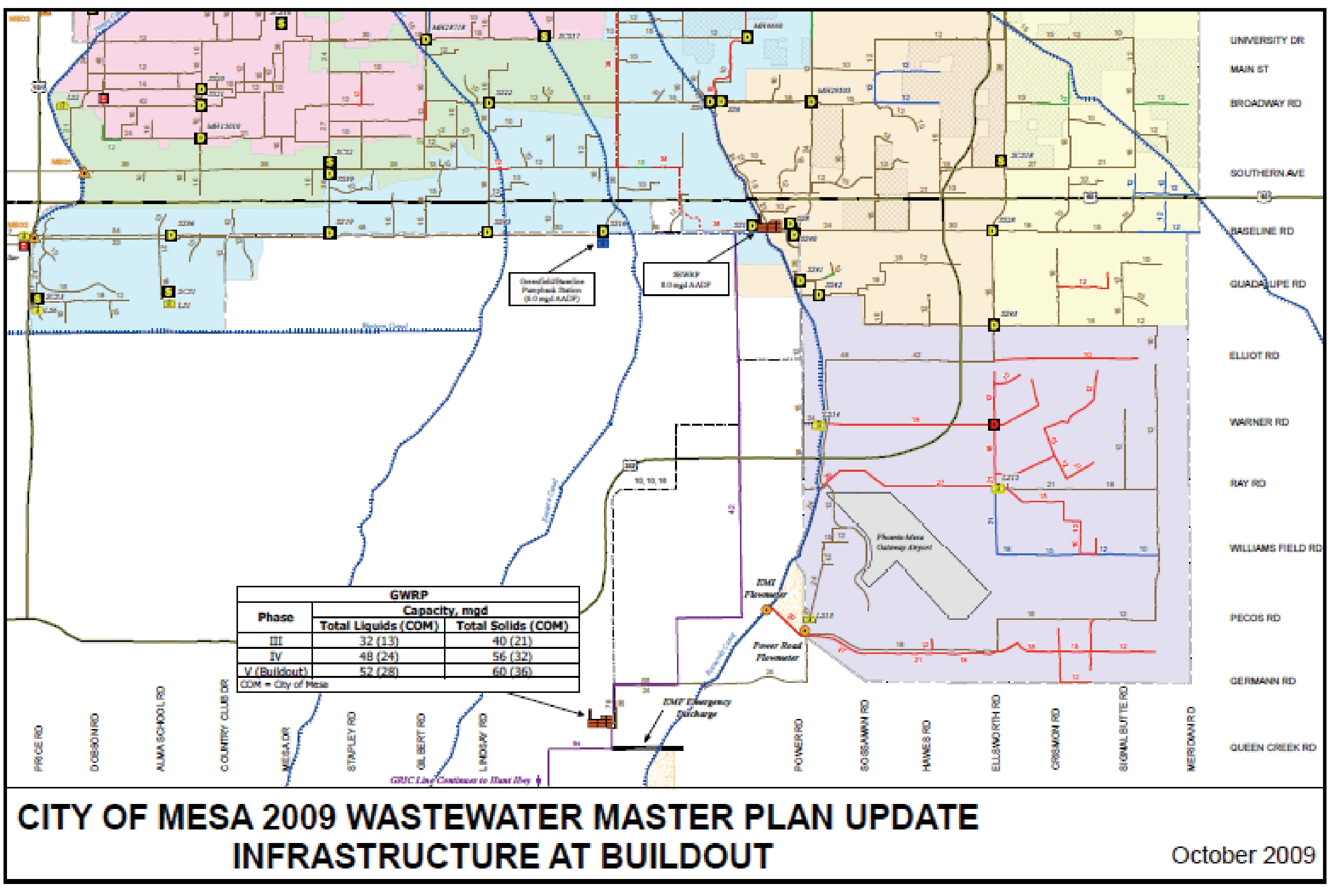
Wastewater

The City of Mesa is the provider for wastewater collection and treatment for the incorporated area of the city which includes the PMGA. The city has three reclaimed wastewater facilities to treat and provide for a variety of reuse opportunities. These include the Northwest Water Reclamation Plant (NWWRP), Southeast Water Reclamation Plant (SEWRP), and the Greenfield Water Reclamation Plant (GWRP).

The GWRP serves the Phoenix-Mesa Gateway area and is located within the Town of Gilbert on the west side of Greenfield Road between Germann Road and Queen Creek Road. This facility was recently completed and is jointly owned by the City of Mesa and the Towns of Gilbert and Queen Creek. Mesa's current ownership is 4 MGD. The ultimate capacity of this plant is projected to be 52 MGD, with Mesa's ownership set at 24 MGD. Mesa's reclaimed water from this plant is delivered to the Gila River Indian Community in exchange for CAP water. The existing (and proposed) collection system serving the Mesa Gateway Area is shown in Exhibit 3-10.

With the recent completion of the GWRP, the entire area south of Elliot Road, including the PMGA flows south and west to the plant. 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 GWRP.

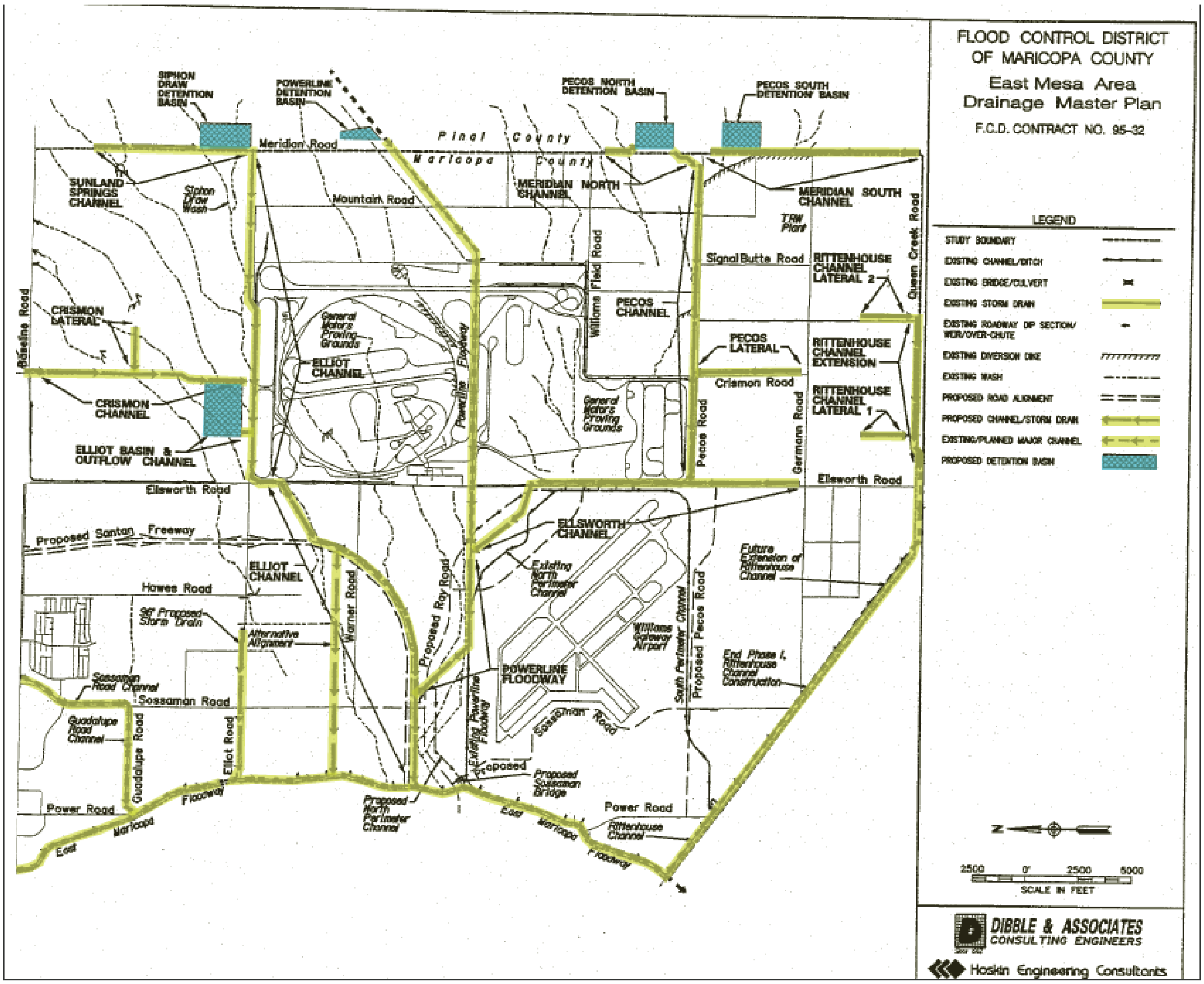
Exhibit 3-10: Wastewater Facilities



Drainage

The city storm drainage in the study area has been addressed in the East Mesa Area Drainage Master Plan, 1998. This plan was prepared for the Flood Control District of Maricopa County (FCDMC), who partners with the city to address drainage and flood control issues.

Exhibit 3-11: Drainage Features



Storm flows in the Project area generally flow from northeast to southwest. The Superstition Freeway (US 60), CAP canal, East Maricopa Floodway, and Rittenhouse Channel form major drainage boundaries to the north, east, west, and south, respectively. Runoff is concentrated upstream of the CAP canal and discharged over the canal in over-chutes. The Superstition Freeway has a system of collector channels and detention basins that collect runoff and discharge the detained flows under the freeway. A system of channels and basins is used to capture, store, and convey flows within the Project area. The Mesa Proving Grounds and the PMGA occupy a substantial portion of the Mesa Gateway area and include significant drainage features. The Proving Grounds present a four-mile long barrier to runoff. Runoff reaching this area is diverted either around the north and south property boundaries, or through the site in the Powerline Floodway. The PMGA handles off-site flows similarly; perimeter channels divert flows around the north and south boundaries to the East Maricopa Floodway. Sheet flow, ponding, and some flooding is still common in undeveloped portions of the study area, the result of the extremely flat topography.

Key drainage features are highlighted on the Drainage Features graphic accompanying this section. (see Exhibit 3-11) Discussion of key features (existing and proposed) in the Project area follows:

- Sossaman Road Channel: receives channelized flows from US 60 and conveys them south along Sossaman Road and west along Guadalupe Road to the East Maricopa Floodway.
- Elliot Channel: receives flows from north and east and conveys them along Elliot Road to the L202 drainage system, thence west to the East Maricopa Floodway.
- Powerline Floodway: conveys flows from east of the Mesa Proving Grounds, west along the Williams Field Road alignment to the East Maricopa Floodway.
- Pecos Road/Ellsworth Channels: flows west from the Pinal County line along Pecos Road, thence north along Ellsworth Road to the Powerline Floodway Phoenix-Mesa Gateway Airport North and South Perimeter Channels: convey flows from the east around the Airport and into the Powerline Floodway and Rittenhouse Channels, respectively.
- East Maricopa Floodway: runs north-south along approximately the Power Road alignment, receives flows from the north and east including via the Sossaman Road, Elliot Road, Elliot Channels, and the Powerline Floodway and then conveys them to the Rittenhouse Channel at the southwest corner of the Project area.
- Rittenhouse Channel: the major regional floodway in the area - runs northwest southeast along the extreme southwest corner of the Mesa Gateway area, receiving flows from the East Maricopa Floodway and other smaller channels including Rittenhouse Channel Extension along Queen Creek Road at the study area southern boundary.
- Basins: strategically located to moderate flows in several areas including along Elliot Road, Siphon Draw, and the extreme east end of the Pecos Road channel.

Electric

SRP is the certified provider for electric power to the study area. Their 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 Dinosaur substation on Germann Road at the CAP canal and Moody substation south of Pecos and Recker Roads. SRP currently serves the study area from five distribution substations.

There are existing substations located adjacent to the study area with four more currently planned. Additional facilities can be built to meet the demand of build out within the Phoenix-Mesa Gateway area. SRP also has the capability of expanding facilities to accommodate growth in this area. A public process is generally necessary for right-or-way/easement acquisition particularly if new facilities are proposed in the area of existing transmission lines. The location of existing and planned major power lines and substations are shown on the map. (reference Exhibit 3-12)

Establishment of large industrial loads and data centers over approximately 10 MW require new lines and substations. SRP typically works with developers and the City to adequately prepare for anticipated electrical demand for projects such as the Mesa Proving Grounds and the PMGA area. SRP's proposed Morong-McPherson 69 kilovolt (kV) line and increased transformer capacity in surrounding substations will continue to provide reliable electricity in Mesa.

Exhibit 3-12: Power Lines And Substation Facilities

One of the main items is to understand the location, nature and timing of development in the area, so that the appropriate facilities can be provided in a timely manner. It is also important that SRP be provided with information regarding densities and the nature, phasing and timing of areas that are planned for greater densities. High density loads, such as large industrial customers and mid to high-rise buildings greater than 3 stories in height, may require additional electrical infrastructure. Finally, SRP plans to further explore their role regarding the concepts of sustainability and energy efficiency that will be considered in the development of this study.

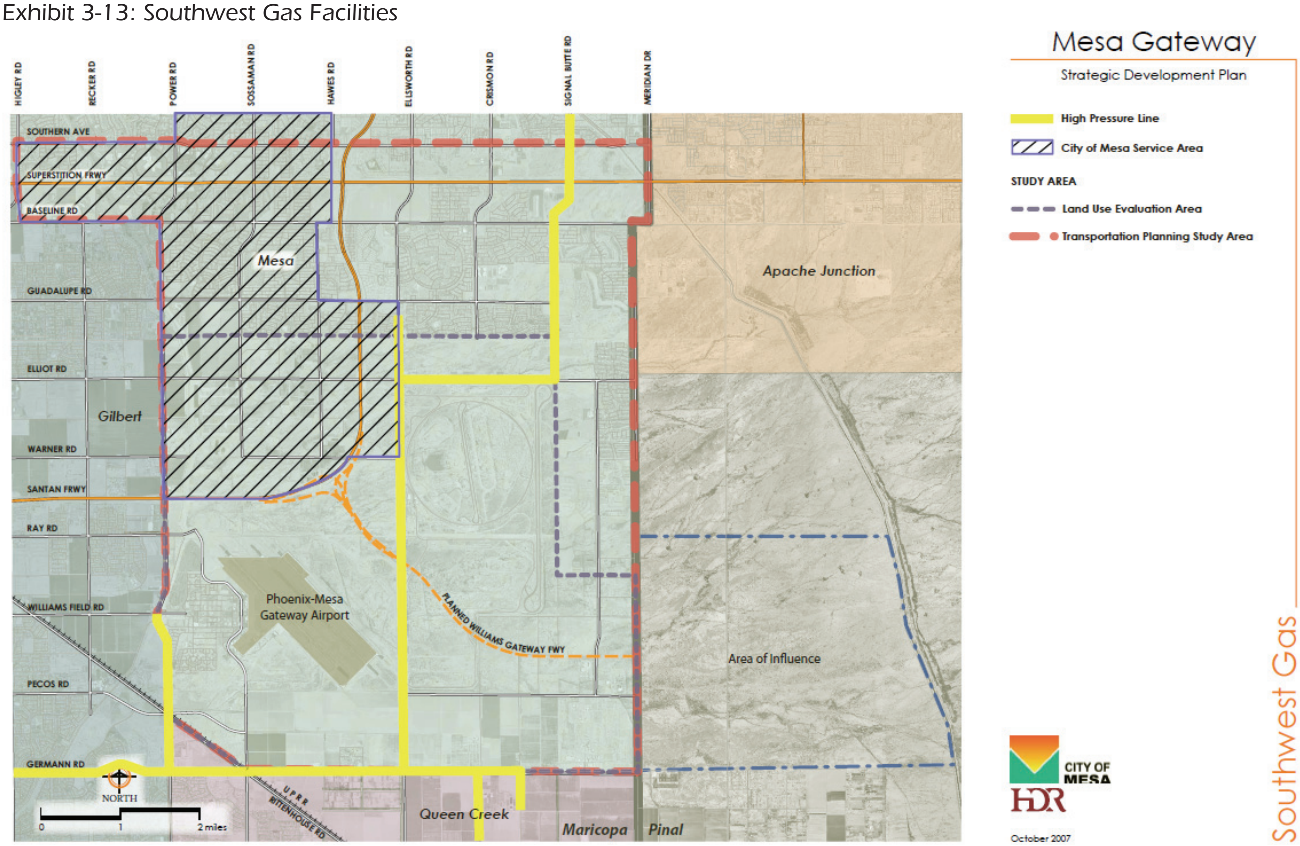
Recent revision to the SRP system include Substation F will actually move further south along Williams Field Road Alignment.

Natural Gas

Southwest (SW) Gas is the natural gas provider for the majority of the Mesa Gateway area. The only area not served by SW Gas is within the L202 area, which is served by the City of Mesa. Currently, the study area is surrounded by both low and high pressure distribution lines. The high pressure line runs along Signal Butte Road in the northeast part of the area and turns west on Elliot Road. At Ellsworth Road, the line runs from Guadalupe on the, past the Phoenix-Mesa Gateway area to Germann Road. This line continues east and west along Germann Road beyond the west boundary of the study area and east to Crismon Road. An additional high pressure line also runs along Pecos Road from Ellsworth Road east of Signal Butte Road. (see Exhibit 3-13)

With regard to future growth and development, SW Gas has the capability to accommodate future needs within the study area without any interruptions to service.

Exhibit 3-13: Southwest Gas Facilities



Fiber Optic

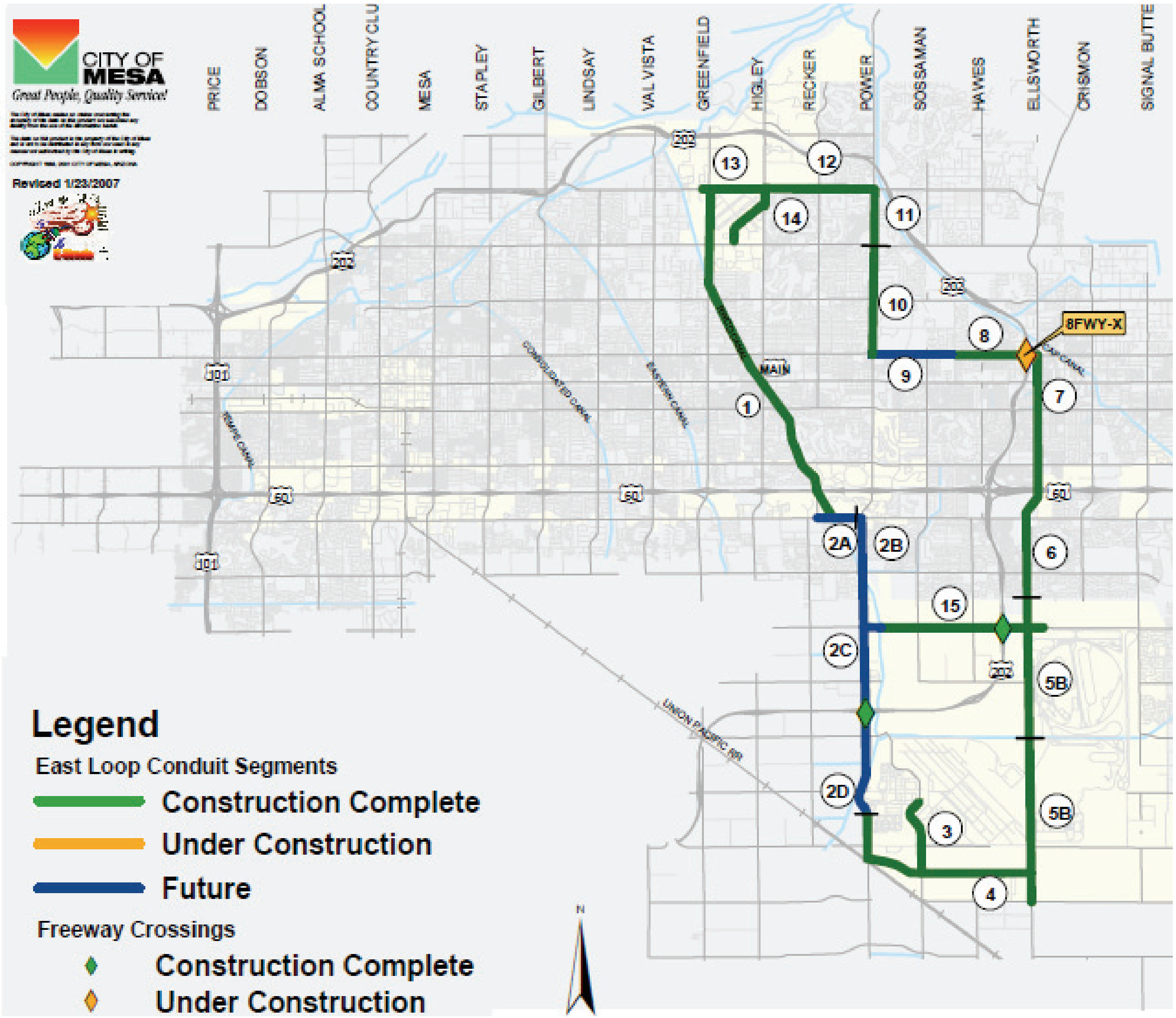
Construction of the E-streets East Mesa Loop began in 2001 to build a professionally engineered carrier class conduit/vault system for both commercial and government uses. The designed loop contains a unique conduit bank design, large operational vaults at every major street crossing, access manholes to eliminate the need to cut the street and independent test points for the utility locators to access without exposing the fiber infrastructure.

The goal of the Loop is two fold: to further develop the broadband markets in three of Mesa's growing employment centers and to meet the city's needs. Additional conduit extensions (laterals) along Elliot and Ellsworth Roads reach into Falcon Field, PMGA, and the Arizona Health and Technology Park, with the goal of providing conduit to deploy fiber optic connectivity quickly for commercial needs.

To date, a majority of the E-Streets East Mesa Loop has been constructed. The backbone route consists of over 36-miles of 12 two-inch conduits with access points at every major street crossing. 100 percent of the conduit system is buried, lowering chances of network interruptions. See Exhibit 3-14 for City of Mesa Fiber Optic Network.

Although there is currently no fiber in place, the 12 conduits have been identified for the type of user to which they are available. As the city uses this infrastructure to meet municipal needs, private companies also can purchase conduits and access to vaults to deploy fiber optic connectivity quickly for commercial needs. The city offers this unique opportunity for commercial entities to acquire conduits at a cost that covers the city's expenses of installing the infrastructure.

Exhibit 3-14: City Of Mesa Fiber Optic Network Facilities



3.2.5 Properties and Leaseholds

PMGA has several national and international aviation tenants with business interests on the airport. The leaseholds and on airport operations provide a significant portion of the Airport's annual revenue and jobs for the local economy. Some of the larger tenants at PGMA include – Arizona State University, Boeing, Cessna, Chandler-Gilbert Community College, Embraer, L-3, U.S. Customs & Border Patrol, U.S. Forest Service, and U.S. Marshalls. Exhibit 3-15: Leasehold Map, identifies existing leaseholds on PMGA in November 2006.

3.2.6 On-Airport Land Use

The focus of this study is the planned development of the northeast area, this section will detail the existing land uses and operational areas of the Airport. Commercial service functions at PMGA must be adequately accommodated prior to development of additional general aviation facilities. PMGA is fortunate to have extensive land reserves and can likely accommodate both commercial operations as well as the needs of local and transient general aviation users.

The PMGA Authority has been proactive in ensuring that activity at the Airport is appropriately separated and that adjacent land uses are compatible. The major activity centers of the Airport, such as the general aviation ramp and the commercial passenger terminal building area, are distinct and separate from each other. The existing development has followed recommended strategies to ensure the long term efficiency of the Airport.

Exhibit 3-16: On-Airport Land Use presents existing land uses for airport property. The north ramp on the west side of the airfield has long been identified for general aviation purposes. The PMGA Authority owned fixed base operator (FBO) is located in this area, as are aircraft tie-downs, and both Arizona State University and Chandler- Gilbert Community College have their flight schools in this area. A hangar complex with 37 T-hangar units and 34 box hangars was constructed in 2008. In addition, both Cessna and Embraer have recently constructed business jet service centers in this location.

The south ramp has been used for aircraft maintenance operations and corporate aviation. The middle ramp serves a limited general aviation function, accommodating the U.S. Marshals Service operations and the hangar immediately south of the administration building. The current passenger terminal area occupies the southern portion of the middle apron.

Exhibit 3-15: Leasehold Map - North Aviation Area (January 2012)

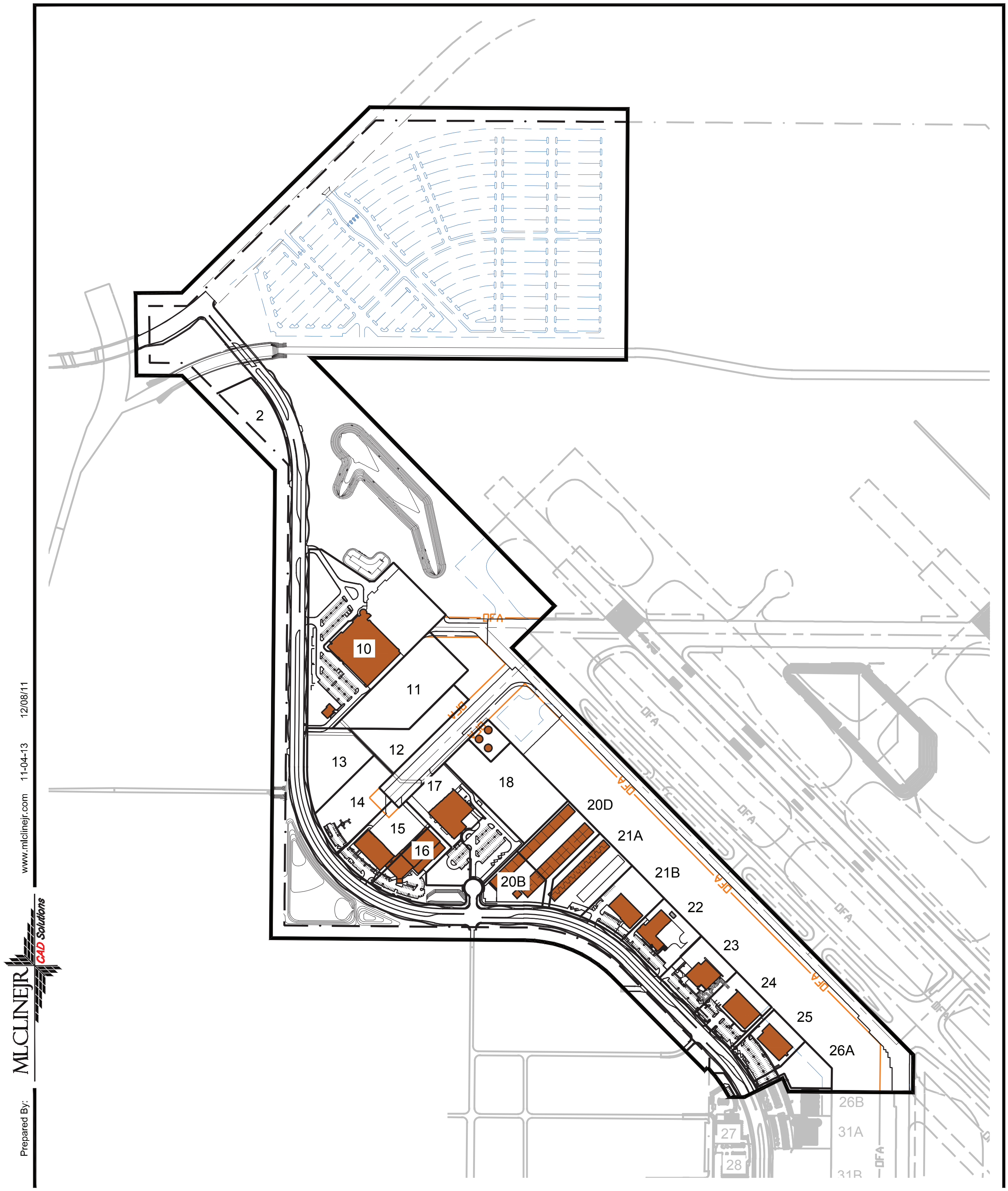


Exhibit 3-15: Leasehold Map - Central Aviation Area (January 2012) (Continued)

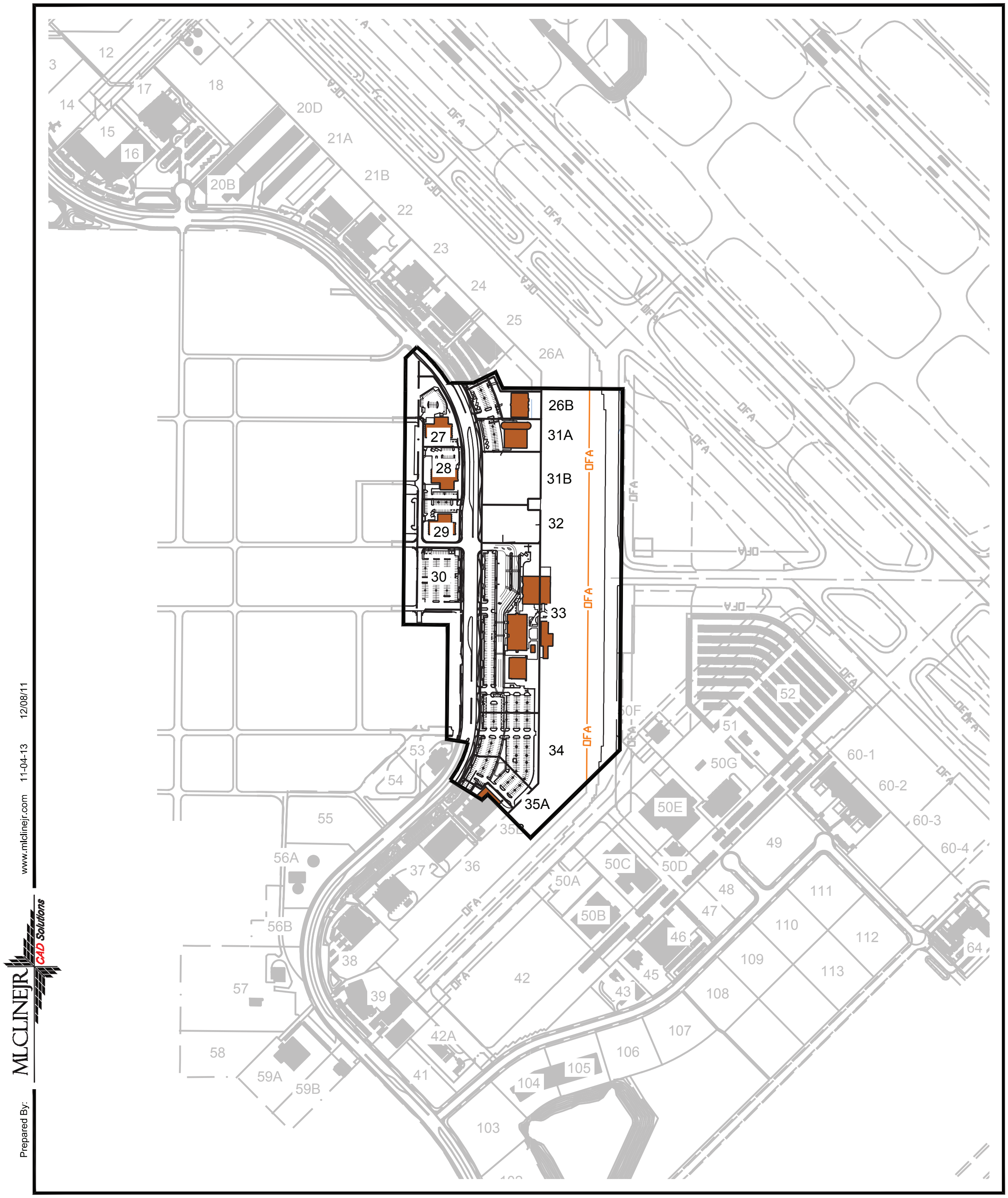
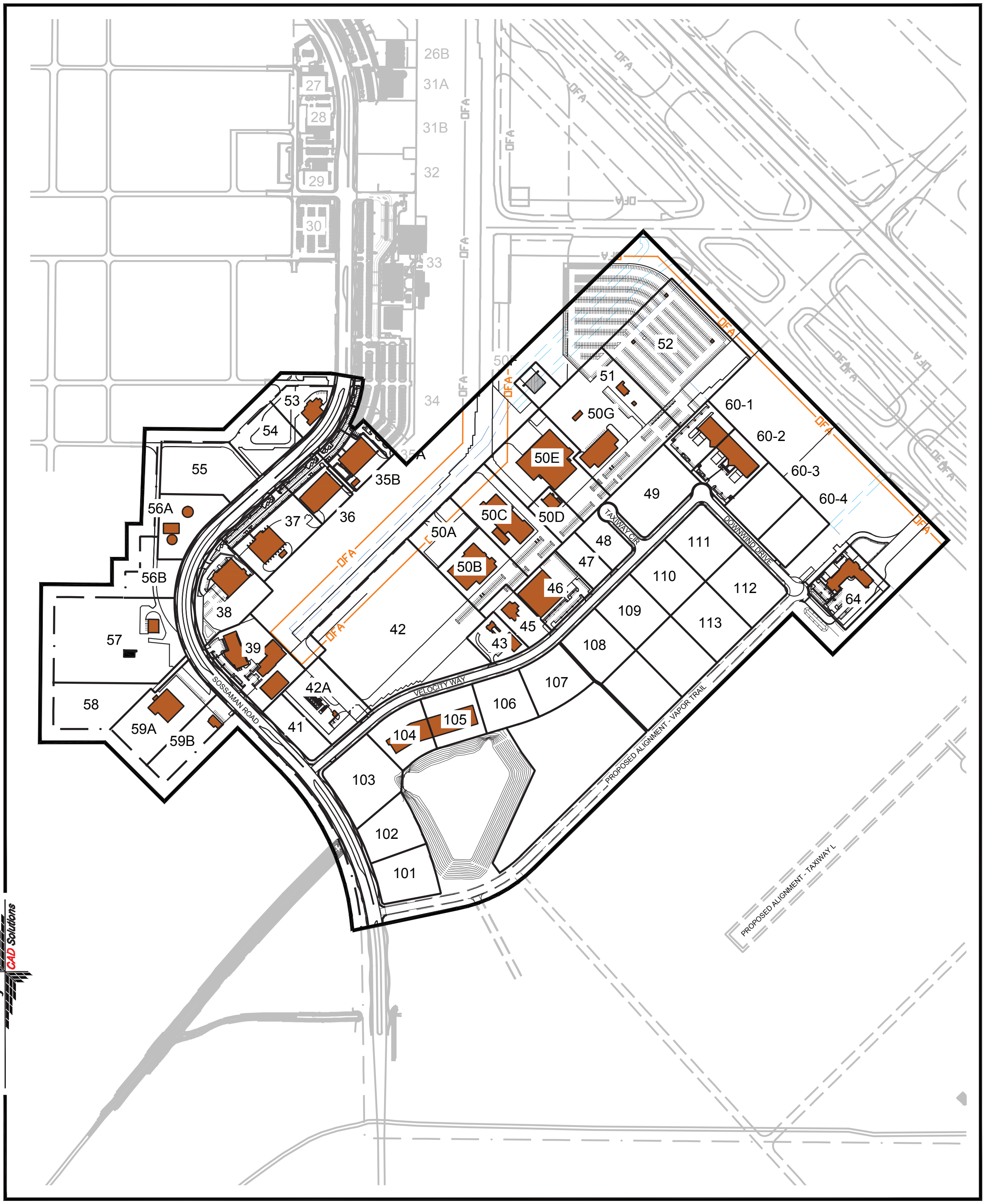


Exhibit 3-15: Leasehold Map - South Aviation Area (January 2012) (Continued)



3.2.7 Aircraft Fuel Farm

The aviation fuel farm, which was constructed in 2006, is located to the south of the south apron. There are six 25,000-gallon Jet A aboveground fuel tanks and one 12,000-gallon Avgas tank. The fuel farm is enclosed with a seven-foot high masonry wall and chain link fence with three strands of barbed wire. A key card is required to access to the fuel farm.

The terminal area ramp is not equipped with a hydrant fueling system. Therefore, PGMA utilizes fuel delivery vehicles to transport fuel from the fuel farm to awaiting aircraft on the ramp. There are five Jet A fuel trucks, two of which have a capacity of 5,000 gallons, two have a capacity of 10,000 gallons, and the last one has a capacity of 3,000 gallons. PGMA uses two 1,500-gallon and one 1,200-gallon Avgas fuel trucks. There is no self-serve fuel available at the Airport.

3.3 Local Land Use and Zoning

Current and planned land uses in the vicinity of the Airport can have a significant impact on airport operations and growth. This section identifies baseline information relating to both existing and future land uses in the vicinity of PMGA. Generalized existing land uses that surround the Airport are presented on Exhibit 3-17: Existing Off-Airport Land Use. To the south in Mesa, agricultural land uses are prominent on both sides of Pecos Road. Slightly further south is some residential development. The former General Motors (GM) proving grounds are to the east, which has been purchased by private developers who currently working with the City of Mesa planning officials for planning approval for mixed-use development. The area to the immediate west of the Airport is reserved for educational purposes. Arizona State University Polytechnic and Chandler-Gilbert Community College occupy the majority of this property. West of Power Road is the Town of Gilbert, which is home to residential and agricultural uses. To the north is predominantly undeveloped land in the City of Mesa and Maricopa County.

The development pressure on the agricultural or vacant lands surrounding the Airport is significant. Arizona Revised Statute (ARS) 28-8486, Public Airport Disclosure, requires public airport owners to publish a map depicting the “territory in the vicinity of the airport.” This area is defined as the traffic pattern airspace and property that experiences a 60 day-night noise level (DNL) or higher in counties with a population of more than 500,000, and 65 DNL or higher in counties with less than 500,000 residents. The DNL is calculated for a 20-year forecast condition. ARS 28-8486 requires the State Real Estate Office to prepare a disclosure map in conjunction with the airport owner that is recorded with the county. The PMGA public disclosure boundary is depicted on Exhibit 3-18: Traffic Pattern and Airspace Map.

Exhibit 3-16: On-Airport Land Use

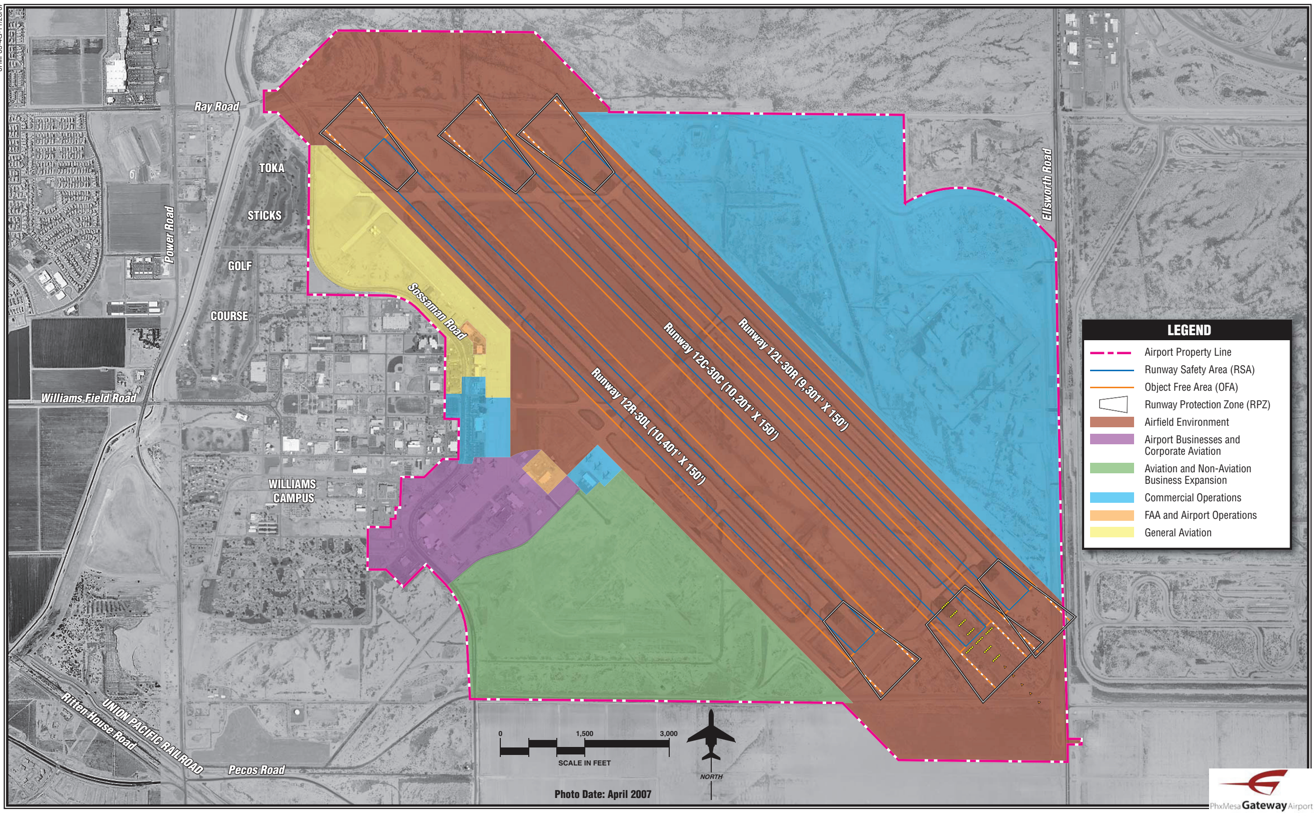


Exhibit 4G
GENERALIZED LAND USE

Exhibit 3-17: Existing Off-Airport Land Use

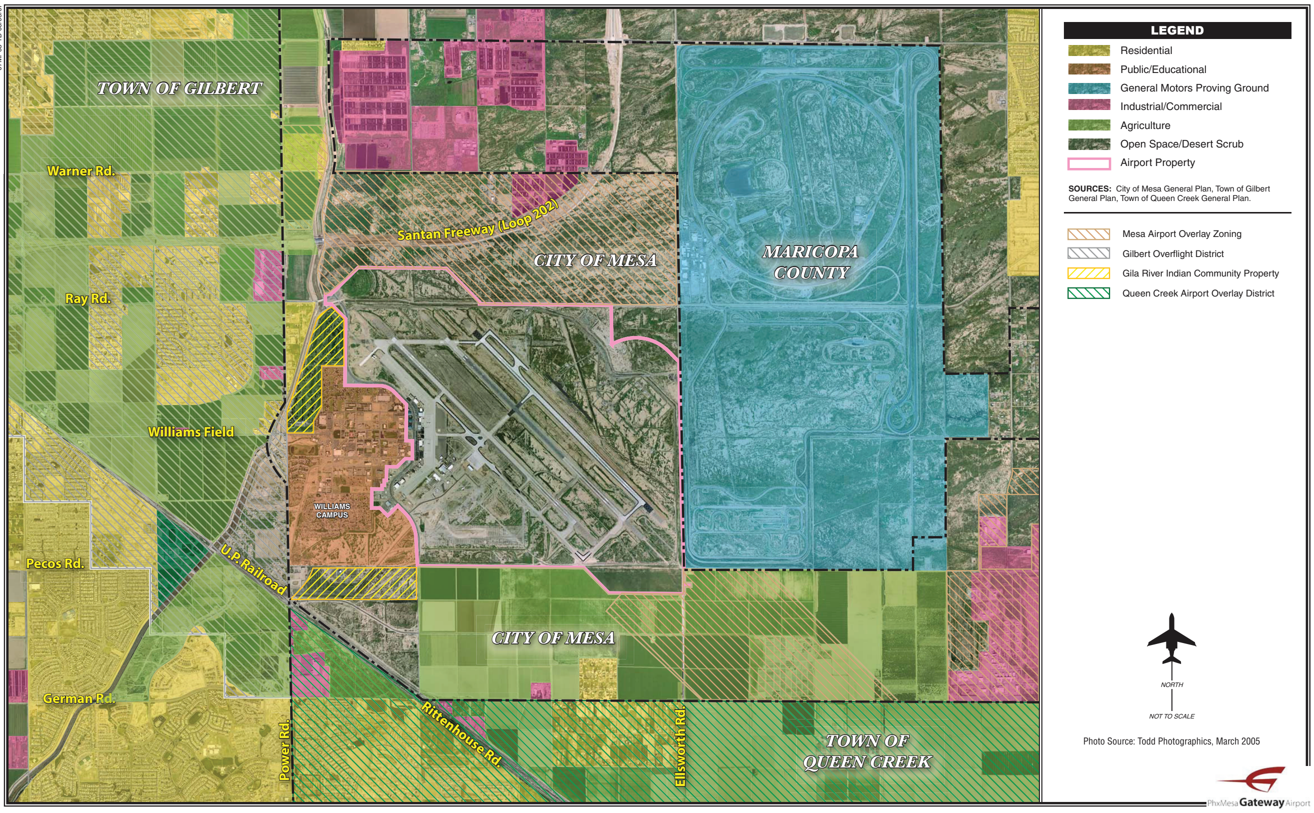
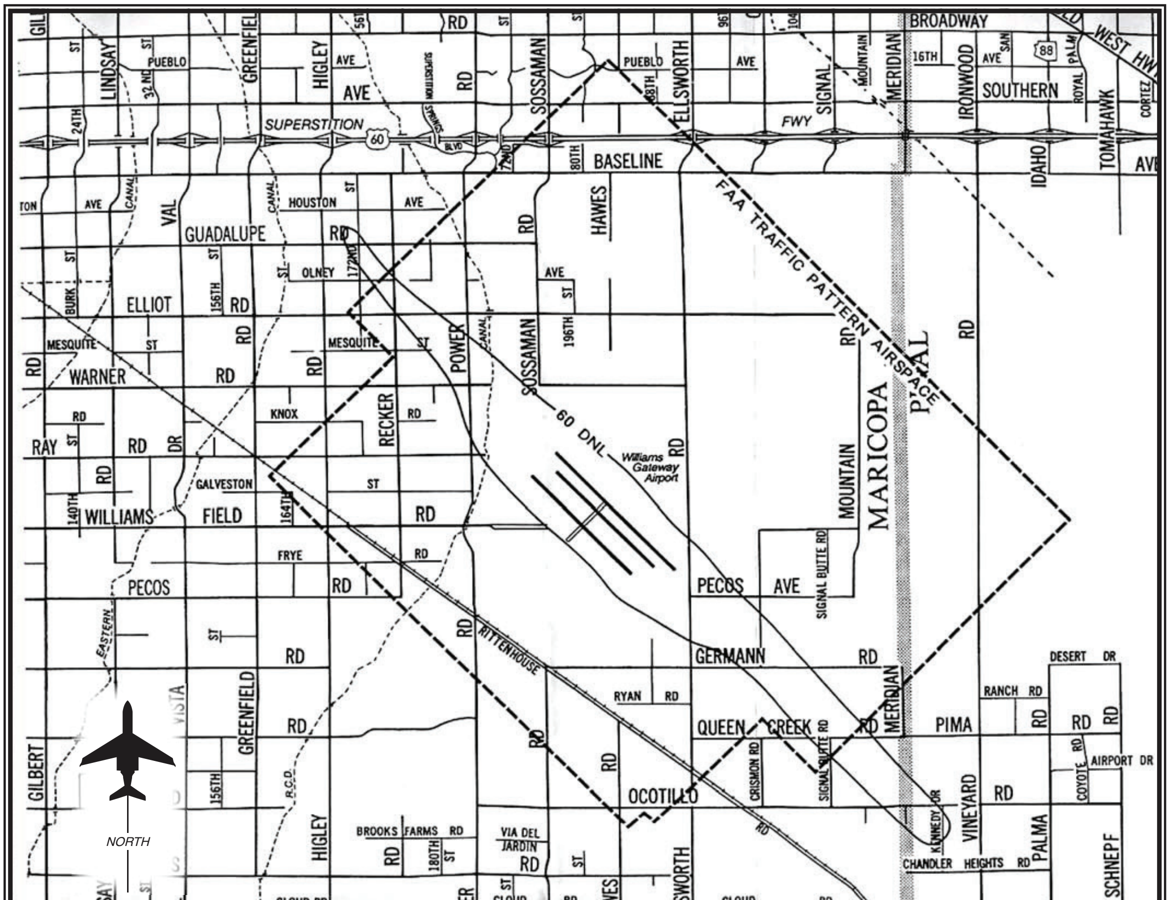


Exhibit 1B
EXISTING LAND USE

Exhibit 3-18: Traffic Pattern and Airspace Map

07MP03-1C-6/05/07



Notes:	Legend:
1. This map has been prepared in accordance with the Arizona Revised Statutes, Section 28-8486, relating to Public Disclosure.	TRAFFIC PATTERN AIRSPACE
2. Traffic Pattern Airspace Boundaries have been established in accordance with the guidelines provided in the FAA Order 7400.2D.	65 NOISE CONTOURS - DAY/NIGHT LEVEL
3. One Nautical mile = 6,076 feet or 1.1508 statute miles.	Electronic USGS Map base Edited and Published by Sylvan Ascent Inc. Map base used by permission (license agreement) of Sylvan Ascent Inc. Transportation and Hydrography Source data from U.S. Census Bureau Coordinate System: Arizona central......202

PhxMesa Gateway Airport
Exhibit 1C
TRAFFIC PATTERN
AIRSPACE MAP

In addition, the Town of Gilbert has implemented the Phoenix-Mesa Gateway Airport Overlay Zoning District into their development code. The purpose of the overlay zoning is to designate those areas that may be impacted by noise generated from airport activity. Further zoning regulations within this area are defined by three Overflight Areas.

The City of Mesa has also applied an Airport Overlay District to many areas surrounding the Airport. These areas are identified on the previously presented Exhibit 3-17: Existing Off-Airport Land Use. The Airport Overlay District was created to promote public health and safety in the vicinity of the Airport by minimizing exposure to crash hazards and high noise levels that may be generated by airfield operations. It is intended to encourage future development which is compatible with the continued operation of the airfield.

The Queen Creek General Plan recognizes the recommended land use planning scenario from the 1999 Airport Noise Compatibility Program. The land within the planning area is zoned for compatible uses, which would include light and heavy industrial development and some commercial development. There are a number of methods by which governmental entities can ensure that land uses in and around airports are developed in a compatible manner. The objective of enforcing land use restrictions is to protect designated areas for the maintenance of operationally safe and obstruction-free airport activity. In addition, the impact of aircraft noise on the public can be reduced.

Land use zoning is the most common land use control. Zoning is the exercise of the jurisdictional powers granted to the state and local governments to designate permitted land uses on each parcel. Typically, zoning is developed through local ordinances and is often included in comprehensive plans. The primary advantage of zoning is that it can promote compatibility with the Airport while leaving the land in private ownership. Zoning is subject to change; therefore, any potential alterations to the zoning code near the Airport should be monitored closely for compatibility.

The PMGA Area office was created in 2001 by the Mesa City Council. This office has responsibility for economic development and marketing within the Phoenix-Mesa Gateway area. The area is defined on the north by Guadalupe Road, on the east by Meridian Road, on the south by Queen Creek Road, and to the west by Higley Road. This organization undertook a formal study of the area and produced the Urban Land Institute Advisory Services Panel Report in late 2006. Exhibit 3-19: Future Off-Airport Land Use presents the recommended future land use of the area. This map represents material combined from the general plans of the City of Mesa, and Towns of Gilbert and Queen Creek.

Height restrictions are necessary to insure that objects will not impair flight safety or decrease the operational capability of the Airport. Title 14 of the Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace, defines a series of imaginary surfaces surrounding airports. The imaginary surfaces consist of the approach zone, conical zones, transitional zones, and horizontal zones. Objects such as trees, towers, buildings, or roads, which penetrate any of these surfaces, are considered by the FAA to be an obstruction to air navigation. Currently, the City of Mesa and Towns of Gilbert and Queen Creek apply height restrictions within the vicinity of the Airport as a part of their zoning. Height restrictions can be accomplished through height and hazard zoning, avigation easements, or fee simple acquisition.

Foreign Trade Zone

Foreign Trade Zones (FTZ) 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. An onsite U.S. Customs Office provides additional advantages to businesses conducting international trade.

Located on PMGA is Mesa's General-Purpose Foreign Trade Zone No. 221 (FTZ), which offers aviation related industrial operations the advantage of airport or near-airport locations. Non-aviation related businesses involved in importing foreign or domestic goods can also take advantage of the benefits through a subzone designation.

Exhibit 3-19: Future Off-Airport Land Use

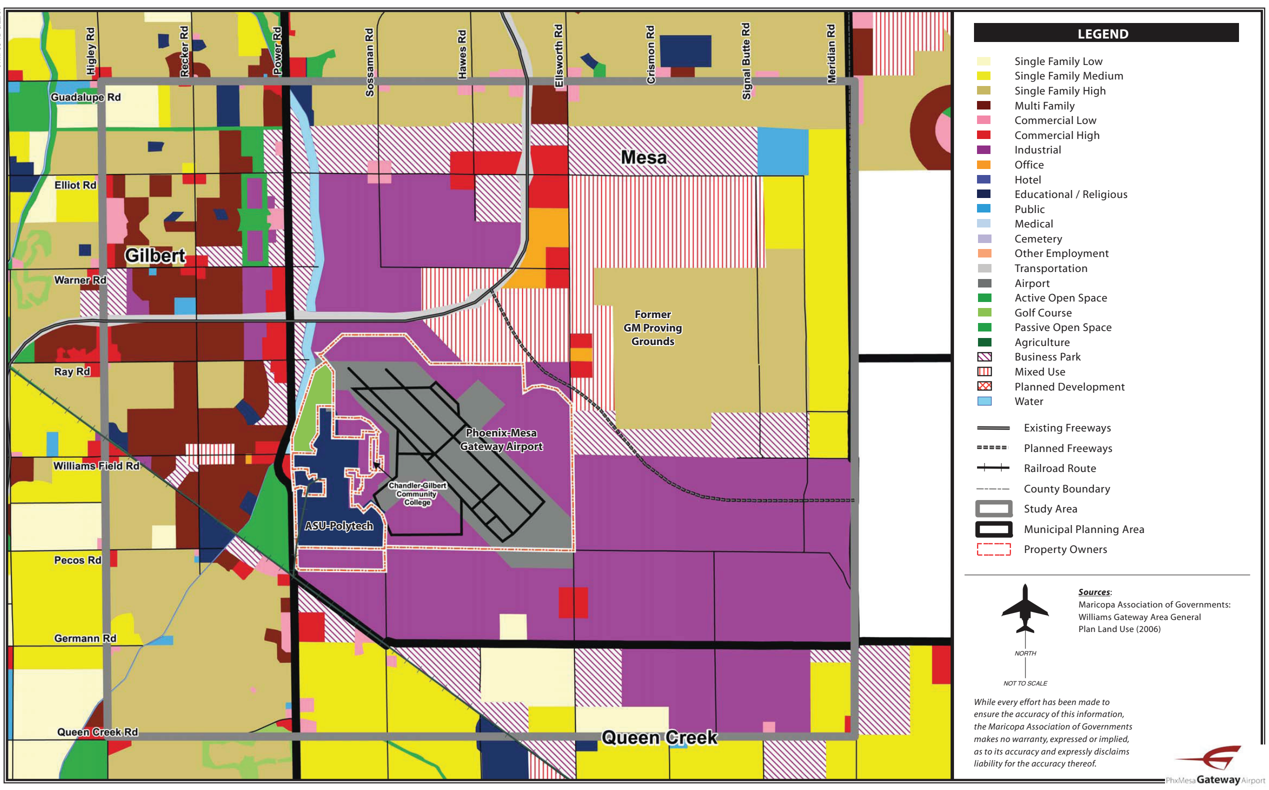


Exhibit 1D
FUTURE LAND USE

The boundaries of the FTZ approximate the existing airport property, excluding the runway and taxiway system, as well as the runway protection zones and various FAA designated safety areas. Approximately 1,411 acres of airport property are available for FTZ development. The benefits to operating a business in a foreign trade zone are primarily the reduction or elimination of the payment of U.S. Customs duties or excise taxes on goods imported into the United States. At a minimum, a U.S. importer could store a shipment in the foreign trade zone and gradually import only what is needed, at the time it is needed, and thereby improve a company's cash flow by spreading the import duty payment over a longer period of time. The FTZ is presented on Exhibit 3-20: Foreign Trade Zone Map.

Military Reuse Zone

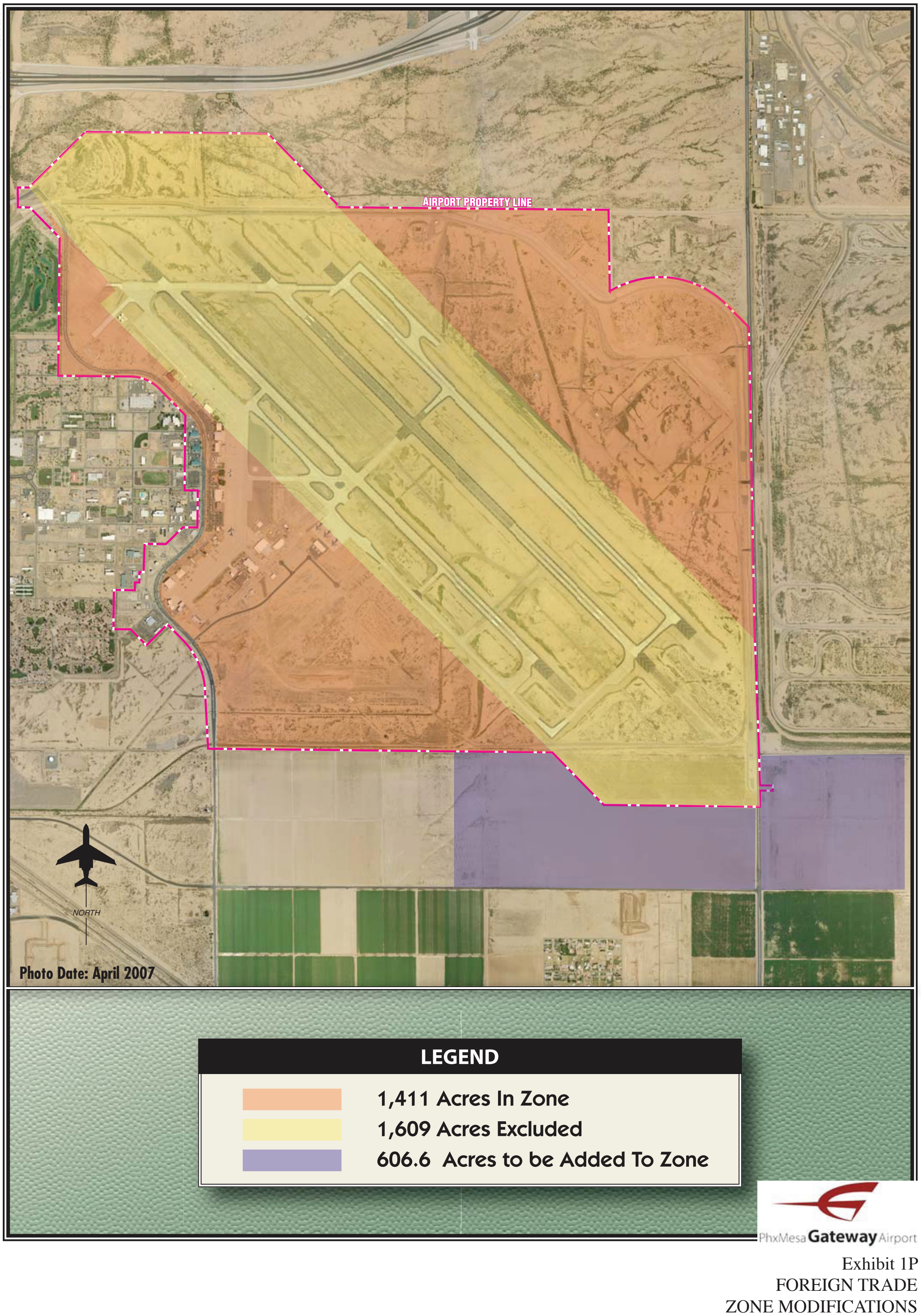
The Arizona State Legislature established the Military Reuse Zone Program (MRZ) in 1992. The intent of the legislation was to lessen the negative economic impact of military base closures. This program offers aviation companies a significant financial edge in the global marketplace. There are three primary benefits to developing businesses within the MRZ:

1. Transaction Privilege Tax Exemptions: Exemption from transaction privilege tax on contracts for certain types of construction;

2. 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

3. 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 MRZ designation for the PMGA was renewed in 2006.

Exhibit 3-20: Foreign Trade Zone Map



Section 4: Activity Forecast Review

4.1 Introduction

Aviation activity forecasts provide input for the assessment of airport facility requirements, evaluation of airport development alternatives, and the formulation of information needed to assess the type and timing of new airport facilities. Utilizing short-, intermediate-, and long-range forecasting horizons, these projections also aid in the evaluation of potential environmental impacts to the environs on and surrounding the Airport resulting from the proposed airport improvements, financial impacts and other analyses used in the preparation of the NADP study. This section will review previous forecasting efforts, FAA forecasts, and forecast factors and drivers.

The turbulent global economy that took hold in the latter part of 2008 put a squeeze on air travel demand through 2009, although falling oil prices offset some of the decline in demand, allowing U.S. carriers to be profitable in 2009. To navigate the volatile operating environment, carriers have increased revenues per customer (through increased fares and/or additional fees) while driving down operating costs by implementing capacity cutbacks (by reducing flights and/or gauge of aircraft, delaying deliveries of newer aircraft, and/or grounding older less fuel-efficenty aircraft). Over the long term, the FAA projects a competitive and profitable industry characterized by increasing demand for air travel and airfares growing more slowly than inflation.

4.2 Previous Forecasting Efforts

The forecast presented in this study will focus on commercial passenger service for PMGA. Forecasts for future All-Cargo and General Aviation activity levels are available in the 2009 Master Plan. Information presented in this section includes identification of the Airport Service Area, in addition to Socio-Economic and Commercial Service Forecasts.

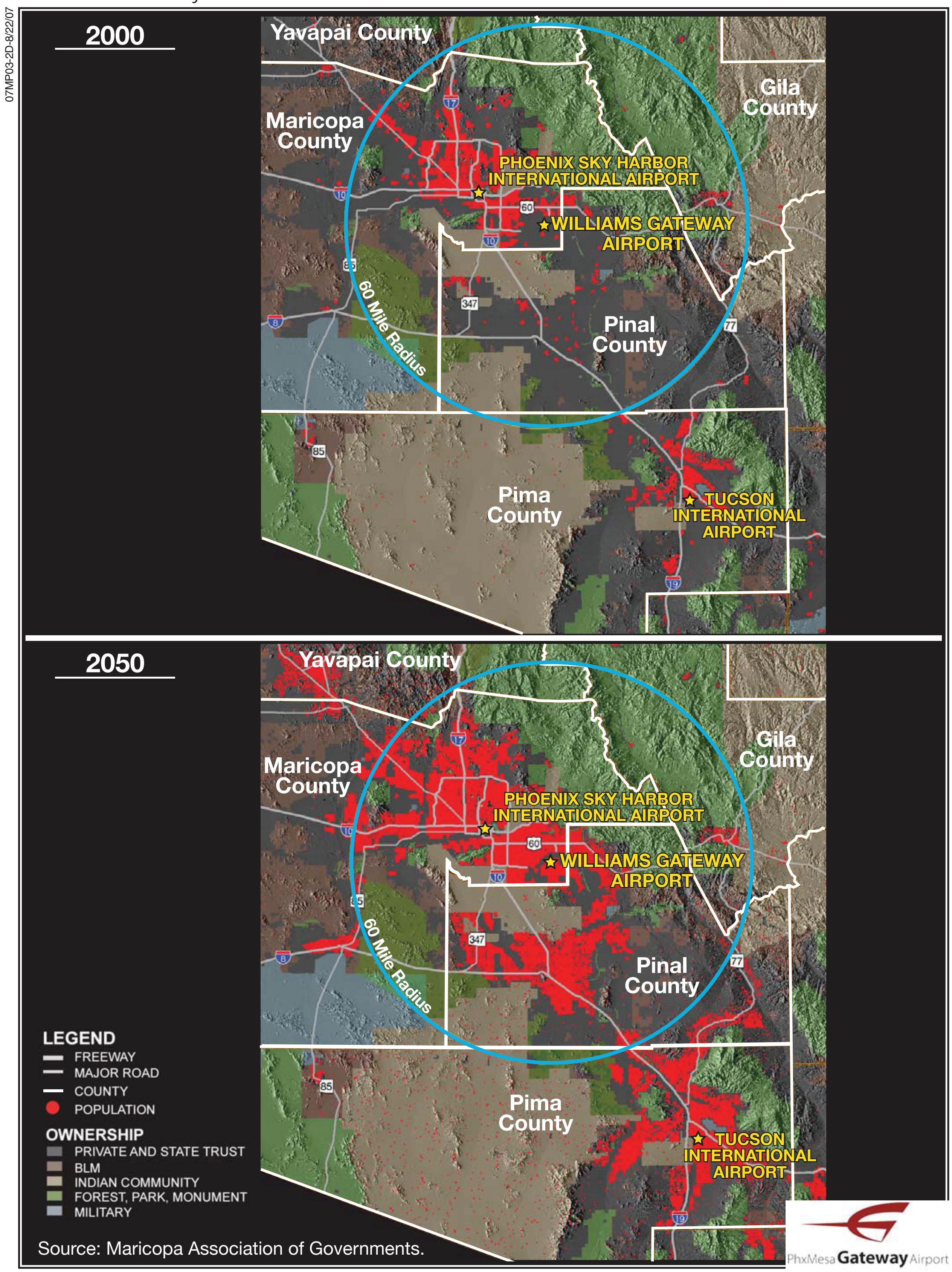
Airport Service Area

The 2009 Master Plan identified the Airport Service Area as a 60-mile radius around PMGA. Exhibit 4-1: Mesa Gateway Service Area presents an approximate commercial service area, which encompasses most of Pinal County and Maricopa County and the entire metropolitan Phoenix area. The construction of the Gateway Freeway - State Route 24 (planned by 2015) may extend the service area beyond Pinal County to the east.

The exhibit also provides a visual representation of the population growth forecast by MAG between the year 2000 and 2050. Large portions of both Pinal and Maricopa Counties are forecast to become populated over this term. Also evident are the growth of Globe, Arizona to the east and the northern reaches of the Tucson metropolitan area.

The flying public considers many factors when choosing an originating airport. The availability of flights, variety of destinations, and level of service offered by carriers at PMGA are major considerations. The two largest commercial service airports that may have an influence on the commercial airline service area for PMGA are Phoenix Sky Harbor International Airport (PHX), a 28-mile drive to the northwest; and the Tucson International Airport (TUS), a 120-mile drive to the southeast.

Exhibit 4-1: Mesa Gateway Service Area



Source: Maricopa Association of Governments.

Socio-Economic Forecast

The socioeconomic conditions provide an important baseline for preparing aviation demand forecasts. Local socioeconomic variables such as population, employment, and income are indicators for understanding the dynamics of the community and, in particular, the trends in aviation growth. The following projections are a summary of analysis presented in the 2009 PMGA Master Plan.

Socioeconomic data discussed in the Master Plan was compiled from three primary sources. The population and employment forecasts for the metropolitan planning areas are from the Maricopa Association of Governments – 2007 Draft Socioeconomic Projections. The employment and per capital personal income figures for both Pinal and Maricopa County are from Woods and Poole Economics 2006. Population figures for Pinal County are obtained from the August 2006, Pinal County Small Area Transportation Study.

Population

In 2007, the Maricopa Association of Governments (MAG) published updated socioeconomic forecasts. The MAG forecasts present population, employment, and other statistical measures based on a defined Metropolitan Planning Area (MPA). The MPA is the municipal boundary plus estimated additional area that may be annexed within the long term planning timeframe.

Table 4-1 Socioeconomic Forecasts, summarizes historical and forecast population estimates for the municipalities surrounding the Airport. Both Mesa and Chandler have had a history of significant growth, particularly through the 1990s, but that growth is forecast to be tempered somewhat, averaging 0.8 percent annually through 2027. Both Gilbert and Queen Creek are forecast to have very strong population average annual growth rates of 2.2 and 5.4 percent, respectively.

The total commercial service area surrounding the Airport, which includes Maricopa and Pinal Counties, is forecast to add nearly 4.2 million people over the next 20 years. Pinal County alone is forecast to grow from 275,000 in 2006, to 2.4 million in 2027. Maricopa County is forecast to add nearly 2.1 million people over the next 20 years. The total service area is forecast to grow at an average annual rate of 3.4 percent or more than 103 percent.

Table 4-1: Phoenix-Mesa Gateway Airport Socioeconomic Forecasts

	Historical		Forecast			
	2000	2006	2012	2017	2027	2006 to 2027
City of Mesa (MPA)						
Population	441,800	492,657	527,974	551,243	579,047	0.77%
Employment	17,200	182,799	228,477	256,674	296,447	2.33%
Town of Gilbert (MPA)						
Population	119,200	185,996	230,143	263,515	295,877	2.24%
Employment	35,000	60,668	88,062	105,727	125,450	3.52%
Town of Queen Creek (MPA)						
Population	7,400	22,197	37,951	48,143	67,214	5.42%
Employment	1,700	4,791	11,403	17,299	30,626	9.24%
City of Chandler (MPA)						
Population	185,300	241,614	268,591	277,503	283,551	0.77%
Employment	71,000	93,789	135,383	155,018	175,062	3.02%
Approximate Commercial Service Area						
Population	3,251,876	4,057,404	4,913,076	5,758,792	8,250,192	3.44%
Employment	1,611,983	1,946,069	2,373,797	2,773,416	3,856,445	3.31%

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

Employment

Historical and forecast employment data for the commercial and general aviation service areas is also presented in Table 4-1 Socioeconomic Forecasts. Between 2006 and 2027, employment for the commercial service area, which includes all of Maricopa and Pinal Counties, is forecast to grow 3.3 percent annually. Employment in Pinal County alone is forecast to grow 13.3 percent annually and Maricopa County is forecast to grow 2.5 percent annually. Together, more than 1.9 million jobs are forecast to be created between 2006 and 2027.

The general aviation service area, which includes Mesa, Gilbert, Queen Creek and Chandler, is forecast to see employment grow by 2.93 percent annually. This represents the addition of more than 285,000 jobs in the immediate vicinity of the Airport.

These forecasts anticipate the East Valley area to be a very strong employment growth center over the next 20 years. Infrastructure improvements, such as the construction of the Santan Freeway and numerous arterial roads, are making the East Valley very attractive to business. Economic development data shows that the area is becoming a high-tech corridor with companies such as Intel and Microchip Technology making significant investments in East Valley operations.

Commercial Service Enplanements

Prior to 2007, PMGA had experienced only limited commercial air service, as annual enplanement totals never exceeding 6,400. By the end of 2009, annual enplanement totals equaled 287,807 as Allegiant Airlines increased operational activity at PMGA.

The methodology employed in the 2009 Master Plan to produce the preferred enplanement forecast, was based upon a market share analysis for metropolitan areas in the US served by multiple commercial service airports. In each case, the international airport and the metropolitan airport is the dominant airport and the regional airport assumes a complementary role accommodating anywhere from 2% to 25% of local enplanements. Three future growth scenarios were produced using various market share ratios identified in the market share analysis. Table 4-2 Passenger Enplanement Forecast details the three enplanement scenarios for PMGA.

Table 4-2: Phoenix-Mesa Gateway Airport Passenger Enplanement Forecast

		Phoenix-Mesa Gateway Airport Enplanements					
Year	PHX Enplanemants	Scenario I		Scenario II		Scenario III	
2012	23,438,534	1.0%	234,385	2%	468,771	4%	937,541
2017	26,527,805	2.0%	530,556	4%	1,140,696	8%	2,042,641
2027	33,981,694	4.0%	1,359,268	9%	3,058,352	15%	5,097,254

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

Scenario I reflects PMGA capturing a small portion of the local enplanement market, similar to Orlando Sanford International (five percent) or St. Petersburg International (four percent). The second scenario represents PMGA capturing approximately nine percent of the region's enplanements, similar to Burbank or Ontario, California. The third scenario considers the potential for PMGA to capture approximately 15 percent of the regional enplanements, similar to Providence, RI (12 percent) or Chicago-Midway (19 percent). Exhibit 4-2: Passenger Enplanement Forecast compares the three scenarios graphically.

In October 2007, Allegiant Air began twice-weekly service to 13 destinations from PMGA. Considering usage of 150-seat MD-83 aircraft and a boarding load factor of 70 percent, 142,000 enplanements were anticipated. In 2008, annual passenger enplanements at PMGA totaled 177,649.

Exhibit 4-2: Passenger Enplanement Forecast

07MP03-2E-8/29/07

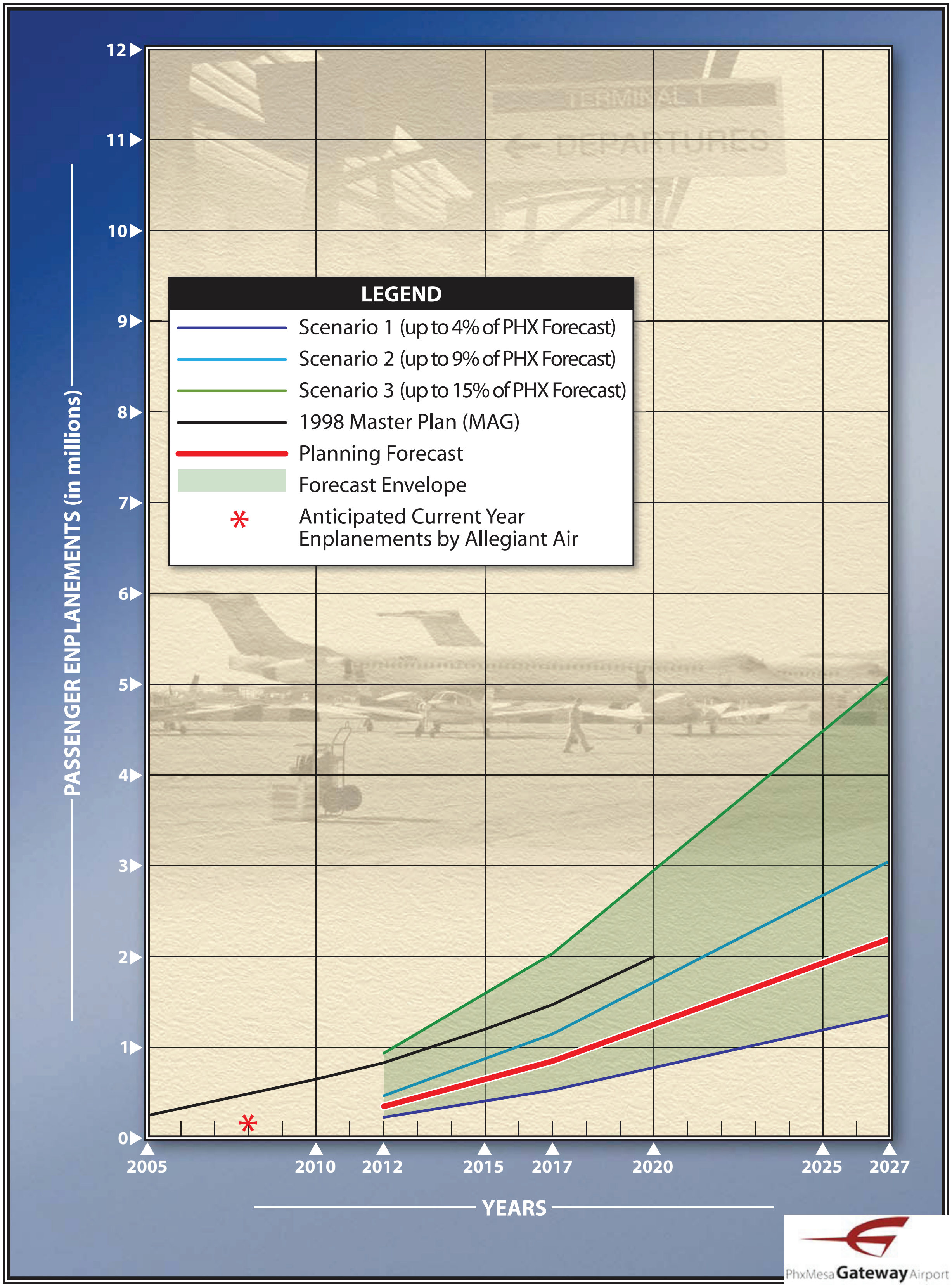


Table 4-3: Phoenix-Mesa Gateway Airport Airline Fleet Mix and Operations

	Phoenix-Mesa Gateway Annual Aircraft Fleet			
Fleet Mix By Seating Range	2012	2017	2027	High Range
>200(B-767)	2%	3%	4%	10%
161-200 (B-737-800, B-757)	2%	3%	4%	10%
135-160 (MD-80, Airbus 320)	35%	38%	40%	40%
105-134 (B-737, MD-80)	15%	18%	22%	20%
75-104 (EMB 190, CRJ-900)	15%	16%	18%	15%
60-79 (CRJ-700)	15%	11%	8%	5%
40-59 (CRJ-200)	8%	5%	2%	0%
0-39 (Dornier 328)	8%	6%	2%	0%
Total	100%	100%	100%	100%
Average Seats Per Departure	105.8	113.5	121.8	136.8
Passanger Load Factor	70%	72%	75%	77%
Enplanements Per Departure	74.1	81.7	91.4	105.3
Annual Enplanements	350,000	850,000	2,200,000	5,000,000
Annual Departures	4,725	10,403	24,083	47,467
Annual Air Carrier Opperations	9,449	20,806	48,166	94,934

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

Airline Fleet Mix & Operations

The type of aircraft in the commercial airline fleet that could potentially serve the Airport is an important component of airport planning. Not only is the commercial airline fleet mix helpful in determining the number of commercial airline operations at the Airport, but it is also helpful in defining many of the key parameters used in airport planning, such as: critical aircraft serving the Airport (used for pavement design, ramp geometry and terminal complex layout), maximum stage length capabilities (which affects runway length evaluations). Table 4.3 Airline Aircraft Fleet Mix and Operations presents the commercial aircraft fleet mix and operations forecast for PMGA.

Determining the fleet mix of commercial aircraft that may utilize PMGA requires an understanding of the trends in aircraft utilization by airlines and the overall national aircraft fleet. The use of regional jets has grown significantly over the past 10 years as the mainline carriers have shed some of their routes to the regional carriers while consolidating their hub and spoke systems. Initially, the 35 and 50-seat regional jets made the greatest impact in the regional market. In recent years, the smaller regional jets have been phased out for higher capacity and more fuel efficient 70 to 90-seat regional jets. Due to recent economic pressures, mainline carriers have transferred low yield routes, served by inefficient narrow body aircraft, to regional airline partners operating the 70 to 90-seat regional jet.

Allegiant Air has offered scheduled charter operations from PMGA to Reno and Laughlin/Bullhead, since 2003. In 2007, Allegiant formally established PMGA as one of five focus airports. The other focus airports are St. Petersburg-Clearwater, Orlando Sanford, Las Vegas McCarran, and Fort Lauderdale. Allegiant's aircraft fleet includes five McDonnell Douglas MD-81 aircraft, five MD-82s, and 16 MD-83s. Each of these aircraft is configured with 150 seats. Allegiant Air also operates three MD-87 aircraft, primarily on St. Petersburg-Clearwater routes, configured for 130 seats.

As shown in the table above, by 2012 the average number of available seats per departure is estimated at 105.8. By 2027, seats per departure are projected to increase to 121.8. This is related to the change in size of aircraft in the national aircraft fleet, as airlines increase capacity and regional carriers retire older and smaller 50-seat regional jets.

Over the course of the planning period, the average number of seats available per departure is expected to increase, consistent with national trends. Passenger load factors, the percentage of available seats occupied, is also expected to increase.

Enplaned & Deplaned Belly Cargo

Air freight is handled by both passenger airlines (belly freight) and all-cargo airlines. The Cargo Forecast section of this study will only focus on "belly freight" carried on passenger aircraft. Air mail is now handled primarily by a contract carrier (currently FedEx through 2012) for the United States Postal Service, as air mail on passenger airlines is restricted to packages of 16 ounces or less.

Security restrictions since September 11, 2001, have affected all freight carried in the bellies of passenger airlines. The mail restriction, in addition to the "known shipper" requirements for carrying cargo on passenger airlines, has given the all-cargo airlines a competitive advantage, at least in the short term. Many airlines rely on cargo to generate incremental revenue. As restrictions on air freight are refined over time, airlines are likely to become competitive in air freight again.

The 2009 Master Plan forecast identified an overall growth rate for all enplaned and deplaned cargo, However, the Master Plan did not forecast individual growth rates or future annual totals for each cargo element: all cargo, integrated carriers and belly freight. Airports with commuter or charter-only service generally have only minor belly freight volumes. Annual belly freight totals are closely tied to annual commercial aircraft operations. The planning forecast for future enplanements assumes PMGA captures a 4% market share of Phoenix-Sky Harbor annual totals with additional airlines initiating commercial service operations. Applying the same logic to capturing belly freight market share from PHX, PMGA would assume a 4 percent share of PHX belly freight. Year 2010 annual totals for belly freight were approximately 37,350 U.S. tons.

4.3 National FAA Forecasts

The FAA prepares an annual forecast for aviation activity each fiscal year. The following section summarizes information presented in the FAA Aerospace Forecasts, FY 2010-2030 and published March 9, 2010.

2009 Summary: Economic Activity And Air Travel

- U.S. Gross Domestic Product (GDP) decreased 2.8 percent; world GDP fell 2.3 percent.
- Domestic mainline air carriers' yields decreased 8.6 percent while international air carriers' yields fell 12.9 percent. In real terms (adjusted for inflation), domestic yields decreased 8.4 percent and international yields decreased 12.6 percent.
- Domestic enplanements on mainline and regional air carriers fell from 681.3 million in 2008 to 631.3 million (-7.3 percent) in 2009. Domestic mainline carrier enplanements dropped 8.5 percent while domestic regional carrier enplanements fell 3.4 percent. International enplanements on mainline and regional air carriers decreased from 77.8 million in 2008 to 72.7 million (-6.6 percent) in 2009. Mainline carrier international enplanements were down 5.6 percent while regional enplanements fell 27.2 percent.
- U.S. commercial air carriers (including passenger and cargo) reported an operating profit of $755 million in 2009, compared to an operating loss of $2.0 billion in 2008. Operating revenues decreased 16.1 percent in 2009, while operating expenses decreased 17.4 percent.
- In 2009 total landings and takeoffs at combined FAA and contract towers were down 10.4 percent from 2008. Air carrier activity decreased by 6.9 percent while commuter/air taxi activity decreased by 13.8 percent. General aviation activity dropped 11.7 percent while military aircraft activity rose 2.2 percent.

Aviation Activity Forecasts - Mainline Air Carrier and Regional Carriers

- Total mainline air carrier and regional enplanements are forecast to increase from 704.0 million in 2009 to 1.21 billion in 2030, an average annual rate of 2.6 percent. Domestic enplanements are projected to increase 0.4 percent in 2010 and then grow an average of 2.5 percent per year during the remaining 20-year forecast period. International enplanements are forecast to increase 0.9 percent in 2010 and then grow an average of 4.1 percent per year for the rest of the forecast period. Total system enplanements are expected to reach one billion in 2023.

Mainline Air Carriers

- U.S. mainline carrier domestic enplanements are forecast to decrease 0.9 percent in 2010. For the remaining 20 years of the forecast period, enplanements grow at an average annual rate of 2.4 percent, reaching 760.9 million in 2030.
- U.S. mainline air carrier passenger jet fleet increases from 3,666 aircraft in 2009 to 5,342 aircraft in 2030, an average annual increase of 1.8 percent. The fleet is projected to shrink by 0.5 percent in 2010 (17 aircraft), with most of the decrease attributed to the grounding of less fuel-efficient aircraft during a period of reduced demand.

Regional Carriers

- Regional carrier enplanements are forecast to increase 4.6 percent to 163.4 million in 2010, and grow 2.9 percent a year thereafter, reaching 289.3 million in 2030.
- The regional carrier passenger aircraft fleet increases from 2,612 aircraft in 2009 to 3,401 aircraft in 2030, an average annual increase of 1.3 percent. The fleet is projected to shrink by 4.3 percent in 2010 (113 aircraft).
- Regional jets increase from 1,710 aircraft in 2009 to 2,441 aircraft in 2030, an annual increase of 1.7 percent. All of the increase is attributed to jet aircraft in the 70-90-seat category.

Cargo

- Total air cargo Registered Ton Miles (RTMs) (freight/express and mail) increase from 30.8 billion in 2009 to 86.6 billion in 2030 – up an average of 5.0 percent a year; domestic RTMs increase 2.1 percent a year; international RTMs increase 6.3 percent a year.
- The cargo fleet increases from 854 aircraft in 2009 to 1,531 aircraft in 2030, an average increase of 2.8 percent a year.

General Aviation

- The general aviation fleet increases from 229,149 aircraft in 2009 to 278,723 in 2030, growing an average of 0.9 percent a year.
- Fixed-wing turbine aircraft grow at a rate of 3.1 percent per year, fixed-wing piston aircraft grow at a rate of 0.1 percent per year, and rotorcraft grow at a rate of 2.8 percent per year.
- General aviation hours flown are forecast to increase from 23.3 million in 2009 to 38.9 million in 2030, an average annual growth rate of 2.5 percent a year.
- Fixed-wing turbine aircraft hours flown grow at a rate of 4.6 percent per year, fixed-wing piston aircraft hours flown grow at a rate of 1.0 percent per year, and rotorcraft hours flown grow at a rate of 3.0 percent per year.

Summary

Commercial aviation hit a period of decline during 2008. Unpredictable jet fuel prices and a softening global economy hurt the industry. After posting net profits in 2007, for the first time since the 9/11 terror attacks, the U.S. industry posted a net loss in 2008, with a return to profitability in 2009.

The 2010 forecast for commercial aviation calls for a moderate growth in activity in the near term, with increasing viability over the long term. The most significant factor preventing recovery to prior forecast levels is the state of the economy, both domestic and worldwide. In the U.S., the National Bureau of Economic Research reports the U.S. economy has been in recession since December 2007, with economists speculating this may be the deepest recession since the end of World War II. The downturn in the economy has also dampened the near-term prospects for the general aviation industry; however, industry indicators are showing signs of improvement.

The average size of domestic aircraft is expected to decline by 0.7 seats in FY 2009 to 120.1 seats. Average seats per aircraft for mainline carriers are projected to fall by 0.8 seats as network carriers continue to reconfigure their domestic fleets. While demand for 70-90 seat aircraft continues to increase, we expect the number of 50 seat regional jets in service to fall, increasing the average regional aircraft size in 2010. Longer term, the FAA projects growth in business aviation demand, driven by a growing U.S. and world economy. As the fleet grows, the number of general aviation hours flown is projected to increase an average of 1.8 percent a year through 2025.

4.4 Forecast Factors And Drivers

A series of outside factors not completely within PMGA's control will ultimately affect aviation demand and operational activity at the Airport. These issues are briefly outlined below:

Additional Airlines Initiating Service at PMGA

- For PMGA to make a transition from aviation demand scenario I to either scenario II or III, multiple carriers would need to provide daily service, and at least one low-cost carrier would likely have to initiate service.
- If future demand/capacity and delay became a major economic issue for airlines operating at PHX, an airline may choose to transfer service to PMGA.
- A carrier not currently serving the region may want to initiate service to PMGA in order to establish a presence in the market.
- New low-cost carrier enters the market in the future looking to compete with the established low-cost carriers utilizing PHX.
- In the end, without the presence of mainline carriers or a major low-cost carrier, enplanement levels along the lines of those currently experienced by St. Petersburg (Clearwater) may be expected.

Global, National and Local Economic Downturn

- The most significant factor influencing recovery of the aviation industry is the state of the economy, global, domestic and local. Economic conditions will continue to affect the number of passengers enplaning at the Airport.
  - The national recession has resulted in a negative economic situation. National trends indicate retail sales, consumer spending, and consumer confidence have dropped over the last two years. In early 2010, the national economy is showing signs of emerging from the depths of the recession.
  - The local economy has been one of the hardest hit regions in the U.S. and economic recovery in the local area will likely occur at a slower rate than the national average.

- Historically, the state of the U.S. economy and levels of real disposable income correlate closely with airline passenger traffic nationwide.
- Sustained future growth in domestic airline passenger traffic will depend largely on the ability of the nation to sustain economic growth and also on moderately priced oil.

Local Population Growth

Population in the Phoenix-Mesa Metropolitan Area is projected to double by 2027:

- As the population grows to projected levels – mobility will be reduced on local and regional roadways – accessibility to the Airport for local residents will likely be reduced.
- Travel time to PHX will increase to people in the newly developed areas.
- A relative time savings will likely be realized for travelers using PMGA.
- Real or perceived congestion at PHX, which will increase delays, travel inconveniences and reduce the overall passenger experience.

Airline Economic Viability

- The airline industry has been adversely affected be the national recession and collectively reduced capacity by nearly 10% and resulted in a slow return to profitability.
- Shift in aircraft gauge as average seats per departure are forecast to increase as smaller regional jets are replaced in the national fleet by 70 to 90-seat regional jets.

Section 5: Facility Programming

5.1 Introduction

This section identifies the programming requirements associated with the airside, terminal/concourse, landside, and surrounding surface transportation elements for the PMGA, through the planning period (2030). Relationships between demand and capacity with regard to airport as well as transportation related facilities are often complex. Numerous issues affect how efficiently a certain level of activity (demand) can be accommodated within a specific system or facility. Furthermore, acceptable levels of service or convenience vary by user, facility, and airport.

The purpose of this section is to explore the relationships between demand and capacity in the context of various airport systems, and to provide general assessments of the ability of existing facilities to meet future demand. These assessments are then translated into specific facility requirements at the Airport through the planning period. A comparison and validation of the assumptions and programmatic needs represented in the 2008 Airport Master Plan will be outlined. Note that due to the more detailed nature of this study, some variances may exist in programming requirements due in large part to more detailed information available at the time of analysis.

5.2 Planning Parameters

5.2.1 Planning Factors & Assumptions

- The West Terminal final capacity will be designed and constructed to accommodate the intermediate term, 850,000 enplanements – with 10 gates – per the Master Plan.
- The Northeast Terminal Area will not be developed until new airlines initiate service.
- Allegiant Airlines will add approximately 100,000 enplanements annually.
- The Master Plan assumes that 850,000 enplanements will be reached in 2017. With the rapid growth that has occurred in the last 2 years, by adding 100,000 enplanements annually, PMGA will exceed the intermediate term activity level by 2014.
- Allegiant Airlines is in the process of transforming a portion of their fleet from MD-80s to Boeing 757s. The NADP terminal gate layout should be designed to meet aircraft design standards for Group III with accommodations for Group IV parking positions where feasible.
- Sufficient acreage will be preserved in the terminal area to ultimately accommodate 10-million annual enplanements.
- Reserve space in the northeast development area for a Customs & Border Protection (CBP) Federal Inspection Services (FIS) to support future international air service.
- The NADP terminal building will be programmed at a Level of Service "C".
- An aircraft hydrant fueling system should not be considered for the NADP until after the high range enplanement demand – 5-million – is exceeded.
- Airport Reference Code will remain D-V.
- Considering the aging population of the U.S., and assuming the average age of the typical passenger at PMGA is likely to be consistent with or older than the national average – facilities will be programmed for a passenger mix that has reduced mobility. Some terminal building elements that could be impacted by these considerations include:
  - Larger restrooms
  - Bag claim devices which are configured to make it easier to collect baggage
  - Minimized slope of a jet bridge
  - Minimized unassisted walk distances

5.2.2 Codes And Regulations

Phoenix-Mesa Gateway Airport is regulated by the City of Mesa Building Safety Department and the Airport's own Design Review Committee (DRC). The DRC reviews all projects, with the exception of airport terminal buildings, for compliance to the Phoenix-Mesa Gateway Airport Design Guidelines.

- Mesa Building Code, Ordinance 4635 (effective date February 4, 2007) - Based upon the 2006 International Building Code (IBC)

- Mesa Existing Building Code, Ordinance 4641 (effective date February 4, 2007)
  - Option A – Based upon the 2006 International Building Code (IBC) – Chapter 34
  - Option B – Based upon the 2006 International Existing Building Code (IEBC)

- Mesa Mechanical Code, Ordinance 4639 (effective date February 4, 2007) - Based upon the 2006 International Mechanical Code (IMC)

- Mesa Plumbing Code, Ordinance 4638 (effective date was February 4, 2007) - Based upon the 2006 International Plumbing Code (IPC)

- Mesa Electrical Code, Ordinance 4637 (effective date February 4, 2007) - Based upon the 2005 National Electrical Code (NEC)

- Mesa Fuel Gas Code, Ordinance 4640 (effective date February 4, 2007) - Based upon the 2006 International Fuel and Gas Code (IFGC)

- Mesa Fire Code, Ordinance 4789 (effective date February 4, 2008) - Based upon the 2006 International Fire Code (IFC)

- Americans with Disabilities Act Accessibility Guidelines (ADAAG) - 1994 Department of Justice Final Rule

5.2.3 Demand Triggers

Facility improvements identified in this analysis are recommended to be implemented based upon future airport activity levels, or "demand triggers", and not tied to an arbitrary calendar year. It is important to keep in mind that the actual activity at PMGA may be higher or lower than the annualized forecast. Planning according to demand triggers, will allow the NADP to accommodate unexpected shifts, or changes in demand. It is important to plan for these milestones so that airport officials can respond to unexpected changes in a timely fashion. As a result, these triggers provide flexibility, while potentially extending this plan's useful life if aviation trends slow over the period. Table 5-1 Commercial Airlines Demand Triggers presents the planning horizon milestones for each activity demand category.

Planning efforts typically project a 20-year horizon of activity, it will be important to reserve space for critical airport functions if a high range forecast materializes at PMGA. The high range forecast for passenger enplanements is 5-million, as shown in the table which follows. By identifying this high range forecast, appropriate space for a new terminal building, cargo facilities, parking, rental cars, and other airport elements, can be reserved.

The West Terminal final capacity will be designed and constructed to accommodate the intermediate term demand of 850,000 enplanements – with 10 gates. Long term enplanement demand is 2.2-million, the Northeast Terminal will need to be operational long before passenger demand reaches this level. The opening day capacity of Northeast Terminal will accommodate 1.5-million enplanements with 14 gates. The High Range forecast of 5-million enplanements will require 12 additional gates and increase the total gates to 30. Purely from a cost and phasing standpoint, it would be prudent to increase the number of gates incrementally, by adding the 12 gates in two 6-gate phases to meet demand between the long term and high range activity level.

Table 5-1: Phoenix-Mesa Gateway Airport Commercial Airlines Demand Triggers

		Planning Horizon					
	Existing	Short Term	Intermediate Term	Opening Day Northeast Terminal	Long Term	Beyond Long Term	High Range
Annual Enplanements		350,000	850,000	1,500,000	2,200,000	3,600,000	5,000,000
Air Carrier Operations		9,449	20,806	34,486	48,166	71,550	94,934
Daily Departures	3	17	34	57	80	119	158
Peak Hour Flights	2	9	12	15	18	18	17
Gate Requirements							
Commercial	2	5	7	9	10	16	22
Regional	0	1	3	5	8	8	8
Total Gates	2	6	10	14	18	24	30

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

5.3 Facility Requirements

5.3.1 Passenger Terminal Facilities

Planning Horizons

As part of this subsection, the Master Plan's program is to be validated for the East Terminal. For purposes of this study's program assessment, the following documents were reviewed:

- Airport Master Plan for Phoenix-Mesa Gateway Airport, dated December 15, 2008.
- West Terminal Expansion Planning Study, dated September 2008.

The goals for this study include creating a program for the initial build-out of the Northeast Terminal and validating the Master Plan's program for the established Long Term and High Range planning horizons.

The Airport Master Plan (AMP) developed its program by translating the forecast aviation demand established within the Master Plan for several levels of planning horizon milestones. The planning horizons include current, short term, intermediate term, long term and high range.

Table 5-2: Gross Terminal Facilities by Planning Horizon

AMP Planning Horizon	AMP Enplanements	AMP Gross Terminal Building Space (s.f.)
Current (2008)	142,000	48,662
Short Term (2012)	350,000	113,530
Intermediate Term (2017)	850,000	200,383
Long Term (2027)	2,200,000	294,866
High Range	5,000,000	598,593

Data provided from PMGA Airport Master Plan dated 12.05.2008

The Airport has maintained and provided actual passenger counts since 2003. The actual 2008 enplanements totaled 177,649 which corresponds to the current AMP planning horizon. The actual 2009 enplanements totaled 287,807. With the continual increase in activity from Allegiant Airlines, the short term planning horizon was reached in 2010 totalling 401,385, two years early.

The West Terminal Expansion Planning Study determined the maximum capacity of the site so that the future Northeast Terminal site can develop with initial planning parameters. Due to several limiting factors of the West Terminal site such as terminal building footprint, Sossaman Road capacity and curb frontage, the recommended maximum capacity is 850,000 enplanements, which corresponds to the Master Plan's intermediate term.

With the West Terminal site reaching a capacity of the intermediate term planning horizon, the next milestone for the Airport is the long term at 2,200,000 annual enplanements. The initial Northeast Terminal program should fall between these two milestones at a recommended 1,500,000 enplanements.

For the purposes of this study, the program planning horizon milestones are as shown in Table 5-3 below. The West Terminal site's intermediate term program is shown in this document for comparison and interpolation of the 1,500,000 enplanement milestone.

Table 5-3: Target Enplanement Milestones by Planning Horizon

Planning Horizon	Enplanements
Intermediate Term *	850,000
Initial East Terminal Build-out	1,500,000
Long Term *	2,200,000
High Range *	5,000,000

**Data provided from PMGA Airport Master Plan dated 12.05.2008*

Peaking Characteristics

The program will provide a total gross area of the building in square feet to accommodate the necessary functions of a passenger terminal. The program has been separated into the following functional areas:

- Ticketing/Check-in
- Airlines Operations
- Gate Facilities
- Baggage Claim
- Rental Car Counters
- Concessions
- Public Waiting Lobby
- TSA Security Area
- Restrooms
- Administration Offices/Conference
- Explosive Detection Systems (EDS) Outbound Screening

The facilities needs are related to several design peaking characteristics, such as the Design Hour Enplanements, Design Hour Total Passengers, and the Design Hour Deplanements. These have been developed in the Master Plan and are directly related to airline flight schedules, aircraft type and load factors. In order to establish the program for the initial Northeast Terminal Build-out the yearly enplanements and the design peaking characteristics are a direct interpolation from the Master Plan, as shown in Table 5-4..

Table 5-4: Initial East Side Terminal Program - Design Characteristics

Airline Enplanements	Immediate Term*	Initial Northeast Terminal Build-out	Long Term*	High Range*
Annual Enplanements	850,000	1,500,000	2,200,000	5,000,000
Peak Month	98,044	173,019	253,761	576,730
Design Day	3,268	5,767	8,459	19,224
Design Hour	719	923	1,015	2,307
Total Passengers Design Hour	1,222	1,569	1,726	3,922
Deplanements Design Hour	611	784	863	1,961

**Data from AMP dated 12.05.2008, Table 3B*

During the review of the Master Plan's Table 3B and the associated written text on pages 3-3 through 3-5 some inconsistencies were discovered as follows:

- Intermediate Term Design Hour: According to the AMP text on page 3-4, the intermediate horizon shall be 24 percent of the day's enplanements. In order to achieve the 719 value in Table 3B, a 22 percent factor is utilized.
- Long Term Design Hour: According to the AMP text on page 3-4, the long term horizon shall be 16 percent of the day's enplanements. In order to achieve the 1,015 value in Table 3B, a 12 percent factor is utilized.
- Total Passengers Design Hour: According to the AMP text on page 3-4, the total passengers design hour should be 180 percent of the enplanements design hour. In order to match Table 3B, a 170 percent factor was utilized.

For the Initial Northeast Terminal Build-out, the peak month is approximately 11.5 percent of the annual enplanements, matching the AMP formula. The design day equals the peak month divided by the number of days, using an average of 30. The design hour is 16 percent of the design day. The total passengers design hour is 170 percent of the enplanements design hour. The deplanements design hour is 85 percent of the enplanements design hour.

Program Development

On the Northeast Terminal Program spreadsheet, for the intermediate term, long term and high range there a two values shown for each program element. The first column represents the values directly from the AMP and the second column represents updated values for this document. The following functional areas required updates as follows:

- Ticketing/Check-in: With an initial review of the AMP programmed area, the values appear high. With the various new ticketing check-in systems, such as the two-step process using kiosks, a lower value is recommended. The ticketing/check-in area is calculated for 16 square feet per agent position.
- Airline Operations: With an initial review of the established program the values appear low considering this area includes space for the outbound baggage make-up function. As recommended for the AMP, the Airline Ops/Makeup area is calculated for ten feet times the peak hour enplanement plus 1000 square feet for each airline. This formula was provided separately, as it is not in the AMP text.
- Gate Facilities: During the West Terminal Study the gate facilities were analyzed for actual aircraft types knowing that in the short term and possibly through the intermediate term, Allegiant Airlines would be utilizing these gates for 150-seat MD83 aircraft. However, for the Initial Northeast Terminal build-out, it is unknown whether

Allegiant would occupy the Northeast Terminal. The potential for the West Terminal to remain operational with a new Northeast Terminal is possible. The current AMP values are calculated for 22 square feet per peak hour occupant, derived for a mix of aircraft types, including a large percentage of small commuter aircraft. By comparing the actual gate facilities needed for an Allegiant Airlines type operation to the current master plan program the square footage is approximately 30 percent lower. It is recommended that gate facilities be re-evaluated once the fleet mix is better determined. In general, approximately 2,000 square feet per gate is the average for aircraft ranging from 90 seats to 230 seats. This would allow more passenger waiting area for the larger Boeing 757 balanced by less for the smaller Airbus 319.

- Baggage Claim: As recommended for the AMP the claim lobby area shall be 18 square feet for peak hour passengers plus total visitors, thus a factor of 0.3 for visitors was utilized.
- Concessions: The current AMP values for the food and beverage function appear high, and conversely the gift shop (commonly termed retail) appears low. The updated formula provides for 13 square feet per peak hour enplanement for food and beverage. Retail is 8.75 square feet per peak hour enplanement. Once the Airport grows to the high range and beyond, the Airport should consider consolidated commissary space for all food and beverage providers and concessions storage.
- Public Lobby: According the AMP text found on page 3-30 this area should provide eight square feet for peak hour passengers plus visitors, which is estimated at 0.3 visitors per peak hour passenger. The updated program utilizes this formula, however the value does not match the AMP.
- TSA Security Area: With the invariable equipment improvements and changing procedures for security screening checkpoints the required area is difficult to foresee. From recent checkpoint projects, it is recommended to divide the space into the actual security components as noted below.
- Screening area and queue area: The security screening area provides for an average of 1,500 square feet per checkpoint lane. The queue area is calculated for six square feet per peak hour enplanement plus 0.3 times peak hour enplanements, for others requiring screening.
- EDS Outbound Screening: The Master Plan does not provide dedicated program area for this function. With requirements of outbound baggage screening, it is recommended that this be developed in the updated program for an inline, fully automated screening system. The formula is based on recent EDS outbound screening systems at Phoenix Sky Harbor International Airport, Terminal 2.

The Program Summary for the Northeast Terminal is provided in Table 5-5 with the Gross Terminal Building Space broken down into public and non-public. The full program is provided on the following page (reference Table 5-6: NADP Northeast Terminal Program). Much of the difference between the Master Plan's program and this document can be attributed to increased areas required for the security screening checkpoint, the EDS outbound baggage screening, and the baggage claim functions.

Table 5-5: Program Summary for the Northeast Terminal

Program Summary	Immediate Term 850,000 Enplanements		Initial Northeast Terminal Build-out 1,500,000 Enplanements	Long Term 2,200,000 Enplanements		High Range 5,000,000 Enplanements	
	AMP Program Exhibit 3E	DWL generated Program	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program
Total Public Space (s.f.)	175,036	171,139	229,459	257,773	266,967	527,480	570,175
Total Non-Public Space (s.f.)	25,349	45,805	60,289	37,093	70,659	71,115	143,004
Gross Terminal Building Space (s.f.)	**200,385**	**216,944**	**289,748**	**294,865**	**337,625**	**598,595**	**713,179**

Table 5-6: NADP Northeast Terminal Program

Northeast Area Development Planning (NADP)
Northest Terminal Program
Updated by DWL: 03.24.2010

	Intermediate Term 850,000 ENPLANEMENTS		1,500,000 ENPLANEMENTS	Long Term 2,200,000 ENPLANEMENTS		High Range 5,000,000 ENPLANEMENTS	
	AMP Program Exhibit 3E	DWL generated Program	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program
ANNUAL ENPLANEMENTS	850,000	850,000	1,500,000	2,200,000	2,200,000	5,000,000	5,000,000
DESIGN HOUR ENPLANEMENTS	719	719	923	1,015	1,015	2,307	2,307
DESIGN HOUR TOTAL PAX	1,222	1,222	1,569	1,726	1,726	3,922	3,922
DESIGN HOUR DEPLANEMENTS	611	611	784	863	863	1,961	1,961

TERMINAL BUILDING REQUIREMENTS	Public/ Non-Public	Int. AMP	Int. DWL	1,500,000 DWL	LT AMP	LT DWL	HR AMP	HR DWL
Ticketing/Check-in	Public							
Arilines (no.)		7	7	9	11	11	16	16
Pax/Half Hr. Peak (no.)		503	503	646	711	711	1,615	1,615
Agent Positions (no.)		42	31	40	59	44	135	101
Counter Frontage (l.f.)		336	252	323	474	355	1,077	807
Ticket Lobby Queue (s.f.)		8,388	6,291	8,074	11,842	8,882	26,915	20,186
TICKETING/CHECK-IN (S.F.)	Public	8,388	6,291	8,074	11,842	8,882	26,915	20,186
Airlines Operations (s.f.)	Non-Public							
Counter Area		3,355	2,516	3,230	4,737	3,553	10,766	8,074
Airline Ops/Makeup		8,500	14,190	18,228	12,500	21,150	20,040	39,069
Subtotal Airlines Operations		11,855	16,706	21,457	17,237	24,703	30,806	47,143
AIRLINE OPERATIONS (S.F.)	Non-Public	11,855	16,706	21,457	17,237	24,703	30,806	47,143
Gate Facilities	Public							
Gates (no.)		10	10	14	18	18	30	30
Peak Occupants		719	719	923	1,015	1,015	2,307	2,307
Holdroom area (s.f.)		15,818	19,730	27,622	22,330	35,514	50,752	59,190
GATE FACILITIES (S.F.)	Public	15,818	19,730	27,622	22,330	35,514	50,752	59,190
Baggage Claim	Public							
Pax Claiming Bags (no.)		367	367	471	518	518	1,177	1,177
Claim Display (l.f.)		611	611	784	863	863	1,961	1,569
Claim Display Floor Area (s.f.)		3,666	3,667	4,706	5,178	5,177	11,766	11,765
Claim Lobby Area (s.f.)		25,263	28,601	36,708	35,042	40,378	40,820	91,769
Total Bag Claim Area (s.f.)		28,929	32,268	41,414	40,220	45,555	52,586	103,535
BAGGAGE CLAIM (S.F.)	Public	28,929	32,268	41,414	40,220	45,555	52,586	103,535
Rental Car Counters	Public							
Counter Frontage (l.f.)		138	138	168	182	182	376	376
Counter Office Area (s.f.)		2,757	2,757	3,368	3,645	3,645	7,521	7,521
Counter Queue Area (s.f.)		827	827	1,010	1,094	1,094	2,256	2,256
Total Rental Car Area (s.f.)		3,584	3,584	4,379	4,739	4,739	9,777	9,777
RENTAL CAR COUNTERS (S.F.)	Public	3,584	3,584	4,379	4,739	4,739	9,777	9,777
Concessions (s.f.)	Public							
Food and Beverage		28,070	9,527	12,227	38,935	13,449	88,493	30,567
Gift shop		3,509	6,291	8,074	4,867	8,882	11,062	20,186
Total Concessions		31,579	15,818	20,301	43,802	22,331	99,555	50,752
CONCESSIONS (S.F.)	Public	31,579	15,818	20,301	43,802	22,331	99,555	50,752
Public Waiting Lobby (s.f.)	Public							
Public Lobby/Seating		11,228	10,424	13,378	15,574	14,716	35,397	33,445
Greeting Lobby		2,416	2,288	2,937	3,289	3,230	7,474	7,342
Total Public Waiting Lobby		13,644	12,712	16,315	18,863	17,946	42,871	40,786
PUBLIC WAITING LOBBY (S.F.)	Public	13,644	12,712	16,315	18,863	17,946	42,871	40,786
TSA Security Area	Public							
Stations (no.)		2.00	4.11	5.27	3.00	5.80	6.00	13.18
Security Queuing Area (s.f.)		8,421	5,608	7,198	11,681	7,917	26,548	17,994
Security Screening Area (s.f.)		0	6,163	7,909	0	8,700	0	19,774
TSA SECURITY AREA (S.F.)	Public	8,421	11,771	15,107	11,681	16,618	26,548	37,768
Restrooms (s.f.)	Public							
Men's/Womens's		4,210	4,210	6,118	5,840	5,840	13,274	13,274
RESTROOMS (S.F.)	Public	4,210	4,210	6,118	5,840	5,840	13,274	13,274
Administration Offices/Conf. (s.f.)	Public							
Office, Conference		8,510	8,510	15,010	22,010	22,010	50,010	50,010
ADMINISTRATION OFFICES/CONF. (S.F.)	Public	8,510	8,510	15,010	22,010	22,010	50,010	50,010

Table 5-6: NADP Northeast Terminal Program (Continued)

Northeast Area Development Planning (NADP)
Northest Terminal Program
Updated by DWL: 03.24.2010

		Intermediate Term 850,000 ENPLANEMENTS		1,500,000 ENPLANEMENTS		Long Term 2,200,000 ENPLANEMENTS		High Range 5,000,000 ENPLANEMENTS	
		AMP Program Exhibit 3E	DWL generated Program		DWL generated Program	AMP Program Exhibit 3E	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program
EDS Outbound Screening	Non-Public								
EDS - Outbound Passengers			719		923		1,015		2,307
No. of bags/hour			647		830		914		2,076
No. of bags/minute			11		14		15		35
No.of Explosive Detection Machines (EDS)			3.00		4.00		5.00		10.00
EDS Machines (s.f.)			1,200		1,600		2,000		4,000
Conveyors (s.f.)			7,500		10,000		12,500		25,000
No. of Trace Stations (ETD)			6.00		8.00		8.00		19.00
Trace Stations (s.f.)			1,650		2,200		2,200		5,225
No. of Search Stations (Level 3)			3		4		4		10
Search Stations (s.f.) (Level 3)			825		1,100		1,100		2,613
Breakroom (s.f.)			315		420		420		998
Support Space (s.f.)			3,000		4,000		5,000		10,000
EDS OUTBOUND SCREENING	Non-Public		14,490		19,320		23,220		47,835
Sub-total Square Footage		134,939	146,091		195,117	198,563	227,357	403,095	480,255
HVAC		13,494	14,609		19,512	19,856	22,736	40,309	48,026
Circulation		51,952	56,245		75,120	76,447	87,533	155,191	184,898
Gross Terminal Building Space (s.f.)		**200,385**	**216,944**		**289,748**	**294,865**	**337,625**	**598,595**	**713,179**
TOTAL PUBLIC SPACE (s.f.)		175,036	171,139		229,459	257,773	266,967	527,480	570,175
TOTAL NON - PUBLIC SPACE (s.f.)		25,349	45,805		60,289	37,093	70,659	71,115	143,004
SITE REQUIREMENTS									
GATES		**10**	**10**		**14**	**18**	**18**	**30**	**30**
TERMINAL FRONTAGE CURB (pg.3-37)									
Enplane Curb (FT)		647	647		830	914	914	1661	1661
Deplance Curb (FT)		755	755		969	1066	1066	1938	1938
TERMINAL CURB (LF)		**1402**	**1402**		**1799**	**1979**	**1979**	**3599**	**3599**
*inner curb can hold upto 300 cars outer curb can hold 600 cars									
*with growth median curb lane is included for additional curb length									
AIRPORT AND TERMINAL ACCESS ROADWAY (pg. 3-35)									
TERMINAL THROUGH LANES		**2**	**2**		**3**	**3**	**3**	**6**	**6**

* Blue text indicates data derived from DWL modified formulas.
* Black text indicates data derived from Master Plan Exihibit 3E
* Red text indicates data derived from Master Plan text, however is not consistant with Exhibit 3E

5.3.2 Airfield Components

Aircraft Fleet Mix

Aircraft fleet mix refers to the speed, size, and flight characteristics of aircraft operating at the Airport. As the mix of aircraft operating at an airport increases to include larger aircraft, airfield capacity begins to diminish. This is due to the larger separation distances that must be maintained between aircraft of different speeds and sizes. Descriptions of the classifications and the percentage mix for each planning horizon are presented in Table 5-7 Aircraft Fleet Mix by Design Group.

Table 5-7: Phoenix-Mesa Gateway Airport Aircraft Fleet Mix by Design Group

	Phoenix-Mesa Gateway Annual Aircraft Fleet		
Planning Horzion	Class A & B	Class C	Class D
Current	91.0%	6.4%	2.6%
Short Term	88.0%	9.3%	2.7%
Intermediate Term	85.1%	12.3%	2.7%
Long Term	80,4%	17.0%	2.6%
High Range	71.8%	23.9%	4.3%
Class A: Small single-engine aircraftwith gross weight of 12,500 lbs or less			
Class B: Small twin-engine aircraft with gross weight of 12,500 lbs or less.			
Class C: Large aircraft with gross weight of 12,500 lbs up to 300,000 lbs.			
Class D: Large aircraft with gross weight over 300,000 lbs.			

Source: Phoenix-Mesa Gateway Airport Master Plan 2009

Annual Service Volume

The 2009 Master Plan provided a detailed discussion on the Annual Service Volume (AVS) for all aircraft operations – air carrier, air cargo and general aviation – through the planning period. Prudent development guidelines recommend that planning consideration be given when capacity levels of 60 percent have been reached. Further, implementation efforts to enhance capacity should be initiated at the 80 percent level. Findings from the ASV analysis are summarized below.

Annual operations at PMGA, are forecast to exceed 67 percent of the ASV by the end of the short term planning period – approximately the first five years. By the end of the long term planning period, annual operations are projected to reach 95 percent of the ASV. The master plan analyzed multiple solutions to increase the ASV. The Master Plan recommended multiple taxiway improvements to allow aircraft to exit runway earlier and limit runway crossings. Analysis on optimally located exit taxiways, could provide a minimum increase of 25 percent in the ASV.

Airport Reference Code (ARC)

The current critical aircraft for the Airport, based on a single aircraft or combination of aircraft of a single design group exceeding 500 annual operations, is the MD-80 (ARC C-III). The 2009 Master Plan recommended, the Airport continue to meet the FAA separation and safety area requirements for ARC D-V, as established in previous planning analysis. The future critical aircraft is projected to be represented by wide-body commercial aircraft such as the B-747 or B-767. Therefore, all airfield elements should be planned to meet the requirements for ARC D-V. Larger aircraft (A-380, B-747-800, Antonov-225) are not anticipated to qualify as the critical aircraft at PMGA. The 2009 Master Plan provides additional recommendations for physical airfield improvements where design standards differ from ARC D-V.

Runways

According to wind data summarized in 2009 PMGA Master Plan, the existing parallel runway alignment provides greater than 95 percent wind coverage for all crosswind conditions. Therefore, no additional runway orientations were recommended. The analysis showed, all regional and narrow-body aircraft are able to operate unrestricted except for the Boeing 757-200 and the Boeing 737-800. These aircraft may have to take on less than a full load of fuel or fewer passengers and cargo weight in order to utilize the longest runway on the hottest days. The majority of the year, these aircraft will not be weight restricted. Wide-body aircraft are more likely to be weight-restricted under these same meteorological conditions.

The Master Plan recommended a planned extension to Runway 12L-30R from its existing length of 9,301 feet to an ultimate length of 12,500 feet. Runway 12L-30R is the eastern most runway on the airfield and closest to the future Northeast Terminal Area. Any potential extension will ultimately have to be justified by the needs of operators, likely long haul cargo operators, at the Airport.

Taxiways

Taxiways are primarily constructed to facilitate aircraft movements to and from the runway system. Parallel taxiways greatly enhance airfield capacity and are essential to aircraft movement on the ground. Some taxiways are necessary simply to provide access to apron and terminal areas, while others are designed to facilitate the movement of aircraft to and from the runways. As activity increases, additional taxiways become necessary to provide safe and efficient use of the airfield.

The 2009 Master Plan recommended a series of midfield and parallel taxiway improvements. The recommended taxiway improvements directly related to the Northeast Terminal Area would require the extension of partial parallel Taxiway C to the east side of Runway 12L-30R. Additionally, a second parallel taxiway is recommend between Taxiway C and the future air carrier apron. The future parallel taxiways will include exit taxiways, and access taxiways connecting the airfield to the future commercial apron.

5.3.3 Local And Regional Infrastructure

5.3.3.1 Regional Roadway Network

Numerous roadway improvements are planned to accommodate the growth in this fast-growing region and are included in the MAG Regional Transportation Plan (RTP) and the City of Mesa's Capital Improvement Program (CIP). They are documented in Table 5-8: Planned and Programmed Roadway Improvements.

Table 5-8: Planned and Programmed Roadway Improvements

Roadway	From	To	Description	PROJECT LENGTH (centerline miles)	Prop. 400 Year Programmed for Final Construction	Notes
Power Road	Baseline Road	Galveston Road	Improve to 6 lanes	4.5	2010	MCDOT/Mesa partnership
Power Road	Galveston Road	Pecos Road	Improve to 6 lanes	2.0	2008	Gilbert/Mesa partnership
Power Road	Pecos Road	Germann Road	Improve to 6 lanes	0.6	2024	
Ray Road	Sossaman Road	Ellsworth Road	Improve to 6 lanes	2.5	2010	
Pecos Road	Ellsworth Road	Meridian Road	Improve to 6 lanes	3.0	2014	
Guadalupe Road	Power Road	Meridian Road	Improve to 6 lanes	6.0	2015	City of Mesa CIP #05-040/#06-039
Hawes Road	Southern Avenue	Ray Road	Improve to 6 lanes	1.0	2024	City of Mesa CIP #04-847
Baseline Road	Power Road	Meridian Road	Improve to 6 lanes	6.0	2022	
Meridian Road	Baseline Road	Germann Road	Improve to 6 lanes	7.0	2019	Meridian Road DCR
Crismon Road	Southern Avenue	Germann Road	Improve to 6 lanes	8.0	2025	
Germann Road	Sossaman Road	Signal Butte Road	Improve to 4 lanes	2.0	2021	
Signal Butte Road	Southern Avenue	Pecos Road	Improve to 6 lanes	8.0	2021	MCDOT Corridor Study
Southern Avenue	Sossaman Road	Meridian Road	Improve to 6 lanes	5.0	2021	
Elliot Road	Power Road	Meridian Road	Improve to 6 lanes	6.0	2025	MCDOT Corridor Study
Ray Road	Sossaman Road	Meridian Road	Improve to 6 lanes	5.0	2025	
Ellsworth Road	Baseline Road	Germann Road	Improve to 6 lanes	7.0	-	City of Mesa Transportation Plan
Germann Road	Sossaman Road	Meridian Road	New 6 lanes	5.0	-	
Pecos Road	Power Road	Ellsworth Road	Improve to 6 lanes	3.0	-	City of Mesa General Plan, Queen Creek SATS
Rittenhouse Road	Pecos Road	Power Road	Widen/Re-align	1.0	-	Queen Creek SATS
Sossaman Road	Baseline Road	Warner Rod	Improve to 4 lanes	3.0	-	City of Mesa Transportation/General Plan
Sossaman Road	Pecos Road	Germann Road	Improve to 4 lanes	0.6	-	City of Mesa Transportation/General Plan
Warner Road	Power Road	Sossaman Road	New 6 lanes	1.0	-	City of Mesa Transportation/General Plan
William Field Road	Ellsworth Road	222nd Street	Improve to 6 lanes	0.5	-	City of Mesa Transportation/General Plan
William Field Road	222nd Street	Meridian Road	Improve to 6 lanes	2.5	-	City of Mesa Transportation/General Plan

5.3.3.2 Future Transit Service

The RTP identifies a moderate expansion of the regional transit network within the study area. New local routes are planned to operate on Power Road, Main Street (via Power Road) and Ray Road, with the Ray Road route currently being planned to directly serve the ASU Polytechnic campus. In addition to the three new local routes, regional transit funding is programmed for service improvements on three existing local routes: Route 45-Broadway Road, Route 61-Southern Avenue, and Route 108-Elliot Road. New Route 184 offers 30-minute service to the passenger terminal each weekday between 4:30 a.m. and 9:30 p.m. and weekend service between 5 a.m. and 9 p.m.

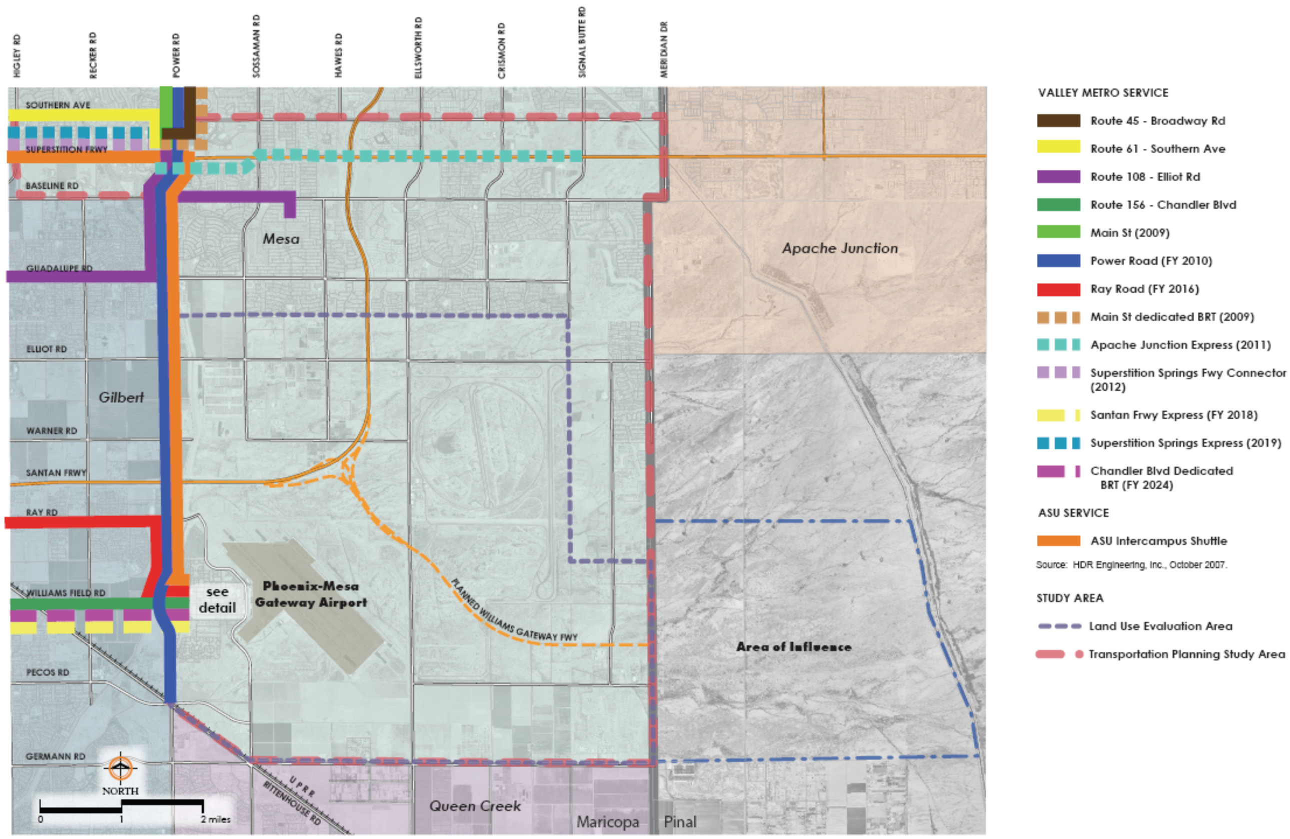
Two express routes are planned to provide service to the ASU Polytechnic campus: the Santan Express and Chandler Boulevard dedicated arterial Bus Rapid Transit (BRT). The Santan Express will provide two-way peak period service between the Polytechnic campus and regional destinations such as downtown Chandler, Chandler Fashion Mall and the Phoenix central business district (CBD)/State Capitol area. Chandler Boulevard dedicated arterial BRT route is planned to compliment the existing local fixed route bus service by providing reduced transit travel time through limited stop operations and other time-saving enhancements. In addition, express bus service is also planned in the U.S. 60 corridor with four new routes. The Superstition Springs Express and Superstition Springs Freeway connector originate at Superstition Springs Center (SSC).

The freeway connector route will provide express service between SSC and Arizona Mills Mall in Tempe. The "express" route is planned to connect east Mesa with downtown Phoenix and will replace the existing Route 533. The Apache Junction Express is planned to operate the same pattern as the Superstition Springs Express, but originates at U.S. 60 and Signal Butte Road before stopping at SSC on its way to downtown Phoenix. Finally, the Main Street dedicated arterial BRT began operations in fiscal year 2009, connecting SSC with the Mesa end of line light rail station located at Main Street and Sycamore.

The RTP includes an expansion of the regional transit network into the study area; however, the Plan does not identify any additional transit service west of Sossaman Road.

The future transit network in the study area is illustrated by Exhibit 5-1: Future Transit Network.

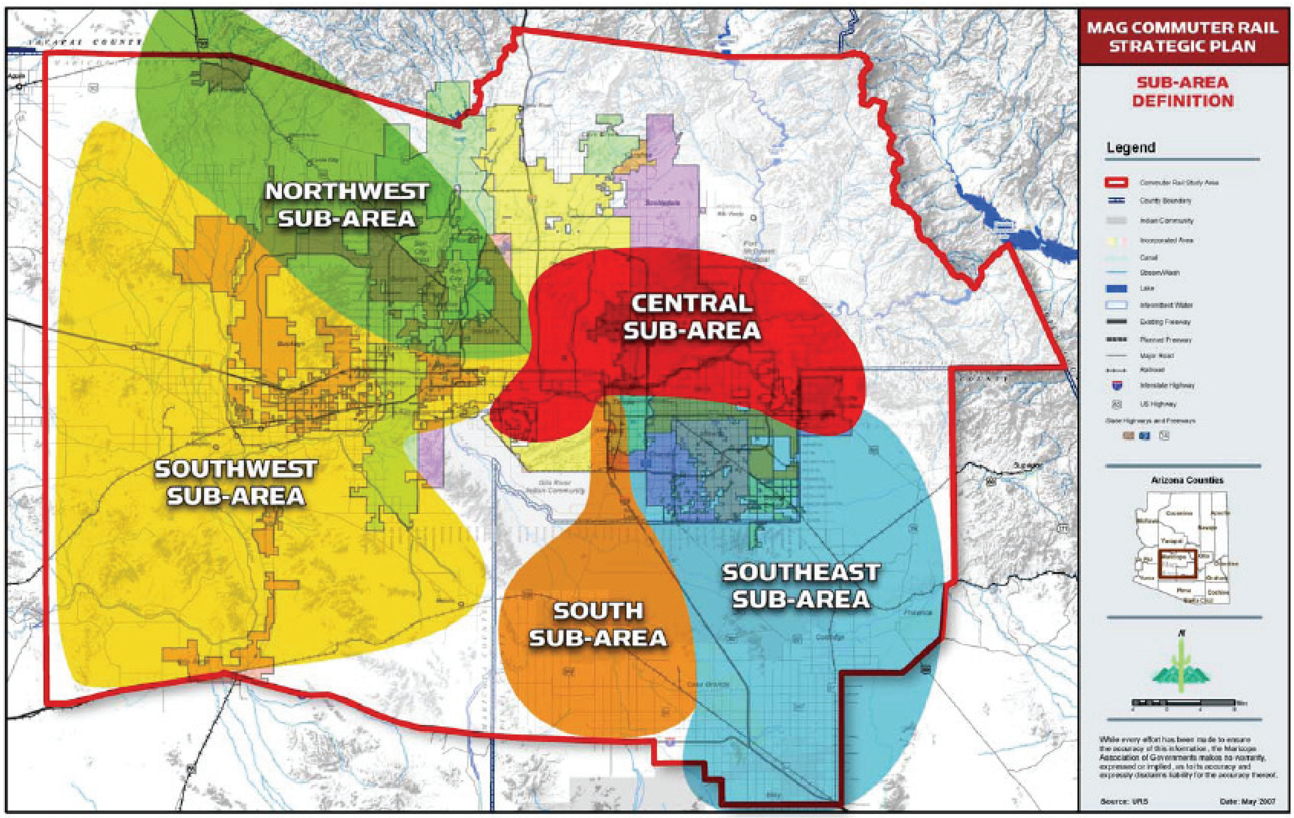
Exhibit 5-1: Future Transit Network



5.3.3.3 Future High Capacity Transit

MAG and the Arizona Department of Transportation (ADOT) completed a joint study to outline a Commuter Rail Strategic Plan for Maricopa and northern Pinal counties. This study was accepted in March 2008. The study area was divided into five geographic zones. The Mesa Gateway area is included in what is termed the "Southeast Sub-Area", refer to Exhibit 5-2: Commuter Rail Strategic Plan. The MAG High Capacity Transit Network is shown on Exhibit 5-3: High Capacity Transit Network, which indicates potential for future commuter rail and Light Rail Transit (LRT)/BRT west of the Mesa Gateway study area. Exhibit 5-4 shows future transit concepts in the study area.

Exhibit 5-2: Commuter Rail Strategic Plan



Source: Maricopa Association of Governments

5.3.3.4 Future Bicycle Facilities

Based on City of Mesa's Transportation Plan, the following are the proposed bicycle routes in the vicinity of the study area:

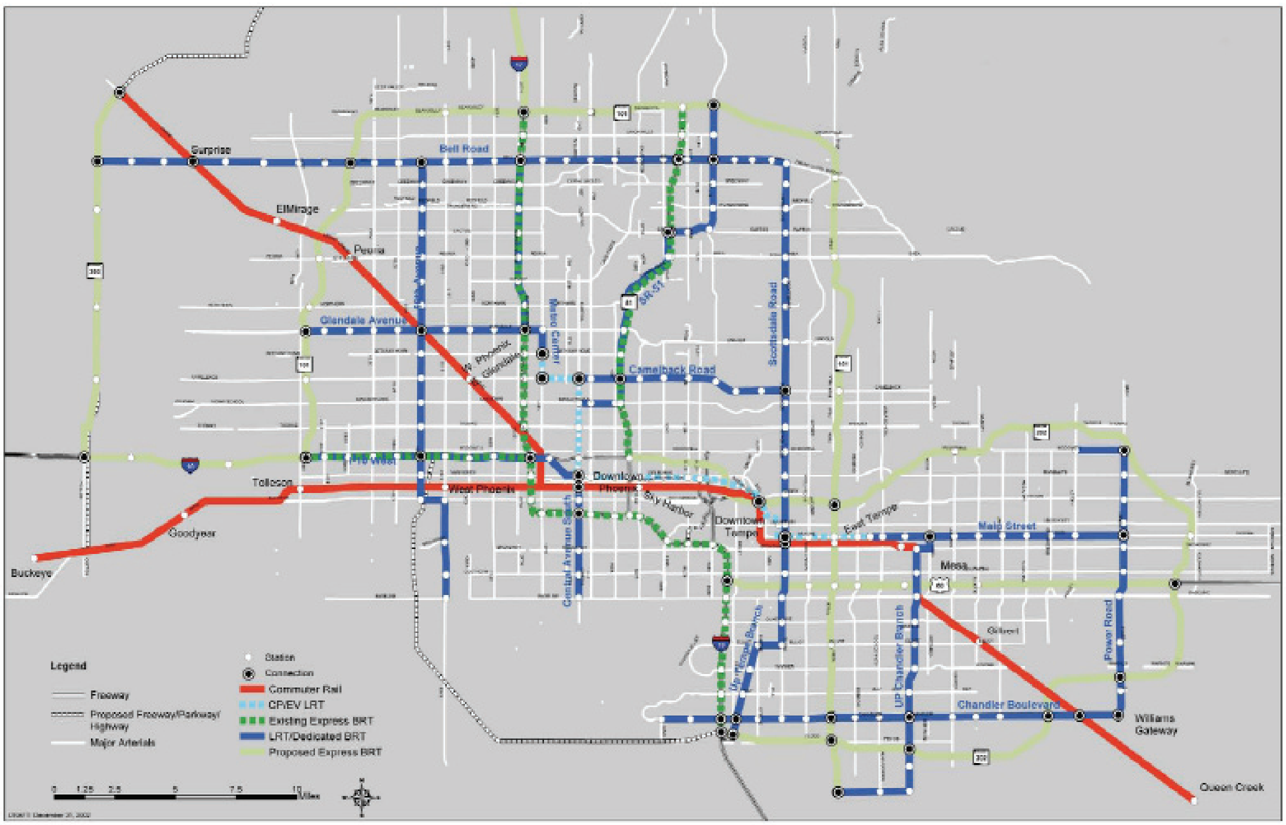
- Alma School Road: University Drive to Southern Avenue
- Baseline Road: Loop 202 (San Tan Freeway) to Springwood
- Broadway Road: Power Road to Hawes Road
- Crismon Road: U.S. 60 to Baseline Road
- Dobson Road: Guadalupe Road to South City Limits
- Greenfield Road: Southern Avenue to Baseline Road
- Guadalupe Road: Hawes Road to Ellsworth Road
- Mountain Road: Elliot Road to Ray Road
- Power Road: Adobe to University Drive
- Southern Avenue: Clearview Avenue to Hawes Road
- Sossaman Road: Hampton Avenue to U.S. 60

5.3.3.5 On-Going and Future Studies

Coordination with the City of Mesa, ADOT, and Maricopa County Department of Transportation (MCDOT) has identified several other current and future studies that will directly influence the findings and recommendations of the PGMA-NADP study. These studies are summarized in this section.

ADOT SR-24 (Williams Gateway Freeway)
SR-24 conceptually begins at Loop 202 (Santan Freeway) near the PMGA and heads east towards Pinal County as part of the RTP approved by Maricopa County voters in 2004. Once in Pinal County, the route continues east and southeast and could join with either U.S. 60 or SR-79.

Exhibit 5-3: High Capacity Transit Network



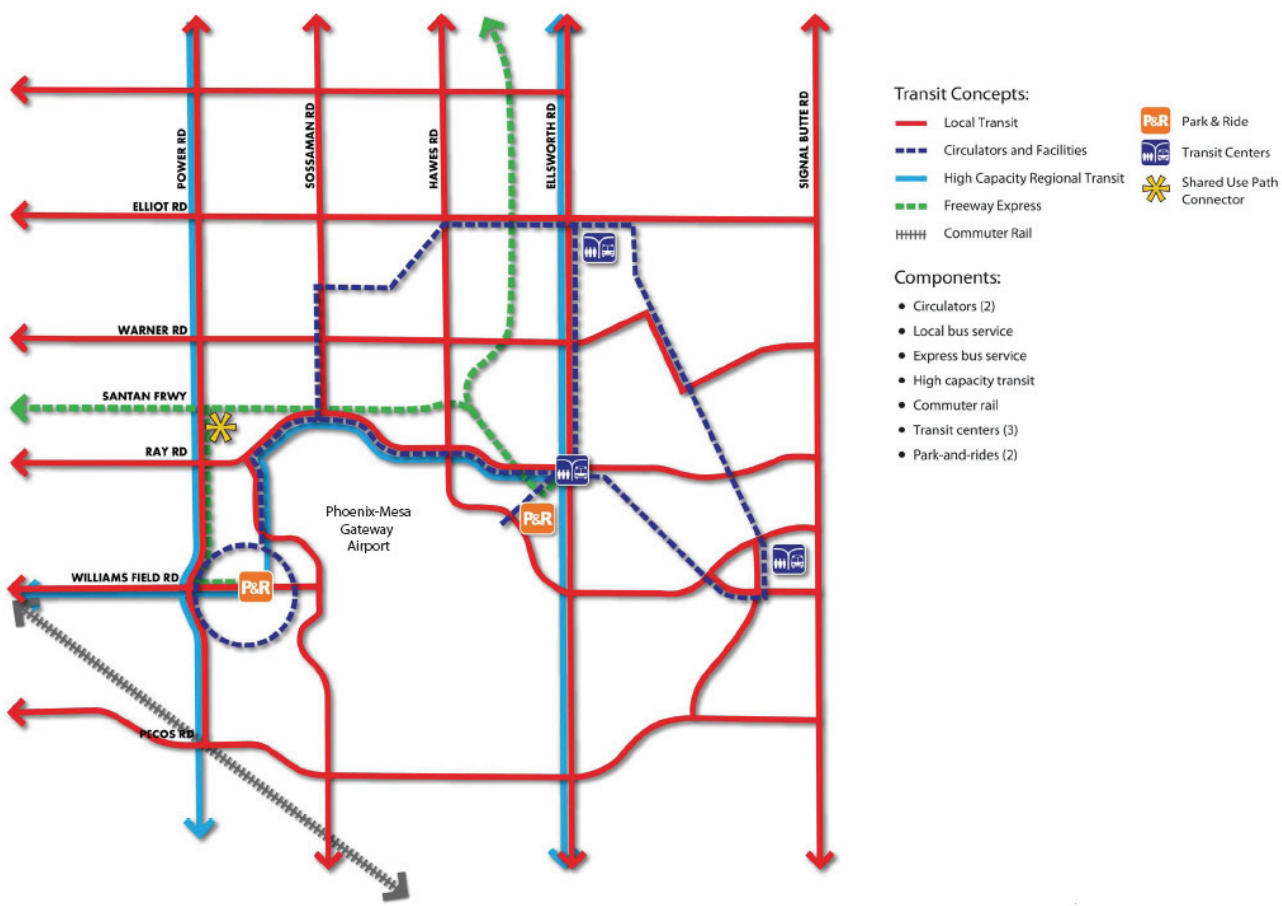
Source: Maricopa Association of Governments

In Fall 2009, ADOT and FHWA announced a separation of the SR-24 Study:

- SR-24, Loop 202 to Ironwood Road (Maricopa County): Study of the portion of SR-24 from Loop 202 to Ironwood Road is advancing, including final design for the first mile of roadway from Loop 202 to Ellsworth Road. Construction will begin in early 2012.
- SR-24 (Pinal County): The portion of SR-24 that continues east into Pinal County has been suspended until another regional study, North-South Freeway (U.S. 60 to I-10), advances.
- The first section of SR 24, from Loop 202 to Ellsworth, is set to begin construction in early 2012.

Successful completion of these studies results in the selection of an alternative and environmental clearances that allow ADOT to move on to detailed design and construction. ADOT and the FHWA, as joint lead agencies, have initiated the Corridor Study for the proposed SR-24 in Maricopa and Pinal Counties.

Exhibit 5-4: Future Transit Concepts



Source: Mesa Gateway Strategic Plan

MCDOT Elliot Road Access Control and Corridor Improvement Study

In partnership with Pinal County, MCDOT began a corridor study on Elliot Road between Power Road and Ironwood Road in Pinal County. This study will make recommendations on the future alignment and cross-section of this east-west arterial that borders the General Motors Proving Grounds to the north.

MCDOT Meridian Road Design Concept Report

The MCDOT, in coordination with the Town of Queen Creek and Pinal County, is currently in the process of conducting a Design Concept Report and Environmental Assessment of Meridian Road between Empire Boulevard and Germann Road. This segment includes a proposed bridge crossing of Queen Creek Wash and a grade-separated interchange at the intersection of Meridian Road with Combs Road, Riggs Road, Rittenhouse Road and the Union Pacific Railroad.

MCDOT Signal Butte Road Corridor Improvement Study

This corridor study on Signal Butte Road between Rittenhouse Road and U.S. 60 was completed in December 2009. It addresses long term transportation needs of the 10.5 mile corridor and passes through portions of the City of Mesa, Town of Queen Creek and unincorporated areas of Maricopa County.

ADOT/FHWA North-South Corridor Study

The purpose of this study is to identify a transportation corridor to connect the U.S. 60 with I-10 in order to provide access to a rapidly growing portion of Pinal County and improve regional mobility. The study began in 2010 and is scheduled for completion in 2013.

Section 6: Market Analysis

6.1 Greater Phoenix Economy Overview

Historically, over the last 60 years, the State of Arizona and its largest metropolitan area, Greater Phoenix, have had robust population, employment, and personal income growth, among the highest in the nation. Greater Phoenix has grown by more than one million persons over each of the last two decades. This growth has been accompanied by significant real estate development and price appreciation for residential and commercial real estate, supported by local job creation and population inflows.

The factors that underlie Arizona's economy drive significant population in-migration, which in turn will drive the recovery in single family home demand and pricing. The employment mix of Greater Phoenix is well diversified and, in many respects, is very similar to the economy of the U.S. It is over-represented in construction and financial activities employment because of its history of rapid growth. While the region is slightly under-represented in durable goods manufacturing compared to the U.S., its primary manufacturing products in aerospace and computer and electronic components position it for future growth. While Greater Phoenix has been hard hit by the current recession, barring global economic disruptions, the worst of the economic cycle appears to have occurred in 2009 with job losses moderating in 2010 and recovery beginning in 2011.

Greater Phoenix has seen dramatic population growth since 1950. In the 1990s, the region grew by more than one million persons. Between 2000 and 2009, another 1.1 million persons have been added to the population.

Table 6-1: Greater Phoenix Population Growth

Greater Phoenix Population Growth

Year	Population	Change in Population	Compounded Annual Growth Rate
1950	374,961		
1960	726,183	351,222	6.8%
1970	1,039,807	313,624	3.7%
1980	1,600,083	560,276	4.4%
1990	2,238,498	638,415	3.4%
2000	3,251,876	1,013,378	3.8%
2009	4,379,634	1,127,758	3.4%

Source: U.S. Bureau of the Census; AZ Dept of Commerce

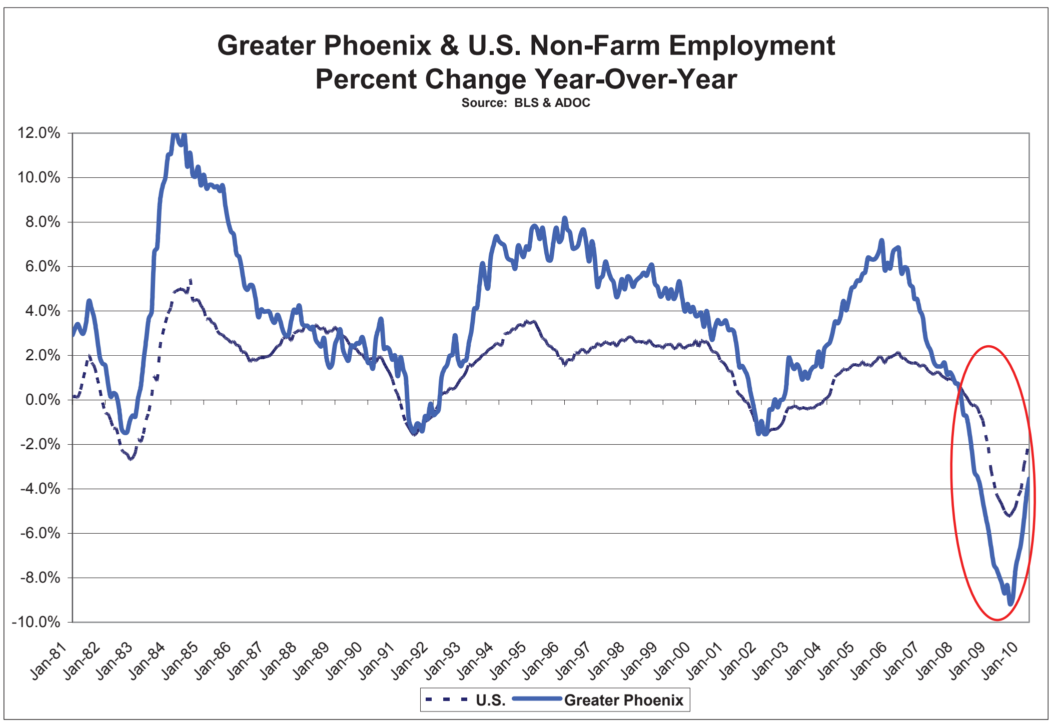
Since 1950, Greater Phoenix has outpaced the nation in terms of growth by a factor of ten. Only the State of Nevada can also boast similar population growth figures. Nevada's economy is primarily based on gambling and tourism and does not have the dynamic potential of Arizona to create higher paying jobs.

6.1.1 The Current State of the Economy

The State of Arizona has been in a recession since at least the end of 2007, consistent with national and global trends. Unfortunately, during the current recession, Greater Phoenix is experiencing a downturn that is more severe than normal. This is due in part to recent overbuilding in both the single family and commercial real estate sectors. Housing downturns have happened before but not to this extent, especially within the single family market.

Greater Phoenix historically outperforms the nation as a whole in times of expansion and recession. This time is different. Primarily due to the significant job losses associated with the real estate and construction industries, the local economy is performing more poorly when compared to the nation as a whole. This is a transitory occurrence. Due to its sound economic fundamentals, job growth in Greater Phoenix is expected to exceed that of the U.S. once the economy stabilizes in the next few years, likely by a significant degree.

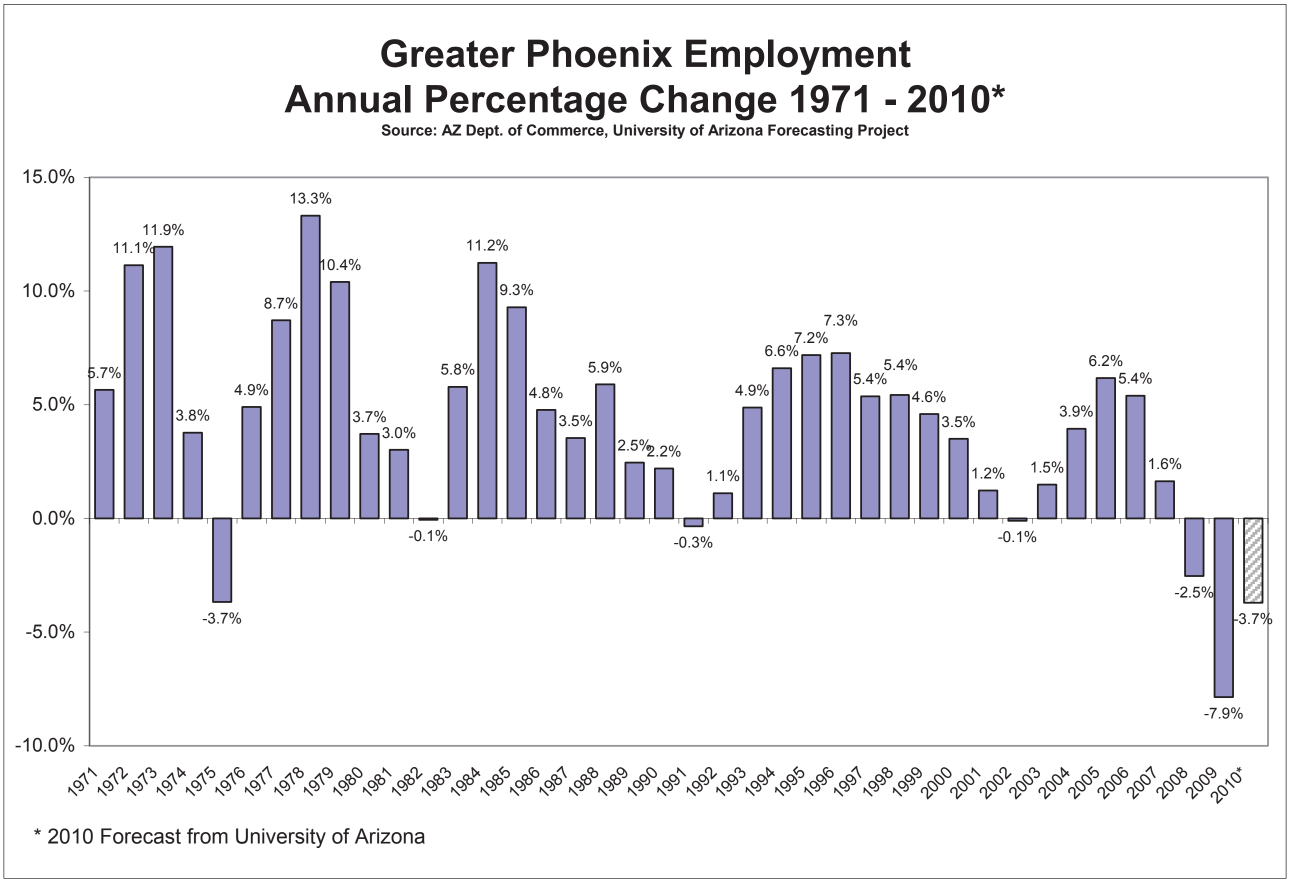
Table 6-2: Greater Phoenix & U.S. Non-Farm Employment Percent Change Year-Over-Year



In 2009, job losses occurred in nearly all employment categories. As of the first quarter of 2010, the Greater Phoenix economy remains stagnant. Over the last two years, Phoenix has lost 220,000 jobs, or about one in every 8.5 jobs that existed three years ago. This is an unprecedented decline. After an employment decline of 2.5 percent in 2008, Greater Phoenix lost another 7.9 percent of jobs in 2009. Through March 2010, another 27,800 jobs have been lost and a total annual decline of 3.7 percent, or 64,000 jobs, is expected by forecasters at the University of Arizona (see following chart for the 2010 forecast). This would mark the first time in history that Greater Phoenix has lost jobs three years in a row.

The decline in employment in Greater Phoenix is largely tied to the demise of the local housing market and the associated ripple effects throughout many related industries. However, even if the excesses of the recent housing market boom had not occurred to the degree that it did, the local economy would still be affected by the national economic downturn. The overbuilding and related

Table 6-3: Greater Phoenix Employment Annual Percentage Change 1971-2010



financial turmoil that occurred in Greater Phoenix and many other communities across the nation turned a potentially mild downturn into a severe recession.

According to the Arizona Department of Commerce, the hardest hit sectors as of March 2010 were construction, mining, manufacturing and information, though most all sectors declined except health and educational services and wholesale trade. Because it makes up a large portion of the

Table 6-4: Phoenix-Mesa Employment March 2010 vs. March 2009

Phoenix-Mesa MSA Employment
March 2010 vs March 2009

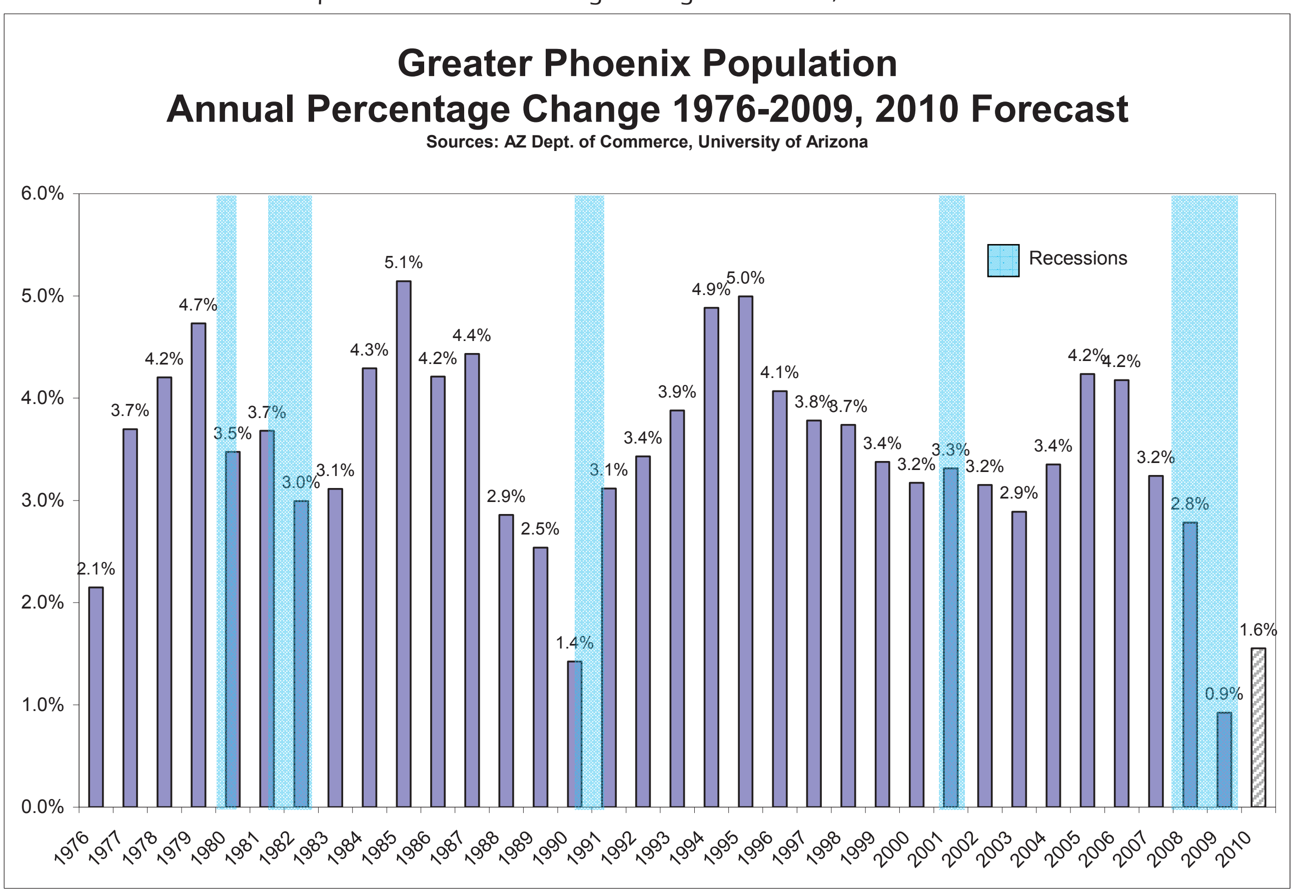
Sectors in Decline	% Change	Growing Sectors	% Change
Natural Resources and Mining	-13.1%	Wholesale Trade	0.9%
Construction	-21.1%	Educational Services	9.6%
Manufacturing	-9.0%	Health Care and Social Assistance	1.6%
Retail Trade	-1.6%		
Transp., Warehousing, and Utilities	-5.5%		
Information	-8.4%		
Financial Activities	-4.9%		
Professional and Business Services	-5.2%		
Leisure and Hospitality	-3.1%		
Other Services	-5.7%		
Government	-3.1%		

Source: Arizona Department of Commerce, Research Administration

economy, more professional services jobs were lost in the first three months of 2010 than in any other sector.
The educational services and health care and social assistance industries in Greater Phoenix are two of the major growth sectors of the local economy, consistent with national trends and the aging of the population. These two sectors grew by 86,600 jobs between 2000 and 2009, more than any other industry category. At the start of this decade, the sectors accounted for 8.7% of all employment. By 2009, that percentage had increased to 13.5 percent.

The current weak national economy has seriously affected many parts of the Greater Phoenix economy, including tourism and retirement housing, as well as the region's manufacturing base of semiconductors and aerospace. Household net worth declined nationally due to the fall in housing prices and the stock market, which is still more than 30 percent off its peak. This led to fewer people retiring and made it more difficult for people to sell houses elsewhere to move to Greater Phoenix. As a result, population flows to the region slowed dramatically by any measure. Net residential utility hookups by APS and SRP, school enrollment and estimates by the Arizona Department of Commerce all show very little, if any population growth. Based on current estimates, population growth dropped from 3.1 percent in 2007 to 0.9 percent in 2009. This means that a market that had an increase of more than 130,000 residents per year in the early years of this decade dropped to essentially a level of births over deaths in 2009. By 2011 or 2012, net migration should once again return to the long term average of comprising two-thirds of annual population growth.

Table 6-5: Greater Phoenix Population Annual Percentage Change 1976-2009, 2010 Forecast



6.1.2 Employment Mix and Diversity

Over the last 60 years, the economic base of the Greater Phoenix area has diversified from mining and farming into a well-rounded modern economy. Explosive growth occurred in the last 20 years as people moved from the "snowbelt" and "rustbelt" states in the northeast to the "sunbelt" states in the south, the southwest, and Southern California. Major corporations followed as well. The attraction of these primary industries also created demand for local market industries such as retail and wholesale trade. Over-regulation of businesses and financial mismanagement in California further induced growth into Arizona and Greater Phoenix especially.

The diversity of the employment mix is the primary reason why one sector alone has not caused the Greater Phoenix economy as a whole to deteriorate as rapidly as other areas of the U.S. during recessions. The recession of 2007-08, however, is much different and the one exception to the statement above.

The employment mix of Greater Phoenix is well diversified and mirrors that of the United States in many respects. It is over-represented in construction and financial activities employment when compared to the U.S. as a whole. This is due to the rapid population and employment growth the area experienced and the resulting demand for housing. It is under-represented in manufacturing, but its manufacturing mix is much more concentrated in high technology than that of the United States. This is a positive in the long run because the high technology manufacturing sectors are in an earlier stage of their life cycle than most manufacturing industries and usually produce high value added goods. However, growth in chip manufacturers has been anemic domestically as companies have moved employment overseas.

The following chart compares the percent distribution of employment of Greater Phoenix to that of the U.S. economy. The last column of the chart represents the ratio of the percentages of the two columns to the right. A value over 1.0 indicates the Greater Phoenix economy is more heavily represented in that industry than the U.S.; a value under 1.0 indicates under-representation in the industry.

As noted previously, construction is over-represented in the Greater Phoenix employment mix while manufacturing is under-represented (although durable goods manufacturing is nearly equal to the U.S.). Financial activities and professional services are over-represented by a significant degree, largely due to the explosive growth of Greater Phoenix. Education and health services are under-represented, but as noted previously, this sector has grown rapidly during the last ten years. Greater Phoenix has much less government employment than the nation overall.

Manufacturing is considered a "base" industry by economists. Base industries are important to an economy because they produce higher multiplier effects than jobs in other sectors. Base industries in an economy are ones where goods are produced and then exported out of the area, thus bringing money from outside the region into the local economy. One exception is tourism, which is a base industry, but which produces no tangible goods. However, the industry brings out-of-region dollars to be spent in the local economy. Base industries support local market industries such as retail and local business services. Without base industries, local economies would not function.

Table 6-6: Comparison of Greater Phoenix and U.S. Employment Percent Distribution

Comparison of Greater Phoenix and U.S. Employment Percent Distribution

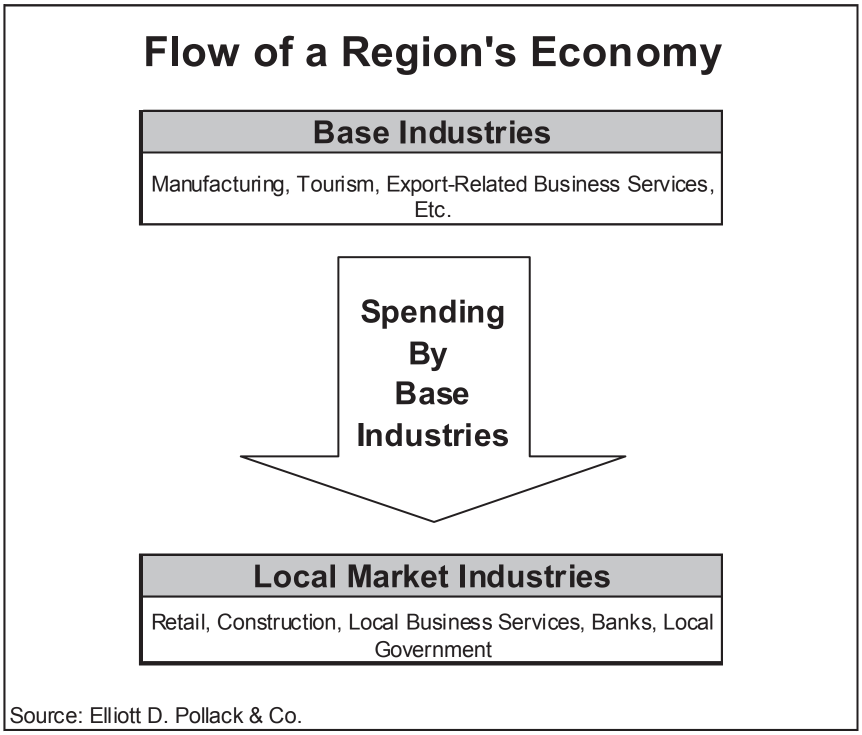
Industry	March 2010 Greater Phoenix	March 2010 U.S.	Ratio of Greater Phoenix to U.S.
Total Nonfarm Employment	**100.0%**	**100.0%**	**1.00**
Total Private Employment	**85.7%**	**82.2%**	**1.04**
Goods Producing Industries			
Natural Resources and Mining	**0.2%**	**0.5%**	**0.32**
Construction	**4.9%**	**4.1%**	**1.21**
Manufacturing	**6.4%**	**8.9%**	**0.72**
Durable Goods	5.0%	5.5%	0.92
Non-Durable Goods	1.4%	3.4%	0.41
Total Goods Producing	**11.5%**	**13.5%**	**0.85**
Service-Providing Industries			
Trade, Transportation, and Utilities	**21.0%**	**18.9%**	**1.11**
Utilities	0.5%	0.4%	1.17
Wholesale Trade	5.1%	4.3%	1.19
Retail Trade	12.3%	11.0%	1.12
Transportation and Warehousing	3.1%	3.2%	0.97
Information	**1.6%**	**2.1%**	**0.76**
Financial Activities	**8.0%**	**5.9%**	**1.36**
Professional and Business Services	**15.9%**	**12.7%**	**1.25**
Educational and Health Services	**13.5%**	**15.2%**	**0.89**
Educational Services	2.4%	2.5%	0.94
Health Care and Social Assistance	11.1%	12.6%	0.88
Leisure and Hospitality	**10.3%**	**9.8%**	**1.05**
Other Services	**3.9%**	**4.1%**	**0.96**
Government	**14.3%**	**17.8%**	**0.80**
Federal Government	1.3%	2.2%	0.60
State and Local Government	12.9%	15.5%	0.83
Total Service-Providing	**88.5%**	**86.2%**	**1.03**

Sources: University of Arizona Forecasting Project Q1 2010, U.S. Bureau of Labor Statistics

Arizona's manufacturing industry is concentrated in Greater Phoenix. According to the Arizona Department of Commerce, Research Administration, as of the third quarter of 2009 (the latest establishment data available) the Phoenix-Mesa-Scottsdale MSA has 3,486 manufacturing firms employing 111,403 or 74.0 percent of the state's total manufacturing employment. Major manufacturers located in the Phoenix-Mesa-Scottsdale MSA include, in addition to those mentioned previously, Freeport-McMoRan, IBM, Freescale, and General Dynamics. Each of these firms participates in high technology manufacturing as part of their core business.

Manufacturing employment in Greater Phoenix declined from 2007 to 2009 with the largest decline of 12.1 percent occurring in 2009. For the 1st Quarter of 2010, preliminary estimates show manufacturing retracting by another 9.0 percent compared to the First Quarter of 2009. This compares to declines of 11.4 percent in 2009 and 6.6 percent through the 1st Quarter of 2010 for U.S. manufacturing. The fourth quarter 2009 Greater Phoenix Blue Chip Economic Forecast suggests that job losses in manufacturing will end in 2010 with an overall increase of 0.2 percent. By comparison, the University of Arizona Forecasting Project suggests that manufacturing will rebound with a 2.0 percent increase in employment in 2010.

Exhibit 6-1: Flow of a Region's Economy



6.1.3 Greater Phoenix Housing Market History

A discussion of the Greater Phoenix economy would not be complete without a summary of the housing market. Historically, the incremental demand for single family homes due to population growth in Greater Phoenix is approximately 35,000 to 40,000 new units annually. From 1998 through 2002, new home permits in Greater Phoenix averaged approximately 36,200 per year. During the four years from 2003 through 2006, the average number of new home permits climbed to 51,600 per year with a peak in 2005 of over 61,000 units. This implies the possibility that during that four year period, between 55,000 and 75,000 more homes were built beyond the true underlying demand, based on historic and projected population growth. In our opinion, the additional homebuilding activity was based on speculative buying with the expectation of virtually guaranteed capital appreciation coupled with the sale of houses to buyers who previously would have been unable to get mortgages based on their credit profiles.

By 2007, it was apparent that the sources of demand which had driven the boom, particularly speculative investment and sub-prime buyers, were unsustainable. For example, Greater Phoenix had gone from being the most affordable market in the West in 2003 to one of the least affordable by the beginning of 2007. Local income levels did not keep up with home prices, reaching a point in late 2006 where less than 27 percent of homes in the metro area were affordable to families making the median income. Comparatively, at the end of 2003, nearly 74 percent of homes were affordable at the median income. As a result, new home permits dropped dramatically to 30,029 in 2007, 14,375 in 2008, 8,487 in 2009 and 2,438 for the first quarter of 2010.

Despite the dramatic decrease in new building activity, a significant surplus of single family homes had been exacerbated by significant defaults, foreclosures and repossessions. Distressed owners put properties on the market in increasing numbers resulting in declining prices and further foreclosures. Mortgage lenders experienced significant liquidity problems, adding to the inventory of properties for sale but also reducing the ability of potential buyers to obtain mortgage financing even at what were now lower, more attractive prices. Knowledgeable industry participants were also aware that behind the explicit inventory of for-sale properties there was an additional layer of shadow inventory of additional distressed owners and properties that lenders were not bothering to even put on the market. Currently, this overhang is estimated at as much as 46,000 units that are in the foreclosure process. Assuming no new building, it would take approximately 1.5 years to absorb the excess inventory of foreclosed single family homes.

The status of the Greater Phoenix economy and housing market is summarized in the following points.

- The current recession is the deepest Greater Phoenix has experienced since the Great Depression and the recession's effects locally are far worse than in many other areas of the country. There has been no recovery in employment thus far, more than nine quarters after the start of the recession in December 2007. Greater Phoenix has not experienced such a loss of employment nor such a long recovery in its short history.
- There is a significant oversupply of single family homes in the market, perhaps as many as 80,000 to 90,000 units according to ASU.
- Until population flows to Greater Phoenix begin again, the oversupply of housing units will place downward pressure on prices and likely limit the construction of new homes.
- Investors are a significant force in the single family housing market. While the volume of home sales is impressive, the homes purchased by investors will eventually come back on the market for sale. In other words, the surplus of homes is not being absorbed by traditional homebuyers and will remain until population flows increase.
- Mortgage delinquencies and foreclosures have not subsided. More than 7,000 homeowners each month are being served with notices of trustee sales. The number of homes in the foreclosure process is currently approaching 50,000.

6.1.4 Long Term Forecasts for Greater Phoenix

The primary source of forecasting estimates for this section of the report is the University of Arizona Forecasting Project within the Economic and Business Research Center. Long term forecasts are for the next 10 years. All forecasts are updated quarterly to current conditions. The forecasts cited in this report were prepared in the First Quarter 2010.

In spite of the current economic conditions, Greater Phoenix is expected to bounce back over the next few years in population and employment growth. From the bottom of the cycle in 2010 through 2019, Greater Phoenix is expected to grow by more than 1.2 million persons accompanied by the construction of 377,000 housing units. By 2012, in-migration is expected to return to historic levels of 90,000 persons per year. By 2019, Greater Phoenix is expected to have a population of 5.6 million compared to an estimated population of 4.4 million in 2010.

Likewise job growth is expected to turn positive in 2011 and by 2014 the region is expected to return to its peak level of employment experienced in 2007. Between 2010 and 2019, employment is expected to grow by more than 660,000 jobs across all sectors. So while the short term forecast is dismal and still uncertain, the mid to long term outlook is very positive.

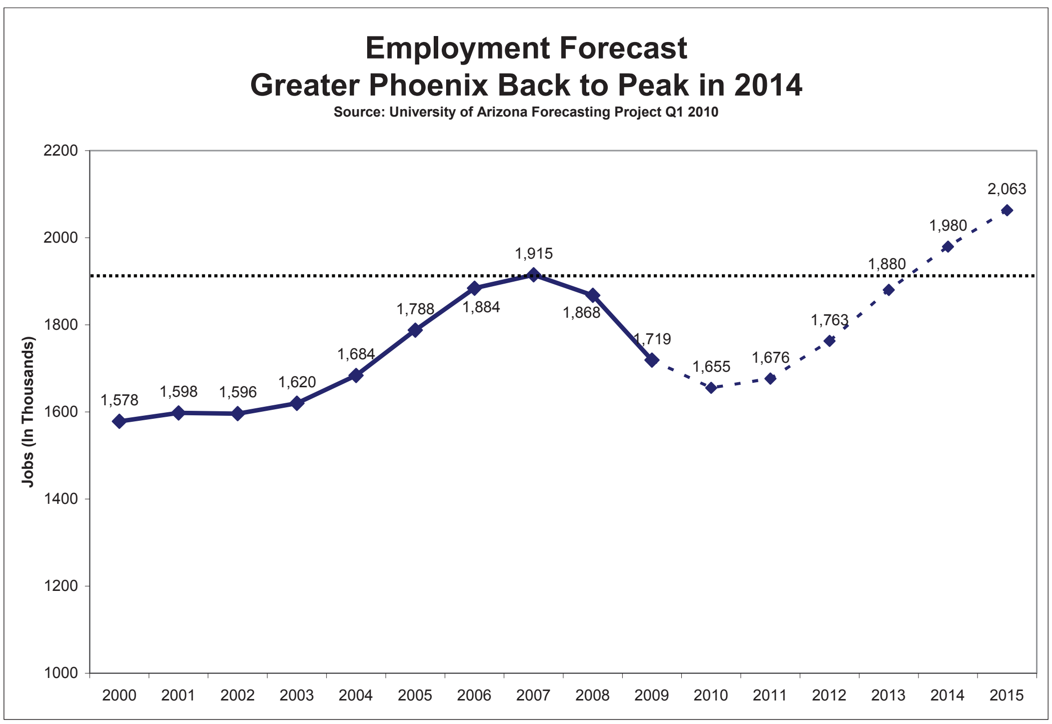
(Note: The employment estimates for 2009 and 2010 in the following tables differ slightly from actual employment figures presented in Sub-Section 6.2.3. This difference is due to the release of "preliminary" employment estimates available at the time forecasts are prepared, but which are subject to revision at later dates. Forecasts by the University of Arizona are typically made from the most recent and best information available at the end of each quarter.)

Table 6-7: Greater Phoenix Economic Forecast

Greater Phoenix Economic Forecast 2010 - 2019

	Building Permits			Employment		Population	
Year	Single Family	Multi-Family	Total	Jobs	% Change	Persons	% Change
2007	26,404	10,868	37,272	1,914,833		4,165,921	
2008	12,657	5,876	18,533	1,867,908	-2.5%	4,281,899	2.8%
2009	8,657	702	9,359	1,718,975	-8.0%	4,321,377	0.9%
2010	13,320	733	14,052	1,655,271	-3.7%	4,388,536	1.6%
2011	28,060	999	29,060	1,676,458	1.3%	4,498,130	2.5%
2012	36,359	3,516	39,875	1,763,015	5.2%	4,629,525	2.9%
2013	39,568	5,979	45,547	1,880,184	6.6%	4,774,531	3.1%
2014	38,023	6,634	44,657	1,979,504	5.3%	4,917,504	3.0%
2015	36,861	7,028	43,890	2,063,185	4.2%	5,058,694	2.9%
2016	35,085	7,412	42,497	2,128,525	3.2%	5,196,579	2.7%
2017	34,585	8,123	42,708	2,189,409	2.9%	5,334,970	2.7%
2018	34,798	8,906	43,704	2,251,424	2.8%	5,475,724	2.6%
2019	35,473	9,905	45,378	2,319,174	3.0%	5,620,347	2.6%
2010-2019 Change	**318,812**	**58,502**	**377,314**	**663,903**	**40.1%**	**1,231,811**	**28.1%**

Source: University of Arizona Forecasting Project Q1 2010



The composition of employment in Greater Phoenix is expected to change over time and become less manufacturing-oriented and more service-based. This transformation follows a similar trend for the overall U.S. economy. The following table compares Greater Phoenix's 2009 employment composition and the 2018 employment forecast from the University of Arizona Forecasting Project to similar data for the U.S. (2018 is the only available long term forecast from the Bureau of Labor Statistics). The last column of the chart represents the ratio of the percentages of the two columns to the right. A value over 1.0 indicates the Greater Phoenix economy is more heavily represented in that industry than the U.S.; a value under 1.0 indicates under-representation in the industry.

Table 6-8: Greater Phoenix Wage & Salary Employment Forecast 2009-2019

Wage & Salary Employment Forecast 2009 - 2019
Greater Phoenix
Annual Average Employment and Percent Change in Employment

	Annual Average Employment (Thousands)											2010-2019
Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change
Natural Resources and Mining	**3.0**	**2.7**	**2.8**	**3.0**	**3.1**	**3.1**	**3.2**	**3.2**	**3.2**	**3.1**	**2.9**	**0.3**
Construction	**98.6**	**72.1**	**66.3**	**78.9**	**106.7**	**123.2**	**131.5**	**129.1**	**128.0**	**126.5**	**128.0**	**55.9**
Manufacturing	**112.2**	**114.4**	**117.2**	**121.1**	**125.1**	**126.5**	**127.1**	**127.0**	**127.3**	**127.9**	**127.7**	**13.3**
Durable Goods	89.6	92.1	94.2	97.2	100.7	101.7	102.0	101.7	101.7	102.0	101.7	9.6
Non-Durable Goods	22.6	22.3	23.0	23.9	24.4	24.8	25.1	25.3	25.6	25.9	26.0	3.7
Trade, Transportation, and Utilities	**354.6**	**342.7**	**347.8**	**365.0**	**382.0**	**400.1**	**417.1**	**432.6**	**446.8**	**461.4**	**477.2**	**134.5**
Wholesale Trade	84.8	77.2	77.6	81.4	86.5	91.0	95.9	100.3	104.4	108.4	112.7	35.5
Retail Trade	207.9	204.3	206.5	214.2	222.7	233.1	242.3	250.4	257.8	265.6	274.3	70.0
Transp., Warehousing, and Utilities	62.0	61.2	63.7	69.4	72.8	76.0	79.0	81.8	84.6	87.4	90.1	29.0
Information	**30.4**	**28.3**	**30.5**	**31.4**	**31.6**	**31.6**	**32.0**	**32.3**	**32.8**	**33.0**	**33.1**	**4.8**
Financial Activities	**138.8**	**140.0**	**144.2**	**150.3**	**158.3**	**167.7**	**175.8**	**182.8**	**189.0**	**195.4**	**202.3**	**62.3**
Professional and Business Services	**276.6**	**255.9**	**252.6**	**269.3**	**298.6**	**323.5**	**344.9**	**363.2**	**377.1**	**391.2**	**405.7**	**149.8**
Educational and Health Services	**223.5**	**225.9**	**233.7**	**244.9**	**256.2**	**267.4**	**278.2**	**288.8**	**299.7**	**310.6**	**321.8**	**95.9**
Educational Services	37.2	36.2	38.5	41.0	43.8	46.7	49.1	51.6	54.3	56.7	59.3	23.2
Health Care and Social Assistance	186.3	189.7	195.3	204.0	212.4	220.7	229.0	237.2	245.5	253.9	262.5	72.8
Leisure and Hospitality	**174.5**	**172.1**	**178.1**	**186.5**	**194.9**	**202.1**	**208.8**	**215.4**	**221.9**	**228.7**	**236.0**	**63.9**
Other Services	**69.5**	**72.4**	**76.2**	**80.5**	**83.6**	**86.7**	**89.8**	**92.8**	**95.8**	**98.9**	**102.1**	**29.7**
Government	**237.2**	**228.9**	**226.9**	**232.1**	**240.1**	**247.6**	**254.9**	**261.4**	**267.9**	**274.9**	**282.4**	**53.5**
Total Nonfarm	**1,719.0**	**1,655.3**	**1,676.5**	**1,763.0**	**1,880.2**	**1,979.5**	**2,063.2**	**2,128.5**	**2,189.4**	**2,251.4**	**2,319.2**	**663.9**

	Annual Percent Change in Employment Forecast											2010-2019
Industry	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Change
Natural Resources and Mining	**-22.8%**	**-11.2%**	**5.7%**	**5.1%**	**3.1%**	**1.8%**	**1.7%**	**0.6%**	**-1.8%**	**-3.0%**	**-3.6%**	**9.5%**
Construction	**-29.3%**	**-26.9%**	**-8.0%**	**18.9%**	**35.3%**	**15.5%**	**6.7%**	**-1.8%**	**-0.9%**	**-1.2%**	**1.2%**	**77.6%**
Manufacturing	**-13.8%**	**2.0%**	**2.4%**	**3.4%**	**3.2%**	**1.1%**	**0.5%**	**-0.1%**	**0.2%**	**0.4%**	**-0.1%**	**11.6%**
Durable Goods	-13.5%	2.8%	2.3%	3.2%	3.5%	1.0%	0.3%	-0.3%	0.0%	0.3%	-0.3%	10.4%
Non-Durable Goods	-14.4%	-1.3%	2.9%	4.1%	2.1%	1.5%	1.4%	0.8%	1.1%	1.0%	0.5%	16.5%
Trade, Transportation, and Utilities	**-7.5%**	**-3.4%**	**1.5%**	**4.9%**	**4.7%**	**4.7%**	**4.3%**	**3.7%**	**3.3%**	**3.3%**	**3.4%**	**39.2%**
Wholesale Trade	-4.7%	-8.9%	0.5%	4.8%	6.3%	5.3%	5.3%	4.6%	4.0%	3.8%	4.1%	46.0%
Retail Trade	-8.5%	-1.7%	1.1%	3.7%	4.0%	4.6%	4.0%	3.4%	3.0%	3.0%	3.3%	34.3%
Transp., Warehousing, and Utilities	-7.7%	-1.4%	4.2%	9.0%	4.9%	4.4%	3.9%	3.6%	3.4%	3.3%	3.1%	47.4%
Information	**-3.6%**	**-7.0%**	**7.8%**	**3.2%**	**0.5%**	**0.1%**	**1.1%**	**1.0%**	**1.6%**	**0.6%**	**0.4%**	**17.1%**
Financial Activities	**-5.7%**	**0.8%**	**3.0%**	**4.2%**	**5.3%**	**5.9%**	**4.8%**	**4.0%**	**3.4%**	**3.4%**	**3.5%**	**44.5%**
Professional and Business Services	**-10.9%**	**-7.5%**	**-1.3%**	**6.6%**	**10.9%**	**8.3%**	**6.6%**	**5.3%**	**3.8%**	**3.7%**	**3.7%**	**58.6%**
Educational and Health Services	**2.3%**	**1.1%**	**3.5%**	**4.8%**	**4.6%**	**4.4%**	**4.0%**	**3.8%**	**3.8%**	**3.6%**	**3.6%**	**42.5%**
Educational Services	4.4%	-2.7%	6.3%	6.6%	6.8%	6.7%	5.2%	5.1%	5.1%	4.5%	4.6%	64.0%
Health Care and Social Assistance	2.0%	1.8%	2.9%	4.4%	4.1%	3.9%	3.8%	3.6%	3.5%	3.4%	3.4%	38.4%
Leisure and Hospitality	**-5.7%**	**-1.4%**	**3.5%**	**4.7%**	**4.5%**	**3.7%**	**3.3%**	**3.1%**	**3.0%**	**3.1%**	**3.2%**	**37.1%**
Other Services	**-5.3%**	**4.2%**	**5.3%**	**5.6%**	**3.9%**	**3.7%**	**3.5%**	**3.3%**	**3.3%**	**3.2%**	**3.2%**	**41.0%**
Government	**-3.4%**	**-3.5%**	**-0.9%**	**2.3%**	**3.4%**	**3.1%**	**2.9%**	**2.5%**	**2.5%**	**2.6%**	**2.7%**	**23.4%**
Total Nonfarm	**-8.0%**	**-3.7%**	**1.3%**	**5.2%**	**6.6%**	**5.3%**	**4.2%**	**3.2%**	**2.9%**	**2.8%**	**3.0%**	**40.1%**

Sources: University of Arizona Forecasting Project Q1 2010

Overall, manufacturing employment in Greater Phoenix is expected to decrease from 6.4 percent of all jobs to 5.7 percent by 2018. A similar decline in manufacturing is expected for the U.S. as well. Total goods producing employment is expected to fall slightly in Greater Phoenix and increase slightly in the U.S. However, virtually all of that growth is expected to be in the construction industry.

The shift to more service-providing employment in Greater Phoenix is expected to mirror that of the U.S. Trade, transportation and utilities, leisure and hospitality, and government are expected to fall slightly as a percentage of total employment while all other categories will increase. In general, both the Greater Phoenix and U.S. economies are forecasted to become more service-oriented with most growth occurring in financial activities, professional and business services, and educational and health services. Greater Phoenix's economy will essentially mirror that of the U.S., although the manufacturing sector, one of the most important sources of wealth of the region, will decline over time.

Table 6-9: Comp. of Greater Phoenix & U.S. Employment Current Employment vs. 2018 Forecast

Comparison of Greater Phoenix and U.S. Employment
Current Employment Vs. 2018 Forecast
Percent Distribution

Industry	2009 Greater Phoenix	2009 U.S.	2009 Ratio Greater Phx to U.S.	2018 Forecast Greater Phoenix	2018 Forecast U.S.	2018 Forecast Ratio Greater Phx to U.S.
Total Nonfarm Employment	**100.0%**	**100.0%**	**1.00**	**100.0%**	**100.0%**	**1.00**
Total Private Employment	**85.7%**	**82.2%**	**1.04**	**87.8%**	**84.1%**	**1.04**
Goods Producing Industries						
Natural Resources and Mining	**0.2%**	**0.5%**	**0.32**	**0.1%**	**0.4%**	**0.34**
Construction	**4.9%**	**4.1%**	**1.21**	**5.6%**	**5.6%**	**1.00**
Manufacturing	**6.4%**	**8.9%**	**0.72**	**5.7%**	**8.0%**	**0.71**
Durable Goods	5.0%	5.5%	0.92	4.5%	n/a	n/a
Non-Durable Goods	1.4%	3.4%	0.41	1.1%	n/a	n/a
Total Goods Producing	**11.5%**	**13.5%**	**0.85**	**11.4%**	**14.0%**	**0.81**
Service-Providing Industries						
Trade, Transportation, and Utilities	**21.0%**	**18.9%**	**1.11**	**20.5%**	**18.2%**	**1.13**
Utilities	0.5%	0.4%	1.17	0.4%	0.3%	1.34
Wholesale Trade	5.1%	4.3%	1.19	4.8%	4.1%	1.18
Retail Trade	12.3%	11.0%	1.12	11.8%	10.5%	1.12
Transportation and Warehousing	3.1%	3.2%	0.97	3.4%	3.2%	1.06
Information	**1.6%**	**2.1%**	**0.76**	**1.5%**	**2.0%**	**0.72**
Financial Activities	**8.0%**	**5.9%**	**1.36**	**8.7%**	**5.7%**	**1.52**
Professional and Business Services	**15.9%**	**12.7%**	**1.25**	**17.4%**	**14.4%**	**1.21**
Educational and Health Services	**13.5%**	**15.2%**	**0.89**	**13.8%**	**15.5%**	**0.89**
Educational Services	2.4%	2.5%	0.94	2.5%	2.5%	1.00
Health Care and Social Assistance	11.1%	12.6%	0.88	11.3%	13.0%	0.87
Leisure and Hospitality	**10.3%**	**9.8%**	**1.05**	**10.2%**	**9.6%**	**1.06**
Other Services	**3.9%**	**4.1%**	**0.96**	**4.4%**	**4.7%**	**0.94**
Government	**14.3%**	**17.8%**	**0.80**	**12.2%**	**15.9%**	**0.77**
Federal Government	1.3%	2.2%	0.60	1.1%	1.9%	0.57
State and Local Government	12.9%	15.5%	0.83	11.1%	14.0%	0.80
Total Service-Providing	**88.5%**	**86.2%**	**1.03**	**88.6%**	**86.0%**	**1.03**

Sources: University of Arizona Forecasting Project Q1 2010, U.S. Bureau of Labor Statistics

6.1.5 Drivers of Employment Growth

The driving forces that will bring substantial employment and personal income growth to the region in the future are focused around several industries that have a strong presence in the Greater Phoenix area or that are emerging as industries that are a strong match to the Greater Phoenix environment and its workforce. The Greater Phoenix Economic Council and the Arizona Department of Commerce have identified a number of "target" industries that are currently present in the region and could be expanded or whose workforce requirements are well-suited to Greater Phoenix's assets. Those industries include:

- Construction: The University of Arizona forecasts that construction will grow by nearly 56,000 jobs through 2019.

- Advanced Business and Financial Services: This category includes investment banking, data and call centers, credit, mortgage processing and sales and similar businesses. Greater Phoenix's lack of natural disasters, a growing workforce, steady climate, telecommunications infrastructure, and ease of access to other markets across the country make it an ideal location for companies in this industry.

- Aerospace: One of Greater Phoenix's strengths is its aerospace industry, founded in many respects due to the near-perfect flying weather and its long history with military air bases. The region is ranked as the tenth largest aerospace and defense market in the U.S.

- Bioscience: This is an emerging industry in Greater Phoenix that is primarily involved in medical research and medical devices. Medical research companies include The Mayo Clinic and Hospital (5,080 employees), Barrow Neurological Institute (140 employees) and the Translational Genomics Research Institute (TGen) (275 employees). Medical device companies include W.L. Gore & Associates, Bard Peripheral Vascular and Metronics.

- Healthcare: Rapid population growth creates demand for healthcare services. The Greater Phoenix area has more than 80 licensed hospitals and 8,000 beds. The healthcare industry is forecasted to grow by 38 percent by 2019 and 73,000 jobs.

- High Tech: This category generally encompasses the computer and electronic products industry. Companies currently located in the region include Intel (10,000 employees), Microchip (1,500 employees), Freescale Semiconductor (1,450 employees), Texas Instruments (1,000 employees) and STMicroelectronics (900 employees). This industry is expected to have modest, but positive growth through 2019.

- Solar: The solar industry is an emerging but natural fit for Greater Phoenix. Some of the larger companies that have located in the region include First Solar, Kyocera Solar and Stirling Energy Systems. The industry is building upon Greater Phoenix's concentration of semiconductor workforce.

- Tourism: The tourism industry is expected to continue to be a major component of the economy.

The above industries represent the primary drivers of employment growth in Greater Phoenix for the foreseeable future. In the emerging industries of bioscience and solar, there is significant competition and, even if there is substantial growth in these industries, they will likely provide only limited economic benefits. However, Greater Phoenix's existing base of assets in construction, aerospace, advanced business systems, healthcare, high tech and tourism should assure a healthy and diverse economy for the future.

6.1.6 Summary

During this recession period, Greater Phoenix has been hit by a perfect storm of events, causing a harsh downturn that is worse than in many other parts of the country. The severe national recession coupled with a collapse in the local residential and commercial real estate markets has caused exceptional declines in employment and real estate values. Based on current conditions and trends in the economy, there is still much uncertainty in the housing market, although all indicators point to recovery beginning in 2011.

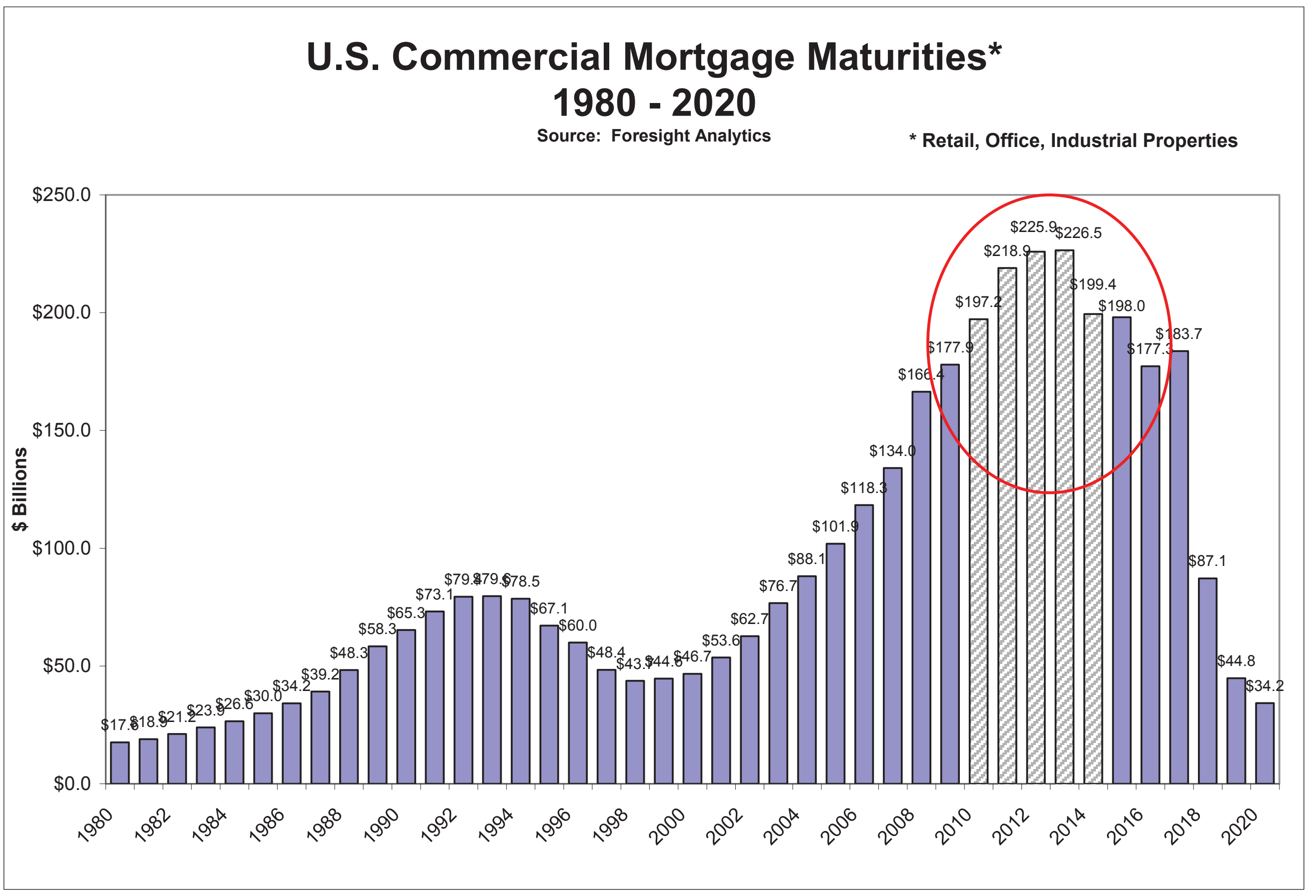
The fundamentals which have allowed Greater Phoenix to thrive and outpace the nation over the past several decades remain in place. Over the long term, Greater Phoenix will return to relative normality, creating jobs and growing at a rate well above that of the nation as a whole. There has been no change in the region's aesthetic attractiveness and no change in important tax laws. The recent declines in housing prices have again made the metro area one of the most affordable in the West. It is difficult to predict with any certainty the timing of the recovery in the local economy. However, the underlying fundamentals in the Greater Phoenix economy suggest that the recovery and subsequent expansion of the economy should follow historical patterns and outpace the rest of the country as it has consistently for more than fifty years.

6.2 Greater Phoenix Commercial Real Estate Market

The commercial real estate market in Greater Phoenix, comprised of the retail, office, and industrial sectors, has been seriously affected by the current recession and housing market collapse. The impact on the market has come from (1) the loss of consumer confidence and a corresponding decline in retail spending and (2) the loss of jobs in virtually all sectors of the economy which has led to rising vacancy rates in office and industrial properties. Compounding the situation is a looming financing crisis that will likely affect the commercial real estate markets over the next several years. Record growth in the mortgage market during the last decade has created unprecedented volumes of maturing commercial mortgages. According to Foresight Analytics, from 2010 to 2015, the commercial real estate market will have upwards of $200 billion in maturing debt each year just as values are starting to decline dramatically. As a result, property owners will need to inject equity into their properties or possibly face foreclosure. The combination of slow economic growth and falling property values will place stress on the commercial markets over the next five years.

The

Table 6-10: U.S. Commercial Mortgage Maturities 1980-2020

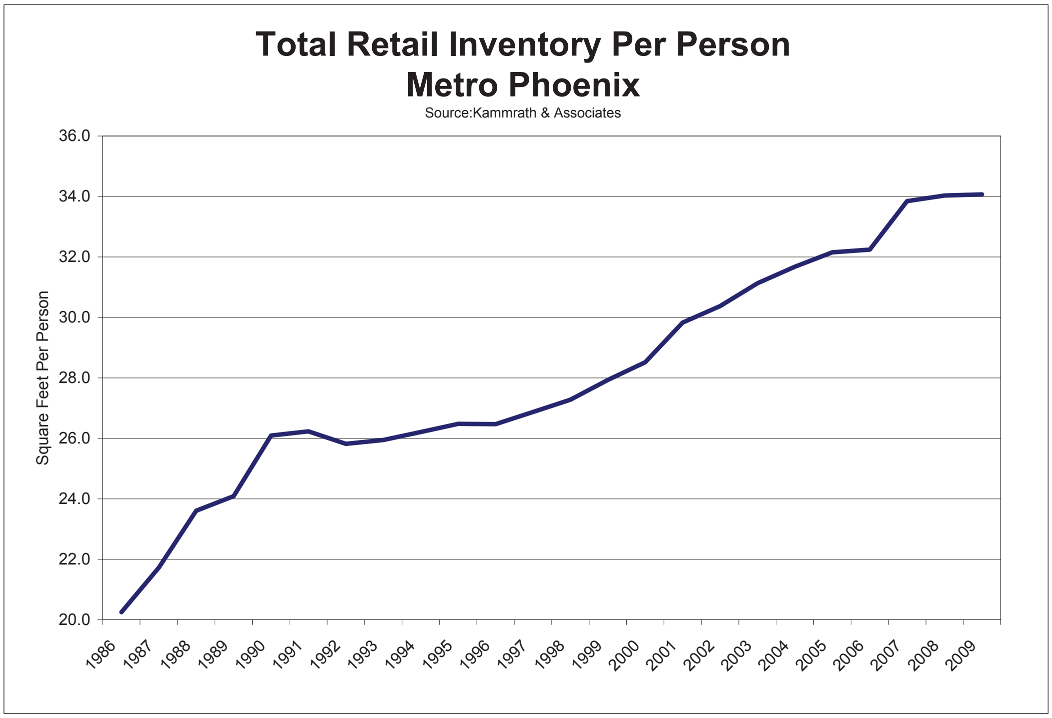


following sections provide an overview of the Metro Phoenix commercial real estate markets.

6.2.1 Retail Market Overview

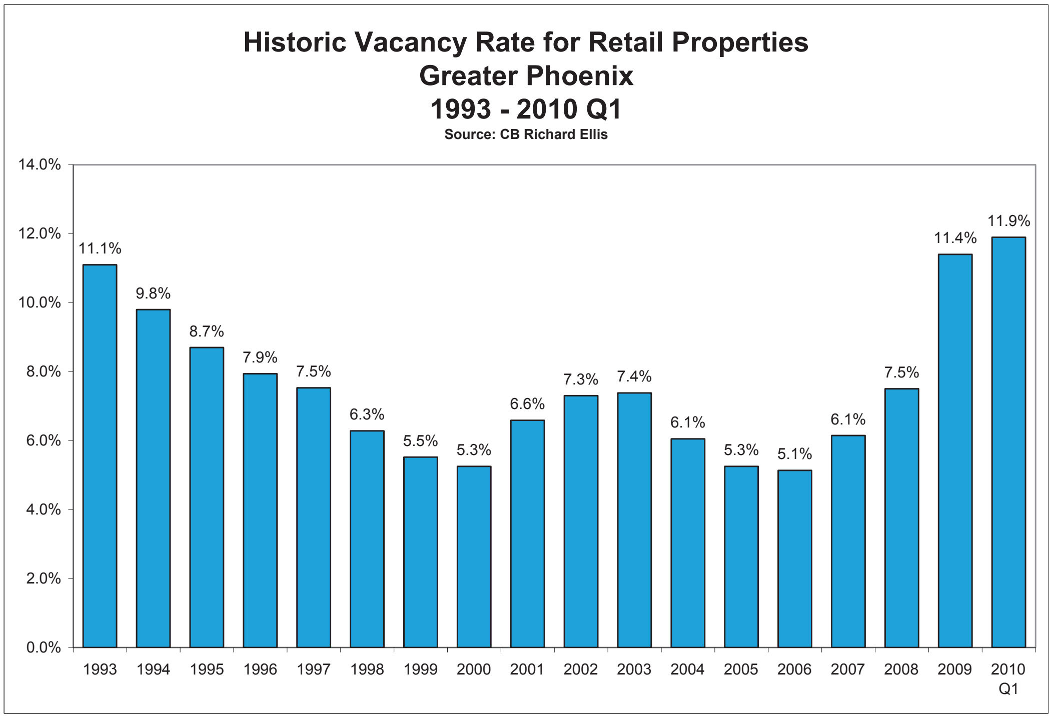
At the end of 2009, the retail sector of the real estate market was comprised of approximately 149.2 million square feet of building space according to Kammrath and Associates. Retail centers have experienced significant growth since 1990, increasing by 154 percent from a base of 58.7 million square feet. At the same time, Maricopa County's population has increased by approximately 95 percent or 2.1 million people since 1990. Over that time frame, the per capita inventory of retail space increased from 26.1 square feet per person in 1990 to 34.1 square feet per person in 2009. Since 1990, the retail inventory has grown at a compounded rate of 5.0 percent annually, well in excess of the annual population growth rate of 3.6 percent.

Table 6-11: Total Retail Inventory Per Person Metro Phoenix



Vacancy rates in the retail sector have increased over the past year as a result of the current recession. Numerous retailers have closed their doors, declared bankruptcy or announced selective store closings. According to CB Richard Ellis, the vacancy rate for Greater Phoenix stood at 7.5 percent at the end of 2008. At the end of 2009, the vacancy rate had increased to 11.4 percent. That level has risen slightly through the first quarter of 2010 to 11.9 percent throughout the region. Some parts of Greater Phoenix were experiencing vacancy rates as high as 14.5 percent. There are currently 639,100 square feet of retail space still under construction.

Table 6-12: Historic Vacancy Rate for Retail Properties Greater Phoenix 1993-2010 Q1



Retail centers are generally classified into four categories.

- Strip/specialty centers are smaller retail centers that do not have an anchor store.
- Neighborhood centers are anchored by a grocer and possibly a drug store, and provide for the daily shopping needs of the population. Neighborhood centers contain about 40 percent of all the retail square footage in the metro area, although community/power centers have increased in importance over the last eight years.
- Community centers are anchored by at least one large discount store along with associated smaller shop space. Power centers, comprised of several discount anchor stores, are included in this category.
- Regional malls contain two or more full line department stores typically with an enclosed shopping concourse.

The Maricopa County retail market is divided by type in the following table as of year-end 2009. Neighborhood centers contain most of the square footage followed by community centers. The square feet per capita for regional malls has declined in recent years as older centers have been repositioned in the marketplace. For instance, Chris-Town Mall, now known as the Spectrum Mall, was converted from a conventional mall to a discount power center with tenants such as Wal-Mart and Costco. Paradise Valley Mall is currently undergoing a similar transition.

Table 6-13: Components of Retail Sub-Market Greater Phoenix 2009

Components of Retail Sub-Market Greater Phoenix 2009

Type of center	Total SF	Percent of Total SF	Total SF Per Capita
Regional	16,738,312	11.2%	3.8
Community	56,943,785	38.2%	13.0
Neighborhood	58,298,472	39.1%	13.3
Strip/Specialty	17,214,276	11.5%	3.9
Totals	**149,194,845**	**100.0%**	**34.1**

Source: Kammrath & Associates

The average square feet of retail space per person currently stands at 34.1. However, wide differences in the amount of retail space exist between different parts of the metro area. At the high end, the northeast part of the Valley has near 52 square feet per person while the Central part of the region only has about 30.7 square feet per person. These differences exist because of the income levels of the residents, the density of development, and the out-of-town tourist trade, much of which is currently captured by Scottsdale and Phoenix. The Northeast region, encompassing Northeast Phoenix, Fountain Hills and Scottsdale, has 52 percent more retail space per capita than the metro average. The Central Region, which encompasses most of the City of Phoenix, is the only heavily populated region that lags the Greater Phoenix average. The Southeast Valley could continue to improve or expand its per capita retail inventory over time. Household incomes in parts of the Southeast Valley are well above the County average which will attract more retail uses. However, significant increases in the retail inventory will likely require an intensification of residential development to offset the low density found in Southeast Valley suburbs.

Price per square foot data is also displayed below. The effects of the current recession are evident in terms of both volume of transactions and depressed sales prices.

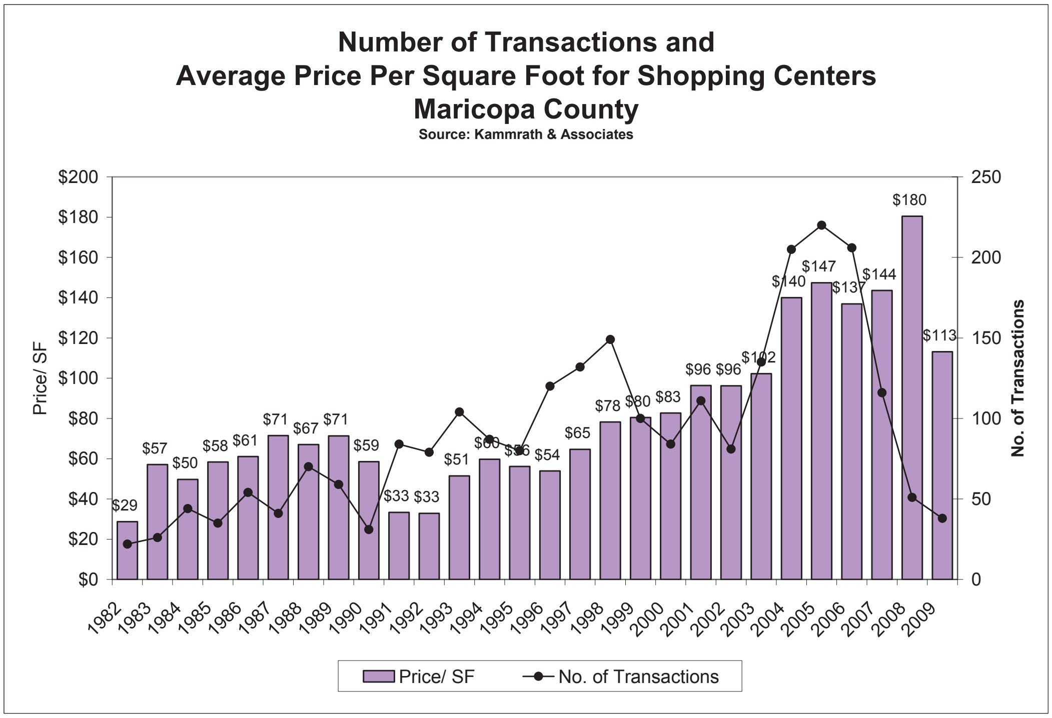
Table 6-14: Components of Retail Sub-Market Greater Phoenix 2009

Retail Square Feet per Capita by Region Greater Phoenix 2009

Region	Regional	Community	Neighborhood	Specialty	Total
Central	3.99	10.26	13.16	3.33	30.74
Northeast	6.90	18.90	20.70	5.33	51.82
Northwest	3.95	16.74	16.77	3.71	41.18
Southeast	5.45	17.38	16.58	6.24	45.65
Southwest	-	20.78	10.01	4.43	35.22
Totals	**3.82**	**13.00**	**13.31**	**3.93**	**34.07**

Source: Kammrath & Associates

Table 6-15: No. of Transactions and Avg. Price Per SF for Shopping Centers Maricopa County



Greater Phoenix Retail Market Summary

The retail market is under severe stress at the current time. The spending of consumers during the housing boom caused many retailers to expand their operations, enter new markets and over-build relative to normal demand. In Greater Phoenix, a number of retailers have left the market and numerous shopping centers have been delayed for the time being. Large expanses of empty retail space are now available in all parts of the region. When population flows begin again and consumer confidence rises, the retail market in Greater Phoenix will recover.

Currently, approximately 17.7 million square feet of retail space is vacant in Greater Phoenix. A reasonable market vacancy rate for retail space is 7.0 percent or based on today's inventory, approximately 10.4 million square feet. Therefore, 7.3 million square feet of vacant space must be absorbed before the market returns to equilibrium. However, another 600,000 square feet of space was under construction at the end of the first quarter of 2010. Together, approximately 7.9 million square feet must be absorbed in the market.

Based on observation of the Greater Phoenix retail market, it is our opinion that the region has too much retail relative to the population. Much of this excess retail space was built since 2000 as a result of the housing boom. Greater Phoenix is known as a growth market among retailers and most national chains want to be in the market to capitalize on that growth. However, as a result of the current recession and housing downturn, numerous retail chains have left the region over the last few years.

In our opinion, a stabilized ratio of retail space per capita in Greater Phoenix is 30 square feet. Based on current forecasts of population growth from the University of Arizona Forecasting Project of 130,000 to 140,000 persons per year starting in 2012, demand for retail space would be approximately four million square feet per year. Therefore, the current excess supply of retail space could be absorbed in two years under normal economic conditions. However, given the current uncertainty in the market and slow population growth forecasted for the next two years, the scaled-back expansion plans of retail chains, the lack of available credit to build shopping centers, and the time required by retailers to gear up for expansion, this firm estimates recovery of the retail sector is likely four to five years into the future.

6.2.2 Office Market Overview

Throughout Maricopa County, the office market is comprised of approximately 133.0 million square feet of space. Office buildings are categorized into two types of uses: administrative and medical. Administrative buildings total approximately 116.3 million square feet of space while medical office buildings total 16.7 million square feet. As shown on the table below, 80 percent of all office space is found within three cities: Phoenix, Scottsdale, and Tempe. Approximately 96.4 percent of all space is found in the eight cities shown on the following table. Administrative office buildings are concentrated in central locations such as Downtown Phoenix, the Central Avenue corridor (in Phoenix), Camelback Road (in Phoenix), the 44th St./Gateway area (in Phoenix), and in several locations in Scottsdale.

Table 6-16: Office Space by Major City 2009

Office Space By Major City
2009

	Medical		Administrative		Total	
City	Square Feet	Market Share	Square Feet	Market Share	Square Feet	Market Share
Chandler	636,497	3.8%	4,486,068	3.9%	5,122,565	3.9%
% of City Total	12.4%		87.6%			
Gilbert	1,096,553	6.5%	2,162,612	1.9%	3,259,165	2.5%
% of City Total	33.6%		66.4%			
Glendale	1,067,582	6.4%	2,677,072	2.3%	3,744,654	2.8%
% of City Total	28.5%		71.5%			
Mesa	2,258,067	13.5%	6,271,651	5.4%	8,529,718	6.4%
% of City Total	26.5%		73.5%			
Peoria	455,855	2.7%	735,823	0.6%	1,191,678	0.9%
% of City Total	38.3%		61.7%			
Phoenix	6,193,076	37.0%	64,858,472	55.8%	71,051,548	53.5%
% of City Total	8.7%		91.3%			
Scottsdale	2,717,911	16.2%	20,231,599	17.4%	22,949,510	17.3%
% of City Total	11.8%		88.2%			
Tempe	599,024	3.6%	11,640,311	10.0%	12,239,335	9.2%
% of City Total	4.9%		95.1%			
Maricopa County Total	16,744,082		116,158,948		132,903,030	
% of County Total	12.6%		87.4%			

Sources: Kammrath & Associates, Elliott D. Pollack & Co.

While administrative office buildings are highly concentrated by location, medical office buildings are more dispersed (see table below). Since medical services need to be near patients, medical office space is related to the size of the population. For instance, across Maricopa County, there are 4.2 square feet of medical office space for every person. The inventory of office space for most cities hovers around that figure. Scottsdale is the only community with a high level of medical office space on a per capita basis.

Table 6-17: Office Building Square Feet Per Capita 2009

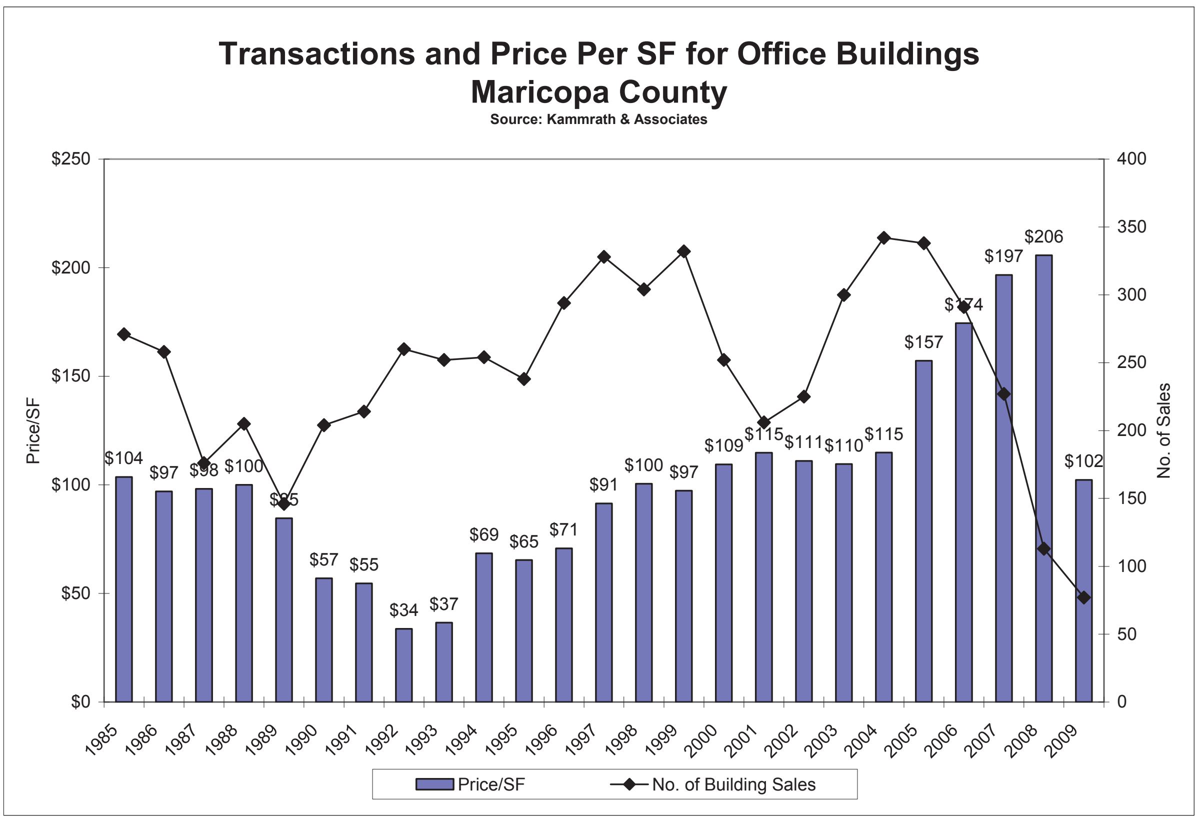
Office Building Square Feet Per Capita 2009

City	Administrative Office	Medical Office	Total
Chandler	18.4	2.6	21.0
Gilbert	10.1	5.1	15.2
Glendale	10.8	4.3	15.1
Mesa	13.6	4.9	18.6
Peoria	4.7	2.9	7.7
Phoenix	41.5	4.0	45.5
Scottsdale	83.5	11.2	94.7
Tempe	67.4	3.5	70.9
Maricopa County	**29.1**	**4.2**	**33.3**

Source: AZ Dept. of Commerce, Kammrath Associates; Elliott D. Pollack & Co.

The number of sales and price per square foot paid for office buildings has fallen dramatically with the recent recession. Current prices are nearly 50 percent of the prices paid just one year ago and

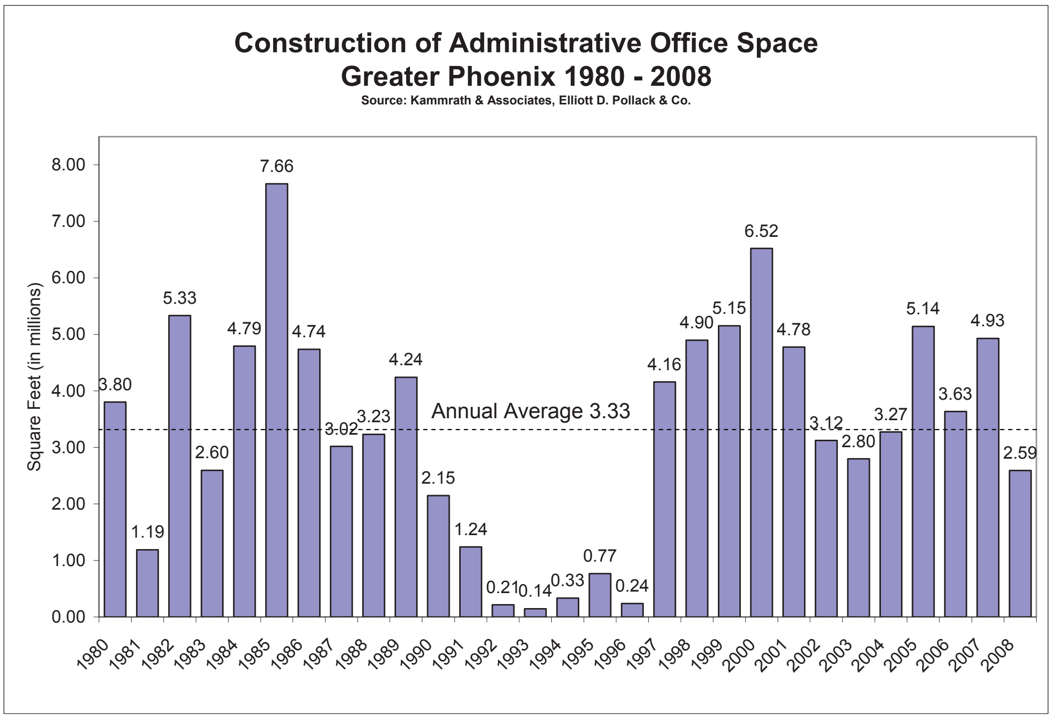
Table 6-18: Transactions and Price Per SF for Office Buildings Maricopa County



the number of transactions has dwindled to just a few.

Since 1980, an average of 3.33 million square feet of administrative office space has been constructed annually in Greater Phoenix. Due to the change in tax laws in the late 1980s, very little inventory was constructed between 1991 and 1997. In 1997, construction started again in earnest, reaching over 6 million square feet in 2000. However, shortly thereafter, vacancy rates rose to more than 18 percent, reducing demand and development activity. From 1997 to 2007, an average of 4.4 million square feet has been constructed annually.

Table 6-19: Construction of Administrative Office Space Greater Phoenix 1980-2008



Speculative Office Market

The speculative office market is comprised of buildings that are constructed with the purpose of leasing to tenants. Most of the major commercial brokerage companies focus on this section of the market, which at the end of March 2010 comprised 75.8 million square feet of building space according to CB Richard Ellis. This represents approximately 65.2 percent of the 116.3 million square foot administrative office market in Metro Phoenix. CB Richard Ellis tracks all office buildings in its survey that are larger than 20,000 square feet.

The speculative office market over the years has been extremely cyclical with periods of exceptionally high vacancy rates followed by periods of virtually no construction activity. In the late 1980's and early 1990's, the office market reached historic high vacancy rates due to overbuilding that occurred. This was a result of tax laws that were enacted during the Reagan Administration but were then rescinded in 1986. In the early 1990s virtually no construction activity occurred until vacancy rates reached 9.5 percent in 1996. Construction activity continued until 2003 when vacancy rates, once again, reached the 18 percent level. Speculative office space grew vigorously throughout the real estate boom while vacancy rates remained low, until early 2008. Since then, vacancy rates have once again reached extremely high levels due to overbuilding and depressed demand for office space throughout Greater Phoenix. It should be noted that while parts of the metro area have had virtually no construction over the past five years, other areas such as the Camelback Corridor and North Scottsdale have experienced most of the speculative office construction activity.

At the end of the first quarter of 2010, vacancy rates for speculative office space stood at 25.6 percent across Greater Phoenix while 1,429,553 square feet of space was added during that period. The recent small increases in the inventory of office space in Metro Phoenix have also been partly due to condominium conversions over the past few years that have reduced the available supply. Between 2002 and 2006, 6.6 million square feet of speculative office space was created. However, the inventory of speculative office only increased by about 3.5 million square feet over that timeframe

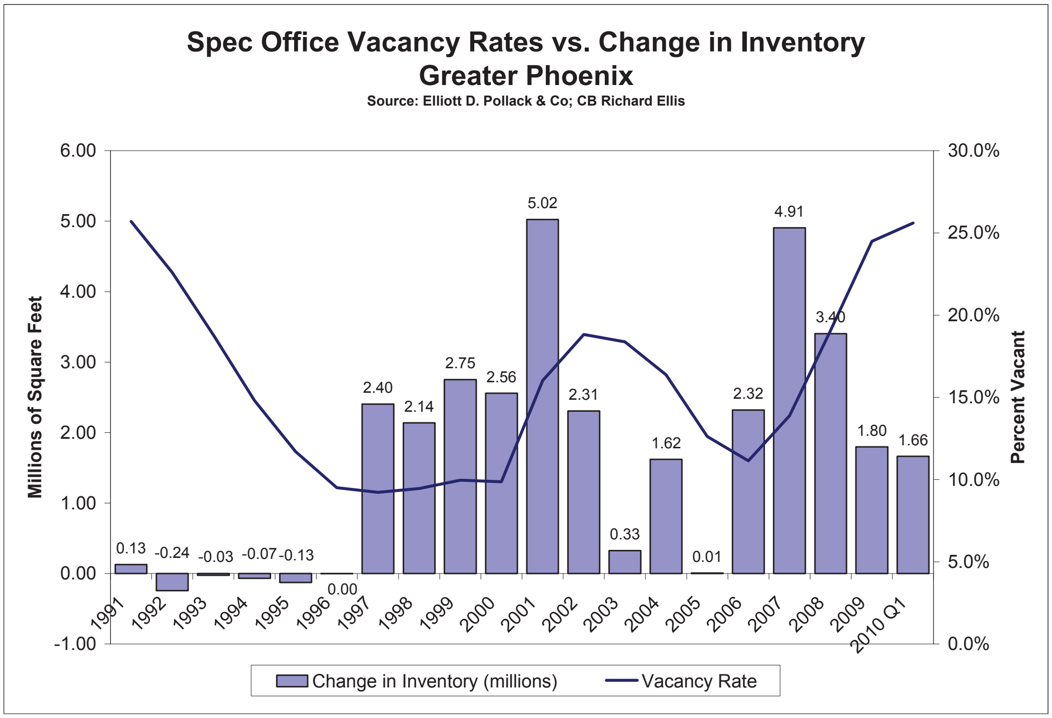
Table 6-20: Speculative Office Market Maricopa County

Speculative Office Market
Maricopa County

Year	Total Sq Ft	Vacant Sq Ft	Percentage Vacant	Under Construction	Completions	Net Absorption
2000	52,456,482	5,175,821	9.9%	4,041,586	2,618,765	3,068,284
2001	57,480,257	9,205,697	16.0%	1,895,294	4,460,813	1,535,151
2002	59,785,848	11,253,248	18.8%	409,935	2,282,876	707,037
2003	60,092,425	11,046,424	18.4%	1,027,579	417,500	1,245,156
2004	61,732,827	10,104,966	16.4%	821,936	1,385,444	2,222,880
2005	61,740,814	7,792,933	12.6%	2,947,134	857,885	3,119,293
2006	64,061,166	7,138,025	11.1%	4,079,365	2,201,353	3,111,075
2007	68,966,490	9,569,149	13.9%	4,566,534	3,829,834	1,500,704
2008	72,369,136	13,822,505	19.1%	3,084,663	3,300,000	(603,112)
2009	74,167,551	18,171,050	24.5%	1,429,553	1,798,415	(667,329)
2010 Q1	75,831,104	19,412,763	25.6%	-	1,663,553	456,246

Source: Elliott D. Pollack & Company; CB Richard Ellis

Table 6-21: Speculative Office Vacancy Rates vs. Change in Inventory Greater Phoenix



due to the conversion of existing speculative office space to condominiums.

Greater Phoenix Office Market Summary

Given the extent of overbuilding in the speculative office sector, correction in the market is not anticipated until 2015. In the first quarter of 2010, 19.4 million square feet were vacant according to CB Richard Ellis. A normalized vacancy rate is difficult to determine because the Greater Phoenix market consistently carries a high rate. However, assuming that an 11 percent rate is "normal", the market would need to absorb 11 million square feet to reach that level without any additional construction activity. From 1997 (when the market recovered from the recession of early 1990s) to 2007 (prior to the current negative absorption), the market absorbed on average 1.9 million square feet of space. At this rate, recovery of the office market to an 11 percent vacancy rate would require 5.8 years.

The loss of additional jobs in 2010 will put further pressure on the market and a slow recovery may delay a quick return to moderate vacancy rates. No additional construction of office buildings are anticipated for four years until employment growth returns in earnest to the region.

Mesa-Gilbert Office Market

Since the Town of Gilbert is directly adjacent to the Mesa Gateway Study Area, the following table was developed for the Mesa-Gilbert office market. The table shows construction activity in those two cities since 1980 as well as the total inventory of office space available. Since 1980, the Mesa-Gilbert area has accounted for approximately 9.5 percent of office construction activity in Maricopa County or approximately 345,500 square feet of construction per year. Since 1980, 10.4 million square feet of office space has been constructed in the Mesa-Gilbert area compared to 109.3 million square feet in all of Maricopa County. The average annual construction in office space in the County was just over 3.6 million square feet. Since 2000, the Mesa-Gilbert area has averaged over 615,000 square feet of office space construction per year. Therefore, the share of the market found in Mesa and Gilbert has been continually increasing.

At the end of 2009, Mesa and Gilbert had an inventory of approximately 11.8 million square feet of office space representing 8.9 percent of the total county inventory. As noted on the table, Mesa-Gilbert's percentage of the county inventory has been increasing over the years to the point where it now currently stands. However, the combined population of Mesa and Gilbert represent approximately 16.9 percent of the County's population. Therefore, the area is underrepresented in terms of its proportionate share of the office market based on population.

Table 6-22: Mesa - Gilbert Office Market Activity

Mesa - Gilbert Office Market Activity

	Construction			Inventory		
	Mesa-Gilbert	Maricopa County	% of Total	Mesa-Gilbert	Maricopa County	% of Total
1980	84050	4245518	2.0%	1,573,726	27,964,612	5.6%
1981	57739	1496055	3.9%	1,631,465	29,460,667	5.5%
1982	301552	6025720	5.0%	1,933,017	35,486,387	5.4%
1983	368813	3127027	11.8%	2,301,830	38,613,414	6.0%
1984	359433	5488614	6.5%	2,661,263	44,102,028	6.0%
1985	303931	8175633	3.7%	2,965,194	52,277,661	5.7%
1986	816029	5276842	15.5%	3,781,223	57,554,503	6.6%
1987	373837	4002988	9.3%	4,155,060	61,557,491	6.7%
1988	320825	3734338	8.6%	4,475,885	65,291,829	6.9%
1989	137679	4428520	3.1%	4,613,564	69,720,349	6.6%
1990	13956	2363865	0.6%	4,627,520	72,084,214	6.4%
1991	5368	1297965	0.4%	4,632,888	73,382,179	6.3%
1992	76532	406026	18.8%	4,709,420	73,788,205	6.4%
1993	66072	620055	10.7%	4,775,492	74,408,260	6.4%
1994	229636	479156	47.9%	5,005,128	74,887,416	6.7%
1995	93035	1025467	9.1%	5,098,163	75,912,883	6.7%
1996	76414	494804	15.4%	5,174,577	76,407,687	6.8%
1997	104832	4631915	2.3%	5,279,409	81,039,602	6.5%
1998	119674	5327507	2.2%	5,399,083	86,367,109	6.3%
1999	304535	5392550	5.6%	5,703,618	91,759,659	6.2%
2000	774344	6794251	11.4%	6,477,962	98,553,910	6.6%
2001	265616	5192665	5.1%	6,743,578	103,746,575	6.5%
2002	480364	3616542	13.3%	7,223,942	107,363,117	6.7%
2003	292298	3447752	8.5%	7,516,240	110,810,869	6.8%
2004	579943	3671972	15.8%	8,096,183	114,482,841	7.1%
2005	797131	5576625	14.3%	8,893,314	120,059,466	7.4%
2006	969496	4153076	23.3%	9,862,810	124,212,542	7.9%
2007	1657182	6027253	27.5%	11,519,992	130,239,795	8.8%
2008	333964	2784802	12.0%	11,853,956	133,024,597	8.9%
2009	0	10976	0.0%	11,853,956	133,035,573	8.9%
Total	10,364,280	109,316,479	9.5%			
Average Annual	345,476	3,643,883				

Sources: Kammrath & Associates, Elliott D. Pollack & Co.

6.2.3 Industrial Market Overview

The industrial sector is the largest segment of the commercial real estate market. The firm uses a number of different sources to track the industrial market, but the most detailed information is provided by Kammrath and Associates which primarily depends upon the County Assessor's records for their database. The data used in this analysis is primarily derived from the Kammrath and Associates 2009 fourth quarter database. It includes all buildings larger than 10,000 square feet in size. Due to time delays in placing newly developed property on the Assessor's tax rolls, the Kammrath and Associates database typically lags behind market construction activity.

Throughout Metro Phoenix, the industrial market is comprised of approximately 263.3 million square feet of space (buildings greater than 10,000 square feet in size). Industrial buildings are categorized into four types of uses by Kammrath and Associates: Assembly or Manufacturing, Multi-Tenant (Industrial Park), Office/Warehouse, and Warehouse/Distribution. As of the latest data available through fourth quarter 2009, Assembly or Manufacturing buildings totaled about

58.8 million square feet of space (or 22.3 percent of total space) and Multi-Tenant buildings totaled 38.3 million square feet (or 14.5 percent of total). In addition, there were another 27.7 million square feet of Office/Warehouse buildings (10.5% of total) and 138.5 million square feet of Warehouse/Distribution buildings (52.6 percent of total).

As shown on the above table, 71.9 percent of all industrial space is found within three cities: Phoenix, Tempe, and Chandler. Phoenix accounts for more than half of the inventory and the City of Tempe about 13 percent. About 87.5 percent of the industrial inventory is found within the seven largest cities in Maricopa County. Phoenix also holds a market share of 41.3 percent of all assembly or manufacturing space in the region, followed by Chandler, which hosts two large Intel

Table 6-23: Industrial Building Space by City Q4 2009

Industrial Building Space by City
Q4 2009

	Manufacturing		Industrial Park		Office Warehouse		Warehouse/ Distribution		Total	
	Square Feet	Market Share	Square Feet	Market Share	Square Feet	Market Share	Square Feet	Market Share	Square Feet	Market Share
Chandler	11,990,953	20.4%	1,855,095	4.8%	2,860,337	10.3%	6,017,965	4.3%	22,724,350	8.6%
% of City Total	52.8%		8.2%		12.6%		26.5%			
Gilbert	935,528	1.6%	1,452,607	3.8%	1,221,661	4.4%	2,473,676	1.8%	6,083,472	2.3%
% of City Total	15.4%		23.9%		20.1%		40.7%			
Glendale	1,540,191	2.6%	1,102,699	2.9%	427,028	1.5%	6,464,758	4.7%	9,534,676	3.6%
% of City Total	16.2%		11.6%		4.5%		67.8%			
Mesa	3,452,877	5.9%	3,857,124	10.1%	1,198,054	4.3%	5,607,147	4.0%	14,115,202	5.4%
% of City Total	24.5%		27.3%		8.5%		39.7%			
Phoenix	24,287,649	41.3%	15,665,878	40.9%	11,036,991	39.8%	82,136,884	59.3%	133,127,402	50.6%
% of City Total	18.2%		11.8%		8.3%		61.7%			
Scottsdale	2,293,776	3.9%	4,912,673	12.8%	3,068,383	11.1%	908,216	0.7%	11,183,048	4.2%
% of City Total	20.5%		43.9%		27.4%		8.1%			
Tempe	6,946,819	11.8%	7,036,341	18.4%	6,920,640	25.0%	12,594,711	9.1%	33,498,511	12.7%
% of City Total	20.7%		21.0%		20.7%		37.6%			
Remainder of County	7,328,706		2,393,664		1,003,442		22,317,889		33,043,701	12.5%
% of Total	22.2%		7.2%		3.0%		67.5%			
Maricopa County Total	58,776,499		38,276,081		27,736,536		138,521,246		263,310,362	
Percent of Total	22.3%		14.5%		10.5%		52.6%			

Source: Kammrath & Associates, Elliott D. Pollack & Co.

plants and other assorted high tech companies.

The entire industrial inventory of Maricopa County by square feet is shown in the following table by type of building. The City of Phoenix accounts for 50.6 percent of the industrial space in the County.

Industrial square footage per capita for the largest cities in the Valley is represented on the following table. The inventory of total industrial space on a per capita basis is highly concentrated within the cities of Phoenix, Chandler, and Tempe. These communities all exceed the County average of 65.4 square feet of industrial space per person. This table reflects July 2009, as these are the newest available population estimates.

Between 1990 and the 4th Quarter of 2009, the industrial market in Maricopa County increased by over 121 million square feet while absorbing approximately 10,252 acres. These figures do not take into account buildings smaller than 10,000 square feet in size. Smaller industrial buildings typically do not absorb a significant amount of acreage throughout the County. Based on an analysis of County tax records, in recent years, buildings smaller than 10,000 square feet account for only 6 percent of total construction activity (in square feet). On average, the County has experienced construction of almost 6.1 million square feet of space annually. There has only been 500,000 square feet of industrial space added during 2009, the lowest level since 1953.

Table 6-24: Industrial Inventory by Type Maricopa County Q4 2009

Industrial Inventory by Type
Maricopa County
Q4 2009

City	Square Feet by Building Type				
	Manufacturing	Industrial Park	Office Warehouse	Warehouse	Grand Total
Avondale	116,512	743,318	-	306,966	1,166,796
Buckeye	474,131	-	-	1,925,541	2,399,672
Chandler	11,990,953	1,855,095	2,860,337	6,017,965	22,724,350
County	1,388,407	31,600	30,497	1,774,415	3,224,919
El Mirage	345,787	-	-	516,045	861,832
Fountain Hills	-	107,145	92,056	37,649	236,850
Gilbert	935,528	1,452,607	1,221,661	2,473,676	6,083,472
Glendale	1,540,191	1,102,699	427,028	6,464,758	9,534,676
Goodyear	2,547,816	309,305	44,293	2,968,413	5,869,827
Guadalupe	-	-	-	107,104	107,104
Mesa	3,432,427	3,857,124	1,198,054	5,607,147	14,094,752
Peoria	323,339	791,977	531,327	1,979,938	3,626,581
Phoenix	24,287,649	15,665,878	11,036,991	82,136,884	133,127,402
Queen Creek	-	13,187	16,010	87,455	116,652
Scottsdale	2,293,776	4,912,673	3,068,383	908,216	11,183,048
Sun City	-	-	55,140	10,469	65,609
Surprise	127,924	-	24,462	536,171	688,557
Tempe	6,946,819	7,036,341	6,920,640	12,594,711	33,498,511
Tolleson	2,025,240	397,132	-	12,067,723	14,490,095
Total	**58,776,499**	**38,276,081**	**27,736,536**	**138,521,246**	**263,310,362**

Source: Kammrath & Associates, Elliott D. Pollack & Co.

Table 6-25: Industrial Buildings Square Feet Per Capita 2009

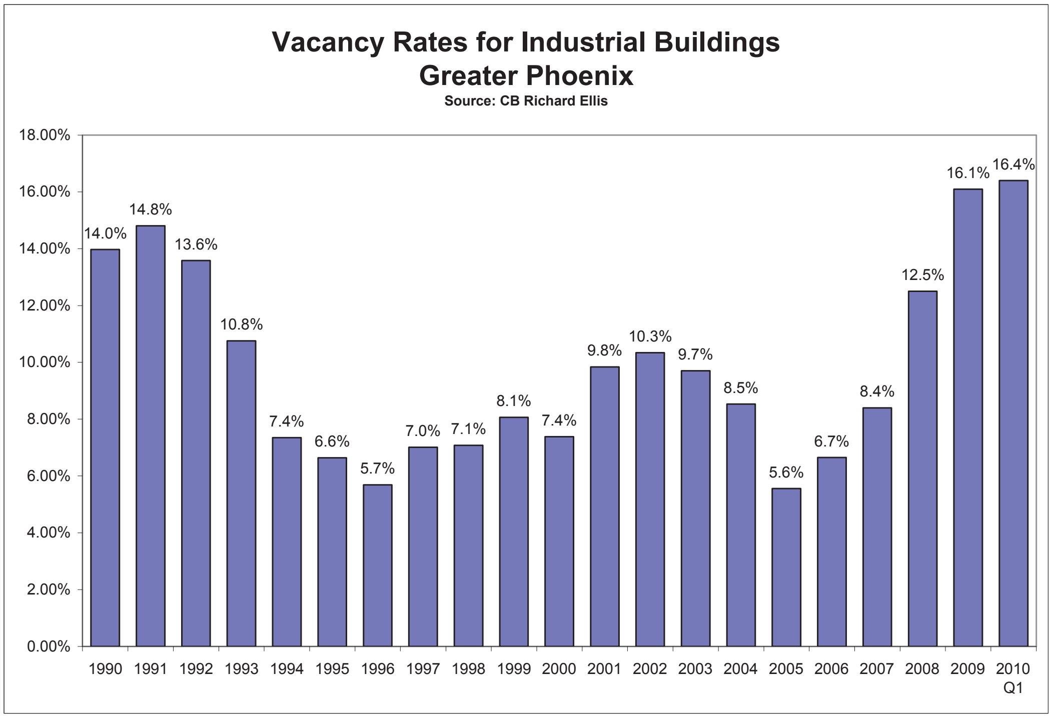
Industrial Buildings
Square Feet Per Capita
2009

City	SF/Capita
Chandler	92.7
Gilbert	28.0
Glendale	38.3
Mesa	30.6
Phoenix	84.5
Scottsdale	45.9
Tempe	191.6
Maricopa County	**65.4**

Source: Kammrath & Associates, Elliott D. Pollack & Company.

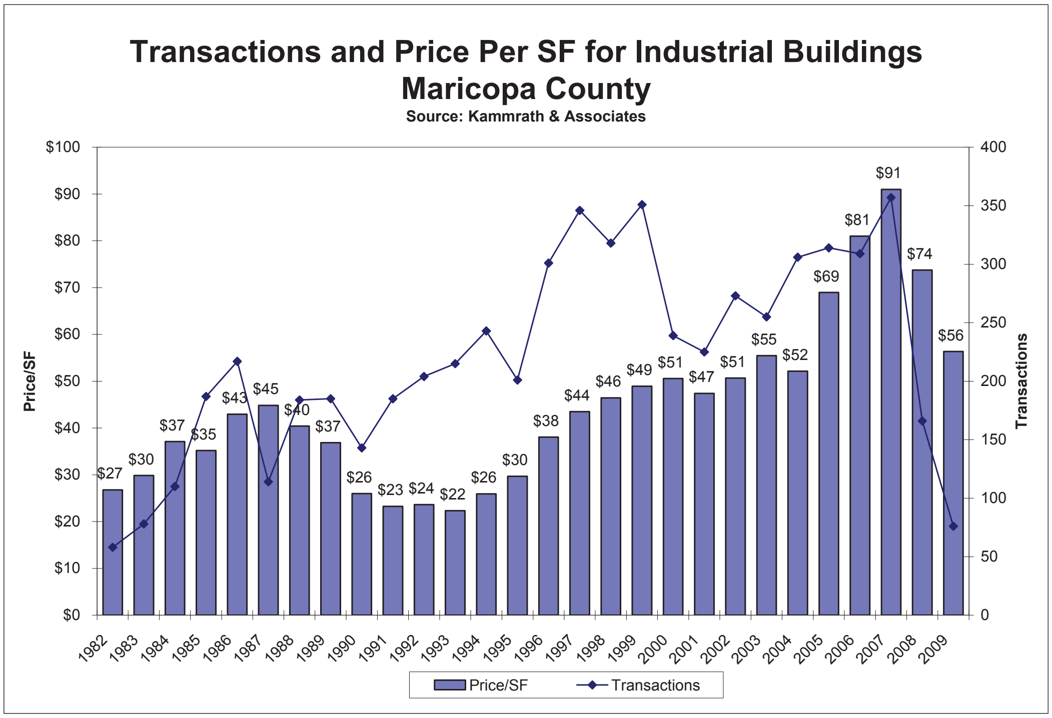
Due to different collection methods, the following data prepared by CB Richard Ellis differs from the data prepared by Kammrath and Associates. However, the trend is the same. Although the Greater Phoenix industrial market has rarely experienced vacancy rates higher than 10 percent, the vacancy rates for 2008 and 2009 reached 12.5 percent and 16.1 percent, respectively, levels not seen since the early 1990s. Vacancies inched upward to 16.4 percent in the first quarter of 2010.

Table 6-26: Vacancy Rates for Industrial Buildings Greater Phoenix



Transactions in the industrial market have also slowed dramatically and prices have fallen by approximately 20 percent. High vacancy rates and limited absorption of space will continue to

Table 6-27: Transactions and Price Per SF for Industrial Buildings Maricopa County



trouble the sector until the economic recovery is underway.

The preferred location for industrial development in Greater Phoenix is near a freeway. Such sites are preferred by industrial developers as well as companies that may be expanding in or relocating to Greater Phoenix. The presence of I-10 is a significant asset that has and will continue to attract businesses to the area near Sky Harbor International Airport.

The following map shows the location of all industrial buildings in central Maricopa County. Most industrial areas are found along existing freeways or major transportation routes that existed prior to the construction of the freeway system. One of the heaviest concentrations of industrial uses is found south of Sky Harbor International Airport in Phoenix and Tempe.

The subsequent map shows employment density for central Maricopa County. The densest concentrations of employment are in central Phoenix, including the area surrounding Sky Harbor International Airport, north Tempe and south Scottsdale. These areas will continue to attract employers because of the high capacity transportation network that is in place to serve businesses.

Exhibit 6-2: Industrial Building Space - Maricopa County

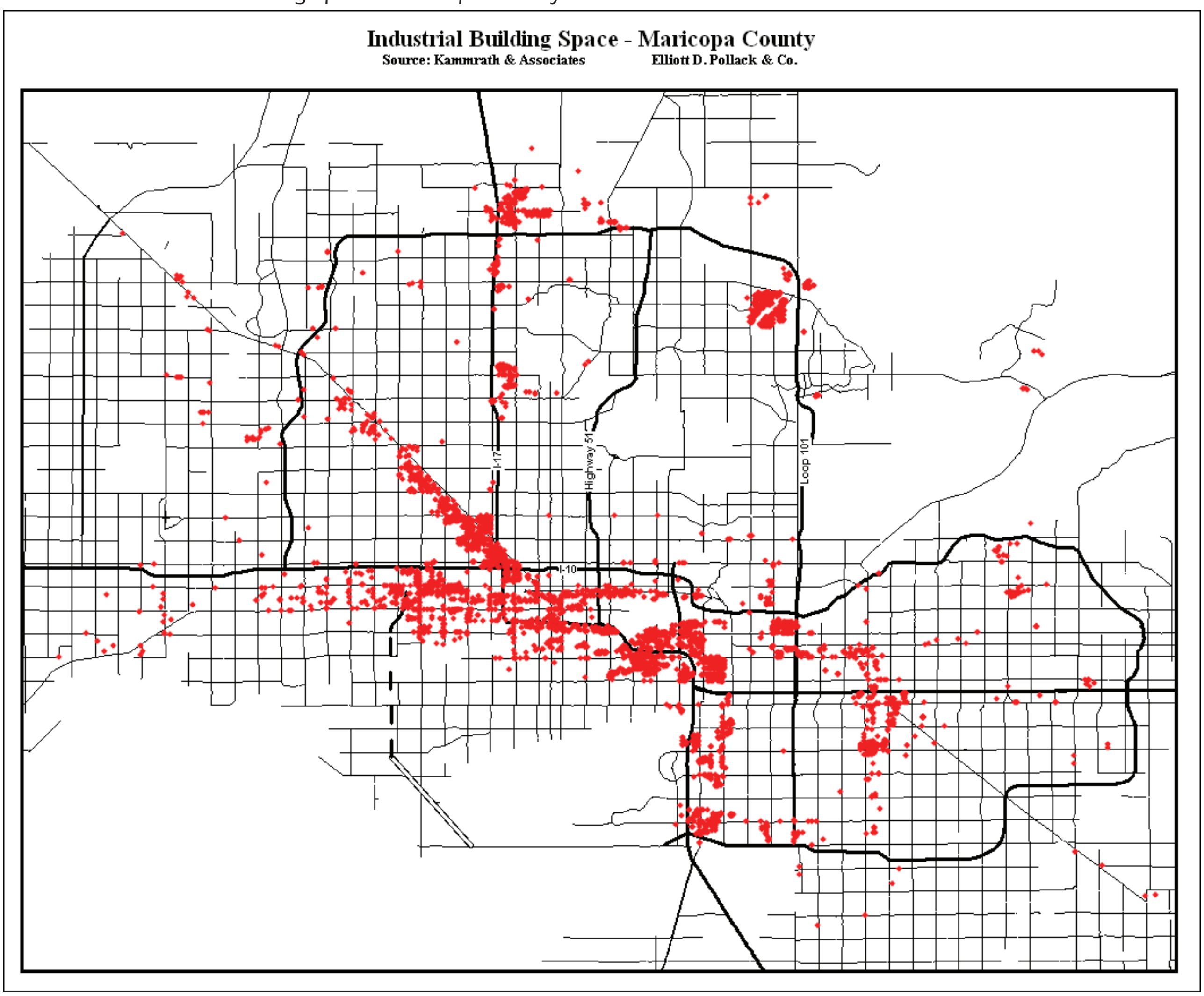
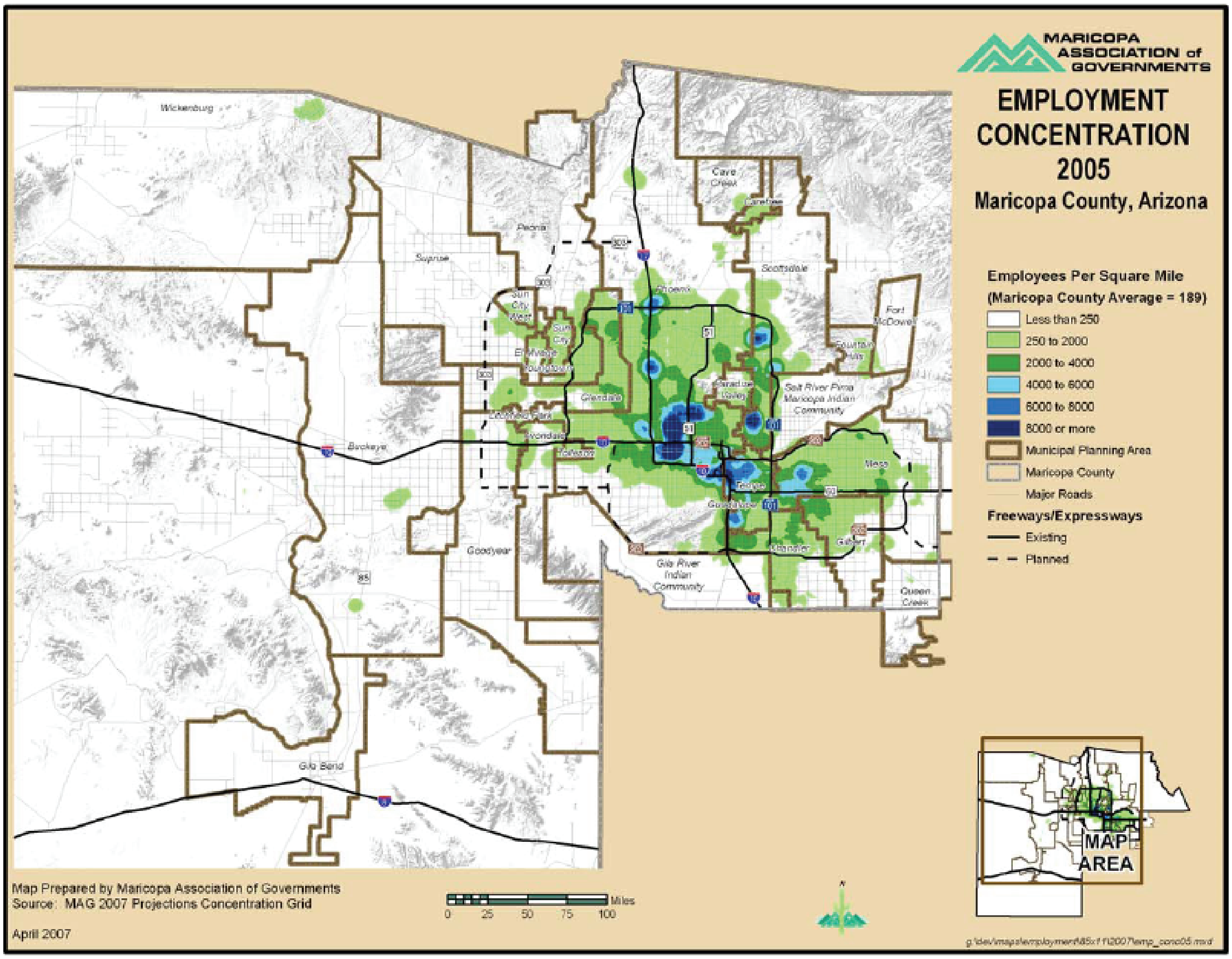


Exhibit 6-3: Employment Concentration 2005 - Maricopa County



Greater Phoenix Industrial Market Summary

In our opinion, little construction activity is anticipated for the next three to four years given the current status of the market. The 16 percent market vacancy rate is something that has not been witnessed in the market since 1986. Today the industrial market has 44.4 million square feet of vacant space. A normalized vacancy rate would be 7 percent or 18.9 million square feet of space. This means that 25.5 million square feet must be absorbed before the market fully recovers. From 1992 to 2007, the market absorbed an average of 6.5 million square feet annually. At this historic rate, the market will need four years to recover.

Mesa-Gilbert Industrial Market

Historic industrial construction activity within the Mesa-Gilbert area is shown on the following table. Since 1980, Mesa-Gilbert has accounted for approximately 18 million square feet of the 192 million square feet constructed in Maricopa County. This represents approximately 9.4 percent of construction activity. Over the last 30 years, an annual average of 6.4 million square feet of industrial space has been constructed in the County with 600,400 square feet constructed annually on average in the Mesa-Gilbert area.

Today, Mesa-Gilbert accounts for 20.2 million square feet of industrial space representing 7.7 percent of the 263.2 million square feet in Maricopa County. As noted on the chart, Mesa-Gilbert's share of the industrial market has steadily risen over the years from less than 3.5 percent in 1980 to a 7.7 percent share in 2009. However, as noted in the office market section of this report, Mesa and Gilbert account for approximately 16.9% of the County's population in 2009. Therefore, the area has not received its fair share of industrial development relative to its population.

Table 6-28: Mesa - Gilbert Industrial Market Activity

Mesa - Gilbert Industrial Market Activity

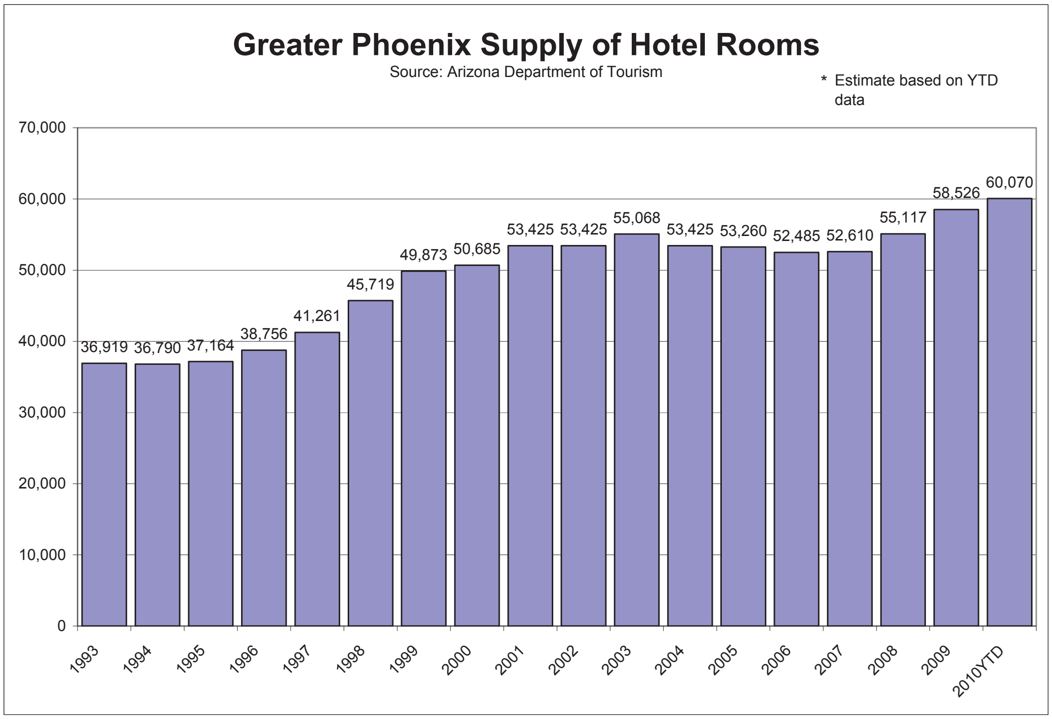
	Construction			Inventory		
	Mesa-Gilbert	Maricopa County	% of Total	Mesa-Gilbert	Maricopa County	% of Total
1980	479,140	10,397,960	4.6%	2,646,018	81,429,123	3.2%
1981	440,050	8,193,933	5.4%	3,086,068	89,623,056	3.4%
1982	1,697,250	6,779,057	25.0%	4,783,318	96,402,113	5.0%
1983	182,040	4,931,013	3.7%	4,965,358	101,333,126	4.9%
1984	339,304	4,091,607	8.3%	5,304,662	105,424,733	5.0%
1985	1,047,654	10,381,205	10.1%	6,352,316	115,805,938	5.5%
1986	914,473	7,166,225	12.8%	7,266,789	122,972,163	5.9%
1987	1,091,943	7,804,999	14.0%	8,358,732	130,777,162	6.4%
1988	623,190	7,443,561	8.4%	8,981,922	138,220,723	6.5%
1989	87,068	3,251,556	2.7%	9,068,990	141,472,279	6.4%
1990	0	3,433,208	0.0%	9,068,990	144,905,487	6.3%
1991	338,100	4,461,997	7.6%	9,407,090	149,367,484	6.3%
1992	650,888	2,113,880	30.8%	10,057,978	151,481,364	6.6%
1993	202,271	3,972,066	5.1%	10,260,249	155,453,430	6.6%
1994	64,664	3,478,499	1.9%	10,324,913	158,931,929	6.5%
1995	366,442	5,606,444	6.5%	10,691,355	164,538,373	6.5%
1996	606,940	11,064,957	5.5%	11,298,295	175,603,330	6.4%
1997	1,000,709	8,564,075	11.7%	12,299,004	184,167,405	6.7%
1998	592,735	8,104,299	7.3%	12,891,739	192,271,704	6.7%
1999	461,282	8,500,334	5.4%	13,353,021	200,772,038	6.7%
2000	709,154	8,276,502	8.6%	14,062,175	209,048,540	6.7%
2001	280,272	7,473,191	3.8%	14,342,447	216,521,731	6.6%
2002	355,363	3,268,137	10.9%	14,697,810	219,789,868	6.7%
2003	660,491	2,918,813	22.6%	15,358,301	222,708,681	6.9%
2004	461,559	3,944,902	11.7%	15,819,860	226,653,583	7.0%
2005	1,169,059	6,654,411	17.6%	16,988,919	233,307,994	7.3%
2006	785,686	8,786,329	8.9%	17,774,605	242,094,323	7.3%
2007	1,344,443	12,373,344	10.9%	19,119,048	254,467,667	7.5%
2008	1,059,176	8,208,331	12.9%	20,178,224	262,675,998	7.7%
2009	0	522,258	0.0%	20,178,224	263,198,256	7.7%
Total	18,011,346	192,167,093	9.4%			
Average Annual	600,378	6,405,570				

Sources: Kammrath & Associates, Elliott D. Pollack & Co.

6.2.4 Greater Phoenix Hotel Market

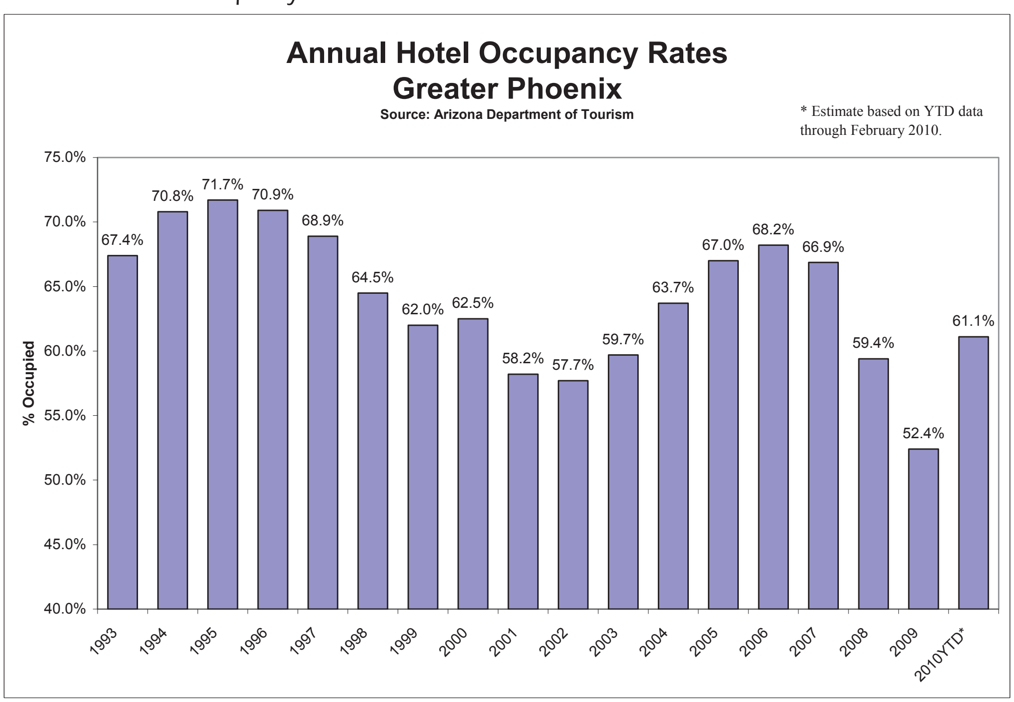
Greater Phoenix is one of the most popular tourist destinations in the country. It has also developed into a significant economic center in the southwest part of the U.S., which makes it a destination for business travelers as well. According to the Arizona Department of Tourism, the number of hotel rooms in Greater Phoenix initially peaked in 2003, with an estimated total of just over 55,000 rooms. That number dropped in 2004 with the closure of some older resorts, but was stable at around 53,000 rooms through 2007. In 2008, the region experienced an influx of approximately 2,500 rooms, including the 1,000 room Sheraton Phoenix Downtown Hotel. Additional hotel completions in 2009 and through the first two months of 2010 have increased the total supply to just over 60,000 rooms.

Table 6-29: Greater Phoenix Supply of Hotel Rooms



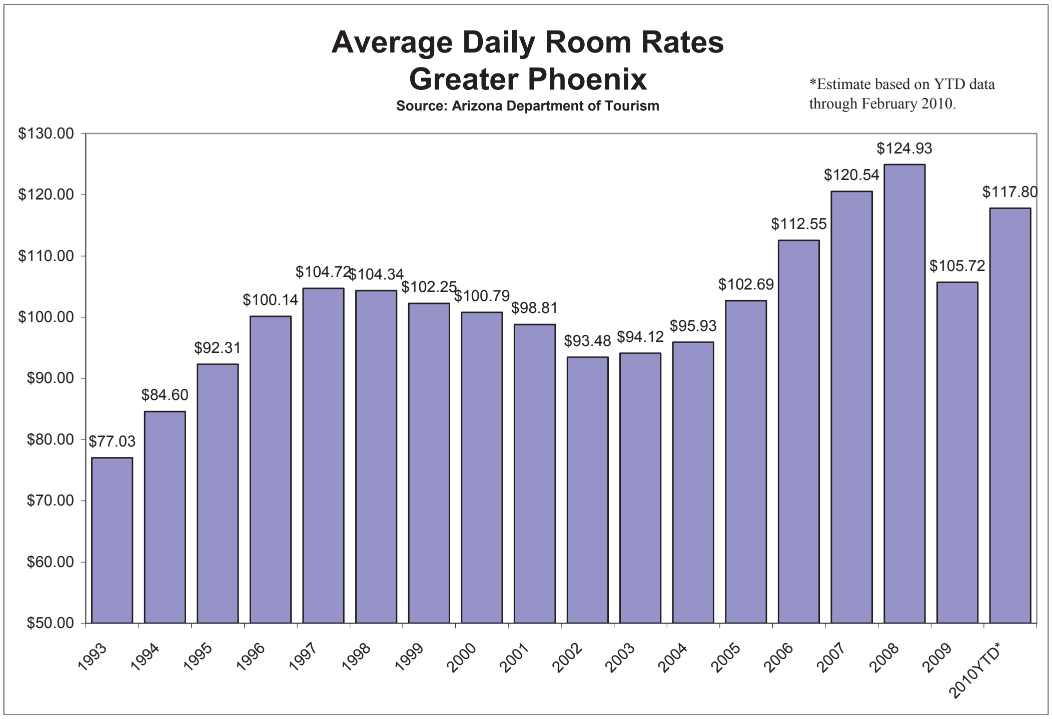
The occupancy rate in Metro Phoenix had been steadily rebounding after a trough that occurred in 2001 and 2002. In 2006, the occupancy rate in Greater Phoenix was 68.2 percent, an increase of more than 10 percent from 2002. Occupancy dipped slightly during 2007 and has continued to fall through 2009. This decline can be attributed to the extended national recession that is only now in early stages of recovery. For the first two months of 2010, the occupancy rate of 61.1 percent is slightly ahead of the 59.0 percent occupancy rate for the first two months of 2009.

Table 6-30: Annual Hotel Occupancy Rates - Greater Phoenix



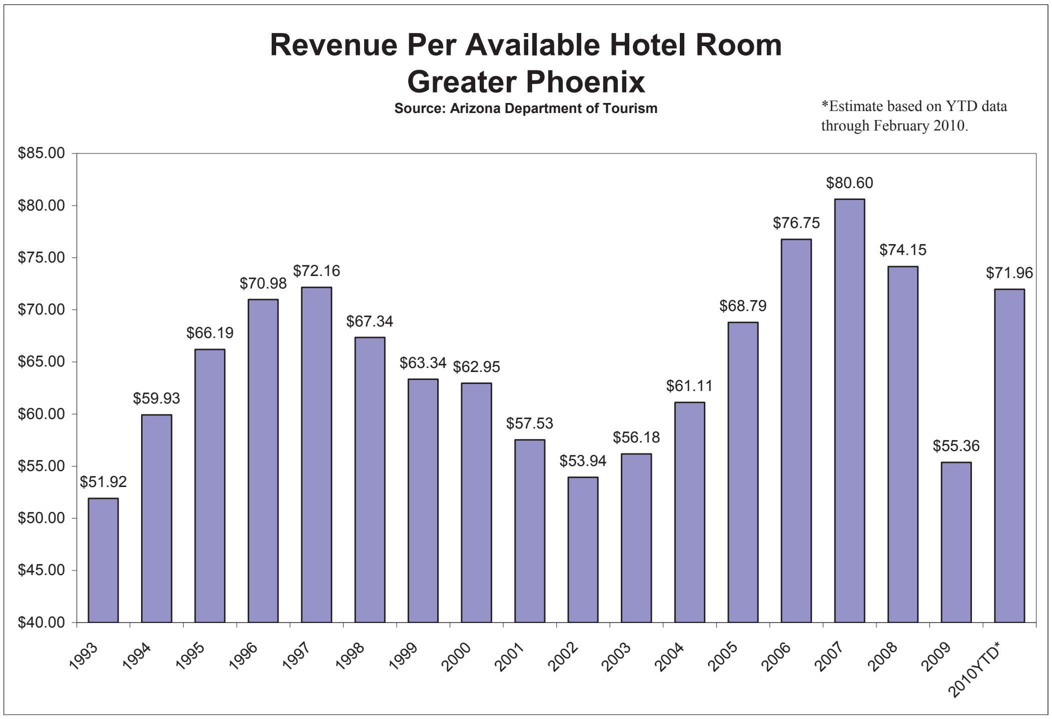
Over the most recent years when a surge in occupancy and demand occurred, room rates also rose. Average daily room rates had previously peaked in 1997 at almost $105 per night. For the next five years, rates declined to a low of $93.50 in 2002. In 2005, room rates almost rose back up to peak levels. Rates then continued to rise rapidly in 2006, 2007 and 2008 pushing average daily rates to their highest level in history. However, declining room demand forced hoteliers last year to offer significantly reduced prices to induce hotel stays. While room rates have increased for the first two months of 2010, they are reflective of the high season and are not considered comparable to yearly averages.

Table 6-31: Average Daily Room Rates - Greater Phoenix



Revenue per available room or RevPAR is an indicator of hotel performance most used by hotel operators. This calculation combines room rates with occupancy performance. The calculation is made by taking total revenue for a given time period and dividing it by total available room nights. More simply, the occupancy percentage is multiplied by the average daily room rate. Thus, it will always be less than the published room rate due to vacancies. As the chart below indicates, RevPAR varies widely from year to year. In recessions, RevPAR is typically affected by falling occupancy rates as well as falling room rates. In Greater Phoenix, RevPar held up fairly well through 2008, then declined precipitously in 2009 by 25 percent. While RevPAR increased for the first two months of 2010, as noted previously, the figures represent the high season in the Greater Phoenix hotel market.

Table 6-32: Revenues Per Available Hotel Room - Greater Phoenix



Mesa/Gilbert Hotel Market

There are 64 hotels that have been identified within the City of Mesa and Town of Gilbert. All but four hotels are located within the City of Mesa. There are a total of 5,646 rooms within these hotels (5,163 rooms in Mesa and 483 rooms in Gilbert). This inventory comprises about 9.4 percent of the approximately 60,000 hotel rooms in Greater Phoenix. A detailed inventory of hotels in the Mesa/Gilbert region is included in the following tables.

Table 6-33: Town of Gilbert Hotel Inventory

Town of Gilbert Hotel Inventory

Name	Address	Rooms
Extended Stay Hotels		
InTown Suites Extended Stay	2350 West Obispo Avenue, Gilbert, AZ 85233	139
Upper/Mid Scale Hotels		
Hyatt Place Gilbert	3275 South Market Street, Gilbert, AZ 85297	127
Hampton Inn & Suites Gilbert	3265 South Market Street, Gilbert, AZ 85297	96
Legado Hotel[1/]	1800 S. San Tan Village Parkway, Gilbert, AZ 85296	121
GRAND TOTAL Gilbert Hotels		**483**

1/ Opening soon

Source: Mesa Convention and Visitors Bureau; Elliott D. Pollack & Co.

Table 6-34: City of Mesa Hotel Inventory

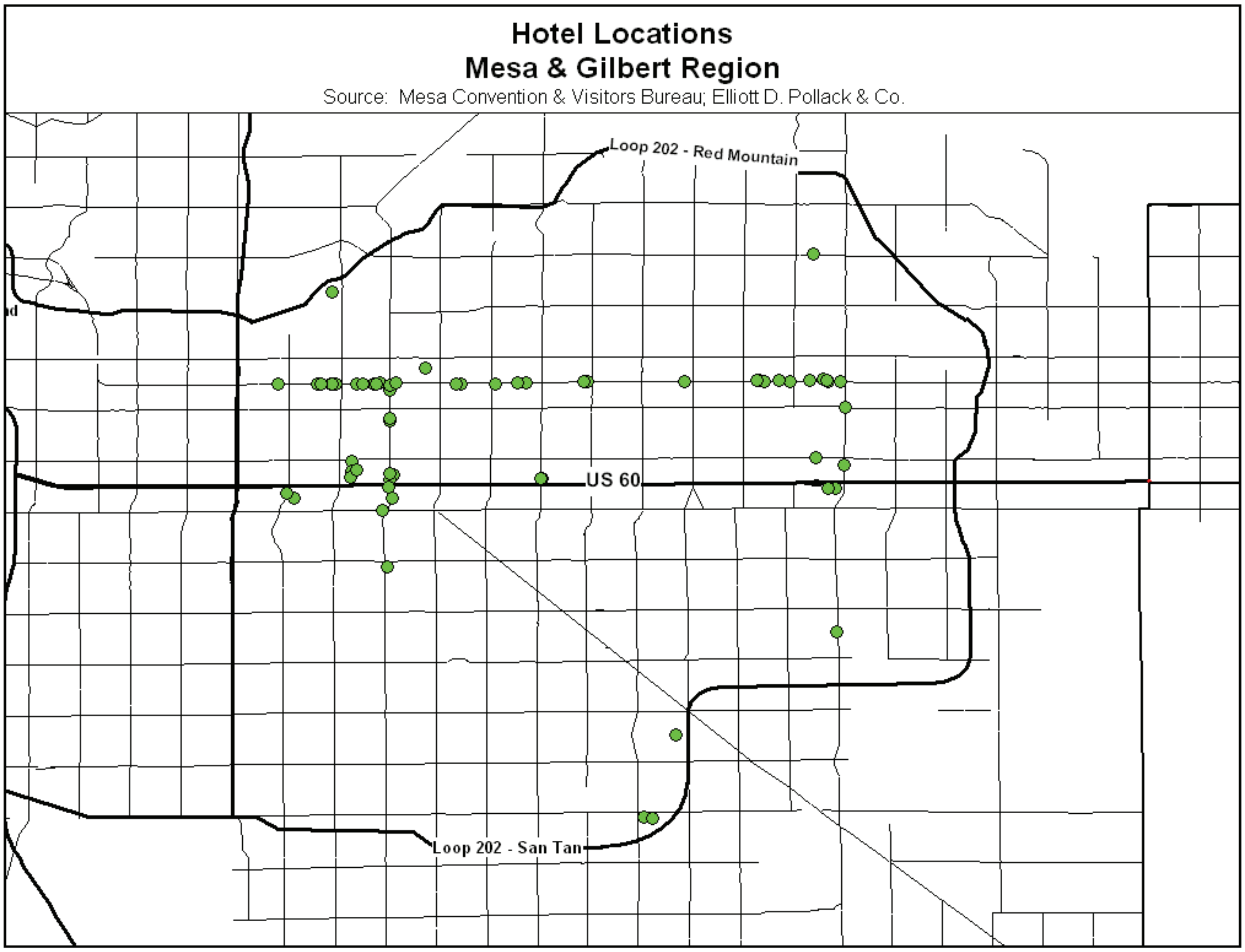
City of Mesa Hotel Inventory

Name	Address	Rooms
Budget Hotels		
American Executive Inn	1554 West Main Street, Mesa, AZ 85201	37
Budget Inn	106 S. Country Club Dr., Mesa, AZ	16
Budget Suites	537 S. Country Club Dr., Mesa, AZ	32
Circle RB Lodge	6547 E. Main St., Mesa, AZ	16
Citrus Inn	524 W. Main St., Mesa, AZ	17
Clarion Inn Mesa	951 W Main St, Mesa, AZ 85201	96
Colonade Motel	5440 E Main. St., Mesa, AZ	70
Days Hotel Mesa Country Club	333 W Juanita Ave, Mesa, AZ 85210	121
Days Inn And Suites Mesa	1750 East Main Street, Mesa, AZ 85203	59
Days Inn Mesa East	5531 E Main St, Mesa, AZ 85205	61
El Rancho Motel	719 E. Main St., Mesa, AZ	24
Fountain Motel	6240 E. Main St., Mesa, AZ	34
Frontier Motel	1307 E. Main St., Mesa, AZ	23
Hiway Host Motel	1260 W. Main St., Mesa, AZ	14
Holiday Motel	6444 E. Main St., Mesa, AZ	10
Kiva Lodge	668 W. Main St., Mesa, AZ	17
Lost Dutchman Lodge	560 S. Country Club Dr., Mesa, AZ	54
Mesa Oasis Inn & Motel	2150 W. Main St. Mesa, AZ	18
Miles Hotel	5911 E. Main St. Mesa, AZ	85
Motel 6 Mesa North	336 W Hampton Ave, Mesa, AZ 85210	161
Motel 6 Mesa South	1511 S Country Club Dr, Mesa, AZ 85210	91
Motel 6 Phoenix Mesa - Main St	630 W Main St, Mesa, AZ 85201	103
Plainsman Motel	1338 W. Main St., Mesa, AZ	14
Quality Inn & Suites Mesa	1410 S Country Club Drive, Mesa, AZ 85210	120
Regency Inn	1302 W. Main St., Mesa, AZ	34
Sleep Inn Mesa	6347 E Southern Ave, Mesa, AZ 85206	84
Starlight Motel	2710 E. Main St., Mesa, AZ	42
Sunland Motel	2602 E. Main St., Mesa, AZ	25
Trails West Motel	6502 E. Main St., Mesa, AZ	28
Travaleers	836 W. Main St., Mesa, AZ	28
Travelodge Suites Mesa	22 South Country Club Drive, Mesa, AZ 85210	38
Travelodge Suites Phoenix Mesa	4244 East Main Street, Mesa, AZ 85205	74
Tri City Inn	1504 W. Main St., Mesa, AZ	26
Westernaire Motel	5414 E. Main St., Mesa, AZ	43
Extended Stay Hotels		
Extended Stay Mesa	455 W. Baseline Rd., Mesa, AZ 85210	104
Homestead Stay America	1920 W. Isabella, Mesa, AZ 85202	122
Suites of America	825 W. Dobson Rd., Mesa, AZ	222
Upper/Mid Scale Hotels		
Arizona Golf Resort	425 South Power Road, Mesa, AZ 85206-5296	187
Best Western Dobson Ranch Inn and Resort	1666 S Dobson Rd, Mesa, AZ 85202-5610	213
Best Western Legacy Inn	4470 South Power Road, Mesa, AZ 85212	110
Best Western Mesa Inn	1625 E Main St, Mesa, AZ 85203-9017	99
Best Western Mezona Inn	250 W Main St, Mesa, AZ 85201-7312	128
Best Western Superstition Springs Inn	1342 S Power Rd, Mesa, AZ 85206-3704	59
Comfort Inn & Suites Mesa Downtown	651 E Main Street, Mesa, AZ 85203	48
Country Inn & Suites	6650 East Superstition Springs Boulevard, Mesa, AZ 85206	126
Courtyard Phoenix Mesa	1221 South Westwood, Mesa, AZ 85210	149
Fairfield Inn Phoenix Mesa	1405 S Westwood, Mesa, AZ 85210	65
Hampton Inn Phoenix-Mesa	1563 S. Gilbert Rd., Mesa, AZ 85204	115
Hilton Phoenix East/Mesa	1011 West Holmes Avenue, Mesa, AZ 85210-4923	260
Holiday Inn Hotel & Suites Phoenix-Mesa/Chandler	1600 S Country Club Drive, Mesa, AZ 85210	246
Hyatt Place Phoenix Mesa	1422 West Bass Pro Drive, Mesa, AZ 85204	150
La Quinta Inn	6530 East Superstition Springs Boulevard, Mesa, AZ 85206	107
La Quinta Mesa	902 West Grove Avenue, Mesa, AZ 85210-4930	125
Marriott Phoenix Mesa	200 North Centennial Way, Mesa, AZ 85201	275
Residence Inn Phoenix Mesa	941 W Grove Avenue, Mesa, AZ 85210	117
Saguaro Lake Ranch	13020 Bush Hwy, Mesa, AZ	25
Super 8 Mesa/Phoenix Power and Main	6733 E Main St, Mesa, AZ 85205-9037	60
Super 8 Phoenix/Mesa/Gilbert Road	1550 S. Gilbert Rd, Mesa, AZ 85204-6008	70
Westgate Painted Mountain Resort	6302 East McKellips Road, Mesa, AZ 85215	152
Windemere Hotel and Conference Center	5750 E Main Street, Mesa, AZ 85205	114
GRAND TOTAL Mesa Hotels		**5,163**

Source: Mesa Convention and Visitors Bureau; Elliott D. Pollack & Co.

As shown in the map on the following page, the hotels in the market area are mainly clustered along Main Street in Mesa in both the east and west portions of the city as well as along the U.S. 60 freeway. These clusters are in close proximity to major shopping centers and transportation corridors. Newly built hotels are in locations with similar attributes. There is a newly built Hyatt Place in the Riverview power center just off of the Loop 202 Red Mountain and a handful of hotels have just recently been built in Gilbert close to San Tan Village Mall off of the Loop 202 San Tan Freeway.

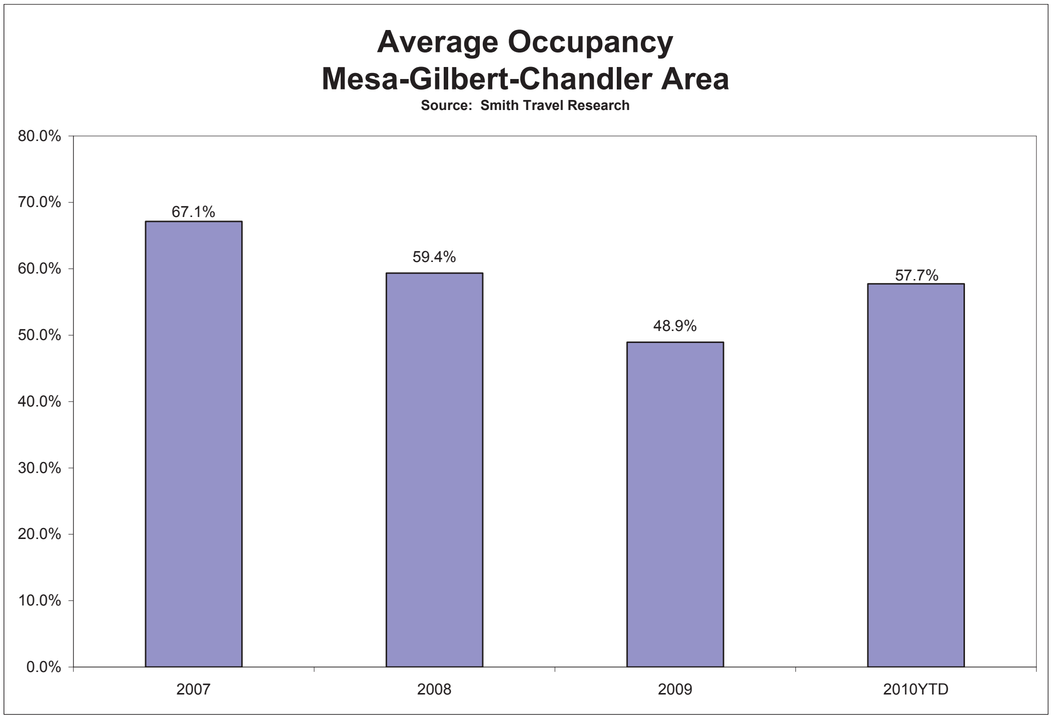
Exhibit 6-4: Hotel Locations - Mesa & Gilbert Region



The hotels in the Mesa/Gilbert region cater almost exclusively to business and budget travelers. With the Arizona Golf Resort, Westgate Painted Mountain Resort and the Legado Hotel in Gilbert as the exceptions, nearly all of the hotels are from chains that are known for being inexpensive with limited amenities. The average hotel size in the region is 88 rooms.

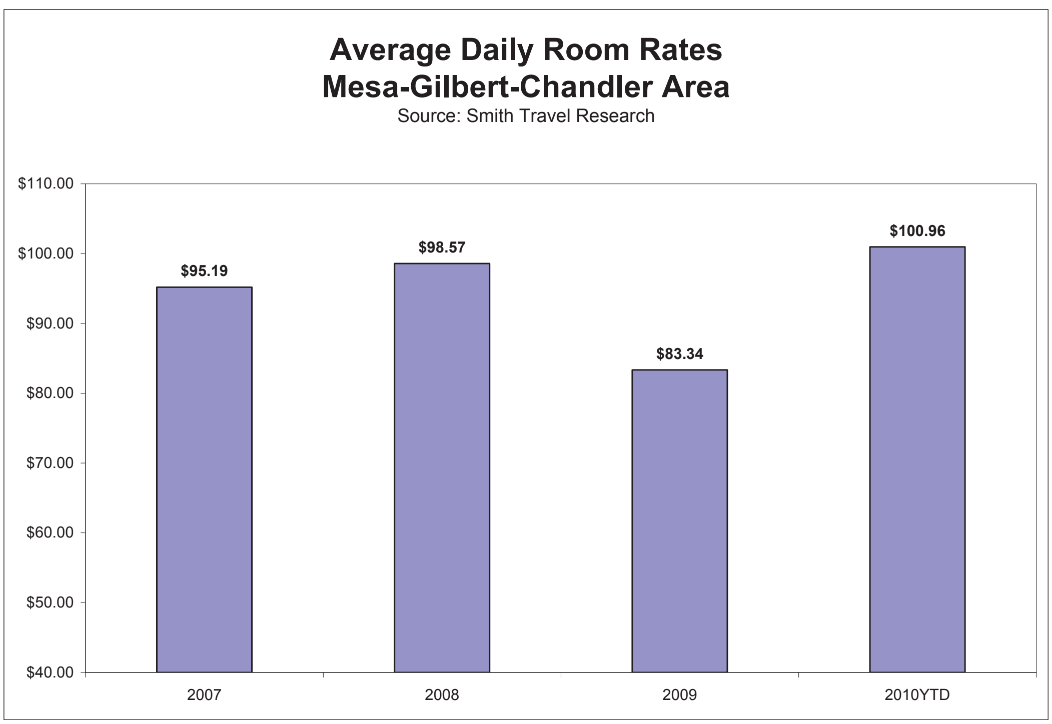
The most reliable source for local hotel data is Smith Travel Research. Data obtained from the Mesa Convention and Visitors Bureau provides hotel performance statistics for the broader Mesa, Gilbert and Chandler area. The average occupancy of the hotels in the region has suffered since the onset of the current recession beginning at the end of 2007. While performance appears to have improved in 2010, the data is only through February and doesn't account for seasonality. In 2007 and 2008, the Mesa-Gilbert-Chandler hotel market outperformed the Greater Phoenix market. However, the Mesa-Gilbert-Chandler market has under performed the overall market in 2009 and 2010.

Table 6-35: Average Occupancy - Mesa-Gilbert-Chandler Area



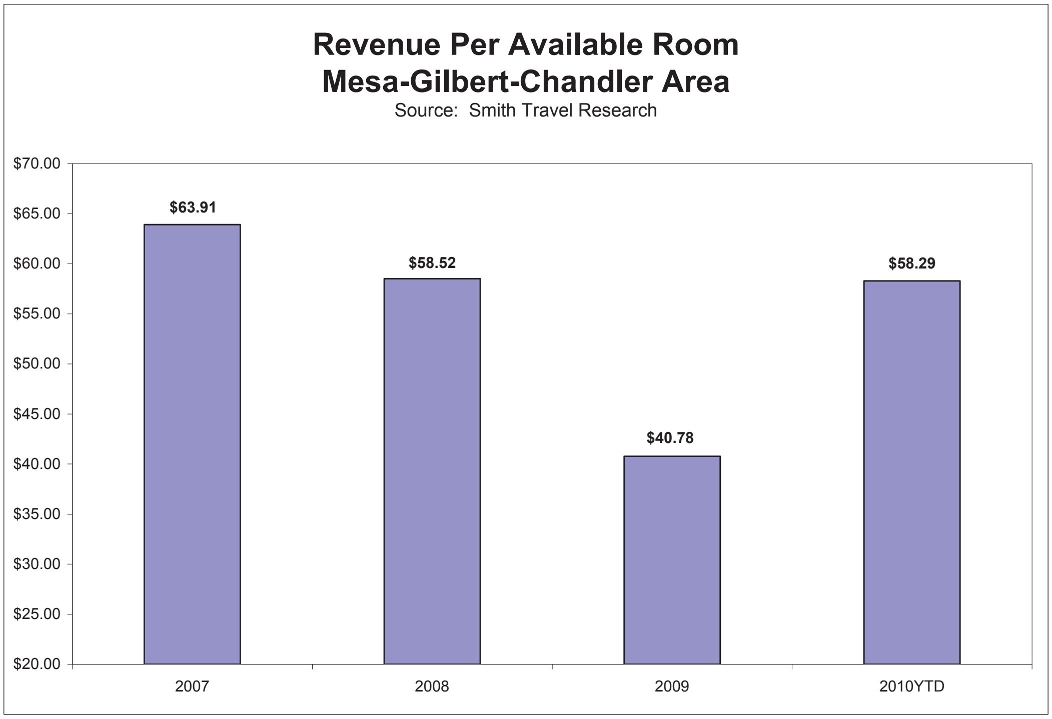
Average room rates had been increasing steadily until 2009 when the region experienced a sharp drop. Through February 2010, average rates were $100.96, which is 10.2 percent lower than through the same period in 2009, but much higher than the last few years' annual averages. However, the 2010 room rate estimate is for the high season.

Table 6-36: Average Daily Room Rates - Mesa-Gilbert-Chandler Area



Similar to the overall Greater Phoenix hotel market, RevPAR in the Mesa-Gilbert-Chandler area experienced a decline of approximately 30 percent in 2009 after an 8 percent decline in 2008.

Table 6-37: Revenue Per Available Room - Mesa-Gilbert-Chandler Area



The Mesa-Gilbert-Chandler hotel market has historically under performed the Greater Phoenix market in terms of average daily rates, but matched the overall market in occupancy levels. In general, typical room rates in the Mesa-Gilbert-Chandler area have averaged 20 percent lower than the Greater Phoenix market.

Table 6-38: Comparative Performance - Greater Phoenix & Mesa-Gilbert-Chandler Hotel Markets

Comparative Performance
Greater Phoenix & Mesa-Gilbert-Chandler Hotel Markets

	Greater Phoenix			Mesa-Gilbert-Chandler		
Year	Occupancy	ADR	RevPAR	Occupancy	ADR	RevPAR
2007	66.9%	$120.54	$80.60	67.1%	$95.19	$63.91
2008	59.4%	$124.93	$74.15	59.4%	$98.57	$58.52
2009	52.4%	$105.72	$55.36	48.9%	$83.34	$40.78
2010 1/	61.1%	$117.80	$71.96	57.7%	$100.96	$58.29

1/ Through February 2010

Source: Smith Travel Research

6.2.5 Summary and Conclusions

The commercial real estate market in Greater Phoenix is in uncharted territory. Faced with unprecedented high levels of vacancies, falling values and the possible need to refinance properties over the next several years, significant fallout in the market is expected. Credit is limited and many lenders are only interested in the highest quality properties. Commercial properties that were purchased at the height of the market in 2005 through 2007 will likely face the most distress, since values today will not support the levels of debt required to refinance. Due to the over-building of commercial space in the last few years, few, if any, office or industrial buildings will be constructed in the next five years. The retail market faces similar challenges, but could return to historic vacancy levels sooner if retail spending continues to increase and population flows begin again as forecasted. Overall, the next four to five years will be challenging for commercial property owners and developers.

In general, Mesa has historically had a weak industrial and office market, primarily because of its location towards the periphery of the urbanized area. Office uses in particular have been missing from the local real estate market. Office markets that develop outside of a central city core are dictated by many factors, including proximity to affluent residential areas and arterial and freeway access to support work commutes. This has not been present in the East Valley, but is beginning to take shape. As population grows in the East Valley and as commuting to other business districts becomes problematic, the natural evolution and demand for office/commercial properties nearby will grow. For the time being, developers still appear to prefer more central urban locations in Phoenix, Scottsdale and Tempe for office projects.

In the industrial market, surface access infrastructure, which includes freeways and, to a lesser extent, rail, drives location-decisions for industrial developers. The lack of freeways leading out of Mesa to major metropolitan areas to the east has limited the development of a large warehousing market. Most of this activity is located on the west side of the Valley where there is good rail access and proximity to Southern California. However, the Southeast Valley is a center of semiconductor and aerospace manufacturing in Greater Phoenix. Chandler has captured a large share of this activity, however, aerospace manufacturing in north Mesa adjacent to Falcon Field accounts for the city's primary employers. The assets of the Phoenix-Mesa Gateway Airport offer significant opportunities to expand this economic base.

Comparatively, Mesa has had a strong retail market and, until the growth of Chandler and Gilbert, was the dominant community in the area relative to retail sales. However, the construction of Chandler Fashion Center and the Gilbert San Tan Village mall has had a significant negative impact on City revenues. Additional competition has come from the Tempe Marketplace. No longer are residents of adjacent communities shopping in Mesa. As a result, major retail centers like Fiesta Mall have experienced declining sales and need to be repositioned in the market.

6.3 Mesa Growth Forecast

The MAG periodically provides population forecasts for Maricopa County and its incorporated cities. The overall county-wide forecast is consistent with long term DES projections. MAG forecasts the growth of individual cities based on historic growth trends, available vacant land, and other factors that influence the direction of growth. The following table shows the current 2007 forecast from MAG based on the 2005 U.S. Census. Overall, Maricopa County is expected to grow from approximately 3.68 million persons in 2005 to 6.14 million persons in 2030, an increase of nearly 67 percent over 25 years. The employment forecast shows that the County is expected to grow from 1.7 million jobs in 2005 to nearly 3.4 million jobs in 2030, representing a 93 percent increase. Consistent with expectations, some of the future population growth will continue to spill into adjacent Pinal County, but employment will still largely be contained within Maricopa County.

Table 6-39: MAG Forecast - Maricopa County

MAG Forecast
Maricopa County

	POPULATION				EMPLOYMENT			
Community	**2005**	**2010**	**2020**	**2030**	**2005**	**2010**	**2020**	**2030**
Avondale	70,160	83,856	105,989	123,265	12,315	20,599	37,776	53,083
Buckeye	32,735	74,906	218,591	419,146	8,672	22,400	57,297	147,851
Carefree	3,654	4,418	5,816	6,097	2,669	3,270	3,992	4,329
Cave Creek	4,845	5,781	7,815	9,656	2,602	3,564	4,666	6,066
Chandler	236,073	265,107	282,991	283,792	86,732	128,244	168,141	178,116
County Areas	80,661	87,434	107,441	159,312	24,051	27,353	39,281	70,428
El Mirage	31,935	34,819	38,620	38,717	2,858	5,001	9,276	11,528
Fort McDowell Yavapai Nation	824	839	1,037	1,239	1,228	1,323	1,647	1,959
Fountain Hills	24,347	27,166	33,331	33,810	7,492	9,954	11,569	11,573
Gila Bend	2,118	2,575	3,950	9,074	1,077	1,691	2,760	6,824
Gila River Indian Community	2,742	2,790	2,941	3,410	4,334	5,422	7,612	14,448
Gilbert	178,708	218,009	285,819	300,295	56,292	81,852	117,984	128,792
Glendale	257,891	279,807	315,055	322,062	88,172	117,110	156,508	171,498
Goodyear	47,520	71,354	174,521	299,397	15,794	28,167	73,622	130,336
Guadalupe	5,555	5,790	5,982	5,983	1,033	1,387	1,467	1,481
Litchfield Park	6,787	8,587	10,305	10,510	1,710	2,405	3,200	4,280
Mesa	**486,296**	**518,944**	**565,693**	**584,866**	**174,909**	**218,085**	**275,236**	**306,030**
Paradise Valley	14,136	14,790	15,224	15,352	5,769	6,717	7,707	8,734
Peoria	141,441	172,793	236,154	306,070	34,631	53,397	87,968	117,861
Phoenix	1,510,177	1,695,549	1,990,450	2,201,843	811,513	937,182	1,108,031	1,246,527
Queen Creek	19,879	34,506	55,529	72,947	4,021	9,652	22,213	35,145
SRPM Indian Community	6,822	7,087	7,308	7,425	5,977	11,131	25,587	49,905
Scottsdale	234,515	249,341	269,266	286,020	181,652	208,073	232,832	252,015
Surprise	93,356	146,890	268,359	401,458	16,289	31,105	81,423	147,703
Tempe	165,740	177,771	191,881	197,970	176,688	198,243	219,543	235,616
Tolleson	6,491	7,748	9,646	10,193	12,340	15,808	19,854	22,314
Wickenburg	9,606	11,022	13,311	17,732	5,055	6,622	8,921	12,316
Youngtown	6,011	6,820	7,275	7,359	1,657	1,667	1,988	2,042
Grand Total	**3,681,025**	**4,216,499**	**5,230,300**	**6,135,000**	**1,747,532**	**2,157,424**	**2,788,101**	**3,378,800**
Percent Increase From 2005				**66.7%**				**93.3%**

Source: MAG 2007

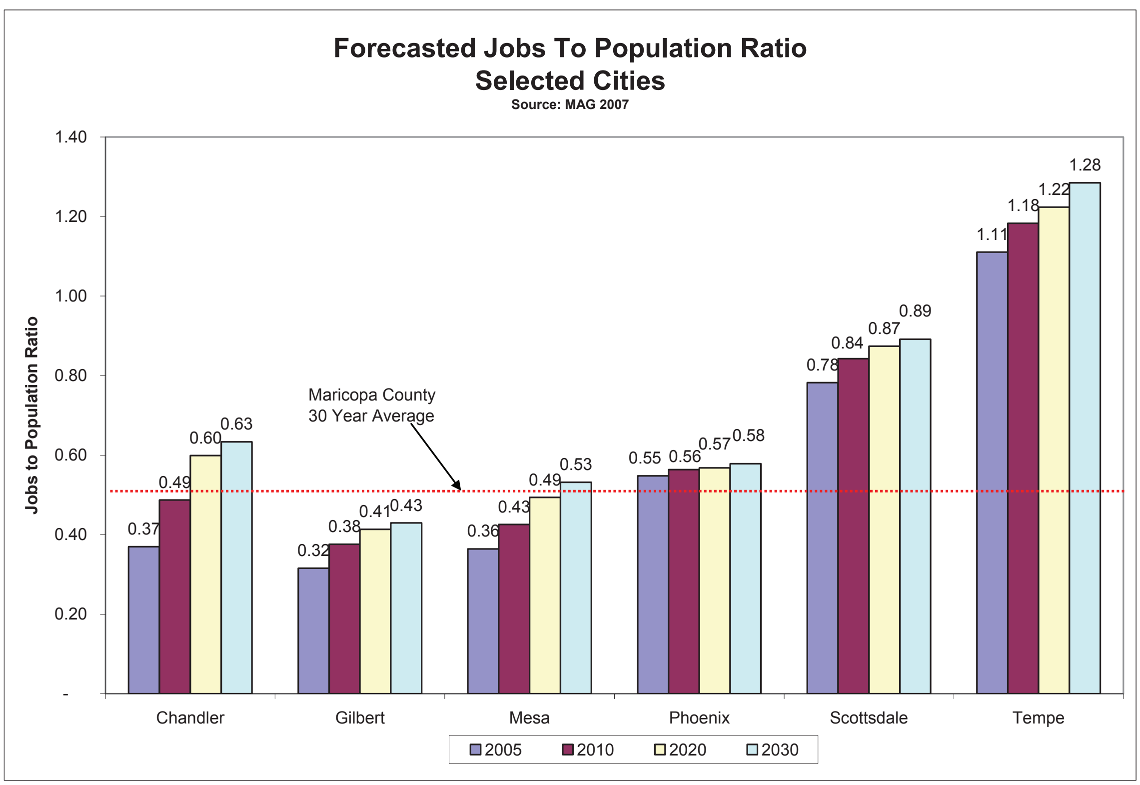
The above table also shows that Mesa is expected to grow from 486,000 persons in 2005 to 585,000 persons in 2030. Its employment base is expected to increase as well from 175,000 to 306,000 jobs in 2030.

An important indicator of the health of a community is its jobs to population ratio. The current estimate of jobs per person in Maricopa County is approximately 0.50 or stated another way, one job for every two people. Those communities with jobs to population ratios above the county average tend to have stronger local economies. Fast growing communities on the periphery of the metro area typically have lower jobs to population ratios since job growth lags behind population growth. Over time, however, those communities will see jobs eventually follow residents to the peripheral areas, especially retail jobs.

Eventually, the PMGA area will serve as an employment hub for much of the far East Valley. Employees will reside in East Valley cities as well as in parts of Pinal County. In the future, this will result in a jobs to population ratio for Mesa in excess of the regional average (see below). The extent that this ratio increases over time will depend on the Mesa's ability to capture jobs relative to other competing areas in Metro Phoenix, the extent that it is planned properly, and the extent that it develops a quality brand image.

For some regional perspective, the following chart shows the forecast of jobs to population for the largest communities in Maricopa County. Three communities where large employment centers are located have high ratios, including Phoenix, Scottsdale and Tempe. In 2005, most other cities were much lower, in the 0.30 to 0.40 range; including Mesa which in 2005 had an estimated 0.38 jobs to population ratio. Based on MAG's forecast, Mesa is expected to increase its ratio to approximately the county wide average by 2030. Other cities such as Glendale and Chandler are also expected to equal or exceed the county average. Tempe has the highest ratio among all communities, primarily because it is landlocked and has little room for additional residential development. However, there are extensive employment opportunities in Tempe including the downtown area, Tempe Town Lake and south Tempe where vacant employment land still exists.

Table 6-40: Forecasted Jobs to Population Ratio - Selected Cities



In order to give some scale to the Mesa employment ratio relative to the Maricopa County economy, in 2005 the city accounted for approximately 13.2 percent of the population but only 10.0 percent of county jobs. By 2030, Mesa is expected to account for approximately 9.5 percent of the county's population and 9.0 percent of county jobs. Therefore, even though Mesa will continue to grow, its proportion of the total county population will decrease. Likewise, its percentage of total county jobs will also decrease but become more consistent with its population base.

The following three charts show the projected capture rates for total employment, industrial employment and office employment by the various cities in Maricopa County over the next 25 years. The chart shows that cities that are heavily populated today have declining capture rates while newly developing cities, such as Buckeye, Goodyear, Peoria, and Surprise, will have increasing capture rates. For the near future, Mesa is expected to capture approximately 10 percent of all employment in Maricopa County through 2010. Over the next decade, its capture rate declines slightly and then between 2020 and 2030, it is expected to decline to a 5 percent rate. Among the more heavily developed cities in Maricopa County, Mesa actually has one of the higher capture rates, excluding the City of Phoenix.

The projected capture rates for industrial employment and office employment are shown on the following pages. The same pattern as described previously emerges from this data showing that the newly growing peripheral cities have higher capture rates towards the latter end of the forecast. Mesa is expected to have one of the higher capture rates of industrial employment in the 2010 to 2020 decade.

Table 6-41: Projected Employment Capture Rates - Maricopa County

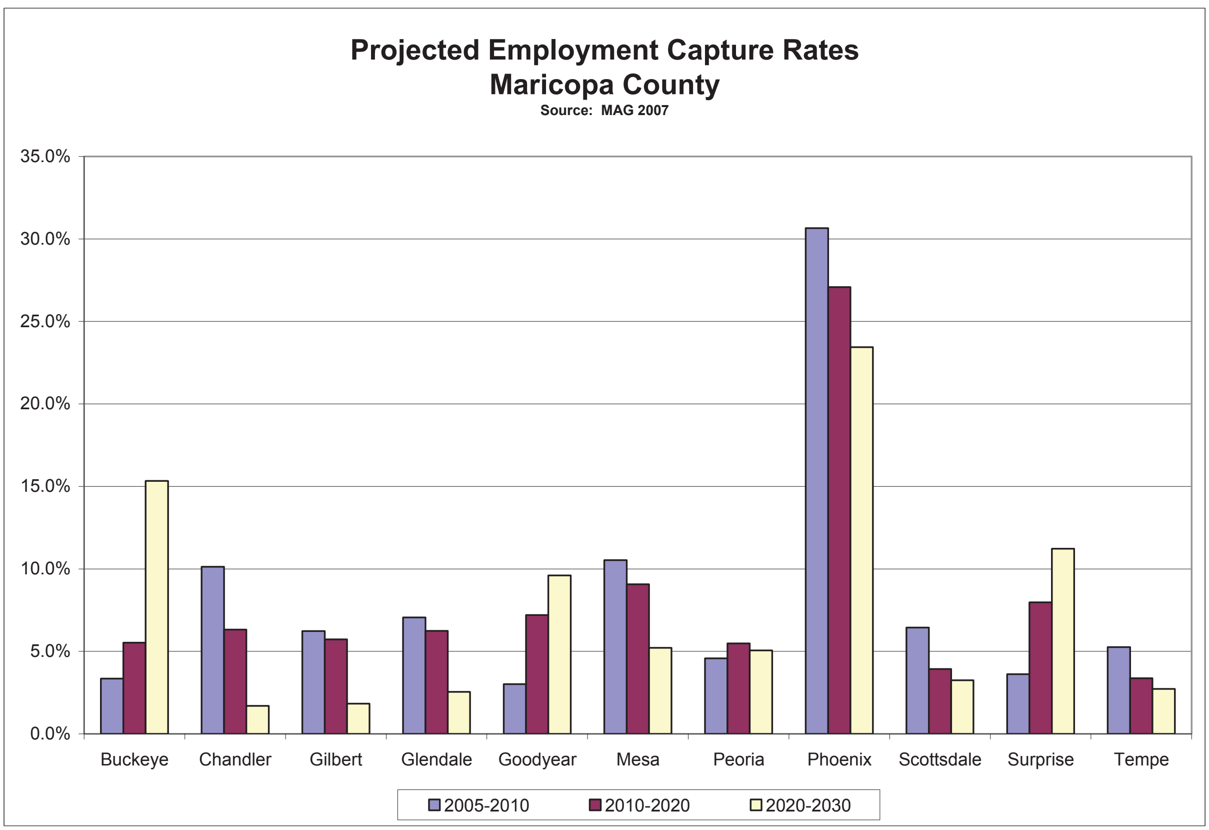


Table 6-42: Projected Industrial Employment Capture Rates - Maricopa County

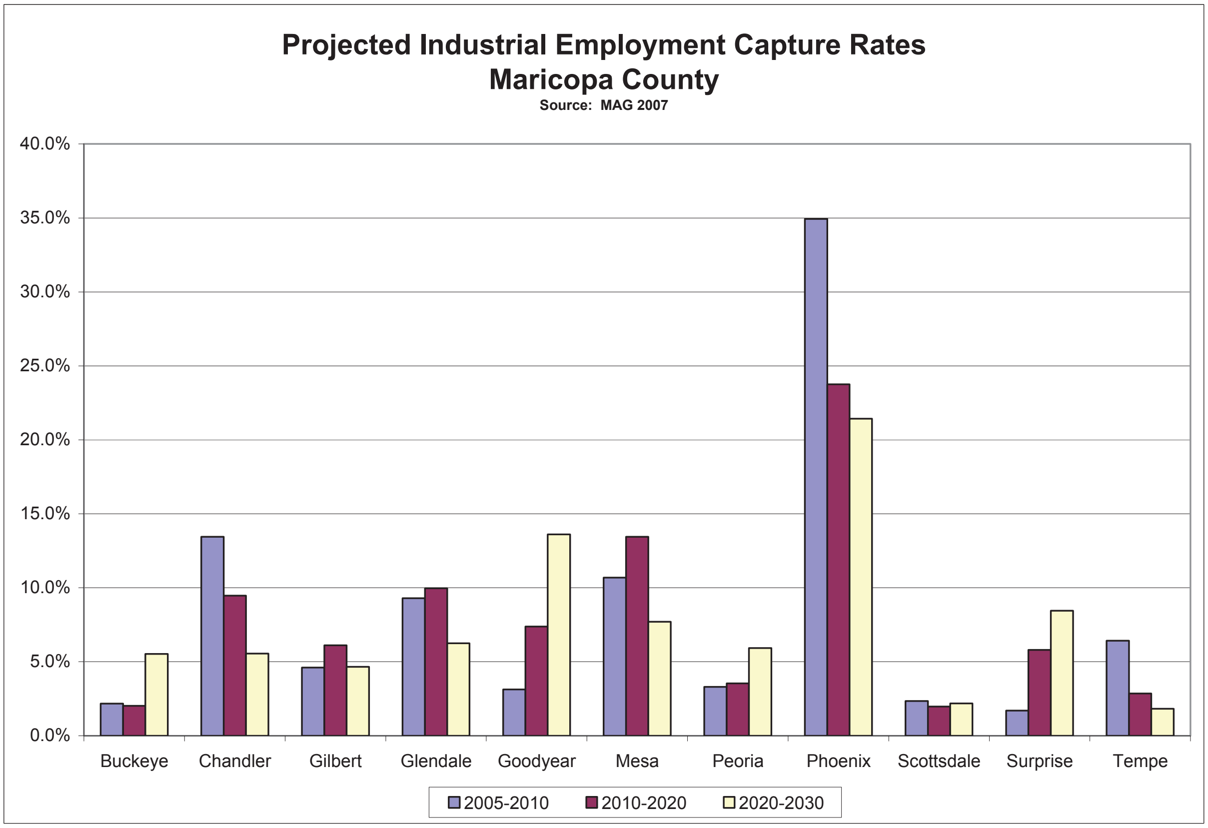
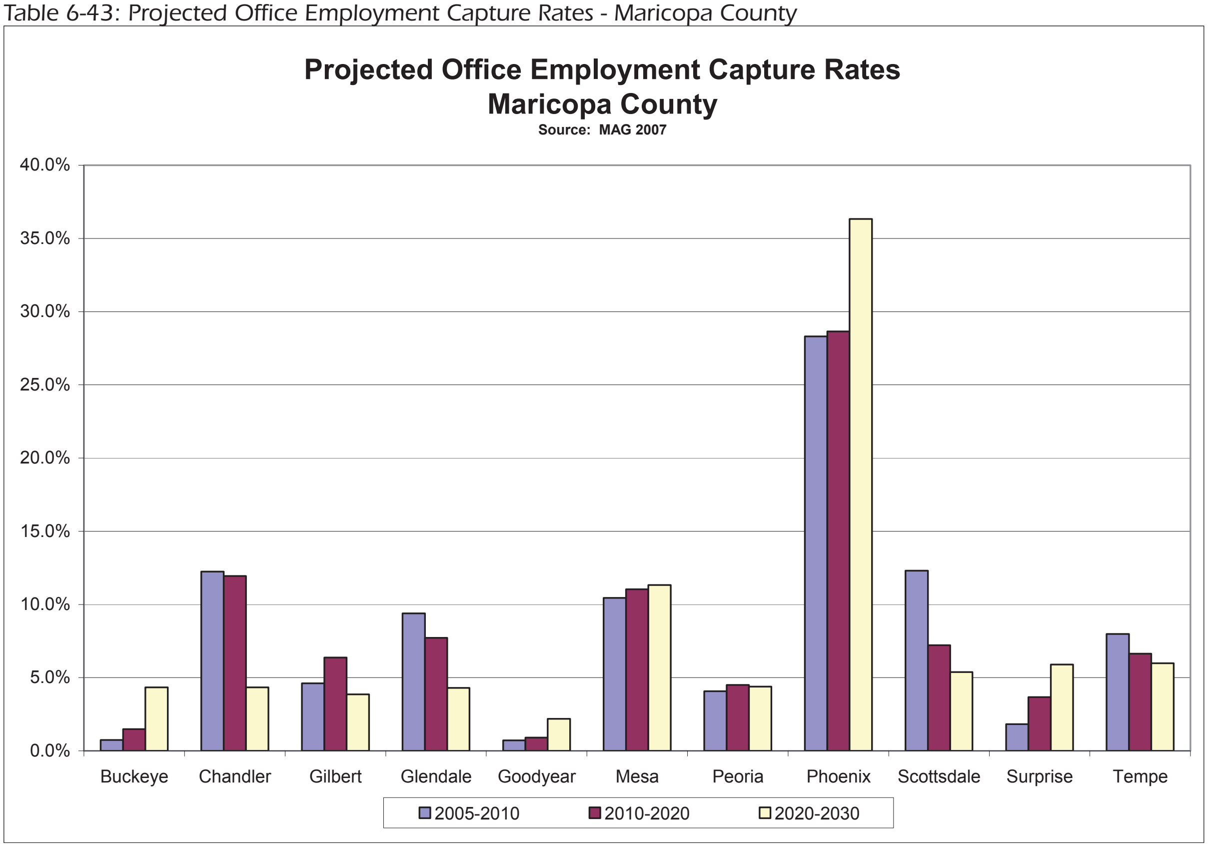


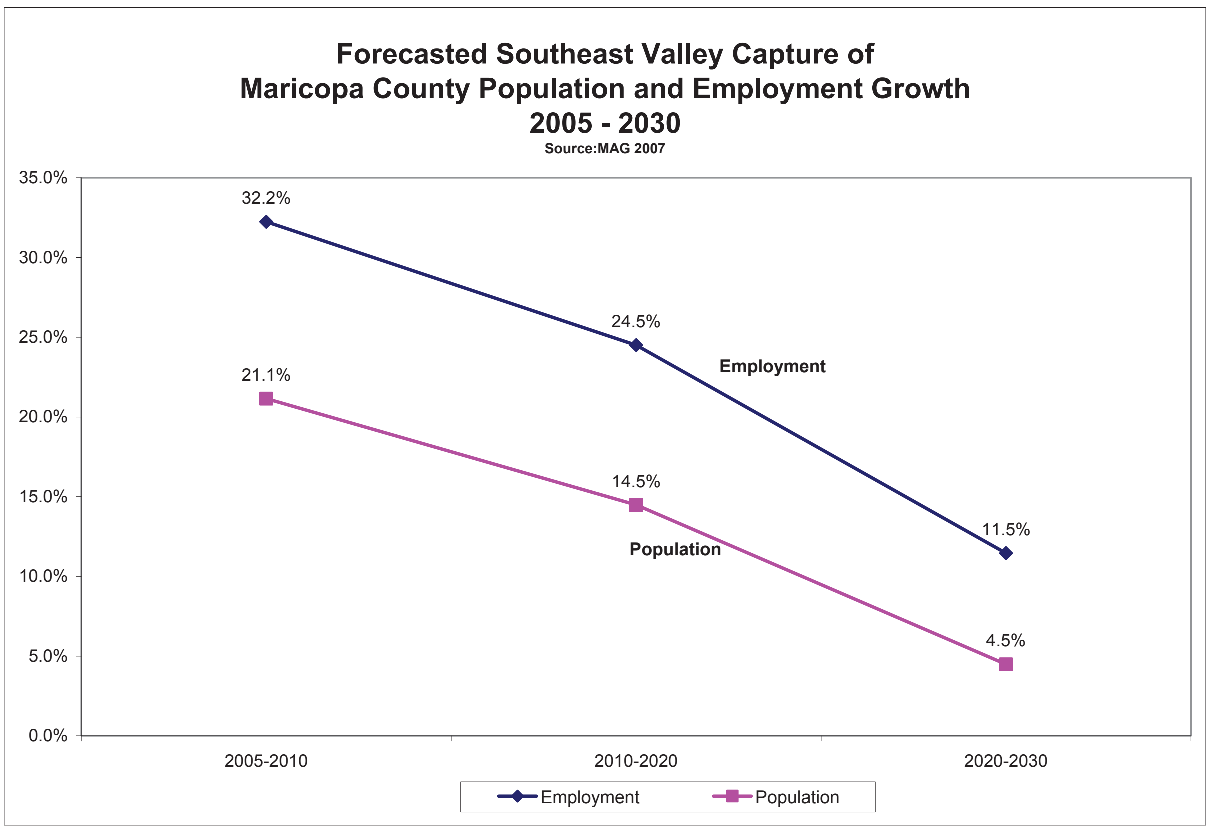
Table 6-43: Projected Office Employment Capture Rates - Maricopa County



In terms of office employment, Mesa is also expected to have one of the higher capture rates among all the selected communities. In fact, Mesa's capture rate increases over time, indicating that it could become a center of office employment beyond what has happened in the past. As will be noted in a later section, office development is one of the last real estate sectors to enter a newly growing area. For the most part, office development is found in major clusters throughout the Valley based on the availability of transportation and amenities for office workers. Today, some of the most important office clusters include 24th Street and Camelback in Phoenix, the Scottsdale Airpark in Scottsdale, downtown and midtown Phoenix, and Deer Valley near the I-17/101 interchange.

Some additional analysis was conducted of the MAG projections for the Southeast Valley of Maricopa County. This area includes the communities of Tempe, Guadalupe, Mesa, Gilbert, and Chandler. The following chart shows the capture rates for population and employment for the Southeast Valley through 2030. The assumptions behind this forecast suggest that the Southeast Valley will begin to build out due to a shortage of vacant available land for residential development in the 2010 to 2020 decade. Again, this is for residential development in Maricopa County and not Pinal County. For instance, between 2005 and 2010, approximately 21 percent of the county's population growth is expected to occur in the Southeast Valley. This declines to 14.5 percent in the next decade, followed by only a 4.5 percent increase in the 2020 to 2030 timeframe. Employment growth follows a similar pattern of decline.

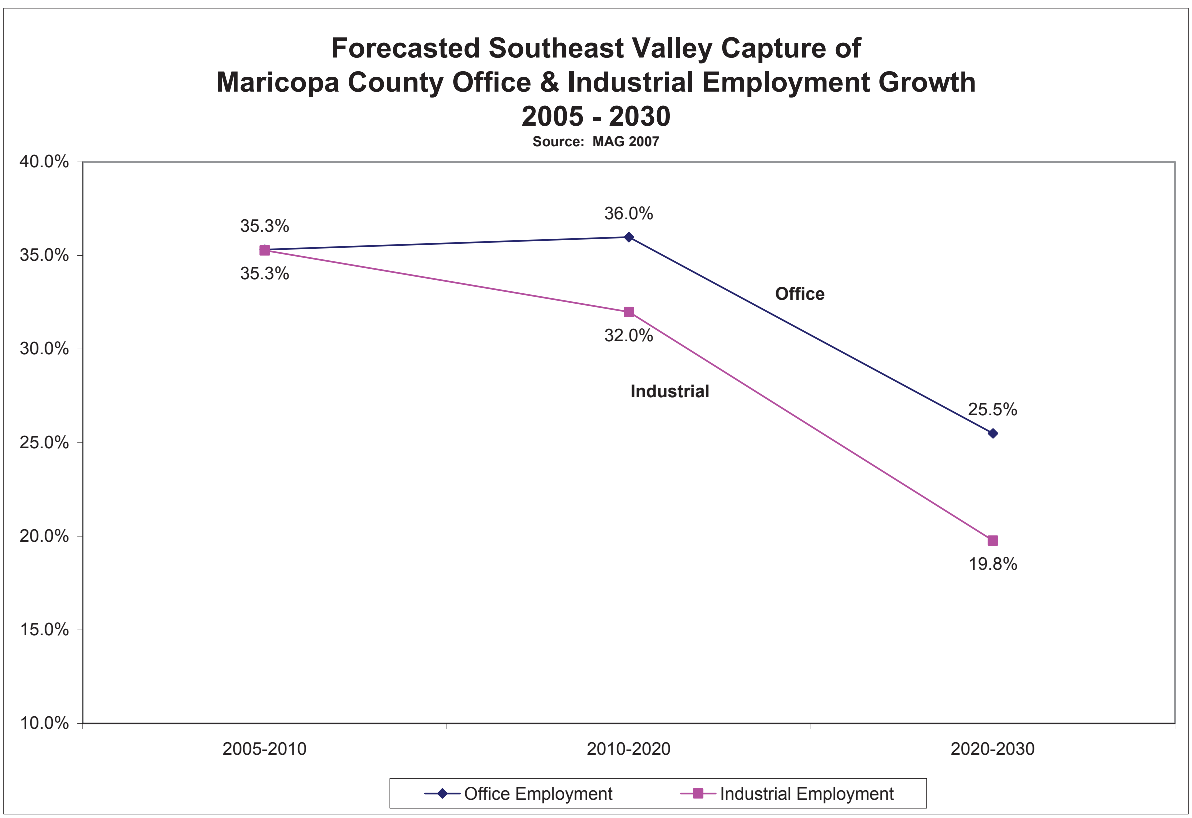
Table 6-44: Forecasted SE Valley Capture of Maricopa County Pop. & Employment Growth



However, in reviewing the population and employment projections, it appears that MAG may have underestimated the employment potential in the Southeast Valley and the amount of vacant land that is available in various areas, including Mesa Gateway Area, to continue to accommodate employment. In addition, there are many opportunities over the next 25 years for redevelopment of older parts of Tempe and Mesa that are today occupied by obsolete buildings. This could result in the intensification of employment in the older communities closer to the surrounding labor base rather than seeing job growth on the periphery of the metro area.

The following chart shows the capture rate of the Southeast Valley for the county's office and industrial employment over the next 25 years. The capture rate for industrial employment is expected to decline dramatically in 2020 to 2030 timeframe. Office employment is more stable through 2020, but then declines as well in the following decade. Once again, this forecast does not recognize the potential for redevelopment of older areas or for the Mesa Gateway Area to capture a large percentage of the employment growth. The MAG forecast instead assumes that communities such as Goodyear, Buckeye, and Surprise will capture a growing share of the office market.

Table 6-45: Forecasted SE Valley Capture of Maricopa County Office & Ind. Employment Growth



MAG Forecast For Mesa Gateway Area

According to MAG, the area surrounding PMGA (referred to in prior studies as the Mesa Gateway Area (MGA) will account for a large percentage of Mesa's population and job growth, particularly in the decade between 2010 and 2020.

The following tables show the overall Mesa population and employment forecast though 2030 compared to the forecast for the Mesa Gateway Area. The data presented in the table represents the far southeast portion of Mesa south of Baseline Road.

In 2005, Mesa had approximately 175,000 jobs. That job base is expected to grow to 306,000 jobs by 2030. For the Mesa Gateway Area, there were approximately 8,000 jobs in the area in 2005. By 2030, employment should increase to close to 56,000 jobs. In the next two decades, between 2010 and 2030, MAG forecasts that the Mesa Gateway Area will account for approximately 50 percent of all job growth in the City. However, as was noted on the table, between 2020 and 2030, MAG forecasts that the increase in jobs will decline relative to the prior decade. With the vast amount of employment land available around PMGA, it is questionable whether this decline would occur given PMGA's location, the airport asset, and projected transportation infrastructure.

Table 6-46: Mesa & Mesa Gateway Area (MGA) Population Growth Forecast

Mesa & Mesa Gateway Area (MGA) Population Growth Forecast

	2005	2010	2020	2030
Mesa Population Forecast	486,296	518,944	565,693	584,866
Increase		32,648	46,749	19,173
WGA Population Forecast	38,350	44,846	64,816	77,003
Increase		6,496	19,970	12,187
WGA as % of Mesa Population Growth		19.9%	42.7%	63.6%

Source: MAG 2007

Table 6-47: Mesa & Mesa Gateway Area (MGA) Employment Growth Forecast

Mesa & Mesa Gateway Area (MGA) Employment Growth Forecast

	2005	2010	2020	2030
Mesa Employment Forecast	174,909	218,085	275,236	306,030
Increase		43,176	57,151	30,794
WGA Employment Forecast	8,042	12,008	39,553	55,721
Increase		3,966	27,545	16,168
WGA as % of Mesa Employment Growth		9.2%	48.2%	52.5%

Source: MAG 2007

6.4 Airport Land Use/Employment Analysis

While the previous section identified the development trends within the broader economic regions, the following section focuses specifically on airport property development itself. There are a number of issues to consider when identifying the extent that a particular property could develop.

First and foremost, as presented in prior sections, regional supply and demand conditions influence both development timing and density on a particular parcel of land. This is most relevant when considering short term development potential. Over the longer term, an area's specific advantages and disadvantages come more into play.

Second, as is the case with a unique use such as an airport, development patterns exhibited in other similar areas throughout the country provide some perspective into how and when an area might develop. Last, local efforts could result in the advancement or delay of market forces depending on the type of plan that is put in place. This last point is critical. When a development plan is also consistent with a region's basic economic potential, efficiency is created and revenues are maximized. The following text examines each of these issues.

6.4.1 Employment Trends on Airport Property

The economy as a whole remains very weak and a full recovery isn't expected for the U.S. as a whole until 2013 or 2014, with Arizona potentially lagging behind the national recovery. Few new jobs will be created during the initial phases of the recovery which, combined with a significant excess supply of commercial real estate product in the Greater Phoenix area, will dampen demand for new construction. However, the economic fundamentals remain in place for both the State of Arizona and the Greater Phoenix economic region. Thus, over the longer term, as defined by the next two decades, new product will indeed be demanded as job growth and population inflows escalate.

6.4.2 Employment Composition Near Example Airports

Dozens of airports throughout the country were examined in preparation of this analysis; three specific example airport properties are included as points of reference:

- John Wayne Airport in Orange County, California,
- San Bernardino International Airport in San Bernardino, California (former Norton Air Force Base), and
- Ontario International Airport in Ontario, California.

In addition, three economic regions surrounding each of the three above airports were analyzed for the composition of their employment base including:

- The zip code containing the airport itself,
- The county within which the airport is located and
- The metropolitan statistical area within which the airport is located.

The purpose of this comparison is to identify differences in the employment base of the area surrounding an airport (in this case the zip code data) to county-wide or MSA-wide employment trends. However, even zip code data may capture a broad area that does not accurately describe the circumstances directly on or surrounding an airport. Therefore, the results of the analysis may need to be supplemented by more detailed analysis of development activity directly on or adjacent to an airport.

In most cases, land uses on or immediately adjacent to airports are driven by employment and land use patterns in the region surrounding the airport. These uses may include the traditional industrial and warehouse uses commonly associated with airports as well as office, retail, light industrial, mixed use and even residential in some cases. Most of these latter uses are in response to the character of the surrounding region and demand that is generated by residents and businesses within the region, not necessarily from the airport itself. Dallas-Fort Worth International Airport, is provided as an example of an airport in this analysis that is actively pursuing the planning and sale of land for non-traditional entertainment and retail uses on land owned by the Airport.

What this means is that the PMGA property does not necessarily have to fit into the traditional employment/business mix surrounding an airport of industrial and warehouse uses. However, the types of development that will occur near the Airport and within the broader economic region will indeed have an impact on the Airport no matter how well planned. It also suggests that the most viable employment uses in the short term will likely be derived from industrial or warehousing operations until the market surrounding PMGA becomes more mature and promotes higher value added uses.

The key is to accommodate the aforementioned basic airport uses, but also try to enhance these uses by filling a niche use that the real estate market is not as likely to support. This niche use is what will ultimately differentiate the Airport from others. It will be difficult for any public entity, not just airport entities, to force a type of use that is not economically viable. While this still can occur, incentives or subsidies are required to redirect the desired types of development to a less than efficient location.

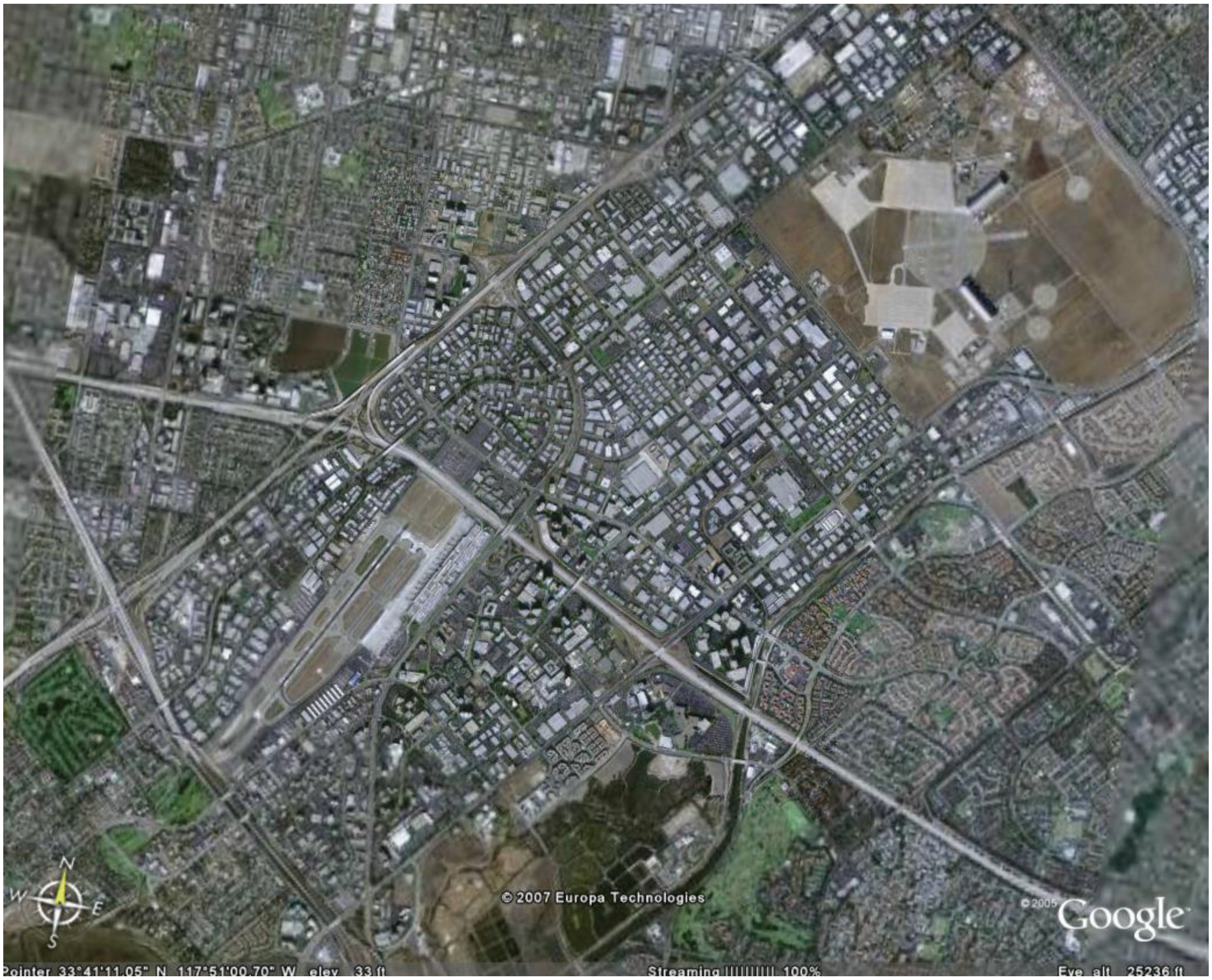
Primary consideration should be first given to identifying the extent of revenue necessary to improve the airport property so it can achieve its full potential. Secondary consideration should be given to the exact composition of the surrounding area's employment uses. If revenue from near term development is necessary to advance the Airport, then some lower value added uses should be considered. If a temporary lack of rent and tax revenue is not important to the development of the Airport from a revenue standpoint, then the plan can be more selective.

John Wayne Airport –Employment Patterns

The purpose of this analysis is to compare the composition of employment and businesses directly surrounding an airport to the broader economic region. This will identify whether the airport has attracted certain types of uses that are different from the economic characteristics of the immediate county or metro area and perhaps indicate the types of industries that may be efficient to pursue.

John Wayne Airport in Orange County is located in one of the most affluent areas of Southern California, an area that at one time had the highest household income in the State. The Airport is located just north of Newport Beach and Laguna Beach at the confluence of three major freeways; the 405, 73 and 55. Orange County originally developed as an affluent suburban area with the major development being the Irvine Ranch. Because of the suburban atmosphere of the area, commercial and light industrial uses congregated around existing airports, in this case the John Wayne Airport and the El Toro Marine Corps Air Station to the east of John Wayne which is now closed. Therefore, to some extent, the uses surrounding John Wayne Airport reflect the fact that there were few other places for industrial uses to locate in the county. However, as the Airport grew in size and service, it became a center of business for the area attracting hotels, offices and some retail uses. The Airport proper itself does not have any major excess property that can be planned for private uses. Following is an aerial photo of the Airport and immediate surrounding uses.

Exhibit 6-5: John Wayne Airport



Based on U.S. Census data, employment surrounding John Wayne Airport is most heavily concentrated in business services including professional, scientific, and technical services at 16.4 percent of all jobs, finance and insurance at 15.4 percent and administrative and support and waste management and remediation services. All these industry categories have employment in excess of the county and MSA employment levels. Two additional industry categories that show excess employment near the Airport are real estate and rental and leasing and management of companies and enterprises. The excess employment sectors are highlighted in yellow on the following table. By comparison, health care and social assistance and retail trade employment are significantly lower in the area surrounding the Airport compared to the county and MSA. Surprisingly, accommodation and food services which includes hotels, restaurants and bars are under-represented in the area surrounding the Airport compared to the county and MSA. However, there are more than six hotels near the airport terminal and and additional restaurant and retail uses. However, the low percentages in accommodation and food services employment near the Airport may reflect the fact that Orange County has an above average employment base in these categories due to extensive amusement park and resort development.

Table 6-48: Estimated Employment by Type - John Wayne Airport

Estimated Employment By Type
John Wayne Airport
2007 Data

	Zip codes* 92612/92614	County	MSA
54- Professional, Scientific & Technical Services	16.4%	8.3%	9.2%
31- Finance & Insurance	15.4%	7.5%	5.6%
44- Admin, Support, Waste Mgt, Remediation Services	11.9%	8.6%	7.6%
Manufacturing	10.6%	11.4%	11.7%
Wholesale trade	8.1%	7.7%	7.1%
42- Real Estate & Rental & Leasing	5.8%	3.2%	2.6%
Construction	5.4%	7.7%	5.1%
72- Management of Companies & Enterprises	5.2%	2.8%	2.2%
Accommodation & Food Services	4.5%	9.7%	9.1%
Information	3.8%	2.5%	4.7%
Health Care and Social Assistance	2.6%	9.0%	10.9%
Retail Trade	2.6%	11.2%	11.1%
Educational Services	2.0%	1.8%	2.7%
Arts, Entertainment & Recreation	0.9%	2.5%	2.1%
Transportation & Warehousing	0.6%	2.1%	3.6%
Residual	4.1%	4.2%	4.6%
Grand Total	**100.0%**	**100.0%**	**100.0%**

*Airport is located in these zip code.
Note: Totals may not equal sum of column due to rounding.
Source: US Bureau of Census, USPS, Elliott D. Pollack & Co.

A visual review of aerial photos around the Airport concluded that properties near the airport have an above average concentration of office space and a below average concentration of industrial space. Beyond the business areas there is a high quantity of residential development, thus supplying the workers to support the broad base of commercial uses.

San Bernardino International Airport –Employment Patterns

The San Bernardino International Airport is located just southeast of downtown San Bernardino. The Airport is the former Norton Air Force Base that was listed for closure in 1989 and officially closed in 1994. There is no commercial passenger travel from the Airport today. The Airport encompasses 2,100 acres of land, with much excess property already developed or planned for private use. The City forged an agreement with Alliance California, a subsidiary of Hillwood Investment Properties (a Ross Perot Company) to master plan, market and develop the excess property. To date, over nine million square feet of space has been developed by Alliance and 4,000 jobs created for a wide variety of tenants, most of whom use the property for warehousing and distribution. Those tenants include:

- Stater Brothers Markets: 2.1 million square feet
- Kohl's west coast distribution center: 650,000 square feet
- Mattel: 1.2 million square feet

- Pep Boys: 600,000 square feet
- ODN Logistics: 300,000 square feet
- Medline: 405,000 square feet
- Komar: 326,000 square feet
- PACTIV: 587,000 square feet
- Kohler: 480,000 square feet

An aerial photo of the Airport and surrounding environment is shown below.

Exhibit 6-6: San Bernardino International Airport

Exhibit 6-7: San Bernardino International Airport Tenants

The Airport's location is a prime determinant of the types of uses that have been developed on the Airport's available property. San Bernardino is located toward the far east end of the Los Angeles metro area known as the Inland Empire. The area has extensive transportation corridors and modes and has become one of the primary distribution centers for the entire L.A. region. The Airport itself is surrounded by several freeways including the 10, 215, and 210. The Burlington Northern Santa Fe Railway has an intermodal container facility just two miles from the Airport and a major switching yard seven miles to the west, located midway between the Airport and Ontario International Airport. In addition, Ontario International Airport provides passenger service for the Inland Empire region. An additional passenger airport would not be justified at San Bernardino. All these facilities support the development of distribution, logistics, manufacturing, maintenance and other heavy industrial use at the San Bernardino International Airport. The business and employment conditions found at San Bernardino similarly apply to the west side of PMGA. However, the Northeast Area of PMGA will be responding to land use and development plans that are occurring to the east on the GM Proving Grounds site.

Analysis of employment data within the zip code surrounding the Airport reveals a different pattern of industries however. The employment composition includes significant retail trade activity at 19.5 percent of all employment. This compares to 15.6 percent for the metro area and 14.9 percent for the county. However, upon closer inspection, the zip code for the Airport includes a variety of retail centers situated along freeways as well as some of downtown San Bernardino. In fact, transportation and warehousing, as well as manufacturing uses, are significantly under represented within the zip code, but clearly those uses are located in nearby areas to the south and to the west near the Ontario Airport.

Table 6-49: Estimated Employment by Type - San Bernardino International Airport

Estimated Employment By Type
San Bernadino International Airport
2007 Data

	Zip Code 92408*	County	MSA
44- Retail Trade	19.5%	14.9%	15.6%
56- Admin, Support, Waste Mgt, Remediation Services	14.0%	9.4%	8.4%
Accommodation & Food Services	10.9%	9.4%	10.6%
Health Care and Social Assistance	8.0%	12.7%	11.6%
52- Finance & Insurance	6.9%	3.4%	3.0%
55- Management of Companies & Enterprises	6.7%	1.2%	1.1%
Construction	6.3%	7.8%	10.9%
54- Professional, Scientific & Technical Services	5.7%	3.0%	3.3%
Manufacturing	5.4%	11.5%	10.9%
Transportation & Warehousing	3.9%	7.9%	5.8%
Wholesale trade	3.9%	6.4%	5.5%
Educational Services	3.3%	2.1%	1.6%
Arts, Entertainment & Recreation	1.4%	1.8%	3.0%
Information	1.1%	1.9%	1.8%
Real Estate & Rental & Leasing	0.8%	1.6%	1.9%
Residual	2.1%	5.3%	5.0%
Grand Total	**100.0%**	**100.0%**	**100.0%**

*Airport is located in this zip code.
Note: Totals may not equal sum of column due to rounding.
Source: US Bureau of Census, USPS, Elliott D. Pollack & Co.

The conclusion on employment composition is that the San Bernardino area developed without a strong presence of warehousing and distribution prior to the closure of Norton Air Force Base. Instead, retail and office uses were the most predominant uses along the freeway corridors. In fact, employment data within the three zip codes that comprise most of San Bernardino show a very low level of transportation and warehousing employment totaling only 2.8 percent of all jobs compared to 7.9 percent for the County and 5.8 percent for the metro area.

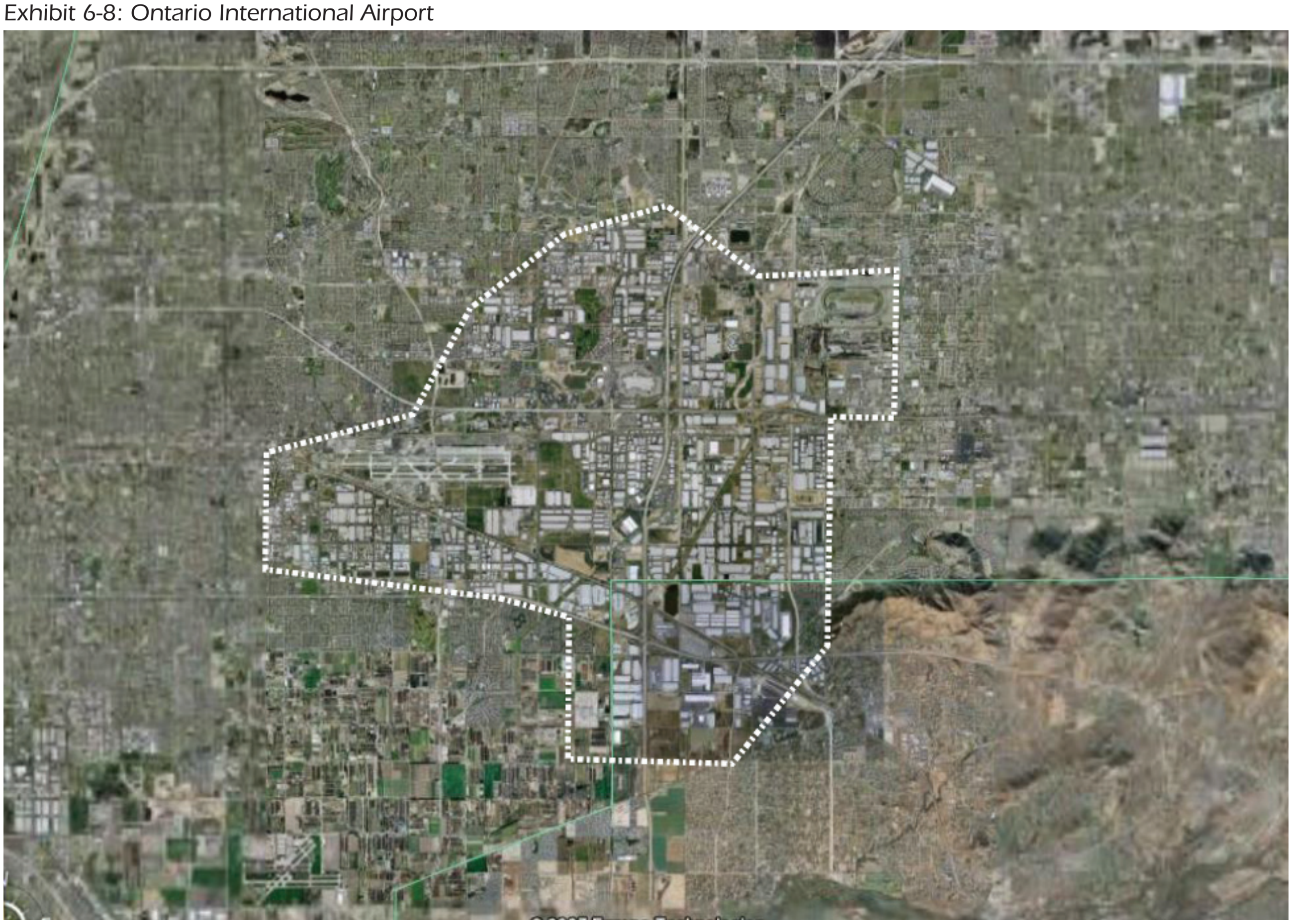
San Bernardino International Airport is an excellent example of a facility that took advantage of its inherent assets, identified demand for certain types of land uses and implemented a plan to develop its excess property. This is important since the Airport developed along traditional lines of warehousing and logistics despite the broader region being over-weighted in consumer related businesses.

Ontario International Airport – Employment Patterns

Similar to the San Bernardino International Airport, Ontario International Airport is located in the Inland Empire region of the Los Angeles metro area. The Airport is located between two freeways, I-10 and 60 with I-15 located just to the east. The Airport is owned and operated by the City of Los Angeles (within the Los Angeles World Airports division). It provides relief to congestion at L.A. International Airport, similar to the John Wayne, Burbank and Long Beach airports. However, as a result of airline consolidation and reduced flights by the major airlines, passenger traffic at Ontario declined 32 percent between 2007 and 2009.

There is little excess property directly on the Airport and what property there is has primarily been used for general aviation, rental car facilities, parking and cargo handling. Aerial photos of the area surrounding the Airport reveal a variety of warehousing and industrial land uses. However, the north side of the Airport along Interstate 10 has a variety of commercial uses that include hotels, mixed use, office buildings and retail uses including Ontario Mills, a regional mall. Many of these uses reflect demand created by residential use located north of the Airport and access afforded by I-10. However, the hotels near the airport terminal, numbering more than ten, and office parks reflect the presence of the Airport.

Exhibit 6-8: Ontario International Airport



The zip code area surrounding the Airport is super-weighted in manufacturing (20.3 percent), transportation and warehousing (20.0 percent), and wholesale trade (16.6 percent). A Burlington Northern Santa Fe (BNSF) main rail line passes through the area south of the Airport and the BNSF transfer yard is just several miles to the east. The area has a disproportionately low level of retail, and accommodation and food services employment. This data may not fully capture hotel and restaurant employment since much of this development is relatively new. However, Ontario International Airport is a relevant example because the employment configuration at the Airport and throughout the immediate region appears to be influenced by surrounding economic factors. However, the area appears to be slowly transitioning to service-oriented airport businesses near the terminal.

The Ontario Airport has long been known as a reliever airport for LAX with a strong cargo handling operation. The pattern of land uses and businesses located immediately south and east of the Airport is consistent with the uses that are found at many airports. Conversely, the north side of the Airport shows patterns of commercial and residential land uses, and is consistent with areas near commercial passenger terminal complexes at other U.S. airports.

Table 6-50: Estimated Employment by Type - Ontario International Airport

Estimated Employment By Type
Ontario International Airport
2007 Data

	Zip Code 91761*	MSA	County
31- Manufacturing	20.3%	10.9%	11.5%
48- Transportation & Warehousing	20.0%	5.8%	7.9%
42- Wholesale trade	16.6%	5.5%	6.4%
56- Admin, Support, Waste Mgt, Remediation Services	12.3%	8.4%	9.4%
Retail Trade	8.0%	15.6%	14.9%
Construction	5.3%	10.9%	7.8%
Accommodation & Food Services	3.4%	10.6%	9.4%
Management of Companies & Enterprises	2.3%	1.1%	1.2%
Finance & Insurance	2.2%	3.0%	3.4%
Professional, Scientific & Technical Services	1.8%	3.3%	3.0%
Information	1.7%	1.8%	1.9%
Health Care and Social Assistance	1.4%	11.6%	12.7%
Real Estate & Rental & Leasing	1.0%	1.9%	1.6%
Educational Services	0.4%	1.6%	2.1%
Arts, Entertainment & Recreation	0.2%	3.0%	1.8%
Residual	3.0%	5.0%	5.3%
Grand Total	**100.0%**	**100.0%**	**100.0%**

*Airport is located in this zip code.
Note: Totals may not equal sum of column due to rounding.
Source: US Bureau of Census, USPS, Elliott D. Pollack & Co.

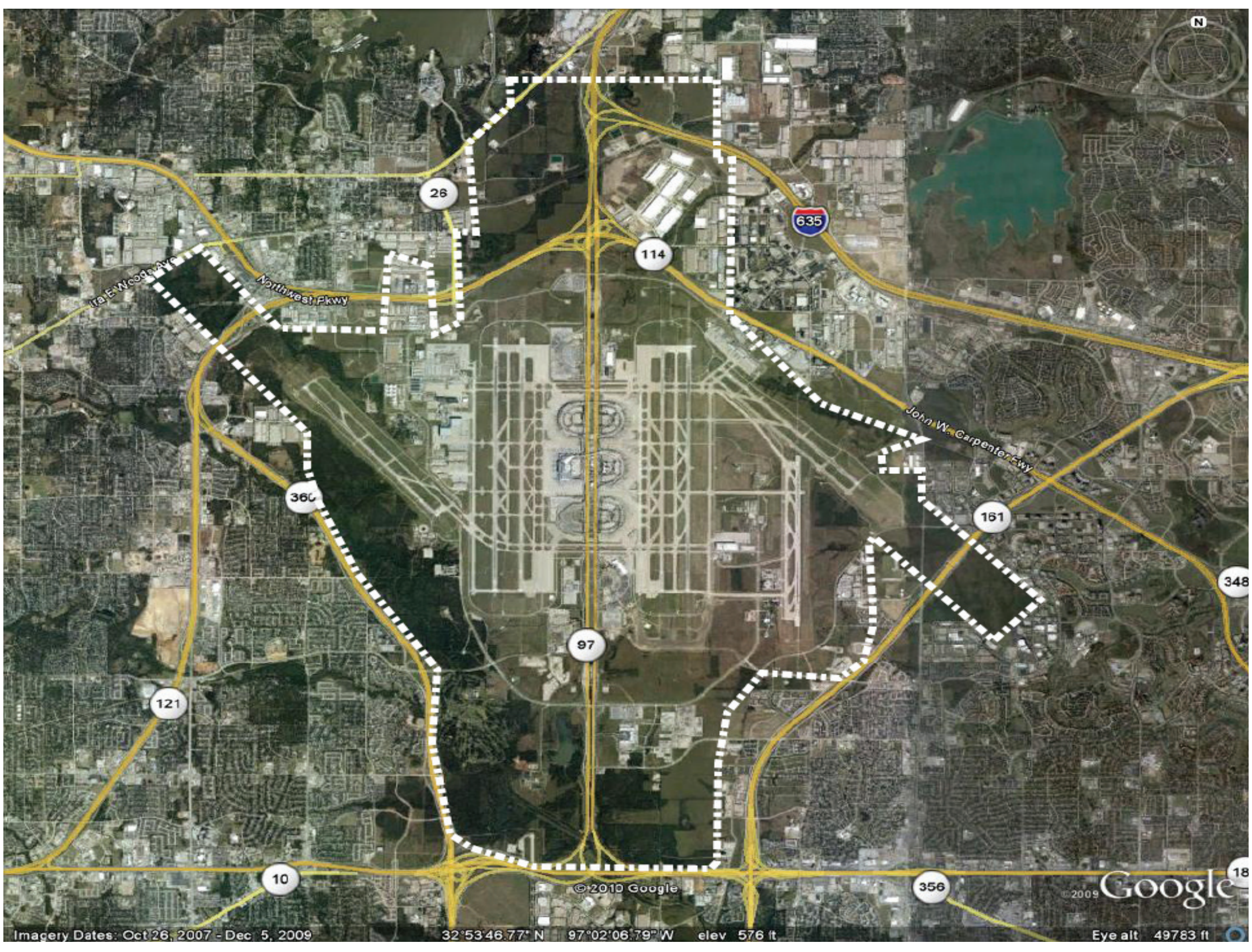
Dallas-Fort Worth International Airport – Retail & Entertainment Planning

This final example provided in this section is an often cited for the planning of non-traditional airport uses. In the case of Dallas-Fort Worth, the airport authority is planning for a sizeable retail and entertainment district on the far northern end of the airport property. A close inspection of the planning documents was completed along with interviews of management personnel at the Airport. However, this example may not be directly comparable to the PMGA situation.

First, managers of the development process at the Airport indicated that while the plan does indicate an aggressive land use pattern, they are going to fully respond to land use demand and activities occurring in the area surrounding the Airport. This indicates the desire to follow the region's economic direction and not force unusual types of development. Second, the airport property is quite large and, while portions of the property are dedicated to retail and entertainment uses, even larger parcels are dedicated to traditional airport uses such as industrial and office. Third, the area identified as viable for retail and entertainment uses is northwest of and separated from the Airport proper by a major freeway. From an economic perspective, it has little direct relationship to the Airport. In fact, a number of resorts and major retail centers are located just north of the Airport property.

The following aerial photo shows the extent of vacant available land within the boundaries of the Dallas-Fort Worth Airport and the proposed retail and entertainment area on its northwest side.

Exhibit 6-9: Dallas-Fort Worth International Airport



The Dallas-Fort Worth Airport is surrounded by major freeways and has a variety of excess land available for development. Those excess properties and their intended uses are shown on the plan below. The northwest quadrant of the plan proposes uses such as hospitality/entertainment and related uses, mixed use and freeway commercial. These uses are in response to existing hospitality and retail uses near the City of Grapevine and Grapevine Lake such as the Gaylord Texan Resort and the Grapevine Mills Mall. These uses are supported by a large population living north of the Airport as well as extensive employment uses in the vicinity.

Exhibit 6-10: Dallas-Fort Worth International Airport Master Plan

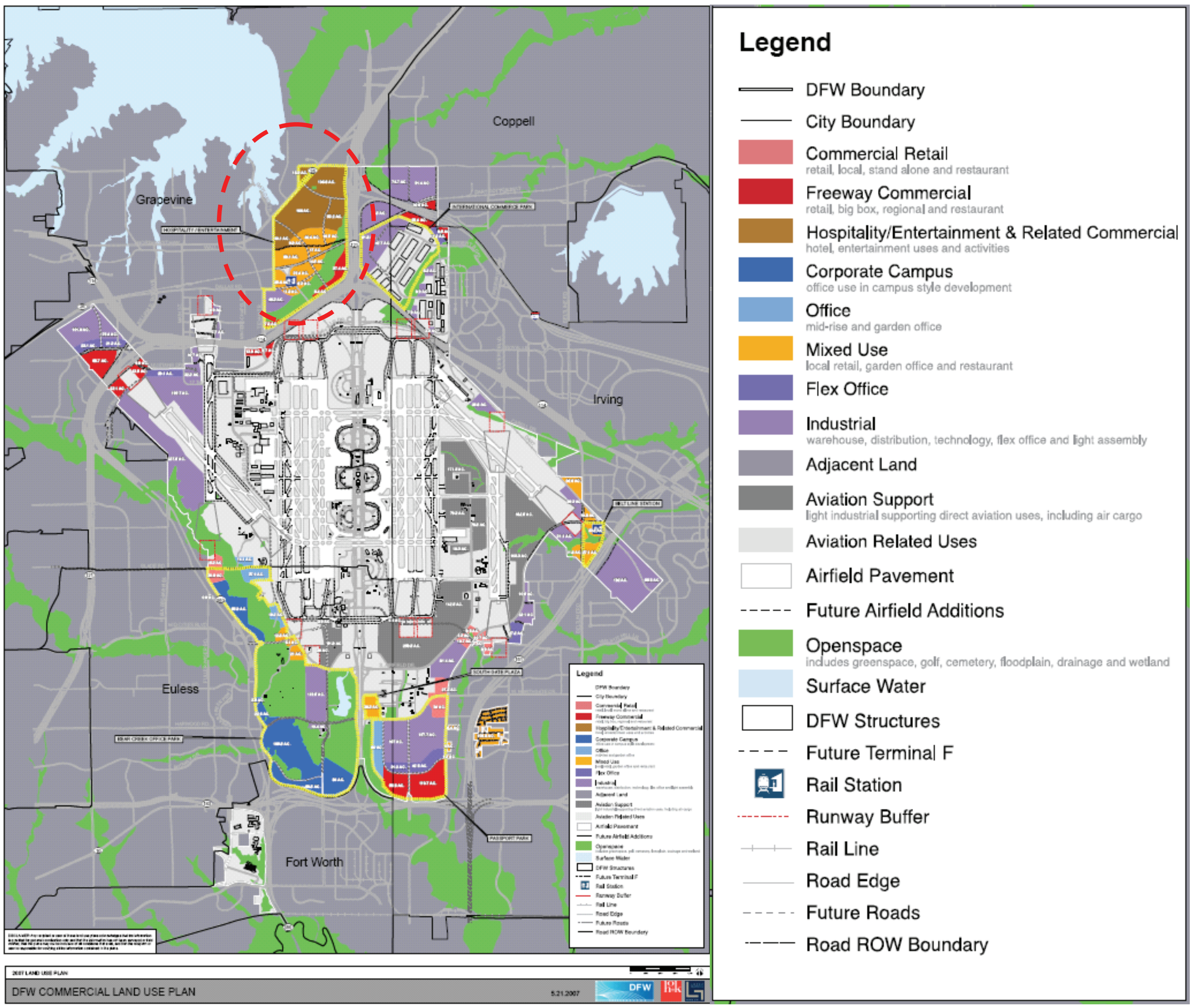
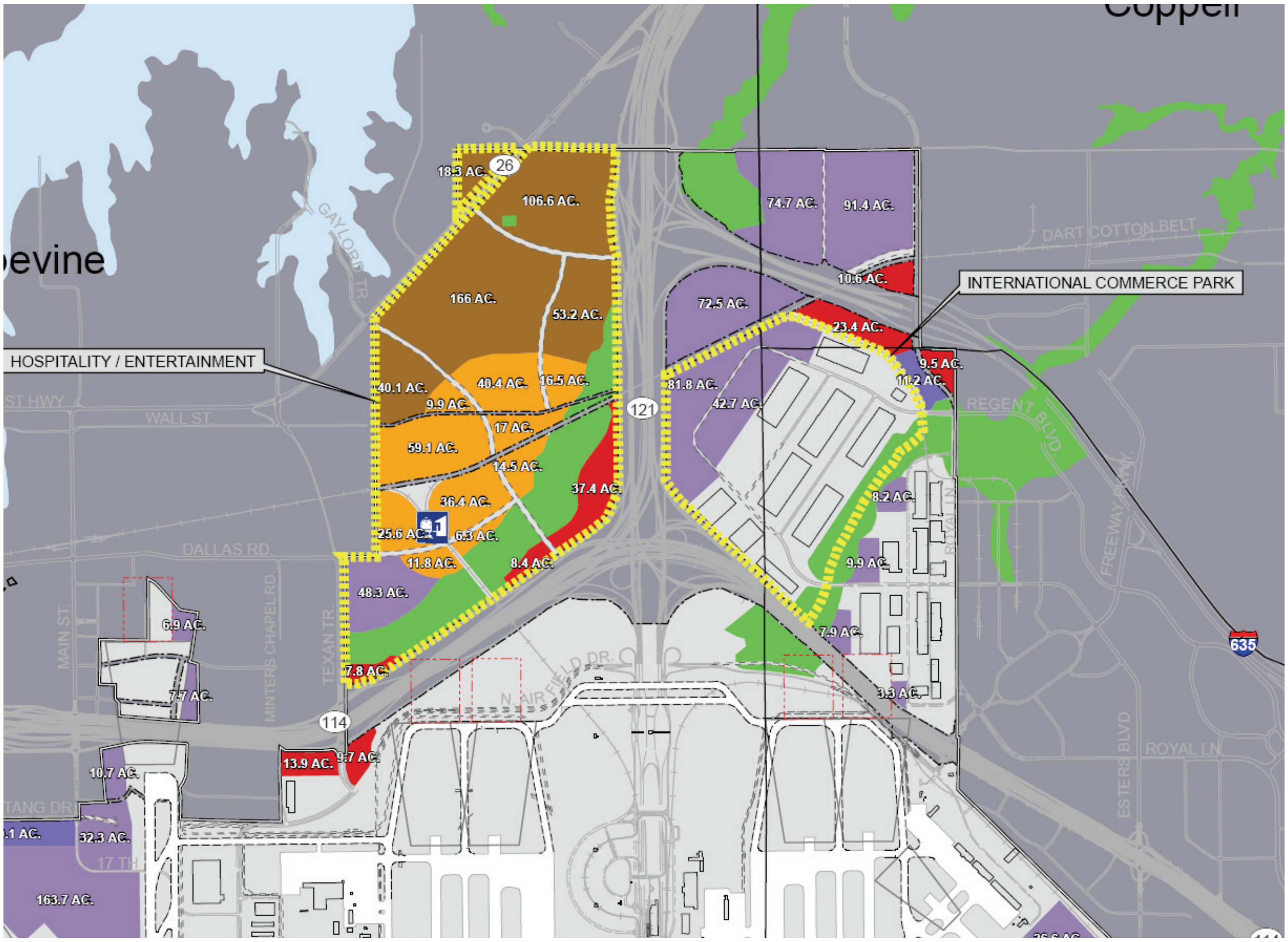


Exhibit 6-11: Close-Up of Northwest Quadrant Land Use Plan



In summary, the planners for the Dallas-Fort Worth Airport have responded to market influences in planning for the disposition and development of excess property. Most of the land around the Airport has been planned for airport compatible uses such as industrial and office. However, where market dynamics dictate, they have incorporated entertainment and retail uses into the plan.

6.4.3 Findings and Conclusions Related to Phoenix-Mesa Gateway Airport Northeast Area Plan

This section's findings to this point identify a number of factors that must be considered in the PMGA planning exercise for the Northeast Area. These are highlighted below in bullet point format.

1. Any airport plan must be produced in recognition of the economic fundamentals of the surrounding region as well as the development potential of the immediately adjacent properties.

2. Forcing economic activity that does not mesh well with these economic influences can be costly in the form of business location inducements or incentives, if those are available from the PMGA.

3. Similarly, land that is too restricted in terms of potential alternative uses could remain vacant for an undesirable length of time. This will impact rent and tax collections that may be necessary for other airport development efforts.

4. Initial planning for the Northeast Area should consider airport uses such as commercial and light industrial, including office. The Airport should attempt to identify niche uses that may not be fully provided by the surrounding property owners.

5. Niche uses could include entertainment and retail development, but these are considered longer term initiatives, predicated upon terminal growth and residential market development. Light industrial uses are considered less risky in the short term.

6. Retail uses will likely be provided in the immediate areas outside the Airport and, thus, would be considered of higher risk in the airport plan. Much of the justification for these type uses will be driven by nearby residential demand and, to some extent, passenger terminal area growth and its related employment.

7. A flexible plan could indeed identify higher value added uses such as office, but does not need to exclude the more basic light industrial uses.

8. A hotel is a common use near airports but tends to require meeting space if it is large in scale. A hotel located directly on the airport property is a consideration for the plan. However, it would likely also need to capture business from non-airport sources to be successful.

9. Any office uses would need to have convenient access to make such a project viable. Office traffic would need to be separated from airport traffic.

10. The Airport itself is the primary use of the property and periphery development should be viewed as a means to maximize the development potential of the Airport though revenue generation. From this perspective an overly restrictive or optimistic development plan could actually impede the development of the core use of the property through reduced revenue flows.

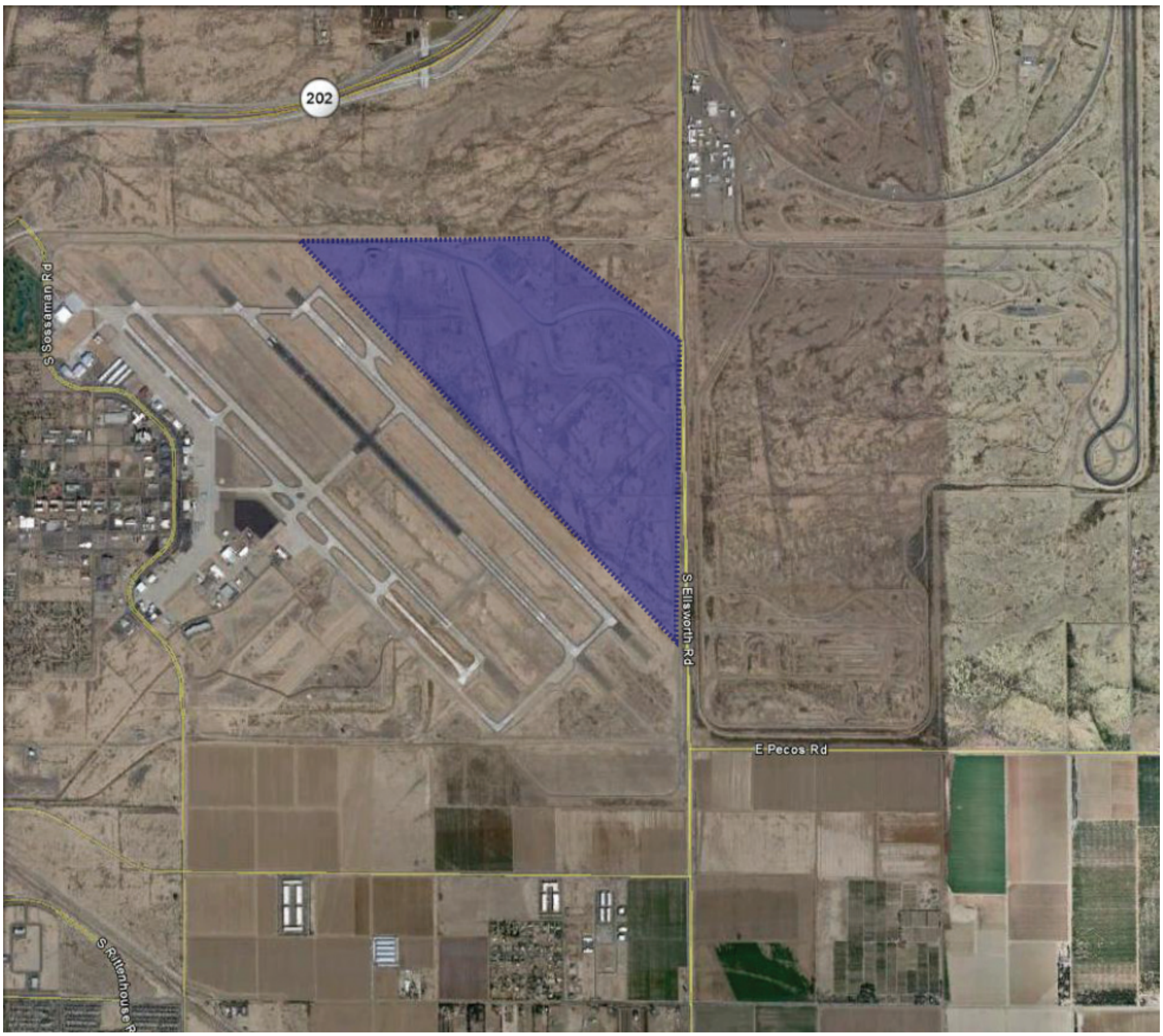
11. Bottom line: The revenue needs of the Airport as it relates to physical improvements and keeping up with demand for services should be heavily weighted in this exercise.

6.5 Highest and Best Use Analysis

6.5.1 Background

The property that is the subject of this analysis is an undeveloped 700-acre parcel located in the northeast portion of the PMGA in Mesa, Arizona. The site will have frontage along Ellsworth Road (approximately 1.25 miles in length) and will likely be adjacent to the planned SR-24 freeway stemming from the Loop 202 San Tan freeway and passing by the northeastern portion of the site. The site may also have some frontage along Ray Road as it extends eastward. The Airport's runways border the site's southwestern edge.

Exhibit 6-12: Phoenix-Mesa Gateway Airport Property

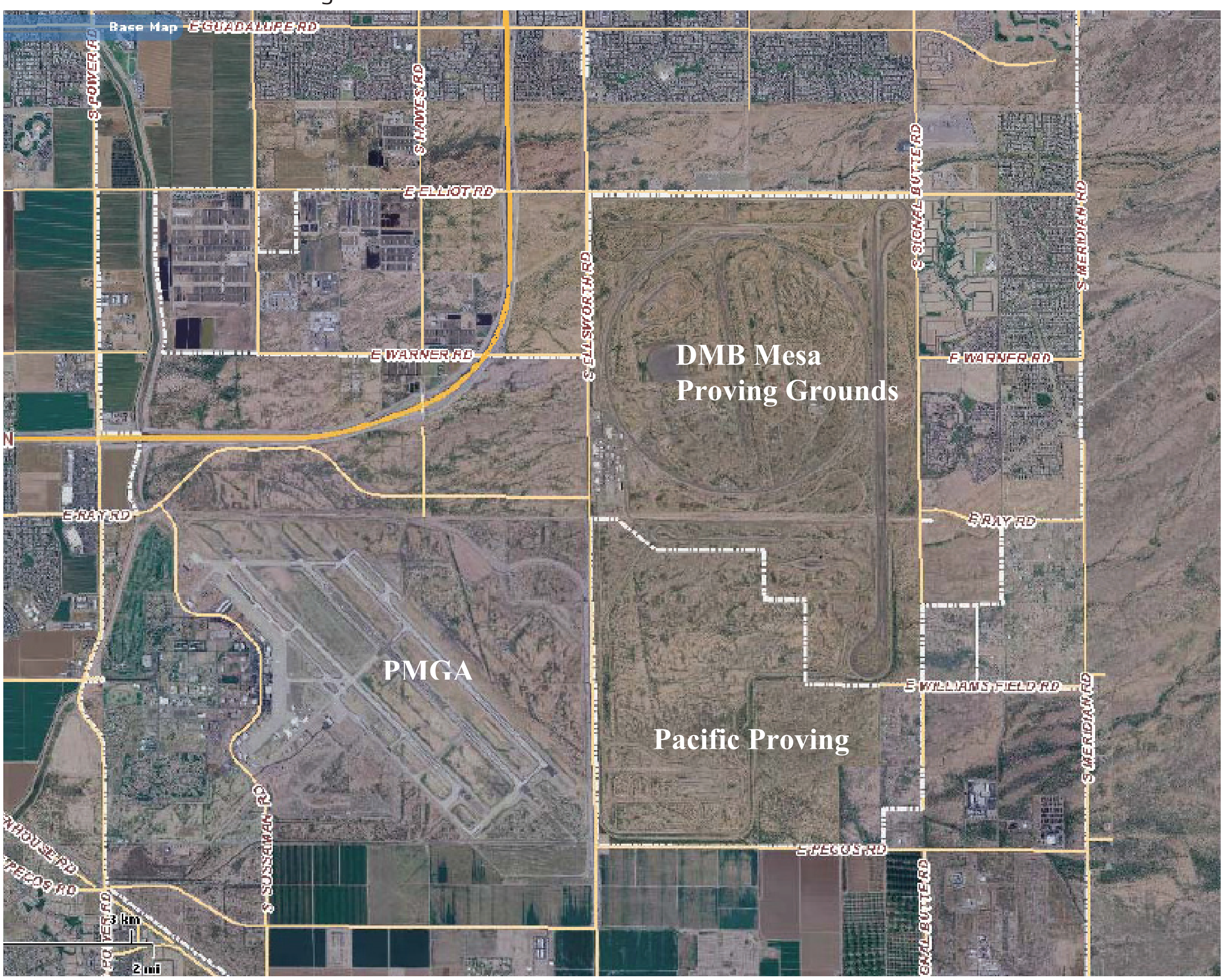


To the west of the runways is the current commercial terminal, a number of businesses and employment uses, and educational facilities such as Arizona State University Polytechnic campus and the Williams campus of Chandler Gilbert Community College.

The area directly north of the Airport is currently vacant. The land has been divided into several parcels held by various owners.

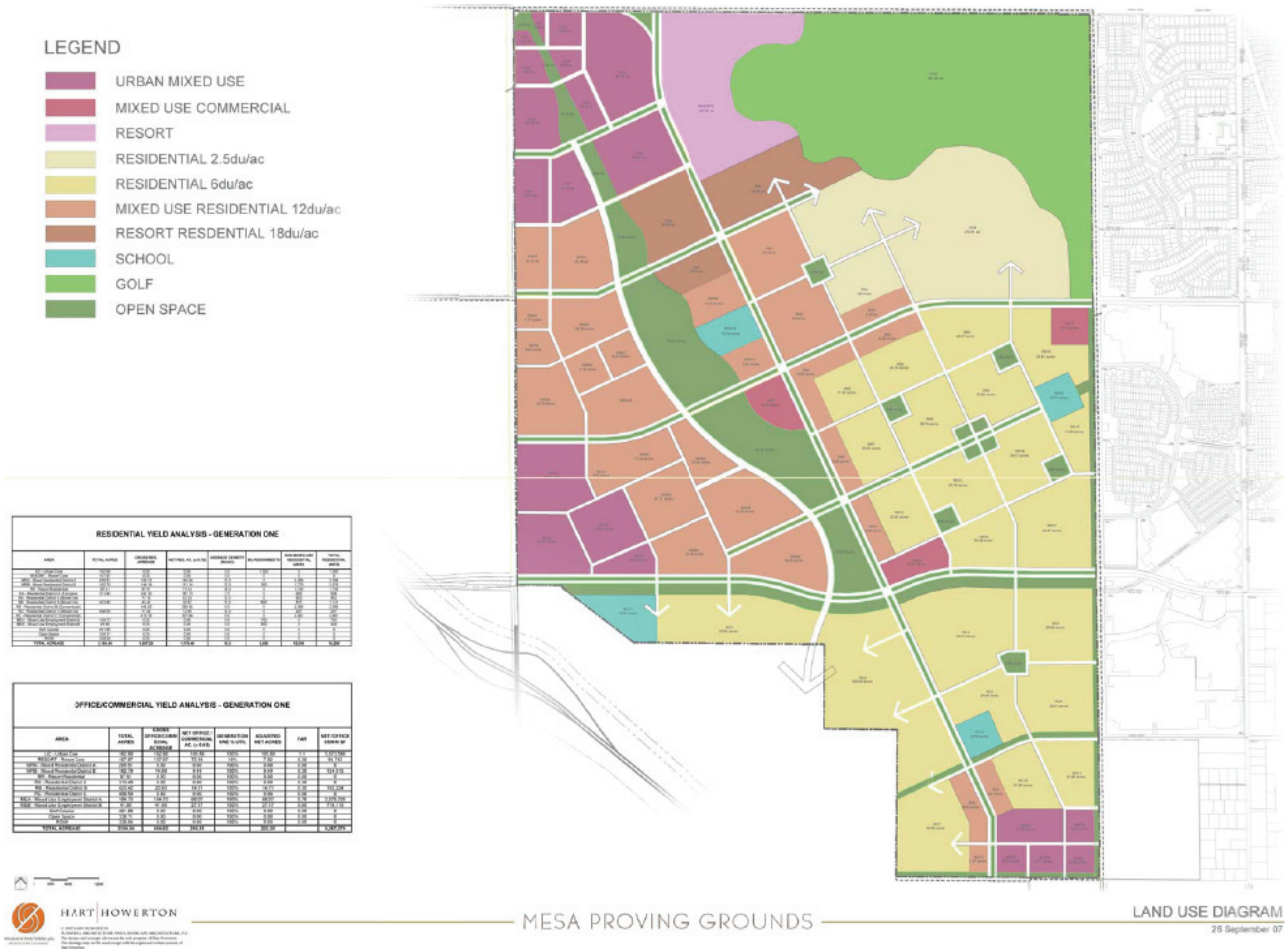
To the east is the former GM Proving Grounds which was sold to DMB Associates (north parcel 3,600 acres) and Pacific Proving LLC (south parcel 1,700 acres). The DMB Mesa Proving Grounds site has been zoned and master planned for a variety of mixed uses with a likely 50-year build out potential that includes resort and business style hotels, regional and community retail development, employment centers and residential products of every type. The Pacific Proving site appears to have received a general plan amendment for Mixed Use/Community, but has not formally rezoned the property.

Exhibit 6-13: Former GM Proving Grounds



The following plan for the DMB Mesa Proving Grounds has been approved by the City of Mesa. The project may include a Gaylord Entertainment Resort.

Exhibit 6-14: Mesa Proving Grounds

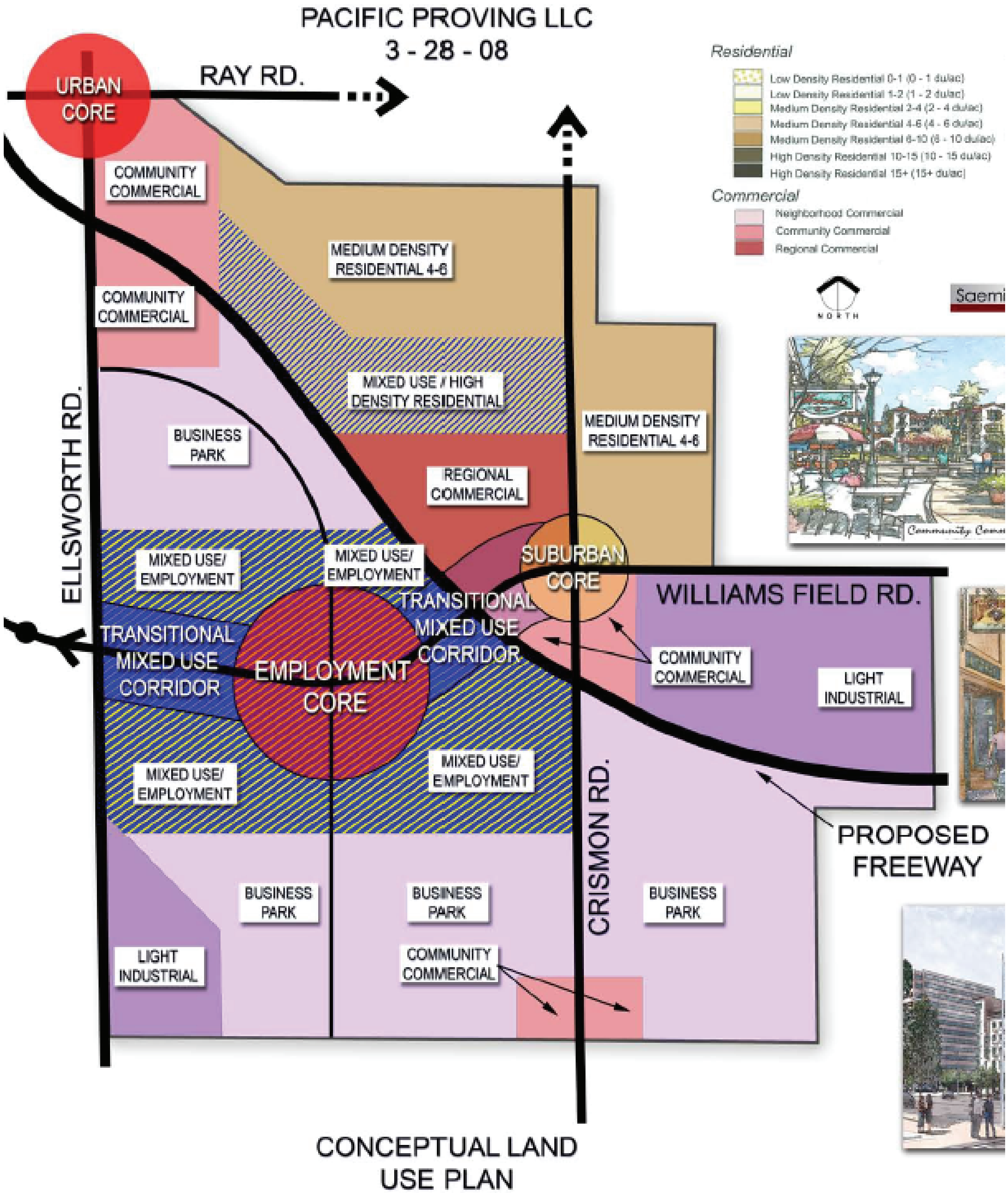


The concept plan for the Pacific Proving site is shown on the next page based on the General Plan Amendment to Mixed Use/Community. This land use designation permits a wide variety of uses including residential.

Several design alternatives for the Northeast Area of the PMGA have been prepared as part of the planning process. Eventually the passenger terminal for the Airport will be relocated to the 700-acre Northeast Area, creating the opportunity for the development of additional uses on the property.

The following alternative design demonstrates some of the constraints and opportunities related to the Northeast Area. A major issue is access to the Northeast Area from the proposed SR-24 freeway. SR-24 will limit access to the property while at the same time creating opportunities for development of surrounding land. A second issue is the limited amount of land available for non-airport uses given the land requirement for the terminal, parking, apron, traffic movements, airline belly cargo and maintenance facilities.

Exhibit 6-15: Pacific Proving Site



Preliminary information appears to indicate that access to the Northeast Area must come from the Hawes exit on the Loop 202 and from Ellsworth Road at the Williams Field Road alignment on the south. Direct access from the SR-24 to the Northeast Area is not possible. A third possible access point may be near the SR-24 and Ellsworth Road interchange, but that is unconfirmed.

6.5.2 Analysis

Given the background of planned uses adjacent to PMGA and the Northeast Area, this section will analyze the most appropriate land use or uses for those parts of the Northeast Area not used for airport-related uses and which will bring the most value to PMGA.

Following is a summary of conclusions developed from prior sections of this report.

1. The real estate market in Greater Phoenix is in a deep recession. Both the residential and commercial markets are in distress, compounding the impact of the national recession. In our opinion, the commercial real estate markets will likely require four to five years to recover and return to normal occupancy levels. The long term prospects of population and employment growth for Greater Phoenix are still very positive with limited improvement beginning in 2011. This timeframe for recovery should not impact the mid to long term plans of PMGA to relocate the passenger terminal to the Northeast Area. By the time the relocation occurs, the real estate market should be well into its next cycle.

2. Overall, the Mesa industrial and office market is weak compared to competitor cities. PMGA is still considered a peripheral location although residential growth has pushed up against borders. Growth east of PMGA is limited due to the lack of available land for development. Most of the land east of PMGA is within the Superstition Vistas area of the State Trust land holdings. PMGA's future is largely tied to the long term development of Superstition Vistas and in the short term to the development of the former GM Proving Grounds.

3. The presence of the Loop 202 freeway is a major benefit to PMGA. The SR-24 is a similar asset that would improve the marketability of land in the Northeast Area. However, of greatest benefit would be the construction of the North-South freeway in Pinal County which would link Mesa directly to I-10 and Tucson. However, the timing of construction of such a facility is undetermined.

4. A review of land use patterns on and around airports in the U.S. reveals that the planning, marketing and development of airport property is a function of market demand in the surrounding region. Analysis of the two airports located in the Inland Empire of Southern California (Ontario and San Bernardino) demonstrates strong preference for manufacturing, distribution and logistics uses consistent with the assets of the region. However, with Ontario International Airport's growing passenger service, a variety of hotel and office uses have been developed near the terminal. Businesses and land uses around the John Wayne Airport are more oriented toward professional and business services which are consistent with the economy of Orange County. Here, too, land uses near the Airport's terminal include hotels and office uses. Land uses proposed for the Northeast Area of PMGA need to reflect the realities of the growing market and be flexible to fill deficiencies and known demand,

5. The concept of the "Aerotropolis" should be employed in the planning and development of the entire Mesa Gateway Area. There is basically a clean slate from which to work, with few existing uses to disrupt the concept. The development of PMGA and Mesa Gateway is a long term prospect, but the elements are all there to create a successful employment center. Both DMB Mesa Proving Grounds and Pacific Proving are essential contributors to the Aerotropolis concept.

6. Following is an analysis of land use patterns and plans that will affect the planning and development of PMGA's Northeast Area.

    - There is presently limited population in the surrounding area to support extensive retail development in the Mesa Gateway Area. Both DMB Mesa Proving Grounds and Pacific Proving have more than adequate amounts of planned retail uses that are supportable by their forecasted residential population. DMB's Mesa Proving Grounds could become a standout development in the Southeast Valley and will likely capture more than its fair share of retail development.
    - There are limited examples of retail and entertainment uses on airport property, especially in close proximity to a terminal and airport parking facilities. The key determining factor is often property availability, and the need to utilize airport owned property for aeronautical uses.
    - Since this part of Mesa is primarily viewed as a future business and industry center, the most logical uses for the Northeast Area are office and light industrial. Justification for retail uses will be driven by timing of the passenger terminal complex and its sustained growth as well as demand generated from nearby residential areas.

6.5.3 Recommendations

Following are recommendations related to proposed land uses for the Northeast Area. The recommendations are considered market-driven and are designed to maximize value and revenue to PMGA.

1. The primary use of the Northeast Area non-airport related property should be commercial (office) and light industrial. However, since the Southwest Area of PMGA is slated for conventional industrial uses, it is recommended that the Northeast Area be reserved for more up-scale one- to two-story commercial or light industrial and flex industrial buildings. These light industrial types of buildings have been successful in a variety of locations including the Scottsdale Airpark and Cotton Center in south Phoenix. These light industrial types of buildings provide for generally small companies who may do warehousing, logistics and manufacturing as well as office users such as call centers and professional and business services.
2. Commercial office uses will likely produce less demand for land in the short term. However, long term as the Mesa Gateway Area matures and the SR-24 is constructed, office uses should be considered along the frontage of SR-24 and Ellsworth Road. These buildings, which could be four to six stories in height, depending on airspace height constraints, and would be oriented toward the general attributes of the overall Mesa Gateway Area and the airport commercial passenger terminal area.
3. Hotels should be considered as a compatible use within the Northeast Area. A review of airport land use patterns show that hotels are a common use directly on airport property and adjacent to a commercial passenger terminal complex. However, some of the largest airports, including Phoenix Sky Harbor, do not have hotels on site, rather distributed off-site, but in close proximity. More than likely, surrounding landowners and developers may focus on this use for at least part of their development plans. However, a hotel oriented

toward SR-24 and Ellsworth Road would be able to serve both airport demand as well as demand generated from nearby employment centers off-airport. A small conference center could be an option for a hotel site as well.

4. Ancillary retail uses within light industrial or office buildings should be permitted. These uses would primarily serve employees working in the area.
5. Traffic for any non-aeronautical uses should be separated from airport traffic. Traffic circulation will be key to marketing property for sale or lease.
6. The Northeast Area should be highly themed from a design and landscape perspective. A central architectural or landscape feature should be considered for the site. The Northeast Area should standout among the various other real estate projects that may be developed in the Proving Grounds property.
7. The plan for the Northeast Area should be flexible to accommodate various types of uses as the area develops over time. Since the Mesa Gateway Area will develop over a period of decades, PMGA may wish to consider a plan that allows for the transition of buildings or sites from a low value added use, such as light industrial, to high value added uses such as office, retail, or other. The low value added buildings would be introduced in the early phases of the project. As those buildings reach the end of their useful life, they could be replaced with modern structures that would accommodate professional and business services. In this way, PMGA is producing revenues as early as possible, and allowing for increasing revenues in later years.

Section 7: Alternatives Development

7.1 Introduction

This section describes the Alternatives Development process, which is the most substantial portion of the Northeast Area Development Plan analysis. This process includes the evaluation, screening, and refinement of alternatives to lead to the selection of a single recommended development alternative. Alternatives were created based on various configurations for the NADP terminal area. Each terminal area concept had multiple variations and has been organized into groups based upon similar characteristics. These alternatives developed a range of responses to each future programming requirement including ground transportation, aviation-related support areas, parking, terminal access roadway improvements, regional road access and non-aeronautical related commercial development. The alternatives development process is detailed in the following sub sections.

7.2 Northeast Area Development Objectives

Several objectives were established for purposes of directing the plan and establishing continuity in the future development of the Phoenix Mesa Gateway Airport. These objectives take into account several categorical considerations relating to the needs of the airport, both in the short-term and the long-term, including safety, capital improvements, land use compatibility, financial and economic conditions, public interest and investment. While all are project oriented, some obviously represent more tangible activities than others; however, all are deemed important and appropriate to the future of the airport. The following objectives are intended to guide the preparation of this Northeast Area Development Plan (NADP) and direct the future expansion of PMGA:

- Plan the airport to be able to safely accommodate the forecast aircraft fleet with facilities properly sized to accommodate forecast demand
- Program facilities to be constructed when demand is realized (construction is to be driven by actual demand, not forecast demand)
- Enhance the self-sustaining capability of the airport and ensure the financial feasibility of future airport development
- Encourage the protection of existing public and private investment in land and facilities, and advocate the resolution of any potential land use conflicts, both on and off airport property
- Plan and develop the airport to be environmentally compatible with the community and minimize environmental impacts on both airport property and property adjacent to the airport
- Provide effective direction for the future development of PMGA through the preparation of a rational plan and adherence to the adopted development program
- Integrate the airport's ground transportation access requirements with the area's regional transportation goals
- Develop alternatives with a flexible design for the future terminal and airport parking facilities that preserves the site while accommodating the program for 5 million enplanements, and ultimately to 10 million enplanements

7.3 Level 1 "Bubble Diagram" Schemes

The Level 1 "Bubble Diagram" schemes were derived from the charrette meeting held with project stakeholders on Thursday April 22, 2010. The nine (9) schemes evolved from three (3) stakeholder working groups at this meeting. The purpose of the charrette was for the Consultant Team to jointly develop options with airport staff and stakeholders, to determine viable land use alternatives for aviation and non-aviation related improvements on and off airport property, as well as to ensure that suitable access to the northeast terminal area from the regional and arterial transportation system is provided for future development. Bubble diagrams were developed based upon acreage requirements developed in the Facility Requirements analysis summarized in Section 5.

7.3.1 Description of Schemes

As outlined previously, an approach based on required acreages, driven by aeronautical need, formed the foundation of the initial charrette process. During this initial alternatives development, the objective was to develop alternative "bubble diagram", big-picture solutions that would facilitate bracketing of aeronautical properties, access corridors, non-aeronautical commercial properties, and any special set-aside land for functional areas such as open space, drainage retention, etc.

The charrette process drew from the myriad stakeholder groups to derive ideas/desires and to generate workable holistic land use templates which marry aeronautical and non-aeronautical/ commercial functions.

- Local area roadways, intersection, and freeway access points.
- Locations for a variety of aeronautical revenue generating uses requiring varying parcel sizes.
- Locations for non-aeronautical revenue generating uses – office, retail, hotels, commercial, etc.
- Range of parcels sizes and recommendations for types of revenue generating uses for non-aeronautical related parcels.
- Locations for open spaces which may support community objectives for parks, natural or environmentally protected areas.
- Description of protected airspace areas as well as noise sensitive areas associated with the airport operations (depiction may not be required).

The focus of the transportation requirements in the schemes was primarily on three major elements: regional access to the adjacent freeway system, local access to the City of Mesa arterial street system and internal circulation to support the land uses on the airport property.

Scheme 1

Transportation Network

From a regional perspective, in Scheme 1, the main access to the airport from L202 is via Hawes Road with additional access from the future SR-24 via Ellsworth Road and the realigned Williams Field Road. The access to the local arterial street system is proposed via major access points located at Hawes Road/Ray Road intersection, the Ellsworth Road/Internal Roadway (located south of SR-24/Ellsworth Road Traffic Interchange ramp), and the realigned Williams Field Road/Ellsworth Road intersection. The internal circulation within the airport is a one-way roadway circulating southbound in front of the terminal and circulating northbound east of the proposed airport parking area. All other internal roadways are proposed to be the standard two-way configuration serving the mixed-use, commercial and green space areas of the site.

- The transportation network in Scheme 1 appears to be adequate to serve the terminal but provides only one access point to serve the non-aeronautical uses along Ellsworth Road.
- There is no separation for the roadways serving the commercial land-uses and the airport terminal.
- This scheme does not address the transit component. The airport, the mixed-use area to the northeast and the commercial development to the south would be better served by the provision of a transit facility on site.

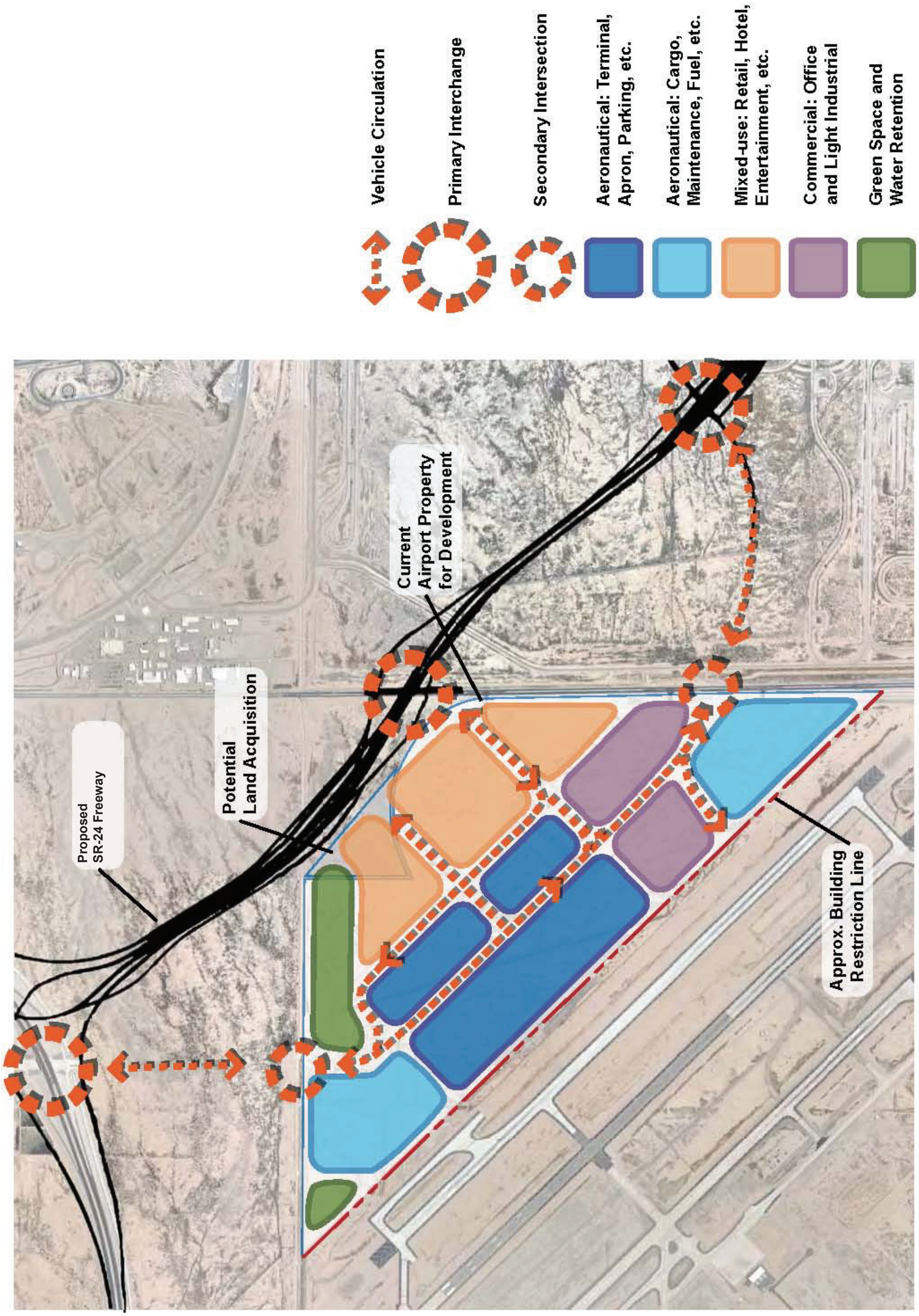
Aeronautical Uses

Scheme 1 shows the terminal building, aircraft parking apron and auto parking centrally located on the site, with supporting aeronautical facilities located in the northern and southern corners of the property. Close proximity to the airside for all related facilities maximizes the operational efficiency. One airside parcel is identified for commercial development, this may not be the highest and best use for this property as it would be better suited to be reserved for aviation related development.

Private Development Uses

This scheme is created with a dual focus or concentration of land use groupings. The largest area is established for mixed-use development (retail, hotel and entertainment) with a wide band in the northwestern quadrant of the site, which is adjacent to SR-24. Commercial (office and employment) is the other land use concentration which is located in the southeast quadrant of the site adjacent to the proposed terminal with vehicular access from Ellsworth Road. A large green space amenity is located along the northern boundary adjacent to the Powerline Floodway Channel. This area will serve as flood/water retention during peak run-off events and also as passive recreation space for pedestrian walking and wildlife habitat.

Exhibit 7-1: Bubble Diagram: Scheme 1



Scheme 2

Transportation Network

Scheme 2 has similar regional and local access as Scheme 1. The regional access to L202 and SR-24, and the main access to the local arterials via Ellsworth Road and realigned Williams Field Road are similar to Scheme 1. The internal circulation within the airport addresses the land-use configuration while maintaining the terminal/parking one-way pair roadway similar to Scheme 1. The internal circulation is facilitated by additional roadways serving the commercial and mixed-use land-uses including a perimeter roadway adjacent to the SR-24 and Ellsworth Channel.

- The transportation network in Scheme 2 appears to be adequate to serve the terminal but provides only one access point to serve the non-aeronautical uses along Ellsworth Road.
- The roadway network right-of-way will occupy more of the development than Scheme 1 but provides greater individual access to the smaller parcels in Scheme 2.
- This scheme does not address the transit component. The land-use layout in this scheme is conducive to a centrally located transit facility to serve multiple land-uses, including the airport and the mixed-use/commercial area located to the northeast of the terminal.

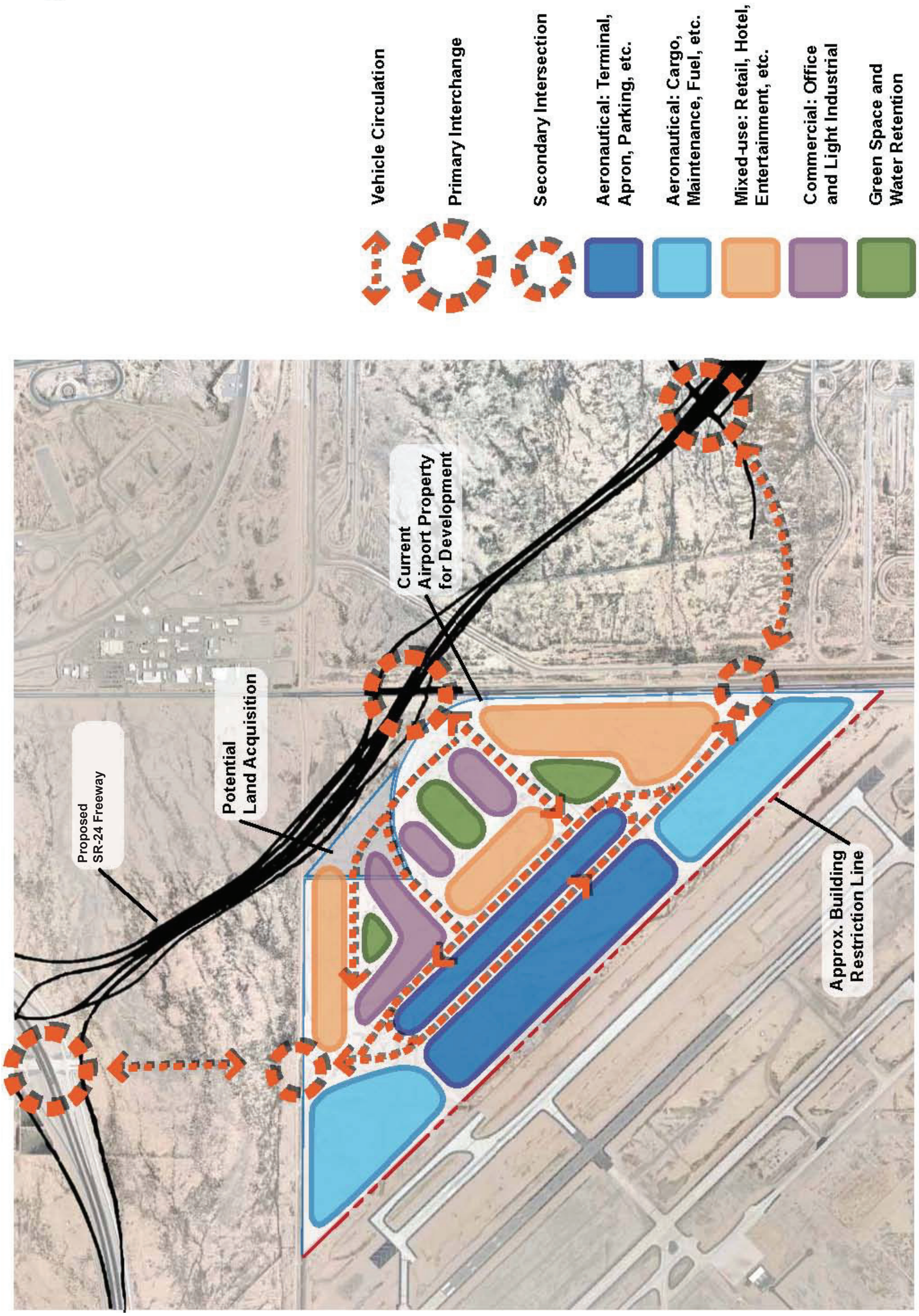
Aeronautical Uses

Scheme 2 identifies the location of the terminal building, aircraft parking apron and auto parking centrally on the site, although provides a rather narrow terminal area and auto parking area that may not be sufficient to support ultimate aviation related demand. Large sites are reserved for supporting aeronautical facilities located in the northern and southern corners of the property. The entire airside is in close proximity to the airside for all related facilities maximizing the operational efficiency.

Private Development Uses

This scheme is created with a dual focus or concentration of land use groupings. The largest area is established for mixed-use development (retail, hotel and entertainment) with a wide band in the northwestern quadrant of the site, which is adjacent to SR-24. Commercial (office and employment) is the other land use concentration which is located in the southeast quadrant of the site adjacent to the proposed terminal with vehicular access from Ellsworth Road. A large green space amenity is located along the northern boundary adjacent to the Powerline Floodway Channel. This area will serve as flood/water retention during peak run-off events and also as passive recreation space for pedestrian walking and wildlife habitat.

Exhibit 7-2: Bubble Diagram: Scheme 2



Scheme 3

Transportation Network

This scheme provided a totally unique concept from all the other concepts. The main access to the airport from the north and south is proposed from SR-24 via the future interchanges at Ellsworth Road and Williams Field Road. The access to the local arterial system is highly deficient with only one major access point at Ellsworth Road. Internal circulation is provided via a one-way configuration into and out of the aeronautical land use area in the northwest corner of the site. The internal roadways adjacent to the mixed-use and commercial land uses are proposed as two-way roadways.

- This scheme overloads the Ellsworth Road north access to the site especially in the initial years causing potential problems with passengers accessing the airport.
- With the only major access coming from SR-24 at Ellsworth Road, there are potential problems with the ramp backing up from eastbound SR-24 traffic and poor level of service at the access to the airport.
- This scheme does not address the transit component. The site layout of the land-uses and the roadway network in this scheme does not complement a future transit facility due to the significant distances between the various land-uses.

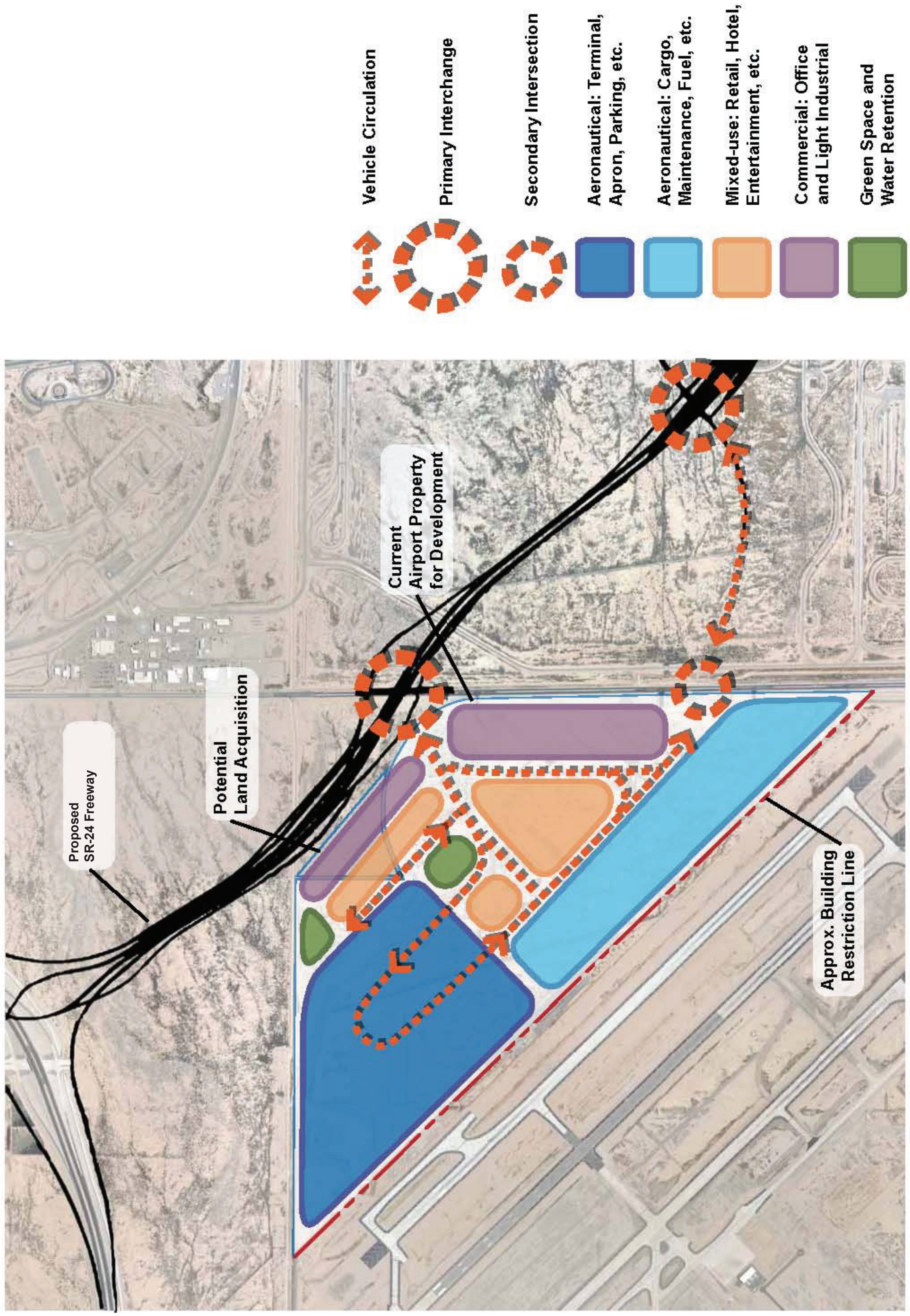
Aeronautical Uses

Scheme 3 identifies the location of the terminal building, aircraft parking apron and auto parking as a deep development area on the northern side of the site. The overall depth of the site does not provide for high operational efficiencies for airlines and passengers. A significant site is reserved for supporting aeronautical facilities located along the southern portion of the airfield frontage. The airfield frontage provided for these facilities is much longer than needed.

Private Development Uses

The layout for private development in this scheme is unique due to the northeast placement of the aeronautical and terminal uses on site. Commercial (office and employment) land uses are located along the northeastern and eastern perimeters of the site taking advantage of access from SR-24 and Ellsworth Road. Mixed-use (retail, hotel and entertainment) development is woven into the pattern, sited between the aeronautical and commercial uses. A green park near the center of the site is the focus for mixed-use development. An additional smaller green park is located near the northern edge of the property and serves as flood/water retention during peak run-off events and also as passive recreation space for pedestrian walking and wildlife habitat.

Exhibit 7-3: Bubble Diagram: Scheme 3



Scheme 4

Transportation Network

The regional access in Scheme 4 is limited to L202 via the Hawes Road interchange and the future SR-24 connection at Williams Field Road. The access to the local arterial street system on Ellsworth Road is enhanced by additional adequately spaced access points, as compared to Scheme 1. The internal circulation to the terminal and the aeronautical land use areas is via the one-way pair roadway similar to Scheme 1. The internal circulation to the commercial, mixed-use and green space is not adequately addressed in this scheme.

- The transportation network in Scheme 4 appears to be adequate to serve the terminal but does not address the access to the mixed-use and commercial land uses located northeast of the terminal.
- The additional local access on Ellsworth Road provides better access to the mixed-use parcel located southeast of the terminal.
- This scheme does not address the transit component.

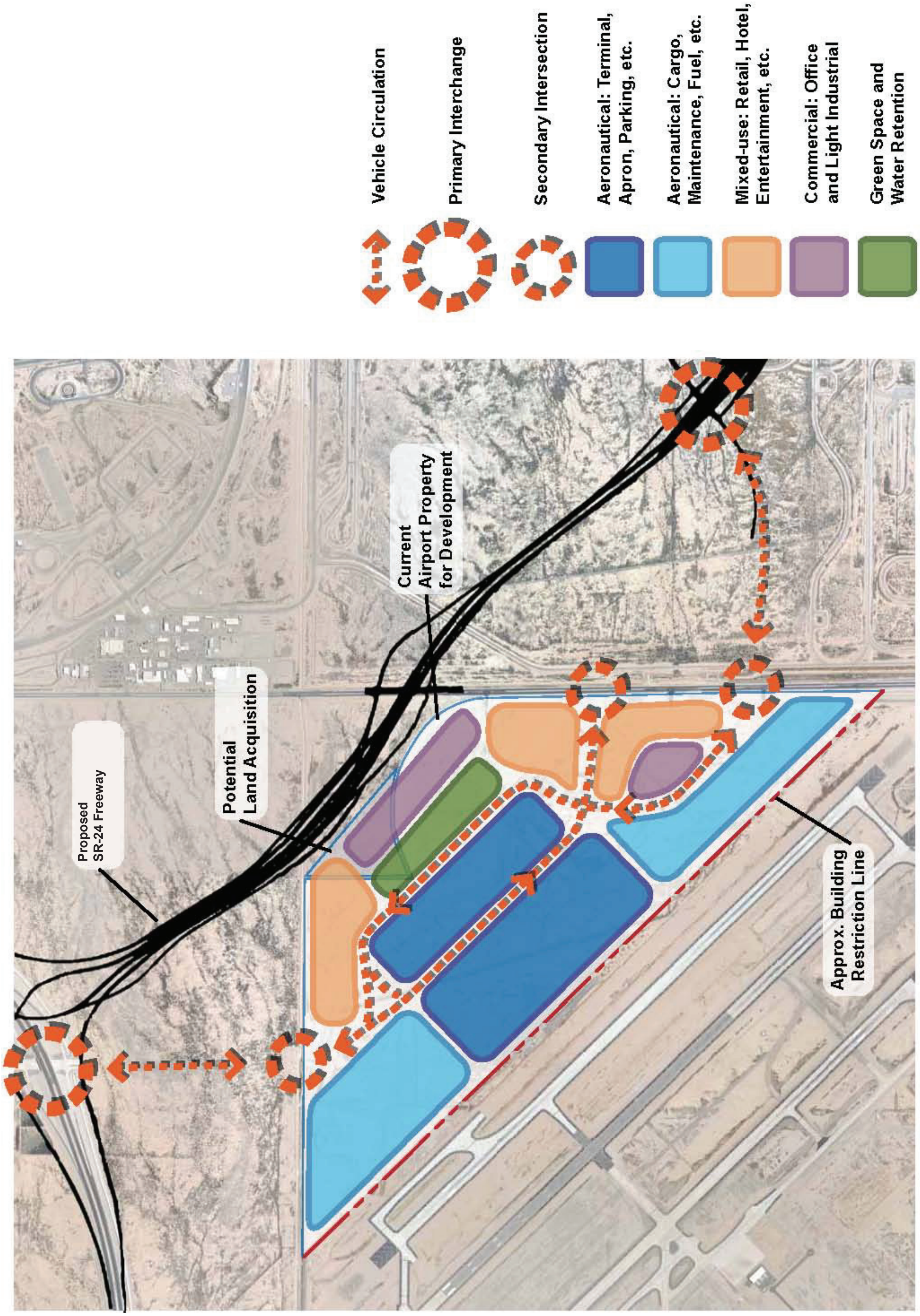
Aeronautical Uses

Scheme 4 shows the terminal building, aircraft parking apron and auto parking centrally located and very deep on the site, with supporting aeronautical facilities located in the northern and southern portions of the property. The support facilities reserve more acreage than needed for these functions. Close proximity to the airside for all related facilities maximizes the operational efficiency. The airfield frontage provided for these facilities is much longer than needed.

Private Development Uses

This scheme is created with a large green park running parallel to the terminal and having mixed-use and commercial development fronting on the amenity. The commercial (office and employment) uses are located generally to the north of the park and are adjacent to SR-24. Mixed-use (retail, hotel and entertainment) development anchors both the north and southern end of the long green park. These two areas of mixed-use are provided vehicular access from Hawes Road and Ellsworth Road respectively. The green park is the “central park” feature of the scheme and support economic development growth due to the physical “front door” relationship to adjacent development, i.e. the park is woven into the development circulation network and not just located behind development in lost spaces.

Exhibit 7-4: Bubble Diagram: Scheme 4



Scheme 5

Transportation Network

Scheme 5 is similar to Scheme 4 in that its access is limited to L202 via the Hawes Road interchange and the future SR-24 connection at Williams Field Road. The access to the local arterial street system is also similar to Scheme 4. The internal circulation to the terminal and the aeronautical uses is via the one-way pair roadway similar to Scheme 1. The commercial and the mixed-use land use areas to the northeast are served by a two-way roadway, which provides better service to the commercial land-use and ties into the one-way pair adjacent to the terminal.

- The transportation network in Scheme 5 appears to be adequate to serve the terminal.
- The parking does not appear to be adequate and is not well serviced by the internal roadway network.
- An additional right-in/right-out access from Ellsworth Road just south of the SR-24/ Ellsworth Traffic Interchange would help better serve the commercial area located in the northeast corner of the site.
- The additional access on Ellsworth Road (mid-way between SR-24 and the south access) provides better service to the mixed-use parcel located southeast of the terminal.
- This scheme does not address the transit component.

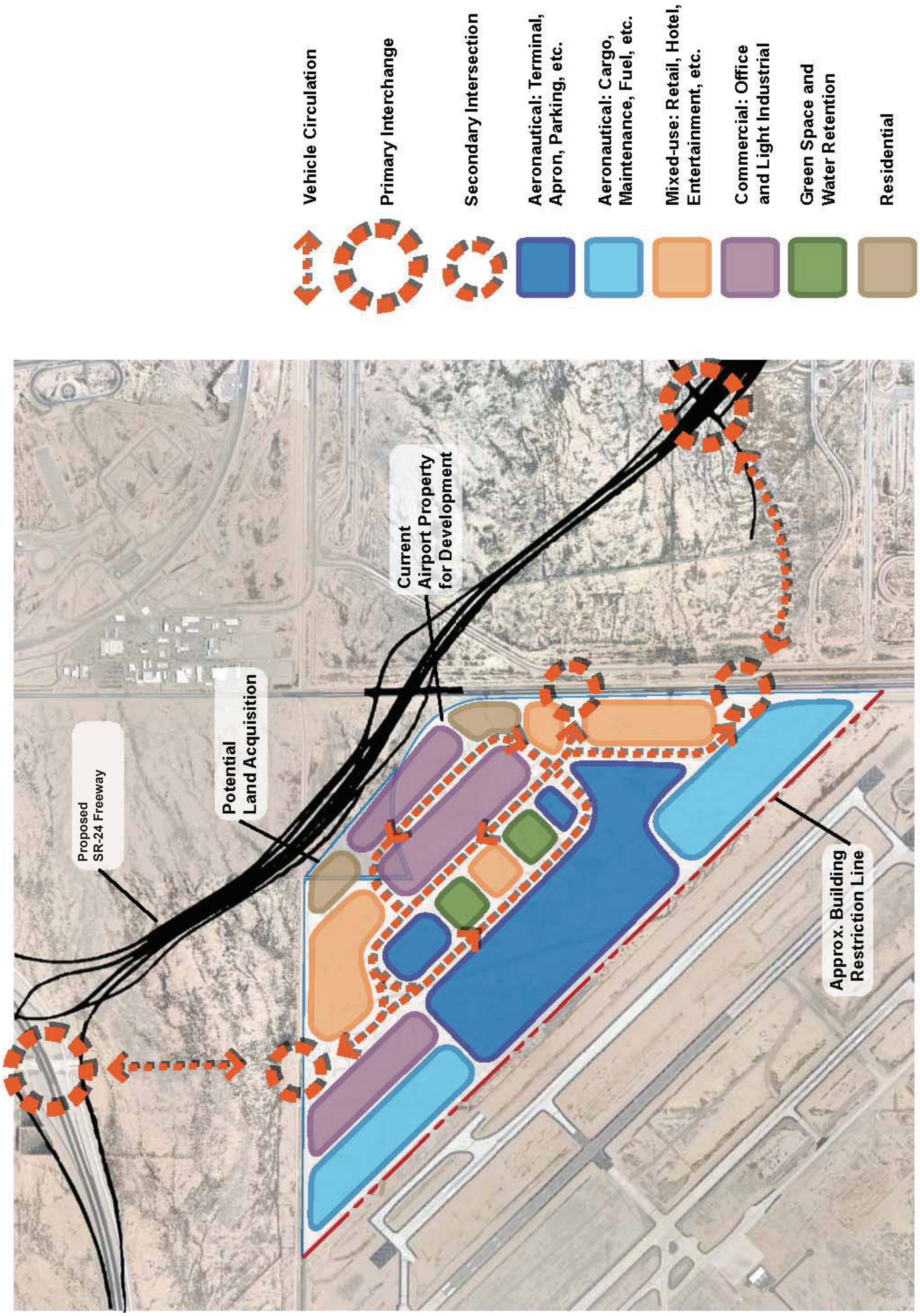
Aeronautical Uses

Scheme 5 locates the terminal building, aircraft parking apron and centrally on the site, with auto parking apparently undersized to support future demand. The supporting aeronautical facilities located in the northern and southern portions of the property. The support facilities are narrow but should be sufficient to meet the needs for these functions. Close proximity to the airside for all related facilities maximizes the operational efficiency. The airfield frontage provided for these facilities is slightly longer than needed.

Private Development Uses

This scheme is created with a unique relationship of aeronautical (parking support) and mixed-use development along with green park space is located within the ringed circulator road which provided direct access to the terminal. This scheme mixes the three (3) land uses together creating finer detailed pattern of development up near the terminal. Commercial (office and employment) uses are located along the northeaster quadrant adjacent to SR-24. Mixed-use (retail, hotel and entertainment) areas are located both to the northern and southern perimeters of the property with access provided by Hawes Road and Ellsworth Road. Green spaces are provided only with the smaller centrally located areas mentioned earlier.

Exhibit 7-5: Bubble Diagram: Scheme 5



Scheme 6

Transportation Network

From a regional access perspective, Scheme 6 is similar to Scheme 4 in that its access is limited to L202 via the Hawes Road interchange and the future SR-24 connection at Williams Field Road. The access to the local arterial street system is enhanced in Scheme 6; there is an additional access to connect to the arterial street system on Ray Road, serving the mixed-use and commercial land uses. The internal circulation to the terminal and the aeronautical land use area is via the one-way pair roadway similar to Scheme 1. The internal circulation to the commercial and mixed-use land use areas to the northeast and northwest are served well by a two-way roadway, which ties into the one-way pair adjacent to the terminal and to the access points on Ellsworth Road and Ray Road.

- The transportation network in Scheme 6 appears to be adequate to serve the terminal.
- The additional access on Ray Road provides better access to the mixed-use and commercial parcels located northeast of the terminal.
- An additional right-in/right-out access from Ellsworth Road just south of the SR-24/ Ellsworth Traffic Interchange would help better serve the mixed-use/commercial area located in the northeast corner of the site.
- This scheme does not address the transit component.

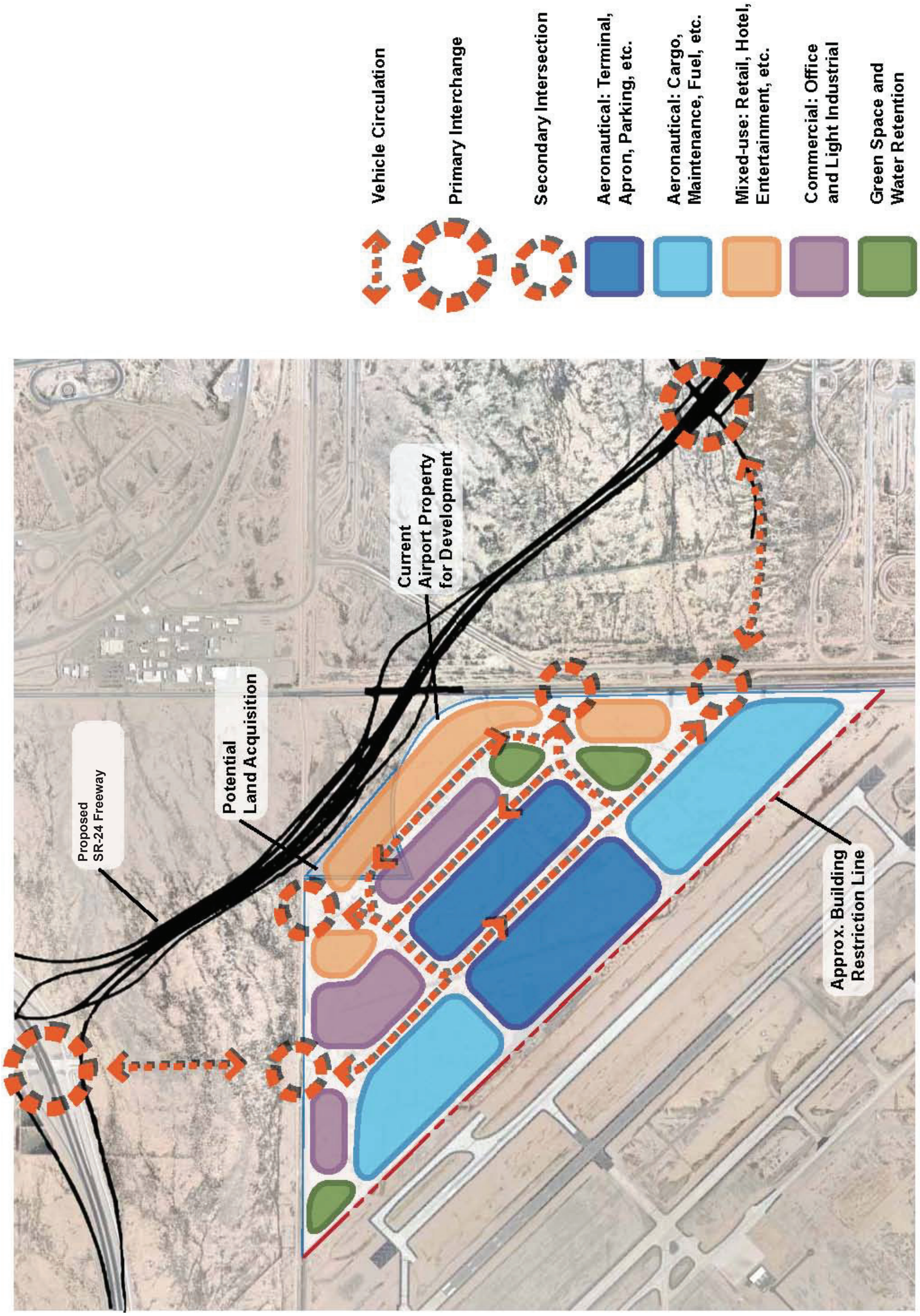
Aeronautical Uses

Scheme 6 shows the terminal building, aircraft parking apron and auto parking centrally located and very deep on the site, with supporting aeronautical facilities located in the northern and southern portions of the property. The support facilities reserve more acreage than needed for these functions. The airfield frontage provided for these facilities is slightly longer than needed.

Private Development Uses

This scheme is created with mixed-use (retail, hotel and entertainment) areas located along the northeastern and eastern perimeters of the site. This provides good access and views from SR-24 and Ellsworth Road. Commercial (office and employment) uses are divided into four pods and located adjacent to aeronautical development. The green park spaces are also divided, and located in three (3) areas providing "front door" relationships and flood/water retention during peak run-off events. This scheme includes the maximum number of vehicular access points from adjacent roadways including Hawes Road, Ellsworth Road and the connection from SR-24. The ability to maximize access provides benefits for maximizing economic development and growth.

Exhibit 7-6: Bubble Diagram: Scheme 6



Scheme 7

Transportation Network

From a regional access perspective, Scheme 7 is similar to Scheme 1. The access to the local arterial system is similar to Scheme 1 providing major access at Ray Road and Ellsworth Road (to tie into future Williams Field Road). The internal circulation to the terminal and the aeronautical land use areas is via a single one-way roadway east of the terminal. The mixed-use and commercial parcels to the north and northeast areas are also only served by a northbound one-way roadway.

- The transportation network in Scheme 7 does not appear adequate to serve the mixed-use and commercial parcels.
- The access to the arterial street network is limited.
- This scheme does not address the transit component.

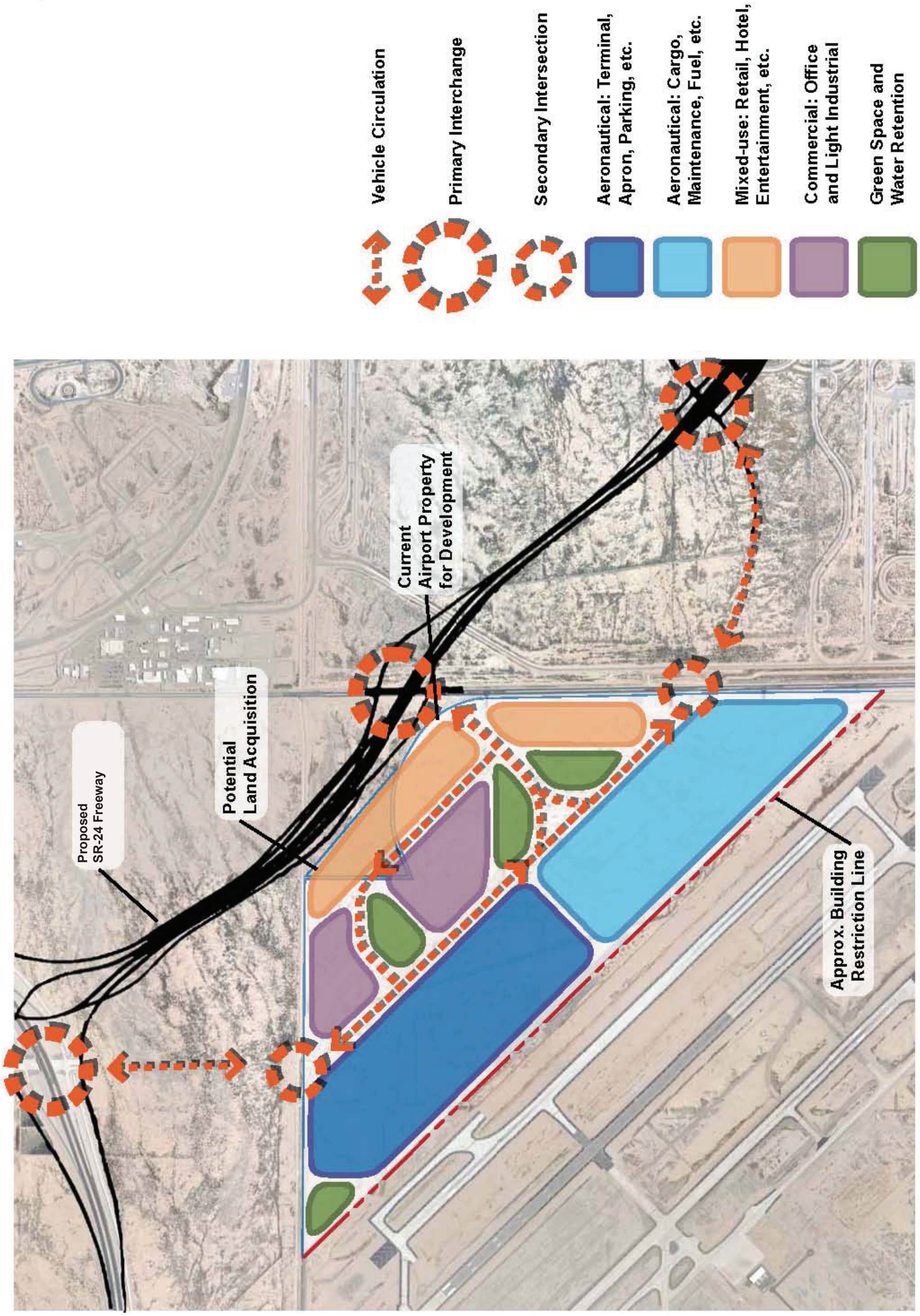
Aeronautical Uses

Scheme 7 identifies the location of the terminal building, aircraft parking apron and auto parking development area covering half of the airfield frontage on the northern side of the site. The overall depth of the site is sufficient to provide operational efficiencies for airlines and passengers. However, a shift to the northern portion of the site does not balance taxi distances for aircraft performing both northern or southern operations. A significant site is reserved for supporting aeronautical facilities located along the southern portion of the airfield frontage. The airfield frontage and acreage provided for these facilities is much longer than needed.

Private Development Uses

This scheme is created with mixed-use (retail, hotel and entertainment) areas located along the northeastern and eastern perimeters of the site. This provides good access and views from SR-24 and Ellsworth Road. Internal development sites for commercial (office and employment) uses are flanked with "corner" parks along primary roadways. The green park space provides an attractive green edge, along area for flood/water retention during peak run-off events and also as passive recreation space for pedestrian walking and wildlife habitat.

Exhibit 7-7: Bubble Diagram: Scheme 7



Scheme 8

Transportation Network

The regional access to L202 and SR-24, and the main access to the local arterials via Ellsworth Road and Williams Field Road are similar to Scheme 1. The internal circulation to the terminal and the aeronautical uses is via the one-way pair roadway similar to Scheme 1. The internal circulation to the commercial and the mixed-use land use areas to the northeast and northwest are served well by a two-way roadway which ties into the one-way pair adjacent to the terminal.

- The transportation network in Scheme 8 appears to be adequate to serve the terminal.
- A secondary access on to Ellsworth Road and Ray Road would better serve the mixed-use and commercial parcels in this scheme.
- This scheme proposes a transit hub to be located adjacent to the terminal and can potentially serve all the land uses.

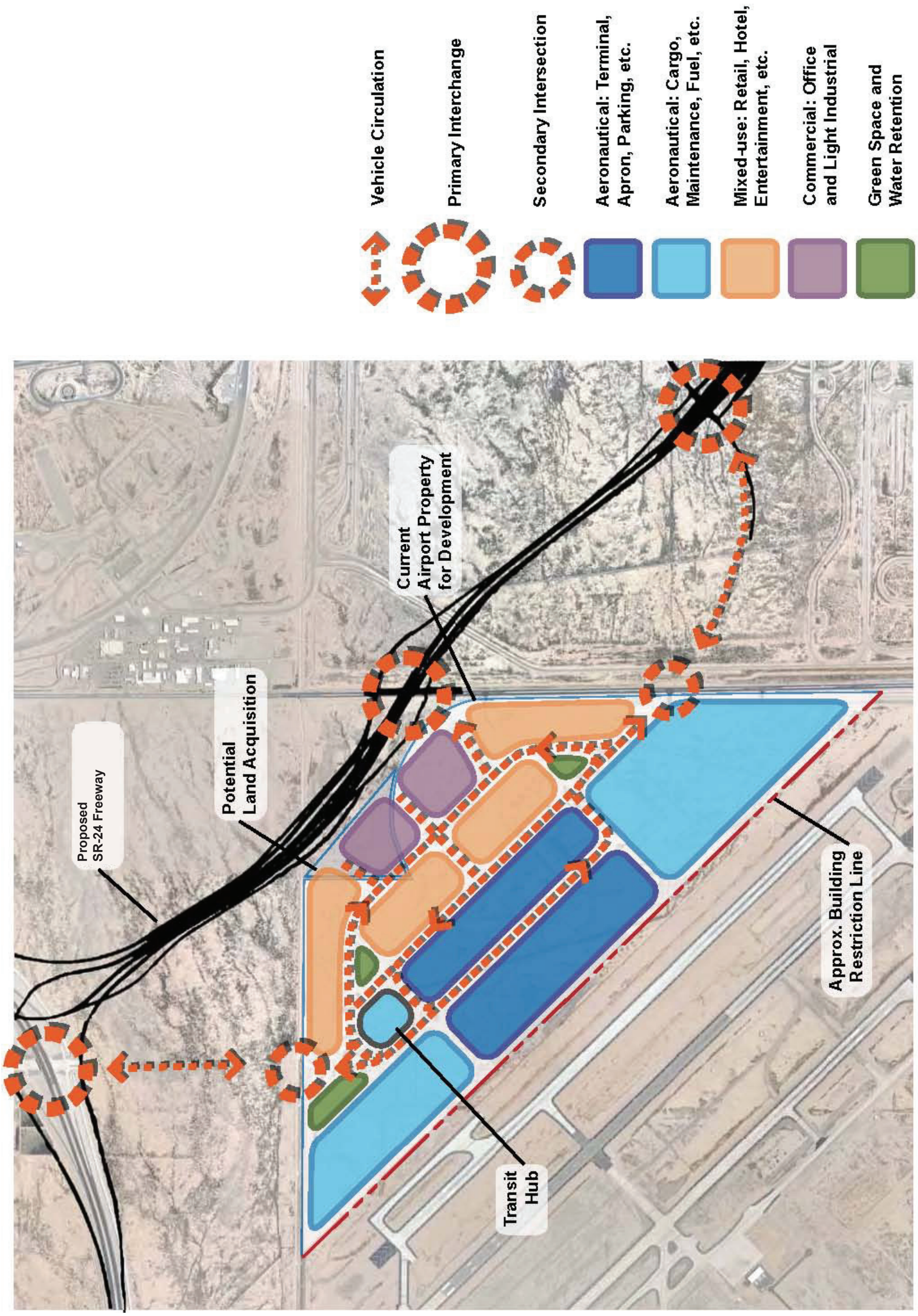
Aeronautical Uses

Scheme 8 shows the terminal building, aircraft parking apron and auto parking centrally located on the site, with supporting aeronautical facilities located in the northern and southern portions of the property. The support facilities reserve more acreage than needed for these functions with a large site being located on the southern corner. The airfield frontage provided for these facilities is much longer than needed. A transit hub is also identified near the parking area for the terminal building.

Private Development Uses

This scheme is created with attention to balance. There are close to equal amounts and distribution of mixed-use, commercial and park land uses across the property. This serves the user of the aeronautical and private development side well. Commercial (office and employment) uses are flanked along both sides of a central spine road running northeast to southwest. Mixed-use (retail, hotel and entertainment) areas are adjacent to the aeronautical edge at the terminal and parking support, along with the perimeter edges with access by Hawes and Ellsworth Road respectively. Green space amenities are located along at several locations, one adjacent to the Powerline Floodway Channel. This area will serve as flood/water retention during peak run-off events and also as passive recreation space for pedestrian walking and wildlife habitat.

Exhibit 7-8: Bubble Diagram: Scheme 8



Scheme 9

Transportation Network

The regional access in Scheme 4 is limited to L202 via Hawes Road interchange and the future SR-24 connection at Williams Field Road. The access to the local arterial system is similar to Scheme 1 providing major access at Ray Road and Ellsworth Road (to tie into realigned Williams Field). The internal circulation to the terminal is a short one-way segment serving the terminal and a two-way main roadway corridor providing access to the mixed-use and commercial parcels that are symmetrically located on the site

- The transportation network in Scheme 9 appears to be adequate to serve the terminal and the other land uses on the site.
- A secondary access on to Ellsworth Road and Ray Road would provide better connectivity from the mixed-use and commercial parcels to the arterial street network.
- This scheme does not address the transit component. The airport, the mixed-use area to the northeast and the commercial development to the south would be better served by providing a transit facility on site.

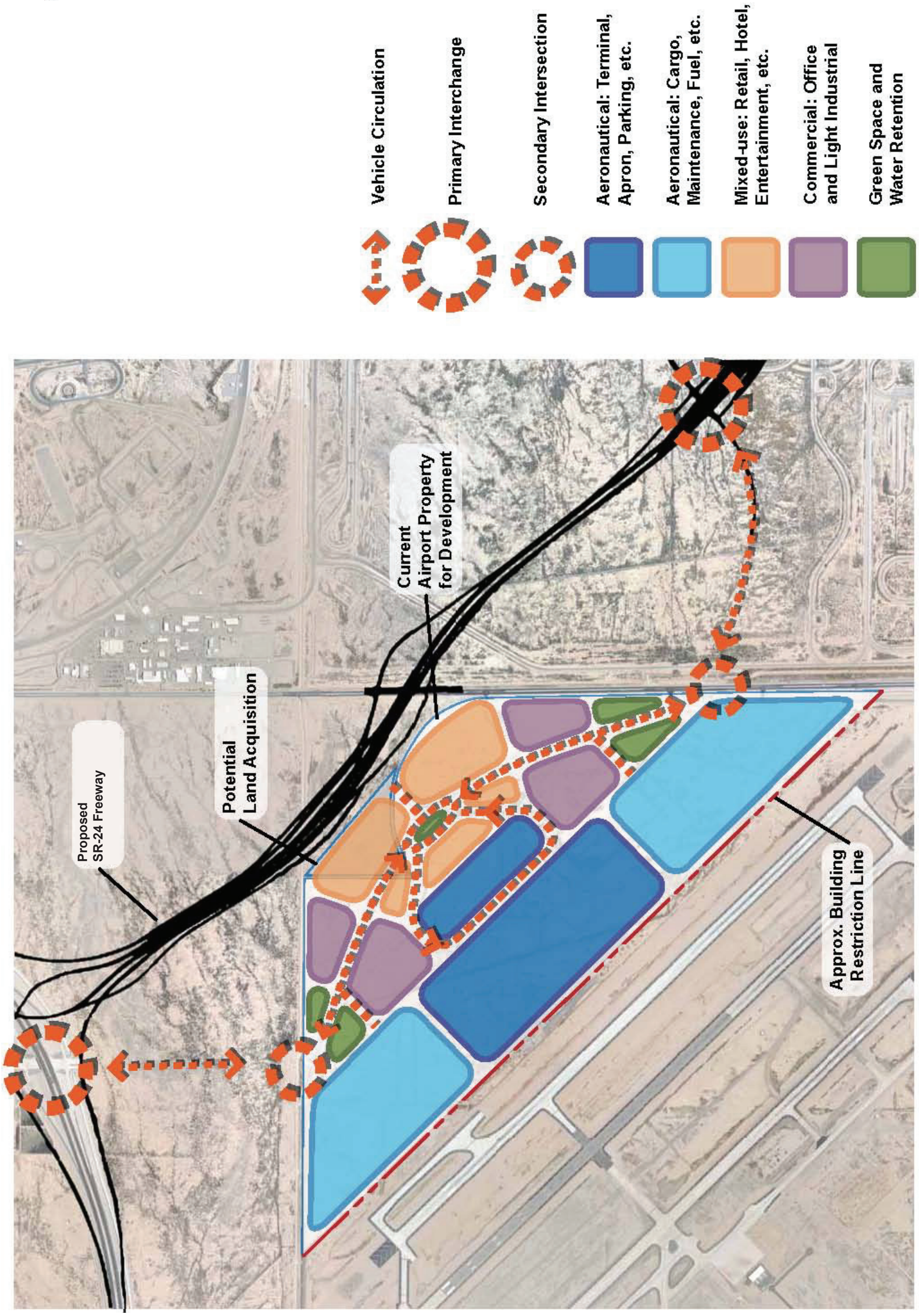
Aeronautical Uses

Scheme 9 shows the terminal building, aircraft parking apron and auto parking centrally located on the site, the auto parking area is not large enough to support future demand. Supporting aeronautical facilities located in the northern and southern portions of the property and reserve more acreage than needed for these functions. The airfield frontage provided for these facilities is much longer than needed.

Private Development Uses

This scheme is also created with attention to balance. There are close to equal amounts and distribution of mixed-use, commercial and park land uses across the property, all connected with an arching roadway. Mixed-use (retail, hotel and entertainment) areas are adjacent to the central round-a-bout. Commercial (office and employment) and green park uses are flanked along both sides of an arching spine road. Green spaces are located at the major points of vehicular access along Ellsworth and Hawes Roads. This area will serve as flood/water retention during peak run-off events and also as passive entry feature for the development.

Exhibit 7-9: Bubble Diagram: Scheme 9



7.3.2 Evaluation Process

The nine concepts were evaluated and ranked on a scale of 1 to 5 with 5 being the highest possible score per individual element. The evaluation criteria focused upon five major categories:

- Safety and Industry/FAA Design Standards
- Operational Efficiency
- Capacity
- Functionality & Flexibility
- Economic Development

Each of the 5 major evaluation categories have specific sub-criteria which were assigned a ranking of 1 to 5. A total of 39 sub categories were evaluated for a maximum score of 195 points. Table 7-1 summarizes the evaluation process of all nine concepts and the sub criteria used to determine the highest ranking alternatives. None of the nine schemes received a perfect score. Scores ranged from a low of 121 to a high of 172. The three highest rated concepts were carried forward for further detailed development in the following section.

Table 7-1: Evaluation Matrix

Evaluation Factors	Scheme 1	Scheme 2	Scheme 3	Scheme 4	Scheme 5	Scheme 6	Scheme 7	Scheme 8	Scheme 9
Safety & Standards									
- Protection of Part 77 imaginary surfaces	5	5	5	5	5	5	5	5	5
- Provides additional parallel taxiway/airfield improvements (ARC D-V)	5	5	5	5	5	5	5	5	5
- Adequate Spacing between interchanges / intersections	3	3	1	4	4	5	3	2	2
Subtotals	**13**	**13**	**11**	**14**	**14**	**15**	**13**	**12**	**12**
MAX	15								
Operational									
- Potential to support a multi-use trail network	5	4	3	4	5	5	5	4	5
- Maximizes traffic accessibility to commercial development	4	3	3	4	4	5	3	4	5
- Operationally efficient for the airlines	5	5	2	5	5	5	2	5	5
- Functional Areas that operate efficiently	5	5	2	5	5	5	2	5	5
- Vehicular Traffic is capable of being Separated	5	5	2	5	3	5	3	5	2
- Ability to support an intuitive wayfinding system	5	5	1	5	4	4	3	4	2
- Access Management to/from freeways	5	5	3	5	5	5	5	5	5
- Clear and easy access to Ray & Ellsworth Road employment centers	4	4	2	3	5	5	4	4	3
- Accommodates New Ray Road Alignment & Intersection W/Hawes Road	5	5	3	5	5	5	5	5	5
- Potential for Transit Oriented Development (TOD)	4	5	3	3	4	3	3	5	5
- Automobile parking within reasonable walking distances	4	5	3	4	3	4	4	5	4
Subtotals	**51**	**51**	**27**	**48**	**48**	**51**	**39**	**51**	**46**
MAX	55								
Capacity									
- Accommodates surface drainage adequately	5	5	4	5	5	5	4	5	5
- Ability of Terminal Area to accommodate 10 MAP	4	3	5	4	3	4	5	5	5
- Ability of automobile parking & RAC areas to accommodate 10 MAP	4	2	5	2	2	4	5	4	3
- Incrementally Expandable Areas	4	4	2	4	4	4	4	4	4
- Terminal area envelope capacity if maximized	4	3	5	4	3	4	5	5	5
- Adequacy of aircraft parking positions and gates	5	2	2	3	3	3	3	4	4
- Ability to support needed curb length and separation of traffic modes	5	5	2	5	4	3	4	5	3
- Ability For Utilities To Support Full Development	5	5	5	5	5	5	5	5	5
- Type of arterial connectors conducive to types of development	3	2	3	4	4	5	3	3	3
Subtotals	**39**	**31**	**33**	**36**	**33**	**37**	**38**	**40**	**37**
MAX	45								
Functionality & Flexibility									
- Flexibility to accommodate unforeseen trends/technologies/etc.	4	3	4	5	2	5	5	5	5
- Access To SR 802/Loop 202	5	5	4	5	5	5	5	5	5
- Incorporates Access And Roadway Network Planning Efforts To Date (I.E. DMB Study)	3	3	3	4	4	5	3	3	2
- Reduced Reliance On A Single 'Focal Point' For The Site's Main Access	3	3	2	4	4	5	3	4	3
- Flexible roadway network	4	3	3	2	4	5	3	4	3
- Ability to accommodate a multimodal transportation center or public transit hub	5	4	3	5	4	5	5	5	5
- Compatibility for Bike/Pedestrian Access Between PMGA & Commercial Development	4	5	4	5	4	5	4	5	5
- Use Of Green Space	3	5	3	4	5	4	5	3	5
Subtotals	**31**	**31**	**26**	**34**	**32**	**39**	**33**	**34**	**33**
MAX	40								
Economic Development									
- Visibility	5	3	4	4	4	5	5	4	5
- Maximizes economic development potential	5	3	4	4	4	5	5	4	5
- Aligns development potential with short & long term market projections	4	4	2	4	4	4	4	4	4
- Capable of Establishing a sustainable development program	4	4	2	4	4	4	4	4	4
- Creates an airport development pattern that works well with Mesa's future plans	2	2	2	2	2	2	4	2	4
- Efficiency Of Land Use Schemes Relative To Potential Revenue	5	4	3	4	4	4	4	5	4
- Provide mixed-use development opportunities near the terminal area	4	4	4	4	4	3	3	4	3
- Provides an opportunity for diverse commercial land uses around the airport	4	4	3	3	3	3	4	3	4
Subtotals	**33**	**28**	**24**	**29**	**29**	**30**	**33**	**30**	**33**
MAX	40								
TOTAL	167	154	121	161	156	172	156	167	161
MAX	195								

Source: Jacobs Analysis, 2010.

7.3.3 Preferred Schemes

The three highest ranking schemes were Scheme 1, 6 and 8. Schemes 1 and 8 each accumulated a score of 167 with Scheme 6 totaling the highest score of 172. All three schemes scored highly on Safety & Standards, Operational Efficiency, and Functionality & Flexibility. These schemes were carried forward to the next phase of analysis to be further developed and continued evaluation analysis. The preferred development alternative was developed based upon one of these Schemes.

7.4 Level 2 Concept Alternatives

The Level 2 concept alternatives are a continuation of the concept development process and were derived in large part from the previously described “bubble diagram” schemes presented and evaluated in Section 7.3. In a follow-up stakeholder meeting held on June 15, 2010, a review was conducted of: the Project visioning and goal setting exercise, the nine (9) developed schemes, their attributes, and the screening process employed. The visioning and goal setting had resulted in four key areas of focus for the Northeast Area Development Plan: Aviation/Airport-Related, Transportation and Utilities Infrastructure, Economic Development, and Overall Lifestyle considerations. These focus area drove much of the screening process. The three highest rated schemes were carried forward into a Level 2 conceptual development phase described in that meeting and presented in this subsection. Schemes 1, 6, and 8 were advanced as Concepts 1, 3, and 2, respectively. As the alternatives advanced into Level 2, they became referred to as “illustrative” concept alternatives. The “illustrative” concepts (1, 2, and 3) were also presented in the June meeting along with examples of development types, by land use. The “illustrative” concepts achieved a common set of criteria listed below:

- Compatible with FAA design standards for ARC D-V;
- Meet height restrictions for FAR Part 77 surfaces ;
- Support development of efficient airline operational areas;
- Terminal area, parking and rental car areas support 10 MAP;
- Passenger automobile parking proximate the terminal building;
- Incrementally expandable development areas;
- Proposed vehicular network accommodates projected traffic levels;
- Logical & efficient access to freeway system (Loop 202 / SR-24);
- Accommodates new Ray Road & Hawes Road alignments;
- Multi-use (Pedestrian or Bike) trail network easily incorporated;
- Transit Oriented Development (TOD) easily incorporated; and
- Utilities network expandable to support full development area.

7.4.1 Description of Illustrative Concepts

Concept 1

Scheme 1 from the previous phase of the study was further developed and detailed into Concept 1.

Transportation Network

After review of the evaluation matrix and stakeholder comments, Concept 1 emerged from Scheme 1 with major aeronautical, airport parking, and a transit station as the major components. The major access to the Airport from L202 is via Hawes Road with additional access from the future SR-24 via Ellsworth Road and realigned Williams Field Road. The arterial access for the commercial and mixed-use land use areas along Ellsworth Road was moved further south to provide greater separation from the SR-24/Ellsworth Traffic Interchange. In review of the evaluation matrix, Exhibit 7-1 criteria, an additional access was provided to Ray Road to maximize accessibility to the commercial development. The on-site roadway between Ray Road and Ellsworth Road (that parallels SR-24) separates the retail and the office uses. Connection to the airport terminal is provided by a one-way roadway pair from the north and by a one-way roadway east of the proposed airport parking to a southbound two-level one-way roadway serving the terminal arrivals and departures. The other internal roadways are two-way streets connecting to the adjacent arterial access points.

- The transportation network in Concept 1 appears to be adequate to serve the airport by providing access to both SR-24 and L202 and also the major access points to the arterial street system.
- The secondary access points on Ellsworth Road and Ray Road serve the retail and the office land uses better while maintaining separation from airport traffic.
- The land-use layout in this concept is conducive to a centrally located transit facility to serve multiple land-uses, including the airport and the mixed-use/commercial area located to the northeast of the terminal.
- The one-way couplet from the central core of the airport provides access directly to the airport. This concept however limits interior site circulation requirements internal to the land use.

Aeronautical Uses

Aeronautical support facilities are typical aviation related functions that are required for commercial aviation operations, which include belly cargo processing, central receiving facility and aviation fuel farm. Due to the determination of the highest and best use for developable land and the need to reserve space for future aviation and commercial development, these facilities have been located on the southeastern portion of the Northeast Development Area Concepts 1, 2 and 3. During initial development of the Schematic layouts, an area on the northwest portion of the site was also identified as a potential development area for these facilities. Upon further investigation, the prevailing drainage patterns flow through the area where these facilities would be located. As a result, it was determined that the area to the northwest would be better suited as a retention basin.

The development alternatives for aeronautical uses are the same for Concepts 1, 2 and 3. These facilities include the following development items:

- Belly Cargo Facility which includes a 55,000 square foot building with secure airside access on one side for small ramp tugs and associated carts to transport cargo from the commercial aircraft and public access on the other side of the building for truck traffic
- Central Receiving Facility, a 40,000 square foot building which will serve as the single point of delivery for all concessions in the terminal area
- Aviation Fuel Farm 1,000,000 gallon capacity with flexibility to be expanded to meet future demand as needed

Terminal Layout

The 5 million enplanement level was established in the 2008 Airport Master Plan, as previously discussed in section 5.3. The three concepts also indicate an expanded terminal shown dashed, which would bring the capacity to the 10 million enplanement level. Although both the 5 million and the 10 million are beyond the twenty year planning term of the Master Plan, it is important to reserve space for critical airport functions. The footprint shown in each of the three concepts assumes the following:

- Two level main terminal and concourse (minimum)
- Two level vehicular roadway for separate arrivals and departures curbs
- Pier configuration for group 3 aircraft with dual taxilanes between concourses
- Larger aircraft would park on the concourse ends and outside concourses
- Approximately 800,000 square feet for 5 million enplanements
- Approximately 1.5 million square feet for 10 million enplanements

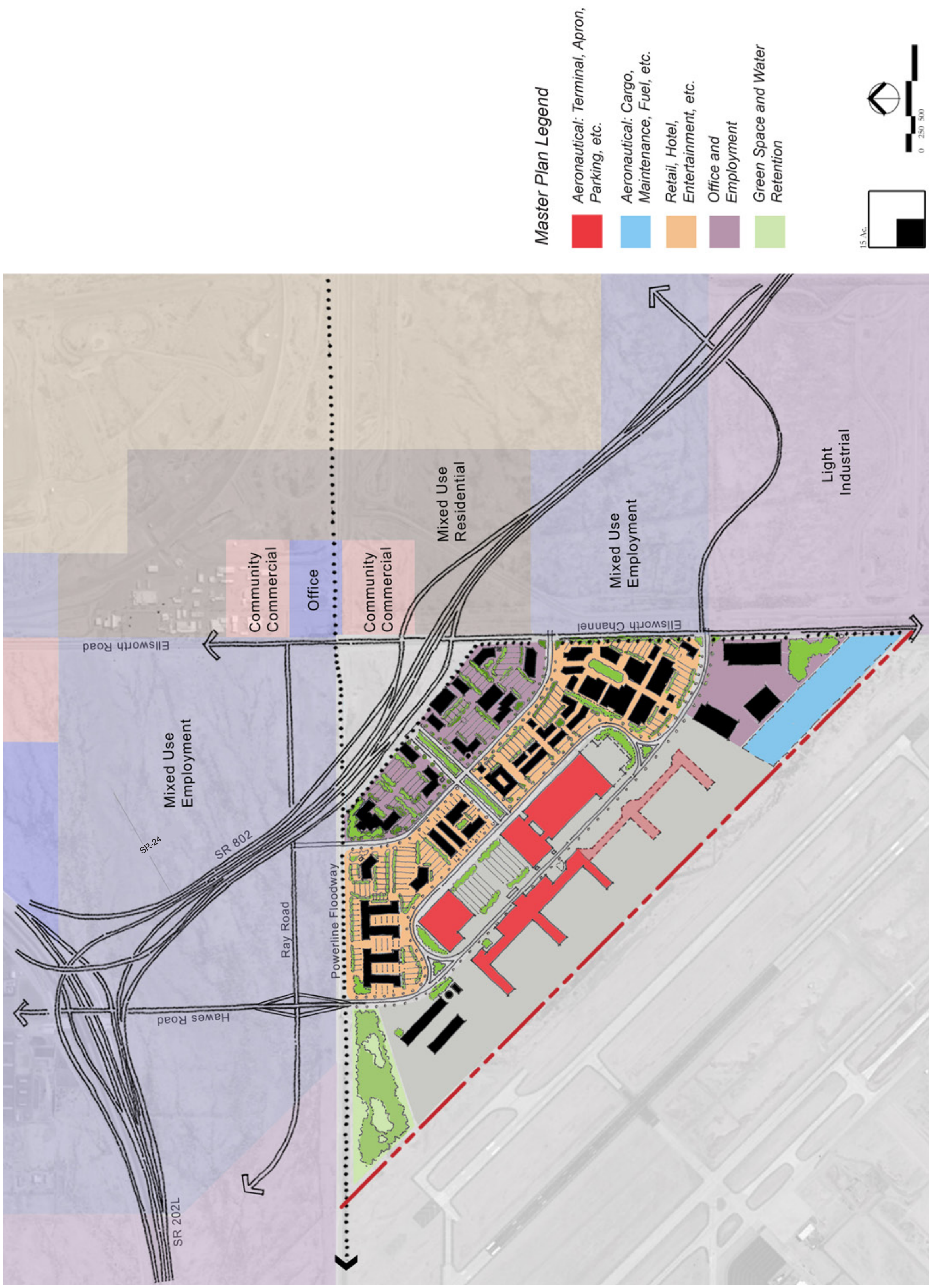
Concept 1, Terminal Building with an estimated capacity of 5 million enplanements annually, includes a main processor and three concourses arranged in a pier configuration. The building is oriented slightly northwest of the center of the site so that development can begin closer to the infrastructure's points of connection, anticipated to occur along Ray Road. The two additional concourses (shown dashed to the southeast) expand the capacity to 10 million enplanements.

Private Development Uses

The concept is developed with a center boulevard, aligned to the center of the future Transit Center at the Airport Terminal connecting the airport to the adjacent retail, hotel and office development to the north east. This center boulevard is one of the key identity elements of the concept. This boulevard has a wide median that is well landscaped and would include pedestrian walking trails and relaxation stations.

The land use pattern follows a layout similar to concentric circles which start at the proposed Gateway Airport Terminal. Office and employment (multi story buildings supporting business and commerce) uses are planned in this concept on the ring farthest away from the terminal and adjacent to SR-24. The views from SR-24 will enhance the images and development potential for the office development. Retail, hotel and entertainment (single story development except for the hotels) land uses are located adjacent to the terminal and support parking areas. Primary vehicular access for this group of land uses comes from Hawes Road from the north and Ellsworth Road from the east. A large green space amenity is located along the northern boundary adjacent to the Powerline Floodway Channel. This area will serve as flood/water retention during peak run-off events and also as passive recreation space for pedestrians. The additional, green landscaped amenity for this concept is the center boulevard noted previously, that aligns northeast to southwest and bisect the study area into equal halves.

Exhibit 7-10: Illustrative Concept 1



Concept 2

Scheme 8 from the previous phase of the study was further developed and detailed into Concept 2.

Transportation Network

Concept 2 was derived from Scheme 8 of the original nine (9) schemes. The major access to the airport from L202 via Hawes Road with additional access from the future SR-24 via Ellsworth Road and realigned Williams Field Road remained consistent in this concept as well as Concept 1. Changes incorporated from Scheme 6 to Concept 2 include the scheme to enlarge the green space in the northwest area and to provide a large roundabout around a multi-use attraction adjacent to the north end of the terminal. The connection of multi-use and office land use areas has been moved from Ellsworth Road to an internal roadway connection and a new intersection has been included on Ellsworth Road south of the realigned Williams Field Road. This new connection will serve the southern aeronautical and office land use areas between the Ellsworth Channel and the airport.

- The transportation network in Concept 2 appears to be adequate to serve the airport by providing access to both SR-24 and L202. While the number of access points to the arterial street system remains the same as Concept 1, the second access point on Ellsworth Road has been moved south of the realigned Williams Field Road.
- The circulation around the multi-use facility at the northwest corner of the terminal provides a good transition connecting the one-way and two-way street network serving the retail land use.
- The internal roadway network provides a better separation of the airport, retail and office land uses.
- The land-use layout in this concept does not complement a central transit facility due to the layout of the office and mixed-use land use and their ability to access the transit
- The first access to the site is quite a distance from the SR-24/Ellsworth Road. This could be provided by a right-in and right-out scenario closer to the interchange. This would require a break between individual parcels.

Aeronautical Uses

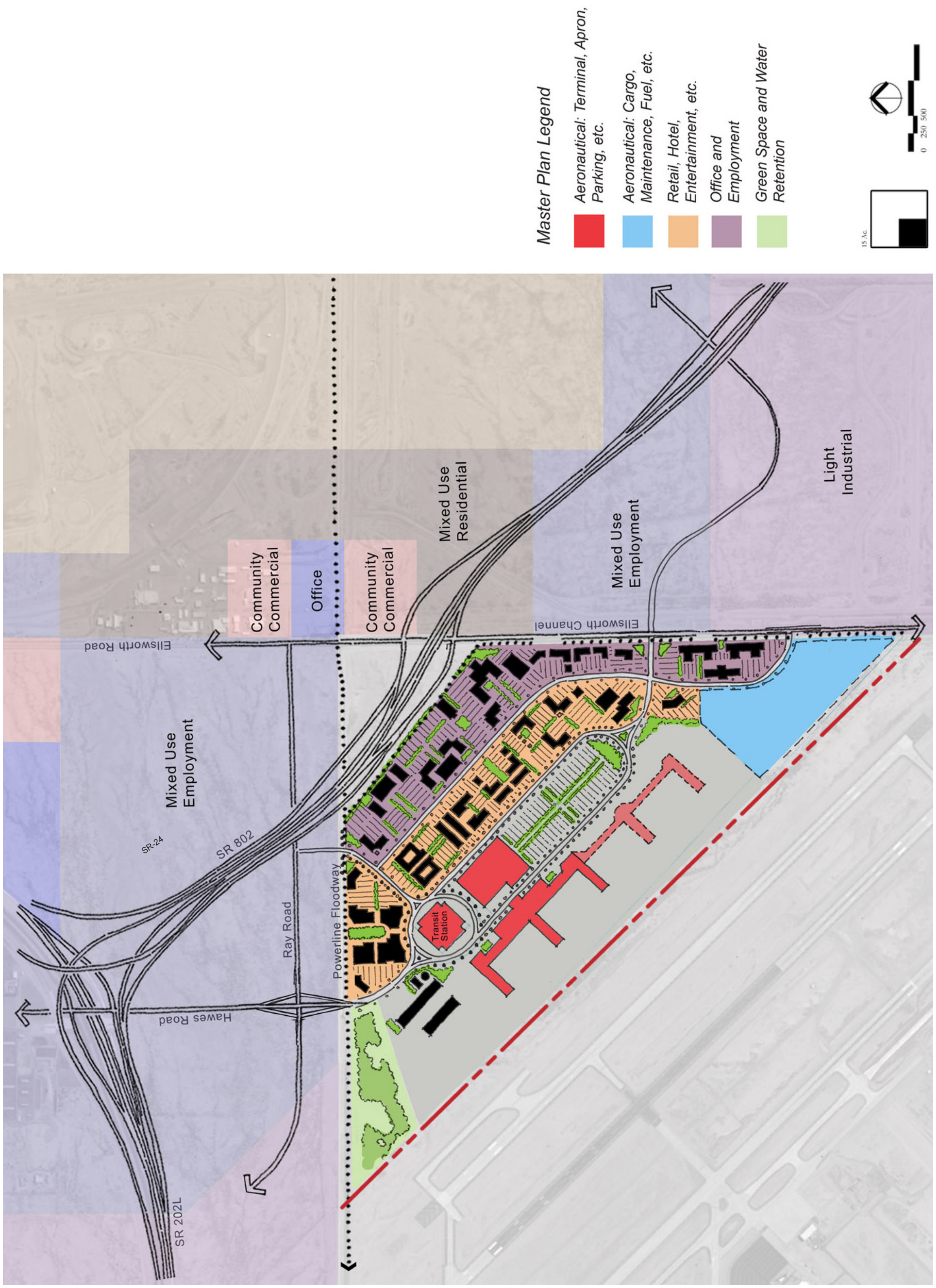
The aeronautical uses described in the previous section for Concept 1 also apply to the Concept 2. The development alternatives for aeronautical uses are the same for Concepts 1, 2 and 3. These facilities include the following development items:

- Belly Cargo Facility which includes a 55,000 square foot building with secure airside access on one side for small ramp tugs and associated carts to transport cargo from the commercial aircraft and public access on the other side of the building for truck traffic
- Central Receiving Facility, a 40,000 square foot building which will serve as the single point of delivery for all concessions in the terminal area
- Aviation Fuel Farm 1,000,000 gallon capacity with flexibility to be expanded to meet future demand as needed

Terminal Building

Concept 2, Terminal Building is essentially the same as Concept 1. The terminal, with an estimated capacity of 5 million enplanements annually, includes a main processor and three concourses arranged in a pier configuration. The building is oriented slightly northwest of the center of the site so that development can begin closer to the infrastructure's points of connection, anticipated to occur along Ray Road. The two additional concourses (shown dashed to the southeast) expand the capacity to 10 million enplanements.

Exhibit 7-11: Illustrative Concept 2



Concept 3

Scheme 6 from the previous phase of the study was further developed and detailed into Concept 3.

Transportation Network

Concept 3 was derived from Scheme 6 of the original nine (9) schemes. As with Concept 1 the roadway network has been improved to provide two access points along the City's arterial system (i.e. on Ray Road and Ellsworth Road). The roadway connection to Ellsworth Road has been moved south away from the SR-24/Ellsworth Road interchange intersection and an additional connection has been added to Ray Road west of the SR-24 right-of-way. The connection from Ray Road toward the airport will intersect both the internal roadway network that serves the multi-use and office parcels and the one-way roadway that will lead to the airport terminal. Unlike Concept 1 the internal roadway connecting Ray Road and Ellsworth Road is a two-way roadway and connects directly to each end of the northbound one-way roadway east of the proposed airport parking area. This differs from the central corridor connection from the land uses north and east of the airport in Concept 1.

- The transportation network in Concept 3 appears to adequately serve the airport, retail and office land uses by providing access to both SR-24 and L202. The major access points to the arterial street system are similar to Concept 1.
- The internal roadway network provides a better separation of the airport, retail and office land uses, which are symmetrical on the site layout.
- The land-use layout in this concept is conducive to a centrally located transit facility to serve multiple land-uses, including the airport and the retail/office areas. The transit station is centrally located to the site within the aeronautical area east of the terminal.

Aeronautical Uses

The aeronautical uses described in the previous sections for Concepts 1 and 2, also apply to Concept 3. The development alternatives for aeronautical uses are the same for Concepts 1, 2 and 3. These facilities include the following development items:

- Belly Cargo Facility, which includes a 55,000 square foot building with secure airside access on one side for small ramp tugs and associated carts to transport cargo from the commercial aircraft and public access on the other side of the building for truck traffic
- Central Receiving Facility, a 40,000 square feet building which will serve as the single point of delivery for all concessions in the terminal area
- Aviation Fuel Farm 1,000,000 gallon capacity with flexibility to be expanded to meet future demand as needed

Terminal Building

The main terminal processor, shown at a 5 million enplanement level, is centered on the site. Growth would occur through the addition of a concourse to the northeast and one to the southeast. This terminal location offers the benefit of equal aircraft taxiing distance from the airfield, regardless of which runway was used for take-off or landing.

Parking

The parking capacity shown on the Concepts 1,2 and 3 can accommodate the 10 million enplanement level. The areas indicated for parking assume a mix of surface lots and garage.

The parking space requirement is taken from the Airport Master Plan calculation found on page 3-39 of the airport Master Plan. The following are the calculations as applicable to the 3 concepts:

5 Million Enplanements

- Public parking @ 150 spaces / 100,000 enp. = 7,500 spaces
- Employee parking @ 25 spaces / 100,000 enp. = 1,250 spaces
- Rental Car Parking @ 35 spaces / 100,000 enp. = 1,750 spaces
- Total = 10,500 spaces
-

10 Million Enplanements

- Public parking @ 150 spaces / 100,000 enp. = 15,000 spaces
- Employee parking @ 25 spaces / 100,000 enp. = 2,500 spaces
- Rental Car Parking @ 35 spaces / 100,000 enp. = 3,500 spaces
- Total = 21,000 spaces

Each of the three concepts shows a slight variation of the parking solution with differences in location of the transit center, loop road configuration, access to the loop road as well as garage and surface lot footprints. The following tables in Table 7-2 describe the parking for each concept.

- Concept 1 provides 16,720 auto parking spaces between a parking garage and series of surface parking lots.
- Concept 2 provides 24,965 auto parking spaces between two independent, 4-level, parking garages and auxiliary surface parking lot.
- Concept 3 provides 27,875 auto parking spaces in one large, 4-level, parking garage and auxiliary surface parking lot.

Private Development Uses

Concept 3 is developed with a center green linear park, aligned to the center of the future Transit Center at the Airport Terminal connecting the airport to the adjacent retail, hotel and office development to the north east. This center green linear park is one of the key identity elements of the concept. This park has a wide natural area that is well landscaped and would include pedestrian walking trails and relaxation stations.

The land use pattern depicted for Concept 3 is similar to Concept 2 except for the aspect that this concept has a larger area of retail, hotel and entertainment oriented uses, due to the existence of nearby airport support functions, and parking areas, some of which are dedicated to a parking garage. This concept follows a layout similar to concentric circles which start at the proposed Gateway Airport Terminal. Office and employment (multi story buildings supporting business and commerce) uses are planned in this concept on the ring farthest away from the terminal and adjacent to SR-24. The views from SR-24 will enhance the images and development potential for the office development. Retail, hotel and entertainment (single story development except for the hotels) land uses are located adjacent to the terminal and support parking areas. Primary vehicular access for this group of land uses comes from Hawes Road from the north and Ellsworth Road from the east. A large green space amenity is located along the northern boundary adjacent to the Powerline Floodway Channel. This area will serve as flood/water retention during peak run-off events and also as passive recreation space for pedestrians.

Exhibit 7-12: Illustrative Concept 3

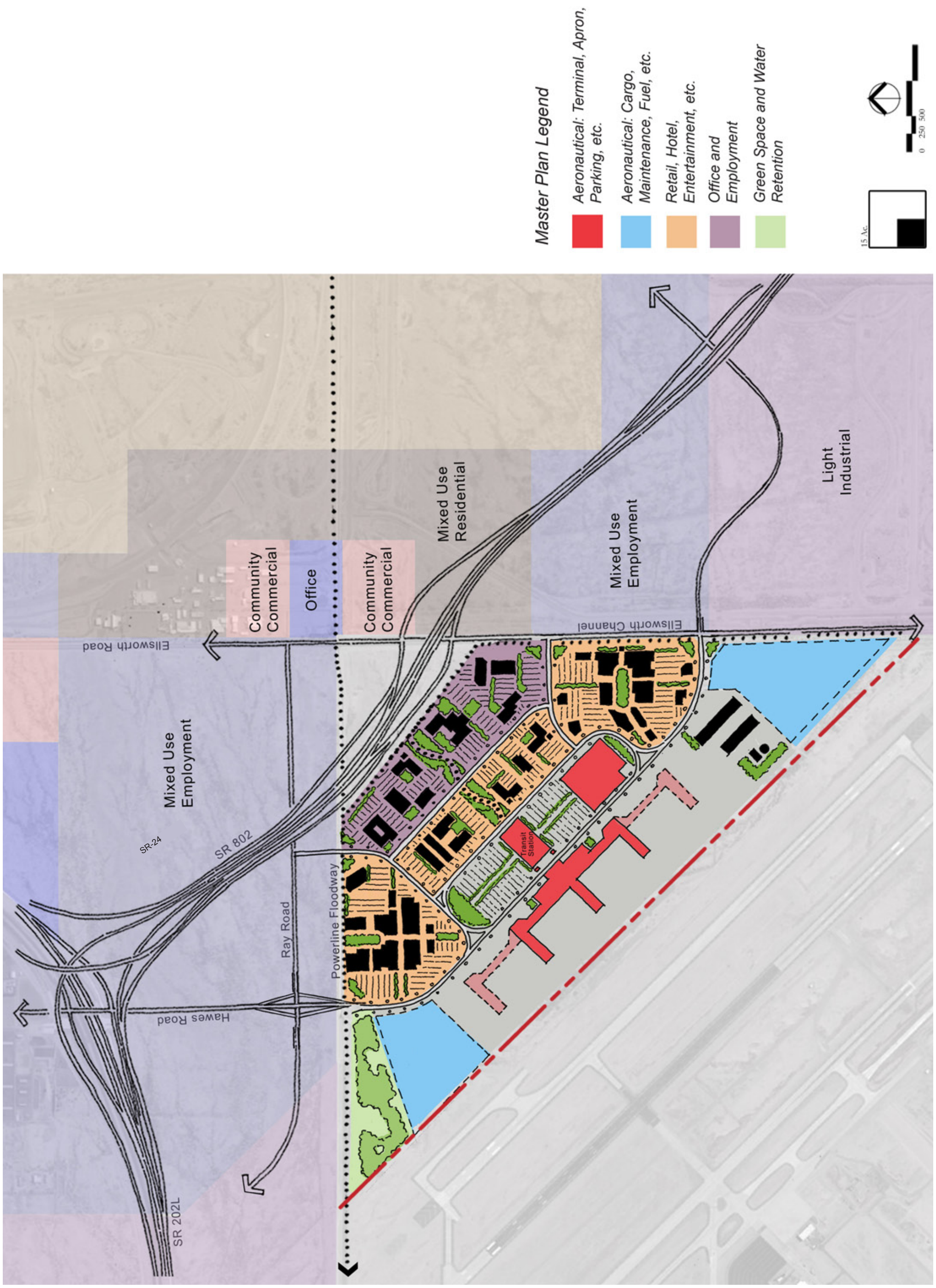


Table 7-2: Automobile Parking Requirements by Concept

Concept 1

	Footprint Data			Proposed Function	5 Million Enplanements		10 Million Enplanements	
	Dimensions		Area in SF		No. of spaces	No. of Levels	No. of spaces	No. of Levels
Area within Loop Road	3,750	625	2,343,750					
Transit Center	375	625	234,375	n/a	0	n/a	n/a	n/a
West Garage	625	625	390,625	Rental Car	1,750	2	3,500	4
Surface Parking	1,062	625	663,750	Public	2,000	1	2,000	1
East Garage	1,250	625	781,250	Public/Emp.	6,750	3	15,500	6
Total Number of Parking Spaces					**10,500**		**21,000**	

Concept 2

	Footprint Data			Proposed Function	5 Million Enplanements		10 Million Enplanements	
	Dimensions		Area in SF		No. of spaces	No. of Levels	No. of spaces	No. of Levels
Area within Loop Road	2,750	625	1,718,750					
West Garage	875	625	546,875	Rental Car/ Public/Emp	6,500	5	6,500	5
Transit Center	500	500	250,000	n/a	0	n/a	n/a	n/a
Surface Parking*	1,875	625	1,171,875	Public	4,000	1	1,500	1
East Garage	n/a	n/a	n/a	Public/Emp.	n/a	n/a	13,000	7
Total Number of Parking Spaces					**10,500**		**21,000**	

* Surface Parking reduces to 438,798 sf for the 10 mil. enp phase, so the East Garage can be located on the site.

Concept 3

	Footprint Data			Proposed Function	5 Million Enplanements		10 Million Enplanements	
	Dimensions		Area in SF		No. of spaces	No. of Levels	No. of spaces	No. of Levels
Area within Loop Road	3,000	625	1,875,000					
Transit Center	375	625	234,375	n/a	0	n/a	n/a	n/a
West Garage	n/a	n/a	n/a	Public	n/a	n/a	12,500	8
Surface Parking*	1,875	625	1,171,875	Public	4,000	1	2,000	1
East Garage	750	625	468,750	Rental Car/ Public/Emp	6,500	6	6,500	6
Total Number of Parking Spaces					**10,500**		**21,000**	

* Surface Parking reduces to 585,937 sf for the 10 mil. enp phase, so the West Garage can be located on the site.

7.4.2 Concept Consolidation

Because a large group of stakeholders originally developed the previously described concepts, an analysis comparing the outcome with the established program was necessary. The following elements were reviewed during this analysis:

Airfield

- There is a 450 foot distance between the Runway 12L-30R centerline and Taxiway C centerline, which meets FAA design criteria for Group V airports at an elevation greater than 1,345 feet but lower than 6,560 feet.
- The distance from the Taxiway C centerline to the Aircraft Parking Limit Line is 515 feet. A wing tip clearance analysis was performed on the proposed parallel taxiway system between Runway 12L-30R and the future terminal development area to validate the 515 foot distance. By combining the largest applicable wingtip clearance for airplane group and taxiway/lane design standards with the airplane width, or Taxiway Safety Area width, separation standards can be derived. The concept was to maintain airfield design standards for Group V aircraft near Runway 12L-30R to meet current airfield design criteria, then incrementally reduce the design group separation standards to Group IV and Group III closer to the terminal building. The taxiway design standards that were applied in the analysis includes the following:

    - Taxiway C - Group V taxiway between Runway 12L-30R and parallel Group IV taxiway
        - 75 feet wide
        - Group V taxiway wingtip clearance = 53 feet
        - Group V airplane = 214 feet wide
        - Group IV airplane = 171 feet wide
        - Separation = (214 / 2) + 53 + (171 / 2) = 245.5 feet

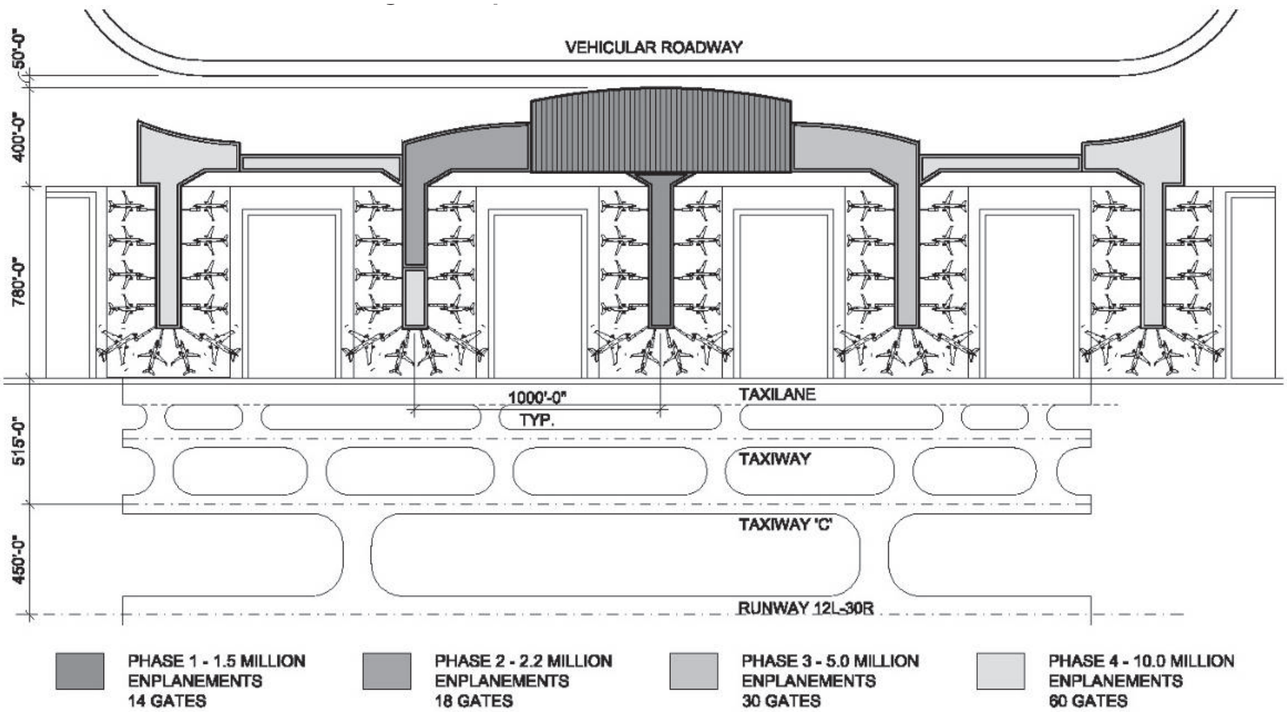
    - Group IV Parallel Taxiway & Group III Taxilane
        - Group IV parallel taxiway = 75 feet wide
        - Group III parallel taxilane = 50 feet wide
        - Group IV taxiway wingtip clearance = 44 feet
        - Group IV airplane = 171 feet wide
        - Group III airplane = 118 feet wide
        - Separation = (171 / 2) + 44 + (118 / 2) = 188.5 feet

    - Group III Taxilane & Apron Edge:
        - Group III parallel taxilane = 50 feet wide
        - Group III Separation = 81 feet
        - Finally, distance from centerline of Parallel Taxiway C (closest to the runway) to the apron edge is: 245.5 + 188.5 + 81 = 515 feet

- This is adequate for the addition of one taxiway, one taxilane and one 24’ wide service road.
- All concepts have approximately 1,000 feet from the Aircraft Parking Limit Line to the face of the main terminal. The concourses’ varying lengths offer flexibility in their future design. For example, with 737-700 aircraft, an eight gate concourse could be 280’, a 10 gate concourse 500’, and a 12 gate concourse 620’ in building length. Using the 12 gate example, the 620 foot concourse along with 160’ of aircraft parking requires a total of 940’; well within the 1,000 feet reserved for (12) 737 aircraft on each concourse. Larger aircraft, such as 767 aircraft, may be accommodated on the ends.

- The separation between concourse centerline to concourse centerline is approximately 1,000 feet. This is acceptable to accommodate mostly group 3 aircraft, such as 737s, between concourses (reference Exhibit 7-13).

Exhibit 7-13: Terminal Building Concept Consolidation



Terminal

- The footprint is approximately 375,000 sf. Assuming two levels, the overall terminal shown is 800,000 sf, which is acceptable for the 5 million enplanement level.
- The pier concourse form provides maximum compact plane parking. As shown on these schemes, space is adequate for 50 to 60 gates, depending on the aircraft mix.
- The main terminal processor depth shown is approximately 250 feet. The depth of the central passenger processing core should be validated in the study's next stage. Additional depth, if warranted, will afford more flexibility with program elements, such as Security Screening Checkpoint, Explosive Detection Systems (EDS), and Baggage Claim. Additional building square footage will increase the cost of development, but may be required to function efficiently.
- A dimension of approximately 1,250' is indicated from Aircraft Parking Limit Line to the edge of vehicular curb.

Parking Layout

- After the 3 concepts were developed, it was recommended that the garage levels be limited to 4, due to cost and feasibility. Subsequent stages of the this study will limit the garage levels.
- The 3 concepts assumed approximately 350 sf per parking space.
- This study uses the parking counts developed in the 2009 Airport Master Plan. In the short term (West Terminal) the actual parking required with the current passenger service activity is higher than the master plan. We understand that the actual parking spaces are based upon a study by Carl Walker Associates, in lieu of the master plan. A parking study based on Gateway's parameters is recommended for any future East Terminal development.
- We assume the final design will be a mix of multi-level Garage and Surface parking. The requirement of area increases due to less efficiency for garages. For example if all parking for the public and employees at 5 million enplanements is surface parking then about 2.5 million square feet would be required. However, if this parking was accommodated in a 3 level garage, 3 million square feet would be necessary. (The footprint is 1 million square feet per level).

7.5 Preferred Development Alternative

As the alternatives development processed advanced through the execution of the study work tasks, input was received from the Airport Authority staff, the City of Mesa, and key stakeholders involved in the previous April and June presentations. As a result of the combined merits of the "illustrative" Concepts 1 and 3, Concept 3, with elements of Concept 1, was advanced as a "Preferred" development alternative, to be carried forward into further detailing and analysis. This development alternative was considered to reflect the aeronautical flexibility that the Airport requires to set the stage for long term growth, while also creating a commercial development campus that was centered about an axial circulation mall that aligned with the terminal complex. The concept also achieved diverse access to/from the Airport and the commercial campus via the regional highway network as well as the local arterial streets (i.e., Ray Road and Ellsworth Road). This new "preferred" concept was further detailed with more exacting standards and recompiled into a CADD (computer-aided drafting and design) platform to better assess infrastructure layout, land area sizes, easement areas, and design criteria for the aeronautical components.

Exhibit 7-14 presents this new "Preferred" Development Alternative, which better illustrates the airside geometries, the terminal complex, parking facilities, roadway network and commercial campus components. Additionally to add more definition to the commercial campus, the estimated land use types, and estimated parcel sizes, Exhibit 7-15 presents a subsequent revision of the commercial campus land uses and estimates the development square footage available for each land use.

7.5.1 Description of Alternative

Transportation Network

The preferred alternative is predominately based on Concept 3 with the addition of a central circulation element from Concept 1, and is illustrated in Exhibit 7-14. The roadway network has been improved to provide two access points along each of the City's arterial system (i.e. on Ray Road and Ellsworth Road). The current Ray Road/Hawes Road intersection will remain at the current location and the extension of Hawes Road to the south will be the main entrance to the site from the north. The connection from Ray Road to the internal circulation roadway will be moved westward from the SR-24 right-of-way to accommodate adequate parcel width south of Ray Road. The first site access roadway south of the SR-24/Ellsworth Road interchange matches the existing Ellsworth Channel crossing location. This refined roadway system will provide the access and circulation envisioned for the project site.

Aeronautical Uses

During initial development of the Schematic layouts, an area in the northwest portion of the overall site was identified as a potential development area for aeronautical facilities. Upon further investigation, the prevailing drainage patterns flow through the area where aeronautical facilities would be located. As a result, it was determined that the area in the northwest corner of the overall site would be better suited as a retention basin, and as such was reflected in the preferred development alternative.

The development alternatives for aeronautical uses are the same for Concepts 1, 2 and 3. These facilities include the following development items:

- Belly Cargo Facility, which includes a 55,000 square foot building with secure airside access on one side for small ramp tugs and associated carts to transport cargo from the commercial aircraft and public access on the other side of the building for truck traffic
- Central Receiving Facility, a 40,000 square foot building which will serve as the single point of delivery for all concessions in the terminal area
- Aviation Fuel Farm 1,000,000 gallon capacity with flexibility to be expanded to meet future demand as needed

Terminal

The terminal design in the preferred alternative is very similar in the three illustrative concepts. The program required for a five million enplanement level is represented with a three concourse pier configuration. The ten million enplanement level is represented in dashed lines with two additional concourses and an expansion to another concourse. The assumptions from the illustrative concept stage, including the two level building, two level roadway, aircraft parking and overall program area are still valid.

The central location of the terminal complex from Concept 3 was preferred and implemented in the alternative. Along with the benefit of equal distance from both ends of the runways, another advantage was the additional length provided for the access roadway from Ray Road. This extra distance was viewed as beneficial when engineering roadway ramps to departure curb that access the upper level of the terminal.

The main terminal processor has been adjusted in building depth to approximately 400 feet as recommended during the review process. The additional depth will allow greater flexibility in the future design for spaces such as the Security Screening Checkpoint, Explosive Detection Systems (EDS) and Baggage Claim. Because the security requirements for a time frame twenty years from now are unknown, it is prudent to preserve adequate space for the terminal processor with this study. With the additional depth of the terminal processor the loop road has been adjusted to the northeast.

The curb frontage requirement according to the Airport Master Plan for the 5 million enplanement level is 1,661 linear feet for the departure curb and 1,939 linear for the arrival curb. These curb lengths are accommodated with the preferred alternative design. For the 10 million enplanement level these lengths are assumed to be doubled for purposes of this study, as the Master Plan does not address this enplanement level. These curb lengths will become challenging with a single sided terminal building, therefore with more detailed designs, a second curb for functions such as taxi and shuttle would be recommended. This would help limit the long walking distance for passengers along the curb.

Exhibit 7-14: Preferred Development Alternative

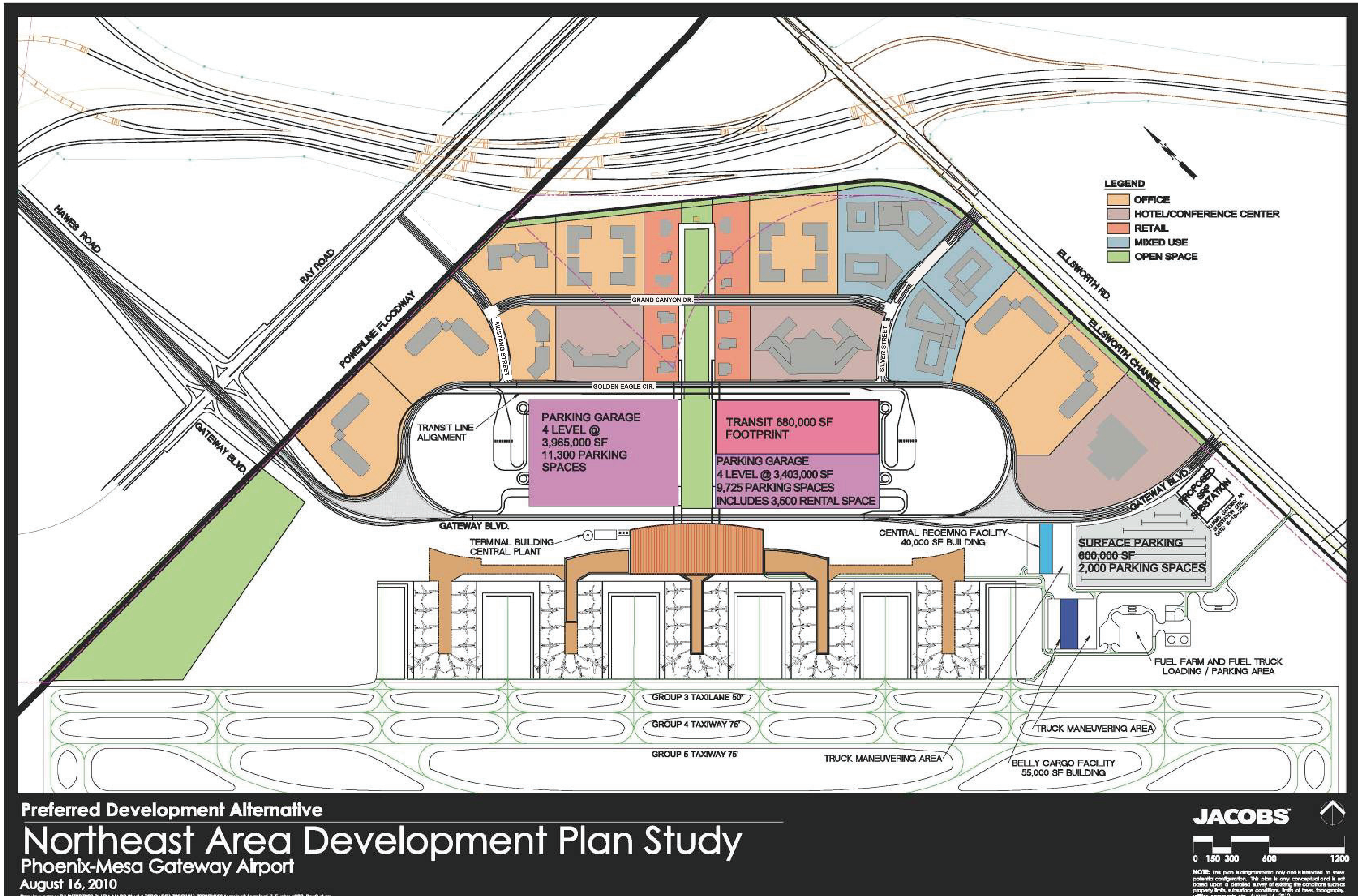


Exhibit 7-15: Conceptual Land Use Plan

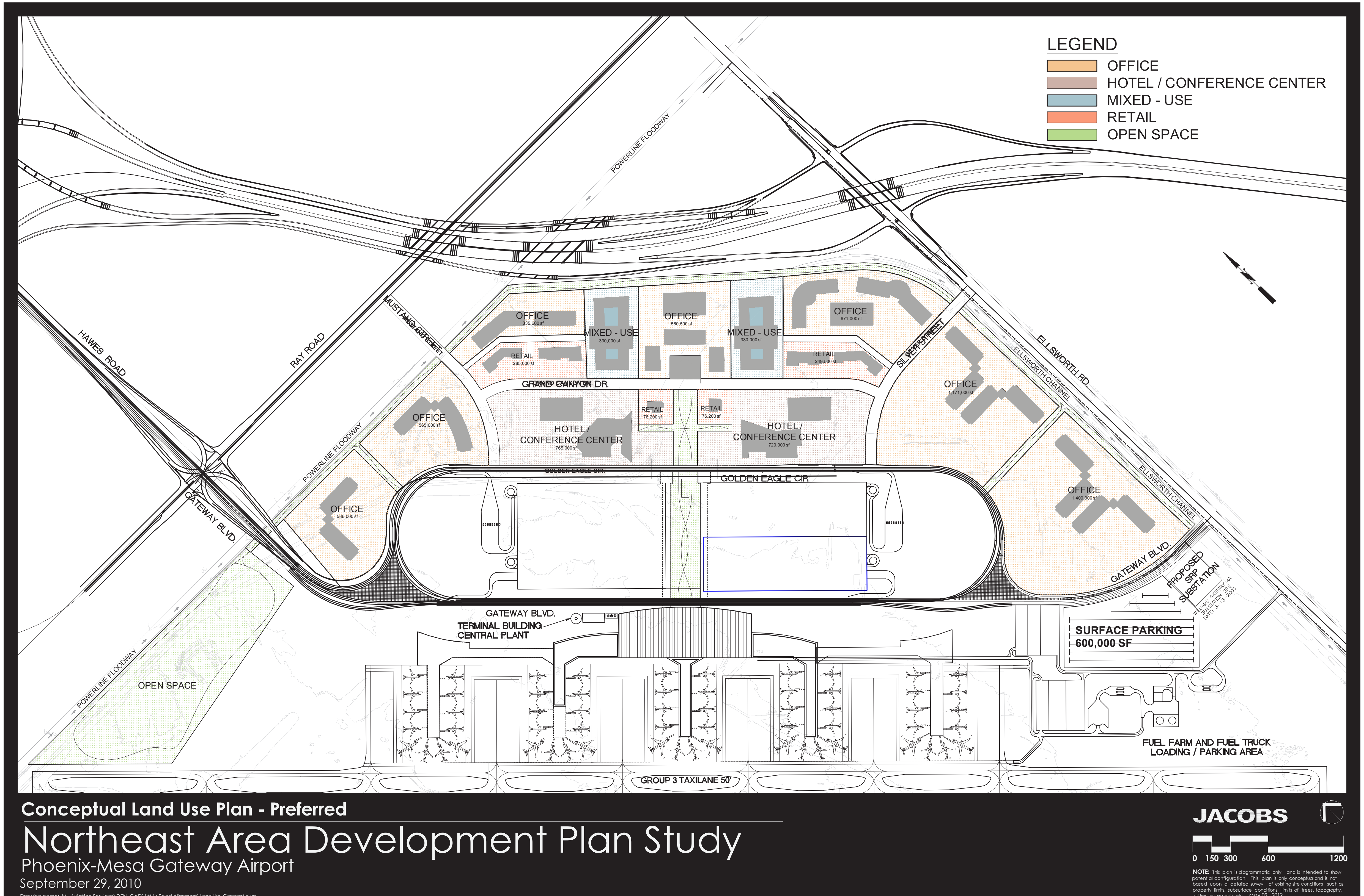


Table 7-3: Phased Automobile Parking Requirements

NORTHEAST AREA DEVELOPMENT PLAN STUDY
Parking Area Calculation (Based on the Airport Master Plan*)

	Number of Enplanements			
	1.5 million	2.2 million	5 million	10 million
PATRON & EMPLOYEE PARKING				
Patron Parking*	2,250.00	3,300.00	7,500.00	15,000.00
Employee Parking*	375.00	550.00	1,250.00	2,500.00
Total No. of Cars	2,625.00	3,850.00	8,750.00	17,500.00
Area per Space**	440.00	440.00	440.00	440.00
TOTAL AREA	**1,155,000.00**	**1,694,000.00**	**3,850,000.00**	**7,700,000.00**
TOTAL ACRES	**26.5**	**38.9**	**88.4**	**176.8**
RENTAL CAR PARKING				
Total No. of cars*	525.00	770.00	1,750.00	3,500.00
Area per Space	540.00	540.00	540.00	540.00
TOTAL AREA	**283,500.00**	**415,800.00**	**945,000.00**	**1,890,000.00**
TOTAL ACRES	**6.5**	**9.5**	**21.7**	**43.4**
GRAND TOTAL NO. OF CARS	**3,150.00**	**4,620.00**	**10,500.00**	**21,000.00**
GRAND TOTAL AREA	**1,438,500.00**	**2,109,800.00**	**4,795,000.00**	**9,590,000.00**
GRAND TOTAL ACRES	**33.0**	**48.4**	**110.1**	**220.2**

* See Phoenix-Mesa Gateway Airport Master Plan 2009, page 3-39: Public parking 150 spaces per 100,000 enplanements / employee 25 per 100,000 enp / Rental Car 35 per 100,000 enp

** Area per Space is based on a 3 level garage. It is assumed that this project will consist of surface parking up to a 5 level garage.

Parking

With the development of the alternative, a refined parking program was developed and is presented in the table shown in Table 7-3. The parking is categorized into Patron & Employee parking and Rental Car Parking, due to the area per space requirement of 440 sf and 540 sf, respectively. With the refinement of the program and the recommendation that garages be limited to 4 levels, the parking is better defined in the preferred alternative.

At the five million enplanement level there are four surface lots totaling 5,600 Patron spaces and a 3 level garage. The garage will accommodate 3,150 additional Patron/Employee spaces and 1,750 Rental Car Spaces.

At the ten million enplanement level, two of the surface lots remain totaling 2,000 Patron spaces. The 3 level garage is expanded to a 4 level garage for 3,750 Patron/Employee spaces and 3,500 Rental Car spaces. Two additional garage are constructed; a 4 level, 9,050 space garage and a 2 level, 2,700 spaces garage.

7.5.2 Alternative Refinement

7.5.2.1 Aeronautical Demand Triggers

It is anticipated that the airport terminal will be constructed in phases depending on demand realized over the next 20 years and beyond. With this study, four demand levels of annual enplanements have been established in the program: 1.5 million, 2.2 million, 5 million and 10 million. The preliminary enplanement level of 1.5 million is directly related to the capacity of the West Terminal with the current building expected to maximize at about 850,000 enplanements. (See previous Section 5 for additional information on planning horizons.)

With the preliminary enplanement level of 1.5 million passengers, the program requires the first phase to be a portion of the main terminal processor and one concourse, approximately 300,000 square feet. The first phase may actually be larger than the program requires since all of the basic functions need to be established. These areas would need to accommodate growth to future phases and allow flexibility. The following diagrams (reference Exhibit 7-16 and Exhibit 7-17) represent potential phasing of the terminal and parking expansions for the 5 and 10 million enplanement levels. The terminal phases, graphically represented by color, correspond to the program.

Exhibit 7-16: Terminal Development 5 Million Annual Passengers

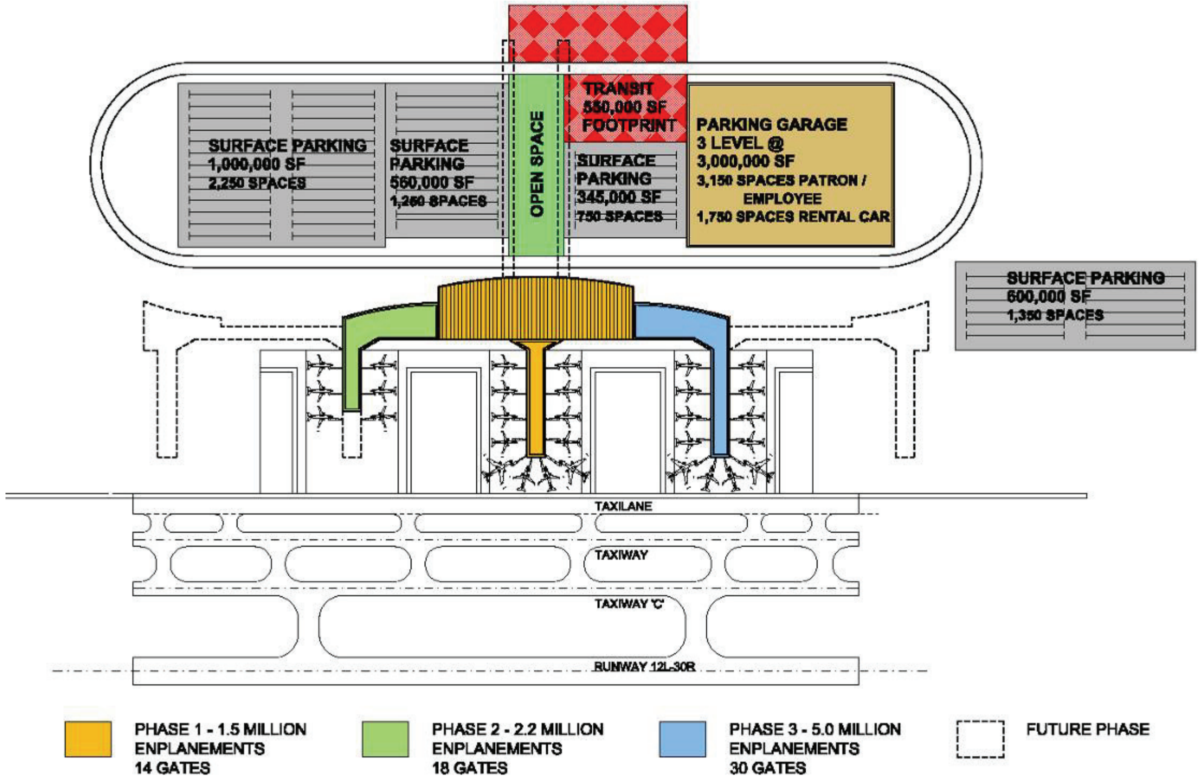
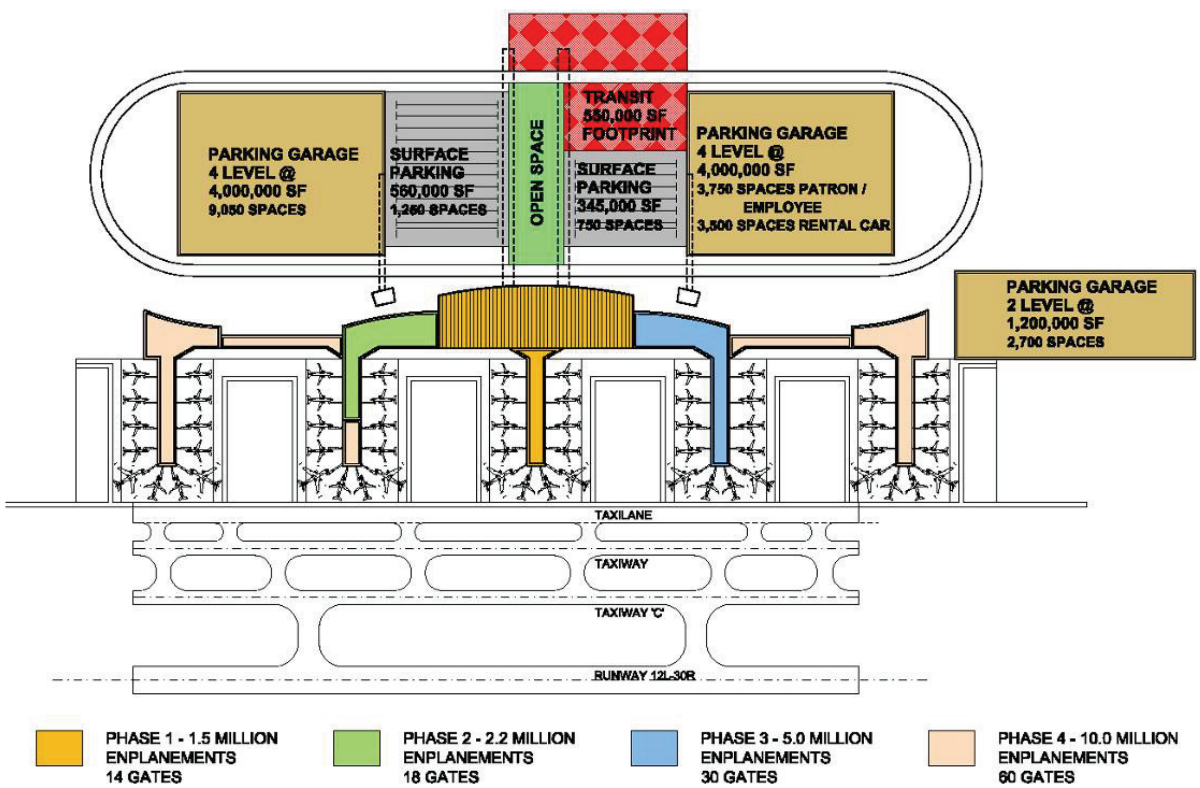


Exhibit 7-17: Terminal Development 10 Million Annual Passengers



7.5.2.2 Critical Infrastructure Elements

Surrounding Roadway Network

Numerous roadway improvements are planned to accommodate the growth in this fast-growing region and are included in the MAG Regional Transportation Plan (RTP) and the City of Mesa's Capital Improvement Plan (CIP).

The major roadways that currently border the study area include Ray Road, Hawes Road, Williams Field Road, Ellsworth Road and L202 Santan Freeway and SR-24 Gateway Freeway. These roadways will be part of the critical infrastructure needed to feed the Airport, its commercial development areas, and the surrounding development.

The L202 Santan Freeway provides regional access to the Airport with a traffic interchange (TI) located at Hawes Road which provides access to the site from the north. This TI ramp intersection was built with the L202 Santan Freeway project. The segment of L202 Santan Freeway adjacent to the study area has seven (7) travel lanes: three (3) northbound travel lanes and four (4) southbound travel lanes.

The SR-24 Gateway Freeway provides regional access to the study area with proposed TIs located at Ellsworth Road and Williams Field Road that will feed the site. The Ellsworth Road interchange will provide some relief to the Hawes Road interchange on the L202 Santan Freeway and the Williams Field Road TI will provide access to the site from southeast Maricopa County and northern Pinal County. The first segment of the SR-24 Gateway Freeway to be constructed will be from the L202 Santan Freeway to Ellsworth Road. This segment is currently scheduled for construction beginning in early 2012 and completion in 2014. The segment from Ellsworth Road to the east and the Williams Field Road TI is not currently programmed by ADOT. The segment of the SR-24 Gateway Freeway from the L202 Santan Freeway to Williams Field Road will have six (6) travel lanes: three (3) northbound travel lanes and three (3) southbound travel lanes

Ray Road is an east-west roadway between Sossaman Road and Ellsworth Road and is part of the City of Mesa's CIP program. This new section of Ray Road has one (1) travel lane in each direction with new traffic signals at the intersections of Ray Road with Sossaman Road and Ellsworth Road. The ultimate configuration for this road will be the City's six-lane arterial street in accordance with Mesa's Transportation Improvement Program.

Ellsworth Road borders the development to the east and is a north-south arterial. The roadway has recently been constructed to provide two (2) lanes in each direction with a raised center median and a bike lane on the eastern side of the road. The ultimate configuration for this road will be the City's six-lane arterial street in accordance with Mesa's Transportation Improvement Program. The jurisdiction of the east side of Ellsworth Road belongs to Maricopa County.

Hawes Road is recently completed from Ray Road to the L202 Santan Freeway TI. This new section of Hawes Road has one (1) travel lane in each direction and will have new traffic signals at the intersections of Ray Road. It is currently stop controlled. The ultimate configuration for Hawes Road and Ray Road will be the City's six-lane arterial street in accordance with Mesa's Transportation Improvement Program.

The proposed intersection configuration with Ray Road will be an arterial to arterial configuration during the initial phases of the airport development. This configuration will be adequate for the 5 million enplanement level, approximate 2030 timeframe, but is proposed to be an urban diamond configuration to handle the full site build-out scenario as the Airport traffic grows beyond 5 million annual enplanements.

On-Airport Roadway Network

The new critical infrastructure that is needed for the success of the Airport and the surrounding development is as follows and was validated by the traffic modeling and analysis.

The Hawes Road extension, south of Ray Road, is labeled Gateway Boulevard, and enters the airport property as the main access to the Airport from the north. South of the Gateway Boulevard/Ray Road intersection the roadway crosses the Flood Control District's Powerline Floodway and enters the site as an arterial street. As the street approaches the airport proper the street splits into a one-way configuration with the southbound traffic becoming the access to the terminal for arrivals and departures and the northbound is the airport return to the north and the northern exit from the site.

As the southbound Gateway Boulevard roadway approaches the terminal the two inside lanes will be utilized for the airport arrivals on the ground level of the two-story terminal. The airport departure traffic will utilize the outside third lane. This lane will be complimented with an additional lane as the roadway elevates and approaches the terminal building. These roadways from the north will be joined by the arrival and departure traffic from the east and south that have entered the site from Ellsworth Road, Williams Field Road or the internal site traffic wishing to utilize the airport services. The two level roadways in front of the terminal will each have four (4) lanes. South of the terminal these lanes will split with four (4) lanes (two from the arrival and two from the departure) continuing south toward the new Williams Field Road intersection and four (4) lanes (two from the arrival and two from the departure) returning to the north to complete the one-way circulation of the airport roadway. The four lanes from the terminal will join with the incoming three lanes of traffic from the realigned Williams Field Road/ Ellsworth Road intersection and proceed south thus completing Gateway Boulevard within the development area.

As the southbound Gateway Boulevard roadway departs the terminal and joins northbound Gateway Boulevard from the Williams Field Road intersection the street will be designated Golden Eagle Circle. The transition from each of the two terminal arrival and departure lanes will be transitioned to one lane each and join the two transitioned northbound lanes of Gateway Boulevard from Williams Field Road. Golden Eagle Circle will have four (4) one-way northbound lanes until the intersection of Silver Street. At the intersection of Silver Street an additional right turn lane will be added for dual right turn lanes eastbound on Silver Street. Three through lanes on Golden Eagle Circle will continue north with an add lane north of Silver Street will produce a total of four (4) lanes between Silver Street and Mustang Street. An additional eastbound right turn lane will be added at the intersection of Golden Eagle Circle and Mustang Street. Golden Eagle Circle from this intersection will continue north with four lanes. As Golden Eagle Circle approaches the departure to the terminal the inside lane will be dedicated to the Airport for the airport arrival at-grade and elevated departure area. Three through lanes on Golden Eagle Circle will continue north for the continuation of Gateway Boulevard north to the Ray Road intersection.

Silver Street is an internal site arterial street that extends from Ellsworth Road to Golden Eagle Circle. The arterial is one of the access points for the development on the site, with the other being Mustang Street. From the intersection of Ellsworth Road the six-lane arterial proceeds west to the main street of the development at Grand Canyon Drive. The focus of this intersection is to provide access to the commercial development along Grand Canyon Drive with secondary access to Golden Eagle Circle and the airport terminal, airport parking and the transit center. The street from Ellsworth Road to Grand Canyon Drive will be the City's six-lane arterial section. The intersection of Grand Canyon Drive will have two through lanes and will continue west to Golden Eagle Circle and the outside through lane and right turn will be needed to accommodate the main movement to the commercial area. Silver Street from Grand Canyon Drive to Golden Eagle Circle will have the two through lanes from the east and be merged with an exclusive lane from southbound Grand Canyon Drive to provide two westbound lanes. These two lanes on Silver Street will become free right turn lanes at the intersection of Golden Eagle Circle and Silver Street. The south approach to the Golden Eagle Circle and Silver Street will have two free right turn lanes proceeding east on Silver Street. Golden Eagle Circle will have three through lanes proceeding north on Golden Eagle Circle and the two free right turns from Silver Street will merge and become the fourth lane on Golden Eagle Circle to the north.

Grand Canyon Drive is an internal site arterial street that extends from Silver Street to Mustang Street. The arterial is the main thoroughfare for the commercial development on the site with minor access along Golden Eagle Circle. From the intersection of Silver Street the six-lane arterial proceeds north to the other main street of the on-site development at Mustang Street. The focus of Grand Canyon Drive is to provide access to the retail, hotel, office and employment along the corridor. The intersection with Mustang Street provides circulation to and from Ray Road and access to the arrivals at the Airport. Passengers leaving from this area will access Golden Eagle Circle from internal collector roadways and utilize the inside lane of Golden Eagle Circle to access the second level departure area at the Airport. The proposed T-intersection at Mustang Street may also provide an entrance for the retail and hotel developments to the area south of the Powerline Floodway.

Mustang Street is an internal site arterial street that extends from Ray Road to Golden Eagle Circle. The arterial is the one of the two accesses for the development on the site, the other previously described being Silver Street. From the intersection of Ray Road the arterial proceeds south and west to the main street of the on-site commercial development at Grand Canyon Drive. The focus of this intersection is to provide access to the commercial development along Grand Canyon Drive with secondary access to Golden Eagle Circle and the airport terminal and airport parking. The street from Ray Road to Grand Canyon Drive will be a major collector street. At the intersection of Grand Canyon Drive two through lanes will continue west to Golden Eagle Circle. A dual left turn lane will accommodate the main movement to the commercial area. The continuation of Mustang Street roadway from Grand Canyon Drive to Golden Eagle Circle will have the two through lanes westbound. The intersection will be identical to that of the intersection at Golden Eagle Circle and Silver Street. The Mustang Street roadway eastbound from Golden Eagle Circle will have two lanes and will be widened for an exclusive right turn lane to provide right turns to Grand Canyon Drive.

7.5.2.3 Site Utilities – Airport Area

This section provides a preliminary utility plan for the proposed Phoenix-Mesa Gateway Airport Northeast Area Development Plan (NADP) study. Existing and proposed utility improvements in the surrounding area have been researched and reviewed, and a preferred land use concept, referred to as "Concept #3", was identified (reference Exhibit 7-15). Based on available and relevant information, and the requirements of the development stakeholders, a preliminary utility plan has been developed.

The NADP contains approximately 663 acres (+/-) and the land use categories developed will be used to calculate preliminary demands for the various utilities. Land uses for Concept #3 are as follows:

- Open Space/Green Space: 38 acres
- Office: 81 acres
- Retail/Hotel: 171 acres
- Airport: 320 acres
- Northeast Right-of-Way (ROW): 53 acres

This preliminary summary includes proposed municipal utility services and features to provide infrastructure systems for: water distribution, wastewater collection, design for drainage collection and conveyance, electric service, gas service, and communications (telephone, cable & fiber optic).

Water

The City of Mesa Capital Improvement Program (CIP) was reviewed, along with the 2004 Water Master Plan (with 2008 Program Update) and the DMB Mesa Proving Grounds Final Water Master Report in order to determine the potential "tie-in" locations for the proposed water distribution system as well to estimate sizes of the infrastructure water lines. The City of Mesa 2009 Engineering & Design Standards were utilized in order to estimate the preliminary demands for this site.

A 20" water line is currently being constructed along Ray Road from Ellsworth Road to Hawes Road. A pressure reducing valve (PRV) is proposed along this alignment near the SR-24 Gateway Freeway alignment to connect the Falcon Field Pressure Zone system with the Desert Wells Zone system to the east. A 24" water line is under construction from Hawes Road west to Sossaman Road, where it connects to a 24" line which continues to the west to Power Road. There is an existing 16" line at this location which runs south to the existing Airport.

A 20" water line is proposed along the Ellsworth Road alignment, within the Falcon Field Pressure Zone, from the 20" line along Ray Road into an existing 20" water line along Ellsworth Road which currently ends at Pecos Road at PRV 28. Per the City of Mesa CIP, a 24" water line will run to the east along Pecos Road alignment to well sites and the Falcon Field Pump Station.

The preliminary water demands for the NADP are shown in Exhibit 7-18, Preliminary Water Demands. These demands were based upon The Central Arizona Project Canal usages in Table 7-4 from the City of Mesa Engineering & Design Standards. It is assumed that the open space area will be irrigated by potable water and the northeast ROW located north of the SR-24 Gateway Freeway will not be part of this system. Also, the airport demand was based off an industrial land use. The values calculated herein are an engineering estimate and should not be used to create plans. These water demand values should be updated as any land use designations and area parameters are updated. Additional analyses should be performed at that time.

Table 7-4: Preliminary Water Demands

Land Use Category	Area (acres)	Avg. Daily Use (gallons/acre) (by land use)	Avg. Projected Demand (MGD)	Peaking Factor Falcon Field Pressure Zone	Max. Projected Demand (MGD)
Open Space	38	4400	0.17	1.45	0.24
Office	81	1700	0.14	1.45	0.20
Retail/Hotel	171	1700	0.29	1.45	0.42
Airport	320	1200	0.38	1.45	0.56
Northeast ROW	53	0	0.00	1.45	0.00
Total NADP Area:	**663**	**Total Avg.:**	**0.98**	**Total Peak:**	**1.42**

The preliminary water utility plan for the NADP has been based on the existing and proposed infrastructure surrounding the site, as well as the City of Mesa Engineering & Design Standards. It is proposed to have a 16" water line loop in Gateway Boulevard which will connect to the 24" water line in Ray Road and also to the 20" water line in Ellsworth Road. The remaining infrastructure loop is proposed to be a 12" water line which will also connect to the Ray Road water line and the Ellsworth Road water line. Water lines within the system will be a minimum of 8" in size, with 6" lines only being used for fire hydrants and building connections. It should be noted that these sizes are estimates based on typical water line sizes per the City of Mesa standards and a water model including fire flow analysis will determine final water line sizes. Also, depending on the timing of the offsite improvements as well as the phasing of the NADP, 16" and 12" water lines may be interchangeable for adequate water distribution. Fire flows will generally determine the final infrastructure sizing. See Exhibit 7-18, Preliminary Water Distribution Plan.

Wastewater

The City of Mesa Capital Improvement Program (CIP) was reviewed, along with the 2009 Wastewater Master Plan and the DMB Mesa Proving Grounds Master Wastewater Report (Revised May 7, 2010) in order to determine the potential "tie-in" locations for the proposed wastewater collection system as well to estimate the pipe sizes of the infrastructure for the site. The City of Mesa 2009 Engineering Design Standards was utilized in order to estimate the preliminary demands for this site and required pipe sizes.

The Greenfield Water Reclamation Plant serves the Phoenix-Mesa Gateway area and is located within the Town of Gilbert on the west side of Greenfield Road between Germann Road and Queen Creek Road. With the recent completion of the GWRP, the entire area south of Elliot, including the NADP is planned to flow southwest to the plant.

A new 30" and 27" sewer line is currently under construction in the new Ray Road alignment and will be the connection point for the entire NADP area.

The preliminary wastewater estimates are shown in Table 7-5. These were based upon Table 7-4 from the City of Mesa Engineering & Design Standards. It is assumed that the open space area will not generate wastewater and the northeast ROW located north of the SR-24 Gateway Freeway will not be part of this system. Also, the Airport demand was based off general industrial land use generation rates. The values calculated herein are an engineering estimate and should not be used to create plans. These water demand values should be updated as any land use designations and area parameters are updated. Additional analyses should be performed at that time.

Exhibit 7-18: Preliminary Water Distribution Plan

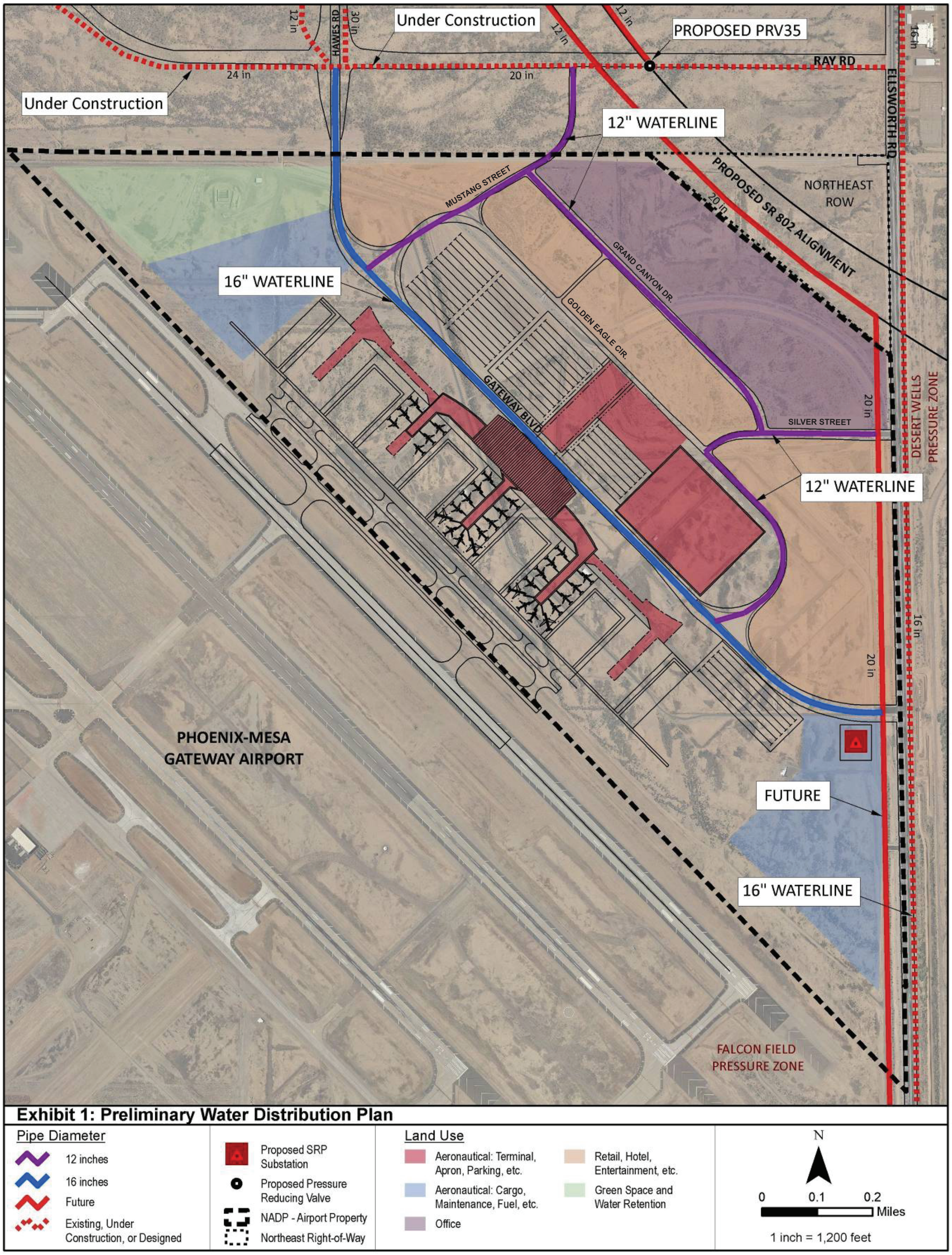


Table 7-5: Preliminary Water Collection Rates

Land Use Category	Area (acres)	Population Density	Population (employees)	Avg. Daily Use (gallons per employee-day)	Avg. Flow (MGD)	Peaking Factor	Peak Flow (MGD)
Open Space	38	n/a	n/a	n/a	n/a	n/a	n/a
Office	81	23	1863	54	0.10	3	0.30
Retail/Hotel	171	15	2565	54	0.14	3	0.42
Airport	320	15	4800	54	0.26	3	0.78
Northeast ROW	53	n/a	n/a	n/a	n/a	n/a	n/a
Total NADP Area:	**663**	**Tot. Pop.:**	**9228**	**Tot. Avg Flow:**	**0.50**	**Total Peak:**	**1.49**

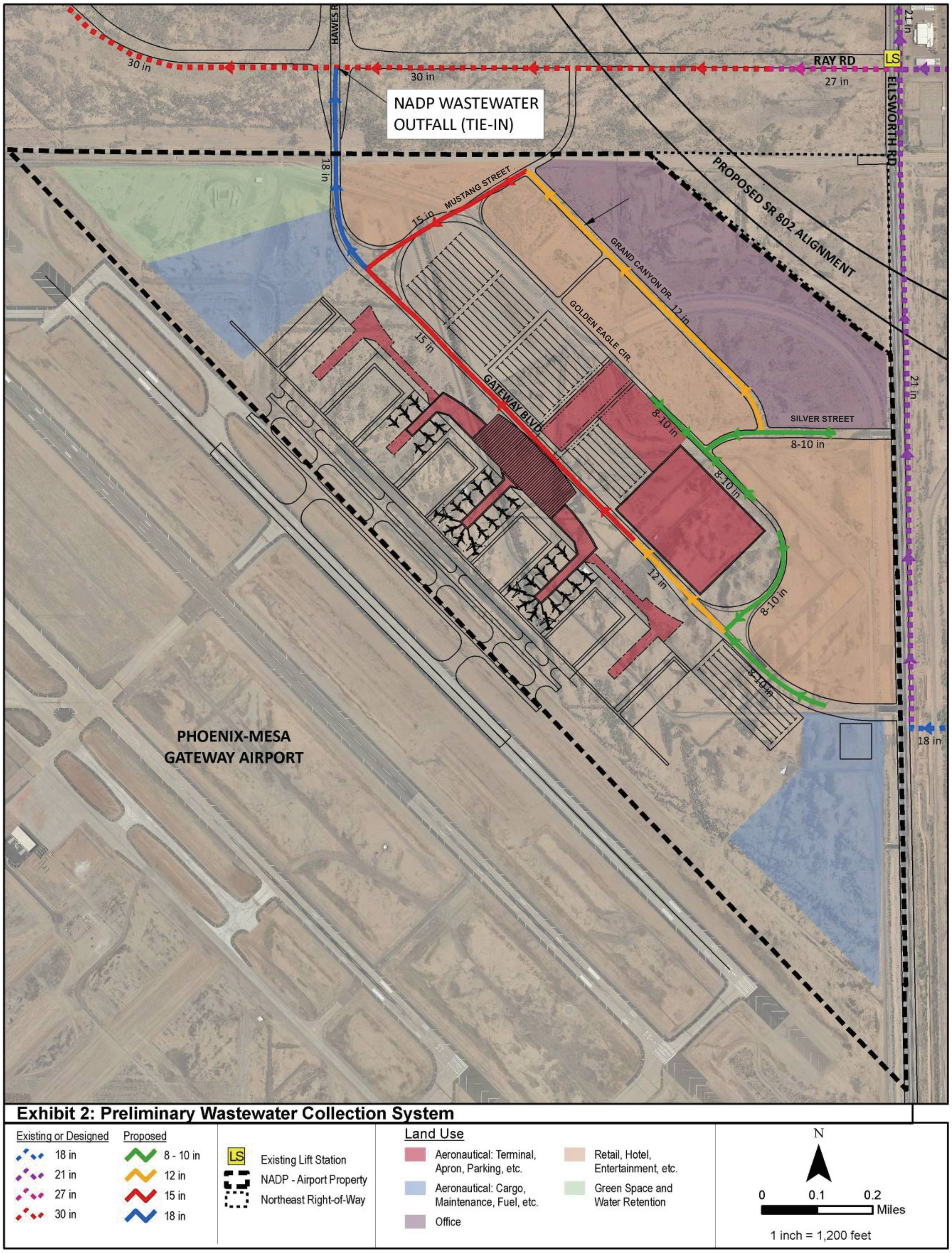
The preliminary wastewater collection plan for the NADP has been based on the existing and proposed infrastructure surrounding the site, as well as the City of Mesa Engineering & Design Standards. It is proposed to have an 18″ sewer main collect wastewater for the entire site and which will connect to the existing 30″ sewer line in the Ray Road alignment at Hawes Road. The remaining infrastructure shall be branches of 8″, 10″, 12″ and 15″ lines as necessary. Wastewater collection lines within the system shall be a minimum of 8″ in size. It should be noted that these sizes are estimates based on the general land use concepts at this preliminary point and a sewer model will be needed in the future studies to determine engineered sewer line sizes. See Table 7-6 for sewer line capacities based on minimum slopes as required by the City of Mesa.

Table 7-6: Sewer Line Capacities

Sewer Capacity @ Minimum Slope (Pipe flowing 2/3 full)							
8	10	12	15	18	21	24	Diameter
0.0028	0.0021	0.0016	0.0012	0.0010	0.0008	0.0007	Minimum Slope (ft/ft)
0.50	0.79	1.12	1.75	2.60	3.51	4.69	Q (cfs)
225	353	501	787	1,169	1,577	2,106	Q (gpm)
0.32	0.51	0.72	1.13	1.68	2.27	3.03	Q (MGPD)
0.25	0.39	0.56	0.87	1.25	1.70	2.22	A (Area of Flow)
1.27	1.59	1.91	2.39	2.87	3.34	3.82	P (Wetted Perimeter)
0.19	0.24	0.29	0.36	0.44	0.51	0.58	R (Hydraulic Radius)
0.013	0.013	0.013	0.013	0.013	0.013	0.013	n (Coefficient of Friction)

Also, depending on the timing and phasing of the development of the NADP, alternate sewer routing should be considered to minimize phased construction costs. The development should be coordinated with the City of Mesa and the surrounding developments, including the DMB Mesa Proving Grounds in order to assure that sewer line and wastewater treatment facility capacities are being met. See Exhibit 7-19.

Exhibit 7-19: Preliminary Wastewater Collection System



Drainage

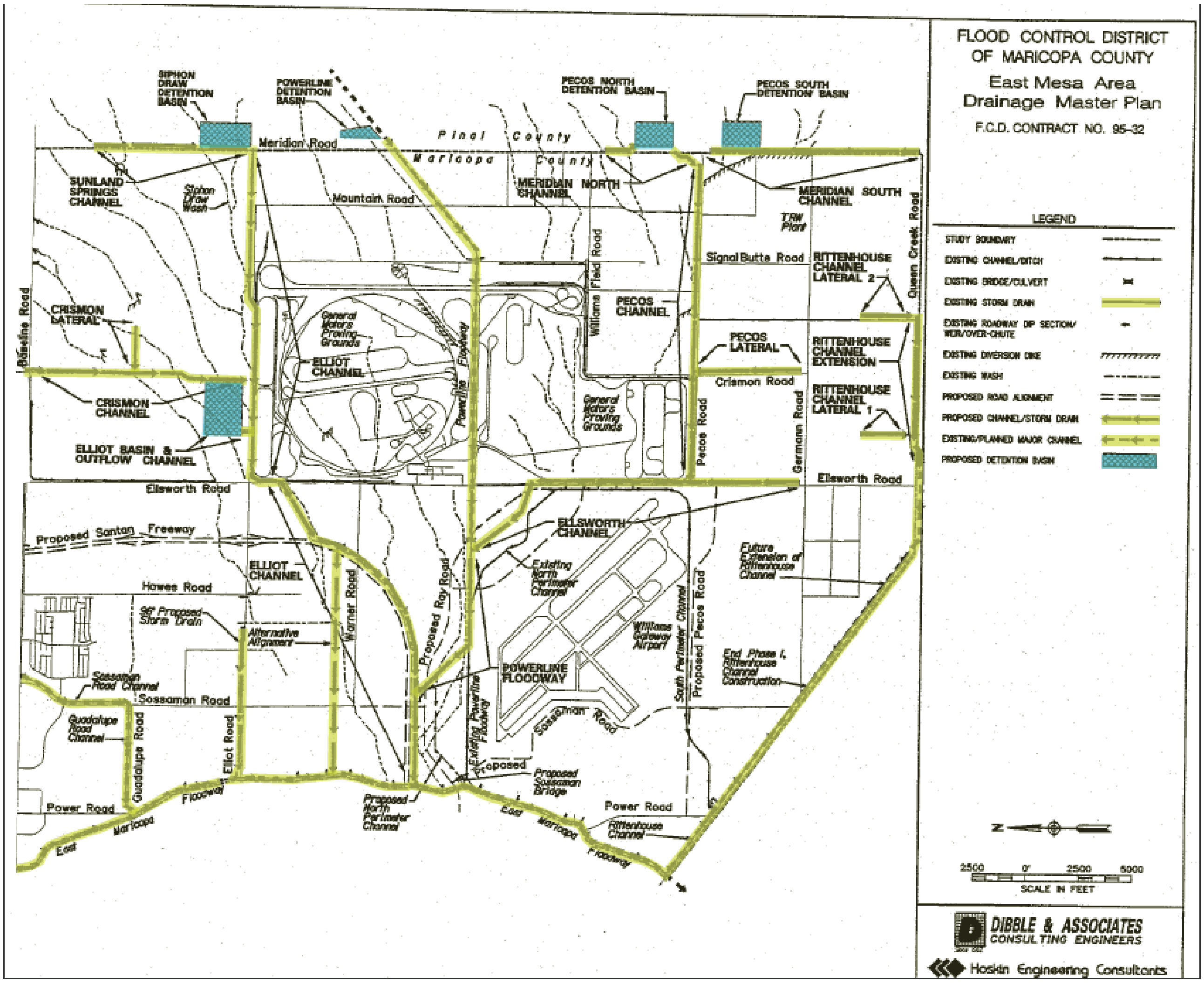
The City storm drainage in the study area has been addressed in the East Mesa Area Drainage Master Plan, 1998. This plan was prepared for the Flood Control District of Maricopa County (FCDMC), who partners with the City to address drainage and flood control issues.

Storm flows in the project area generally flow from northeast to southwest. The Superstition Freeway (US 60), CAP canal, East Maricopa Floodway, and Rittenhouse Channel form major drainage boundaries to the north, east, west, and south, respectively. Runoff is concentrated upstream of the CAP canal and discharged over the canal in over-chutes. The Superstition Freeway has a system of collector channels and detention basins that collect runoff and discharge the detained flows under the freeway. A system of channels and basins is used to capture, store, and convey flows within the project area. The Mesa Proving Grounds and the Phoenix-Mesa Gateway Airport occupy a substantial portion of the Mesa Gateway area and include significant drainage features. The Proving Grounds present a four-mile long barrier to runoff. Runoff reaching this area is diverted either around the north and south property boundaries, or through the site in the Powerline Floodway. The Phoenix-Mesa Gateway Airport handles off-site flows similarly; perimeter channels divert flows around the north and south boundaries to the East Maricopa Floodway. Sheet flow, ponding, and some flooding is still common in undeveloped portions of the study area, the result of the extremely flat topography.

Key drainage features are highlighted on the Drainage Features graphic accompanying this section, see Exhibit 7-20. Discussion of key features (existing and proposed) in the project area follows:

- Sossaman Road Channel: receives channelized flows from us 60 and conveys them south along Sossaman Road and west along Guadalupe Road to the east Maricopa floodway.
- Elliot Channel: receives flows from north and east and conveys them along Elliot road to the L202 Santan Freeway drainage system, thence west to the east Maricopa floodway.
- Powerline floodway: conveys flows from east of the mesa proving grounds, west along the Williams Field Road alignment to the east Maricopa floodway.
- Pecos Road/Ellsworth channels: flows west from the Pinal county line along Pecos Road, thence north along Ellsworth Road to the Powerline floodway (Phoenix-Mesa Gateway Airport north and south perimeter channels: convey flows from the east around the Airport and into the Powerline floodway and Rittenhouse channels, respectively).
- East Maricopa floodway: runs north-south along approximately the Power Road alignment, receives flows from the north and east including via the Sossaman Road,
- Elliot Road, Elliot channels, and the Powerline floodway and then conveys them to the Rittenhouse channel at the southwest corner of the project area.
- Rittenhouse channel: the major regional floodway in the area - runs northwest southeast along the extreme southwest corner of the mesa gateway area, receiving flows from the east Maricopa floodway and other smaller channels including Rittenhouse channel extension along Queen Creek Road at the study area southern boundary.
- Basins: are strategically located to moderate flows in several areas including along Elliot Road, siphon draw, and the extreme east end of the Pecos Road channel.

Exhibit 7-20: Drainage Features



Dry Utilities (Electric)

SRP is the certified provider for electric power to the planning area. SRP currently serves the planning area from five distribution substations. A proposed sub-station will serve the NADP site which will be located near the intersection of Ellsworth Road and Gateway Boulevard. Infrastructure will be built to meet the demands of full build-out. SRP typically works with developers and the city to adequately prepare for and coordinate anticipated electrical demand for projects such as the Mesa Proving Grounds and the Phoenix-Mesa Gateway Airport (PMGA) area. These future features are illustrated in Exhibit 7-21.

Dry Utilities (Natural Gas)

Southwest (SW) Gas is the natural gas provider for the majority of the Mesa Gateway area, including the NADP. Southwest Gas has installed extensive backbone infrastructure to serve the future development needs for the entire Phoenix-Mesa Gateway Airport, DMB Mesa Proving grounds and other surrounding future developments. Currently, there is a 10" high pressure gas line running north-south along Ellsworth Road for the entire boundary of the property line which will be the proposed supply line. These future features are illustrated in Exhibit 7-21.

In order to serve the NADP area, one tie in location should be adequate. A pressure reducing valve will be required to be installed along the existing 10" high pressure gas line in order to serve the development. The proposed reducing valve will be located near the intersection of Ellsworth Road and Williams Field Road. The site will likely be adequately served with a 6" low pressure plastic pipe, with of 2" to 4" laterals within the development. Gas lines which are 4" or less in size can be placed in joint trenches with other dry utilities. SRP will design this infrastructure based on final internal usages and needs. Internal airport service requirements will need to be coordinated in order to provide the proper gas line service.

With regard to future growth and development, SW Gas has the capability to accommodate future needs within the planning area without any interruptions to service.

Dry Utilities (Telephone, Cable & Fiber Optic)

The NADP is within close proximity of services provided by both Cox Communication and Qwest for coaxial cable, telephone and fiber optics. The City of Mesa can serve the Phoenix-Mesa Gateway site with the required cable & fiber optic communication lines. Both Qwest and Cox can potentially provide telephone, cable and fiber optics to the remainder of the future development.

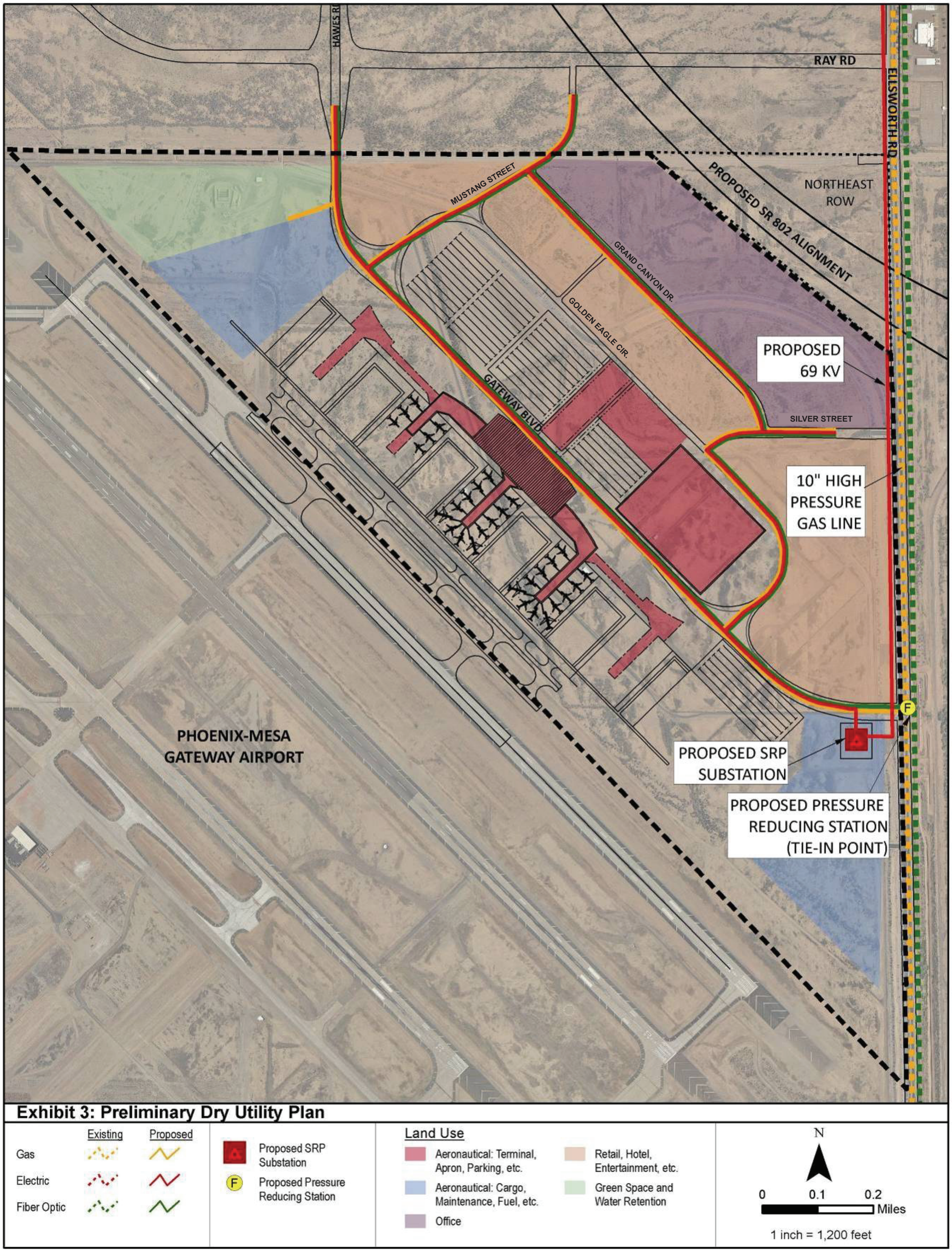
Mesa currently established a backbone of fiber optic conduit has been constructed to build a professionally engineered carrier class conduit/vault system for both commercial and government uses. The backbone loop contains a unique conduit bank design, large operational vaults at every major street crossing along the line, access manholes to eliminate the need to cut the street and independent test points for the utility locators to access without exposing the fiber infrastructure.

The backbone route of existing conduit consists of over 36-miles of 12 two-inch conduits with access points at every major street crossing. 100 percent of the conduit system is buried, lowering chances of network interruptions.

Although there is currently no fiber in place, the 12 conduits have been identified for the type of user to which they are available. As the City uses this infrastructure to meet municipal needs, private companies also can purchase conduits and access to vaults to deploy fiber optic connectivity quickly for commercial needs. The City offers this unique opportunity for commercial entities to acquire conduits at a cost that covers the City's expenses of installing the infrastructure.

The goal of the Loop is to further develop the broadband markets in three of Mesa's growing employment centers and to meet the City's needs. Conduit extensions (laterals) reach into the existing Phoenix-Mesa Gateway airport and are provided along Ellsworth Road with the goal of providing conduit to deploy fiber optic connectivity quickly for commercial needs, see Exhibit 7-21.

Exhibit 7-21: Preliminary Dry Utility Plan



7.6 Alternative Refinement

Following the selection and further detailing of the Preferred Concept, subsequent analysis and review of the concept was performed with the Airport Authority and the City of Mesa. Several iterations of refinement ensued to prepare an alternative suitable for developing a capital plan and testing its financial feasibility. The various refinements that took place, which are presented in the following subsections, involved: airfield adjustments to taxiway configurations and depth of stand for aircraft parking; subtle changes to the terminal and concourse footprints relative to the airfield and curb/parking areas; detailed analysis and refinements to roadway capacities, laneage, and intersection geometry; and orientation shifts for the multitude of support facilities (air cargo, fueling, aircraft maintenance, airport support functions, and vehicular parking placement). One of the key changes reflected in the revised concept was the treatment of Grand Canyon Drive, relative to its interaction with Mustang Street and Silver Street, and how these two streets feed the Airport. As shown in the revised concept, the desire was to ensure a strong linkage of Grand Canyon Drive with Ray Road to the west and Ellsworth Road to the east, in support of the commercial campus development, while hopefully minimizing the direct access from these arterials to the airport terminal roadway loop. As a result, a new "Refined" Development Alternative was generated and is illustrated in Exhibit 7-22.

This new "refined" alternative was carried forward in the study for final analysis and refinement and formed the basis for the recommendation of development. Continued analysis was necessary to verify that essential capacities were in place to satisfy both the 20-year demand as well as the ultimate demand, approximately 5 and 10 million annual enplanements, respectively. The "refined" alternative was advanced in the study process to further develop a multi-phase sequencing plan of project construction and capital investment over 20-year period. This phased investment plan is outlined in Section 8 of this study.

7.6.1 Airfield Modifications

Key adjustments to the airfield portion of the preferred concept were directly related to the taxiway system provided along the northeast section of the existing airfield. The early preferred concept reflected a dual parallel taxiway system adjacent to Runway 12L-30R, while also providing lateral separation for a third apron edge taxilane that could be either partial or full length to complement terminal apron operations and other aircraft movements potentially arising from other aviation uses along the runway. Based on a review of this assumption and the constrained landside relative to existing drainage features, two alternative configurations were considered along with their impacts.

The options relative to the taxiway configurations and terminal apron areas translate to an elimination of the apron edge taxilane. The preferred option will alter the island areas to make them fully usable paved apron area to provide maneuvering aircraft greater flexibility for power-in and pushback operations. In doing so, two scenarios develop, 1) provides more airfield to terminal depth allowing slightly more aircraft parking frontage, or 2) provides an ability to shift the entire terminal and landside complex toward the runways, thereby lessening the short-term impact on the Powerline Floodway. The impact operationally from eliminating this apron edge taxilane will be two-fold: there will be an operational capacity impact on taxiway flows during heavy pushback/ departure operations, and the Air Traffic Control Tower (ATCT) will need to execute full control over movements on this pavement, thereby increasing their workload. Both of these items were viewed as being negligible by the owner in the next 20+ years of operations.

Remaining items to be considered during the refinement phase which have a direct impact on implementation, include:

- All taxiway systems will include medium intensity taxiway lighting, required signage and standard paint markings
- All sections of pavement (including apron areas) will match existing Portland cement concrete section shown for Taxiway C
    - P-501 PCCP - 17”
    - P-304 CTB - 8”
    - P-209 Agg. base - 6”
    - P-152 subbase - 12”

- For the commercial apron areas under the concourse and bridge walkways, the same basic section will be utilized, except reduce the PCCP thickness to 10”
- Total concrete apron measures approximately 131,900 square yards of pavement at 17” PCCP and 13,200 square yards of pavement at 10” PCCP
- All commercial apron areas will include required paint markings, and all site grading and drainage infrastructure

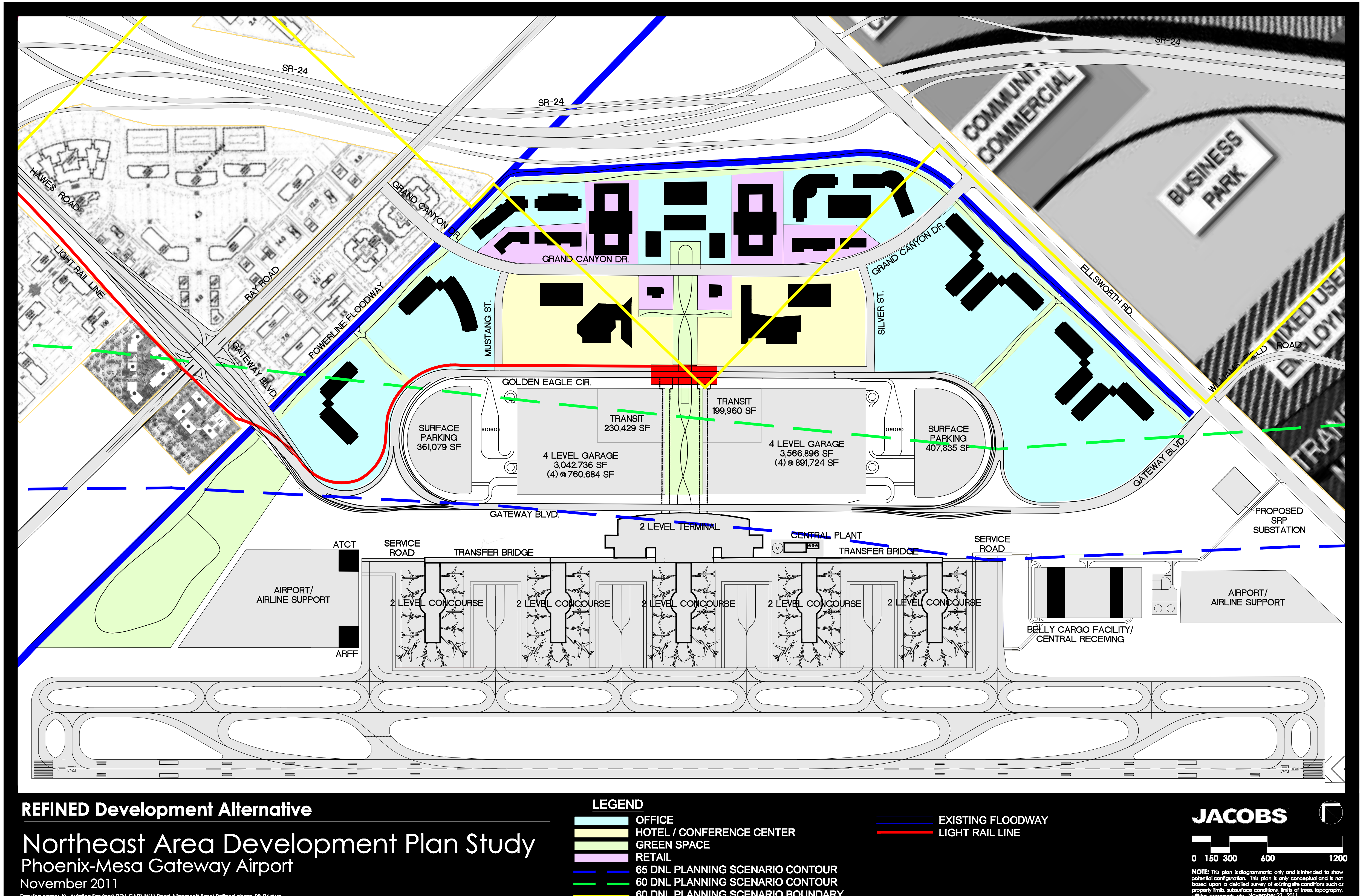
7.6.2 Terminal & Concourse Facilities

Key areas of the terminal and concourses that changed during refinement were very limited. The areas that were modified slightly include the placement of the Central Utility Plant (CUP) supporting the complex and the placement of centralized concessions rotundas at decision points along the wayfinding path through the terminal and concourses.

The preliminary location of the CUP had been illustrated as being adjacent to the curbfront, prior to the terminal building, and in close proximity to reduce piping and utility run costs. Although landscaping and streetscaping were planned, the proximity to the terminal entrance was viewed negatively. As a result the CUP was shifted east to a point adjacent to and east of the terminal building, south of and immediately adjacent to the curbfront. Similar landscaping and streetscaping would be employed at this location to obscure the mechanical nature of these facilities from the flying public.

Concessions cores where planned in three predominant areas, the central terminal area, both pre- and post-security, and then at each node along the concourse connection corridors located to the east and west, coming online as sequenced expansions take place. Upon further analysis, locating concessions near gates which provides more centralized core areas to enhance customer accessibility and service, was viewed as a more ideal configuration. This slightly altered the footprint of each concourse at the midpoint of each concourse finger to provide for the concession courts.

Exhibit 7-22: Refined Development Alternative



7.6.3 Roadway Network & Modeling

Roadway access throughout the region is an integrated and complex network of interstates, freeways, and primary and secondary surface arterial streets. Historically, the Maricopa Association of Governments has worked to develop and maintain a robust computer simulation tool to assess the impacts of future development on system capacity. Additionally, the on-airport improvements shown in the preferred concept are at a greater level of detail, requiring a secondary set of simulation tools to assess capacities, laneage, intersection types, etc. to maintain peak hour volume flows and to ensure a safe movement environment for motorists, cyclists and pedestrians. As a part of the alternative refinement phase of this study, both the regional modeling tools and localized discrete modeling tools were employed to determine the correct roadway geometries required during the 20-year program as well as the ultimate build-out state.

7.6.3.1 Regional Traffic Modeling

This subsection summarizes the results of the various traffic modeling and operational analysis conducted to identify the ideal alignment of Hawes Road and the configuration of two of the key intersections in the study, namely Hawes Rd/ Ray Rd and Ray Rd/ Grand Canyon Drive), in the 2030 horizon year. The summary presents the results of the traffic macro modeling and operational analysis for the various intersection alignments based on the year 2030 and 2050 volumes.

Background

The ability to provide adequate access to the Airport and the developments therein is essential to the economic vitality of the Airport. Hence the need to estimate future traffic to ensure that the current and planned transportation infrastructure will be sufficient to meet future travel demand.

Traffic projections were developed using, as a base, the TransCAD travel demand model developed by HDR for the ***Mesa Gateway Strategic Development Plan (MGSDP)*** containing the ***Mesa Proving Grounds Master Transportation Plan*** socioeconomic and network data. The data represented the 2030 future conditions. This ensured the consistency of results between the two studies in the same area.

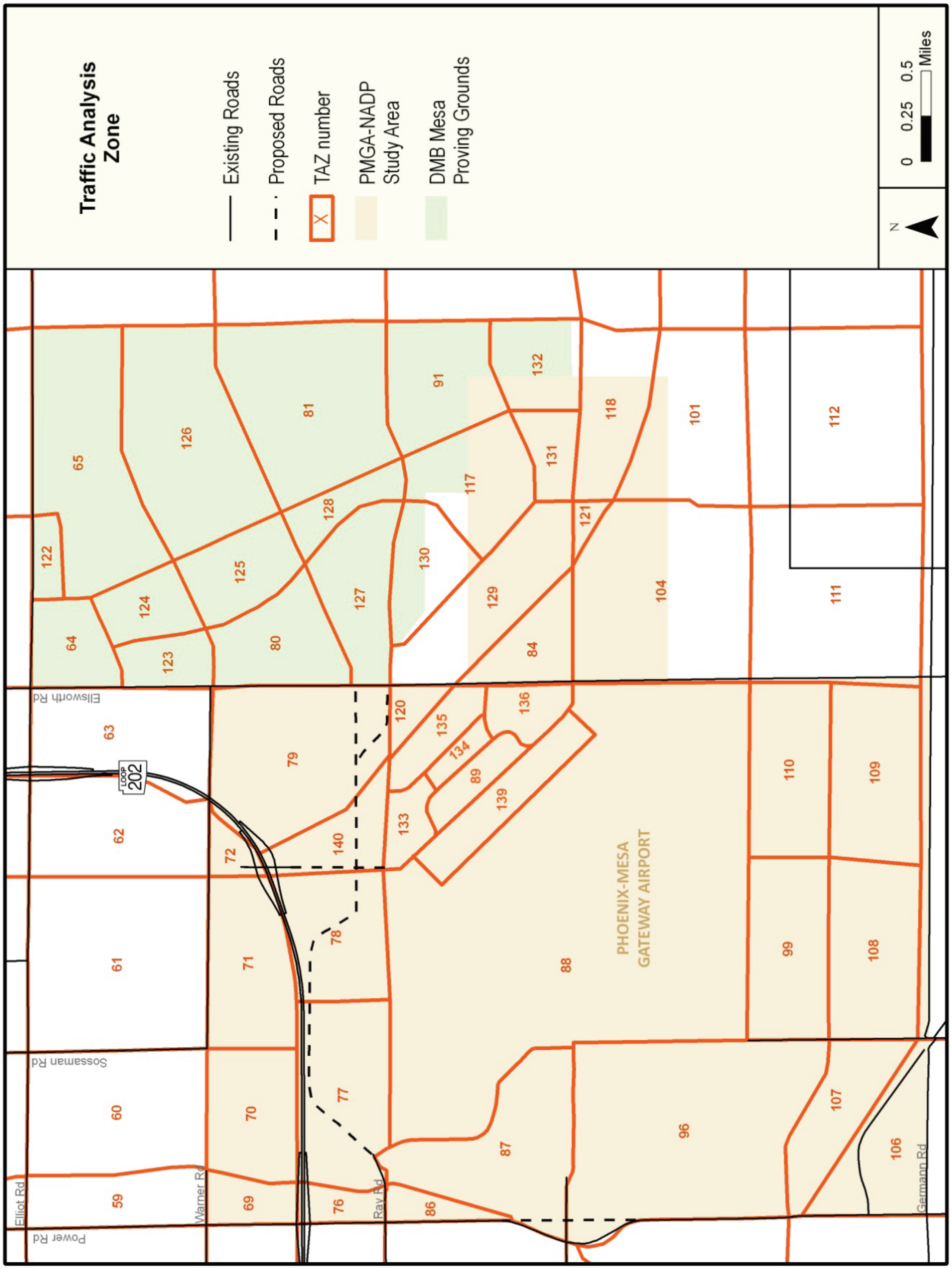
Initial Technical Process and Analysis

To ensure that the MGSDP model contained the latest possible information for this effort, we conducted the following tasks:

- Obtained 2030 MGSDP model with data from HDR
- Obtained future land use and roadway improvements data from City of Mesa for the area surrounding the airport, especially along Hawes Road
- Assumed two enplanements thresholds: 5 million and 10 million
- Obtained land use data from Jacobs Airport Development Team for the two enplanement thresholds

The MGSDP model had two traffic analysis zones (TAZ) representing the entire airport property. This was not sufficient to conduct a meaningful analysis of the infrastructures operation in the airport. Hence, the TAZ structure was revised to reflect the internal potential roadway system and land uses, as shown in Exhibit 7-23.

Exhibit 7-23: New TAZ Structure



Land Use and Socioeconomic

Two land use scenarios were developed for the entire airport property based on 5 and 10 million annual enplanements per year. For planning purpose, these enplanements were associated to the future years 2030 and 2050, respectively. The airport terminal is modeled as a special generator and the trips calculated manually based on its characteristics for the time period. The land use square footage by TAZ was used to calculate the model input data in the form of employees for each employment category. Table 7-7 contains the factors used in converting land use to employment by category.

Table 7-7: Land Use To Employment Conversion Factors

Category	Conversion Factors
Retail	1 empl/1000 sf
Office	2 emp/1000 sf
Hotel	1.2 emp/room
Mixed Use	2 emp/1000 sf

2030 Assumptions

Table 7-8 shows the derivation of the 2030 number of employees by category for the airport property which is assumed to be 85% built out. The 2030 total number of projected vehicular daily trips generated by the airport terminal is 17,200.

Table 7-8: 2030 Airport Property Socioeconomic Data

Square Footage					Employees			
TAZ	Retail	Office	Hotel(rooms)	Mixed Use	Retail	Office	Hotel	Mixed Use
78	6,000	736,000	240		6	1472	288	0
89					0	0		0
133		1,136,000			0	2272		0
134	76,200		250		76	0	300	0
135	243,500	1,566,500		660,000	244	3133		1320
136		2,571,000			0	5142		0
140	137,500	829,000	130		138	1658	156	0

Additionally, the latest information regarding the developments planned for the area along Hawes Road between Ray Road and the airport was incorporated into the model input. These developments were assumed to be 100% built out by 2030.

The model data provided by HDR already contained the latest levels of development proposed by the DMB group for the Mesa Proving Grounds. The development was assumed to be 100% built out by 2030.

2050 Assumptions

Table 7-9 displays the 2050 assumptions and resulting number of employees by category for the airport property which is assumed to be 100% built out. The 2050 total number of projected vehicular daily trip for the airport terminal is assumed to be 32,000.

Table 7-9: 2050 Airport Property Socioeconomic Data

	Square Footage				Employees			
TAZ	Retail	Office	Hotel(room)	Mixed Use	Retail	Office	Hotel	Mixed Use
78	6,000	736,000	240		6	1472	288	0
89					0	0		0
133		1,136,000			0	2272		0
134	152,400		500		152	0	600	0
135	483,500	1,566,500		660,000	484	3133		1320
136		2,571,000			0	5142		0
140	137,500	829,000	130		138	1658	156	0

The model external trips were increased by 20% to account for the increase in travel from and to Pinal County and surrounding Maricopa County. Additionally, the area south of the Airport was increased by 20% from the projected 2030 socioeconomic data, to account of potential future growth in locations with available developable land.

Future Airport Roadway System

The airport internal future roadway system is comprised of a one-way loop road to provide access to the terminal from both Ray Road and Ellsworth Road. A series of major and minor arterials provide access to the commercial development directly in front of the terminal area and on the remaining airport property. This configuration is referred to as Alternative A. Exhibits 7-24 and 7-25 depict Alternative A functional classification and number of lanes respectively.

Exhibit 7-24: Roadway Functional Classification

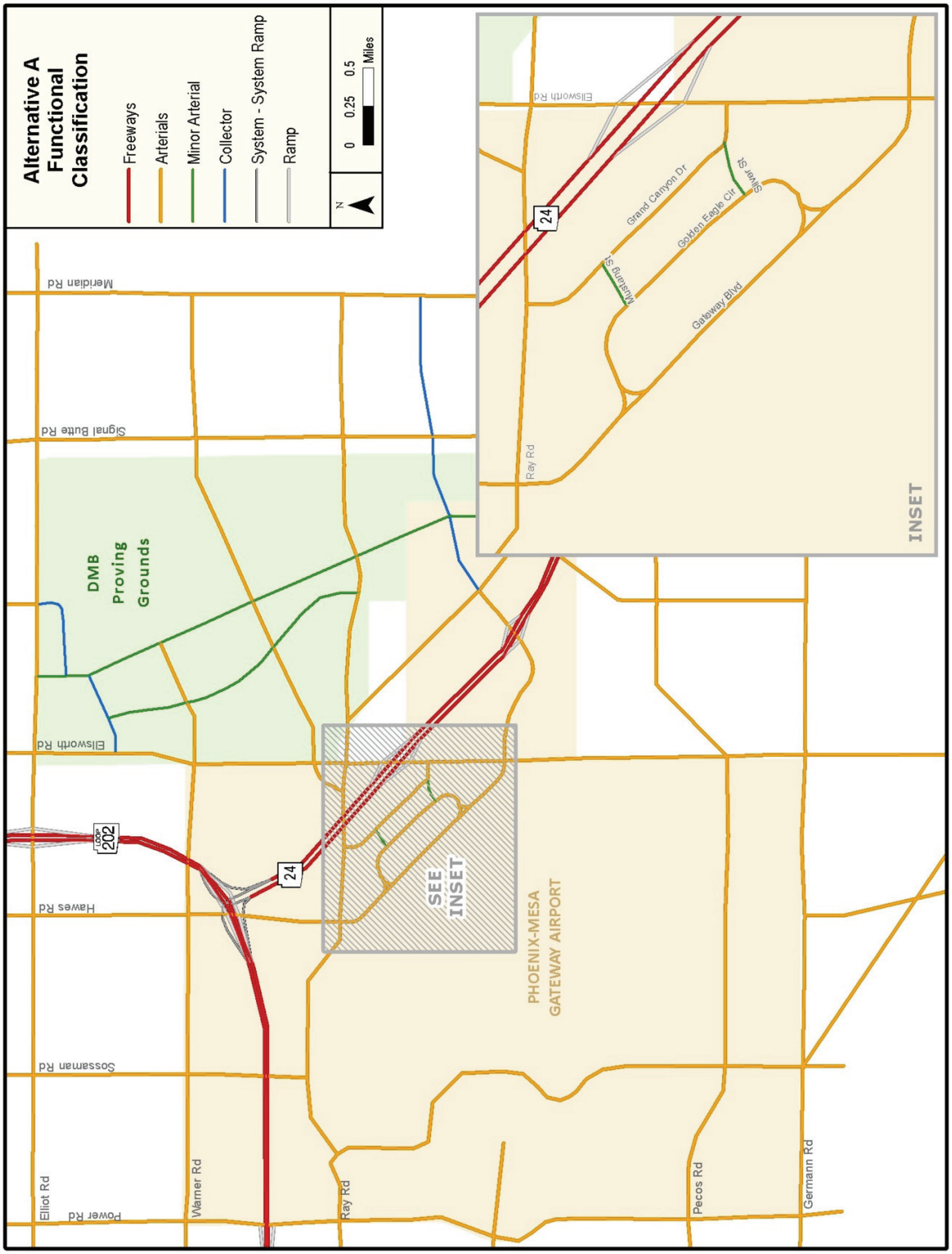
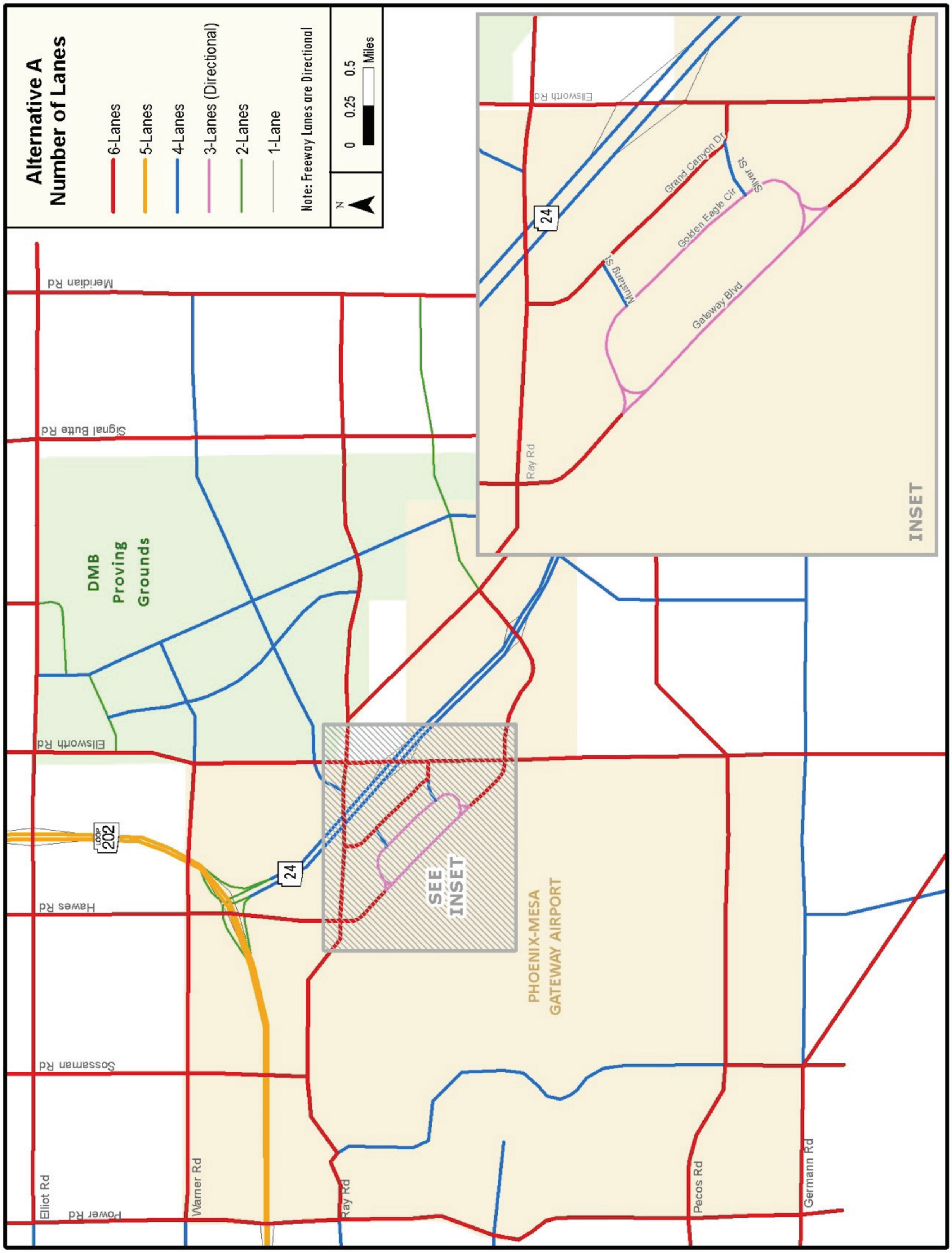


Exhibit 7-25: Roadways Number Of Lanes



Travel Demand Analysis and Results

The modified HDR travel demand model was used to develop the 2030 and 2050 future traffic projection using the newly developed socioeconomic data and roadway network. After the first 2030 model run, it was noticed that:

- The demand generated by the airport projected commercial development was significant.
- The model travel patterns indicated a large amount of traffic turning left on Ray Road from Hawes Road potentially causing heavy delays on all legs of the intersection.

These observations prompted the formulation of a new alternative alignments for Hawes Road. After meeting with the City and discussing potential alignments, Alternative B was developed. The primary objective of this alternative was to reduce the left turning movements from Hawes Road to Ray Road and to provide a more direct connection to the airport commercial parcels. Exhibits 7-26 and 7-27 depict Alternative B roadway functional classification and number of lanes respectively. A mid-link planning level-of-service (LOS) analysis was conducted to assess the system performance. Table 7-10 contains the volume to capacity (V/C) ratio thresholds used in the evaluation. Exhibits 7-28 through 7-31 depict the 2030 and 2050 resulting traffic volumes and LOS for both alternatives.

Table 7-10: Los And V/C Ratio Equivalencies

V/C Ratio	LOS
0 - 0.75	A- C
0.76 - 0.89	D
0.90 - 0.99	E
< 1.00	F

2030 Findings

- Ray Road, Ellsworth Road, Pecos Road, and Sossaman Road around the Airport perform mainly at LOS D and E with a small segment of Ellsworth Road at LOS F south of Williams Field Road for Alternative A and B
- Hawes Road is LOS D and E north of Ray Road for Alternative A and B
- All facilities on airport property function at LOS A-C with the exception of Gateway Blvd in front of the new proposed terminal in Alternative A, which shows LOS D
- SR-24 performs at LOS D and E in the study area

2050 Findings

- Ray Road, Ellsworth Road, Pecos Road, and Sossaman Road adjacent to the Airport perform at LOS E and F for Alternative A and B
- Hawes Road is LOS F north of Ray Rd for Alternative A and B
- Most facilities on airport property function at LOS A-C with the exception of Gateway Blvd loop, which displays LOS D and E, and a portion of Grand Canyon Drive in Alternative B which operates at LOS D
- SR-24 performs at LOS E and F in the study area

The planning level analysis only identifies potential mobility concerns based on V/C ratio thresholds which are depended on the roadway capacity used in the analysis. This measure does not address the operation of a particular roadway. At first glance, the V/C could show that a roadway is failing, but when the operational analysis is performed, it could show that it is operating satisfactorily, if intersection improvements are made. Thus, a microsimulation analysis was performed to confirm or deny the planning level findings, and to assess conclusions.

Exhibit 7-26: Alternative B Roadway Functional Classification

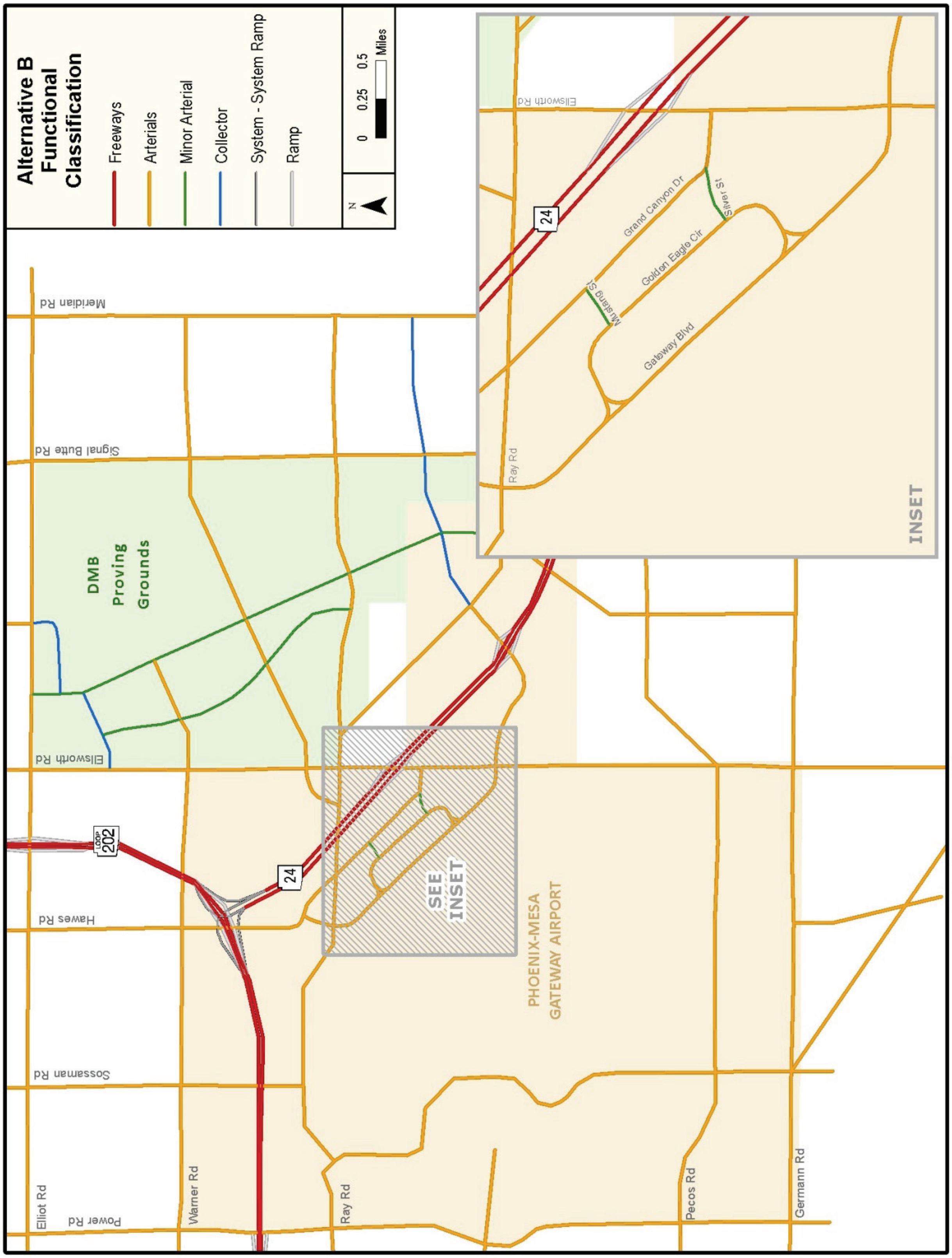


Exhibit 7-27: Alternative B Roadways Number of Lanes

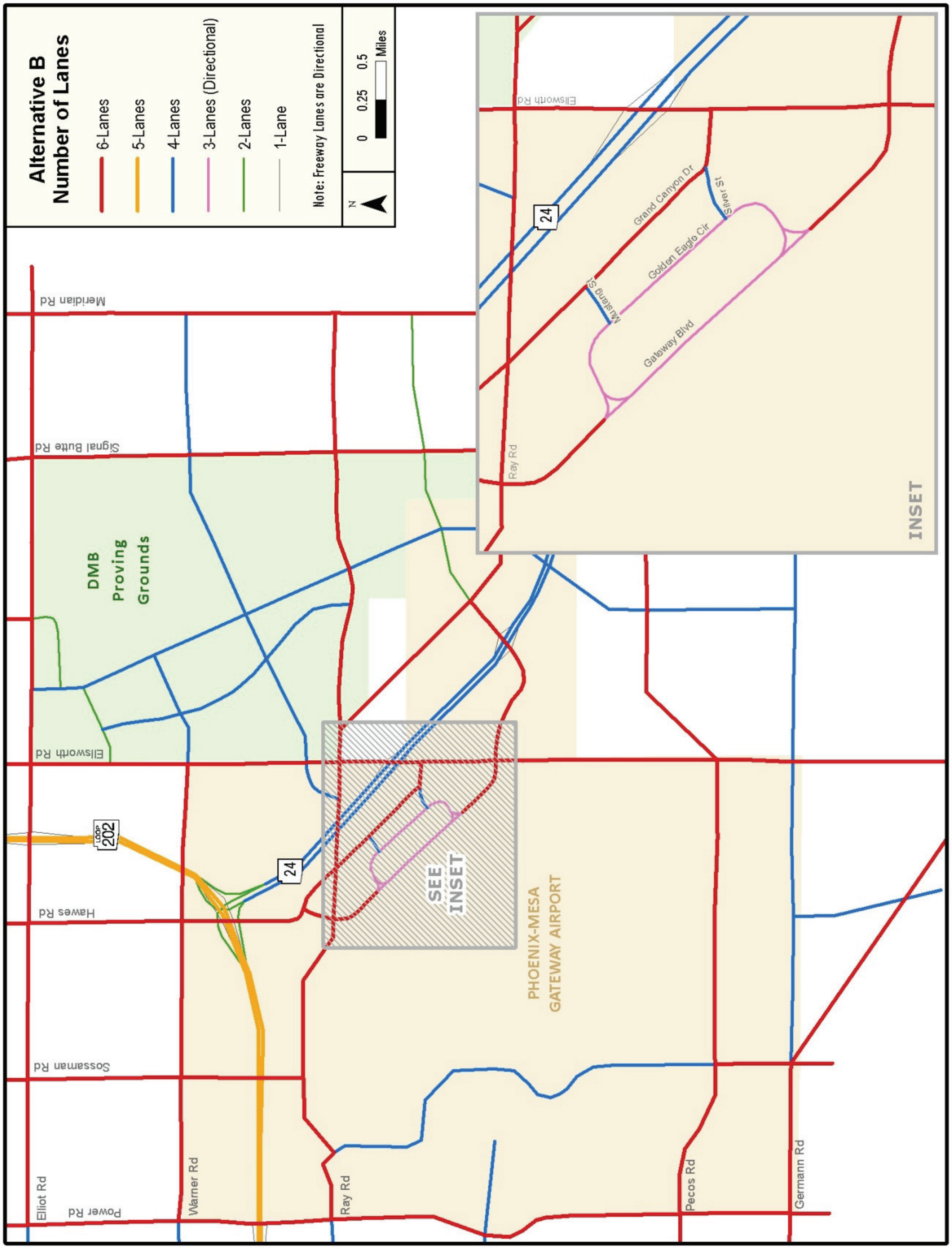
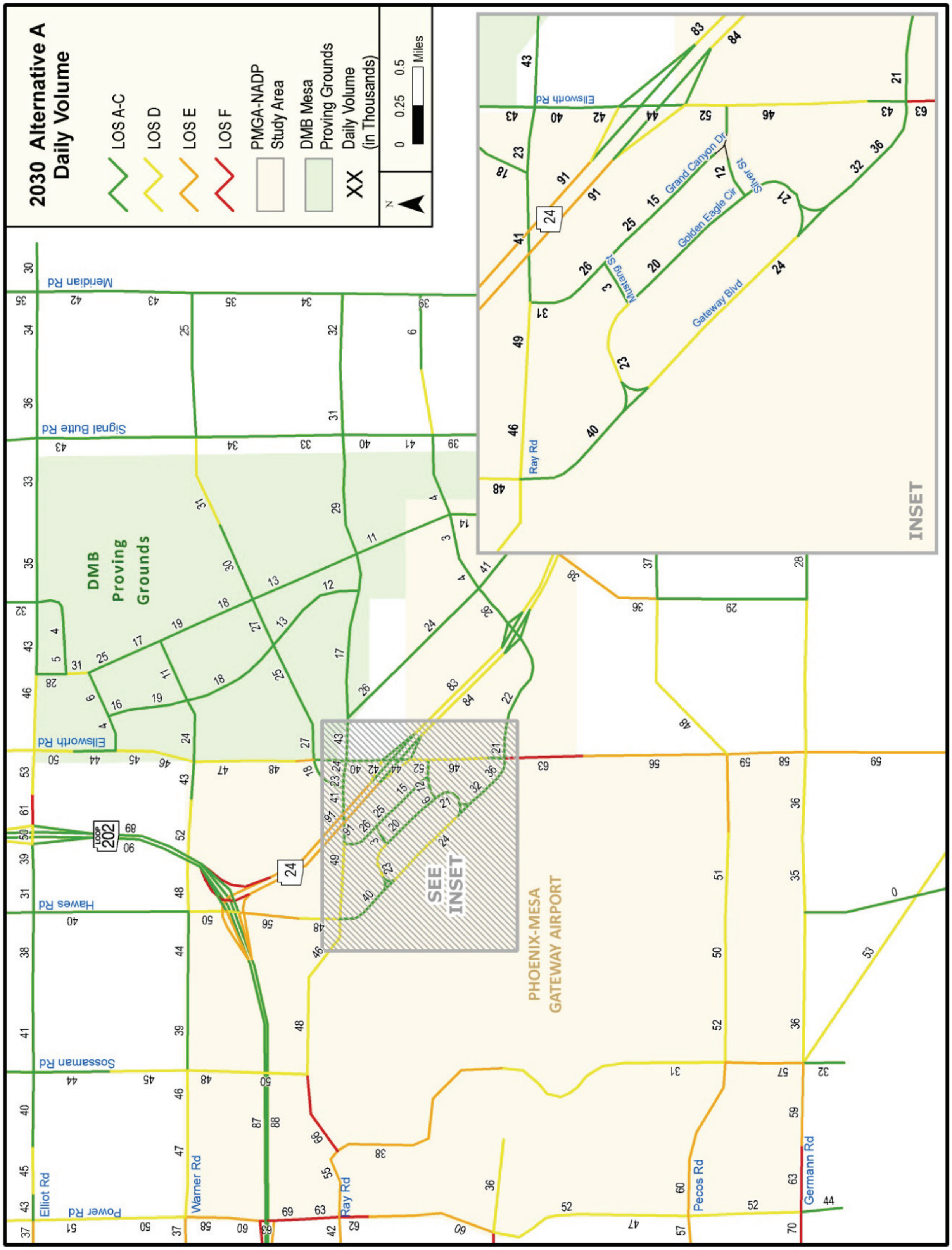


Exhibit 7-28: 2030 Alternative A Traffic Volumes And LOS



Northeast Area Development Plan - Technical Report

Exhibit 7-29: 2030 Alternative B Traffic Volumes And LOS

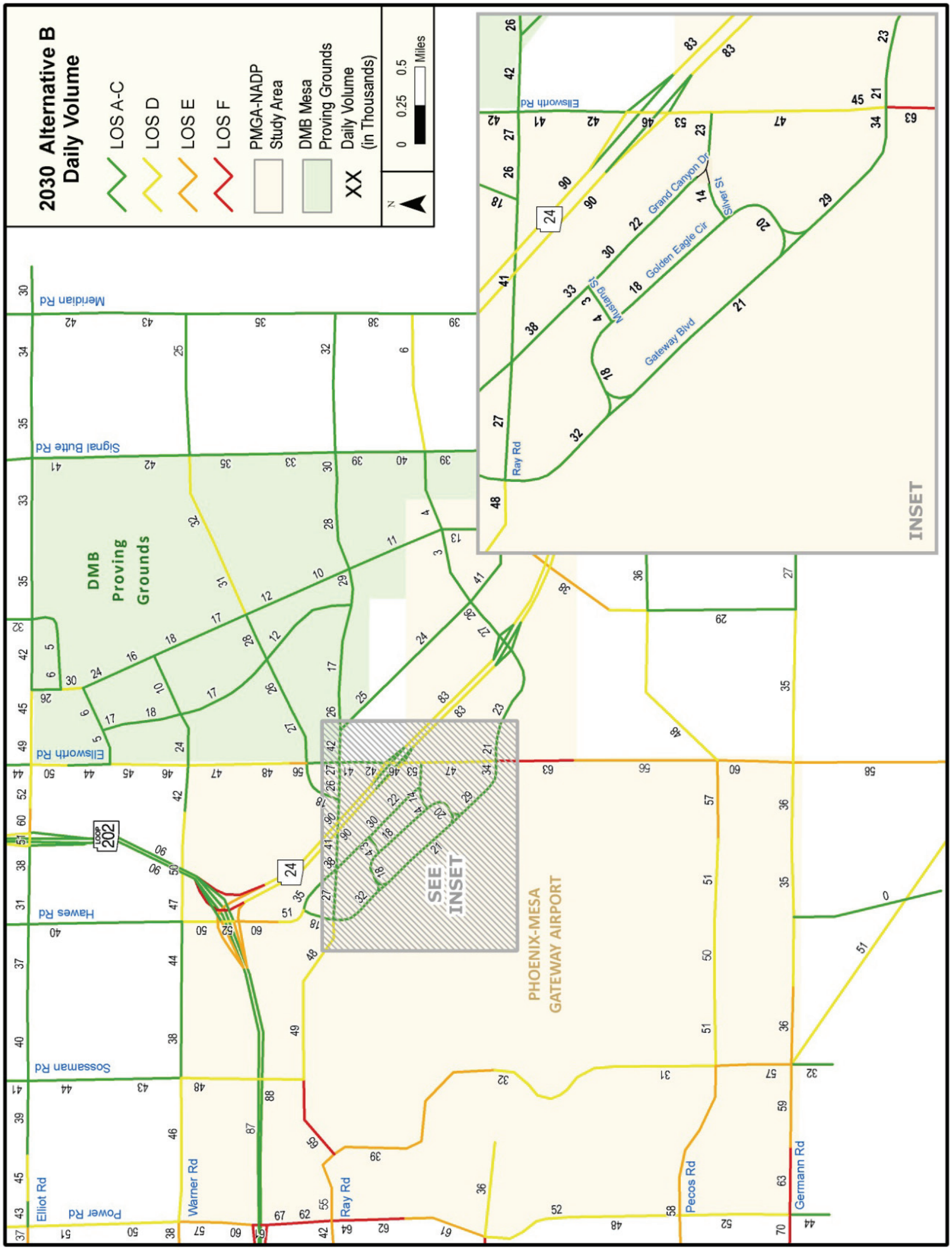


Exhibit 7-30: 2050 Alternative A Traffic Volumes And LOS

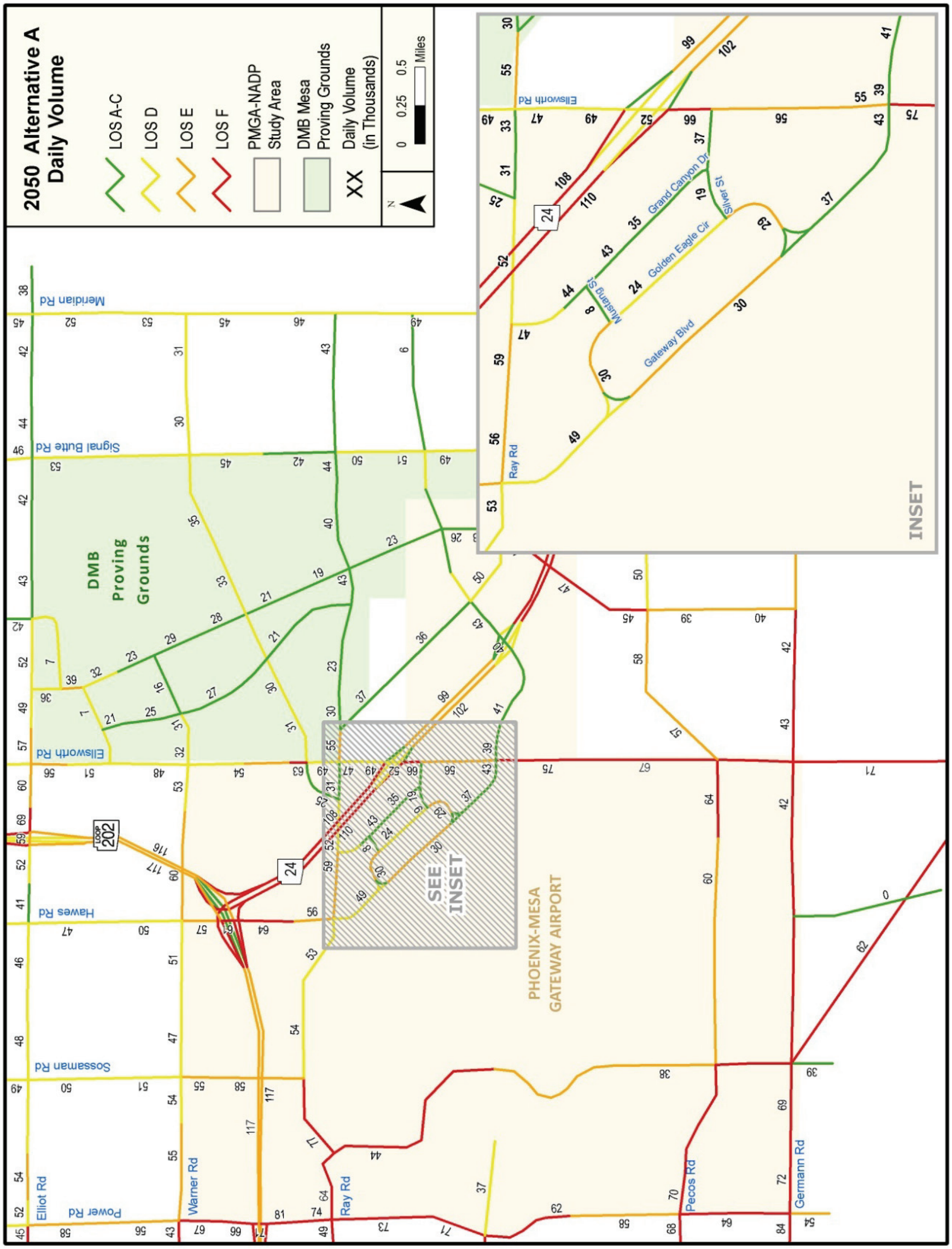
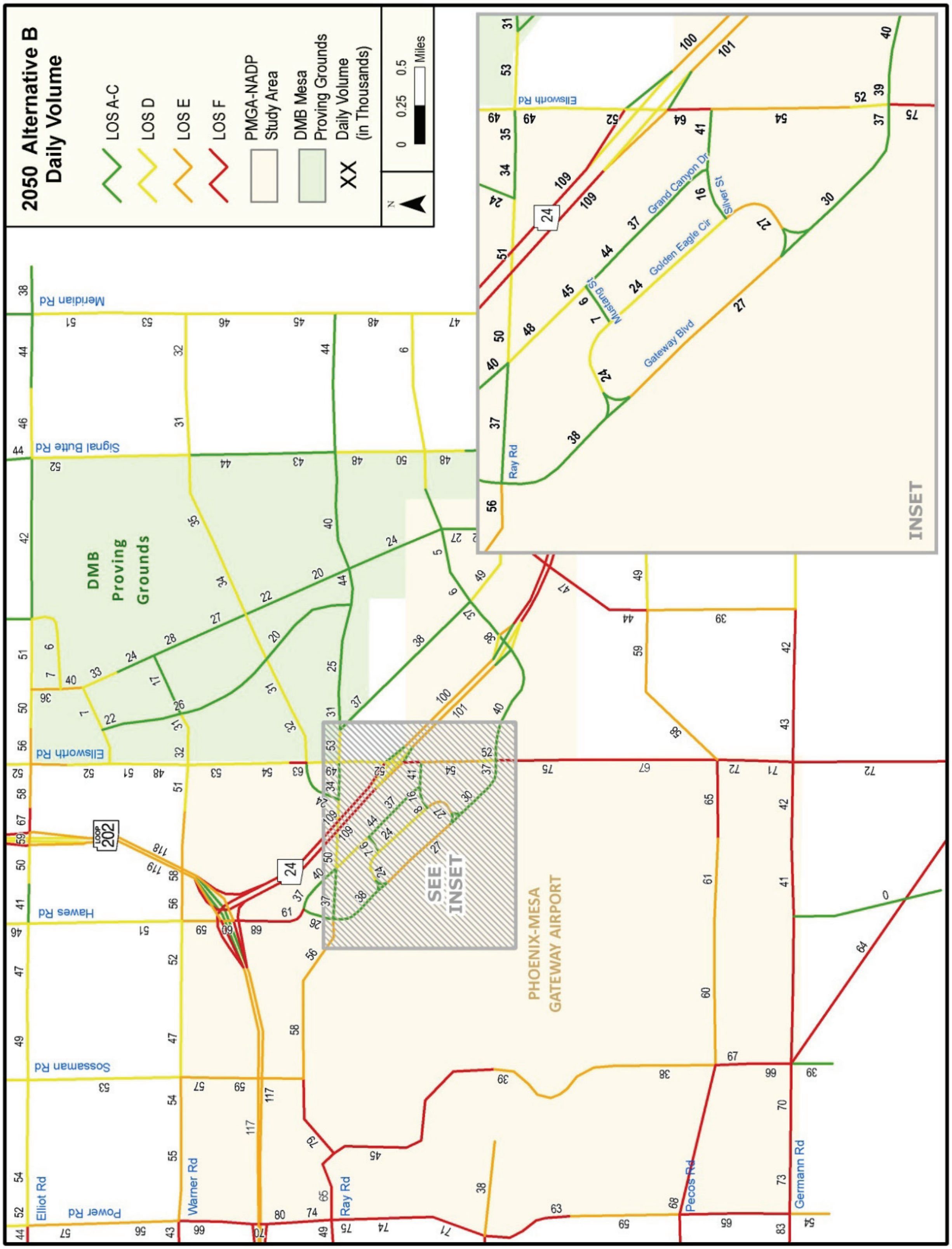


Exhibit 7-31: 2050 Alternative B Traffic Volumes And LOS



7.6.3.2 Traffic Operational Analysis

The regional traffic modeling efforts described in the previous sub-section identified mobility concerns based on the planning level analysis. The ability of the transportation infrastructure surrounding the Airport and on-airport to carry future regional and airport traffic was measured using analytical tools that quantify operations for the optimal roadway configurations. The design peak-hour traffic operation was modeled using *VISSIM* micro-simulation software. The operational analysis addresses the peak-hour traffic operations, optimal intersection configurations, and efficient traffic control at intersections and quantified the operations in terms of Level-of-Service (LOS) based on Highway Capacity Manual (HCM) methodologies.

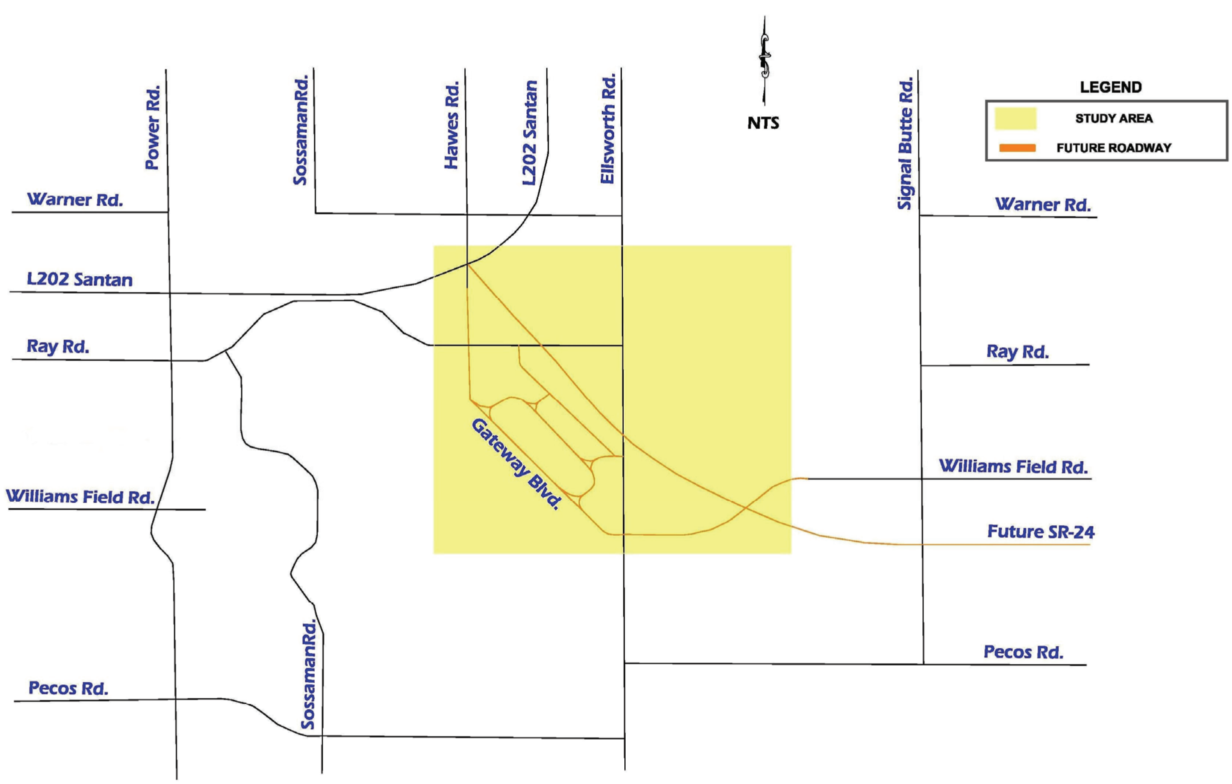
This sub-section discusses the details of the operational analysis conducted for the proposed roadway infrastructure to serve the Phoenix-Mesa Gateway Airport in the future 2030 and 2050 horizon years.

Study Area

The study area for the traffic operational analysis is bordered by SR 202L to the northwest, future State Route 24 (SR 24) to the east, Williams Field Road to the south, and Gateway Boulevard to the west. The study area for the operational analysis is shown in Exhibit 7-32: Study Area.

A detailed description of the roadway network can be found in section 7.5.2.2 Critical Infrastructure Elements under subsections "Surrounding Roadway Network" and "On-Airport Roadway Network".

Exhibit 7-32: Study Area



Roadway Network Alternatives

The planning of the roadway network adjacent to and within the Airport was developed based on the following criteria:

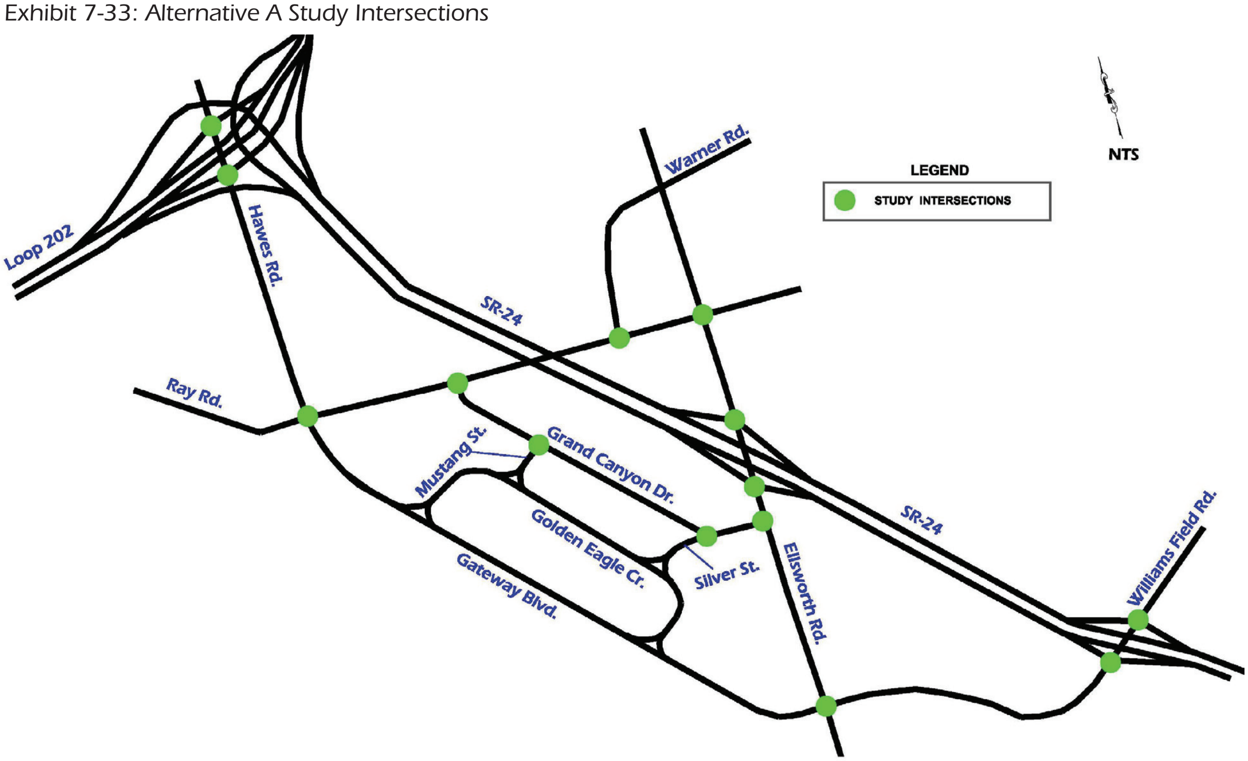
- Easy access to and from SR 202L/SR 24 to and from Airport
- Adequate spacing between interchanges/intersections
- Functionality of roadways conducive to support development
- Maintaining connectivity to the existing roadway network in the area
- Access to adjacent future developments
- Flexible roadway network
- Ability of the roadway network to be multi-modal
- Access Management features

The roadway network alternative was refined based on the regional and airport land-use modeling. In refining the roadway network alternatives, two land-use scenarios were evaluated using the modified MGSDP TransCAD regional model based on 5 and 10 million enplanements per year. These corresponded to future years 2030 and 2050, respectively, as described in the regional modeling in the previous sub-section.

The two key roadway network alternatives that emerged from the regional traffic and land-use modeling are:

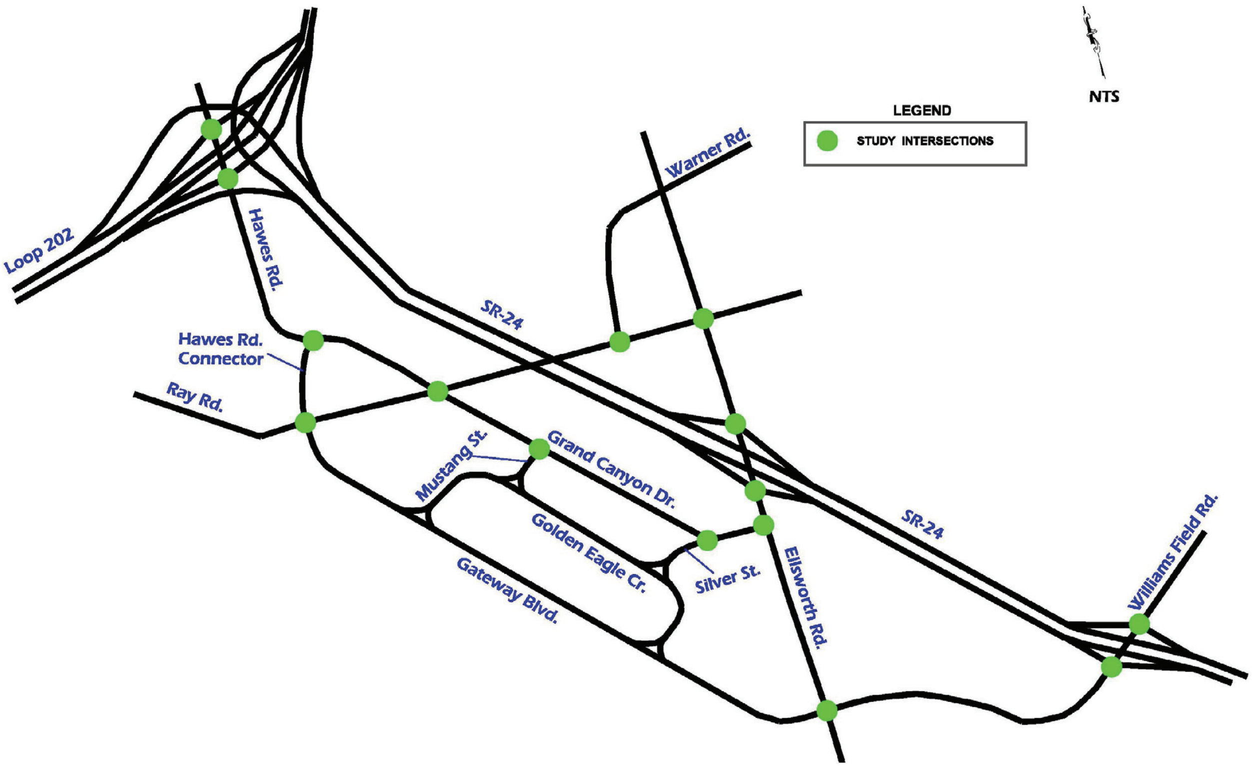
Alternative A: Under this Alternative, Hawes Road extends from the TI at SR202L southerly, and ties into Gateway Boulevard at Ray Road. Also, Grand Canyon Drive intersects Ray Road at a 'T' intersection. The intersections evaluated under Alternative A are illustrated in Exhibit 7-33: Alternative A Study Intersections.

Exhibit 7-33: Alternative A Study Intersections



Alternative B: This is similar to the configuration of Alternative A with the exception of Hawes Road tying into Grand Canyon Drive at Ray Road; and a connector roadway between Hawes Road and Gateway Boulevard. In this Alternative, the intersections of Ray Road & Hawes Road Connector, Ray Road & Hawes Road/ Grand Canyon Drive, and, Hawes Road & Hawes Road Connector operate as "conventional" intersections. The intersections evaluated under Alternative B are illustrated in Exhibit 7-34: Alternative B Study Intersections.

Exhibit 7-34: Alternative B Study Intersections



These alternatives were further refined to obtain the ideal intersection configurations and are discussed in more detail under the Traffic Analysis section.

Traffic Analysis

The traffic operational analysis was conducted using *Synchro* and *VISSIM* computer software. Synchro is a traffic analysis and optimization software application. It is a complete software package for modeling, optimizing, managing and simulating traffic systems. Synchro implements the Intersection Capacity Utilization (ICU) 2003 method for determining intersection capacity and can also calculate delay and level-of-service per the Highway Capacity Manual criteria. VISSIM is microscopic driver behavior traffic simulation software, time step and behavior-based simulation model developed to model urban traffic and public transit operations. The program analyzes traffic operations under constraints such as lane configuration, traffic composition, traffic signals, transit stops, etc., thus making it a useful tool for the evaluation of various alternatives based on transportation engineering and planning measures of effectiveness (MOE's) such as control delay, travel times, and queue lengths. This program is capable of implicitly modeling passenger vehicles, transit vehicles and pedestrians simultaneously and also offers great visualization from simple to complex traffic conditions to provide a realistic picture of the traffic operations.

Future Traffic Volumes

Analysis of intersection operations was conducted for the 2030 and 2050 peak hours using the nationally accepted methodology set forth in the *Highway Capacity Manual, Transportation Research Board, 2000*.

Design year peak-hour traffic volumes for the study area were obtained from the regional modified MGSDP TransCAD travel demand model for years 2030 and 2050 developed for the airport as described in the previous section. The daily traffic volumes for the various turning movements at the study intersections were reduced to peak-hour volumes by applying a 7.5% K factor. The 2030 and 2050 peak hour traffic volumes are shown in Exhibit 7-35, Exhibit 7-36 and Exhibit 7-37.

Level-of-Service Criteria

Level-of-service (LOS) is a qualitative measure of the traffic operations at an intersection or on a roadway segment. Level of service is ranked from LOS A, which signifies little or no congestion and is the highest rank, to LOS F, which signifies congestion and traffic jam conditions. LOS D is typically considered adequate operation at signalized and un-signalized intersections in urban locations.

The criteria for level of service at signalized intersections are shown in Table 7-11.

Table 7-11: Level of Service Criteria Signalized Intersections

Level-of-Service (LOS)	Delay
A	< 10 seconds per vehicle
B	> 10 and < 20 seconds/vehicle
C	> 20 and < 35 seconds/vehicle
D	> 35 and < 55 seconds/vehicle
E	> 55 and < 80 seconds/vehicle
F	> 80 seconds per vehicle

Source: Highway Capacity Manual, 2000

Operational Analysis Scenarios

This section describes each of the roadway network scenarios that were analyzed for capacity and level-of-service, and presents a discussion of the results and conclusions:

Alternative A Roadway Network

Under this Alternative, Hawes Road extends from the TI at SR202L southerly, and ties into Gateway Boulevard at Ray Road. Also, Grand Canyon Drive intersects Ray Road at a 'T' intersection. Based on the regional traffic and land-use modeling for the design year 2030 (refer to Section 7.6.3.1), Hawes Road north of Ray Road as well as Ray Road east and west of Hawes Road operate at LOS D. However, in the design year 2050, Hawes Road north of Ray Road and Ray Road east of Hawes Road operate at LOS E. As the intersection of Hawes Road and Ray Road is the primary access to the airport, preliminary analysis was conducted to evaluate the ideal configuration for this intersection. There were five (5) options of intersection configurations that were evaluated for the Hawes Road and Ray Road intersection. These are discussed in detail below:

Option: Conventional Intersection
Utilizing the Alternative A roadway network configuration, under this option, the intersection of Hawes Road and Ray Road was evaluated as a conventional 4-legged intersection. If configured as a conventional intersection, the lane configuration recommended to accommodate the future traffic conditions includes: (2) dual left turn lanes, (1) right turn lane, (3) through lanes for each of the approaches to the intersection. The westbound right turn lane will be channelized (free flow) into an exclusive lane on Hawes Road north of Ray Road. Hawes Road is projected to have three (3) through lanes in the southbound and northbound directions between Ray Road and SR 202L Traffic Interchange.

As the intersections of Hawes Road and Ray Road, and Ray Road and Grand Canyon Drive are in close proximity to each other and provide major access to the airport and other land-uses on the airport property they were evaluated together under this option. This evaluation is based on the Ray Road and Grand Canyon Drive intersection modeled as a conventional 'T' intersection, with Grand Canyon Drive as the south leg of the intersection. By the year 2030 this intersection is anticipated to be signalized and the intersection configuration recommended to accommodate the future traffic conditions includes: two (2) right turn lanes and three (3) thru lanes in the eastbound direction of Ray Road; two (2) left turn lanes and three (3) thru lanes in the westbound direction of Ray Road; and two (2) right turn lanes and two (2) left turn lanes in the northbound direction for Grand Canyon Drive.

The intersection of Hawes Road and Ray Road operates at a LOS D during the 2030 design year and a LOS E during the 2050 design year. The intersection of Ray Road and Grand Canyon Drive operates at LOS B during the 2030 design year and a LOS D during the 2050 design year. The summary of the delay and LOS for these intersections for year 2030 and 2050 are shown in Tables 7-12 and 7-13.

Table 7-12: Hawes Road and Ray Road – Conventional Intersection - Year 2030

Direction	EB		WB		NB		SB		TOTAL	
Intersection Name	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS
Ray Rd / Hawes Rd	41.0	D	44.6	D	43.9	D	40.0	D	42.3	D
Ray Rd / Grand Canyon Dr.	14.2	B	13.3	B	19.9	B	-	-	15.2	B

Table 7-13: Hawes Road and Ray Road – Conventional Intersection - Year 2050

Direction	EB		WB		NB		SB		TOTAL	
Intersection Name	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS	Avg. Delay (sec/ veh.)	LOS
Ray Rd / Hawes Rd	48.2	D	101.3	F	99.3	F	47.7	D	73.6	E
Ray Rd / Grand Canyon Dr.	31.4	D	29.7	C	46.6	D	-	-	35.2	D

While this intersection works adequately as a conventional intersection based on 2030 traffic volumes it does not accommodate the anticipated future airport traffic projected past the year 2030. The conventional intersection configuration at Hawes Road and Ray Road will be unable to handle the heavy traffic volumes projected for the Airport past the year 2030. Therefore, in planning for the future regional and airport traffic to have easy access to and from the Airport, additional intersection configurations were evaluated.

Option: Roundabout

Utilizing the Alternative A roadway network configuration, under this option, a roundabout configuration was considered for the intersection of Hawes Road and Ray Road. Based on the FHWA Guide indicates that multi-lane roundabouts (two- and three-lane entries) can be expected to handle a typical service volume between 25,000 and 55,000 vehicles per day. Based on the regional modeling data, the 2030 service volumes at the Hawes Road and Ray Road intersection are expected to be approximately 90,000 vehicles per day and the 2050 service volumes are expected to be approximately 107,000 vehicles per day. Because these future volumes are too high to be serviced by a roundabout, this option was not evaluated any further.

Option: Michigan-Lefts/Arizona Parkway
Utilizing the Alternative A roadway network configuration, under this option, an intersection configuration was considered for the intersection of Hawes Road and Ray Road providing indirect left turns for traffic on Hawes Road and Ray Road similar to the "Michigan Lefts or Arizona Parkway" configuration. This configuration would make the intersection of Hawes Road and Ray Road a two-phase signal for the through movements while the left turns would be able to make the maneuver approximately 660 feet away from the intersection.

It was discussed that this configuration would not be a feasible solution for the following reasons:

- Increase in right-of-way requirements: Both Hawes Road and Ray Road would need a 200-foot right-of-way along the entire stretch to provide for a 60-foot median and three through lanes in each direction.
- Multiple Traffic Signals: In addition to a traffic signal at the intersection of Hawes Road and Ray Road, there may be a necessity of signalizing the 'left-turns' on Hawes Road between the SR202L and Ray Road. Multiple signals along Hawes Road would then impede the traffic bound to the Airport.
- Indirect Access to Properties: The Michigan Lefts/Arizona Parkway configuration will provide indirect left –turn access to the parcels located on the east and west side of Hawes Road.

Due to the reasons discussed above this option was not evaluated in further detail due to its impact on adjacent properties.

Option: Single Point Urban Interchange (SPUI) (At-grade)
Utilizing the Alternative A roadway network configuration, the intersection of Ray Road and Hawes Road was evaluated as an At-grade Single Point Urban Interchange (SPUI). The at-grade SPUI configuration will allow for future expansion with the addition of a flyover and grade separation from Ray Road to provide uninterrupted access to the Airport from the SR 202L freeway. An at-grade SPUI configuration provides greater capacity for the intersection of Ray Road and Hawes Road and operates at a LOS D for 2030 and 2050 traffic conditions.

Option: Single Point Urban Interchange (SPUI) with Flyover
Utilizing the Alternative A roadway network configuration in this option, the intersection of Hawes Road and Ray Road is grade-separated by providing a flyover from Hawes Road to connect to Gateway Boulevard over Ray Road, making this a standard SPUI. As the traffic volumes continue to increase beyond design year 2030, the flyover would become necessary to handle the high peak hour traffic volumes and provide uninterrupted access to the Airport from the SR 202L. The at-grade SPUI configuration, discussed in the previous option, will allow for future addition of the flyover. The option was analyzed with 2050 traffic volumes and the intersection of Ray Road and Hawes Road under this option operates at a LOS C.

Based on the preliminary analysis, under Alternative A, the SPUI and the SPUI with Flyover options were selected to be modeled in detail using *VISSIM* software.

Alternative B Roadway Network

This is similar to the configuration of Alternative A with the exception of Hawes Road tying into Grand Canyon Drive at Ray Road; and a connector roadway between Hawes Road and Gateway Boulevard. In this Alternative, the intersections of Ray Road & Hawes Road Connector, Ray Road & Hawes Road/ Grand Canyon Drive, and Hawes Road & Hawes Road Connector operate as "conventional" intersections. Alternative B was modeled in detail using *VISSIM* software for 2030 and 2050 design years.

Future Capacity and Level-of-Service – Summary of Findings

A *VISSIM* microsimulation model was developed to model the traffic operations for 2030 and 2050 design year peak hour traffic conditions for Alternatives A and B. The results of the operational analysis are discussed below:

Alternative A with At-grade SPUI at Hawes Road and Ray Road
In the year 2030, all the off-airport intersections operate with LOS C or better except for the intersection of Hawes Road and Ray Road which operates at LOS D, during the design peak hour. All the on-airport intersections operate at LOS B or better.

In the year 2050, all the off-airport intersections operate with a LOS C or better except for the intersections of Hawes Road and Ray Road, Williams Field Road and Ellsworth Road, and Ray Road and Ellsworth Road which operate at LOS D. All the on-airport intersections operate with LOS C or better.

The lane configurations, peak-hour traffic volumes, and LOS for the operational analysis conducted for Alternative A, for future years 2030 and 2050, are shown on Exhibit 7-38. The detailed summary of the delay and LOS for each intersection evaluated under Alternative A, for future years 2030 and 2050, are shown in Tables 7-14 and 7-15.

Alternative A with Flyover at Hawes Road and Ray Road
In the year 2050, all the off-airport intersections operate with LOS C or better except for the intersection of Ray Road & Ellsworth Road which operates at LOS D. All the on-airport intersections operate at LOS C or better.

The lane configurations, peak-hour traffic volumes, and LOS for the operational analysis conducted for Alternative A-Flyover, for future years 2030 and 2050, are show on Exhibit 7-35. The detailed summary of the delay and LOS for each intersection evaluated under Alternative A-Flyover, for future years 2030 and 2050, are shown in Table 7-16.

Alternative B
In the year 2030, all the off-airport intersections operate with LOS C or better except for the intersection of Ray Road & Ellsworth Road which operates at LOS D. All the on-airport intersections operate with LOS C or better.

In the year 2050, all the off-airport intersections operate with LOS C or better except for the intersections of Williams Field Road & Ellsworth Road, and Ray Road & Ellsworth Road which operate at LOS D. All the on-site intersections operate with LOS C or better.

The lane configurations, peak-hour traffic volumes, and LOS for the operational analysis conducted for Alternative B, for future years 2030 and 2050, are show on Exhibit 7-36. The detailed summary of the delay and LOS for each intersection evaluated under Alternative B, for future years 2030 and 2050, are shown in Tables 7-17 and 7-18.

Exhibit 7-35: Alternative A - 2030/2050 Peak Hour Traffic, LOS and Lane Configurations

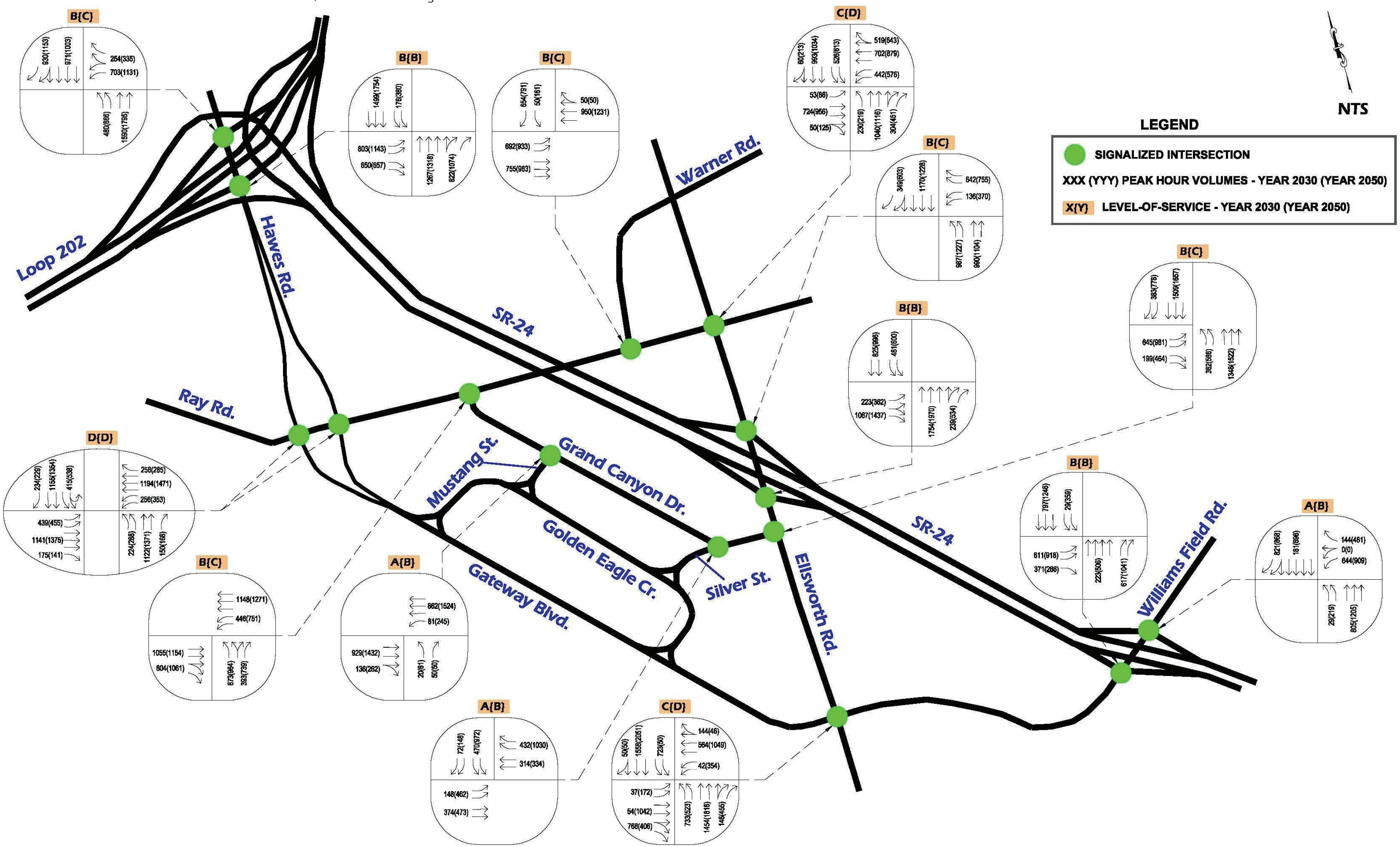


Exhibit 7-36: Alternative A-2030/2050 Peak Hour Traffic, LOS and Lane Configurations

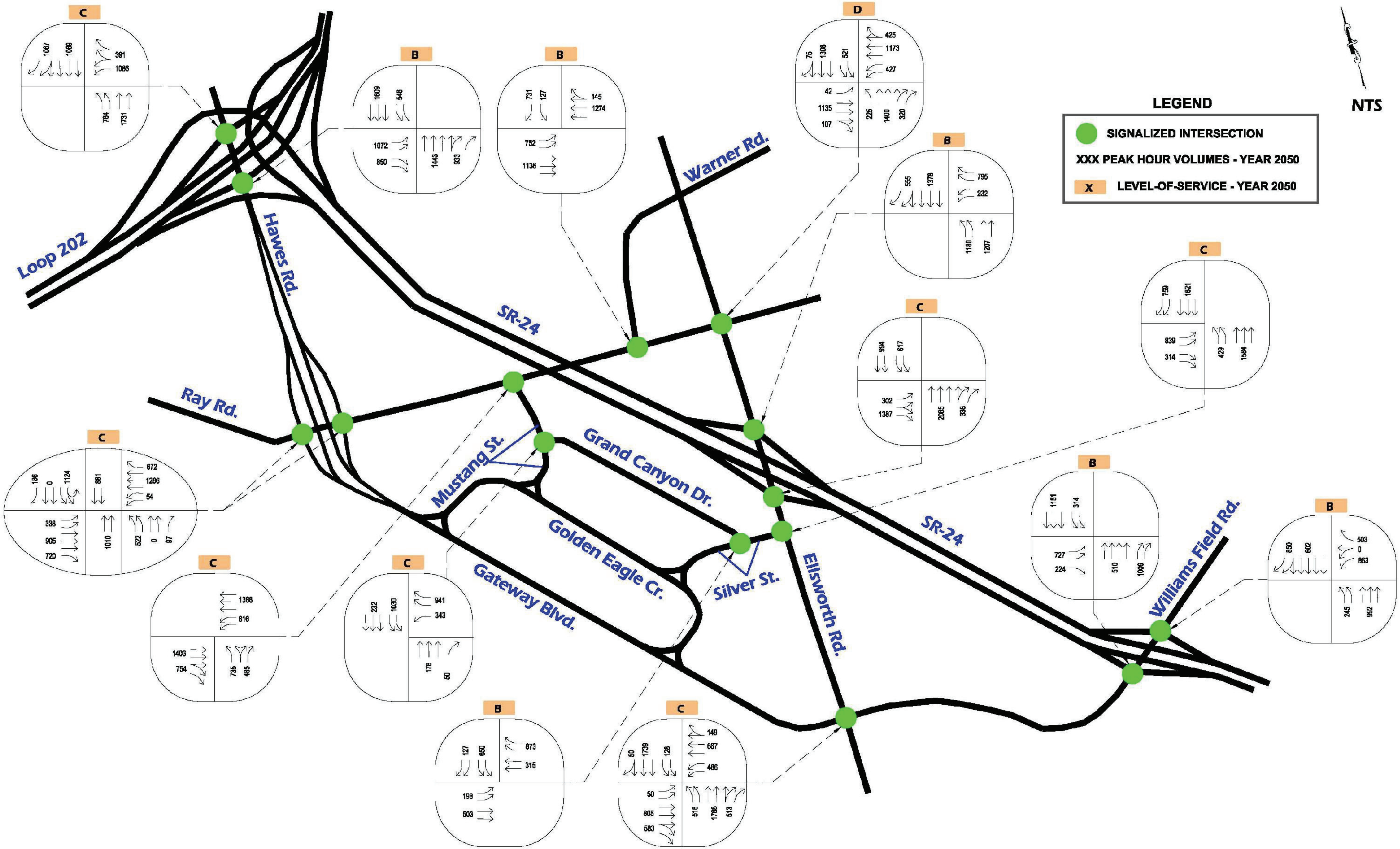


Exhibit 7-37: Alternative A (Flyover) -2050 Peak Hour Traffic, LOS and Lane Configurations

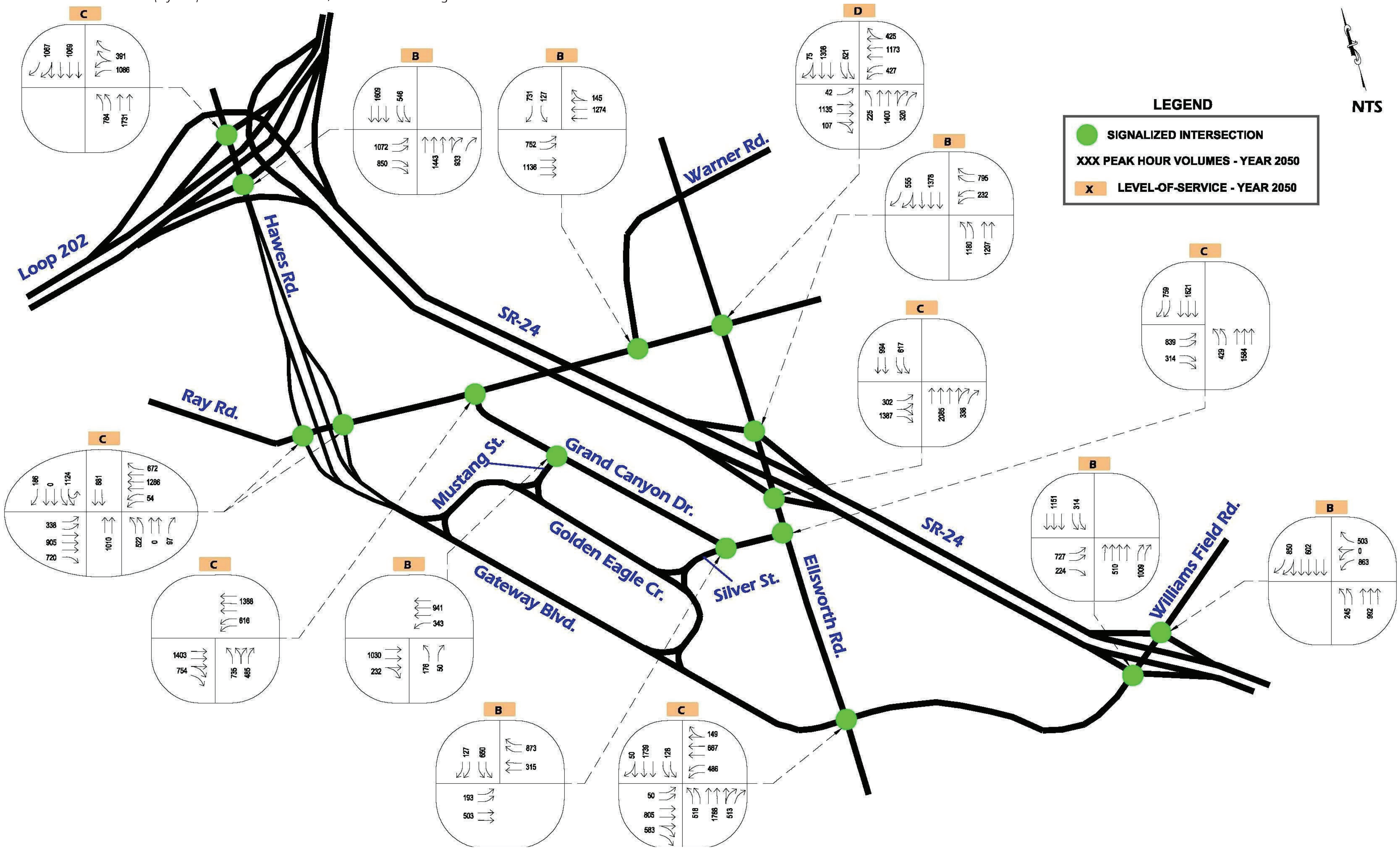


Exhibit 7-38: Alternative B-2030/2050 Peak Hour Traffic, LOS and Lane Configurations

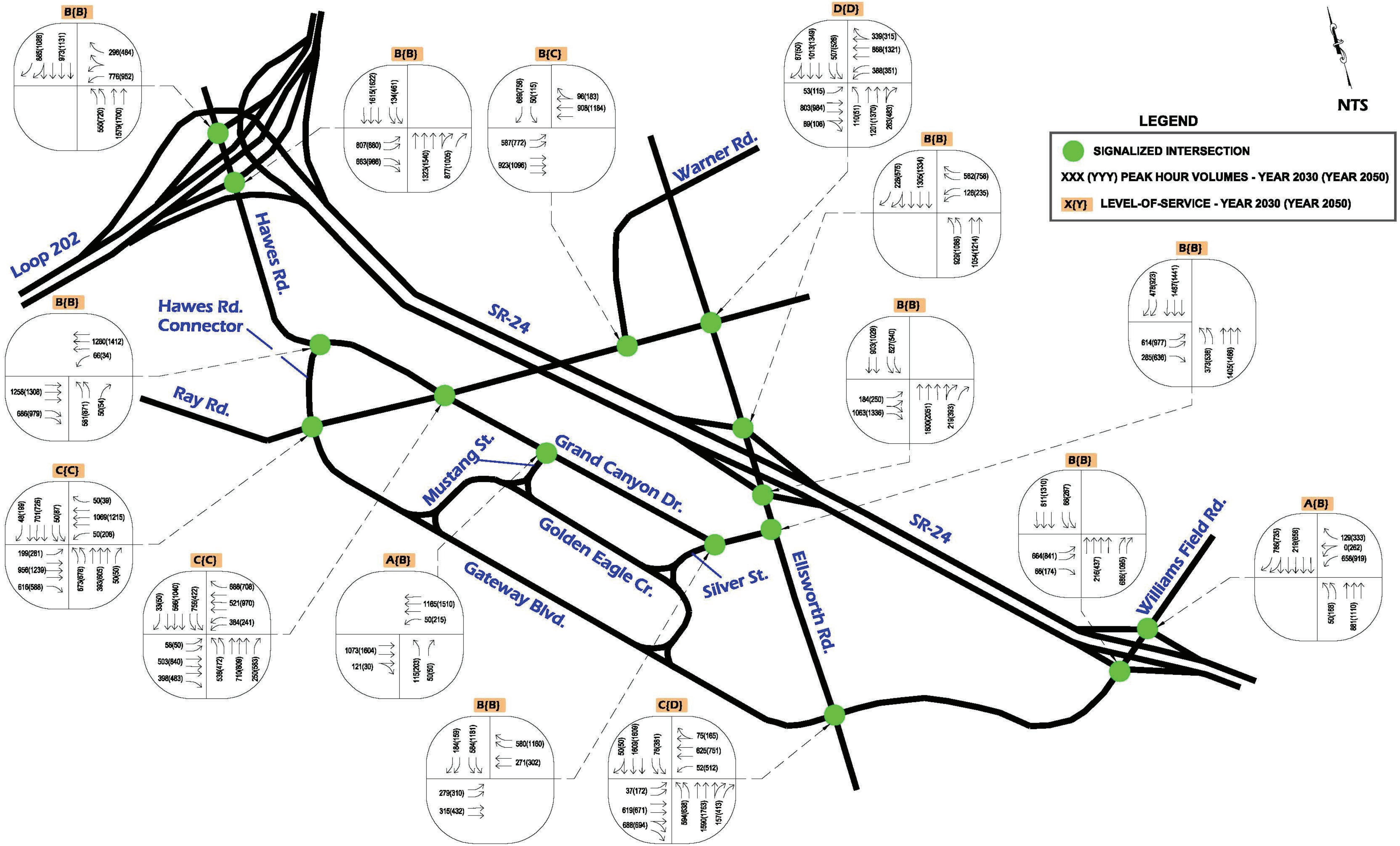


Table 7-14: Level of Service Summary - Alternative A - Year 2030

Level-of-Service Summary
Alternative A - Year 2030

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 1: WB 202 Ramp & Hawes Rd.	SB	R	9.3	13.21	B	16.64	B	215.3
		T	17.0					274.5
		L	0.0					0.0
	WB	R	7.9	26.16	C			294.1
		T	0.0					0.0
		L	32.8					336.1
	NB	R	0.0	10.57	B			0.0
		T	5.2					346.4
		L	26.7					346.4
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 2: EB 202 Ramp & Hawes Rd.	SB	R	0.0	7.25	A	14.53	B	0.0
		T	6.1					213.7
		L	18.0					213.7
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	12.2	16.27	B			460.3
		T	18.9					473.8
		L	0.0					0.0
	EB	R	8.8	20.06	C			376.7
		T	0.0					0.0
		L	29.8					402.0
Node 3: Ray Rd. & Hawes Rd.	SB	R	5.4	46.05	D	43.57	D	843.6
		T	33.7					1071.8
		L	112.4					1083.0
	WB	R	1.4	42.36	D			495.2
		T	48.1					524.7
		L	58.4					524.7
	NB	R	5.5	44.20	D			1543.3
		T	47.4					1656.3
		L	53.4					1659.9
	EB	R	10.4	41.66	D			305.4
		T	39.7					347.9
		L	57.9					347.9
Node 4: Ray Rd. & Grand Canyon Dr.	SB	R	0.0	0.00	A	18.21	B	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	0.0	18.51	B			0.0
		T	11.7					325.5
		L	45.3					325.5
	NB	R	9.8	20.32	C			351.5
		T	0.0					0.0
		L	26.3					386.0
	EB	R	7.1	15.79	B			409.8
		T	22.4					382.5
		L	0.0					0.0
Node 5: Ray Rd. & Warner Rd.	SB	R	6.5	6.50	A	16.23	B	209.0
		T	0.0					0.0
		L	0.0					236.2
	WB	R	0.0	25.10	C			245.9
		T	25.1					282.7
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	17.09	B			0.0
		T	6.5					199.5
		L	28.4					353.6
Node 6: Grand Canyon Dr. & Mustang St.	SB	R	2.2	2.55	A	9.61	A	72.2
		T	2.6					96.0
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	2.69	A			0.0
		T	1.7					109.6
		L	13.2					80.8
	EB	R	0.0	23.60	C			44.0
		T	0.0					0.0
		L	23.6					67.4
Node 7: Grand Canyon Dr. & Silver St.	SB	R	2.7	7.36	A	10.00	A	104.1
		T	0.0					0.0
		L	8.3					141.2
	WB	R	1.6	7.80	A			95.0
		T	17.4					129.1
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	14.83	B			0.0
		T	10.9					213.3
		L	25.4					213.3

Level-of-Service Summary
Alternative A - Year 2030

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 8: Ray Rd. & Ellsworth Rd.	SB	R	20.9	32.87	C	33.45	C	286.3
		T	29.5					308.2
		L	41.0					337.6
	WB	R	20.1	29.54	C			382.6
		T	28.6					406.1
		L	42.2					285.8
	NB	R	21.6	33.74	C			420.1
		T	33.8					456.0
		L	50.7					378.9
	EB	R	0.0	37.65	D			221.5
		T	36.0					242.8
		L	59.6					128.4
Node 9: NB SR-24 Ramp & Ellsworth Rd.	SB	R	6.2	12.49	B	13.42	B	140.4
		T	14.4					258.1
		L	0.0					0.0
	WB	R	8.5	13.62	B			94.5
		T	0.0					0.0
		L	36.1					131.3
	NB	R	0.0	14.15	B			346.4
		T	2.5					481.9
		L	27.8					0.0
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 10: SB SR-24 Ramp & Ellsworth Rd.	SB	R	0.0	9.61	A	13.67	B	0.0
		T	6.3					241.2
		L	15.1					241.2
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	7.4	17.77	B			333.3
		T	19.1					384.2
		L	0.0					0.0
	EB	R	11.0	13.62	B			215.6
		T	0.0					0.0
		L	27.6					258.9
Node 11: Grand Canyon Dr. & Ellsworth Rd.	SB	R	4.5	12.89	B	16.39	B	300.2
		T	15.0					338.6
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	12.91	B			0.0
		T	6.7					402.8
		L	35.3					243.1
	EB	R	28.7	23.38	C			269.6
		T	0.0					0.0
		L	6.4					234.9
Node 12: Williams Field Rd. & Ellsworth Rd.	SB	R	0.0	28.21	C	30.35	C	0.0
		T	25.3					563.1
		L	34.7					510.3
	WB	R	19.5	39.21	D			177.9
		T	43.1					219.7
		L	50.5					125.9
	NB	R	21.5	34.38	C			454.9
		T	31.2					505.4
		L	44.4					527.2
	EB	R	17.5	19.60	B			269.4
		T	32.6					299.8
		L	43.5					299.8
Node 13: SB SR-24 Ramp & Williams Field Rd.	SB	R	7.6	13.07	B	10.37	B	105.3
		T	0.0					0.0
		L	16.5					156.7
	WB	R	0.0	7.44	A			0.0
		T	7.0					142.4
		L	23.3					142.4
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	11.0	10.59	B			130.0
		T	9.5					166.6
		L	0.0					0.0
Node 14: NB SR-24 Ramp and Williams Field Rd.	SB	R	0.0	0.00	A	9.87	A	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	6.3	7.15	A			64.8
		T	11.2					99.1
		L	0.0					0.0
	NB	R	5.2	15.15	C			276.0
		T	0.0					298.5
		L	17.5					298.5
	EB	R	0.0	7.31	A			0.0
		T	7.0					156.4
		L	16.9					156.4

Table 7-15: Level of Service Summary - Alternative A - Year 2050

Level-of-Service Summary
Alternative A - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 1: WB 202 Ramp & Hawes Rd.	SB	R	13.1	16.65	B	27.70	C	235.6
		T	21.1					294.8
		L	0.0					0.0
	WB	R	7.9	48.53	D			595.7
		T	0.0					0.0
		L	60.8					637.7
	NB	R	0.0	17.93	B			0.0
		T	4.8					573.1
		L	54.7					573.1
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 2: EB 202 Ramp & Hawes Rd.	SB	R	0.0	10.86	B	17.77	B	0.0
		T	4.6					257.5
		L	39.3					257.5
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	10.9	14.98	B			421.7
		T	18.4					435.2
		L	0.0					0.0
	EB	R	6.8	27.48	C			1368.2
		T	0.0					0.0
		L	39.9					1394.3
Node 3: Ray Rd. & Hawes Rd.	SB	R	5.1	34.89	C	48.87	D	465.3
		T	31.1					693.4
		L	56.5					704.6
	WB	R	1.9	58.04	E			1312.2
		T	69.5					1341.7
		L	54.6					1341.7
	NB	R	2.8	53.23	D			625.7
		T	59.5					777.9
		L	53.9					804.3
	EB	R	8.0	49.32	D			420.4
		T	44.6					462.9
		L	74.0					462.9
Node 4: Ray Rd. & Grand Canyon Dr.	SB	R	0.0	0.00	A	25.63	C	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	0.0	22.51	C			0.0
		T	10.3					554.0
		L	43.3					554.0
	NB	R	11.0	32.61	C			657.2
		T	0.0					0.0
		L	49.1					691.7
	EB	R	10.4	21.78	C			408.6
		T	32.2					448.4
		L	0.0					0.0
Node 5: Ray Rd. & Warner Rd.	SB	R	10.2	13.17	B	21.27	C	267.2
		T	0.0					0.0
		L	28.3					267.2
	WB	R	0.0	29.60	C			375.6
		T	29.6					412.4
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	21.02	C			0.0
		T	8.0					291.3
		L	34.2					593.3
Node 6: Grand Canyon Dr. & Mustang St.	SB	R	6.3	5.79	A	12.43	B	282.9
		T	5.7					306.8
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	8.91	A			0.0
		T	1.7					118.4
		L	53.5					411.8
	EB	R	0.0	22.60	C			52.0
		T	0.0					0.0
		L	22.6					75.4
Node 7: Grand Canyon Dr. & Silver St.	SB	R	3.6	11.50	B	13.90	B	275.1
		T	0.0					0.0
		L	12.9					312.2
	WB	R	3.6	6.68	A			202.3
		T	17.2					236.4
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	23.53	C			0.0
		T	9.5					300.9
		L	37.9					300.9

Level-of-Service Summary
Alternative A - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 8: Ray Rd. & Ellsworth Rd.	SB	R	30.1	40.87	D	42.22	D	411.0
		T	37.3					432.9
		L	50.8					398.7
	WB	R	22.2	33.79	C			633.6
		T	29.4					657.1
		L	54.2					474.9
	NB	R	14.2	41.18	D			495.0
		T	48.1					531.9
		L	63.5					338.2
	EB	R	38.5	53.03	D			418.8
		T	49.1					440.2
		L	122.0					256.0
Node 9: NB SR-24 Ramp & Ellsworth Rd.	SB	R	14.2	18.76	B	20.34	C	300.6
		T	21.0					377.0
		L	0.0					0.0
	WB	R	12.6	20.33	C			246.9
		T	0.0					0.0
		L	36.8					283.8
	NB	R	0.0	21.94	C			637.7
		T	3.0					708.7
		L	38.9					0.0
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 10: SB SR-24 Ramp & Ellsworth Rd.	SB	R	0.0	13.01	B	19.73	B	0.0
		T	5.2					317.4
		L	26.4					317.4
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	8.3	17.66	B			488.3
		T	20.3					539.1
		L	0.0					0.0
	EB	R	25.8	28.51	C			502.8
		T	0.0					0.0
		L	39.8					546.1
Node 11: Grand Canyon Dr. & Ellsworth Rd.	SB	R	8.5	18.57	B	21.32	C	430.6
		T	23.3					469.1
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	21.01	C			0.0
		T	10.7					462.3
		L	47.1					411.8
	EB	R	33.1	24.39	C			926.7
		T	0.0					0.0
		L	6.8					892.1
Node 12: Williams Field Rd. & Ellsworth Rd.	SB	R	0.0	47.31	D	40.89	D	0.0
		T	47.3					1062.9
		L	53.0					24.3
	WB	R	31.5	47.88	D			373.2
		T	44.6					415.1
		L	61.1					320.2
	NB	R	9.8	28.16	C			472.1
		T	23.1					522.8
		L	63.7					359.0
	EB	R	17.7	40.23	D			424.4
		T	47.3					454.8
		L	51.3					454.8
Node 13: SB SR-24 Ramp & Williams Field Rd.	SB	R	8.7	24.79	C	15.45	B	329.8
		T	0.0					0.0
		L	29.4					381.3
	WB	R	0.0	9.41	A			0.0
		T	4.9					167.7
		L	26.2					167.7
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	9.8	12.15	B			233.1
		T	16.7					269.7
		L	0.0					0.0
Node 14: NB SR-24 Ramp and Williams Field Rd.	SB	R	0.0	0.00	A	13.63	B	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	6.5	9.63	A			107.9
		T	13.7					142.3
		L	0.0					0.0
	NB	R	12.6	25.64	D			355.0
		T	0.0					377.5
		L	32.6					377.5
	EB	R	0.0	5.64	A			0.0
		T	3.6					169.6
		L	17.8					169.6

Table 7-16: Level of Service Summary - Alternative A - Flyover - Year 2050

Level-of-Service Summary
Alternative A -Flyover - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 1: WB 202 Ramp & Hawes Rd.	SB	R	15.3	18.82	B	23.00	C	275.7
		T	22.5					334.7
		L	0.0					0.0
	WB	R	10.3	37.81	D			507.4
		T	0.0					0.0
		L	47.9					549.4
	NB	R	0.0	12.38	B			0.0
		T	5.7					527.7
		L	26.0					527.7
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 2: EB 202 Ramp & Hawes Rd.	SB	R	0.0	8.91	A	17.23	B	0.0
		T	5.1					283.4
		L	20.7					283.4
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	11.2	16.32	B			337.5
		T	19.6					351.0
		L	0.0					0.0
	EB	R	13.1	26.44	C			455.7
		T	0.0					0.0
		L	37.5					478.5
Node 3: Ray Rd. & Hawes Rd.	SB	R	13.8	34.37	C	30.58	C	424.9
		T	0.0					0.0
		L	37.8					619.5
	WB	R	2.6	21.64	C			421.3
		T	30.6					450.4
		L	61.0					450.4
	NB	R	4.0	45.23	D			111.0
		T	62.1					106.3
		L	42.2					297.6
	EB	R	1.8	21.10	C			248.8
		T	21.9					291.9
		L	55.8					291.9
Node 4: Ray Rd. & Grand Canyon Dr.	SB	R	0.0	0.00	A	20.73	C	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	0.0	15.17	B			0.0
		T	7.0					289.8
		L	33.7					289.8
	NB	R	14.4	28.40	C			354.4
		T	0.0					0.0
		L	37.3					389.0
	EB	R	10.8	18.63	B			337.9
		T	23.2					377.6
		L	0.0					0.0
Node 5: Ray Rd. & Warner Rd.	SB	R	12.1	14.63	B	18.34	B	284.5
		T	0.0					0.0
		L	28.7					284.5
	WB	R	0.0	28.10	C			427.1
		T	28.1					463.8
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	12.30	B			0.0
		T	4.4					162.0
		L	24.2					365.5
Node 6: Grand Canyon Dr. & Mustang St.	SB	R	13.3	14.99	B	14.08	B	247.5
		T	15.4					271.4
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	7.35	A			0.0
		T	3.6					117.5
		L	17.4					190.2
	EB	R	0.0	19.90	B			169.8
		T	0.0					0.0
		L	19.9					193.2
Node 7: Grand Canyon Dr. & Silver St.	SB	R	4.9	12.72	B	10.41	B	196.0
		T	0.0					0.0
		L	14.4					233.1
	WB	R	6.5	7.40	A			94.7
		T	10.3					128.8
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	11.10	B			0.0
		T	7.0					128.9
		L	22.6					128.9

Level-of-Service Summary
Alternative A -Flyover - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 8: Ray Rd. & Ellsworth Rd.	SB	R	28.3	32.96	C	39.91	D	358.3
		T	29.4					380.3
		L	42.9					277.9
	WB	R	25.7	33.39	C			486.8
		T	31.9					510.4
		L	45.5					306.3
	NB	R	11.4	31.67	C			485.3
		T	33.4					521.3
		L	51.1					252.4
	EB	R	54.3	61.63	E			651.2
		T	62.9					672.6
		L	49.4					96.9
Node 9: NB SR-24 Ramp & Ellsworth Rd.	SB	R	15.7	18.97	B	16.67	B	321.3
		T	20.3					396.8
		L	0.0					0.0
	WB	R	12.8	17.69	B			282.9
		T	0.0					0.0
		L	34.7					319.9
	NB	R	0.0	13.35	B			549.4
		T	2.0					543.0
		L	25.4					0.0
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 10: SB SR-24 Ramp & Ellsworth Rd.	SB	R	0.0	13.75	B	23.25	C	0.0
		T	3.4					389.1
		L	30.4					389.1
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	6.4	14.88	B			339.4
		T	16.2					385.0
		L	0.0					0.0
	EB	R	39.0	41.11	D			1104.7
		T	0.0					0.0
		L	51.2					1148.0
Node 11: Grand Canyon Dr. & Ellsworth Rd.	SB	R	7.4	18.02	B	23.73	C	419.2
		T	22.8					457.7
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	15.87	B			0.0
		T	10.5					409.5
		L	36.2					235.4
	EB	R	49.1	37.31	D			576.7
		T	0.0					0.0
		L	7.8					542.0
Node 12: Williams Field Rd. & Ellsworth Rd.	SB	R	0.0	30.88	C	31.68	C	0.0
		T	29.7					608.0
		L	46.6					92.9
	WB	R	15.0	33.47	C			224.5
		T	25.2					266.3
		L	52.7					289.4
	NB	R	21.5	28.31	C			725.6
		T	26.2					776.2
		L	43.2					325.0
	EB	R	20.7	34.07	C			284.6
		T	43.5					314.6
		L	101.9					314.6
Node 13: SB SR-24 Ramp & Williams Field Rd.	SB	R	9.0	25.22	C	14.68	B	230.6
		T	0.0					0.0
		L	30.1					282.0
	WB	R	0.0	7.33	A			0.0
		T	3.6					151.1
		L	22.2					151.1
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	8.9	11.49	B			222.9
		T	16.5					259.5
		L	0.0					0.0
Node 14: NB SR-24 Ramp and Williams Field Rd.	SB	R	0.0	0.00	A	13.55	B	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	6.9	10.35	B			69.9
		T	15.5					102.9
		L	0.0					0.0
	NB	R	11.7	23.25	C			316.6
		T	0.0					339.1
		L	30.2					339.1
	EB	R	0.0	7.06	A			0.0
		T	4.5					150.2
		L	17.6					150.2

Table 7-17: Level of Service Summary - Alternative B - Year 2030

Level-of-Service Summary
Alternative B - Year 2030

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 1: WB 202 Ramp & Hawes Rd.	EB	L / T / R	0.0 / 0.0 / 0.0	0.00	A	16.91	B	0.0 / 0.0 / 0.0
	NB	L / T / R	27.8 / 5.6 / 0.0	11.41	B			331.4 / 331.4 / 0.0
	WB	L / T / R	32.3 / 0.0 / 7.5	25.44	C			333.8 / 0.0 / 291.8
	SB	L / T / R	0.0 / 17.7 / 9.8	13.89	B			0.0 / 300.8 / 254.3
Node 2: EB 202 Ramp & Hawes Rd.	EB	L / T / R	29.4 / 0.0 / 12.7	21.98	C	14.64	B	395.0 / 0.0 / 369.6
	NB	L / T / R	0.0 / 17.4 / 9.4	14.25	B			0.0 / 305.7 / 292.4
	WB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	SB	L / T / R	19.6 / 6.7 / 0.0	7.69	A			283.1 / 283.1 / 0.0
Node 3: Hawes Rd. and Hawes Rd. Connector	EB	L / T / R	0.0 / 14.7 / 1.1	9.82	A	10.01	B	0.0 / 277.8 / 0.0
	NB	L / T / R	9.5 / 0.0 / 0.0	9.50	A			152.2 / 0.0 / 69.6
	WB	L / T / R	31.1 / 9.8 / 0.0	10.70	B			213.6 / 213.6 / 0.0
	SB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
Node 4: Ray Rd. and Hawes Rd. Connector	EB	L / T / R	62.1 / 18.6 / 11.1	20.42	C	28.68	C	388.2 / 388.2 / 338.3
	NB	L / T / R	31.2 / 13.4 / 0.0	24.75	C			665.5 / 665.5 / 623.7
	WB	L / T / R	0.0 / 31.1 / 0.0	31.10	C			349.1 / 349.1 / 324.1
	SB	L / T / R	0.0 / 40.4 / 6.2	38.45	D			219.3 / 219.3 / 176.8
Node 5: Ray Rd. & Warner Rd.	EB	L / T / R	28.9 / 8.5 / 0.0	16.32	B	17.08	B	266.7 / 168.0 / 0.0
	NB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	WB	L / T / R	0.0 / 28.0 / 20.6	27.33	C			0.0 / 385.4 / 348.2
	SB	L / T / R	0.0 / 0.0 / 7.6	7.60	A			412.9 / 0.0 / 385.2
Node 6: Silver St. & Grand Canyon Dr.	EB	L / T / R	27.0 / 10.8 / 0.0	18.67	B	12.68	B	144.8 / 144.8 / 0.0
	NB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	WB	L / T / R	0.0 / 15.9 / 7.2	9.72	A			0.0 / 152.1 / 118.0
	SB	L / T / R	11.5 / 0.0 / 4.4	9.65	A			211.2 / 0.0 / 174.2
Node 7: Ray Rd & Ellsworth Rd.	EB	L / T / R	69.9 / 43.7 / 34.9	44.24	D	42.43	D	217.2 / 487.5 / 466.1
	NB	L / T / R	57.6 / 57.3 / 40.6	54.46	D			910.1 / 954.9 / 918.9
	WB	L / T / R	51.6 / 25.2 / 21.3	31.26	C			330.3 / 392.9 / 369.2
	SB	L / T / R	51.0 / 35.2 / 24.3	39.76	D			341.3 / 337.0 / 315.1

Level-of-Service Summary
Alternative B - Year 2030

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 8: NB SR-24 Ramp & Ellsworth Rd.	EB	L / T / R	0.0 / 0.0 / 0.0	0.00	A	12.84	B	0.0 / 0.0 / 0.0
	NB	L / T / R	24.7 / 1.9 / 0.0	12.43	B			0.0 / 564.2 / 333.8
	WB	L / T / R	33.9 / 0.0 / 7.9	12.46	B			101.0 / 0.0 / 64.2
	SB	L / T / R	0.0 / 15.1 / 4.2	13.63	B			0.0 / 301.7 / 22.9
Node 9: SB SR-24 Ramp & Ellsworth Rd.	EB	L / T / R	30.9 / 0.0 / 11.4	14.43	B	14.77	B	366.0 / 0.0 / 322.7
	NB	L / T / R	0.0 / 20.5 / 9.6	19.22	B			0.0 / 533.1 / 482.2
	WB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	SB	L / T / R	17.4 / 6.7 / 0.0	10.68	B			281.5 / 281.5 / 0.0
Node 10: Grand Canyon Dr. & Ellsworth Rd.	EB	L / T / R	6.8 / 0.0 / 29.3	21.75	C	18.01	B	191.8 / 0.0 / 226.5
	NB	L / T / R	37.8 / 10.4 / 0.0	16.41	B			295.8 / 412.1 / 0.0
	WB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	SB	L / T / R	0.0 / 19.0 / 6.0	15.88	B			0.0 / 458.9 / 420.4
Node 11: Williams Field Rd. & Ellsworth Rd.	EB	L / T / R	0.0 / 36.2 / 17.6	26.44	C	32.98	C	368.7 / 368.7 / 338.4
	NB	L / T / R	63.3 / 28.8 / 21.8	36.77	D			490.3 / 592.8 / 542.3
	WB	L / T / R	57.3 / 27.9 / 16.2	28.66	C			98.0 / 281.2 / 239.3
	SB	L / T / R	72.5 / 38.4 / 0.0	40.06	D			91.1 / 673.1 / 626.3
Node 12: SB SR-24 Ramp & Williams Field Rd.	EB	L / T / R	0.0 / 10.3 / 6.9	7.73	A	10.35	B	0.0 / 194.6 / 158.0
	NB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	WB	L / T / R	15.4 / 8.1 / 0.0	8.66	A			155.3 / 155.3 / 0.0
	SB	L / T / R	15.5 / 0.0 / 6.8	14.64	B			251.8 / 251.8 / 200.4
Node 13: NB SR-24 Ramp and Williams Field Rd.	EB	L / T / R	0.0 / 6.5 / 0.0	6.50	A	8.87	A	151.4 / 151.4 / 0.0
	NB	L / T / R	15.4 / 0.0 / 6.1	13.89	B			209.5 / 209.5 / 186.9
	WB	L / T / R	0.0 / 8.8 / 5.5	6.21	A			0.0 / 104.1 / 69.8
	SB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
Node 14: Ray Rd. & Hawes Rd./Grand Canyon Dr	EB	L / T / R	45.3 / 27.2 / 4.4	17.99	C	25.05	C	169.5 / 169.5 / 154.4
	NB	L / T / R	36.2 / 35.0 / 1.0	29.49	D			264.3 / 264.3 / 241.6
	WB	L / T / R	41.4 / 18.3 / 5.7	18.84	C			351.1 / 351.1 / 341.9
	SB	L / T / R	39.5 / 28.3 / 0.8	33.88	D			656.4 / 656.4 / 644.4
Node 15: Grand Canyon Dr. & Mustang St.	EB	L / T / R	20.9 / 0.0 / 0.0	20.90	C	9.79	A	245.5 / 0.0 / 219.2
	NB	L / T / R	0.0 / 4.6 / 0.0	4.60	A			0.0 / 141.5 / 0.0
	WB	L / T / R	0.0 / 0.0 / 0.0	0.00	A			0.0 / 0.0 / 0.0
	SB	L / T / R	0.0 / 3.8 / 4.5	3.87	A			0.0 / 181.9 / 157.3

Table 7-18: Level of Service Summary - Alternative B - Year 2050

Level-of-Service Summary
Alternative B - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 1: WB 202 Ramp & Hawes Rd.	SB	R	12.5	15.49	B	19.41	B	245.9
		T	18.5					305.1
		L	0.0					0.0
	WB	R	11.0	27.20	C			363.9
		T	0.0					0.0
		L	35.2					406.0
	NB	R	0.0	15.52	B			0.0
		T	5.6					376.6
		L	42.8					376.6
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 2: EB 202 Ramp & Hawes Rd.	SB	R	0.0	11.39	B	17.24	B	0.0
		T	6.0					256.1
		L	30.9					256.1
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	7.4	13.17	B			238.2
		T	16.8					257.8
		L	0.0					0.0
	EB	R	20.2	27.17	C			396.8
		T	0.0					0.0
		L	34.5					422.3
Node 3: Hawes Rd. and Hawes Rd. Connector	SB	R	0.0	0.00	A	12.94	B	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	0.0	10.05	B			0.0
		T	9.8					241.3
		L	21.9					241.3
	NB	R	8.3	21.11	C			256.6
		T	0.0					0.0
		L	21.8					339.3
	EB	R	1.4	7.67	A			0.0
		T	12.4					194.5
		L	0.0					0.0
Node 4: Ray Rd. and Hawes Rd. Connector	SB	R	8.9	37.70	D	32.56	C	212.2
		T	43.5					254.8
		L	49.8					254.8
	WB	R	5.3	30.24	C			340.7
		T	26.1					365.6
		L	61.6					365.6
	NB	R	0.0	36.87	D			346.3
		T	28.3					388.1
		L	45.0					388.1
	EB	R	11.6	25.43	C			377.1
		T	22.1					427.0
		L	74.5					427.0
Node 5: Ray Rd. & Warner Rd.	SB	R	9.8	11.91	B	23.06	C	243.9
		T	0.0					0.0
		L	24.7					243.9
	WB	R	38.8	42.77	D			431.8
		T	43.3					469.1
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	14.51	B			0.0
		T	5.1					223.6
		L	28.3					248.1
Node 6: Silver St. & Grand Canyon Dr.	SB	R	3.8	11.33	B	13.22	B	344.4
		T	0.0					0.0
		L	12.5					381.5
	WB	R	10.3	11.12	B			256.5
		T	14.7					290.6
		L	0.0					0.0
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	0.0	17.21	B			0.0
		T	7.6					210.3
		L	29.6					210.3
Node 7: Ray Rd & Ellsworth Rd.	SB	R	52.4	28.89	C	35.78	D	317.0
		T	23.6					338.9
		L	42.8					240.4
	WB	R	24.8	33.51	C			473.1
		T	31.7					496.7
		L	47.3					238.1
	NB	R	13.2	35.81	D			610.3
		T	43.4					646.1
		L	51.3					151.0
	EB	R	33.2	44.90	D			479.0
		T	40.0					500.3
		L	105.4					217.2

Level-of-Service Summary
Alternative B - Year 2050

Intersection	Approach Direction	Movement	Delay by movement (sec)	Weighted Delay by Approach (sec)	Approach LOS	Intersection Delay (sec)	Intersection LOS	Max Queue (feet)
Node 8: NB SR-24 Ramp & Ellsworth Rd.	SB	R	12.7	16.60	B	14.56	B	262.5
		T	18.4					340.1
		L	0.0					0.0
	WB	R	11.5	16.23	B			171.0
		T	0.0					0.0
		L	32.9					207.9
	NB	R	0.0	10.84	B			406.0
		T	3.3					499.0
		L	19.5					0.0
	EB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
Node 9: SB SR-24 Ramp & Ellsworth Rd.	SB	R	0.0	12.98	B	15.92	B	0.0
		T	6.4					307.5
		L	23.8					307.5
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	9.4	14.88	B			454.8
		T	15.9					505.7
		L	0.0					0.0
	EB	R	17.6	19.89	B			289.7
		T	0.0					0.0
		L	32.1					333.0
Node 10: Grand Canyon Dr. & Ellsworth Rd.	SB	R	8.3	14.94	B	19.00	B	364.5
		T	19.0					403.0
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	18.26	B			0.0
		T	9.3					568.6
		L	43.0					504.9
	EB	R	36.3	23.79	C			522.7
		T	0.0					0.0
		L	6.6					490.8
Node 11: Williams Field Rd. & Ellsworth Rd.	SB	R	0.0	51.56	D	42.85	D	770.2
		T	49.2					817.0
		L	61.8					513.8
	WB	R	16.8	37.50	D			275.2
		T	27.1					317.0
		L	61.0					383.1
	NB	R	11.8	41.87	D			892.6
		T	42.7					943.8
		L	60.8					474.0
	EB	R	29.1	40.47	D			360.7
		T	52.2					391.1
		L	21.9					391.1
Node 12: SB SR-24 Ramp & Williams Field Rd.	SB	R	9.0	24.96	C	14.78	B	392.3
		T	0.0					443.8
		L	28.6					443.8
	WB	R	0.0	8.31	A			0.0
		T	6.1					238.9
		L	20.1					238.9
	NB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	EB	R	10.0	11.06	B			280.5
		T	13.6					317.0
		L	0.0					0.0
Node 13: NB SR-24 Ramp and Williams Field Rd.	SB	R	0.0	0.00	A	12.18	B	0.0
		T	0.0					0.0
		L	0.0					0.0
	WB	R	8.0	11.82	B			118.0
		T	16.1					152.1
		L	0.0					0.0
	NB	R	13.0	20.42	C			482.2
		T	0.0					504.8
		L	29.1					504.8
	EB	R	0.0	4.30	A			0.0
		T	4.3					174.9
		L	21.7					174.9
Node 14: Ray Rd. & Hawes Rd./Grand Canyon Dr	SB	R	4.1	33.40	D	22.04	C	227.3
		T	30.2					243.5
		L	41.0					243.5
	WB	R	6.2	15.35	C			287.6
		T	14.9					315.9
		L	44.3					315.9
	NB	R	1.0	21.85	C			216.8
		T	29.9					239.2
		L	35.9					239.2
	EB	R	4.8	17.58	C			191.3
		T	25.3					214.6
		L	55.3					214.6
Node 15: Grand Canyon Dr. & Mustang St.	SB	R	6.7	9.74	A	13.37	B	298.8
		T	9.8					323.4
		L	0.0					0.0
	WB	R	0.0	0.00	A			0.0
		T	0.0					0.0
		L	0.0					0.0
	NB	R	0.0	7.99	A			0.0
		T	4.2					184.5
		L	34.1					170.5
	EB	R	0.0	22.40	C			183.9
		T	0.0					0.0
		L	22.4					210.2

Future Evaluation

The following are some of the considerations to be evaluated during the next phase of the planning process and may warrant further study beyond the scope of the Northeast Area Development Plan..

Ray Road & Hawes Road

While this intersection works adequately as a conventional intersection based on 2030 traffic volumes the projected growth of the Phoenix-Mesa Gateway Airport is anticipated to be 10 million enplanements by the year 2050. A conventional intersection at Hawes Road and Ray Road cannot accommodate the future airport traffic projected past the year 2030. An at-grade SPUI configuration at Hawes Road and Ray Road in 2030 provides flexibility for future expansion and is able to accommodate the addition of the flyover and grade separation from Ray Road to provide uninterrupted access to the Airport from both the SR 202L. A detailed analysis should be conducted closer to that stage of airport development to determine the ideal intersection configuration. However, adequate future right-of-way and/or setbacks should be provided and maintained to allow for the future expansion of the Ray Road and Hawes Road intersection to a potential SPUI. The additional right-of-way that will be necessary for the at-grade SPUI is about 7.5 acres including the right-of-way for the future Light Rail on the west side of Hawes Road.

Future intersection on Hawes Road between Ray Road and SR 202L

There is future development planned along either side of Hawes Road between Ray Road and SR 202L. To provide access for this development along Hawes Road a future intersection is desirable and may be necessary. This intersection can be a full access intersection initially.

The location of this intersection depends on the configuration of the intersection at Ray Road and Hawes Road. If the intersection at Ray Road and Hawes Road is expanded to a SPUI, the future intersection providing access to the development along Hawes Road if located within 1100 feet from the center of the intersection of Hawes Road and Ray Road, and have to be modified to accommodate the future flyover ramps to the Airport. Detailed analysis should be conducted to determine what improvements should be made. Right-of-way and/or setbacks should be maintained to allow for expansion of the future intersection to accommodate the SPUI and flyover ramps. The location of the future intersection along Hawes Road between SR 202L and Ray Road, and its configuration and operation, needs to be balanced between serving the adjacent development and providing high capacity to and from the Airport. Future analysis is required to balance these interests.

7.6.4 Support Facilities

The support facilities inherent in the preferred concept include air cargo (belly as well as all-freight), airport support, airline support (GSE, aircraft maintenance, etc.), fueling, ATCT, aircraft rescue and fire fighting facility (ARFF), and vehicular parking (garage and surface lots).

To a large extent, those items presented in the preferred concept remain unchanged in the refined concept, with the exception of the size and orientation of the air cargo facilities and the fuel farm. Both of these land uses were slightly shifted in orientation to accommodate a more direct access roadway from the east to the back-of-house delivery points for the terminal complex. In making these subtle adjustments, the planned location for the SRP substation was shifted further south of Gateway Boulevard, off of Ellsworth to a point that would be more visually screenable. Specific fuel farm components include:

- Three (3) 250,000 gallon tanks for a total capacity of 750,000 gallons
- Two (2) fuel truck unloading islands to receive fuel delivery
- Four (4) truck loading islands for aircraft fuel trucks
- Basic operations building and small testing lab for fuel receipt
- Hydrant system is not included

The two items that were added to the overall concept include acreage preserved for airport and airline support, namely for aircraft maintenance bases in the future. These are viewed as very likely aeronautical demands at PMGA, and as such, adequate property should be reserved. Land areas along Runway 12L-30R, located both east and west of the terminal complex are reserved for these uses.

The final remaining land area with direct airside accessibility in the far northwest corner of the study area, but limited development potential due to site constraints and landside accessibility, is designated as a stormwater detention basin.

The final support facilities component that went through modest change was vehicular parking. Surface parking for employees as well as public long term and economy parking was added between Gateway Boulevard and the other airport/airline support areas. These lots would be provided with shuttle access due the proximity to the terminal facilities, but could function as overflow lots for vacation and high peak activity periods. The garage storage was capped at four levels per garage for aesthetic purposes to maintain visibility throughout the terminal and curbside areas. With the long-range introduction of mass transit access via a rail corridor along Golden Eagle Circle, the lower two levels of the garage in and around the transit station, shown in a dashed line and measuring approximately 430,000 square feet, would be dedicated as a ground transportation center, thereby shifting many of the curbside movements by commercial vehicles to this consolidated area, and hopefully improving curbside congestion.. These features would be connected to the terminal building and to the commercial development properties via an open air greenway corridor, complete with sidewalks, water features, moving sidewalks, canopies, and southwest landscaping. This corridor would be between 150 and 300 feet in width. Finally, inside the terminal loop road network, two long-term surface lots were added to the east and west to add additional critical parking in an effort to enable garage construction.

Section 8: Implementation Plan

8.1 Introduction

The implementation of the Northeast Area Development Plan (NADP) involves consideration of both phasing and funding of the proposed terminal, associated airfield, support/ancillary facilities, and ground access projects. This section provides a general overview of the sequencing of projects identified in the NADP and establishes preliminary cost estimates in 2010 dollars for the various phases and their associated projects. In addition, a discussion of the financial feasibility of the preferred development plan will identify funding sources in support of the airport's capital improvement program.

8.2 Program Phasing Plans

The phased development of the NADP is outlined in this section and is scheduled to occur as demand warrants. The phased approach was accomplished through the identification of activity levels that when reached, would require additional infrastructure in order to be accommodated. Each activity level is supported by a range of infrastructure improvements that are phased in order to maximize flexibility and cost effectiveness, while minimizing disruption to existing operations. These activity levels and their associated Phases are:

- Phase I – 1.5 million annual enplanements
- Phase II – 2.2 million annual enplanements
- Phase III – 5 million annual enplanements
- Phase IV – 10 million annual enplanements

The phases detailed in this section are discussed and depicted separately; however, portions of each phase could occur simultaneously, depending on future operational requirements and aviation trends. Refinement of the phasing plan will occur throughout the design and construction process as demand warrants.

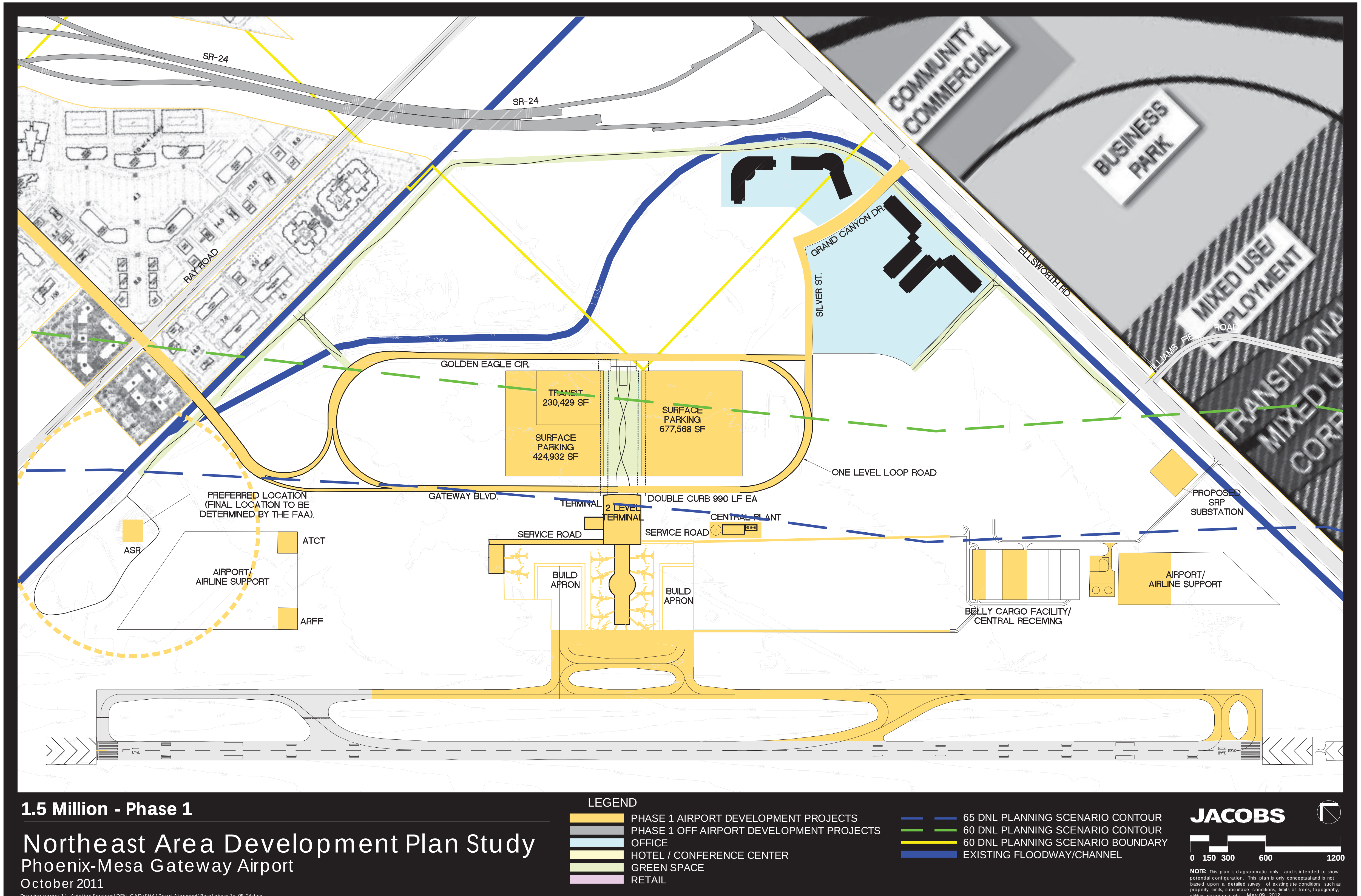
8.2.1 Phase I – 1.5 Million Enplanements

Phase I of the NADP should be programmed to accommodate 1.5 million enplaned passengers. This phase will serve to establish operations on a previously undeveloped area of the airfield, therefore requiring some areas larger than what is programmed in the facility requirements section of this document in order to establish basic functions and support facilities. The major components of Phase I, depicted in Exhibit 8-1 include:

- Airfield - In order to provide suitable airfield access for the proposed new air carrier terminal, Phase I encompasses the development of a full parallel Group V taxiway northeast of Runway 12L-30R, two Group IV access taxilanes and an apron edge taxilane. The development of these airfield assets, along with an apron capable of accommodating Group III and IV aircraft on a regular basis, will provide efficient airfield access capable of supporting the proposed air carrier operations.

- Terminal Building – The development of an approximate 300,000 square-foot terminal building will be required in order to accommodate the forecast 1,500,000 annual enplanements at a level of service desired by the PMGA Authority. The terminal building will be located midfield of Runway 12L-30R and will be constructed as a pier terminal type concept. The building will include a ticketing/check-in area of approximately 8,000 square feet, an approximately 41,000 square-foot baggage claim area and 20,000 square feet of concessions space. In addition, the building will be constructed to support the following functional areas:

Exhibit 8-1: NADP Phase I



- Airline Operations – 21,457 total square footage
- Gate Facilities – 27,622 total square footage
- Rental Car Counters – 4,379 total square footage
- Public Waiting Lobby – 16,315 total square footage
- TSA Security Areas – 15,107 total square footage
- Restrooms – 6,118 total square footage
- Administrative Offices/Conference Rooms – 15,010 total square footage
- EDS Outbound Baggage Screening – 19,320 total square footage

- Gates – This phase will include the development of 14 gates that will be oriented in order to accommodate 12 Group III aircraft and two Group IV aircraft.

- Access Roadways/Terminal Curb – The proposed terminal building will be served by a departures curb that measures approximately 830 feet in length and an arrivals curb that measures 969 feet in length. The curb fronts will be accessed from the proposed Gateway Boulevard by three through lanes and the development of a loop road northeast of the proposed new terminal building. The loop road will be served by new roadway access from Ellsworth Road via Grand Canyon Drive and Ray Road/Hawes Road. This newly developed access will not only be crucial for the development of the proposed new terminal building, but also the trigger for further development of the planned office, retail and hotel space northeast of the planned terminal building.

- Auto Parking – The relocation of the air carrier operations from the west side of the Airport to the east side will require the construction of 3,300 patron auto parking stalls, 550 employee parking stalls and 525 rental car ready/return spaces. These parking requirements will be served by the development of surface parking facilities that have the ability to be expanded vertically, located within a new loop road to be called Golden Eagle Circle and Gateway Boulevard.

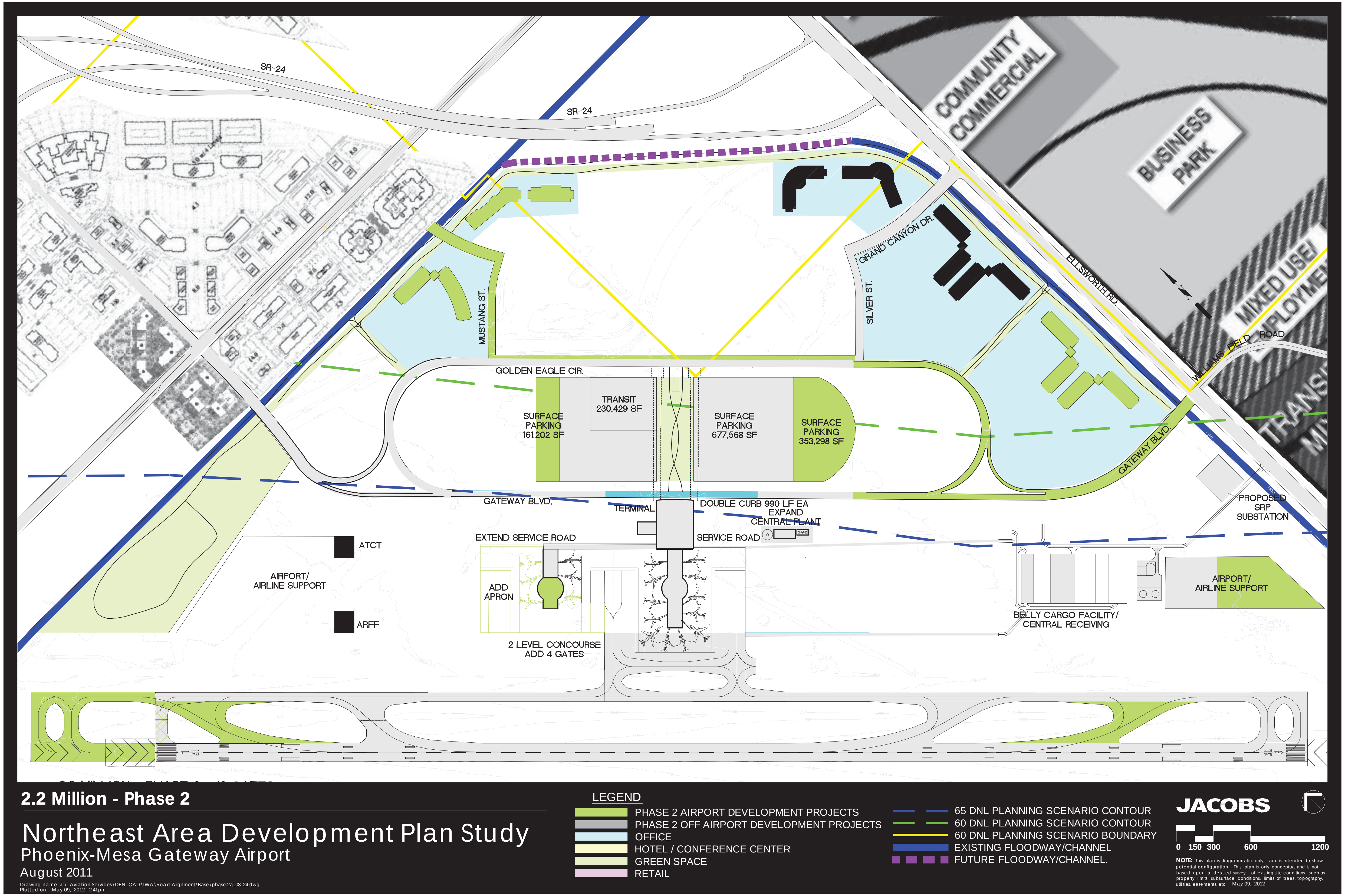
- Ancillary/Support Facilities – In order to provide a self-sufficient area northeast of the existing airfield, the development of support facilities is necessary during Phase I. It is recommended that the belly cargo facility be developed to process, sort and distribute cargo items in a timely fashion. In addition, it should be co-located with the central receiving facility. These facilities should be south of the proposed terminal building and easily accessible to the air carrier apron and terminal concessions. This phase should also accommodate a new ARFF and ATCT facility north of the proposed airport terminal.

- Infrastructure Improvements – In order to provide a self sufficient terminal area, this phase will also require the establishment of relocated and expanded utilities (e.g., storm water collection and conveyance, water lines, electrical, gas, sanitary sewer system, etc.), service road segments and perimeter fencing.

8.2.2 Phase II – 2.2 Million Enplanements

Phase II of the NADP is programmed to accommodate 2.2 million enplaned passengers annually. This phase encompasses additional terminal concourse development, airfield improvements and ground transportation access in order to maintain the level of service required by the PMGA Authority in accommodating a growing passenger base. Planning for this phase should begin once the Phase I components reach 60 percent of their capacity and construction should begin once 80 percent of the planned Phase I capacity is reached. The major components of Phase II, depicted in Exhibit 8-2, include:

Exhibit 8-2: NADP Phase II



- Airfield – This phase includes a 1,000-foot extension to the north of Runway 12L-30R, associated parallel taxiway improvements, as well as two additional high speed exit taxiways. Additional apron expansion will occur to the north to accommodate an expanded north concourse.

- Terminal Building – The major terminal building improvements will include additional concourse development to the north providing an additional four gates and approximately 37,000 square feet of additional space on the secure side of the terminal building. The four new gates will require additional air carrier apron that will be served by the access taxilanes developed in Phase I.

- Access Roadways/Terminal Curb – Minimal improvements to the departure and arrivals curb as well as curb access, will be required to accommodate this level of demand. However, an expansion of the terminal loop road to the south, as well as improved access to Ellsworth Road via an extension of Gateway Boulevard shall be completed in this phase. Additional access to Ray Road from Golden Eagle Circle via the development of Mustang Street and the northernmost section of Grand Canyon Drive should also occur in this phase. These developments will serve a dual-purpose of both improving terminal/private development access as well as setting the stage for future terminal area expansion.

- Auto Parking – The increase in enplaned passengers will require additional surface parking areas to accommodate 7,500 patron and 1,250 employee auto parking stalls in addition to 1,750 rental car ready/return stalls.

- Ancillary/Support Facilities – While the basic support functions should be established during Phase I, Phase II should include planning for improved airport/airline support areas.

8.2.3 Phase III – 5 Million Enplanements

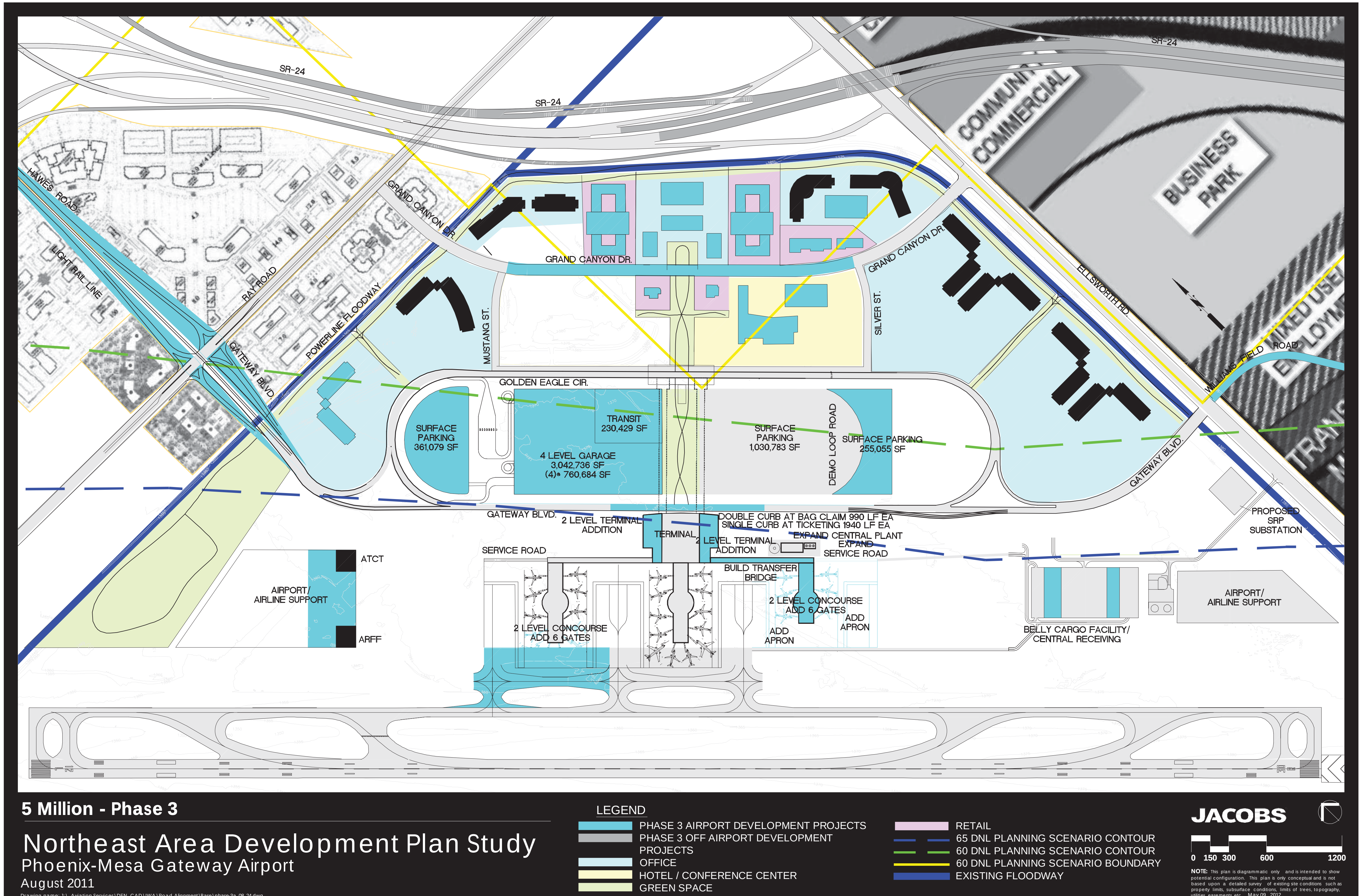
Phase III of the NADP is programmed to accommodate 5 million enplaned passengers. Planning for this phase should begin once the terminal area developed in Phases I and II reaches 60 percent of the designed capacity and construction should begin once 80 percent of the designed capacity is reached. This phase encompasses additional terminal concourse development north and south of the terminal building core, airfield access improvements and ground transportation access in order to maintain the level of service required by the PMGA Authority in accommodating a growing passenger base. The major components of Phase III, depicted in Exhibit 8-3, include:

- Airfield – This phase does not require significant airfield improvements. However, airfield access improvements should be constructed in this phase in order to accommodate increased air carrier apron activity through the construction of an additional Group IV apron edge taxilane to the north of the Phase I and Phase II development.

- Terminal Building – This phase requires improvements to the terminal building core that provides additional square footage for the following components:

  - Ticketing/Check-in Area – 20,186 total square footage
  - Airline Operations Offices – 47,143 total square footage
  - Baggage Claim – 103,535 total square footage

Exhibit 8-3: NADP Phase III



- Rental Car Counters – 9,777 total square footage
- Outbound Baggage Screening – 47,835 total square footage
- TSA Security Areas – 40,786 total square footage

- Gates/Concourse – One new concourse will be constructed to the south of the terminal building core. This concourse will provide six new gates. In addition, six gates will be added as an extension of the northernmost concourse developed in Phases I and II. The additional concourse and gate areas will also be complemented with additional concession area square footage.

- Access Roadways/Terminal Curb – At this demand level, the terminal curb will require major improvements including the development of a split-level dual curb on the arrivals curbfront and the extension of a departures curb front to approximately 1,940 linear feet. Access to the terminal area will be improved through improvements at the intersection of Gateway Boulevard and Ray Road.

- Auto Parking – A significant increase in parking facilities will be required to handle the annual five million enplaned passenger demand level. The increased demand can be accommodated in this phase through the development of a four level parking garage to the north of the proposed new terminal building and an extension of the existing surface parking facilities within the loop road. The additional auto parking areas will provide 7,500 patron and 1,250 total employee parking stalls as well as 1,750 total rental car ready/return spaces.

- Ancillary/Support Facilities – As was the case during the Phase II development, additional support facilities are required to sustain a growing passenger/airline level of activity. These include increased building areas for belly cargo as well as a larger receiving area to service the increased terminal concession space.

- Private Development – It is expected that this level of activity will initiate demand for office, retail and hotel development. This should be enhanced through the development of Hawker-Beechcraft Boulevard that will run northwest to southwest and improve circulation among these areas by removing traffic from the terminal's loop road.

8.2.4 Phase IV – 10 Million Enplanements

Phase IV development allows for the ultimate build out of the northeast terminal area. Completion of this phase will allow PMGA to support 10 million annual enplanements while allowing for the highest and best use of available property and providing suitable infrastructure to provide a level of service desirable by the PMGA Authority. The construction of Phase IV would result in a 1.4 million square-foot terminal building with 60 gates among four concourses and dual-parallel taxiways serving the east side of the airfield. The major components of Phase IV, depicted in Exhibit 8-4, include:

- Airfield – The level of activity planned for in Phase IV requires the development of a full length dual-parallel taxiway providing access to/from Runway 12L-30R, a portion of which will serve as an apron-edge taxiway. In addition, Group IV access taxilanes provide access to apron areas capable of accommodating Group III and IV aircraft.

- Terminal Building – This level of activity will require significant improvements to the terminal building core accommodated through expansions to the north and south of the terminal building developed in Phases I through III. The following components will make up this core:

- Ticketing/Check-in Area – 40,371 total square footage
- Airline Operations Offices – 94,287 total square footage
- Baggage Claim – 207,069 total square footage
- Rental Car Counters – 18,774 total square footage
- Outbound Baggage Screening – 91,305 total square footage
- TSA Security Areas – 75,535 total square footage

- Gates/Concourse – The ultimate build out allows for five concourses, two of which are to be completed in this final phase. These additional concourses will provide space for 12 additional gates each and a build out of the Phase III southernmost concourse, which will provide an additional six gates.

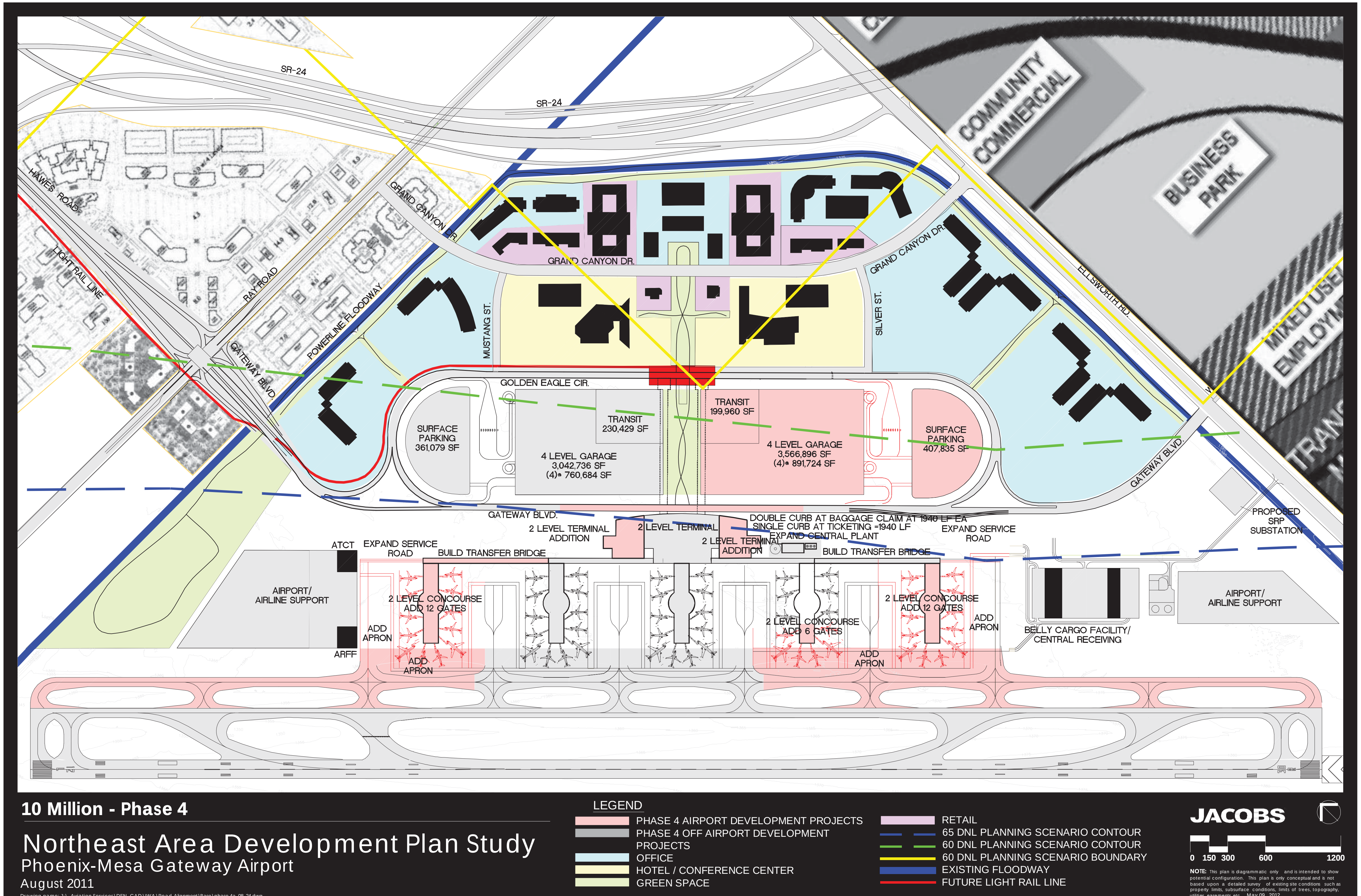
- Access Roadways/Terminal Curb – At this demand level, a curb length of approximately 3,300 linear feet at the departures curb and 3,900 linear feet at the arrivals curb will be required. The construction of a split-level dual curb will be required on the departures level in order to serve functions such as taxi and shuttle operations. Limited access road improvements will be required. Space should be reserved in this phase adjacent to Golden Eagle Circle and the future commercial development, to allow for a light rail line and an associated station, which will handle a portion of the increased passenger movements.

- Auto Parking – The 10 million annual enplaned passenger demand level requires a significant increase in auto parking facilities. The increased demand shall be accommodated through the development of a second four-level parking garage to the south of the parking garage developed in Phase III, as well as an extension of the existing surface parking facilities farther to the south. The additional auto parking areas will provide 15,000 patron and 2,500 employee parking stalls, while accommodating 3,500 rental/ready return spaces.

- Ancillary/Support Facilities – Additional support facilities are required to sustain a growing passenger/airline level of activity. These will likely consist of general airport/ airline support functions that will require available space, depending on trends and operational requirements.

- Private Development – It is anticipated that the 10 million annual enplaned passenger level would be a significant driver for office, retail and hotel development. Adequate infrastructure to support these areas was developed in previous phases, allowing for the PMGA Authority to take full advantage of opportunities presented it throughout the planning period.

Exhibit 8-4: NADP Phase IV



8.3 Capital Costs

The capital development program discussed in this subsection will be implemented in phases as previously discussed. This program will include the construction of a runway extension, associated taxiways, apron areas, terminal buildings, concourses, access roadways, auto parking and support infrastructure.

The total anticipated development over the 20-year planning period is approximately $799.7 million as stated in Table 8-1 in 2010 dollars. Not included in the table are funds required for the full build-out of revenue-producing commercial development adjacent to the proposed new terminal area, some of which may be well beyond the 20-year planning horizon. Costs anticipated by the Airport for preparing the sites for long-term leasing are included in the total estimates.

8.3.1 Cost Estimating Approach

All cost estimates were prepared utilizing unit costs current for 2010 dollars and based upon recent similar projects throughout the southwest United States. Estimates include various typical soft costs, which ranged from approximately 12-15 percent of the construction costs, based on the type and dollar volume of work anticipated. Additionally, based upon project type, dollar volume, and level of detail known at the current point in planning, project evolutionary contingency amounts ranging from 20-30 percent were included in each project total.

Further to aid in preparing the financial feasibility analysis presented in Subsection 8.4, project implementation schedules were estimated in months for design, bid/award, and construction to develop estimated cash flow tables. For purposes of developing costs and identifying cash flow during each planning horizon, it was assumed that projects that are demand driven must be completed and in place by the end of the planning period based on the passenger activity level.

8.3.2 Commercial Development Factors

As noted previously, parcels anticipated to be made available for non-aeronautical commercial development will require a commitment of resources by the PMGA Authority to enable them to be brought to market. Customary costs incurred by land owners when reviewed throughout the southwest United States and elsewhere, include the following: engineering fees, land surveys, legal reviews, various land and environmental permitting, marketing & promotional costs, and local and regional approval costs. Based on the analysis of over ten land development initiatives of master planned sites ranging from 400 to over 1500 acres, the estimated average of these costs on a per acre basis equated to approximately $6500. These costs were therefore applied to the approximate available acreages scheduled to be initiated for development in the associated planning horizon phases (Phase I, II and III). These costs appear in Table 8-1 and are termed “soft costs”.

8.4 Financial Feasibility Analysis

This subsection describes the financial plan prepared as a part of the NADP study. The financial plan is focused on the first three Phases of the NADP along with the Authority's other ongoing, committed or planned projects during the planning period. Improvements recommended in Phase IV of the NADP were not included in this financial plan due to uncertainties regarding their actual implementation dates and future costs.

This report reviews the PMGA Authority's financial structure and existing financial position, considers the costs and funding of the NADP projects and presents a financial plan based on key funding assumptions, future bond financings, debt service, operating expenses and revenues through Fiscal Year (FY) 2034 (the forecast period). The financial plan was prepared to determine the financial feasibility of the development program being put forth for implementation through the forecast period. The financial plan specifically considers the effects of the capital program on Authority operations, including airline cost per enplaned passenger (CPE).

8.4.1 Key Assumptions

The financial plan was developed using information and assumptions that provide a reasonable basis for analysis at a level of detail appropriate for long-term financial planning. Some of the assumptions used to develop project funding and estimated costs may not be realized, and unanticipated events and circumstances may occur. Some projects included in the NADP may be postponed or eliminated if the forecast aviation demand is not achieved, construction costs rise significantly, or if projected funding is not available. Similarly, projects may be undertaken earlier than indicated if demand dictates and funding is available. Therefore, the actual results will vary from those projected, and such variations could be material.

This financial plan is preliminary in nature and is not intended to be used to support the sale of bonds or to obtain any other forms of financing. More detailed cost estimates and financial analysis will be required if and when the Authority decides to pursue the sale of bonds or other forms of financing.

The details of the various assumptions are presented in the relevant sections of the financial plan. This financial plan uses baseline passenger forecasts developed by the Authority. Assumptions regarding passenger activity at the Airport are necessary because entitlement grants from the FAA's Airport Improvement Program (AIP), certain non-airline revenues and certain expenses are related to changes in aviation activity.

8.4.2 Project Costs

Cost estimates, which were prepared in 2010 dollars, were adjusted to include an inflationary increase of 3.0 percent per year through the anticipated year of project implementation.

Table 8-1: Project Phase Costs

AREA	PROJECT NAME/DESCRIPTION	TOTAL COST		PHASE I 2012-2016	PHASE II 2017-2021	PHASE III 2022-2032
AIRFIELD & APRON AREAS						
	Parallel Taxiway & Exits (RWY 12L-30R) & Apron Areas		$68,790,600	$68,790,600		
	1000' Extension to RWY 12L-30R, Fuel Farm and Lighting	$	29,765,400		$29,765,400	
	Apron Area Expansion	$	10,951,900		$10,951,900	
	Airfield & Apron Lighting	$	402,500		$402,500	
	Apron Area Expansion & Apron Edge Taxiways	$	26,192,200			$26,192,200
	Airfield & Apron Lighting	$	1,126,400			$1,126,400
SUPPORT FACILITIES						
	Support Facilities Sitework & Infrastructure	$	1,589,900	$1,589,900		
	Support Facilities Sitework & Infrastructure	$	753,100		$753,100	
	Support Facilities Sitework & Infrastructure	$	1,157,800			$1,157,800
PARKING AREAS						
	Surface & Structured Parking	$	4,298,800	$4,298,800		
	Surface & Structured Parking	$	1,412,400		$1,412,400	
	Surface & Structured Parking	$	209,895,800			$209,895,800
ROADWAY, SITEWORK & INFRASTRUCTURE						
	Hawes & Gateway (Offsite)	$	2,823,700	$2,823,700		
	Right Of Way Acquisition	$	2,090,900	$2,090,900		
	Airport Loop (Gateway & Golden Eagle Cr)	$	30,859,200	$30,859,200		
	Ellsworth Connection (Grand Canyon Dr & Silver St)	$	4,757,500	$4,757,500		
	Airport Loop & Ellsworth Connection (Golden Eagle Cr & Gateway)	$	10,221,400		$10,221,400	
	Ray Connection (Mustang St & Grand Canyon Dr)	$	2,253,700		$2,253,700	
	Grand Canyon Dr (Offsite)	$	1,898,800		$1,898,800	
	Hawes & Ray SPUI (Offsite)	$	5,693,100			$5,693,100
	Upper Level & Lower Level Expansion	$	47,825,000			$47,825,000
	Grand Canyon Dr Connection	$	6,774,300			$6,774,300
TERMINAL, CONCOURSES & CENTRAL PLANT						
	Terminal and Concourses (incl. Central Plant Functions)	$	142,388,200	$142,388,200		
	Concourse Expansion	$	20,672,900		$20,672,900	
	New Concourse, Concourse Expansion and Terminal Expansion	$	162,183,600			$162,183,600
COMMERCIAL DEVELOPMENT AREAS						
	Commercial Development Soft Costs	$	709,500	$709,500		
	Property Acquisition (Northeast 31 Acres)	$	232,500	$232,500		
	Commercial Development Soft Costs	$	866,300		$866,300	
	Commercial Development Soft Costs	$	1,089,000			$1,089,000
	TOTALS	**$**	**799,676,400**	**$258,540,800**	**$79,198,400**	**$461,937,200**

Source: Jacobs Engineering.

8.4.3 Sources of Funding

Several sources of potential funding were incorporated into the financial plan, including:

- ***Federal Airport Improvement Program (AIP)***. Federal grants-in-aid under the AIP are provided in these types:
  - AIP entitlement grants are annual amounts calculated based on the number of enplaned passengers and a legislated per-passenger formula.
  - AIP discretionary grants are awarded at the discretion of the FAA based on its determination of priorities for projects at the Airport in relation to funding priorities for the national airport system.
  - Military Airports Program (MAP) grants are awarded to civil sponsors on a military or former military airfield for the development of aviation facilities for the public.

- ***Other Federal Grants***. Certain projects may be eligible for funding from sources such as the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA).

- ***Arizona Department of Transportation (ADOT)***. State grants, administered by the ADOT, may be provided to the Airport for the funding of individual projects and to match the Authority's contribution to the local share of AIP-funded projects.

- ***Municipal Sponsors***. The Authority is currently supported by Municipal Sponsors who have contributed to the funding of capital improvement projects as well as the day-to-day operations at the Airport. It is assumed that this sponsorship and support will continue in the future.

- ***Passenger Facility Charges (PFCs)***. PFCs, which are derived by the imposition of charges on airline passengers, provide funding to certain eligible and approved projects.

- ***Internal Funds***. Internally-generated cash, to the extent permitted under any relevant airline agreements and/or bond covenants, is available.

- ***Bond Proceeds***. Proceeds from bonds supplement the above funding sources for future development projects.

The amount of funding assumed from each of the above funding sources and the application of funding to future projects is described in the following sections.

8.4.4 Uses of Funding

This section describes the application of the funding sources to the applicable projects.

Approach

Since certain sources of funds, such as AIP grants and PFC revenues, have restrictions on how they can be used, aligning the sources of capital funds with the allowable and optimal uses is essential for maximizing financial capacity. In general, specific funding sources for projects were determined through the following process:

- ***Project Eligibility***. The assumed eligibility of projects for AIP grant funding, PFCs and other sources was identified through coordination between Jacobs Consultancy (LeighFisher), Jacobs Engineering, and the Authority.

- ***Availability of Funds***. The amount of funding available from AIP, ADOT, Municipal Sponsors, PFCs, and other sources was projected, taking into account key factors affecting future funding levels such as future AIP authorizations and future aviation activity at the Airport.

- ***Timing of Projects***. Each funding source was matched to its best use in the given year, taking into consideration reasonable debt coverage targets, retention of reasonable fund balances, and future funding needs.

If the assumed funding is not available, it may become necessary to defer some projects until such funds become available or until the Authority determines a viable alternative funding source.

With regard to initial project timing, this analysis assumes that the capacity of the current west terminal facilities will be augmented by the expansion of the west terminal in 2014. The capacity for this expanded terminal will be reached coincident with the opening of Phase I terminal facilities in late 2018.

Table 8-2 presents the projects considered in this financial plan and their anticipated phasing.

Table 8-3 presents the projects considered in this financial plan and their estimated funding sources.

Table 8-4 presents the sources and uses of funding by year through FY2034.

8.4.5 Scenarios

In order to allay concerns of the Authority regarding increases in airline cost per enplaned passenger (CPE), the following two scenarios were developed:

- ***Scenario 1 – Unconstrained Revenue***. Airline CPE is allowed to rise and fall as required for full cost recovery with no upper limit.

- ***Scenario 2 – Capped CPE***. To maintain the Airport's competitive advantage, airline CPE is limited to $4.00 in current dollars. The resulting shortfall in revenues would require increased support from ADOT and Municipal Sponsors.

The results of these scenarios are summarized on Tables 8-14 and 8-15, respectively, while Table 8-8 details their impact on ADOT and Municipal Sponsor contributions.

8.4.6 Debt Service Requirement

The debt service requirement represents the scheduled annual principal and interest payments on the bonds to be issued by or on behalf of the Authority to finance the NADP. Requirements for debt service were based on the following assumptions:

- The annual debt service requirement on future bonds was calculated assuming (1) the bonds are to be amortized over a 30-year period from the date of issuance; (2) level annual debt service for each issue; (3) a coupon rate of 6 percent and (4) a financing factor of 15 percent to cover various costs of issuance such as underwriter discounts and fees, bond council fees, rating fees, etc. The actual structure and sizing of future bonds will depend on municipal market conditions at the time of issuance.

- All debt was assumed to be structured with level principal and interest in the aggregate over a 30-year period.

As a result of future bond issuances, the annual debt service requirement is projected to increase significantly during the forecast period.

Table 8-5 presents an estimated plan of financing and Table 8-6 summarizes forecast debt service requirements through FY2034.

Table 8-7 details the application and use of PFC revenues, including those applied applied to PFC-backed debt.

8.4.7 Cost of Operations and Maintenance

The costs of operations and maintenance were projected by analyzing the historical trend in expenses by line item and cost center, using the FY2011 budget as a base, taking into account management plans, facility development plans, inflation and other assumptions.

Incremental increases in the costs of operations and maintenance were included as major facilities are placed into service.

Table 8-9 presents historical and forecast costs of operations and maintenance.

8.4.8 Future Revenues

Future revenues must be more than sufficient to provide for payment of the costs of operation and maintenance and the debt service requirement. Revenues are discussed under the headings of Airline and Non-Airline Revenues and are summarized in Table 8-10.

Airline Revenues

Revenues from airlines are collected primarily through landing fees and terminal rents. Parameters for eligible costs to be recovered through airline revenues will be determined by applying the provisions of airline agreements or, in the absence of airline agreements, federal policy.

Airline Cost per Enplaned Passenger

Airline costs per enplaned passenger (CPE) are commonly used as a summary measure of "affordability" of an airport and its proposed capital improvement program. Comparisons of airline costs per enplaned passenger among individual airports are difficult, as they can be calculated in various ways and the services provided at an airport in exchange for the airline payments vary greatly throughout the industry. Nonetheless, comparisons are frequently used to gauge the reasonableness of capital improvement programs.

Table 8-11 shows passenger airline costs expressed on a per enplaned passenger basis. The forecasts were based on the assumption that the terms of existing and future airline agreements will allow for the recovery of a portion of the incremental costs incurred through the various phases of the NADP and that the airlines will make all payments required by such terms.

Airline payments to airports (landing fees, apron fees, terminal rentals and other payments) represent a relatively small percentage of an airline's overall cost structure. Nevertheless, airline payments at a given airport may affect airline decision-making regarding expanding service or continuing to provide service at that airport.

It is important to note that for the Authority, the feasibility and affordability of the NADP are two very different concepts. While the program is financially feasible under certain assumptions, its affordability may be gauged by the willingness of airlines to accept the higher CPE associated with the cost of improvements. If this higher CPE proves detrimental to future airline service, the assumptions supporting the feasibility of the NADP will likely be adversely affected.

Non-Airline Revenues

The principal sources of non-airline revenues include parking fees, rental cars, concessions and various non-airline rents. Non-airline revenues were projected by analyzing the trend in revenue by line item and cost center and comparing those revenues to passenger activity. In order to best match historical trends, individual revenues were generally projected either by using revenue per enplaned passenger, inflation (3.0 percent), or a mixture of the two.

Incremental non-airline revenues were assumed to cover a portion of the incremental costs incurred through the various phases of the NADP. Incremental costs associated with individual projects were assigned to related non-airline revenue sources (e.g. the costs associated with improvements to parking areas were assumed to be recovered through increased parking revenues to be gained through activity growth and/or rate adjustments).

Tables 8-12, 8-13 and 8-14 present forecast revenues from parking, commercial and other non-airline sources, respectively.

8.4.9 Summary and Recommendations

The financial analysis indicates that, given the various assumptions described herein, including the funding assumptions for the current CIP and the NADP, the PMGA Authority would be able to sustain reasonable debt service coverage during the forecast period. With respect to Passenger Facility Charges, PFC collections during the forecast period are expected to exceed the cost of PFC-funded capital projects. Airport operating revenues during the forecast period are expected to meet or exceed expenditures on airport-funded capital projects. Finally, support from ADOT and Municipal Sponsors during the forecast period is expected to remain at relatively constant levels.

It is important to note that reliance on revenues solely from Authority operations for NADP funding is not feasible. As such, it may be useful for the Authority to identify prerequisites to initiating certain improvements (e.g. securing an FAA funding commitment for airfield improvements may be an appropriate prerequisite to initiating NADP terminal improvements).

It is also important to note that annual contributions from ADOT and Municipal Sponsors averaging $2.2 million and $4 million, respectively, could be required to successfully implement Phase I, with a peak year combined requirement of $15.2 million (see Exhibit 8-8 for detail). These contributions would be greater if assumed grant sources do not materialize.

The results of this analysis suggest that the Authority could proceed with planning and evaluation of the NADP, including, but not limited to, the following steps:

- Explore FAA Letter of Intent (LOI) program for airfield/apron project funding.
- Engage current air carriers in discussions regarding facilities and long-term agreement(s).
- Determine long-term sponsor support parameters.
- Identify feasibility of alternative grant funding sources.
- Update financial plan by 2014.
- Determine tests and deadline for go/no-go decision.

Changes in the assumptions could affect the conclusions presented herein. The Authority does, however, have the flexibility to adjust the timing of the projects, and to develop alternative financing plans, which would allow a similar development plan to progress under various changed assumptions.

Table 8-2: Project Costs and Phasing

	Group / Cost Center	Estimated Total in 2010$	Estimated Total in Future$	Phase I 2014-2018	Phase II 2019-2023	Phase III 2024-2034	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018
A. AERONAUTICAL PROJECTS													
Parallel Taxiway and Exits (12L-30R) and Apron Areas	Airfield	$ 68,790,600	$ 84,042,645	$ 84,042,645	$ -	$ -	$ -	$ -	$ -	$ 9,569,807	$ 24,094,224	$ 24,817,051	$ 25,561,562
Runway Extension (12L-30R), Fuel Farm and Lighting	Airfield	29,765,400	40,390,415	-	40,390,415	-	-	-	-	-	-	-	-
Apron Area Expansion I	Airfield	10,951,900	15,759,424	-	15,759,424	-	-	-	-	-	-	-	-
Airfield and Apron Lighting I	Airfield	402,500	588,518	-	588,518	-	-	-	-	-	-	-	-
Apron Area Expansion II and Apron Edge Taxiways	Airfield	26,192,200	47,765,130	-	-	47,765,130	-	-	-	-	-	-	-
Airfield and Apron Lighting II	Airfield	1,126,400	2,086,875	-	-	2,086,875	-	-	-	-	-	-	-
Sitework and Infrastructure I (Belly Cargo, Fuel Farm, Substation, etc.)	Support	1,589,900	2,005,810	2,005,810	-	-	-	-	-	-	-	274,262	1,731,548
Terminal and Concourses	Terminal	142,388,200	173,958,072	173,958,072	-	-	-	-	-	19,808,516	49,872,062	51,368,224	52,909,270
Concourse Expansion	Terminal	20,672,900	29,760,643	-	29,760,643	-	-	-	-	-	-	-	-
New Concourse, Concourse Expansion and Terminal Expansion	Terminal	162,183,600	290,978,916	-	-	290,978,916	-	-	-	-	-	-	-
Subtotal		$ 464,063,600	$ 687,336,448	$ 260,006,527	$ 86,499,001	$ 340,830,921	$ -	$ -	$ -	$ 29,378,324	$ 73,966,286	$ 76,459,536	$ 80,202,381
B. NON-AERONAUTICAL PROJECTS													
Sitework and Infrastructure II	Support	$ 753,100	$ 1,007,680	$ -	$ 1,007,680	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sitework and Infrastructure III	Support	1,157,800	1,905,868	-	-	1,905,868	-	-	-	-	-	-	-
Surface and Structured Parking I	Parking	4,298,800	$ 5,265,417	$ 5,265,417	-	-	-	-	-	-	718,819	4,546,598	-
Surface and Structured Parking II	Parking	1,412,400	2,065,688	-	2,065,688	-	-	-	-	-	-	-	-
Surface and Structured Parking III	Parking	209,895,800	411,500,212	-	-	411,500,212	-	-	-	-	-	-	-
Right of Way Acquisition	Roadway	1,045,400	1,176,607	1,176,607	-	-	-	-	1,176,607	-	-	-	-
Airport Loop (Gateway & Golden Eagle Cir)	Roadway	25,261,700	31,370,244	31,370,244	-	-	-	-	-	-	3,619,173	13,670,478	14,080,593
Ellsworth Connection (Grand Canyon Dr & Silver St)	Roadway	4,405,200	5,395,738	5,395,738	-	-	-	-	-	-	736,730	4,659,008	-
Airport Loop and Ellsworth Connection (Golden Eagle Cir & Gateway)	Roadway	10,294,200	14,195,636	-	14,195,636	-	-	-	-	-	-	-	-
Ray Connection (Mustang St & Golden Eagle Cir)	Roadway	2,086,800	2,963,152	-	2,963,152	-	-	-	-	-	-	-	-
Upper Level and Lower Level Expansion	Roadway	44,283,000	88,244,497	-	-	88,244,497	-	-	-	-	-	-	-
Grand Canyon Dr Connection	Roadway	6,478,700	10,987,802	-	-	10,987,802	-	-	-	-	-	-	-
Commercial Development Soft Costs I	Commercial	709,500	898,773	898,773	-	-	-	-	-	-	-	-	898,773
Property Acquisition (NE 31 Acres)	Commercial	232,500	269,531	269,531	-	-	-	-	-	269,531	-	-	-
Commercial Development Soft Costs II	Commercial	866,300	1,164,235	-	1,164,235	-	-	-	-	-	-	-	-
Commercial Development Soft Costs III	Commercial	1,089,000	1,722,076	-	-	1,722,076	-	-	-	-	-	-	-
Subtotal		$ 314,270,200	$ 580,133,156	$ 44,376,311	$ 21,396,390	$ 514,360,455	$ -	$ -	$ 1,176,607	$ 269,531	$ 5,074,722	$ 22,876,084	$ 14,979,366
C. OFF-AIRPORT PROJECTS													
Hawes and Gateway (Offsite)	Roadway	$ 2,614,600	$ 3,018,680	$ 3,018,680	$ -	$ -	$ -	$ -	$ 411,936	$ 2,606,744	$ -	$ -	$ -
Grand Canyon Dr (Offsite)	Roadway	1,758,200	2,496,557	-	2,496,557	-	-	-	-	-	-	-	-
Hawes & Ray SPUI (Offsite)	Roadway	5,271,400	10,499,963	-	-	10,499,963	-	-	-	-	-	-	-
Subtotal		$ 9,644,200	$ 16,015,200	$ 3,018,680	$ 2,496,557	$ 10,499,963	$ -	$ -	$ 411,936	$ 2,606,744	$ -	$ -	$ -
D. DEMAND-DRIVEN PROJECTS													
Various Other Airfield Projects (Through Phase I)	Other	$ 35,000,000	$ 40,645,531	$ 29,877,396	$ -	$ -	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 5,796,370	$ 5,970,261	$ 6,149,369	$ 6,333,850
Various Other Airfield Projects (Phase II)	Other	25,000,000	$ 34,636,090	$ -	$ 34,636,090	$ -	-	-	-	-	-	-	-
Various Other Airfield Projects (Phase III)	Other	50,000,000	$ 96,864,701	$ -	$ -	$ 96,864,701	-	-	-	-	-	-	-
Western Terminal Capacity Expansion	Other	7,000,000	7,426,300	7,426,300	-	-	-	-	7,426,300	-	-	-	-
Subtotal		$ 117,000,000	$ 179,572,622	$ 37,303,696	$ 34,636,090	$ 96,864,701	$ 5,304,500	$ 5,463,635	$ 13,053,844	$ 5,796,370	$ 5,970,261	$ 6,149,369	$ 6,333,850
TOTAL ALL PROJECTS													
Airfield		$ 137,229,000	$ 190,633,007	$ 84,042,645	$ 56,738,357	$ 49,852,005	$ -	$ -	$ -	$ 9,569,807	$ 24,094,224	$ 24,817,051	$ 25,561,562
Support		3,500,800	4,919,358	2,005,810	1,007,680	1,905,868	-	-	-	-	-	274,262	1,731,548
Parking		215,607,000	418,831,317	5,265,417	2,065,688	411,500,212	-	-	-	-	718,819	4,546,598	-
Roadway		103,499,200	170,348,875	40,961,269	19,655,345	109,732,262	-	-	1,588,543	2,606,744	4,355,903	18,329,487	14,080,593
Terminal		325,244,700	494,697,632	173,958,072	29,760,643	290,978,916	-	-	-	19,808,516	49,872,062	51,368,224	52,909,270
Commercial		2,897,300	4,054,615	1,168,305	1,164,235	1,722,076	-	-	-	269,531	-	-	898,773
Other		117,000,000	179,572,622	37,303,696	34,636,090	96,864,701	5,304,500	5,463,635	13,053,844	5,796,370	5,970,261	6,149,369	6,333,850
TOTAL ALL PROJECTS		$ 904,978,000	$ 1,463,057,426	$ 344,705,213	$ 145,028,038	$ 962,556,039	$ 5,304,500	$ 5,463,635	$ 14,642,387	$ 38,050,969	$ 85,011,270	$ 105,484,990	$ 101,515,597

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-3: Project Funding Sources

	Group /				Other	State	Municipal	PMGAA					Other	State	Municipal	PMGAA			
	Cost Center	Phase	Total (Future$)	Federal AIP	Federal	(ADOT)	Sponsor	PFC Paygo	PFC Bonds	Aprt Bonds	Paygo	Federal AIP	Federal	(ADOT)	Sponsor	PFC Paygo	PFC Bonds	Aprt Bonds	Paygo
A. AERONAUTICAL PROJECTS																			
Parallel Taxiway and Exits (12L-30R) and Apron Areas	Airfield	1	$ 84,042,645	95%	0%	3%	0%	0%	3%	0%	0%	$ 79,840,512	$ -	$ 2,101,066	$ -	$ -	$ 2,101,066	$ -	$ -
Runway Extension (12L-30R), Fuel Farm and Lighting	Airfield	2	40,390,415	95%	0%	3%	0%	0%	0%	3%	0%	38,370,894	-	1,009,760	-	-	-	1,009,760	-
Apron Area Expansion I	Airfield	2	15,759,424	95%	0%	3%	0%	0%	0%	3%	0%	14,971,453	-	393,986	-	-	-	393,986	-
Airfield and Apron Lighting I	Airfield	2	588,518	95%	0%	3%	0%	0%	0%	3%	0%	559,093	-	14,713	-	-	-	14,713	-
Apron Area Expansion II and Apron Edge Taxiways	Airfield	3	47,765,130	95%	0%	3%	0%	0%	0%	3%	0%	45,376,873	-	1,194,128	-	-	-	1,194,128	-
Airfield and Apron Lighting II	Airfield	3	2,086,875	95%	0%	3%	0%	0%	0%	3%	0%	1,982,531	-	52,172	-	-	-	52,172	-
Sitework and Infrastructure I (Belly Cargo, Fuel Farm, Substation, etc.)	Support	1	2,005,810	0%	0%	0%	10%	0%	0%	90%	0%	-	-	-	200,581	-	-	1,805,229	-
Terminal and Concourses	Terminal	1	173,958,072	0%	0%	0%	0%	7%	26%	50%	17%	-	-	-	-	12,177,065	45,229,099	86,979,036	29,572,872
Concourse Expansion	Terminal	2	29,760,643	0%	0%	0%	0%	0%	80%	5%	15%	-	-	-	-	-	23,808,515	1,488,032	4,464,096
New Concourse, Concourse Expansion and Terminal Expansion	Terminal	3	290,978,916	0%	0%	0%	0%	10%	10%	49%	31%	-	-	-	-	29,097,892	29,097,892	142,579,669	90,203,464
Subtotal			$ 687,336,448									$ 181,101,356	$ -	$ 4,765,825	$ 200,581	$ 41,274,957	$ 100,236,571	$ 235,516,725	$ 124,240,433
B. NON-AERONAUTICAL PROJECTS																			
Sitework and Infrastructure II	Support	2	$ 1,007,680	0%	0%	0%	0%	0%	0%	100%	0%	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,007,680	$ -
Sitework and Infrastructure III	Support	3	1,905,868	0%	0%	0%	0%	0%	0%	0%	100%	-	-	-	-	-	-	-	1,905,868
Surface and Structured Parking I	Parking	1	5,265,417	0%	0%	0%	0%	0%	0%	100%	0%	-	-	-	-	-	-	5,265,417	-
Surface and Structured Parking II	Parking	2	2,065,688	0%	0%	0%	0%	0%	0%	100%	0%	-	-	-	-	-	-	2,065,688	-
Surface and Structured Parking III	Parking	3	411,500,212	0%	0%	0%	0%	0%	0%	100%	0%	-	-	-	-	-	-	411,500,212	-
Right of Way Acquisition	Roadway	1	1,176,607	0%	45%	0%	45%	0%	0%	5%	5%	-	529,473	-	529,473	-	-	58,830	58,830
Airport Loop (Gateway & Golden Eagle Cir)	Roadway	1	31,370,244	0%	45%	0%	45%	0%	0%	5%	5%	-	14,116,610	-	14,116,610	-	-	1,568,512	1,568,512
Ellsworth Connection (Grand Canyon Dr & Silver St)	Roadway	1	5,395,738	0%	45%	0%	45%	0%	0%	5%	5%	-	2,428,082	-	2,428,082	-	-	269,787	269,787
Airport Loop and Ellsworth Connection (Golden Eagle Cir & Gateway)	Roadway	2	14,195,636	0%	45%	0%	45%	0%	0%	5%	5%	-	6,388,036	-	6,388,036	-	-	709,782	709,782
Ray Connection (Mustang St & Grand Canyon Dr)	Roadway	2	2,963,152	0%	45%	0%	45%	0%	0%	5%	5%	-	1,333,418	-	1,333,418	-	-	148,158	148,158
Upper Level and Lower Level Expansion	Roadway	3	88,244,497	0%	45%	0%	45%	0%	0%	5%	5%	-	39,710,023	-	39,710,023	-	-	4,412,225	4,412,225
Grand Canyon Dr Connection	Roadway	3	10,987,802	0%	45%	0%	45%	0%	0%	5%	5%	-	4,944,511	-	4,944,511	-	-	549,390	549,390
Commercial Development Soft Costs I	Commercial	1	898,773	0%	0%	0%	90%	0%	0%	0%	10%	-	-	-	808,896	-	-	-	89,877
Property Acquisition (NE 31 Acres)	Commercial	1	269,531	0%	0%	0%	90%	0%	0%	0%	10%	-	-	-	242,578	-	-	-	26,953
Commercial Development Soft Costs II	Commercial	2	1,164,235	0%	0%	0%	90%	0%	0%	0%	10%	-	-	-	1,047,811	-	-	-	116,423
Commercial Development Soft Costs III	Commercial	3	1,722,076	0%	0%	0%	90%	0%	0%	0%	10%	-	-	-	1,549,868	-	-	-	172,208
Subtotal			$ 580,133,156									$ -	$ 69,450,154	$ -	$ 73,099,308	$ -	$ -	$ 427,555,681	$ 10,028,013
C. OFF-AIRPORT PROJECTS																			
Hawes and Gateway (Offsite)	Roadway	1	$ 3,018,680	0%	45%	0%	55%	0%	0%	0%	0%	$ -	$ 1,358,406	$ -	$ 1,660,274	$ -	$ -	$ -	$ -
Grand Canyon Dr (Offsite)	Roadway	2	2,496,557	0%	45%	0%	55%	0%	0%	0%	0%	-	1,123,451	-	1,373,106	-	-	-	-
Hawes & Ray SPUI (Offsite)	Roadway	3	10,499,963	0%	45%	0%	55%	0%	0%	0%	0%	-	4,724,983	-	5,774,980	-	-	-	-
Subtotal			$ 16,015,200									$ -	$ 7,206,840	$ -	$ 8,808,360	$ -	$ -	$ -	$ -
D. DEMAND-DRIVEN PROJECTS																			
Various Other Airfield Projects (Through Phase I)	Other	1	$ 40,645,531	95%	0%	3%	3%	0%	0%	0%	0%	$ 38,613,254	$ -	$ 1,016,138	$ 1,016,138	$ -	$ -	$ -	$ -
Various Other Airfield Projects (2019-2023)	Other	2	34,636,090	95%	0%	3%	3%	0%	0%	0%	0%	32,904,286	-	865,902	865,902	-	-	-	-
Various Other Airfield Projects (2023-2034)	Other	3	96,864,701	95%	0%	3%	3%	0%	0%	0%	0%	92,021,466	-	2,421,618	2,421,618	-	-	-	-
Western Terminal Capacity Expansion	Other	1	7,426,300	50%	0%	0%	0%	0%	0%	10%	40%	3,713,150	-	-	-	-	-	742,630	2,970,520
Subtotal			$ 179,572,622									$ 167,252,156	$ -	$ 4,303,658	$ 4,303,658	$ -	$ -	$ 742,630	$ 2,970,520
TOTAL ALL PROJECTS			$ 1,463,057,426									$ 348,353,512	$ 76,656,994	$ 9,069,483	$ 86,411,907	$ 41,274,957	$ 100,236,571	$ 663,815,036	$ 137,238,966

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-4: Sources and Uses of Funds

	Source / Detail	Total	Phase I 2014-2018	Phase II 2019-2023	Phase III 2024-2034	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018
TOTAL ALL FUNDING												
Federal AIP	[Table 8-3]	$ 348,353,512	$ 111,937,188	$ 86,805,725	$ 139,380,870	$ 5,039,275	$ 5,190,453	$ 9,059,317	$ 14,597,869	$ 28,561,261	$ 29,418,099	$ 30,300,642
Other Federal	[Table 8-3]	76,656,994	18,432,571	8,844,905	49,379,518	-	-	714,844	1,173,035	1,960,156	8,248,269	6,336,267
State (ADOT)	[Table 8-8]	9,069,483	2,848,001	2,284,361	3,667,918	132,613	136,591	140,689	384,154	751,612	774,161	797,385
Municipal Sponsor	[Table 8-8]	86,411,907	20,733,429	11,008,274	54,401,000	132,613	136,591	896,727	1,821,196	2,109,413	8,429,429	7,476,664
PFC Paygo	[Table 8-7]	41,274,957	12,177,065	-	29,097,892	-	-	-	1,386,596	3,491,044	3,595,776	3,703,649
PFC Bonds	[Table 8-7]	100,236,571	47,330,165	23,808,515	29,097,892	-	-	-	5,389,459	13,569,092	13,976,164	14,395,449
Airport Bonds	[Table 8-6]	663,815,036	96,689,442	6,837,799	560,287,796	-	-	801,460	9,904,258	25,872,646	31,394,020	28,717,058
Paygo	[Table 8-10]	137,238,966	34,557,352	5,438,459	97,243,155	-	-	3,029,350	3,394,401	8,696,046	9,649,072	9,788,483
TOTAL ALL FUNDING		$ 1,463,057,426	$ 344,705,213	$ 145,028,038	$ 962,556,039	$ 5,304,500	$ 5,463,635	$ 14,642,387	$ 38,050,969	$ 85,011,270	$ 105,484,990	$ 101,515,597

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-5: Estimated Plan of Financing

	PFC-Backed Bonds			Airport Bonds		
	Funding	Imputed Annual Debt Service	Cumulative Debt Service	Funding	Imputed Annual Debt Service	Cumulative Debt Service
Rate		6.00%			6.00%	
Fin. Factor		1.15			1.15	
Amortization Period		30			30	
2012	$ -	$ -	$ -	$ -	$ -	$ -
2013	-	-	-	-	-	-
2014	-	-	-	801,460	66,959	66,959
2015	5,389,459	450,269	450,269	9,904,258	827,464	894,423
2016	13,569,092	1,133,647	1,583,916	25,872,646	2,161,562	3,055,985
2017	13,976,164	1,167,656	2,751,572	31,394,020	2,622,853	5,678,838
2018	14,395,449	1,202,686	3,954,258	28,717,058	2,399,202	8,078,040
2019	-	-	3,954,258	263,956	22,053	8,100,093
2020	-	-	3,954,258	1,390,171	116,144	8,216,236
2021	2,747,427	229,537	4,183,795	1,314,299	109,805	8,326,041
2022	10,374,920		4,183,795	1,230,626	102,814	8,428,855
2023	10,686,167	892,789	5,076,584	2,638,748	220,457	8,649,313
2024	-	-	5,076,584	-	-	8,649,313
2025	-	-	5,076,584	-	-	8,649,313
2026	-	-	5,076,584	-	-	8,649,313
2027	-	-	5,076,584	69,585	5,814	8,655,126
2028	3,313,275	276,812	5,353,396	16,714,854	1,396,463	10,051,589
2029	8,342,106	696,952	6,050,348	41,014,103	3,426,574	13,478,164
2030	8,592,370	717,860	6,768,208	42,630,112	3,561,586	17,039,750
2031	8,850,141	739,396	7,507,604	90,801,945	7,586,162	24,625,912
2032	-	-	7,507,604	118,482,829	9,898,796	34,524,707
2033	-	-	7,507,604	123,435,649	10,312,585	44,837,293
2034	-	-	7,507,604	127,138,719	10,621,963	55,459,256
TOTALS BY PHASE						
Phase I	$ 47,330,165			$ 96,689,442		
Phase II	23,808,515			6,837,799		
Phase III	29,097,892			560,287,796		
Total	$ 200,473,142			$ 1,327,630,073		

	Cumulative Revenue Bonds Debt Service by Group / Cost Center							
	Airfield	Support	Parking	Roadway	Terminal	Commercial	Other	Total
2012	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2013	-	-	-	-	-	-	-	-
2014	-	-	-	4,915	-	-	62,044	66,959
2015	-	-	-	4,915	827,464	-	62,044	894,423
2016	-	-	60,055	23,111	2,910,775	-	62,044	3,055,985
2017	-	20,622	439,906	99,679	5,056,587	-	62,044	5,678,838
2018	-	150,820	439,906	158,498	7,266,772	-	62,044	8,078,040
2019	9,734	163,138	439,906	158,498	7,266,772	-	62,044	8,100,093
2020	46,497	235,008	439,906	166,010	7,266,772	-	62,044	8,216,236
2021	88,479	235,008	439,906	219,486	7,281,118	-	62,044	8,326,041
2022	102,844	235,008	463,491	230,176	7,335,292	-	62,044	8,428,855
2023	118,507	235,008	612,486	230,176	7,391,092	-	62,044	8,649,313
2024	118,507	235,008	612,486	230,176	7,391,092	-	62,044	8,649,313
2025	118,507	235,008	612,486	230,176	7,391,092	-	62,044	8,649,313
2026	118,507	235,008	612,486	230,176	7,391,092	-	62,044	8,649,313
2027	118,507	235,008	612,486	235,989	7,391,092	-	62,044	8,655,126
2028	118,507	235,008	612,486	276,075	8,747,469	-	62,044	10,051,589
2029	130,018	235,008	612,486	276,075	12,162,532	-	62,044	13,478,164
2030	174,089	235,008	612,486	276,075	15,680,047	-	62,044	17,039,750
2031	222,631	235,008	4,527,066	276,075	19,303,088	-	62,044	24,625,912
2032	222,631	235,008	14,383,328	318,609	19,303,088	-	62,044	34,524,707
2033	222,631	235,008	24,535,277	479,245	19,303,088	-	62,044	44,837,293
2034	222,631	235,008	34,991,785	644,700	19,303,088	-	62,044	55,459,256
TOTALS BY PHASE								
Phase I	$ -	$ 171,442	$ 939,866	$ 291,118	$ 16,061,598	$ -	$ 310,220	$ 17,774,244
Phase II	366,061	1,103,170	2,395,695	1,004,345	36,541,046	-	310,220	41,720,537
Phase III	1,787,164	2,585,088	82,724,860	3,473,371	143,366,768	-	682,483	234,619,734
Total	$ 4,306,450	$ 7,719,401	$ 172,120,842	$ 9,537,669	$ 391,938,824	$ -	$ 2,605,846	$ 588,229,032

	Module Requirements					
	Airline	Parking	Commercial	Other	Thirds	Total
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	1,638	1,638	1,638	62,044	1,638	66,959
2015	829,102	1,638	1,638	62,044	1,638	894,423
2016	2,918,479	67,758	7,704	62,044	7,704	3,055,985
2017	5,096,687	480,006	40,100	62,044	40,100	5,678,838
2018	7,369,878	543,012	103,106	62,044	103,106	8,078,040
2019	7,383,719	547,118	107,212	62,044	107,212	8,100,093
2020	7,446,941	573,578	133,673	62,044	133,673	8,216,236
2021	7,521,095	591,404	151,498	62,044	151,498	8,326,041
2022	7,593,198	618,552	155,061	62,044	155,061	8,428,855
2023	7,664,660	767,548	155,061	62,044	155,061	8,649,313
2024	7,664,660	767,548	155,061	62,044	155,061	8,649,313
2025	7,664,660	767,548	155,061	62,044	155,061	8,649,313
2026	7,664,660	767,548	155,061	62,044	155,061	8,649,313
2027	7,666,598	769,485	156,999	62,044	156,999	8,655,126
2028	9,036,337	782,847	170,361	62,044	170,361	10,051,589
2029	12,462,911	782,847	170,361	62,044	170,361	13,478,164
2030	16,024,497	782,847	170,361	62,044	170,361	17,039,750
2031	19,696,080	4,697,427	170,361	62,044	170,361	24,625,912
2032	19,710,258	14,567,867	184,539	62,044	184,539	34,524,707
2033	19,763,803	24,773,361	238,084	62,044	238,084	44,837,293
2034	19,818,955	35,285,021	293,236	62,044	293,236	55,459,256
TOTALS BY PHASE						
Phase I	$ 16,215,785	$ 1,094,053	$ 154,187	$ 310,220	$ 154,187	$ 17,774,244
Phase II	37,609,612	3,098,200	702,505	310,220	702,505	41,720,537
Phase III	147,173,418	84,744,346	2,019,486	682,483	2,019,486	234,619,734
Total	$ 401,997,630	$ 177,873,199	$ 5,752,357	$ 2,605,846	$ 5,752,357	$ 588,229,032

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-6: Debt Services Requirements

	Phase I 2014-2018	Historical 2010	Estimated 2011	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018	2025	2030	2034
Outstanding Debt													
ADOT Hangar Loan	$ 1,076,939	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ -	$ -
Allegiant Airlines Note /1	-	552,748	697,182	552,748	-	-	-	-	-	-	-	-	-
Total Outstanding Debt Service	$ 1,076,939	$ 768,136	$ 912,570	$ 768,136	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ 215,388	$ -	$ -
New Debt													
Airport Bonds (from Table 8-5)	$ 17,774,244	$ -	$ -	$ -	$ -	$ 66,959	$ 894,423	$ 3,055,985	$ 5,678,838	$ 8,078,040	$ 8,649,313	$ 17,039,750	$ 55,459,256
PFC-Backed (from Table 8-5)	8,740,015	-	-	-	-	-	450,269	1,583,916	2,751,572	3,954,258	5,076,584	6,768,208	7,507,604
Member Government Loans /2	-	-	-	-	-	-	-	-	-	-	-	-	-
Total New Debt Service	$ 26,514,259	$ -	$ -	$ -	$ -	$ 66,959	$ 1,344,692	$ 4,639,901	$ 8,430,410	$ 12,032,298	$ 13,725,897	$ 23,807,958	$ 62,966,860
Less: PFCs Applied to Debt Service	$ (8,740,015)	-	-	-	-	-	(450,269)	(1,583,916)	(2,751,572)	(3,954,258)	(5,076,584)	(6,768,208)	(7,507,604)
Aggregate Debt Service	$ 18,851,183	$ 768,136	$ 912,570	$ 768,136	$ 215,388	$ 282,347	$ 1,109,810	$ 3,271,373	$ 5,894,225	$ 8,293,428	$ 8,864,700	$ 17,039,750	$ 55,459,256

Source: Historical provided by Phoenix-Mesa Gateway Airport Authority and Forecast provided by Jacobs Consultancy (LeighFisher).

Notes:
1. Debt service consists of $3.00 per enplaned passenger in principal payments and $1.00 per enplaned passenger in interest payments.
2. At the end of FY2010, PMGAA had $85,072,833 in outstanding principal including interest, which accrues annually at a 3% rate. The first of the loans is due June 30, 2020 or when PMGAA has sufficient funds for repayment.

Table 8-7: Application and Use of PFC Revenues

		Phase I 2014-2018	Historical 2010	Estimated 2011	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018	2025	2030	2034
PFC Collections														
PFC rate per enplaned passenger		$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50	$ 4.50
Less: PFC airline collection fee		(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Net PFC collection rate		$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39
PFC-eligible passengers														
Enplaned passengers		3,949,356	342,047	430,844	513,926	579,141	644,356	710,000	775,000	840,000	980,000	1,863,636	2,318,182	2,692,239
% PFC eligible		93.4%	101.4%	101.4%	101.4%	98.0%	95.0%	93.0%	93.0%	93.0%	93.0%	93.0%	93.0%	93.0%
Total PFC-eligible passengers		3,081,867	346,993	436,876	521,121	567,558	612,138	660,300	720,750	781,200	911,400	1,733,182	2,155,909	2,503,782
Total PFC Collections		$ 16,180,609	$ 1,523,299	$ 1,905,529	$ 2,256,134	$ 2,491,580	$ 2,687,285	$ 2,898,717	$ 3,164,093	$ 3,429,468	$ 4,001,046	$ 7,608,668	$ 9,464,441	$ 10,991,605
Less: PFCs Applied to Debt Service (from Table 8-5)		(8,740,015)	-	-	-	-	-	(450,269)	(1,583,916)	(2,751,572)	(3,954,258)	(5,076,584)	(6,768,208)	(7,507,604)
PFC Leverage %		54.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.5%	50.1%	80.2%	98.8%	66.7%	71.5%	68.3%
Net PFC Collections		$ 7,440,594	$ 1,523,299	$ 1,905,529	$ 2,256,134	$ 2,491,580	$ 2,687,285	$ 2,448,448	$ 1,580,177	$ 677,896	$ 46,788	$ 2,532,084	$ 2,696,233	$ 3,484,001
PFC Cash Flow														
PFC Fund beginning balance	[A]	$ 5,304,025	$ -	$ -	$ 556,311	$ 2,812,445	$ 5,304,025	$ 7,991,310	$ 9,053,161	$ 7,142,294	$ 4,224,414	$ 10,659,887	$ 14,125,896	$ 7,491,064
Deposits to PFC Fund														
Net PFC collections		$ 7,440,594	$ 1,523,299	$ 1,905,529	$ 2,256,134	$ 2,491,580	$ 2,687,285	$ 2,448,448	$ 1,580,177	$ 677,896	$ 46,788	$ 2,532,084	$ 2,696,233	$ 3,484,001
Interest earnings		-	-	-	-	-	-	-	-	-	-	-	-	-
Total PFC Revenues	[B]	$ 7,440,594	$ 1,523,299	$ 1,905,529	$ 2,256,134	$ 2,491,580	$ 2,687,285	$ 2,448,448	$ 1,580,177	$ 677,896	$ 46,788	$ 2,532,084	$ 2,696,233	$ 3,484,001
PFC Funds Available	[A] + [B]	$ 12,744,619	$ 1,523,299	$ 1,905,529	$ 2,812,445	$ 5,304,025	$ 7,991,310	$ 10,439,757	$ 10,633,338	$ 7,820,190	$ 4,271,202	$ 13,191,971	$ 16,822,129	$ 10,975,065
Use of PFC Funds														
Existing Applications /1		$ -	$ (1,523,299)	$ (1,349,218)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pay-as-you-go Expenditures and Reimbursements (from Table 8-4)														
Airfield		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Support		-	-	-	-	-	-	-	-	-	-	-	-	-
Parking		-	-	-	-	-	-	-	-	-	-	-	-	-
Roadway		-	-	-	-	-	-	-	-	-	-	-	-	-
Terminal		(12,177,065)	-	-	-	-	-	(1,386,596)	(3,491,044)	(3,595,776)	(3,703,649)	-	(8,592,370)	-
Commercial		-	-	-	-	-	-	-	-	-	-	-	-	-
Other		-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		$ (12,177,065)	$ -	$ -	$ -	$ -	$ -	$ (1,386,596)	$ (3,491,044)	$ (3,595,776)	$ (3,703,649)	$ -	$ (8,592,370)	$ -
PFC Revenue Fund Ending Balance		$ 567,553	$ -	$ 556,311	$ 2,812,445	$ 5,304,025	$ 7,991,310	$ 9,053,161	$ 7,142,294	$ 4,224,414	$ 567,553	$ 13,191,971	$ 8,229,760	$ 10,975,065

Source: Historical provided by Phoenix-Mesa Gateway Airport Authority and Forecast provided by Jacobs Consultancy (LeighFisher).
Note: 1. Usage of existing PFC approvals is assumed to be balance of outstanding current approvals.

Table 8-8: Application and Use of Municipal Sponsor Funding (In Thousands)

	Scenario 1 - Unconstrained Revenue								Scenario 2 - Capped CPE							
Year	Beginning Balance	State (ADOT)	Municipal Sponsor	Advances	Repayments of Advances	Capital Projects	PMGAA Support	Ending Balance	Beginning Balance	State (ADOT)	Municipal Sponsor	Advances	Repayments of Advances	Capital Projects	PMGAA Support	Ending Balance
2012	$ -	$ 2,200	$ 4,000	$ -	$ -	$ (265)	(90)	$ 5,845	$ -	$ 2,200	$ 4,000	$ -	$ -	$ (265)	$ (90)	$ 5,845
2013	5,845	2,200	4,000	-	-	(273)	-	11,772	5,845	2,200	4,000	-	-	(273)	-	11,772
2014	11,772	2,200	4,000	-	-	(1,037)	-	16,934	11,772	2,200	4,000	-	-	(1,037)	-	16,934
2015	16,934	2,200	4,000	-	-	(2,205)	-	20,929	16,934	2,200	4,000	-	-	(2,205)	-	20,929
2016	20,929	2,200	4,000	-	-	(2,861)	(3,704)	20,564	20,929	2,200	4,000	-	-	(2,861)	(3,704)	20,564
2017	20,564	2,200	4,000	-	-	(9,204)	(11,199)	6,361	20,564	2,200	4,000	-	-	(9,204)	(11,199)	6,361
2018	6,361	2,200	4,000	9,000	-	(8,274)	(12,368)	919	6,361	2,200	4,000	9,000	-	(8,274)	(12,368)	919
2019	919	2,200	4,000	-	(6,000)	(443)	-	677	919	2,200	4,000	-	(3,000)	(443)	(2,876)	801
2020	677	2,200	4,000	-	(3,000)	(2,633)	-	1,244	801	2,200	4,000	-	(2,000)	(2,633)	(1,506)	861
2021	1,244	2,200	4,000	-	-	(6,797)	-	647	861	2,200	4,000	-	-	(6,797)	(123)	142
2022	647	2,200	4,000	-	-	(2,866)	-	3,981	142	2,200	4,000	-	(3,000)	(2,866)	-	476
2023	3,981	2,200	4,000	-	-	(555)	-	9,627	476	2,200	4,000	-	(1,000)	(555)	-	5,122
2024	9,627	2,200	4,000	-	-	(378)	-	15,449	5,122	2,200	4,000	-	-	(378)	-	10,944
2025	15,449	2,200	4,000	-	-	(1,153)	-	20,496	10,944	2,200	4,000	-	-	(1,153)	-	15,991
2026	20,496	2,200	4,000	-	-	(1,188)	-	25,508	15,991	2,200	4,000	-	-	(1,188)	-	21,003
2027	25,508	2,200	4,000	-	-	(1,039)	-	30,668	21,003	2,200	4,000	-	-	(1,039)	-	26,164
2028	30,668	2,200	4,000	-	-	(4,744)	-	32,125	26,164	2,200	4,000	-	-	(4,744)	-	27,620
2029	32,125	2,200	4,000	-	-	(576)	-	37,748	27,620	2,200	4,000	-	-	(576)	-	33,244
2030	37,748	2,200	4,000	-	-	(979)	-	42,969	33,244	2,200	4,000	-	-	(979)	(21,170)	17,294
2031	42,969	2,200	4,000	-	-	(1,046)	-	48,123	17,294	2,200	4,000	15,000	-	(1,046)	(26,552)	10,896
2032	48,123	2,200	4,000	-	-	(5,783)	-	48,540	10,896	2,200	4,000	12,000	-	(5,783)	(4,016)	19,297
2033	48,540	2,200	4,000	-	-	(20,287)	-	34,453	19,297	2,200	4,000	10,000	-	(20,287)	(2,935)	12,274
2034	34,453	2,200	4,000	-	-	(20,896)	-	19,758	12,274	2,200	4,000	5,000	-	(20,896)	(1,535)	1,044
TOTALS BY PHASE																
Pre-Phase I		$ 4,400	$ 8,000	$ -	$ -	$ (538)	$ (90)			$ 4,400	$ 8,000	$ -	$ -	$ (538)	$ (90)	
Phase I		11,000	20,000	9,000	-	(23,581)	(27,271)			11,000	20,000	9,000	-	(23,581)	(27,271)	
Phase II		11,000	20,000	-	(9,000)	(13,293)	-			11,000	20,000	-	(9,000)	(13,293)	(4,505)	
Phase III		24,200	44,000	-	-	(58,069)	-			24,200	44,000	42,000	-	(58,069)	(56,209)	
Total		50,600	92,000	9,000	(9,000)	(95,481)	(27,361)			50,600	92,000	51,000	(9,000)	(95,481)	(88,075)	

Source: Phoenix-Mesa Gateway Airport Authority, Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-9: Cost of Operation and Maintenance

	Phase I 2014-2018	Historical 2010	Estimated 2011	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018	2025	2030	2034
Repairs & Maintenance													
Building	$ 1,098,693	$ 183,867	$ 189,383	$ 195,064	$ 200,916	$ 206,944	$ 213,152	$ 219,547	$ 226,133	$ 232,917	$ 286,459	$ 332,084	$ 373,764
Equipment	1,554,316	260,116	267,919	275,957	284,235	292,762	301,545	310,592	319,909	329,507	405,252	469,798	528,762
Grounds	803,750	134,508	138,543	142,700	146,981	151,390	155,932	160,610	165,428	170,391	209,559	242,937	273,427
Pavements	1,342,038	224,591	231,329	238,269	245,417	252,779	260,362	268,173	276,219	284,505	349,905	405,636	456,547
Total	$ 4,798,797	$ 803,082	$ 827,174	$ 851,989	$ 877,549	$ 903,875	$ 930,992	$ 958,921	$ 987,689	$ 1,017,320	$ 1,251,175	$ 1,450,455	$ 1,632,500
Personnel													
Salaries	$ 29,329,026	$ 4,908,230	$ 5,055,477	$ 5,207,141	$ 5,363,355	$ 5,524,256	$ 5,689,984	$ 5,860,683	$ 6,036,504	$ 6,217,599	$ 7,646,862	$ 8,864,809	$ 9,977,421
Benefits	12,070,655	2,020,031	2,080,632	2,143,051	2,207,343	2,273,563	2,341,770	2,412,023	2,484,384	2,558,915	3,147,143	3,648,401	4,106,308
Reallocations	(1,175,787)	(196,769)	(202,672)	(208,752)	(215,014)	(221,465)	(228,109)	(234,952)	(242,001)	(249,261)	(306,559)	(355,386)	(399,990)
Total	$ 40,223,894	$ 6,731,493	$ 6,933,437	$ 7,141,441	$ 7,355,684	$ 7,576,354	$ 7,803,645	$ 8,037,754	$ 8,278,887	$ 8,527,253	$ 10,487,446	$ 12,157,825	$ 13,683,739
Contractual Services													
Accounting	$ 160,182	$ 26,806	$ 27,611	$ 28,439	$ 29,292	$ 30,171	$ 31,076	$ 32,008	$ 32,969	$ 33,958	$ 41,764	$ 48,415	$ 54,492
Advertising	1,028,333	172,092	177,255	182,573	188,050	193,691	199,502	205,487	211,652	218,001	268,114	310,818	349,828
Bank Service Charges	618,057	103,432	106,535	109,731	113,023	116,414	119,906	123,503	127,208	131,025	161,144	186,810	210,256
Consultants	365,116	61,102	62,935	64,823	66,768	68,771	70,834	72,959	75,148	77,403	95,195	110,358	124,208
Customs Fees	914,169	152,987	157,576	162,304	167,173	172,188	177,354	182,674	188,154	193,799	238,348	276,311	310,990
Fire	5,650,347	945,589	973,957	1,003,175	1,033,271	1,064,269	1,096,197	1,129,083	1,162,955	1,197,844	1,473,197	1,707,839	1,922,188
Janitorial	468,878	78,467	80,821	83,246	85,743	88,315	90,965	93,694	96,504	99,400	122,249	141,720	159,507
Legal	518,120	86,708	89,309	91,988	94,748	97,590	100,518	103,533	106,639	109,839	135,088	156,604	176,259
Police	1,963,184	328,540	338,396	348,548	359,005	369,775	380,868	392,294	404,063	416,185	511,855	593,380	667,854
Postage & Shipping	64,645	10,818	11,143	11,477	11,821	12,176	12,541	12,918	13,305	13,704	16,855	19,539	21,991
Temporary Help	12,549	2,100	2,163	2,228	2,295	2,364	2,434	2,508	2,583	2,660	3,272	3,793	4,269
Other Contractual Services	1,389,258	232,493	239,468	246,652	254,052	261,673	269,523	277,609	285,937	294,515	362,217	419,909	472,611
Total	$ 13,152,835	$ 2,201,135	$ 2,267,169	$ 2,335,184	$ 2,405,239	$ 2,477,397	$ 2,551,719	$ 2,628,270	$ 2,707,118	$ 2,788,332	$ 3,429,296	$ 3,975,494	$ 4,474,454
Other													
Communications & Utilities	$ 3,230,434	$ 540,615	$ 556,833	$ 573,538	$ 590,745	$ 608,467	$ 626,721	$ 645,523	$ 664,888	$ 684,835	$ 842,261	$ 976,411	$ 1,098,959
Supplies & Materials	3,560,516	595,855	613,730	632,142	651,106	670,640	690,759	711,481	732,826	754,811	928,322	1,076,180	1,211,250
Insurance	1,785,657	298,831	307,796	317,029	326,540	336,337	346,427	356,819	367,524	378,550	465,568	539,721	607,461
Miscellaneous	2,527,228	422,933	435,621	448,690	462,150	476,015	490,295	505,004	520,154	535,759	658,916	763,864	859,736
Total	$ 11,103,835	$ 1,858,233	$ 1,913,980	$ 1,971,400	$ 2,030,542	$ 2,091,458	$ 2,154,202	$ 2,218,828	$ 2,285,393	$ 2,353,954	$ 2,895,067	$ 3,356,176	$ 3,777,406
Total Base O&M	$ 69,279,361	$ 11,593,943	$ 11,941,761	$ 12,300,014	$ 12,669,014	$ 13,049,084	$ 13,440,557	$ 13,843,774	$ 14,259,087	$ 14,686,859	$ 18,062,985	$ 20,939,950	$ 23,568,098
Plus: Cumulative Prior Incremental O&M	878,531	-	-	-	-	-	-	-	285,182	593,349	5,066,181	7,230,503	8,137,995
Subtotal	$ 70,157,892	$ 11,593,943	$ 11,941,761	$ 12,300,014	$ 12,669,014	$ 13,049,084	$ 13,440,557	$ 13,843,774	$ 14,544,269	$ 15,280,209	$ 23,129,166	$ 28,170,453	$ 31,706,092
Incremental O&M Increase Factor		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	2.0%	2.0%	2.5%	0.0%	0.0%
Incremental O&M Additions	$ 873,365	$ -	$ -	$ -	$ -	$ -	$ -	$ 276,875	$ 290,885	$ 305,604	$ 578,229	$ -	$ -
Less: Incremental O&M Reductions	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Additional Incremental O&M	$ 873,365	$ -	$ -	$ -	$ -	$ -	$ -	$ 276,875	$ 290,885	$ 305,604	$ 578,229	$ -	$ -
Total Incremental O&M	$ 1,751,896	$ -	$ -	$ -	$ -	$ -	$ -	$ 276,875	$ 576,067	$ 898,953	$ 5,644,410	$ 7,230,503	$ 8,137,995
Total Operation & Maintenance Expenses	$ 71,031,257	$ 11,593,943	$ 11,941,761	$ 12,300,014	$ 12,669,014	$ 13,049,084	$ 13,440,557	$ 14,120,649	$ 14,835,154	$ 15,585,813	$ 23,707,395	$ 28,170,453	$ 31,706,092

Source: Historical provided by Phoenix-Mesa Gateway Airport Authority and Forecast provided by Jacobs Consultancy (LeighFisher).

Table 8-10: Revenues

	Phase I 2014-2018	Historical 2010	Estimated 2011	Budget 2012	Forecast 2013	2014	2015	2016	2017	2018	2025	2030	2034
Airfield													
Landing Fees													
Passenger Airlines	$ 4,042,551	$ 282,827	$ 466,626	$ 567,805	626,103	683,676	741,041	797,480	853,625	966,730	1,654,954	2,022,851	2,330,965
General Aviation	981,017	164,174	169,099	174,172	179,397	184,779	190,322	196,032	201,913	207,970	255,777	296,516	333,731
Subtotal	$ 5,023,568	$ 447,001	$ 635,725	$ 741,977	$ 805,500	$ 868,454	$ 931,363	$ 993,512	$ 1,055,538	$ 1,174,701	$ 1,910,731	$ 2,319,367	$ 2,664,697
Aircraft Parking	1,401,015	346,974	321,733	229,847	242,310	254,584	266,796	278,905	291,028	309,703	426,435	503,189	570,813
Fuel Flowage Fees	3,825,488	589,069	603,072	627,600	661,631	695,143	728,489	761,553	794,656	845,646	1,164,385	1,373,962	1,558,612
Hangar / Land / Facility Leases	11,503,719	494,956	1,716,565	2,042,396	2,103,668	2,166,778	2,231,781	2,298,735	2,367,697	2,438,728	2,999,328	3,477,043	3,913,442
Aeronautical Products and Services Sold	26,358,380	4,834,832	4,747,126	4,679,726	4,820,118	4,964,721	5,113,663	5,267,073	5,425,085	5,587,838	6,872,335	7,966,920	8,966,839
Total Airfield	$ 48,112,169	$ 6,712,831	$ 8,024,221	$ 8,321,546	$ 8,633,226	$ 8,949,681	$ 9,272,092	$ 9,599,777	$ 9,934,004	$ 10,356,615	$ 13,373,214	$ 15,640,481	$ 17,674,403
Terminal													
Airline Revenues	$ 131,513	$ 10,510	$ 15,525	$ 18,472	$ 20,368	$ 22,241	$ 24,108	$ 25,944	$ 27,770	$ 31,450	$ 53,839	$ 65,808	$ 75,831
Concession Revenues	1,941,728	59,614	214,932	318,555	335,828	352,838	369,764	386,546	403,349	429,230	591,015	697,391	791,115
Total Terminal	$ 2,073,240	$ 70,124	$ 230,457	$ 337,027	$ 356,197	$ 375,080	$ 393,871	$ 412,490	$ 431,119	$ 460,680	$ 644,854	$ 763,199	$ 866,946
Other													
Parking & Ground Transportation	$ 12,615,247	$ 950,196	$ 1,632,654	$ 1,909,497	$ 2,060,635	$ 2,208,937	$ 2,355,987	$ 2,500,584	$ 2,644,377	$ 2,905,362	$ 4,451,064	$ 5,303,869	$ 6,044,341
Rental Car	5,167,308	551,040	628,661	797,951	856,875	914,062	970,184	1,024,767	1,078,499	1,179,796	1,765,933	2,082,893	2,364,052
Non-Aeronautical Lease Income													
Facility	4,643,443	1,436,187	755,652	824,407	849,140	874,614	900,852	927,878	955,714	984,385	1,210,670	1,403,498	1,579,650
Land	819,431	641,781	133,350	145,484	149,848	154,344	158,974	163,743	168,655	173,715	213,648	247,676	278,762
Subtotal	$ 5,462,874	$ 2,077,968	$ 889,002	$ 969,891	$ 998,988	$ 1,028,957	$ 1,059,826	$ 1,091,621	$ 1,124,369	$ 1,158,101	$ 1,424,318	$ 1,651,175	$ 1,858,411
Non-Aeronautical Services Sold	759,319	107,364	91,345	124,572	131,327	137,979	144,597	151,160	157,731	167,852	231,118	272,717	309,368
Total Other	$ 24,004,749	$ 3,686,568	$ 3,241,661	$ 3,801,911	$ 4,047,824	$ 4,289,935	$ 4,530,595	$ 4,768,131	$ 5,004,977	$ 5,411,111	$ 7,872,433	$ 9,310,653	$ 10,576,173
Total Base Revenues	$ 74,190,158	$ 10,469,523	$ 11,496,340	$ 12,460,484	$ 13,037,247	$ 13,614,696	$ 14,196,558	$ 14,780,399	$ 15,370,099	$ 16,228,406	$ 21,890,500	$ 25,714,333	$ 29,117,522
Plus: Incremental Revenues (ex. Airline)													
Parking (from Table 8-12)	$ 1,889,923	$ -	$ -	$ -	$ -	$ 3,473	$ 3,473	$ 160,616	$ 772,917	$ 949,445	$ 2,437,255	$ 2,912,360	$ 46,373,798
Commercial (from Table 8-13)	729,452	-	-	-	-	3,473	5,431	87,505	224,993	408,050	1,694,755	2,176,208	2,296,978
FBO/GA and Other (from Table 8-14)	825,749	-	-	-	-	77,555	77,555	146,774	221,572	302,293	1,488,658	1,885,181	2,112,054
Subtotal	$ 3,445,123	$ -	$ -	$ -	$ -	$ 84,500	$ 86,458	$ 394,895	$ 1,219,482	$ 1,659,788	$ 5,620,667	$ 6,973,749	$ 50,782,829
Total Operating Revenues (excl. Incremental Airline)	$ 77,635,280	$ 10,469,523	$ 11,496,340	$ 12,460,484	$ 13,037,247	$ 13,699,196	$ 14,283,016	$ 15,175,294	$ 16,589,581	$ 17,888,194	$ 27,511,168	$ 32,688,081	$ 79,900,351
% Increase		38.04%	9.81%	8.39%	4.63%	5.08%	4.26%	6.25%	9.32%	7.83%	4.86%	3.00%	21.82%
Non-Operating Revenues (Expenses)													
Operating Grant Income (Law Enforcement)	$ 704,058	$ 113,602	$ 123,000	$ 125,000	$ 128,750	$ 132,613	$ 136,591	$ 140,689	$ 144,909	$ 149,257	$ 183,567	$ 212,804	$ 239,513
Customer Facility Charges	2,963,675	289,849	327,985	449,688	484,965	519,544	553,802	587,459	620,907	681,962	1,048,381	1,259,103	1,439,568
Interest Income	760,382	117,361	104,000	135,000	139,050	143,222	147,518	151,944	156,502	161,197	198,252	229,828	258,674
Total Non-Operating Revenues (Expenses)	$ 4,428,115	$ 520,812	$ 554,985	$ 709,688	$ 752,765	$ 795,378	$ 837,911	$ 880,092	$ 922,318	$ 992,416	$ 1,430,200	$ 1,701,735	$ 1,937,755
Total Revenues (ex. Incremental Airline)	$ 82,063,396	$ 10,990,335	$ 12,051,325	$ 13,170,172	$ 13,790,012	$ 14,494,574	$ 15,120,928	$ 16,055,385	$ 17,511,899	$ 18,880,610	$ 28,941,367	$ 34,389,817	$ 81,838,106
SCENARIO 1 - UNCONSTRAINED REVENUE													
Total Revenues (ex. Incremental Airline)	$ 82,063,396	$ 10,990,335	$ 12,051,325	$ 13,170,172	$ 13,790,012	$ 14,494,574	$ 15,120,928	$ 16,055,385	$ 17,511,899	$ 18,880,610	$ 28,941,367	$ 34,389,817	$ 81,838,106
Plus: Incremental Airline (from Table 8-11)	5,271,002	-	-	-	-	1,425	246,066	936,495	1,667,900	2,419,117	11,615,229	24,991,076	31,112,408
Grand Total Revenues	$ 87,334,398	$ 10,990,335	$ 12,051,325	$ 13,170,172	$ 13,790,012	$ 14,495,999	$ 15,366,994	$ 16,991,880	$ 19,179,799	$ 21,299,726	$ 40,556,596	$ 59,380,892	$ 112,950,514
(State/Municipal Sponsor Support Required	$ 27,270,863	$ -	$ -	$ 90,010	$ -	$ -	$ -	$ 3,704,215	$ 11,198,652	$ 12,367,996	$ -	$ -	$ -
SCENARIO 2 - CAPPED CPE													
Total Revenues (ex. Incremental Airline)	$ 82,063,396	$ 10,990,335	$ 12,051,325	$ 13,170,172	$ 13,790,012	$ 14,494,574	$ 15,120,928	$ 16,055,385	$ 17,511,899	$ 18,880,610	$ 28,941,367	$ 34,389,817	$ 81,838,106
Plus: Incremental Airline (from Table 8-11)	5,271,002	-	-	-	-	1,425	246,066	936,495	1,667,900	2,419,117	8,812,024	13,194,350	17,656,825
Grand Total Revenues	$ 87,334,398	$ 10,990,335	$ 12,051,325	$ 13,170,172	$ 13,790,012	$ 14,495,999	$ 15,366,994	$ 16,991,880	$ 19,179,799	$ 21,299,726	$ 37,753,391	$ 47,584,167	$ 99,494,931
(State/Municipal Sponsor Support Required	$ 27,270,863	-	-	$ 90,010	$ -	$ -	$ -	$ 3,704,215	$ 11,198,652	$ 12,367,996	$ -	$ 21,170,268	$ 1,535,230

Source: Historical provided by Phoenix-Mesa Gateway Airport Authority and Forecast provided by Jacobs Consultancy (LeighFisher).

Table 8-11: Forecast Airline Revenue Requirements

		Phase I 2014-2018	2010	2011	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
Airline Requirements														
Base Revenues (from Table 8-10)														
Landing Fees		$ 4,042,551	$ 282,827	$ 466,626	$ 567,805	$ 626,103	$ 683,676	$ 741,041	$ 797,480	$ 853,625	$ 966,730	$ 1,654,954	$ 2,022,851	$ 2,330,965
Aircraft Parking		1,401,015	346,974	321,733	229,847	242,310	254,584	266,796	278,905	291,028	309,703	426,435	503,189	570,813
Terminal Rentals		131,513	10,510	15,525	18,472	20,368	22,241	24,108	25,944	27,770	31,450	53,839	65,808	75,831
Total Base Revenues		$ 5,575,079	$ 640,311	$ 803,884	$ 816,124	$ 888,781	$ 960,500	$ 1,031,944	$ 1,102,328	$ 1,172,423	$ 1,307,883	$ 2,135,228	$ 2,591,847	$ 2,977,610
SCENARIO 1 - UNCONSTRAINED REVENUE														
Incremental Revenues														
Debt Service		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,664,660	$ 16,024,497	$ 19,818,955
Plus: Coverage Markup	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,664,660	$ 16,024,497	$ 19,818,955
Amortized Paygo Capital Projects		4,833,028	-	-	-	-	1,425	246,066	867,276	1,523,883	2,194,378	2,539,466	7,158,953	9,258,955
Incremental O&M Recovery Share	25%	437,974	-	-	-	-	-	-	69,219	144,017	224,738	1,411,103	1,807,626	2,034,499
Total Incremental Revenues		$ 5,271,002	$ -	$ -	$ -	$ -	$ 1,425	$ 246,066	$ 936,495	$ 1,667,900	$ 2,419,117	$ 11,615,229	$ 24,991,076	$ 31,112,408
Total Airline Requirements		$ 10,846,081	$ 640,311	$ 803,884	$ 816,124	$ 888,781	$ 961,925	$ 1,278,010	$ 2,038,823	$ 2,840,323	$ 3,726,999	$ 13,750,456	$ 27,582,923	$ 34,090,018
Enplaned Passengers			342,047	430,844	513,926	579,141	644,356	710,000	775,000	840,000	980,000	1,863,636	2,318,182	2,692,239
Airline Cost Per Enplaned Passenger (CPE)			$ 1.87	$ 1.87	$ 1.59	$ 1.53	$ 1.49	$ 1.80	$ 2.63	$ 3.38	$ 3.80	$ 7.38	$ 11.90	$ 12.66
SCENARIO 2 - CAPPED CPE														
Enplaned Passengers			342,047	430,844	513,926	579,141	644,356	710,000	775,000	840,000	980,000	1,863,636	2,318,182	2,692,239
Max Airline CPE /1	$ 4.00		$ 1.87	$ 1.87	$ 1.59	$ 1.53	$ 1.49	$ 1.80	$ 2.63	$ 3.38	$ 3.80	$ 5.87	$ 6.81	$ 7.66
Total Airline Requirements		$ 10,846,081	$ 640,311	$ 803,884	$ 816,124	$ 888,781	$ 961,925	$ 1,278,010	$ 2,038,823	$ 2,840,323	$ 3,726,999	$ 10,947,251	$ 15,786,197	$ 20,634,435
Less: Base Revenues		(5,575,079)	(640,311)	(803,884)	(816,124)	(888,781)	(960,500)	(1,031,944)	(1,102,328)	(1,172,423)	(1,307,883)	(2,135,228)	(2,591,847)	(2,977,610)
Incremental Revenues		$ 5,271,002	$ -	$ -	$ -	$ -	$ 1,425	$ 246,066	$ 936,495	$ 1,667,900	$ 2,419,117	$ 8,812,024	$ 13,194,350	$ 17,656,825
Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).														
Note: 1. Adjusted for inflation.														
Adjusted Incremental Revenues			$ -	$ -	$ -	$ -	$ 1,425	$ 246,066	$ 936,495	$ 1,667,900	$ 2,419,117	$ 11,615,229	$ 24,991,076	$ 31,112,408
Inflation of CPE					4.00	4.12	4.24	4.37	4.50	4.64	4.78	5.87	6.81	7.66
					4.00	4.12	4.24	4.37	4.50	4.64	4.78	5.87	6.81	7.66

Table 8-12: Forecast Parking Revenue Requirements

		Phase I 2014-2018	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
Parking Requirements												
Base Revenues (from Table 8-10)		$ 12,615,247	$ 1,909,497	$ 2,060,635	$ 2,208,937	$ 2,355,987	$ 2,500,584	$ 2,644,377	$ 2,905,362	$ 4,451,064	$ 5,303,869	$ 6,044,341
Incremental Revenues												
Debt Service		$ 1,094,053	$ -	$ -	$ 1,638	$ 1,638	$ 67,758	$ 480,006	$ 543,012	$ 767,548	$ 782,847	$ 35,285,021
Plus: Coverage Markup	1.25	273,513	-	-	410	410	16,940	120,002	135,753	191,887	195,712	8,821,255
Subtotal		$ 1,367,567	$ -	$ -	$ 2,048	$ 2,048	$ 84,698	$ 600,008	$ 678,765	$ 959,434	$ 978,559	$ 44,106,276
Amortized Paygo Capital Projects		84,382	-	-	1,425	1,425	6,699	28,892	45,941	66,718	126,175	233,023
Incremental O&M Recovery Share	25%	437,974	-	-	-	-	69,219	144,017	224,738	1,411,103	1,807,626	2,034,499
Total Incremental Revenues		$ 1,889,923	$ -	$ -	$ 3,473	$ 3,473	$ 160,616	$ 772,917	$ 949,445	$ 2,437,255	$ 2,912,360	$ 46,373,798
Total Parking Requirements		$ 14,505,170	$ 1,909,497	$ 2,060,635	$ 2,212,410	$ 2,359,460	$ 2,661,199	$ 3,417,294	$ 3,854,807	$ 6,888,319	$ 8,216,229	$ 52,418,139
Requirement Per Day			5,228	5,642	6,057	6,460	7,286	9,356	10,554	18,859	22,495	143,513
Spaces			2,000	2,000	2,000	2,000	2,000	2,000	2,000	4,620	4,620	4,620
Assumed Occupancy			60%	70%	77%	82%	87%	90%	90%	62%	72%	80%
Occupied Spaces			1,200	1,393	1,532	1,641	1,731	1,800	1,800	2,885	3,321	3,696
Requirement Per Space Per Day /1			$ 5.00	$ 5.15	$ 5.30	$ 5.46	$ 5.63	$ 5.80	$ 5.97	$ 7.34	$ 8.51	$ 38.83

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).
Note: 1. Assumes minimum requirement of $5.00 per occupied space per day (adjusted for inflation).

Table 8-13: Forecast Commercial Revenue Requirements

		Phase I 2014-2018	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
Commercial Development Requirements												
Base Revenues (from Table 8-10)		$ 819,431	145,484	149,848	154,344	158,974	163,743	168,655	173,715	213,648	247,676	278,762
Incremental Revenues												
Debt Service		$ 154,187	$ -	$ -	$ 1,638	$ 1,638	$ 7,704	$ 40,100	$ 103,106	$ 155,061	$ 170,361	$ -
Plus: Coverage Markup	1.25	38,547	-	-	410	410	1,926	10,025	25,777	38,765	42,590	-
Subtotal		$ 192,734	$ -	$ -	$ 2,048	$ 2,048	$ 9,630	$ 50,126	$ 128,883	$ 193,827	$ 212,951	$ -
Amortized Paygo Capital Projects		98,744	-	-	1,425	3,383	8,657	30,851	54,429	89,826	155,631	262,479
Incremental O&M Recovery Share	25%	437,974	-	-	-	-	69,219	144,017	224,738	1,411,103	1,807,626	2,034,499
Total Incremental Revenues		$ 729,452	$ -	$ -	$ 3,473	$ 5,431	$ 87,505	$ 224,993	$ 408,050	$ 1,694,755	$ 2,176,208	$ 2,296,978
Total Commercial Requirements		$ 1,548,883	145,484	149,848	157,816	164,405	251,249	393,648	581,765	1,908,403	2,423,884	2,575,739
Estimated Leasable Square Footage			266,701	266,701	266,701	266,701	266,701	266,701	266,701	1,743,156	2,763,501	2,763,501
Cost per Square Foot			$ 0.55	$ 0.56	$ 0.59	$ 0.62	$ 0.94	$ 1.48	$ 2.18	$ 1.09	$ 0.88	$ 0.93

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-14: Forecast FBO/GA and Other Revenue Requirements

		Phase I 2014-2018	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
FBO/GA and Other Revenue Requirements												
Base Revenues (from Table 8-10)		$ 60,755,479	$ 10,405,503	$ 10,826,764	$ 11,251,415	$ 11,681,597	$ 12,116,072	$ 12,557,067	$ 13,149,329	$ 17,225,788	$ 20,162,787	$ 22,794,420
Incremental Revenues												
Debt Service		$ 310,220	$ -	$ -	$ 62,044	$ 62,044	$ 62,044	$ 62,044	$ 62,044	$ 62,044	$ 62,044	$ 62,044
Plus: Coverage Markup	1.25	77,555	-	-	15,511	15,511	15,511	15,511	15,511	15,511	15,511	15,511
Subtotal		$ 387,775	$ -	$ -	$ 77,555	$ 77,555	$ 77,555	$ 77,555	$ 77,555	$ 77,555	$ 77,555	$ 77,555
Amortized Paygo Capital Projects		-	-	-	-	-	-	-	-	-	-	-
Incremental O&M Recovery Share	25%	437,974	-	-	-	-	69,219	144,017	224,738	1,411,103	1,807,626	2,034,499
Total Incremental Revenues		$ 825,749	$ -	$ -	$ 77,555	$ 77,555	$ 146,774	$ 221,572	$ 302,293	$ 1,488,658	$ 1,885,181	$ 2,112,054
Total FBO/GA and Other Revenue Requirements		$ 61,581,228	$ 10,405,503	$ 10,826,764	$ 11,328,970	$ 11,759,152	$ 12,262,846	$ 12,778,638	$ 13,451,622	$ 18,714,446	$ 22,047,968	$ 24,906,473

Source: Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-15: Scenario 1 - Forecast Net Revenue and Debt Service Coverage

		Phase I 2014-2018	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
Enplaned Passengers			513,926	579,141	644,356	710,000	775,000	840,000	980,000	1,863,636	2,318,182	2,692,239
% Growth				12.7%	11.3%	10.2%	9.2%	8.4%	16.7%	5.1%	4.1%	3.8%
Revenues (ex. PFC Revenues)												
Base Operating		$ 74,190,158	$ 12,460,484	$ 13,037,247	$ 13,614,696	$ 14,196,558	$ 14,780,399	$ 15,370,099	$ 16,228,406	$ 21,890,500	$ 25,714,333	$ 29,117,522
Incremental Operating		8,716,125	-	-	85,925	332,524	1,331,390	2,887,382	4,078,905	17,235,896	31,964,824	81,895,237
Non-Operating		4,428,115	709,688	752,765	795,378	837,911	880,092	922,318	992,416	1,430,200	1,701,735	1,937,755
Subtotal		$ 87,334,398	$ 13,170,172	$ 13,790,012	$ 14,495,999	$ 15,366,994	$ 16,991,880	$ 19,179,799	$ 21,299,726	$ 40,556,596	$ 59,380,892	$ 112,950,514
% Growth				4.7%	5.1%	6.0%	10.6%	12.9%	11.1%	3.9%	12.4%	14.8%
Less: Operation and Maintenance Expenses												
Base		$ (69,279,361)	$ (12,300,014)	$ (12,669,014)	$ (13,049,084)	$ (13,440,557)	$ (13,843,774)	$ (14,259,087)	$ (14,686,859)	$ (18,062,985)	$ (20,939,950)	$ (23,568,098)
Incremental		(1,751,896)	-	-	-	-	(276,875)	(576,067)	(898,953)	(5,644,410)	(7,230,503)	(8,137,995)
Subtotal		$ (71,031,257)	$ (12,300,014)	$ (12,669,014)	$ (13,049,084)	$ (13,440,557)	$ (14,120,649)	$ (14,835,154)	$ (15,585,813)	$ (23,707,395)	$ (28,170,453)	$ (31,706,092)
% Growth				3.0%	3.0%	3.0%	5.1%	5.1%	5.1%	5.6%	3.0%	3.0%
Net Revenues before Debt Service		$ 16,303,141	$ 870,158	$ 1,120,998	$ 1,446,914	$ 1,926,437	$ 2,871,231	$ 4,344,645	$ 5,713,914	$ 16,849,201	$ 31,210,440	$ 81,244,422
% Growth				28.8%	29.1%	33.1%	49.0%	51.3%	31.5%	1.5%	22.5%	20.1%
Debt Service												
ADOT Hangar Loan		$ (1,076,939)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ -	$ -
Allegiant Airlines Note		-	(552,748)	-	-	-	-	-	-	-	-	-
GARB		(17,774,244)	-	-	(66,959)	(894,423)	(3,055,985)	(5,678,838)	(8,078,040)	(8,649,313)	(17,039,750)	(55,459,256)
PFC-Backed		(8,740,015)	-	-	-	(450,269)	(1,583,916)	(2,751,572)	(3,954,258)	(5,076,584)	(6,768,208)	(7,507,604)
Subtotal		$ (27,591,198)	$ (768,136)	$ (215,388)	$ (282,347)	$ (1,560,080)	$ (4,855,289)	$ (8,645,797)	$ (12,247,686)	$ (13,941,284)	$ (23,807,958)	$ (62,966,860)
Less: PFCs Applied to Debt Service		8,740,015	-	-	-	450,269	1,583,916	2,751,572	3,954,258	5,076,584	6,768,208	7,507,604
% Leveraged			0.0%	0.0%	0.0%	15.5%	50.1%	80.2%	98.8%	66.7%	71.5%	68.3%
Aggregate Debt Service		$ (18,851,183)	$ (768,136)	$ (215,388)	$ (282,347)	$ (1,109,810)	$ (3,271,372)	$ (5,894,225)	$ (8,293,427)	$ (8,864,700)	$ (17,039,749)	$ (55,459,255)
Net Revenues after Debt Service		$ (2,548,040)	$ 102,023	$ 905,610	$ 1,164,568	$ 816,627	$ (400,141)	$ (1,549,579)	$ (2,579,513)	$ 7,984,502	$ 14,170,691	$ 25,785,167
Plus: State/Municipal Sponsor Contributions to Debt Service	[A]	8,893,990	90,010	-	-	-	1,217,980	3,023,140	4,652,870	-	-	-
Net Revenues after Debt Service and State/Municipal Sponsor Contributions		$ 6,345,950	$ 192,033	$ 905,610	$ 1,164,568	$ 816,627	$ 817,839	$ 1,473,561	$ 2,073,357	$ 7,984,502	$ 14,170,691	$ 25,785,167
Debt Service Coverage (1.25x minimum)			1.25	5.20	5.12	1.74	1.25	1.25	1.25	1.90	1.83	1.46
Cost per Enplaned Passenger			$ 1.59	$ 1.53	$ 1.49	$ 1.80	$ 2.63	$ 3.38	$ 3.80	$ 7.38	$ 11.90	$ 12.66
Surplus Fund												
Beginning Balance		$ 9,834,529	$ 8,736,886	$ 8,928,919	$ 9,834,529	$ 7,969,746	$ 5,391,972	$ -	$ -	$ 34,501,896	$ 42,322,347	$ 60,291,839
Deposits		6,345,950	192,033	905,610	1,164,568	816,627	817,839	1,473,561	2,073,357	7,984,502	14,170,691	25,785,167
Less: Paygo Withdrawals		(34,557,352)	-	-	(3,029,350)	(3,394,401)	(8,696,046)	(9,649,072)	(9,788,483)	(84,831)	(26,636,345)	(1,980,399)
Plus: State/Municipal Sponsor Contributions to Paygo Projects	[B]	18,376,873	-	-	-	-	2,486,235	8,175,512	7,715,126	-	-	-
Ending Balance		$ -	$ 8,928,919	$ 9,834,529	$ 7,969,746	$ 5,391,972	$ -	$ -	$ -	$ 42,401,567	$ 29,856,693	$ 84,096,607
Total State/Municipal Sponsor Support Required	[A] + [B]	$ 27,270,863	$ 90,010	$ -	$ -	$ -	$ 3,704,215	$ 11,198,652	$ 12,367,996	$ -	$ -	$ -

Source: Phoenix-Mesa Gateway Airport Authority, Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Table 8-15: Scenario 2 - Forecast Net Revenue and Debt Service Coverage

		Phase I 2014-2018	2012	2013	2014	2015	2016	2017	2018	2025	2030	2034
Enplaned Passengers			513,926	579,141	644,356	710,000	775,000	840,000	980,000	1,863,636	2,318,182	2,692,239
% Growth				12.7%	11.3%	10.2%	9.2%	8.4%	16.7%	5.1%	4.1%	3.8%
Revenues (ex. PFC Revenues)												
Base Operating		$ 74,190,158	$ 12,460,484	$ 13,037,247	$ 13,614,696	$ 14,196,558	$ 14,780,399	$ 15,370,099	$ 16,228,406	$ 21,890,500	$ 25,714,333	$ 29,117,522
Incremental Operating		8,716,125	-	-	85,925	332,524	1,331,390	2,887,382	4,078,905	14,432,691	20,168,099	68,439,654
Non-Operating		4,428,115	709,688	752,765	795,378	837,911	880,092	922,318	992,416	1,430,200	1,701,735	1,937,755
Subtotal		$ 87,334,398	$ 13,170,172	$ 13,790,012	$ 14,495,999	$ 15,366,994	$ 16,991,880	$ 19,179,799	$ 21,299,726	$ 37,753,391	$ 47,584,167	$ 99,494,931
% Growth				4.7%	5.1%	6.0%	10.6%	12.9%	11.1%	5.8%	4.3%	18.6%
Less: Operation and Maintenance Expenses												
Base		$ (69,279,361)	$ (12,300,014)	$ (12,669,014)	$ (13,049,084)	$ (13,440,557)	$ (13,843,774)	$ (14,259,087)	$ (14,686,859)	$ (18,062,985)	$ (20,939,950)	$ (23,568,098)
Incremental		(1,751,896)	-	-	-	-	(276,875)	(576,067)	(898,953)	(5,644,410)	(7,230,503)	(8,137,995)
Subtotal		$ (71,031,257)	$ (12,300,014)	$ (12,669,014)	$ (13,049,084)	$ (13,440,557)	$ (14,120,649)	$ (14,835,154)	$ (15,585,813)	$ (23,707,395)	$ (28,170,453)	$ (31,706,092)
% Growth				3.0%	3.0%	3.0%	5.1%	5.1%	5.1%	5.6%	3.0%	3.0%
Net Revenues before Debt Service		$ 16,303,141	$ 870,158	$ 1,120,998	$ 1,446,914	$ 1,926,437	$ 2,871,231	$ 4,344,645	$ 5,713,914	$ 14,045,996	$ 19,413,714	$ 67,788,839
% Growth				28.8%	29.1%	33.1%	49.0%	51.3%	31.5%	6.2%	6.3%	27.6%
Debt Service												
ADOT Hangar Loan		$ (1,076,939)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ (215,388)	$ -	$ -
Allegiant Airlines Note		-	(552,748)	-	-	-	-	-	-	-	-	-
GARB		(17,774,244)	-	-	(66,959)	(894,423)	(3,055,985)	(5,678,838)	(8,078,040)	(8,649,313)	(17,039,750)	(55,459,256)
PFC-Backed		(8,740,015)	-	-	-	(450,269)	(1,583,916)	(2,751,572)	(3,954,258)	(5,076,584)	(6,768,208)	(7,507,604)
Subtotal		$ (27,591,198)	$ (768,136)	$ (215,388)	$ (282,347)	$ (1,560,080)	$ (4,855,289)	$ (8,645,797)	$ (12,247,686)	$ (13,941,284)	$ (23,807,958)	$ (62,966,860)
Less: PFCs Applied to Debt Service		8,740,015	-	-	-	450,269	1,583,916	2,751,572	3,954,258	5,076,584	6,768,208	7,507,604
% Leveraged			0.0%	0.0%	0.0%	15.5%	50.1%	80.2%	98.8%	66.7%	71.5%	68.3%
Aggregate Debt Service		$ (18,851,181)	$ (768,136)	$ (215,388)	$ (282,347)	$ (1,109,810)	$ (3,271,372)	$ (5,894,225)	$ (8,293,427)	$ (8,864,700)	$ (17,039,749)	$ (55,459,255)
Net Revenues after Debt Service			$ 102,023	$ 905,610	$ 1,164,568	$ 816,627	$ (400,141)	$ (1,549,579)	$ (2,579,513)	$ 5,181,297	$ 2,373,965	$ 12,329,584
Plus: State/Municipal Sponsor Contributions to Debt Service	[A]	$ 8,893,990	90,010	-	-	-	1,217,980	3,023,140	4,652,870	-	1,885,970	1,535,230
Net Revenues after Debt Service and State/Municipal Sponsor Contributions			$ 192,033	$ 905,610	$ 1,164,568	$ 816,627	$ 817,839	$ 1,473,561	$ 2,073,357	$ 5,181,297	$ 4,259,935	$ 13,864,814
Debt Service Coverage (1.25x minimum)			1.25	5.20	5.12	1.74	1.25	1.25	1.25	1.58	1.25	1.25
Cost per Enplaned Passenger			$ 1.59	$ 1.53	$ 1.49	$ 1.80	$ 2.63	$ 3.38	$ 3.80	$ 5.87	$ 6.81	$ 7.66
Surplus Fund												
Beginning Balance		$ 9,834,529	$ 8,736,886	$ 8,928,919	$ 9,834,529	$ 7,969,746	$ 5,391,972	$ -	$ -	$ 11,763,426	$ 3,092,112	$ 17,408,681
Deposits		6,345,950	192,033	905,610	1,164,568	816,627	817,839	1,473,561	2,073,357	5,181,297	4,259,935	13,864,814
Less: Paygo Withdrawals		(34,557,352)	-	-	(3,029,350)	(3,394,401)	(8,696,046)	(9,649,072)	(9,788,483)	(84,831)	(26,636,345)	(1,980,399)
Plus: State/Municipal Sponsor Contributions to Paygo Projects	[B]	18,376,873	-	-	-	-	2,486,235	8,175,512	7,715,126	-	19,284,298	-
Ending Balance		$ -	$ 8,928,919	$ 9,834,529	$ 7,969,746	$ 5,391,972	$ -	$ -	$ -	$ 16,859,891	$ -	$ 29,293,096
Total State/Municipal Sponsor Support Required	[A] + [B]	$ 27,270,863	$ 90,010	$ -	$ -	$ -	$ 3,704,215	$ 11,198,652	$ 12,367,996	$ -	$ 21,170,268	$ 1,535,230

Source: Phoenix-Mesa Gateway Airport Authority, Jacobs Engineering and Jacobs Consultancy (LeighFisher).

Section 9: Economic and Fiscal Impact of Commercial Land Uses

The commercial component of the NADP will be comprised of privately-owned retail, office, and hotel buildings that would be located on airport property under long term land lease agreements. The analysis prepared and presented in the Section assumes that 2,580,000 square feet of commercial space would be built on approximately 166 acres located in the northeast part of the Northeast Area. The economic and fiscal impact analysis is based on full build-out of the property. The information contained here is summary in nature, and the full study conducted by Elliott D. Pollack & Company may be found in the Appendices of this Technical Report.

9.1 Economic and Fiscal Impact Analysis

This economic and fiscal impact study focused on the economic and fiscal impacts derived from (a) the construction of the project, and (b) ongoing operations at the property once completed. Economic impact analysis examines the regional implications of an activity in terms of three basic measures: output, earnings, and employment. Fiscal impact analysis evaluates the public revenues created by a particular activity. In a fiscal impact analysis, the primary revenue sources of a governing entity are analyzed to determine how the activity may financially affect them. A full description of the methodology and modeling inputs is included in the body of the study found in Appendix B.

9.2 Economic Impacts

The anticipated direct economic impact from construction of the commercial uses proposed in Northeast Area Development Plan is based on an estimated $384.5 million of cost construction. The project would generate an estimated 3,287 direct person years of employment during the construction phase. Person years of employment are the aggregate of each construction job that is recreated year after year throughout the construction time period. To derive the respective annual averages, employment, wages, and economic output can be divided by the expected number of years it may take to complete the development. About $175.6 million in direct wages would be generated based on the total construction activity. Another estimated 2,694 indirect and induced jobs would be created in the local economy. Wages for these indirect and induced employees would be about $125.5 million. Altogether, the project would create approximately 5,982 person years of employment, $301.1 million in wages, and over $730.6 million in economic activity during the construction timeframe.

The operations related to the commercial uses within the Northeast Area would have a notable impact on the local and regional economy. Roughly 8,265 direct jobs would be created at build-out. In total, approximately 12,459 permanent direct, indirect, and induced jobs would be created throughout Greater Phoenix as a result of the commercial uses within the Northeast Area Development Plan. That equates to over $467.7 million in annual wages and $1.032 billion in annual economic output. The majority of these jobs would be office related.

The economic impacts noted above are stated at the regional, metro-wide level and will affect all of Greater Phoenix. While most of the impact will fall on the Southeast Valley, cities across the region will all benefit to some extent from the commercial uses in the Northeast Area Plan. Table 9-1, Economic Impact, presents these results in tabular form.

Table 9-1: Economic Impact

Economic Impact
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
Greater Phoenix
(2011 Dollars)

Total Construction Impact			
Impact Type	Person Years of Employment	Total Wages	Economic Output
Direct	3,287	$175,600,000	$384,500,000
Indirect	833	$46,300,000	$123,000,000
Induced	1,861	$79,200,000	$223,100,000
Total	**5,982**	**$301,100,000**	**$730,600,000**

Sources: Elliott D. Pollack & Company; IMPLAN

Annual Operations Impact			
Impact Type	Jobs	Annual Wages	Economic Output
Direct	8,265	$283,700,000	$523,100,000
Indirect	1,313	$61,100,000	$162,700,000
Induced	2,882	$122,900,000	$345,900,000
Annual at Buildout	**12,459**	**$467,700,000**	**$1,031,700,000**

Sources: Elliott D. Pollack & Company; IMPLAN

9.3 Fiscal Impacts

Construction of the commercial uses within the Northeast Area would also create significant tax revenues for the City of Mesa. Revenues have been defined in this analysis as either primary or secondary, depending on their source and how the dollars flow through the economy into City tax accounts. For instance, some revenues, such as construction sales taxes, are straightforward calculations based on the cost of construction. These revenues are described in this analysis as primary revenues and include construction sales taxes, use taxes, property taxes, and taxes on lease payments. Secondary revenues, on the other hand, flow from the wages of those direct, indirect and induced employees who are supported by the full project. Revenue projections are based on typical wages of the employees working on the project, their spending patterns, and estimates of where they might live. All values are stated in 2011 dollars.

Primary revenues generated to the City would total nearly $4.5 million over the construction period. In addition, the City would benefit from the spending of construction workers within City limits. Sales tax collections on employee spending for the City were estimated at an additional $335,000 for the entire construction period. Other secondary revenues include residents' property taxes and state shared revenues. In total, the City of Mesa would expect to collect nearly $5.5 million in tax revenue from the construction-related activity associated with the commercial uses. Additional fiscal benefits would accrue to the State of Arizona and Maricopa County.

As the commercial uses are completed in Northeast Area, operations related to the office, retail and hotel uses will create tax revenue for the City of Mesa. Retail sales from stores throughout the site, as well as within the hotel, would generate approximately $1.3 million annually at build-out. Bed taxes from the hotel would contribute another $1.1 million annually. Property tax collections from the commercial properties, assuming an in-lieu tax is levied, would add another $266,000 annually. In total, nearly $5.8 million would be collected each year by the City. Table 9-2, Fiscal Impact Summary, shows the ongoing tax revenue that the City of Mesa would expect to collect based on the construction and operations of the commercial uses within the Northeast Development Area.

In addition, the PMGA Authority would collect approximately $7,231,000 annually at build-out from developers who lease land for the commercial buildings.

Table 9-2: Fiscal Impact Summary

Fiscal Impact Summary
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
City of Mesa
(2011 Dollars)

Total Construction Impact					Annual Operations Impact			
Impact Type	Primary	Secondary	Total		Impact Type	Primary	Secondary	Total
Direct	$4,525,000	$572,000	$5,097,000		Direct	$3,529,000	$1,638,000	$5,167,000
Indirect	N/A	$131,000	$131,000		Indirect	N/A	$190,000	$190,000
Induced	N/A	$259,000	$259,000		Induced	N/A	$401,000	$401,000
Total Revenues	**$4,525,000**	**$962,000**	**$5,487,000**		**Total Revenues**	**$3,529,000**	**$2,229,000**	**$5,758,000**
Sources: Elliott D. Pollack & Company					Sources: Elliott D. Pollack & Company			

Appendices

The following items are included in the Appendices:

Appendix A - Stakeholder Meeting Materials

- Meeting 1 Notes - February 23, 2010
- Meeting 2 Notes - April 22, 2010
- Meeting 3 Notes - June 15, 2010
- Meeting 4 Notes - January 25, 2011

Appendix B - Economic and Fiscal Impact of Commercial Land Uses - Prepared by Elliot D. Pollack & Company

Appendix C - Preliminary Typical Sections

Meeting 1 Notes

FACT SHEET

Northeast Area Development Plan Study

PhxMesa Gateway Airport

Q. What is the Northeast Area Development Plan (NADP)?

A. The NADP is a study being undertaken to guide the future development of the northeast area of Phoenix-Mesa Gateway Airport to be in harmony with adjacent private sector land to create a multi-faceted, mixed-use community focused on air transportation.

Q. What are the factors involved in the NADP?

A. The NADP will specifically focus on an approximate 600 acre parcel on the northeast property of Phoenix-Mesa Gateway Airport. The Development Plan will identify specific locations for aviation uses, such as the passenger terminal, airline support, belly freight, ARFF, fuel storage, parking, and locations for revenue generating uses such as rental cars, office space, hotels and retail.

Q. Are there other considerations in preparing the NADP?

A. The NADP will also plan for an integral, multimodal transportation system to serve all land uses, linking the Airport to the regional street and freeway system.

Q. How is the NADP Study being funded?

A. The Study is being jointly funded by the Phoenix-Mesa Gateway Airport Authority and the City of Mesa.

FOR FURTHER INFORMATION CONTACT:

Walter Fix
Phoenix-Mesa Gateway Airport
480-988-7709

Mark Venti
City of Mesa
480-644-4807

Michael Floyd

Mark Wavering
Jacobs
602-253-1200

Q. What will be involved in conducting the NADP Study?

A. The Phoenix-Mesa Gateway Airport Authority has retained a land use, airport and transportation planning and engineering consultant [Jacobs] to undertake the NADP Study. The Scope of Work in conducting this study includes:

- ✓ Comprehensive Traffic, Transportation Forecasting and Modeling for Future Needs
- ✓ Land Use Study and Recommendations
- ✓ Assessment of Airport Acreage Needs
- ✓ Multimodal Transportation Network Planning
- ✓ Completion and/or review of existing Technical Studies for on-site drainage and utilities

Q. What is the project schedule?

A. The NADP Study has a 9-month schedule. At the completion of the project the Technical Documents that support the NADP will include:

- ✓ Full Site Plan of the NADP boundaries
- ✓ Infrastructure Plan, including major utilities, drainage and roadway alignments
- ✓ Land Use Plan, with defined categories for aeronautical and non-aeronautical areas
- ✓ Development Phasing Plan
- ✓ Capital Development Summary
- ✓ Financial Feasibility Summary

Q. What are the benefits of the project?

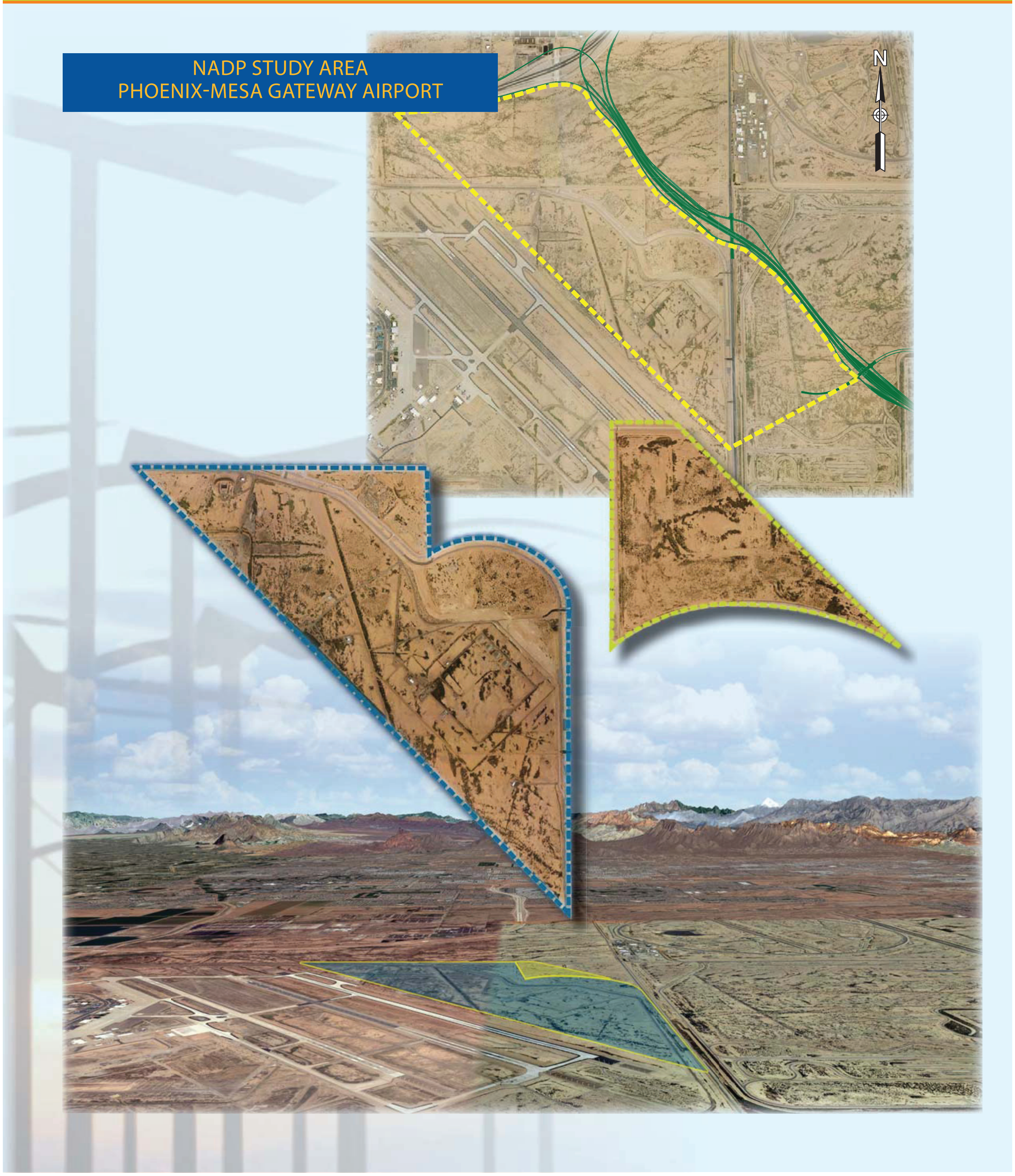
A. Smart Growth. The NADP is a collaborative study with the Gateway Area Strategic Development Plan and other regional transportation and land use planning studies currently underway. The NADP will provide a strategy for phasing the development of the northeast Airport property that supports an increased employment base through aviation, institutional and recreational opportunities; and increased regional economic activity.

[Study Area Shown on Reverse]

FACT SHEET

Northeast Area Development Plan Study

PhxMesa Gateway Airport



KICK-OFF MEETING

Northeast Area Development Plan Study

PhxMesa Gateway Airport

AGENDA:

I. Welcoming Remarks by Lynn F. Kusy, Executive Director, Phoenix-Mesa Gateway Airport
II. Introductions of Participants
  a. Phoenix-Mesa Gateway Airport staff
  b. City of Mesa Staff
  c. Project Team Members
  d. Stakeholders
III. Purpose of the Study
IV. Application of Strategic Development Plan Vision
  a. Airport Development
  b. Supporting Infrastructure
  c. Complimenting Land Use Development
V. Overarching Goals and Objectives
VI. Next Steps
VII. Meeting Wrap-Up

CONTACT:

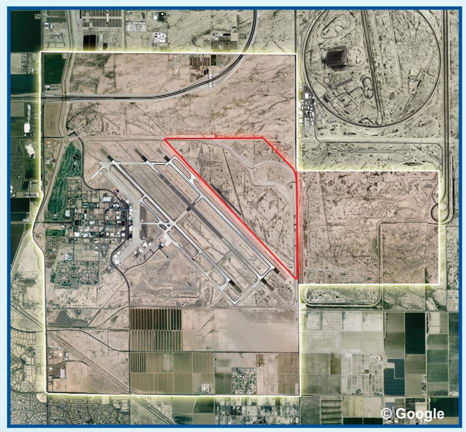
If you will not be attending this Kick-off Meeting and want to participate in the process, please email or fax your comments, information, etc. to:

Michael D. Floyd – Jacobs
Senior Project Manager
Michael.Floyd@jacobs.com
770.673.6688 (fax)

The City of Mesa and the Phoenix-Mesa Gateway Airport Authority are jointly sponsoring this important project to study the future development of Airport land northeast of the runway complex. You are cordially invited to become a key participant in this process which will not only conceptualize Airport growth, but also surrounding roadway and public transit alignments, land use, and bicycle and pedestrian pathways.

MEETING GOALS:

- Review Purpose For The Study
- Foster A Collaborative Framework
- Outline Deliverables Of The Study
- Provide An Overview Of Schedule And Milestones
- Encourage Expression Of Diverse Ideas
- Create A Unique Development Model Keeping With The Airport City Principles
- Convey A Sense Of Importance And Urgency



Study Area (yellow) and Focus Parcel (red) for the Airport Development Plan

The City of Mesa and the Phoenix-Mesa Gateway Airport Authority value your attendance and engaging participation at this and subsequent meetings. This meeting represents an important first step for both Team Members and Stakeholders to cast a successful partnership throughout the life of this project.

WHAT TO BRING:

Any static materials relevant to the project site, i.e. maps, diagrams, layouts, schematics CDs with project plans, and information that can be shared with participants.

WHEN:

Tuesday
February 23, 2010
8:30 AM - 12:30 PM

WHERE:

Airport Administration Building
Main Board Room
Phoenix-Mesa Gateway Airport
5835 South Sossaman Road
Mesa, AZ 85212-6014

PLEASE RSVP BY EMAIL TO:

Meredith Burdett at
mburdett@phxmesagateway.org
by Friday, January 29, 2010

KICK-OFF MEETING

Northeast Area Development Plan Study

PhxMesa Gateway Airport

MEETING #1
STUDY KICK-OFF

TUESDAY, FEBRUARY 23, 2010; 8:00AM – 12:00PM

AGENDA

OPENING REMARKS AND INTRODUCTIONS (LYNN KUSY, PMGA EXECUTIVE DIRECTOR) — 10 MIN

- Phoenix-Mesa Gateway Airport Authority
- City of Mesa
- Consultant Team
- Stakeholder Attendees

PROJECT OVERVIEW (MICHAEL FLOYD, SR. PROJECT MANAGER) — 15 MIN

- Site Boundaries
- Scope Highlights
- Schedule & Major Milestones
- Deliverables

BACKGROUND OF PROJECT — 25 MIN

- Gateway Area Strategic Development Plan (Mesa staff)
- Airport Master Plan (Walter Fix, PMGA Planning Manager)

ASSOCIATED INITIATIVES — 30 MIN

- Master Drainage Plan Study
- Arizona DOT Regional Transportation Plans
- Regional Mass Transit Plans
- Surrounding Development

BREAK — 15 MIN

VISIONING AND SWOT OVERVIEW FOR THE STUDY — 1 HR & 45 MIN

- Visioning Discussion
- SWOT Reviews

SUMMARY / NEXT STEPS — 10 MIN

FINAL QUESTIONS / COMMENTS — 10 MIN

WHERE:

Airport Administration Building – Main Board Room
Phoenix-Mesa Gateway Airport
5835 South Sossaman Road • Mesa, AZ 85212-6014

PhxMesa Gateway Airport

Northeast Area Development Kickoff Meeting
February 23, 2010

Name	Initial	Company	Email	Phone	Cell	Fax
Andres, Chris	CA	City of Phoenix Aviation	chris.andres@phoenix.gov	602-473-4317		
Ballard, John		Salt River Project	John.Ballard@srpnet.com			
Banks, Chris	CAB	Salt River Project	chris.banks@srpnet.com	602-236-8175		
Blenis, Michael		Paragon	michael@paragonaz.com	480-488-0350	602-432-3451	
Blue, Paul		City of Phoenix Aviation	paul.blue@phoenix.gov	602-273-2165		602-273-4083
Bragg, Rodney		AECOM/ADOT SR802				
Cleavenger, Daniel	DC	City of Mesa	dan.cleavenger@mesaaz.gov	480-644-3125		480-644-3130
Cochran, Ryan	RKC	Kitchell	rcochran@kitchell.com	602-631-6177	602-390-1948	602-264-6133
Cohn, Andrew		Levine	andrew@levineinvestments.com	602-248-8181		602-248-0874
Cox, John	JC	Gateway Airport	jcox@phxmesagateway.org	480-988-7605		480-988-2315
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Demmitt, Susan		Beus Gilbert PLLC	sdemmitt@beusgilbert.com	480-429-3064		480-429-3100
Denny, Casey		Gateway Airport	cdenny@phxmesagateway.org	480-988-7608		480-998-2315
Dragoo, Doug		Paragon	doug@paragonaz.com	480-488-0350	602-432-3451	
Fisher, Tamie	TF	City of Phoenix Aviation	tamie.fisher@phoenix.gov	602-683-3672		602-273-2794
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Floyd, Michael	[illegible]	Jacobs	michael.floyd@jacobs.com	770-673-6642	404-226-3542	770-673-6688

PhxMesa Gateway Airport

Northeast Area Development Kickoff Meeting
February 23, 2010

Name	Initial	Company	Email	Phone	Cell	Fax
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Morris, Jane		City of Phoenix	jane.morris@phoenix.gov	602-273-3382		602-273-7084
Moser, Brent		Grubb Ellis	bmoser@brephoenix.com	602-224-4486		602-468-8588
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Park, Kelly		Park Properties				
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Riley, Annette		ADOT	ariley@azdot.gov	602-712-7196		602-712-7630
Roessel, Bob		Salt River Project	bob.roessel@srpnet.com	602-236-8648		
Rogers, Derek		Dibble Engineering	derek.rogers@dibblecorp.com	602-957-1156		
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~~Andres~~ Scott, Chris		City of Mesa	Chris.Scott@mesaaz.gov			
Shirley, Michael		AzTech Eng./ADOT SR 802	MShirley@aztec.us			

PhxMesa Gateway Airport

Northeast Area Development Kickoff Meeting
February 23, 2010

Name	Initial	Company	Email	Phone	Cell	Fax
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Trzepkowski, Bob	BJT	Salt River Project	bob.trzepkowski@srpnet.com	602-236-8173		
Vent, Mark	MV	City of Mesa	mark.venti@mesaaz.gov	480-644-4807		
Wavering, Mark		Jacobs	mark.wavering@jacobs.com	602-650-4914	602-803-6982	602-253-1202
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Filip, Shawn	SF	DWL	filip@dwlarchitects.com	602.264.9731		
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Patrizia Gonella		Jacobs				
Shanthi Krishnan	SK.	Jacobs	shanthi.krishnan@jacobs.com			
Kaye Bockmann			kaye.bockmann@srpnet.com			
B. Moser	BM	CTBRE	bmoser@cbrephoenix.com	602.224.4486		

PhxMesa Gateway Airport

Northeast Area Development Plan
Kick-off Meeting
February 23, 2010

Agenda

- Opening Remarks and Introductions
- Project Overview
- Background of Project
- Associated Initiatives
- Break
- Visioning and SWOT Overview
- Summary / Next Steps
- Final Questions / Comments

Introductions

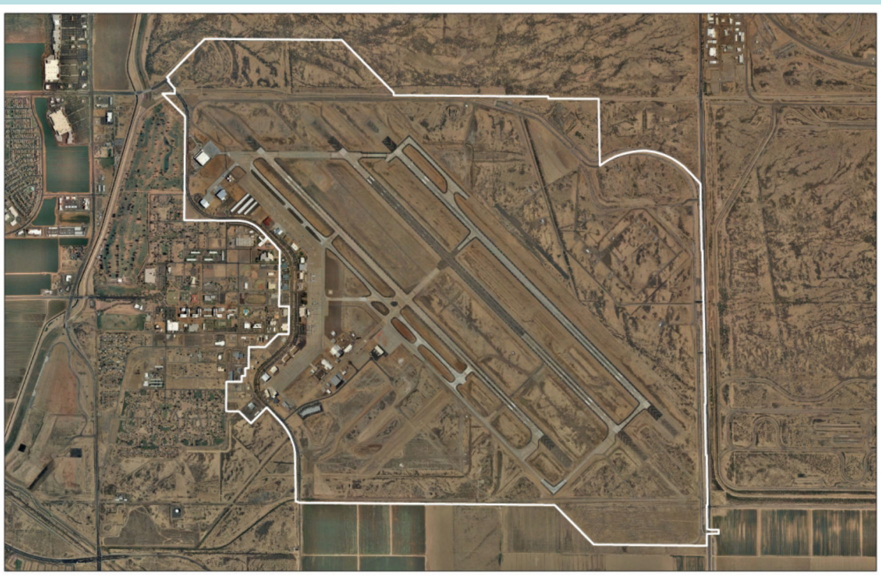
- Phoenix-Mesa Gateway Airport Authority
- City of Mesa
- Consultant Team
- Stakeholder Attendees

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Site Boundaries



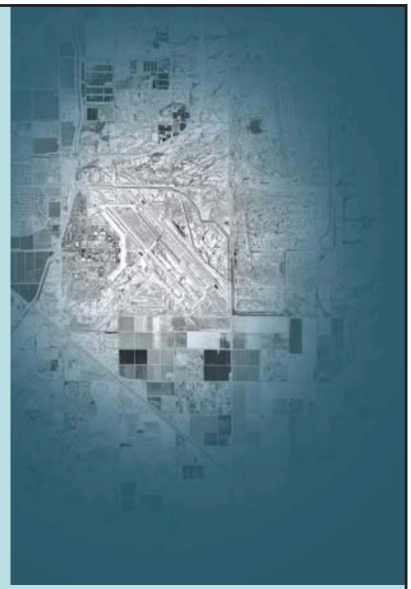
Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Scope Highlights

- Develop Phased Land Use Plan
  - Define Aviation Envelope
  - New Terminal Building location
  - Protect off airport airspace
  - Create sense of place in the airport environs
  - Promote the Airport as an urban amenity
- Identify appropriate and timely investment
- Improve operational efficiency
- Enhance customer service



Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Scope Highlights

- Identify non-aviation related revenue generating opportunities
  - Specific Parcels Long Term
    - 630+/- acres Northeast Area Development Plan
    - 31 acres private

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Airport / Land Use Planning - Alternatives

- Aviation Elements
  - Terminal Area & Support Facilities
    (parking, roads, RAC, cargo, etc.)
  - Airspace Controls
  - Noise Compatibility

- Non-Aviation Elements
  - Candidate Lists of Business Types
  - Determine Highest-and-Best Use
  - Refine Characteristics Matrix
    (required parcel sizes, employment, adjacencies, utility & transportation needs, ROI to airport/community, etc.)
- Sequenced Charrette Process
  (Aviation Elements & Non-Aviation Elements)

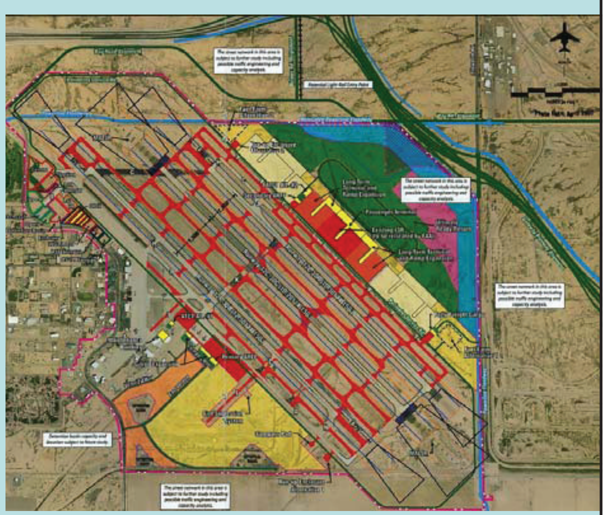
Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Infrastructure Planning

- Roadway
  - Airport
  - Local
  - Regional
- Utilities
  - Wet
  - Dry
- Drainage



Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Linking the Airport to the Regional Transportation Systems

- Work with the MAG model in preparing three base scenarios for short, mid and long range arterial network requirements
  - Williams Gateway Freeway Extension (802L)
  - New Ray Road Alignment
  - Williams Field Road Connections
- Identify and evaluate most suitable / desirable connection to the airport
- Transit Elements

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Utilities

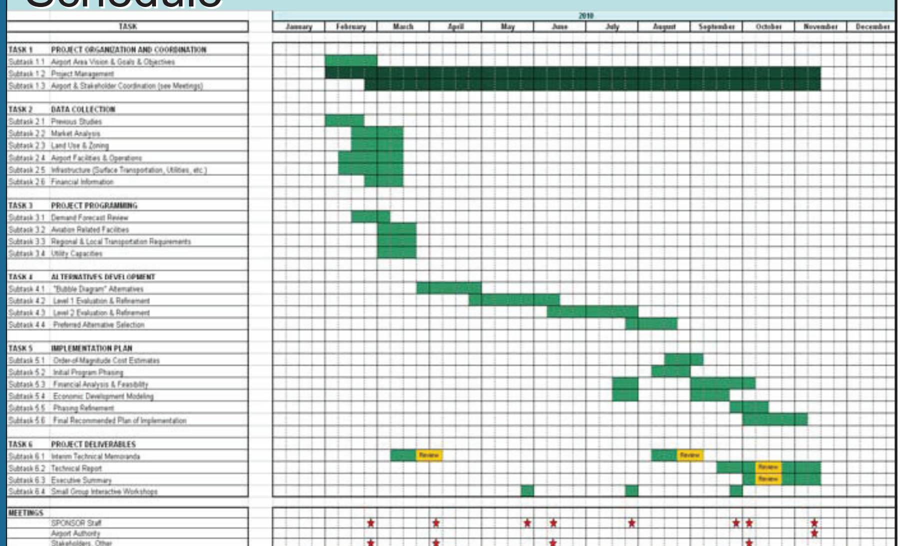
- Develop a preliminary utility plan for the requirements and prerequisites for the proposed development
  - Review/confirm existing information for future utility improvements
- Develop conceptual utility design to support proposed development
  - Phasing to support the short, mid, long range plan
- Water & Sewer Infrastructure
- Drainage Infrastructure

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Schedule



Northeast Area Development Plan

PhxMesa Gateway Airport

Project Overview

Comprehensive Deliverables

- Multiple Technical Memoranda
- Traffic Modeling (on & off-airport)
- Technical Report & Plans
  - Full Site Plan
  - Infrastructure Plan
  - Land Use Plan
  - Phasing Plan
  - Capital Development Summary (by funding source)
  - Financial Feasibility Summary
- Executive Summary
- Financial Model

Northeast Area Development Plan

PhxMesa Gateway Airport

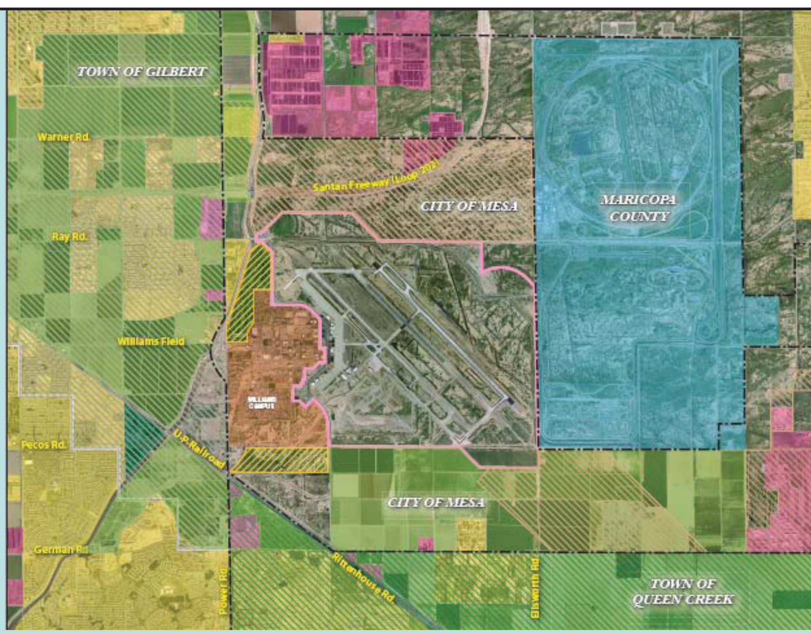
Background of Project

Gateway Area Strategic Development Plan

Northeast Area Development Plan

PhxMesa Gateway Airport

Background of Project

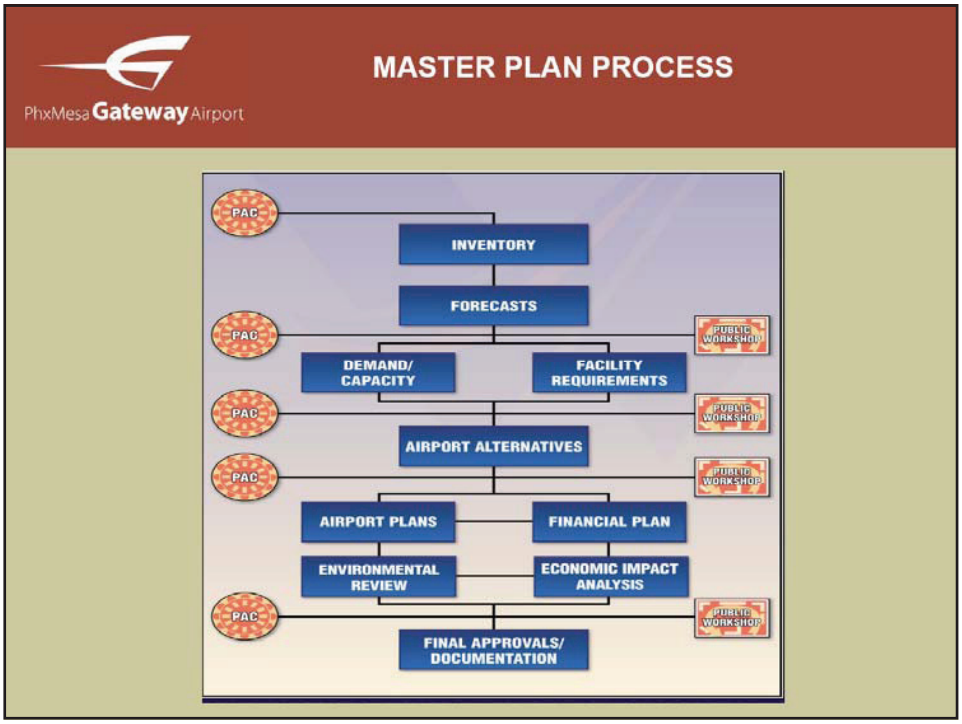


Northeast Area Development Plan

PhxMesa Gateway Airport


PhxMesa Gateway Airport
Phoenix-Mesa Gateway Airport
Northeast Area Development Plan
Kick-off Meeting Presentation
February 23, 2010
Walter L. Fix, A.A.E.
Planning Manager


PhxMesa Gateway Airport
Airport Master Plan



PhxMesa Gateway Airport

DEMAND-BASED PLANNING

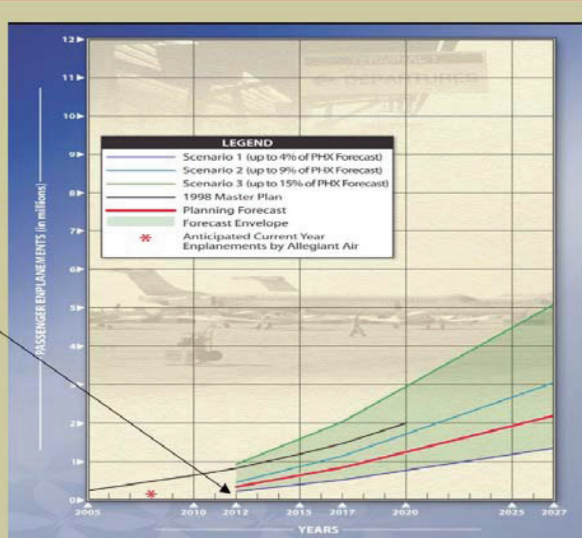
Forecast Summary

	ACTUAL	FORECAST		
	2006	2012	2017	2027
ATCT OPERATIONS				
Itinerant				
Air Carrier	1,121	9,449	20,806	48,166
Air Cargo	0*	800	1,700	3,500
Air Taxi	9,171	12,400	15,700	22,200
Military	5,031	5,000	5,000	5,000
General Aviation	85,618	105,000	123,000	175,000
Total Itinerant Operations	*100,941*	*132,649*	*166,206*	*253,866*
Local				
Military	5,076	7,500	7,500	7,500
General Aviation	174,702	207,000	230,000	260,000
Total Local Operations	*179,778*	*214,500*	*237,500*	*267,500*
Total ATCT Operations	***280,719***	***347,149***	***403,706***	***521,366***
* 2006 air cargo operations are included in air carrier operations				
ESTIMATED NIGHTTIME OPERATIONS (accounts for time ATCT is closed from 9 p.m.-6 a.m.)				
Air Taxi	275	372	471	665
General Aviation	8,006	9,479	10,823	12,969
Total Adjusted Operations*	***289,000***	***357,000***	***415,000***	***535,000***
* Rounded to nearest 1,000				
ANNUAL ENPLANEMENTS	2,991	350,000	850,000	2,200,000
ENPLANED CARGO (tons)	59	10,000	21,000	44,000
BASED AIRCRAFT				
Single-Engine Piston	65	136	153	215
Multi-Engine Piston	10	12	14	18
Turboprop	1	4	8	12
Jet	19	25	35	55
Helicopter	20	23	31	50
Total Based Aircraft	**115**	**200**	**241**	**350**

PASSENGER ENPLANEMENT FORECAST

PhxMesa Gateway Airport

2009 ENPLANEMENTS: 287,807



AIRPORT ECONOMIC IMPACT

PhxMesa Gateway Airport

Total Economic Benefits

Year	Revenues	Earnings	Employment
2007/2008	$534,613,000	$209,182,000	4,074
2012	$683,482,000	$235,620,000	5,437
2017	$1,389,623,000	$483,617,000	11,554
2027	$3,039,570,000	$1,069,085,000	26,507

Source: Phoenix-Mesa Gateway Airport Economic Benefit Study. 2008 Dollars.

CAPITAL IMPROVEMENT FUNDING

PhxMesa Gateway Airport

- FULL PLANNING HORIZON = $755 MILLION
- FAA AIRPORT IMPROVEMENT PROGRAM
- MILITARY AIRPORT PROGRAM
- STATE & LOCAL FUNDS

AIRSIDE PLANNING

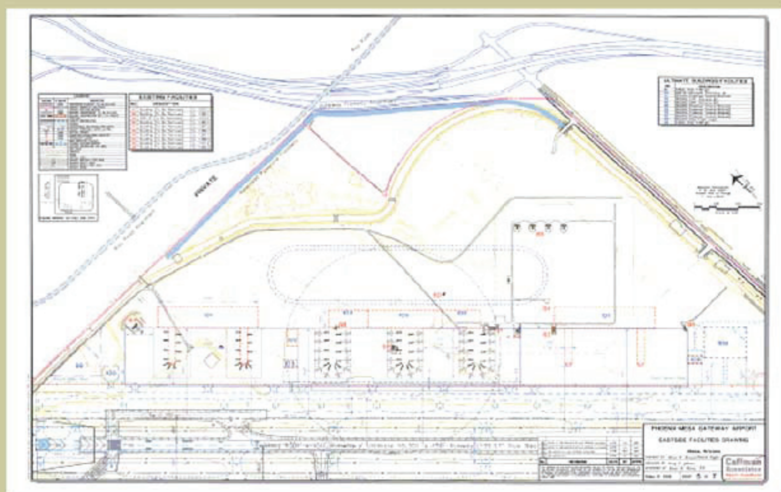
PhxMesa Gateway Airport

AIRSIDE PLANNING ISSUES

- Maintain FAA design standards for the Runway Safety Area (RSA), Object Free Area (OFA), Obstacle Free Zone (OFZ), Precision Obstacle Free Zone (POFZ), and the Runway Protection Zones (RPZs).
- Provide capacity enhancement with additional taxiway exits.
- Examine the possibility of extending at least one runway to 12,500 feet to accommodate future air cargo demand.
- Examine optimal instrument approach capability.

PhxMesa Gateway Airport

EAST SIDE CONCEPT



PhxMesa Gateway Airport

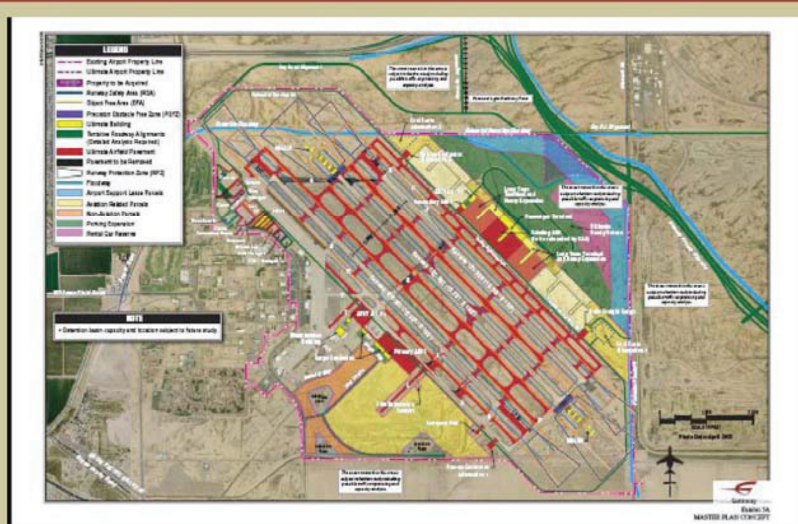
LANDSIDE PLANNING

LANDSIDE PLANNING ISSUES

- Identify general airport land uses.
- Provide alternatives for development of the southwest property.
- East side terminal complex development.
- Air cargo facility development.
- East side airport access points and on-airport infrastructure.
- Replacement Airport Rescue and Fire Fighting and Airport Traffic Control Tower siting.
- Additional fuel storage capacity to serve a future east side terminal complex.

PhxMesa Gateway Airport

MASTER PLAN CONCEPT



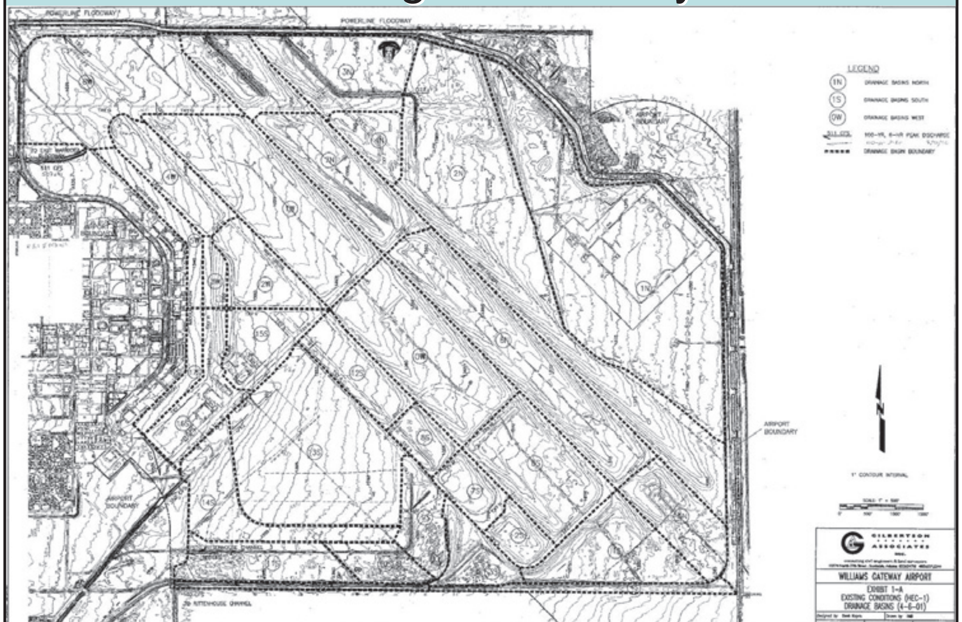
PhxMesa Gateway Airport

THANK YOU!

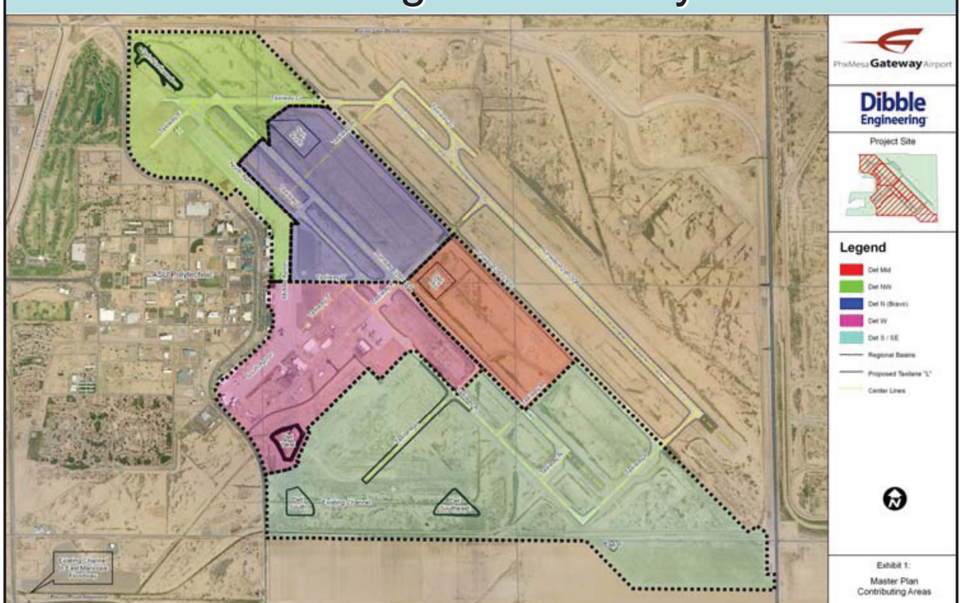
QUESTIONS?

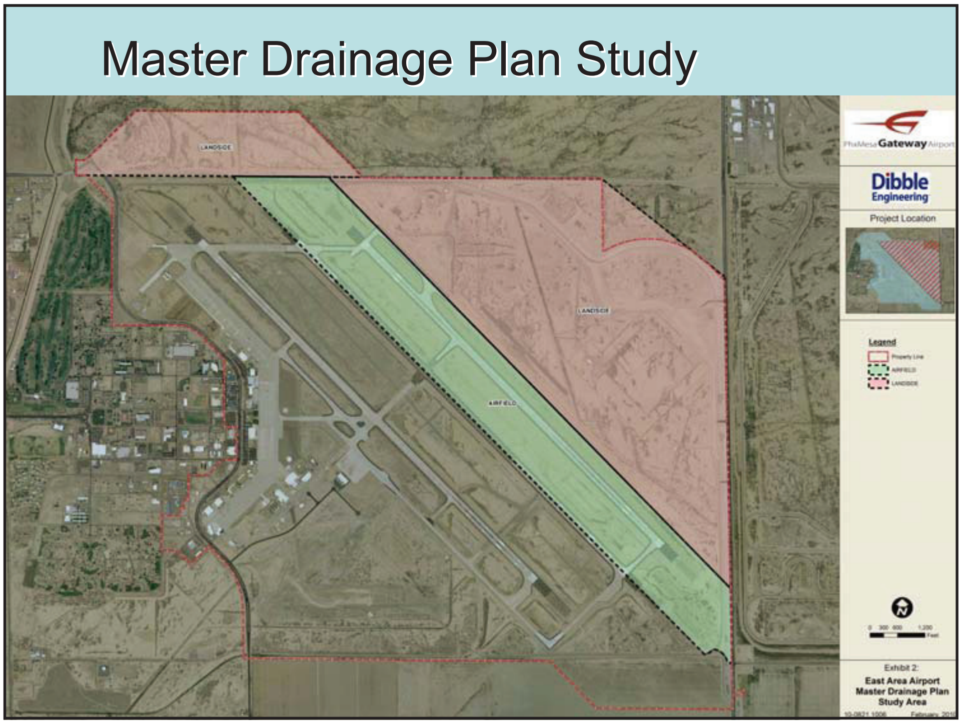
WWW.PHXMESAGATEWAY.ORG

Master Drainage Plan Study

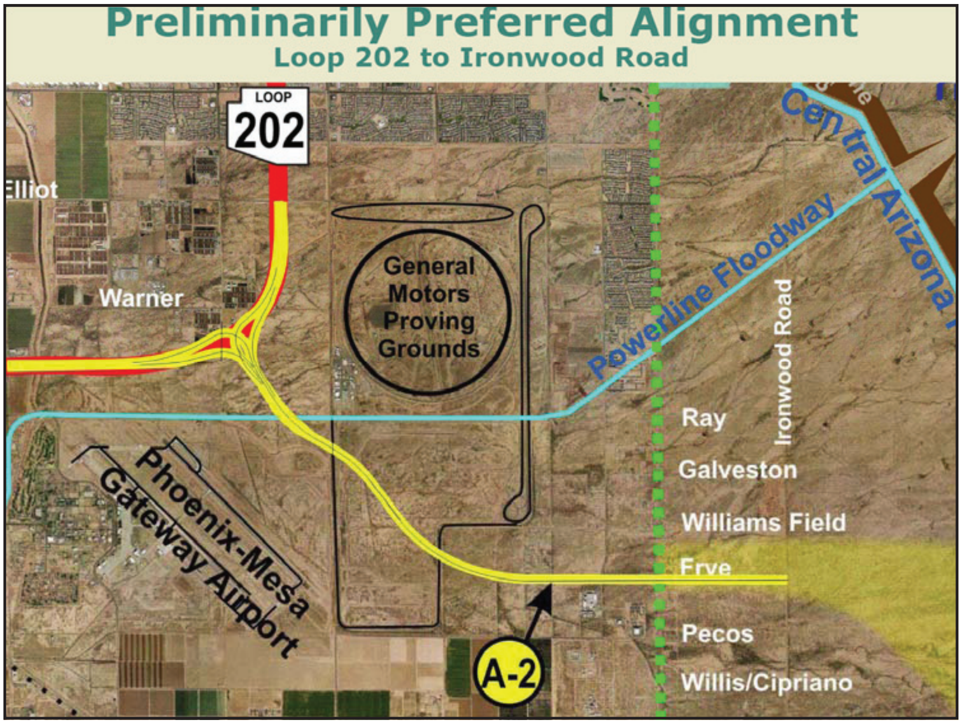


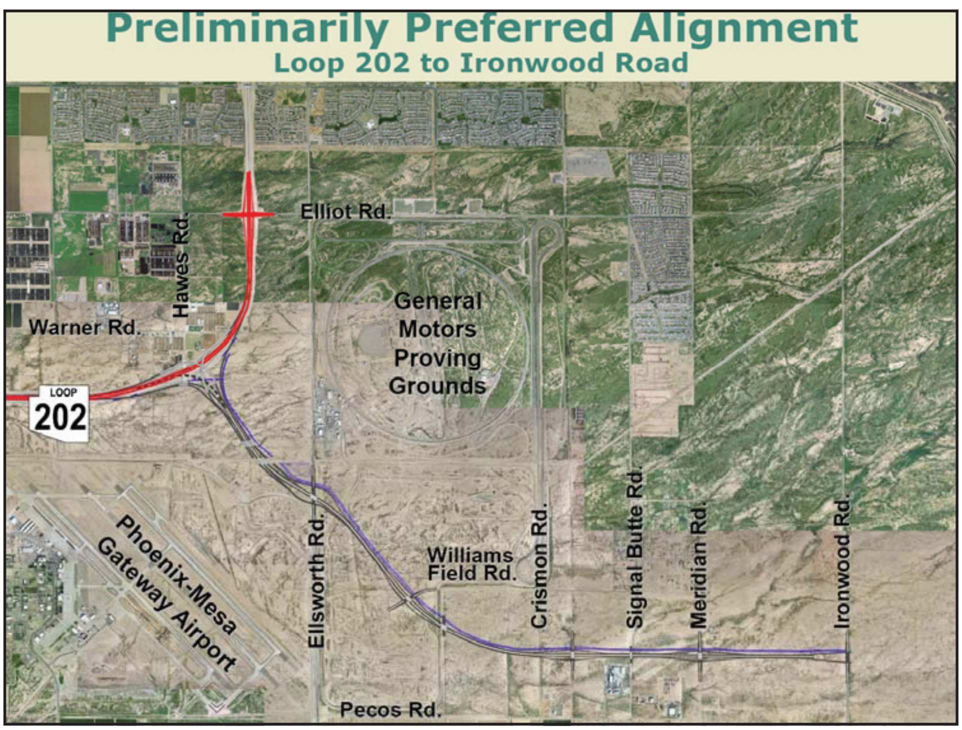
Master Drainage Plan Study

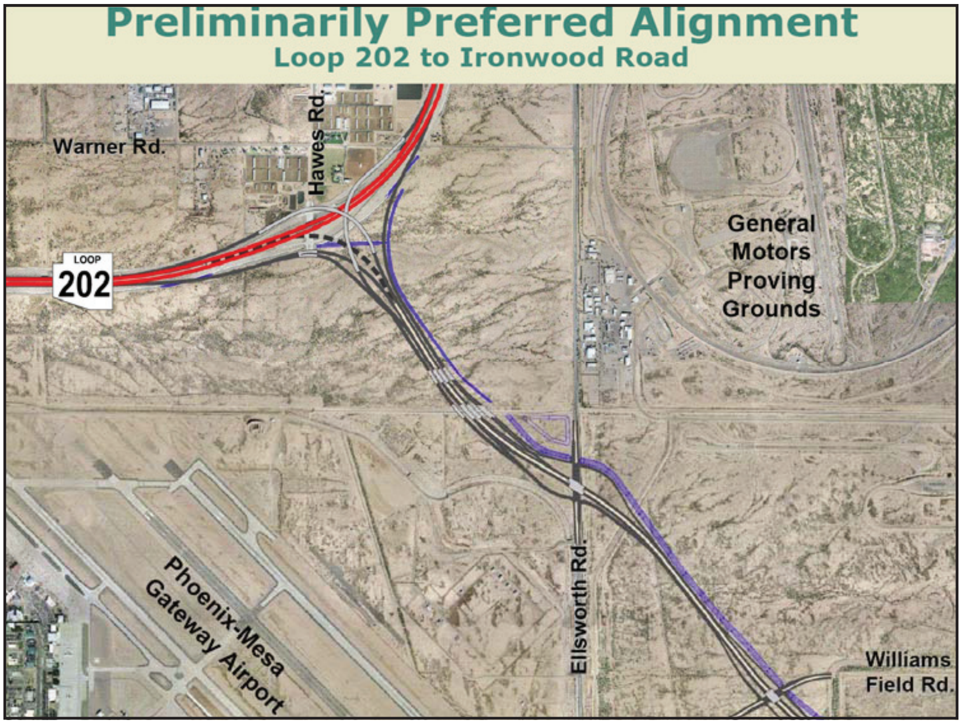


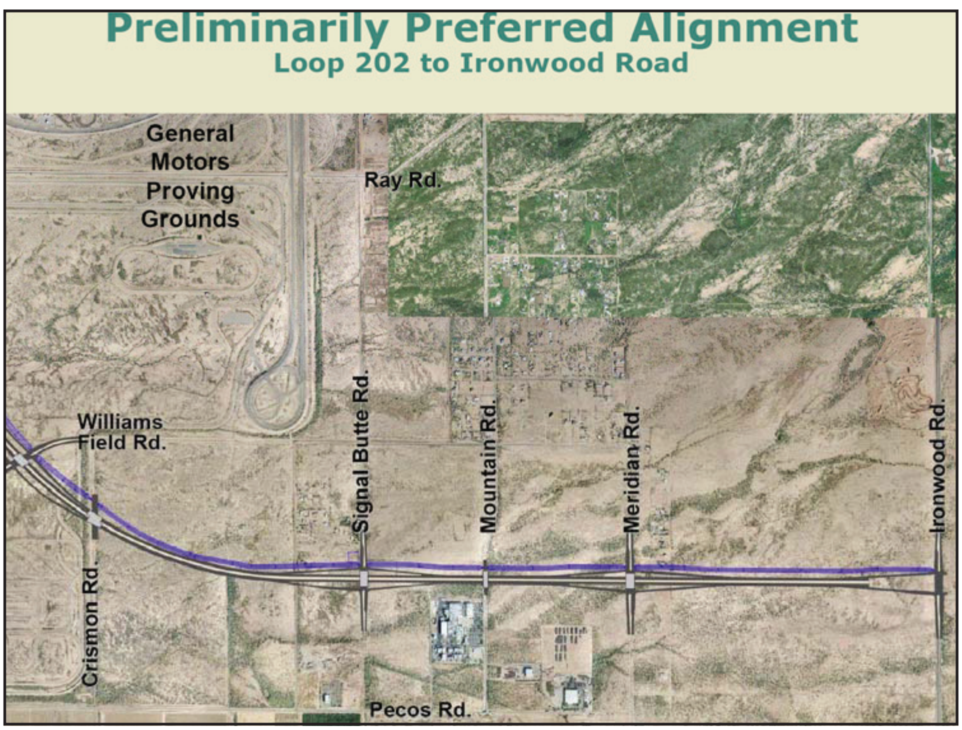

Master Drainage Plan Study
PhxMesa Gateway Airport
Dibble Engineering
Project Location
Legend
Exhibit 2:
East Area Airport
Master Drainage Plan
Study Area


ADOT
SR 802 Study
Location/Design Concept Report
& Environmental Study
Project Overview


Preliminarily Preferred Alignment
Loop 202 to Ironwood Road
LOOP 202
Elliot
Warner
General Motors Proving Grounds
Powerline Floodway
Central Arizona
Ironwood Road
Ray
Galveston
Williams Field
Frye
Pecos
Willis/Cipriano
Phoenix-Mesa Gateway Airport
A-2


Preliminarily Preferred Alignment
Loop 202 to Ironwood Road
Elliot Rd.
Hawes Rd.
Warner Rd.
LOOP 202
General Motors Proving Grounds
Phoenix-Mesa Gateway Airport
Ellsworth Rd.
Williams Field Rd.
Crismon Rd.
Signal Butte Rd.
Meridian Rd.
Ironwood Rd.
Pecos Rd.

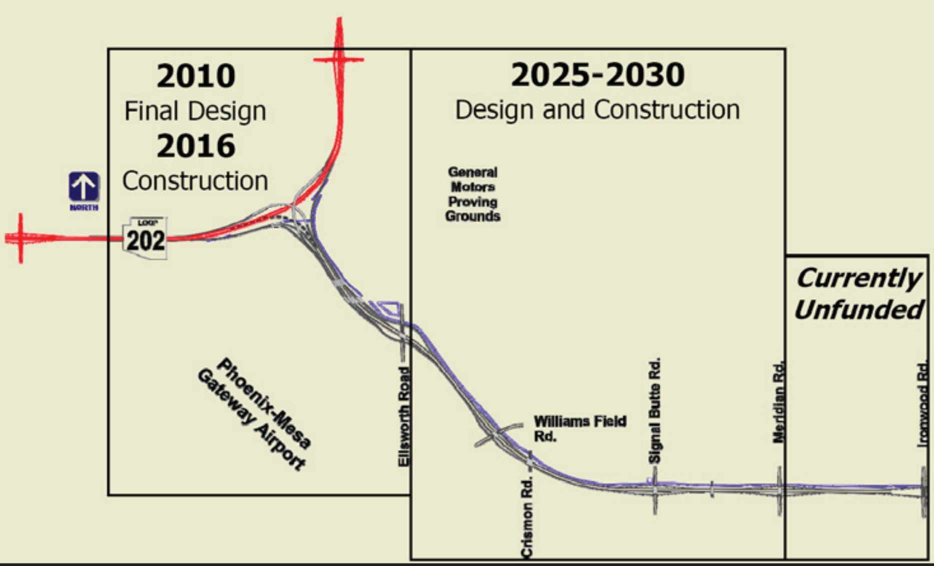

Preliminarily Preferred Alignment
Loop 202 to Ironwood Road
Warner Rd.
Hawes Rd.
LOOP
202
General
Motors
Proving
Grounds
Ellsworth Rd.
Phoenix-Mesa
Gateway Airport
Williams
Field Rd.


Preliminarily Preferred Alignment
Loop 202 to Ironwood Road
General
Motors
Proving
Grounds
Ray Rd.
Williams
Field Rd.
Signal Butte Rd.
Mountain Rd.
Meridian Rd.
Ironwood Rd.
Crismon Rd.
Pecos Rd.

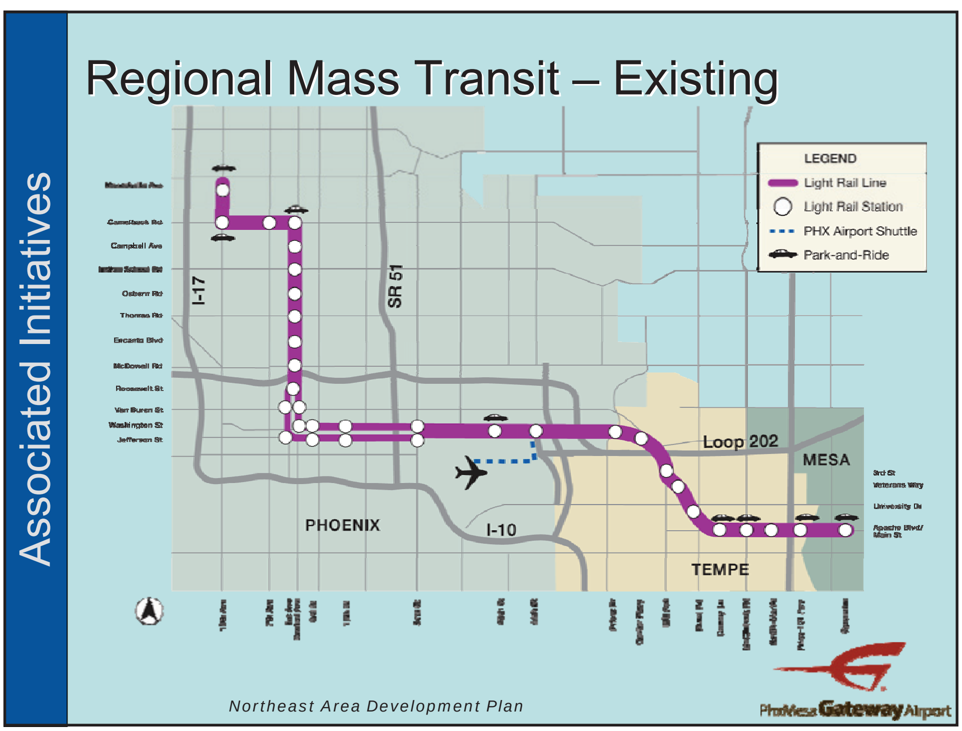
Alignment Characteristics
Loop 202 to Ironwood Road

- Minimizes residential impacts
- Minimizes impacts to existing and planned development
- Consistent with local, county and regional planning
- Consistent with planned local arterial street network
- Consistent with regional developments, including Phoenix-Mesa Gateway Airport and Mesa Proving Ground proposed site improvements

Design/Construction Timeline
Loop 202 to Ironwood Road

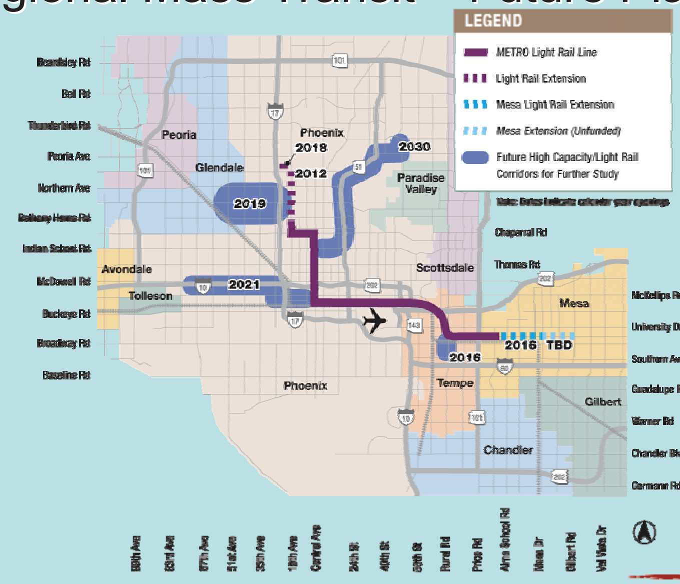



ADOT
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA
Any Questions?


Associated Initiatives
Regional Mass Transit – Existing
LEGEND
Light Rail Line
Light Rail Station
PHX Airport Shuttle
Park-and-Ride
I-17
SR 51
Loop 202
MESA
PHOENIX
I-10
TEMPE
Northeast Area Development Plan
PhxMesa Gateway Airport

Associated Initiatives

Regional Mass Transit – Future Plans



Northeast Area Development Plan

PhxMesa Gateway Airport

Associated Initiatives

Regional Mass Transit – Next Steps

Adoption into the Regional Transportation Plan	Summer 2009
Environmental Assessment	Summer 2009 – Fall 2010
Design	2010 – 2011
Pre-construction	2011 – 2013
Construction	2013 – 2015
Completion/Start-up	2016

Northeast Area Development Plan

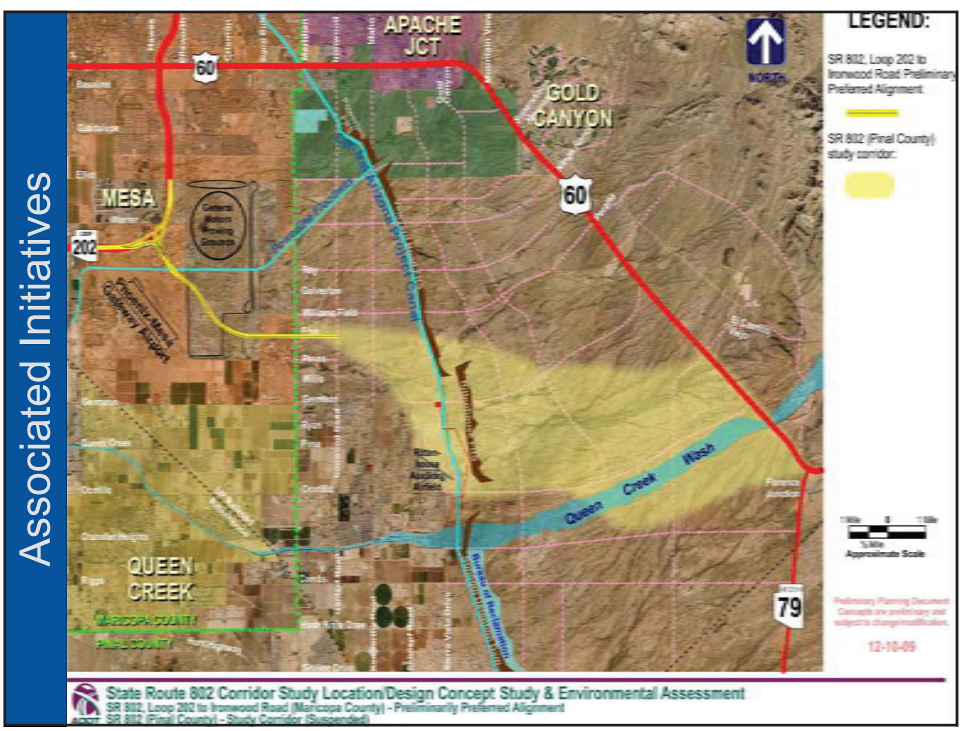
PhxMesa Gateway Airport

Associated Initiatives

Surrounding Development

Northeast Area Development Plan

PhxMesa Gateway Airport



BREAK

Northeast Area Development Plan

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Visioning Discussion

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Vision: Mesa Gateway Area

" Mesa Gateway will be an internationally recognized destination for those looking for a sustainable place in which to live, work, learn and recreate. It will provide industries with an economically efficient business climate and its workforce and residents with access to the global resources desired of a knowledge-based economy."

Source: The Mesa Gateway Strategic Development Plan Summary Document, December 2008.

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Goals: Mesa Gateway Area

1. Capitalize on the expansion of the Phoenix-Mesa Gateway Airport
2. Create a regional employment center with a mix of jobs, emphasizing the attraction of at least 100,000 high-wage, high value jobs
3. Establish an intra- and inter-connected, multi-modal transportation system
4. Become a model of sustainable development practices
5. Plan for implementation

Source: The Mesa Gateway Strategic Development Plan Summary Document, December 2008.

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Vision: Phoenix-Mesa Gateway Airport

With 2-5 million annual passenger, the Airport will be an attractive alternative to Phoenix Sky Harbor International Airport. Operational levels will exceed 535,000 yearly, and freight movements be over 88 million pounds yearly. The Airport will continue to serve as a major flight training center, and support multiple aircraft maintenance and modification facilities, including another 25 additional privately developed buildings, of over 500,000 SF of hangar space, office space, and related facilities. Surrounding land will develop as aviation support, corporate offices, and manufacturing, attracted by the skilled workforce and the transportation opportunities of the area. Restaurants and hotels as well as retail and commercial development will be drawn to the area. The regional transportation system will provide customers with easy access to the Airport from all parts of the Phoenix-Mesa metropolitan area. Assuring compatible and supportive land use near the Airport will continue to be the Airport's highest priority, while quality of service will be key to maintaining and expanding the reputation of the Airport as a world-class operation.

Source: Various excerpts from Strategic Business Plan, FY 2009-2010, Phoenix-Mesa Gateway Airport Authority, June 2009.

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Goals: Phoenix-Mesa Gateway Airport

1. Actively encourage those things that benefit the Airport
2. Increase revenue, spend wisely, and reduce the operating deficit
3. Expand commercial passenger service
4. Establish cargo service
5. Generate private investment, job growth, and economic activity
6. Improve and expand facilities and services for general aviation
7. Begin planning for the construction and financing of the east side terminal and related development

Source: Strategic Business Plan, FY 2009-2010, Phoenix-Mesa Gateway Airport Authority, June 2009.

Northeast Area Development Plan

PhxMesa Gateway Airport

Visioning and SWOT Overview

Phoenix-Mesa Gateway Airport SWOT Analysis

Strengths
- Our SPIRIT Values
- Community & member Government support
- just plane easy®
- Large and growing population base

Opportunities
- Capacity of the air field
- Low cost operating environment
- Room for growth of facilities

Weaknesses
- Market already has great air service
- Terminal constrains growth
- High capital investment required

Threats
- Residential encroachment
- Airline stability
- Operating expense exceeds revenue
- Security

Northeast Area Development Plan

PhxMesa Gateway Airport

Summary / Next Steps

- Confirm East Side Facilities Programming
- Conduct Real Estate Market Analysis
- Define Transportation Requirements
- Determine Utility Capacities
- Conduct Conceptual Charrettes
- Next Stakeholder Meeting – Early April

Northeast Area Development Plan

PhxMesa Gateway Airport


PhxMesa Gateway Airport
QUESTIONS / COMMENTS

MEETING MINUTES

TO:	Distribution	**DATE:**	3/19/2010
FROM:	Michael D. Floyd, Senior Project Manager		
SUBJECT:	Stakeholder Kick-of Meeting February 23, 2010	**PROJECT NO:**	W7X87800

At 8:30am, on Tuesday, February 23, 2010 approximately 37 individuals representing myriad resources throughout the Mesa area, came together to kick-off the Northeast Area Development (NADP)study. The study is a jointly funded effort between the City of Mesa and the Phoenix-Mesa Gateway Airport (PMGA) Authority, and is being conducted by a team of consultants led by Jacobs. Lynn Kusy, Executive Director of the PMGA provided opening remarks, outlining the purpose of the project and introducing key staff with the Airport and the City. Mr. Kusy noted that both the City Council and the PMGA Authority have given their approvals of the project, and that Walt Fix will serve as the sponsor's Project Manager. The Jacobs consultant team introduced themselves, followed by each participant allowed a chance to greet the group and indicate who they represented.

Michael Floyd, Jacobs Senior Project Manager, then furnished an overview of the project, highlighting the project boundaries, the general scope of services and schedule (9 months), and the major milestones and deliverables anticipated through completion. Next, Scot Rigby and John Wesley, both with the City of Mesa, shared their views relative to the importance of the project to the Airport, to the City of Mesa and to the surrounding communities. The critical nature of fiscal sustainability surrounding any development going forward was touched upon, along with the noted vision that over the next 20-30 years, the Gateway area is viewed as the epicenter of development. They were followed by Michael James, City of Mesa, who furnished the stakeholder group with a thorough overview of the previously conducted Mesa Gateway Strategic Development Plan, completed in 2008. Further, Mr. Fix, Planning Manager with PMGA, provided an equally thorough presentation on the recently completed Airport Master Plan Update, which reflects facilities growth through 2027 and provides for eastside growth to keep pace with the rapidly expanding enplanement levels. Both study presentations provided an excellent backdrop and vision for the NADP.

Given the size of the Airport, the previously conducted macro level planning efforts, and both the proximity and influence of surrounding development and associated initiatives, several others in attendance were invited to speak to their on-going efforts/plans. Ken Snyder of Dibble Engineering (currently under contract with PMGA) addressed their recently initiated Master Drainage Plan for the Airport and how it specifically will relate to the northeast area properties. An overview was provided of their study area which highlighted existing conditions, a definition of work areas, and the planned integration of the drainage work with the NADP study. Next, Steve Wilcox with the Arizona DOT, furnished the group with a comprehensive review of the SR 802 on-going planning and design activities and spoke to how those improvements will support not only the Airport, but also the surrounding areas to the north and east along its corridor. Locations for proposed grade separated interchanges was also illustrated. The Jacobs personnel then provided a cursory overview of the areas initiatives with regard to public mass transit, specifically known plans and concepts for expanding the Mesa line to the east to a point approximately 15+/- miles west of the Airport. Finally, the flow was provided to the regional developers attending the meeting, in which discussion ensued to brief the group on several initiatives in the area for mixed use development. Those that spoke included DMB, Park Properties, Grubb Ellis, and Kitchell Corporation.

Following the break, Jacobs presented strategic plan excerpts on vision/mission statements along with key goals identified by the City in their Gateway Area Strategic Development Plan, and by PMGA in their recent Strategic Business Plan. These thoughts and desires by both groups, although largely overlapping, were unique and mission oriented. They provided a backdrop for the ensuing Visioning Session. The Visioning Session was organized into 3 teams of diverse representation, with the objective being to brainstorm in separate groups on the future vision of the Airport and to articulate in words and phrases, a description of what the future airport would look like, how it would operate, who it would serve, how it would dovetail into the community, and the role it would play in the region. In the information that follows, each team's contributors are highlighted along with their separate thoughts. At the conclusion of the brainstorming session, each team's spokesperson was provided a few minutes to present their team's findings and ideas. These thoughts/ideas will help shape the development of future properties in the northeast area of the Airport.

TEAM 1

*Facilitator: **Patrizia Gonella** – Jacobs; **Mike James** - City of Mesa; **Mark Venti** - City of Mesa; **Morgan Neville** - Park Properties; **Derek Rogers** - Dibble Engineering; **Casey Denny** - PMGA Authority; **Bob Trzepkowski** - Salt River Project; **Daniel Cleavenger** - City of Mesa; and **Sara Lenn** - Allegiant Air.*

- Sense of community
- Balance of service area
- Boundary-less between airport & community
- Urban center (land use)
- Multiple layers of transportation access & modes
- Ray & Ellsworth area employment center connections to the Airport
- Provisions for branding (describe elements)
- Fun place to come
- Easy access – keep home feeling
- Keep balance & focus on primary service – provide access to amenities and options to use them
- Look at existing examples of development and determine what is good & bad
- Comfortable / non-intimidating
- Easy / clear / communicative way finding
- Balanced travel routes for: internal trips, through travel, and specific trips to the Airport
- Corporate amenities
- Appropriate airport land uses that complement the desired growth goals (to support the air service)
- Mixed use opportunities near the Airport
- Keep travel profile in mind - leisure primary & business secondary
- Focus on the opposite of stressful – (security concerns)
- Disperse passenger loading
- De-stress
- Penetrate SR 802 corridor

TEAM 2

Facilitator: ***Mark Wavering*** *- Jacobs;* ***Alan Sanderson*** *- City of Mesa;* ***Jane Morris*** *- City of Phoenix;* ***Jim Rounds*** *- Elliott D. Pollack & Company;* ***Kent Dibble*** *- Dibble Engineering;* ***Jill Kusy Hegardt*** *– DMB;* ***Steve Wilcox*** *– AECOM;* ***Brent Moser*** *- Grubb Ellis; and* ***Kaye Bockmann*** *- Salt River Project.*

- ASU Poly integrated into region and business development plan
- Collaboration between communities & Airport continues
- Maximize Opportunities – both Airport & private
- Flexibility for growth
- Good implementation plan that supports staged growth
- Concur with vision for Airport
- Premier job center for east valley
- Vibrant active hub of activity
- Diverse job opportunities
- Industry around the Airport
- Wide mix of land uses that may be in close proximity to the Airport
- High wage strategy
- Roadway does not constrain Airport needs and adequately serves surrounding private properties
- Multi-modal system establishment
- Determine the ultimate Airport capacity
- Adapt & change
- Clear, strong identity – a positive Sense of Place
- Special features & markers
- High visibility
- Priority Plan for infrastructure
- Proactive economic development efforts between Airport & private partners
- Sustainable concepts built into development (energy, e.g. Biofuel, solar)
- Long-range utility planning
- Don't have to take a car to get into the Airport
- Destination uses – consider national attractions
- Livable community
- Waterfront District
- No negative impacts on regional freeway system

TEAM 3

Facilitator: ***Walter Fix*** *- PMGA Authority;* ***Chris Andres*** *- City of Phoenix;* ***Kenneth Snyder*** *- Dibble Engineering;* ***Chris Banks*** *- Salt River Project;* ***John Wesley*** *- City of Mesa;* ***Shanthi Krishnan*** *– Jacobs;* ***Scot Rigby*** *- City of Mesa; and* ***Susan Demmitt*** *- Beus Gilbert, PLLC*

- Current issues – PMGA
    - Parking is an issue (especially holidays & spring rush)
    - How would parking be integrated?
        - Parking vs. Transportation

        - Access to parcels
        - Off-airport developers
- Development Vision - Park Corp
    - Airport oriented employment villages
    - 10-story buildings
    - Not pedestrian oriented
    - Mixed-uses, office
- GM proving ground site – vision
    - Urban village
    - Multi-story employment
    - No residential
    - Convention facilities
    - Hotels
- City of Mesa concerns
    - Access & Transportation (mobility)
    - Connections –Airport to Ray / Ellsworth
    - Power / Sossaman – improved corridors
    - Elected officials support roads that encourage local activity
    - Residential development proximity to the Airport
- Other issues
    - Educational (ASU plans)
    - Noise (# of operations)
    - Show value proposition whether public or private developments
    - Quality of development is improving
    - Hotels / transient housing / high rise buildings / preferred apartments
    - Single family housing not preferred
    - Better site design & construction techniques encouraged for new development
    - Re-zone to prevent single family residential, and protect the Airport
- Vision
    - Well-rounded development (quality focus)
    - Sound transportation solutions
    - Public/Private Partnership (PPP)
    - Wayfinding / Branding
- Boundary-less growth
- On/Off Airport development (private vs. airport authority)

Distribution:

City of Mesa staff
PMGA staff
Jacobs consultant team
Stakeholder list

Meeting 2 Notes

DIAGRAMMING CHARRETTE

Northeast Area Development Plan Study

PhxMesa Gateway Airport

MEETING #2
BUBBLE DIAGRAMMING CHARRETTE

THURSDAY, APRIL 22, 2010; 1:30 P.M. - 4:30 P.M.

AGENDA

OPENING REMARKS AND CHARRETTE OBJECTIVES (MICHAEL FLOYD, SR. PROJECT MANAGER)	5 MIN
CHARRETTE BASELINE PRESENTATION (JACOBS TEAM)	20 MIN

- Existing Airport Environs
- Future Scenarios of Activity
- Programming Framework

MARKET ANALYSIS OVERVIEW (RICK MERRITT, ELLIOTT D. POLLACK & COMPANY)	15 MIN
AEROTROPOLIS OVERVIEW (MICHAEL FLOYD)	10 MIN
BREAK	15 MIN
BREAKOUT SESSION PURPOSE (MICHAEL FLOYD)	5 MIN
BUBBLE DIAGRAMMING SESSION (ALL)	1 HOUR 30 MIN
BREAKOUT GROUP RECAP (GROUP REPRESENTATIVES)	15 MIN
NEXT STEPS / FINAL QUESTIONS / COMMENTS	5 MIN

WHERE:
Airport Administration Building – Main Board Room
Phoenix-Mesa Gateway Airport
5835 South Sossaman Road • Mesa, AZ 85212-6014

Northeast Area Development Plan
Phoenix-Mesa Gateway Airport
Charette Session
Thursday, April 22, 2010

PhxMesa Gateway Airport

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PhxMesa Gateway Airport

Northeast Area Development Plan
Bubble-Diagramming Charrette
April 22, 2010

Agenda

- Opening Remarks and Objectives
- Baseline Presentation
- Market Analysis Overview
- Aerotropolis Overview
- Break
- Bubble-Diagramming Session
- Recap by Breakout Groups
- Next Steps / Questions / Comments

Opening Remarks & Objectives

Purpose of Charrette & Objectives

- Create an intensive planning session where stakeholders, designers and others collaborate on a vision for development
- Establish a forum for ideas that offers a unique advantage by giving the designers immediate feedback
- Objectives:
  - All stakeholders develop a vested interest in the ultimate vision / project
  - Team works together to produce a set of finished documents that address all necessary aspects
  - Avoid the prolonged discussions that often delay conventional planning projects
  - More efficiently and cost-effectively product because the process is collaborative

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

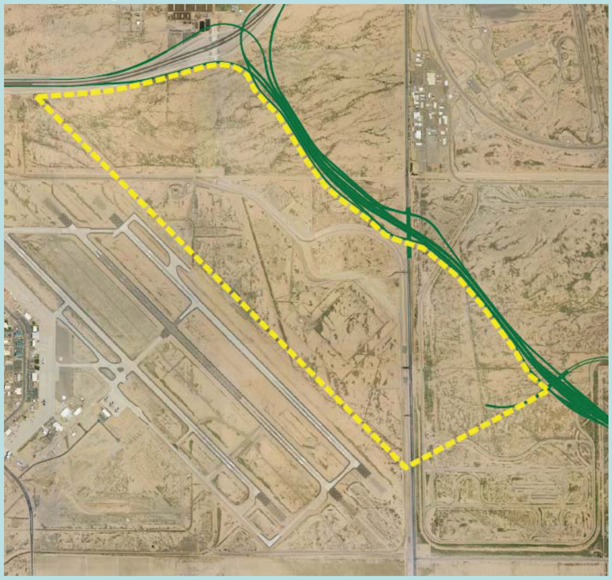
Existing Airport Boundary

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Early Study Area

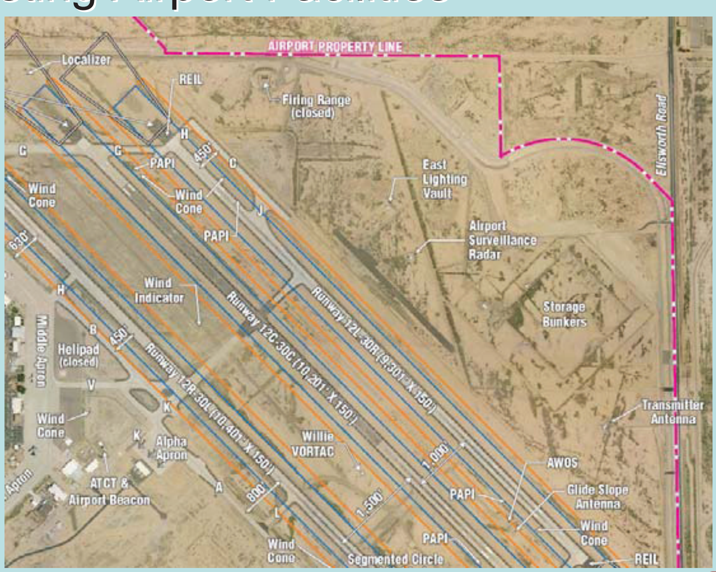


Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Existing Airport Facilities

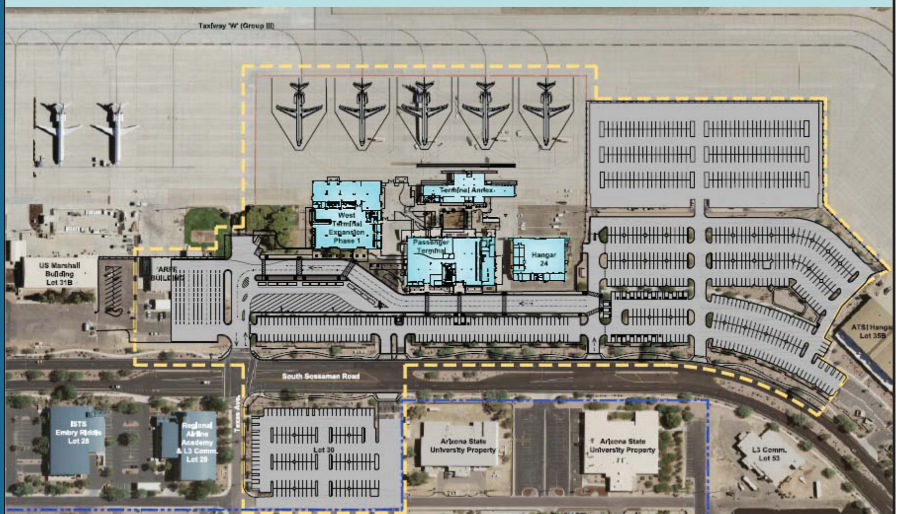


Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Existing Terminal Area Elements



Northeast Area Development Plan

PhxMesa Gateway Airport

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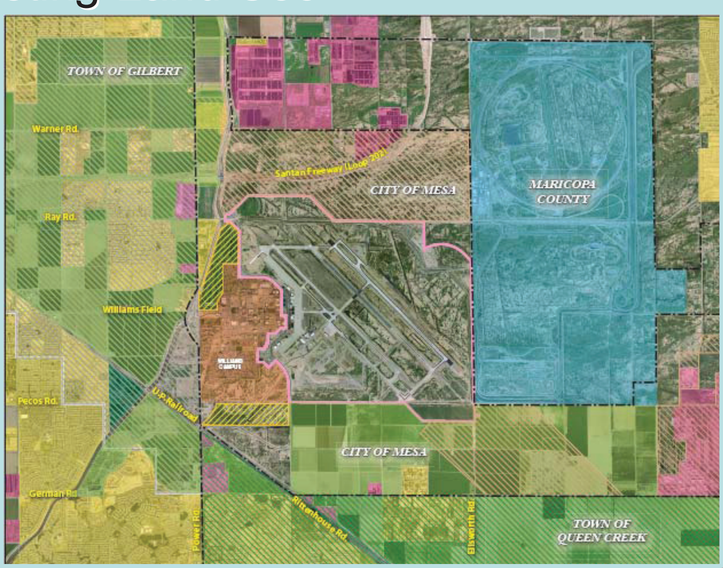
Existing Land Use



Northeast Area Development Plan

PhxMesa Gateway Airport

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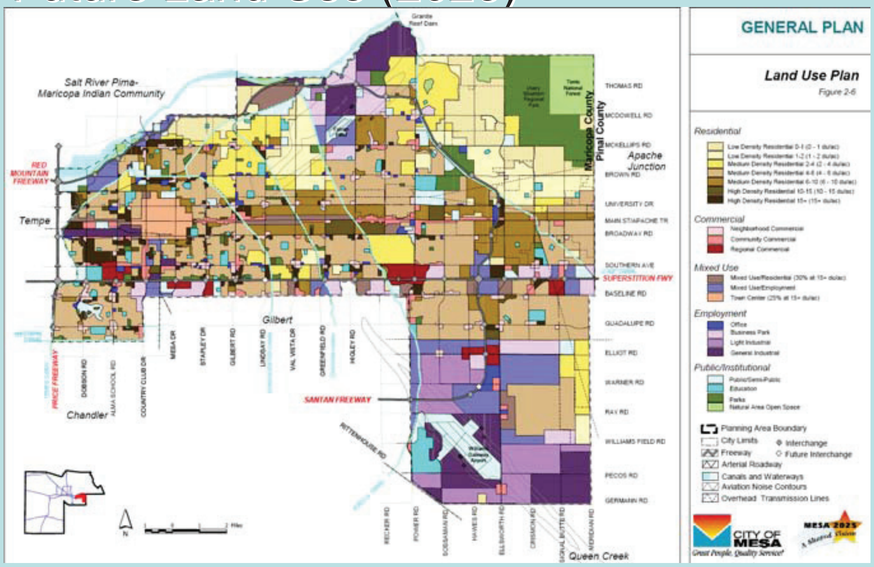
Future Land Use (2025)



Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Key Factors Impacting Growth

- Global, National and Local Economic Downturn
- Local Population Growth
- Airline Economic Viability
- Additional Airlines Initiating Service at PMGA

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Future Scenarios: Demand Triggers

	Demand Triggers				
	Short Term	Intermediate Term	Opening Day Northeast Terminal	Long Term	High Range
Annual Enplanements	350,000	850,000	1,500,000	2,200,000	5,000,000
Air Carrier Operations	9,449	20,806	34,486	48,166	94,934
Daily Departures	17	34	57	80	158
Peak Hour Flights	9	12	15	18	17
Passanger Load Factor	70%	72%	74%	75%	77%
Enplanements Per Departure	74	82	87	91	105
Annual Enplanements	350,000	850,000	1,500,000	2,200,000	5,000,000
Peak Hour Enplanements	667	980	1,298	1,644	1,791
Gate Requirements					
Commercial	5	7	9	10	22
Regional	1	3	5	8	8
Total Gates	6	10	14	18	30

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Programming: Elements Considered

- Taxiways & Aircraft Parking Apron
- Aircraft Gates
- Fuel Farm
- Belly Cargo
- Ground Service Equipment
- Central Receiving

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PhxMesa Gateway Airport

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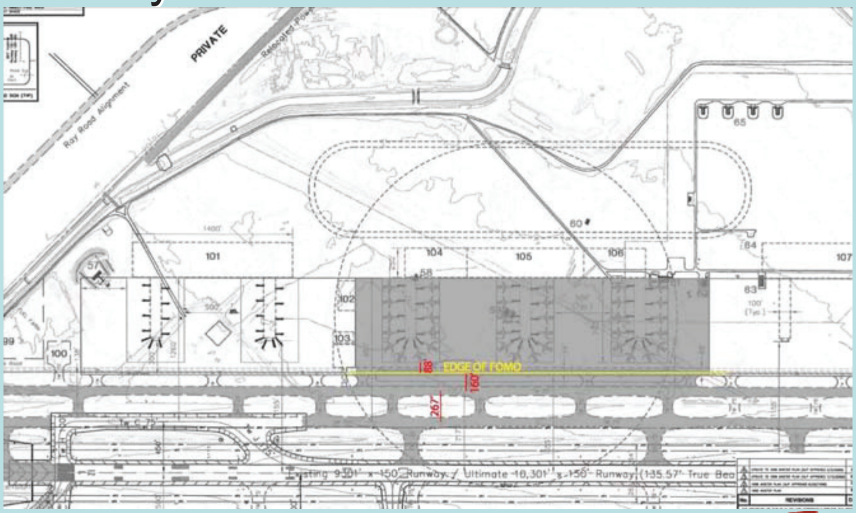
Airfield Program: Taxiway Enhancements



Northeast Area Development Plan

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Charrette Baseline Presentation

Terminal Area: Fuel

- Average Gallons/departure = 1,200 Gal
- Provide 7 day storage reserve
- Hydrant Fueling vs. Fuel Truck

Fuel Farm Storage Requirements		
Year	**Average Day Departures**	**Gallons**
2012	17	150,000
2017	34	300,000
2022	57	500,000
2027	80	700,000
Loong Range	158	1,300,000

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Terminal Area: Belly Cargo

- Limited airside access required
- Convenient to Terminal Area
- Optimum building size is 1.5 Sq/Ft per ton of belly cargo processed
- Reserve 8 acres Belly Cargo

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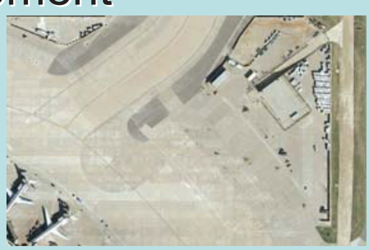
PhxMesa Gateway Airport

Charrette Baseline Presentation

Terminal Area: Ground Service Equipment

- Vary by Airline
- Assume ¼ acre per gate pair +2 acres per 15 gates
- Long Term Requirements 11.5 Acres



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Charrette Baseline Presentation

Terminal Area: Central Receiving Area

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

East Terminal Design Criteria

Northeast Area Development Planning (NADP)
East Terminal Program
Updated by DWL: 03.24.2010

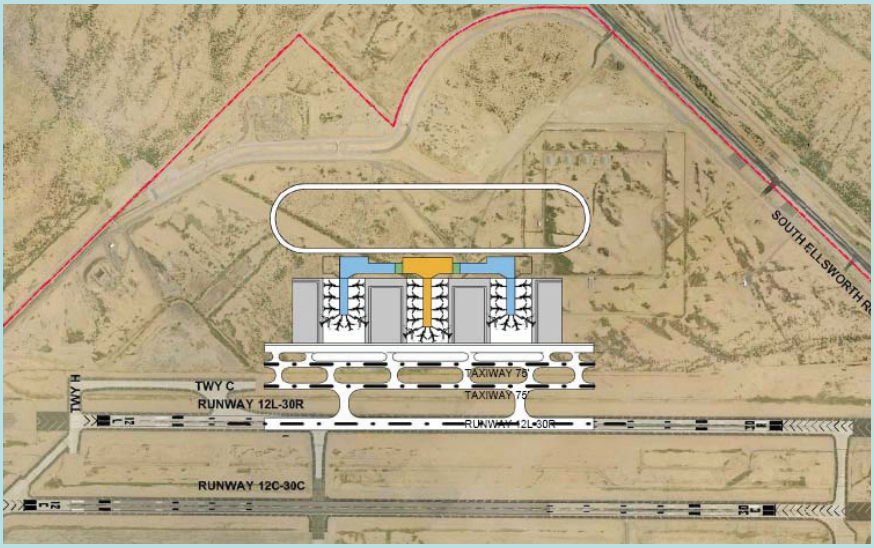
	Public/ Non-Public	1,500,000 ENPLANEMENTS	Long Term 2,200,000 ENPLANEMENTS		High Range 5,000,000 ENPLANEMENTS	
		DWL generated Program	AMP Program Exhibit 3E	DWL generated Program	AMP Program Exhibit 3E	DWL generated Program
ANNUAL ENPLANEMENTS		1,500,000	2,200,000	2,200,000	5,000,000	5,000,000
DESIGN HOUR ENPLANEMENTS		923	1,015	1,015	2,307	2,307
DESIGN HOUR TOTAL PAX		1,569	1,726	1,726	3,922	3,922
DESIGN HOUR DEPLANEMENTS		784	863	863	1,961	1,961
TERMINAL BUILDING REQUIREMENTS						
TICKETING/CHECK-IN (S.F.)	Public	8,074	11,842	8,882	26,915	20,186
AIRLINE OPERATIONS (S.F.)	Non-Public	21,457	17,237	24,703	30,806	47,143
GATE FACILITIES (S.F.)	Public	27,622	22,330	35,514	50,752	59,190
BAGGAGE CLAIM (S.F.)	Public	41,414	40,220	45,555	52,586	103,535
RENTAL CAR COUNTERS (S.F.)	Public	4,379	4,739	4,739	9,777	9,777
CONCESSIONS (S.F.)	Public	20,301	43,802	22,331	99,555	50,752
PUBLIC WAITING LOBBY (S.F.)	Public	16,315	18,863	17,946	42,871	40,786
TSA SECURITY AREA (S.F.)	Public	15,107	11,681	16,618	26,548	37,768
RESTROOMS (S.F.)	Public	6,118	5,840	5,840	13,274	13,274
ADMINISTRATION OFFICES/CONF. (S.F.)	Public	15,010	22,010	22,010	50,010	50,010
EDS OUTBOUND SCREENING	Non-Public	19,320		23,220		47,835
Sub-total Square Footage		195,117	198,563	227,357	403,095	480,255
HVAC		19,512	19,856	22,736	40,309	48,026
Circulation		75,120	76,447	87,533	155,191	184,898
Gross Terminal Building Space (s.f.)		289,748	294,865	337,625	598,595	713,179
TOTAL PUBLIC SPACE (s.f.)		229,459	257,773	266,967	527,480	570,175
TOTAL NON - PUBLIC SPACE (s.f.)		60,289	37,093	70,659	71,115	143,004
SITE REQUIREMENTS						
GATES		14	18	18	30	30
TERMINAL FRONTAGE CURB (pg.3-37)						
Enplane Curb (FT)		830	914	914	1661	1661
Deplance Curb (FT)		969	1066	1066	1938	1938
TERMINAL CURB (LF)		1799	1979	1979	3599	3599
*Inner curb can hold upto 300 cars outer curb can hold 600 cars						
*with growth median curb lane is included for additional curb length						
AIRPORT AND TERMINAL ACCESS ROADWAY (pg. 3-35						
TERMINAL THROUGH LANES		3	3	3	6	6
PARKING REQUIREMENTS						
Patron Parking		2,250	3,300	3,300	7,500	7,500
Employees		375	550	550	1,250	1,250
Rental cars		525	770	770	1,750	1,750
PARKING TOTALS		3,150	4,620	4,620	10,500	10,500

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

East Terminal Concept

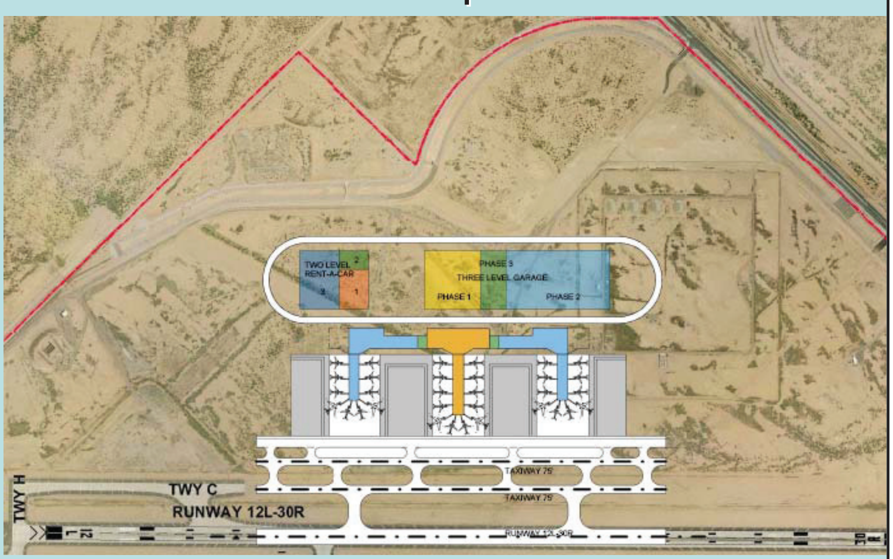


Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

East Terminal Concept



Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Utility Providers/Authorities

- Water – City of Mesa
- Wastewater – City of Mesa
- Drainage – City of Mesa/Flood Control District of Maricopa County (FCDMC)
- Electric – Salt River Project (SRP)
- Natural Gas – Southwest Gas
- Fiber Optic – City of Mesa

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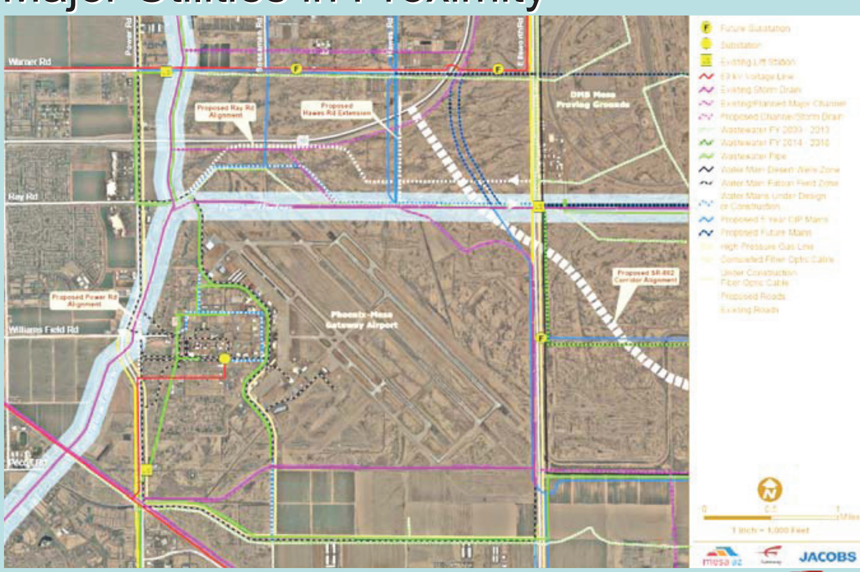
PhxMesa Gateway Airport

Charrette Baseline Presentation

Major Utilities in Proximity



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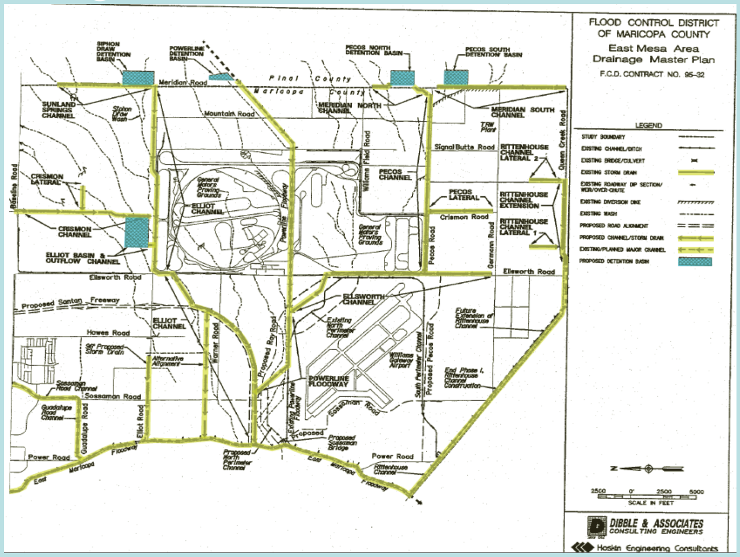
Charrette Baseline Presentation

Drainage



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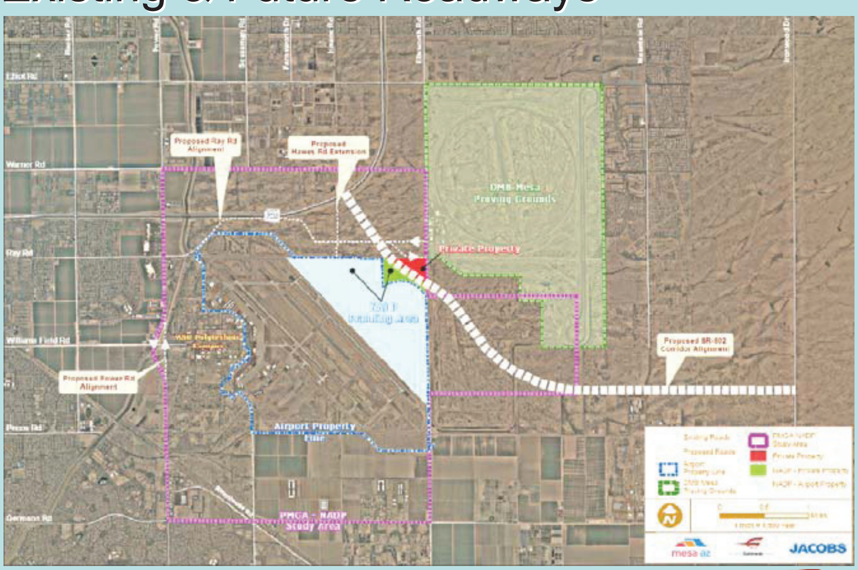
PhxMesa Gateway Airport

Charrette Baseline Presentation

Existing & Future Roadways



Northeast Area Development Plan

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Charrette Baseline Presentation

Future Roadways

- Ray Road (under construction, City of Mesa):
  - Between Sossaman & Ellsworth: 2-lane, east-west, 45 mph
  - Signals at Sossaman and Ellsworth
- Hawes Road (under construction, City of Mesa):
  - Between Ray & SR202: 2-lane, north-south
- SR802 (under design, ADOT/City of Mesa):
  - Between L202 to Ellsworth Road
- Power Road (under design, City of Mesa/Town of Gilbert/MCDOT):
  - Between L202 to Pecos Road to be reconfigured

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PhxMesa Gateway Airport

Charrette Baseline Presentation

Future Transit Network

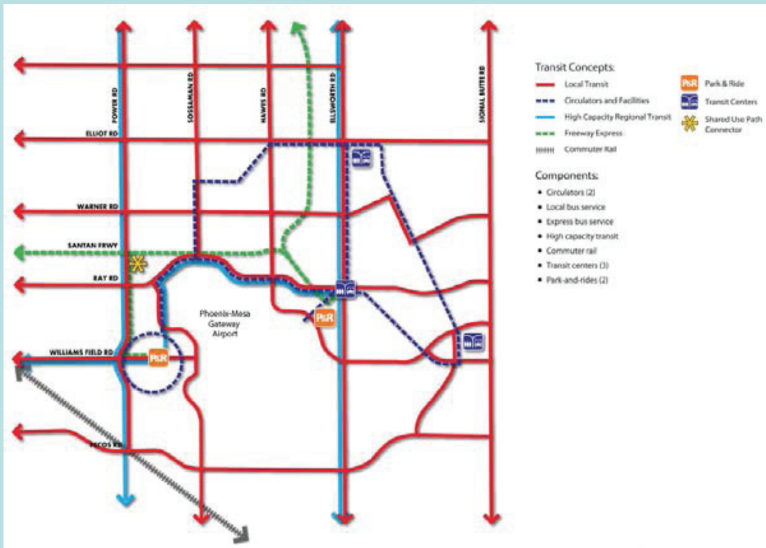
- RTP identifies moderate expansion into the PGMA area
- Express routes are planned to service the area

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Future Transit Concepts



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Charrette Baseline Presentation

Existing Bicycle Facilities

- Bike paths are typically 6’ in width or 12’ in width if shared with parked cars, per City of Mesa guidelines
- Recent Improvements (2009)
  - Ellsworth Rd: Baseline Rd to Guadalupe Rd (1 mile of bike lanes)
  - Gilbert Rd: Main St to Brown Rd (1 mile of bike lanes)
  - Mesa Dr: McKellips Rd to University Dr (2 miles of bike lanes)
  - Sossaman Rd: US-60 to Baseline Rd (0.5 mile of bike lanes)
  - Sossaman Rd: Power Rd to Velocity Way(2.5 miles of bike lanes)
  - Southern Ave: Stapley Dr to Harris Ave (0.5 miles of bike lanes)
  - University Dr: Dobson Rd to Alma School Rd (1 mile of bike lanes)
  - University Dr: Robson to Mesa Dr (0.8 mile of bike lanes)
  - University Dr: Hall to Gilbert Rd (0.4 mile of bike lanes)
  - Val Vista Rd: Hampton Ave to Baseline Rd (0.75 mile of bike lanes)

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Future Bicycle Facilities

- Based on City of Mesa's Transportation Plan, the following are the proposed bicycle routes in the vicinity of the study area:
  - Alma School Rd: University Dr to Southern Ave
  - Baseline Rd: Loop 202 (San Tan Freeway) to Springwood
  - Broadway Rd: Power Rd to Hawes Rd
  - Crismon Rd: US-60 to Baseline Rd
  - Dobson Rd: Guadalupe Rd to South City Limits
  - Greenfield Rd: Southern Ave to Baseline Rd
  - Guadalupe Rd: Hawes Rd to Ellsworth Rd
  - Mountain Rd: Elliot Rd to Ray Rd
  - Power Rd: Adobe to University Dr
  - Southern Ave: Clearview Ave to Hawes Rd
  - Sossaman Rd: Hampton Ave to US-60

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PhxMesa Gateway Airport

Charrette Baseline Presentation

Existing Pedestrian Facilities

- Sidewalks are typically 6' on arterials and collectors, and 4' on residential streets, per City of Mesa guidelines

Northeast Area Development Plan

PhxMesa Gateway Airport

Charrette Baseline Presentation

Aeronautical Acreage Set Aside

Element	Acres
Terminal	
Landside	24
Airside	63
Parking	13
Roadways	13
Rental Car	10
Fuel Farm	8
Belly Cargo	8
GSE	4
Subtotal	143
Planning Factor	39
Total	190

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Economic and Real Estate Analysis

Elliott D. Pollack & Co.

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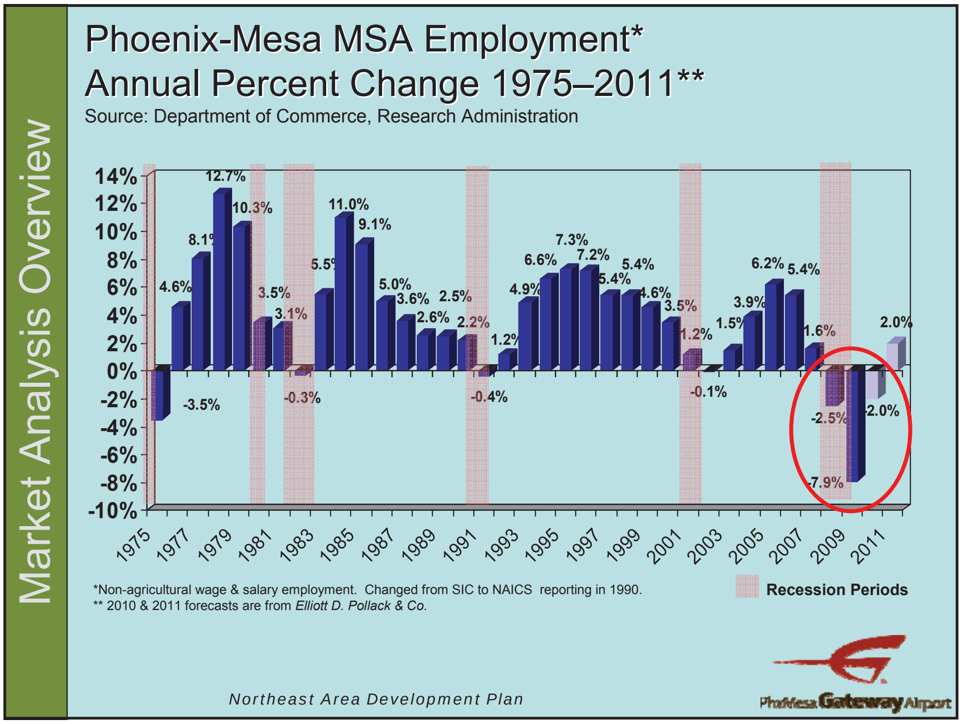
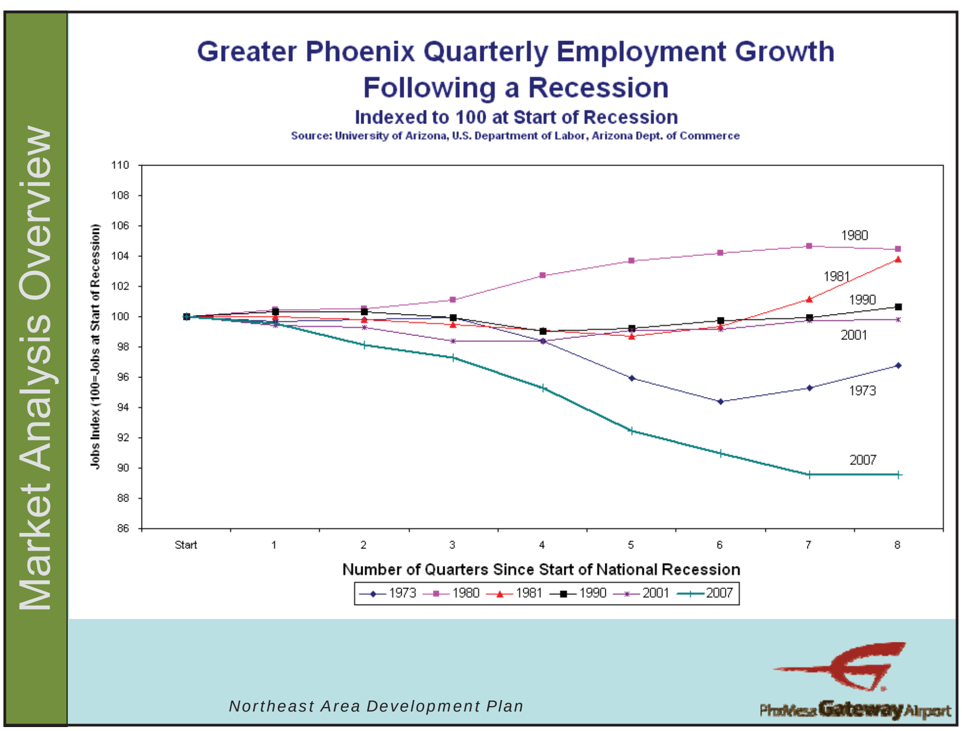
PhxMesa Gateway Airport


Market Analysis Overview
Phoenix-Mesa MSA Employment*
Annual Percent Change 1975–2011**
Source: Department of Commerce, Research Administration
14%
12%
10%
8%
6%
4%
2%
0%
-2%
-4%
-6%
-8%
-10%
-3.5%
4.6%
12.7%
10.3%
3.5%
3.1%
-0.3%
5.5%
11.0%
9.1%
5.0%
3.6%
2.6%
2.5%
2.2%
-0.4%
1.2%
4.9%
6.6%
7.3%
7.2%
5.4%
5.4%
4.6%
3.5%
1.2%
-0.1%
1.5%
3.9%
6.2%
5.4%
1.6%
-2.5%
-7.9%
-2.0%
2.0%
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
*Non-agricultural wage & salary employment. Changed from SIC to NAICS reporting in 1990.
** 2010 & 2011 forecasts are from Elliott D. Pollack & Co.
Recession Periods
Northeast Area Development Plan
PhxMesa Gateway Airport


Market Analysis Overview
Greater Phoenix Quarterly Employment Growth
Following a Recession
Indexed to 100 at Start of Recession
Source: University of Arizona, U.S. Department of Labor, Arizona Dept. of Commerce
Jobs Index (100=Jobs at Start of Recession)
110
108
106
104
102
100
98
96
94
92
90
88
86
Start
1
2
3
4
5
6
7
8
1980
1981
1990
2001
1973
2007
Number of Quarters Since Start of National Recession
1973
1980
1981
1990
2001
2007
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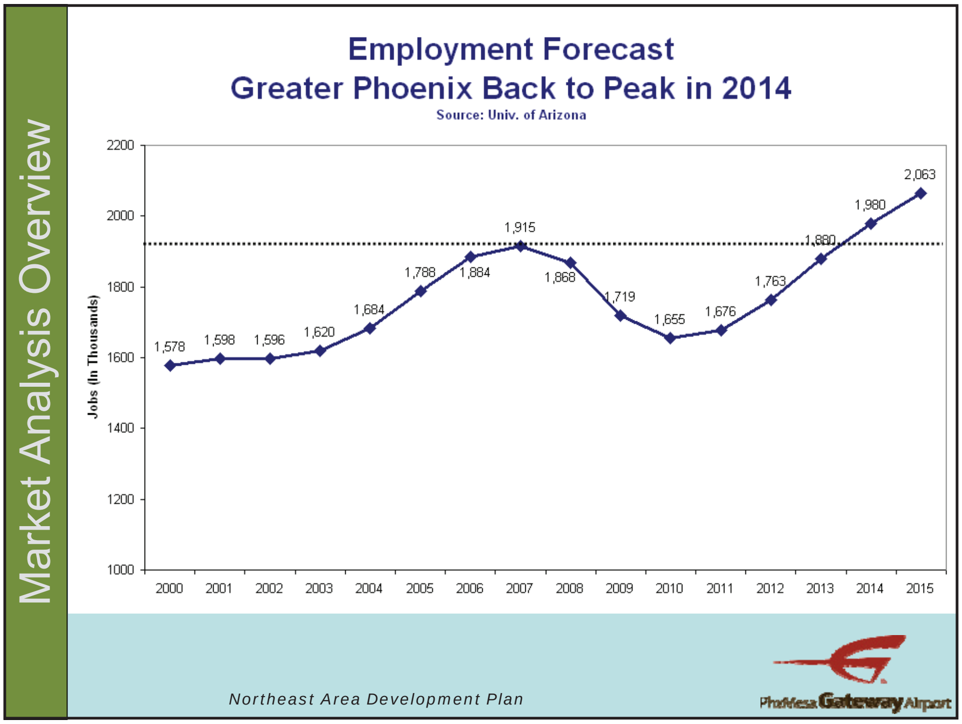
PhxMesa Gateway Airport


Market Analysis Overview
Employment Forecast
Greater Phoenix Back to Peak in 2014
Source: Univ. of Arizona
Jobs (In Thousands)
2200
2000
1800
1600
1400
1200
1000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
1,578
1,598
1,596
1,620
1,684
1,788
1,884
1,915
1,868
1,719
1,655
1,676
1,763
1,880
1,980
2,063
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PhxMesa Gateway Airport


Market Analysis Overview
Commercial Markets
Imminent Disaster
Sometimes, it's just better to grab a beer and watch…
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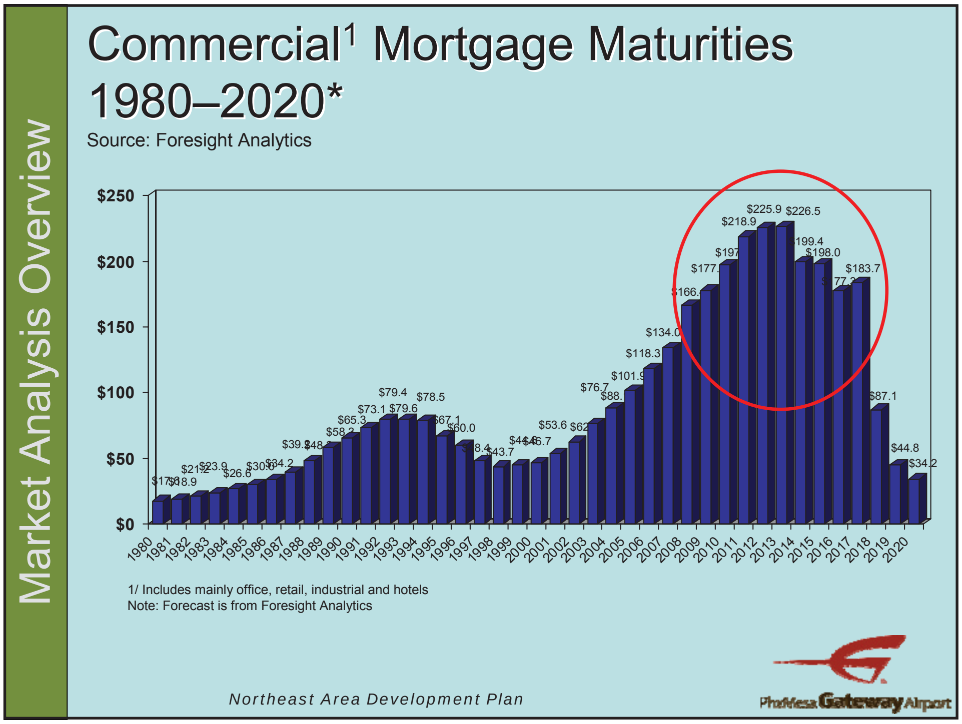
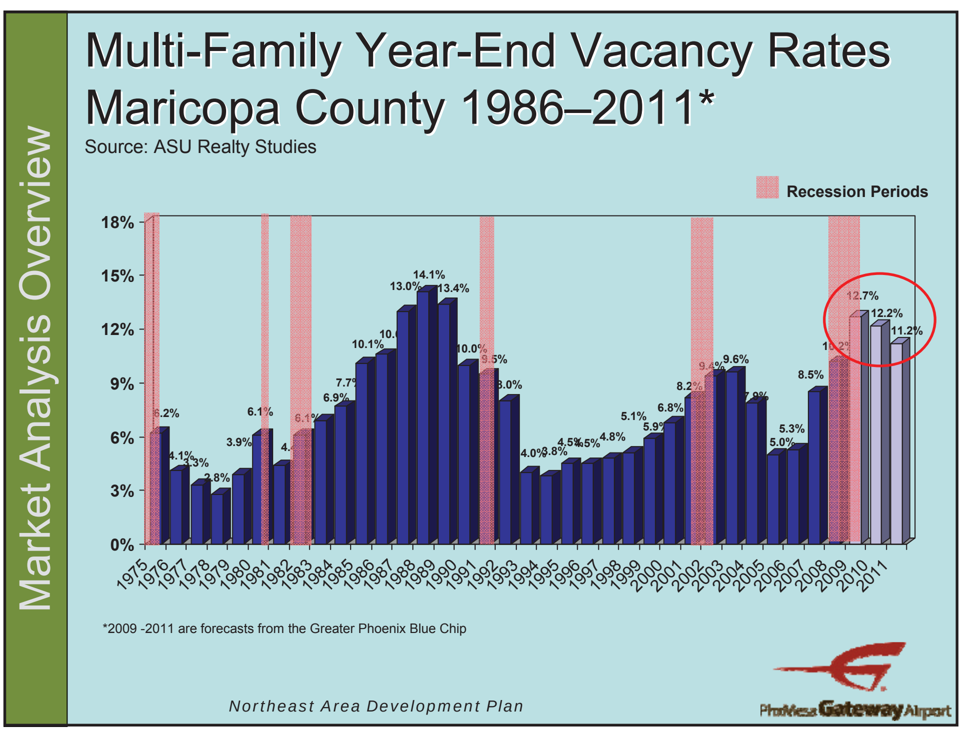
PhxMesa Gateway Airport

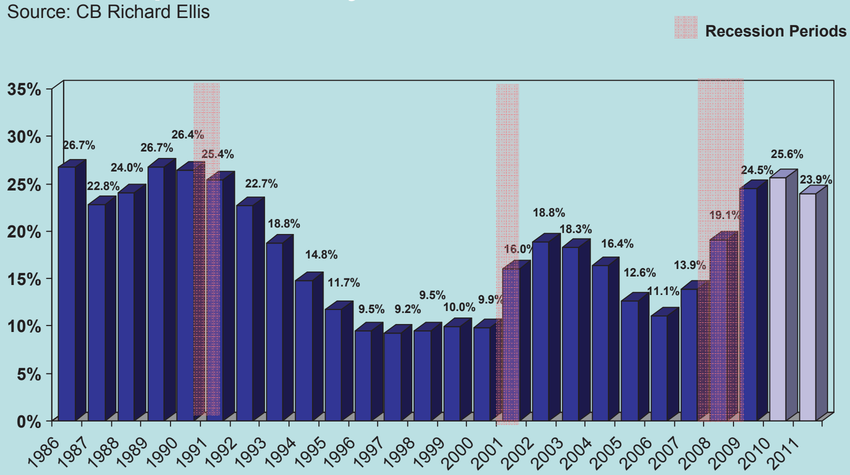

Market Analysis Overview
Commercial[1] Mortgage Maturities 1980–2020*
Source: Foresight Analytics
$250
$200
$150
$100
$50
$0
1/ Includes mainly office, retail, industrial and hotels
Note: Forecast is from Foresight Analytics
Northeast Area Development Plan
PhxMesa Gateway Airport


Market Analysis Overview
Multi-Family Year-End Vacancy Rates Maricopa County 1986–2011*
Source: ASU Realty Studies
Recession Periods
18%
15%
12%
9%
6%
3%
0%
*2009 -2011 are forecasts from the Greater Phoenix Blue Chip
Northeast Area Development Plan
PhxMesa Gateway Airport

Market Analysis Overview

Office Space Year-End Vacancy Rates Maricopa County 1986–2011*

Source: CB Richard Ellis



*2010 -2011 are forecasts from CB Richard Ellis

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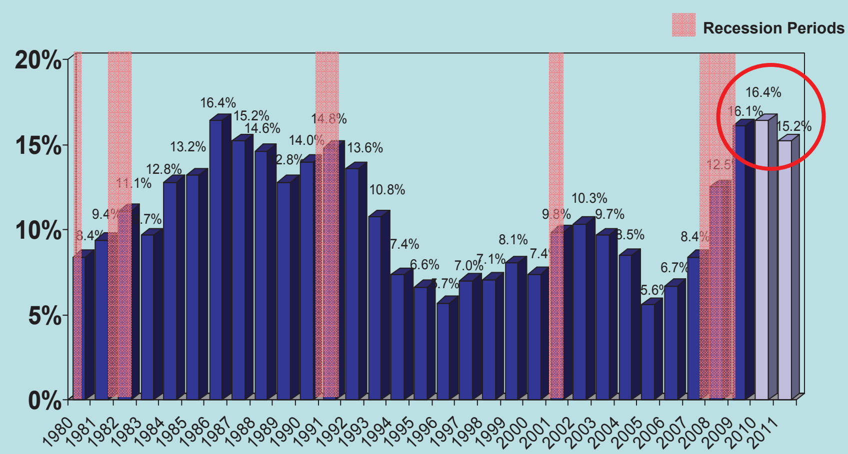
Market Analysis Overview

Industrial Space Vacancy Rates Maricopa County 1980 – 2011*

Source: CB Richard Ellis



* 2010 - 2011 are forecasts from CBRE

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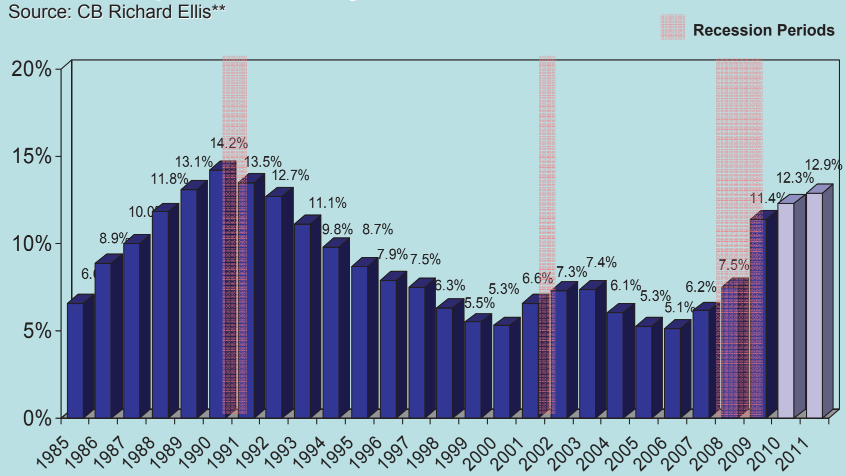
PhxMesa Gateway Airport

Market Analysis Overview

Retail Vacancy Rates
Maricopa County 1985–2011*

Source: CB Richard Ellis**



* 2010 -2011 are forecasts from CB Richard Ellis

** Data prior to 1992 is from Grubb & Ellis

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Back to Normal Vacancy?

- **Office = 2015+**
- **Industrial = 2015+**
- **Retail = 2015+**

- ***Multi Family ???***

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Hotel Market

Northeast Area Development Plan

PhxMesa Gateway Airport

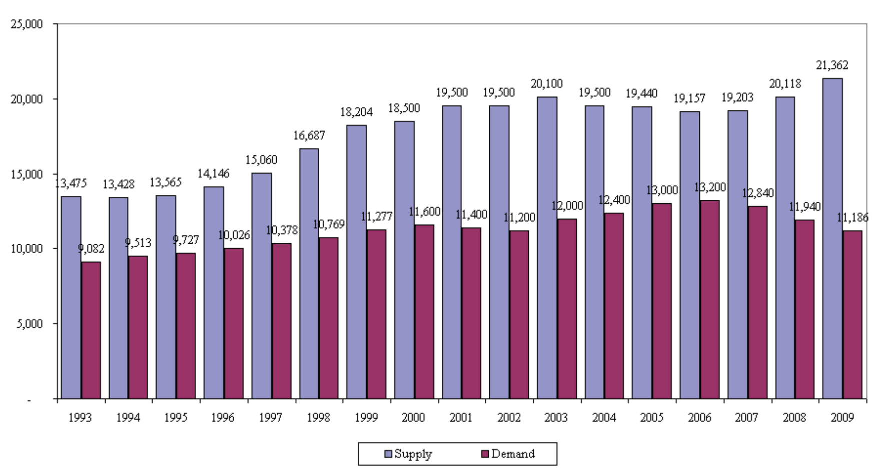
Market Analysis Overview

Supply vs. Demand for Hotel Room Nights
Greater Phoenix

Source: Arizona Department of Tourism

(Thousands)

*Estimate based on YTD data through February 2010.



Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

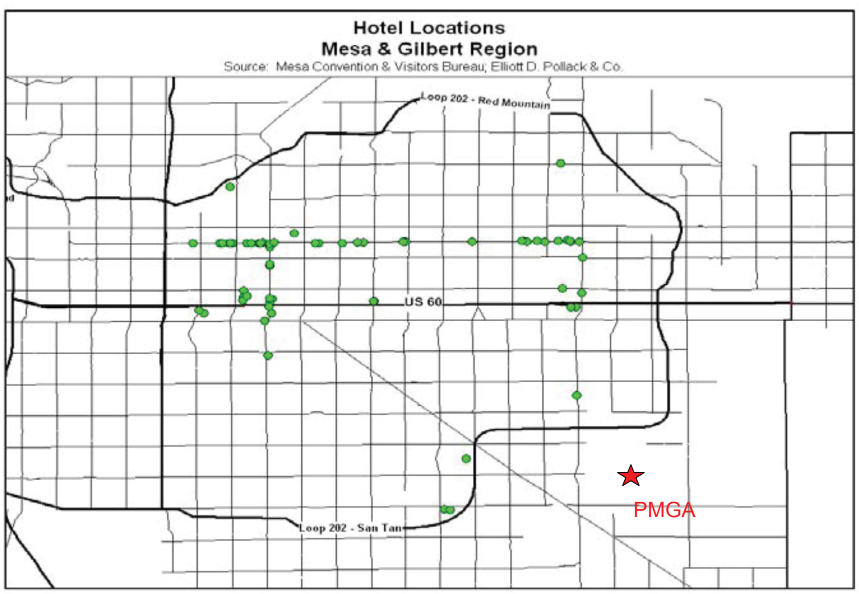
Mesa-Gilbert Hotel Market

- Comprises 9.4% of Maricopa County Hotel rooms (approx. 5,646 rooms)
- Most are located on/near the US60 freeway or Main St. in Mesa
- Tend to locate near major shopping and recreation centers

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview



Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Airport Employment Analysis

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

San Bernardino International Airport

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Alliance California at San Bernardino International Airport

Northeast Area Development Plan

PhxMesa Gateway Airport

Market Analysis Overview

Estimated Employment By Type
San Bernadino International Airport

	Airport Area	MSA	County
44- Retail Trade	19.5%	15.6%	14.9%
56- Admin, Support, Waste Mgt, Remediation Services	14.0%	8.4%	9.4%
72- Accommodation & Food Services	10.9%	10.6%	9.4%
62- Health Care and Social Assistance	8.0%	11.6%	12.7%
52- Finance & Insurance	6.9%	3.0%	3.4%
55- Management of Companies & Enterprises	6.7%	1.1%	1.2%
23- Construction	6.3%	10.9%	7.8%
54- Professional, Scientific & Technical Services	5.7%	3.3%	3.0%
31- Manufacturing	5.4%	10.9%	11.5%
48- Transportation & Warehousing	3.9%	5.8%	7.9%
42- Wholesale trade	3.9%	5.5%	6.4%
61- Educational Services	3.3%	1.6%	2.1%
71- Arts, Entertainment & Recreation	1.4%	3.0%	1.8%
51- Information	1.1%	1.8%	1.9%
53- Real Estate & Rental & Leasing	0.8%	1.9%	1.6%
Residual	2.1%	5.0%	5.3%
Grand Total	100.0%	100.0%	100.0%

Note: Totals may not equal sum of column due to rounding.
Source: US Bureau of Census, USPS, Elliott D. Pollack & Co.

Northeast Area Development Plan

PhxMesa Gateway Airport

Aerotropolis Overview

Background / Philosophy

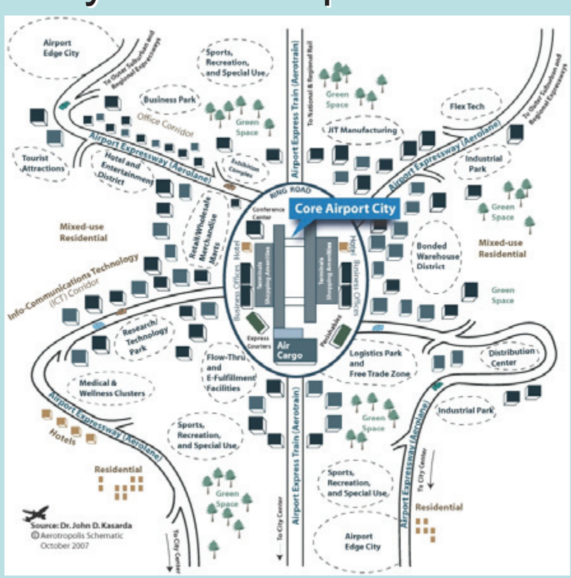
- Conceptual origins may be traced to H. McKinley Conway's 1977 book, *"The Airport City and the Future Intermodal Transportation System"*
- Urban form comprising aviation-intensive businesses and related enterprises (out to 15 mi.)
- Similar in form and function to a traditional metropolis, containing a central city core and its commuter-linked suburbs
- Powerful engines of local economic development
- Attract certain key business types:
  - time-sensitive manufacturing, logistics;
  - hotels, entertainment complexes;
  - exhibition centers; and
  - offices parks, and information technology complexes

Northeast Area Development Plan

PhxMesa Gateway Airport

Aerotropolis Overview

Airport City & Aerotropolis Schematic



Northeast Area Development Plan

PhxMesa Gateway Airport

Aerotropolis Overview

Airport City Examples

- Ron Reagan National & Dulles International Airports (D.C., US)
- North Carolina Global Transpark (North Carolina, US)
- Brisbane Airport (Brisbane, Australia)
- Beijing Capital International Airport (Beijing, China)
- Chicago O'Hare International Airport (Illinois, US)
- Dallas-Fort Worth International Airport (Texas, US)
- Incheon International Airport (Seoul, South Korea)
- Dubai World Central International Airport (Dubai, UAE)
- Memphis International Airport (Tennessee, US)
- Kuala Lumpur International Airport (Kuala Lumpur, Malaysia)
- Detroit-Metro Wayne Co. Airport/Willow Run Airport (Michigan, US)
- Chek Lap Kok International Airport (Hong Kong, China)
- Los Angeles-Ontario International Airport (California, US)
- Schiphol Airport (Amsterdam, The Netherlands)
- Changi Airport (Singapore)
- Hartsfield-Jackson Atlanta International Airport (Georgia, US)
- Panama City-Bay County International Airport (Florida, US)

Northeast Area Development Plan

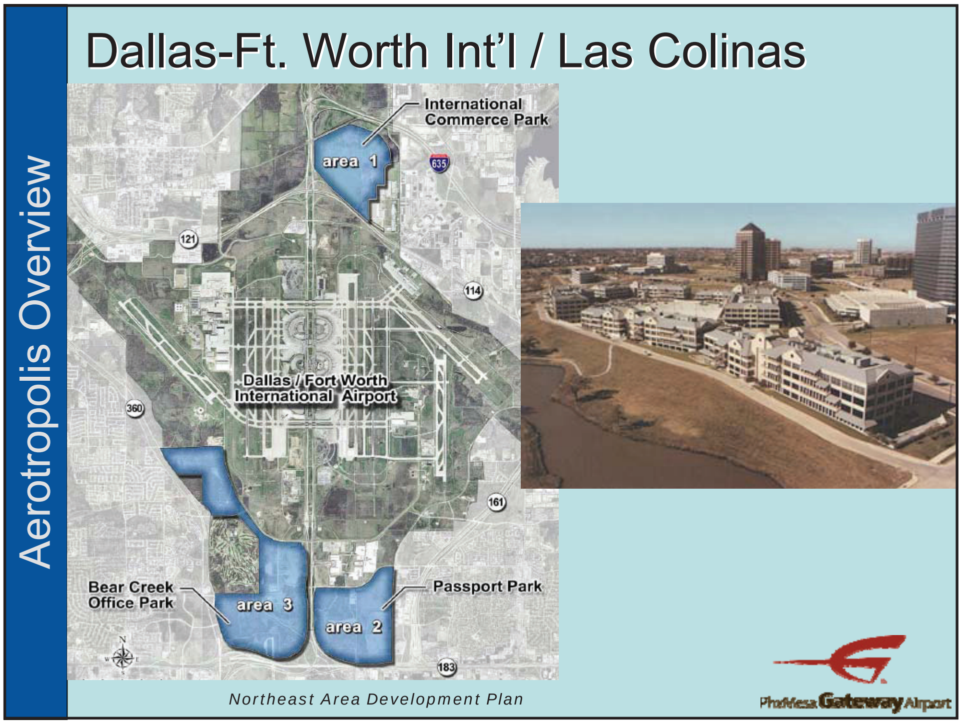
PhxMesa Gateway Airport

Aerotropolis Overview

North Carolina Global Transpark

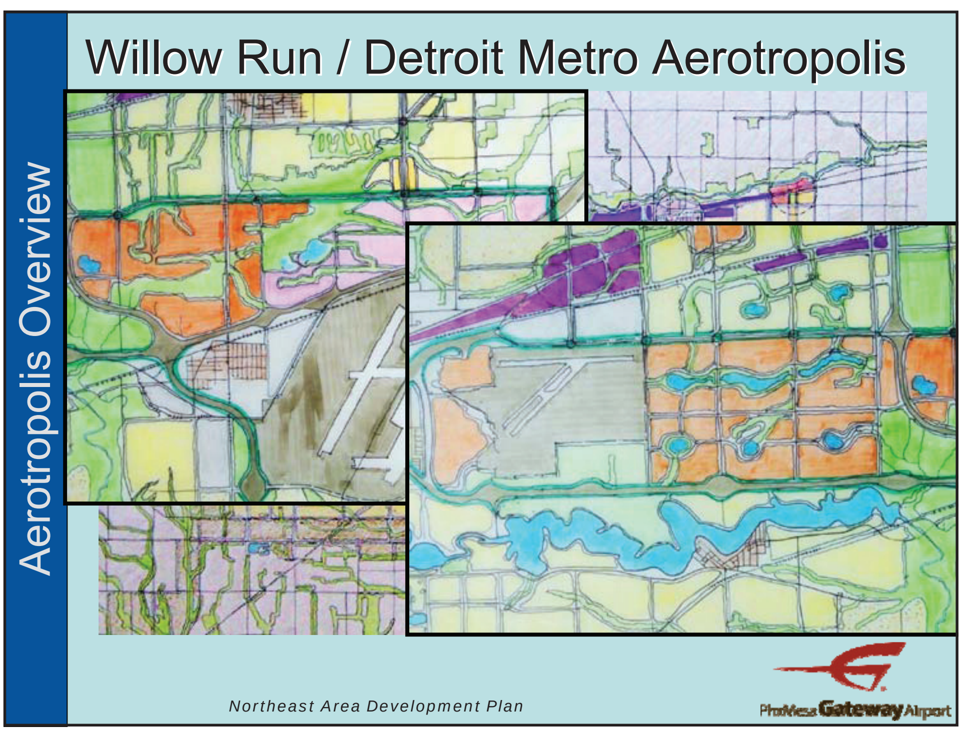
Northeast Area Development Plan

PhxMesa Gateway Airport


Dallas-Ft. Worth Int'l / Las Colinas
Aerotropolis Overview
International Commerce Park
area 1
Dallas / Fort Worth International Airport
Bear Creek Office Park
area 3
area 2
Passport Park
Northeast Area Development Plan
PhxMesa Gateway Airport

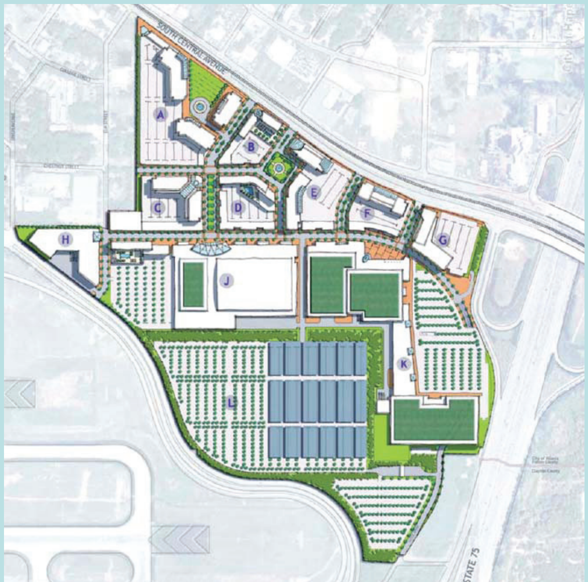

Incheon Int'l Airport / Fashion Island
Aerotropolis Overview
Ocean Landmark (36)
Aviation Town
Fantasy World (1,993 Acres)
Medical Hub & 8 Star village (613)
Eco-Park (555)
IT/BT Valley(I)
(2nd Phase)
ALP
(1st Phase)
Cargo Terminal
IT/BT Valley(II)
Business, Shopping, Leisure Zone
Water Park (384)
Fashion Island (245)
Northeast Area Development Plan
PhxMesa Gateway Airport


Willow Run / Detroit Metro Aerotropolis
Aerotropolis Overview
Northeast Area Development Plan
PhxMesa Gateway Airport


Willow Run / Detroit Metro Aerotropolis
Aerotropolis Overview
Northeast Area Development Plan
PhxMesa Gateway Airport

Aerotropolis Overview

Hartsfield-Jackson Atl Int'l / Ford Ctr.

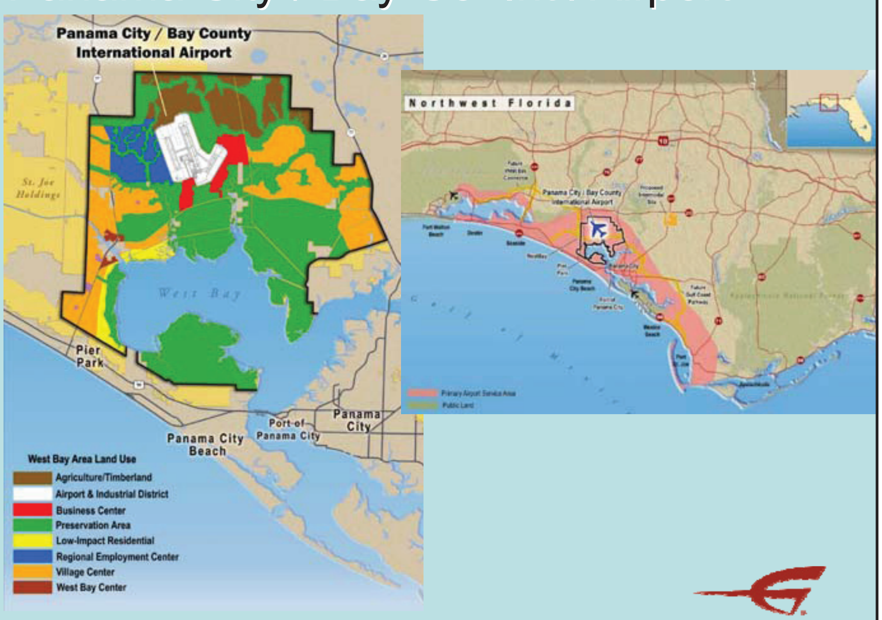


Northeast Area Development Plan

PhxMesa Gateway Airport

Aerotropolis Overview

Panama City / Bay Co. Int'l Airport



Northeast Area Development Plan

PhxMesa Gateway Airport

BREAK

Northeast Area Development Plan

Northeast Area Development Plan

PhxMesa Gateway Airport

Bubble-Diagramming Session

Purpose: *encourage diverse cross-section of stakeholder input & ideas to be vetted for ultimate development*

- Break into 3 groups
- Jacobs team member to facilitate each group
- Designated Jacobs team member will be note taker
- Group materials: (aerials w/controlling factors), tracing paper, markers, etc.
- 5-min report out at wrap-up

Northeast Area Development Plan

PhxMesa Gateway Airport

Breakout Group Recap

Group 1
- Lynn Kusey
- John Cox
- Michael Floyd
- Rick Merritt
- Chris Andres
- Chris Scott
- Alan Sanderson
- Derek Rogers
- Chris Banks
- Morgan Neville

Group 2
- Casey Denney
- Mark Wavering
- Sandy Kukla
- Shanthi Krishnan
- John Wesley
- Mark Venti
- Jane Morris
- Kenneth Snyder
- Tania Barks
- Ryan Cochran

Group 3
- Walter Fix
- Keith O'Connor
- Rick Leisner
- Bill Cunningham
- Tamie Fisher
- Scot Rigby
- Mike James
- Gene Florez
- Steve Wilcox
- John Ballard

- Group 1 – 5 minute report out
- Group 2 – 5 minute report out
- Group 3 – 5 minute report out

Northeast Area Development Plan

PhxMesa Gateway Airport

Next Steps / Questions

- Finalize Real Estate Market Analysis
- Finalize Technical Memo #1
- Refine Bubble Diagrams for Consistency
- Group Bubble Diagrams for Evaluation
- Evaluate Diagrams
  - Define evaluation factors
  - Narrow to 3 Strongest Diagrams
  - Begin refinement into concepts
- Next Stakeholder Charrette – Mid June

Northeast Area Development Plan

PhxMesa Gateway Airport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QUESTIONS / COMMENTS

Meeting 3 Notes

KICK-OFF MEETING

Northeast Area Development Plan Study

PhxMesa Gateway Airport

MEETING #3
CONCEPTUAL REFINEMENT

TUESDAY, JUNE 15, 2010 • 1:00PM – 4:00PM

AGENDA

OPENING REMARKS AND INTRODUCTIONS — 5 MIN

BUBBLE-DIAGRAM SCHEMES - REVIEW — 10 MIN

REVIEW OF PROJECT VISIONING / GOALS — 5 MIN

BUBBLE-DIAGRAM SCHEMES - EVALUATION — 35 MIN

- Evaluation Categories
- Factors Considered
- Summary of Findings

SELECTION OF PREFERRED SCHEMES — 10 MIN

BREAK — 15 MIN

AEROTROPOLIS HIGHLIGHTS & LESSONS LEARNED (Dr. John Kasarda, PhD) — 35 MIN

MARKET ANALYSIS OVERVIEW (Rick Merritt, Elliott D. Pollack & Company) — 15 MIN

CONCEPT REFINEMENT (Jacobs Team) — 45 MIN

- Refinement Components / Factors Considered
- Concept Descriptions
- Commentary on Strengths / Weaknesses
- Group Interaction Objectives

SUMMARY / NEXT STEPS — 5 MIN

WHERE:
Airport Administration Building – Main Board Room
Phoenix-Mesa Gateway Airport
5835 South Sossaman Road • Mesa, AZ 85212-6014

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Northeast Area Development Plan
Phoenix-Mesa Gateway Airport
3rd Stakeholder Meeting - Concept Refinement
Tuesday, June 15, 2010

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	Roland	Reed	Salt River Project		
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	Scott	Somers	City of Mesa, Councilman - District 6		
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PhxMesa Gateway Airport

Northeast Area Development Plan
Phoenix-Mesa Gateway Airport
3rd Stakeholder Meeting - Concept Refinement
Tuesday, June 15, 2010

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	Carmen	Williams	PMGAA		
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	Scott	Somers	City of Mesa, Councilman - District 6		

PhxMesa Gateway Airport

Northeast Area Development Plan
Stakeholder Meeting #3
Conceptual Refinement

June 15, 2010

Agenda

- Opening Remarks & Introductions
- Bubble Diagram Schemes - Review
- Project Visioning / Goals - Review
- Bubble Diagram Schemes - Evaluation
- Selection of Preferred Schemes
- Aerotropolis Highlights / Lessons Learned
- Market Analysis Overview
- Concept Refinement
- Next Steps

Opening Remarks & Introductions

Meeting Objectives

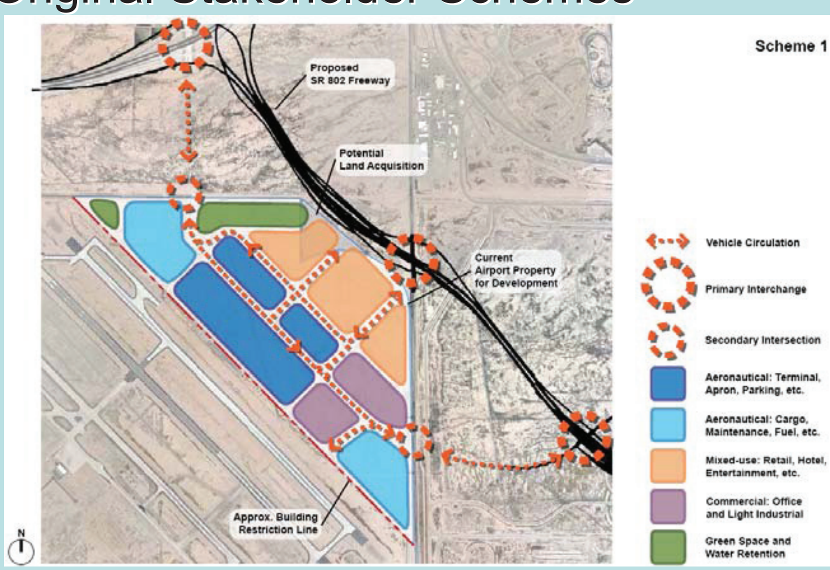
- Previously developed bubble diagram schemes
  - Review overarching vision & goals
  - Review screening factors & process
  - Summarize findings
- Revisit Aerotropolis framework & local market conditions
- Review advanced conceptual development
  - Factors considered
  - Strengths / weaknesses of concepts
- Core Objectives:
  - Isolate & enhance discrete strengths of all concepts
  - Advance weaknesses toward opportunities of strength
  - Incorporate into a final preferred concept for further refinement & analysis

Northeast Area Development Plan

PhxMesa Gateway Airport

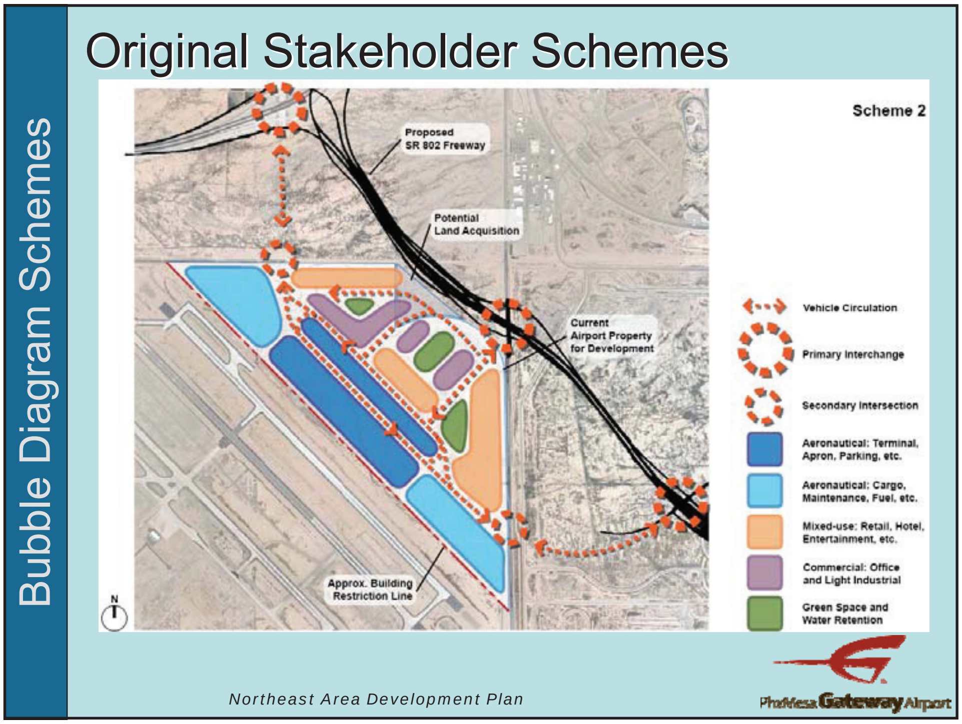
Bubble Diagram Schemes

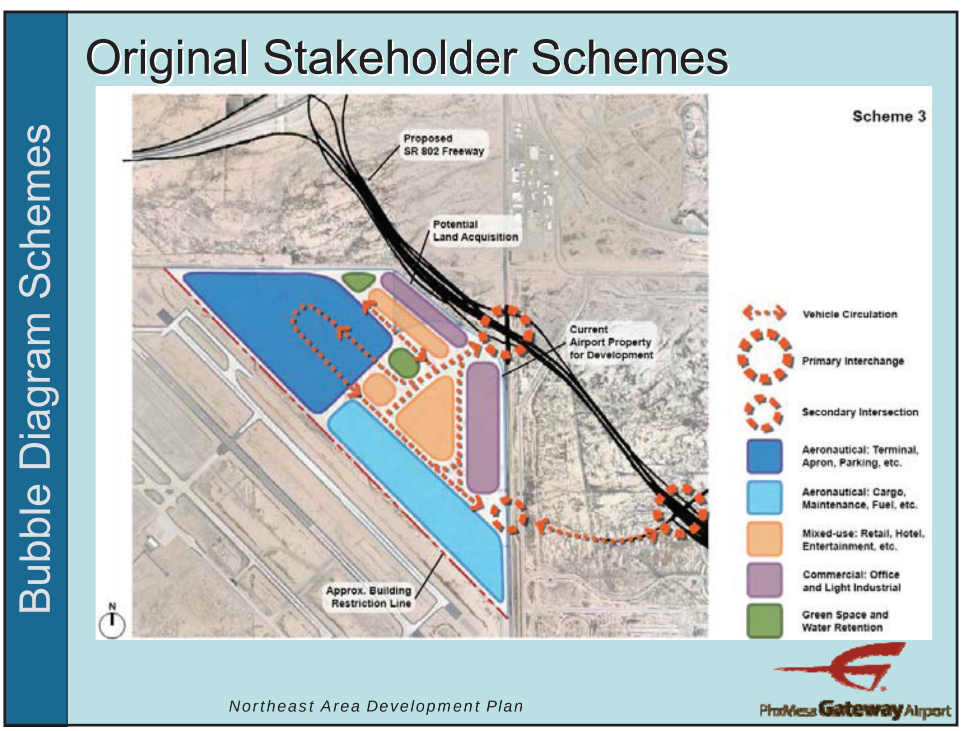
Original Stakeholder Schemes



Northeast Area Development Plan

PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 2
Proposed
SR 802 Freeway
Potential
Land Acquisition
Current
Airport Property
for Development
Approx. Building
Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 3
Proposed
SR 802 Freeway
Potential
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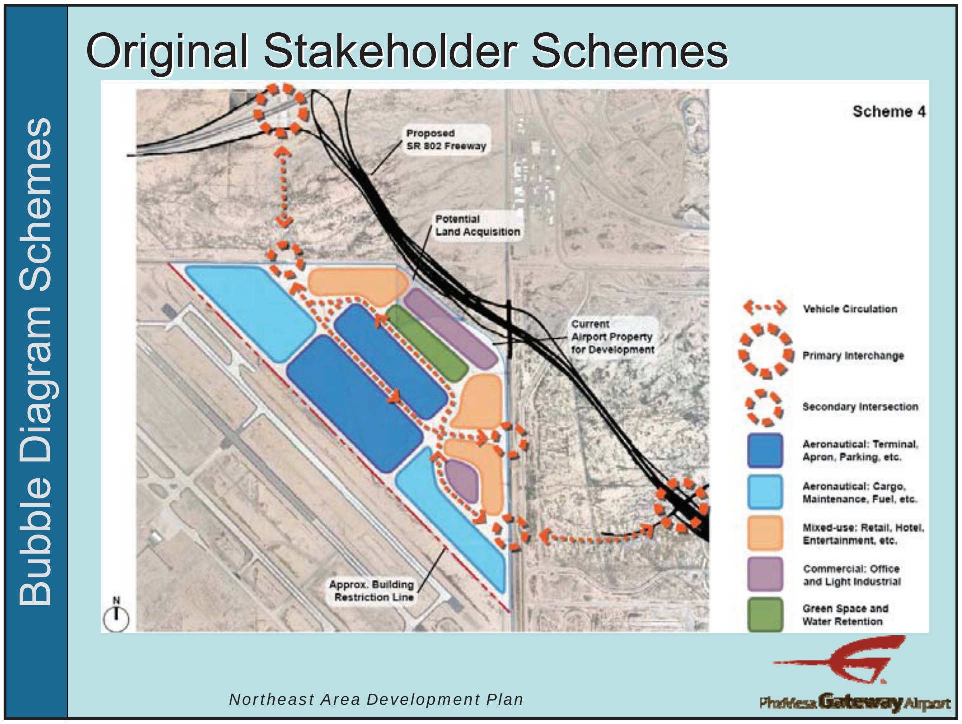
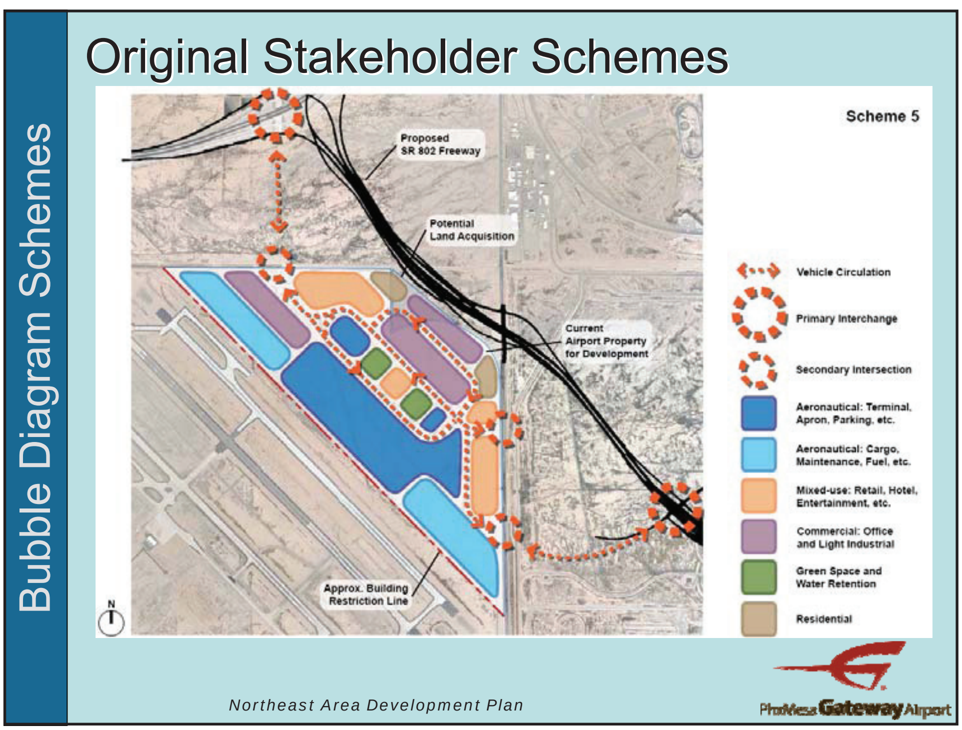
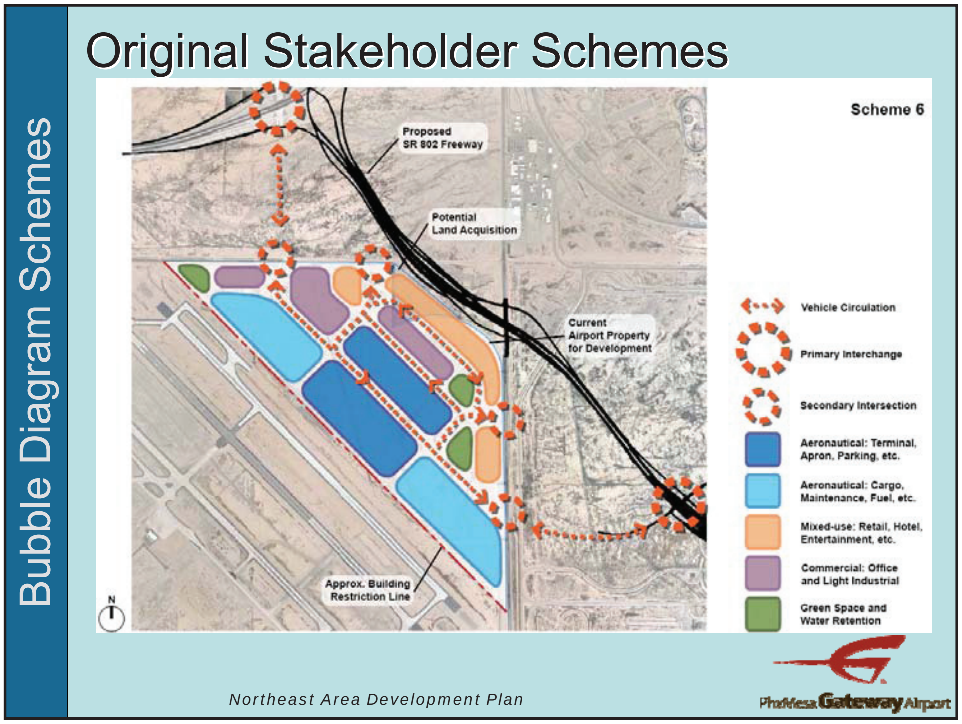
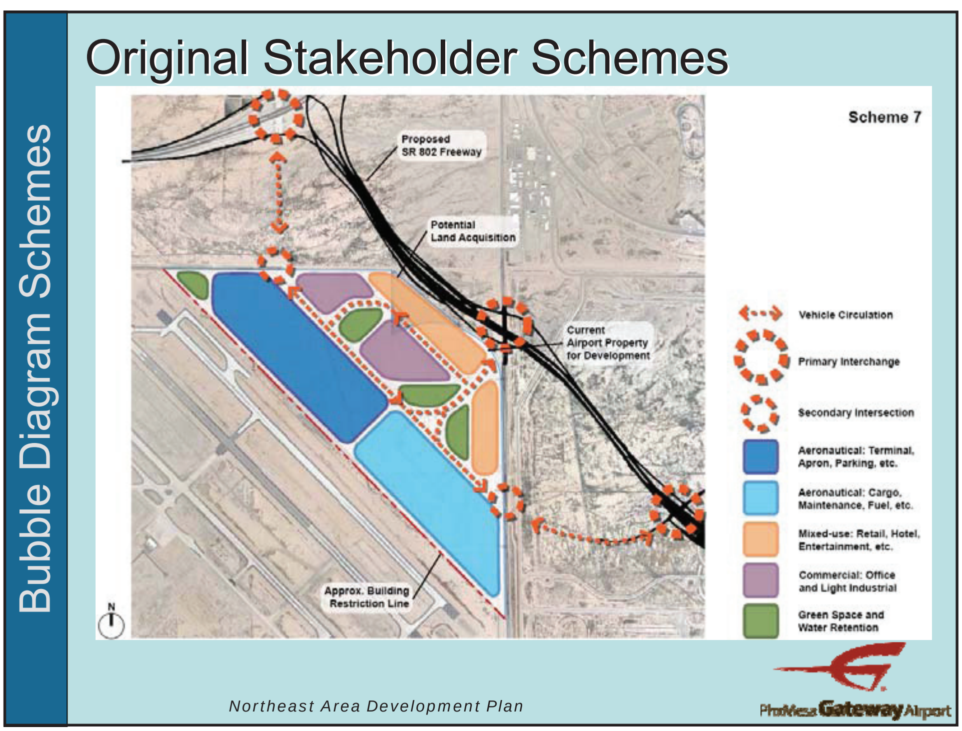
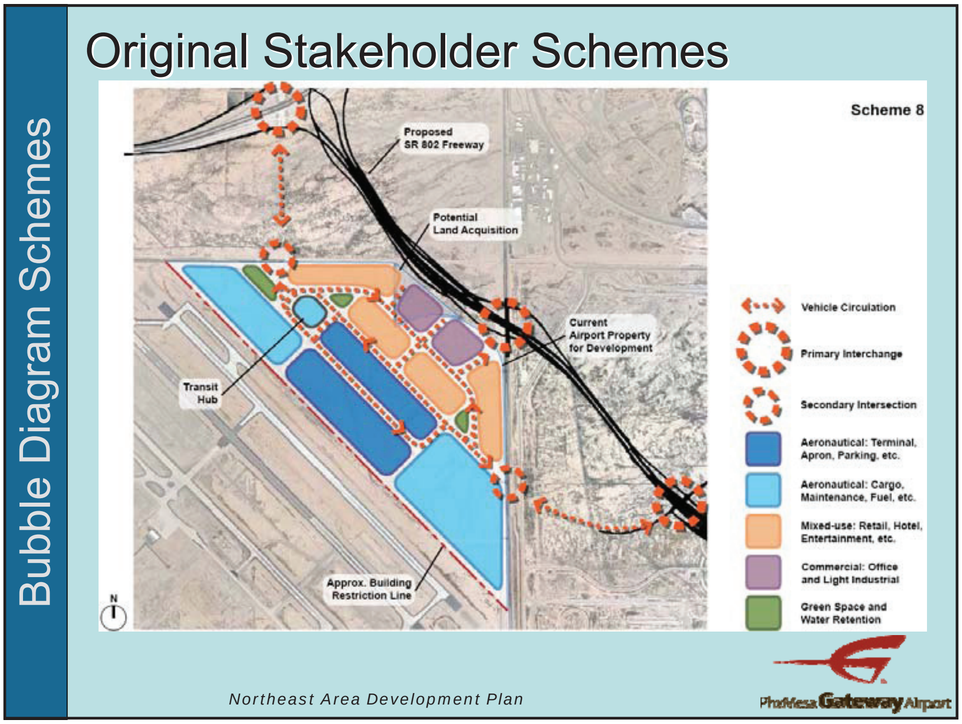
Approx. Building
Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 4
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 5
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Residential
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 6
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 7
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Original Stakeholder Schemes
Bubble Diagram Schemes
Scheme 8
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Transit Hub
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
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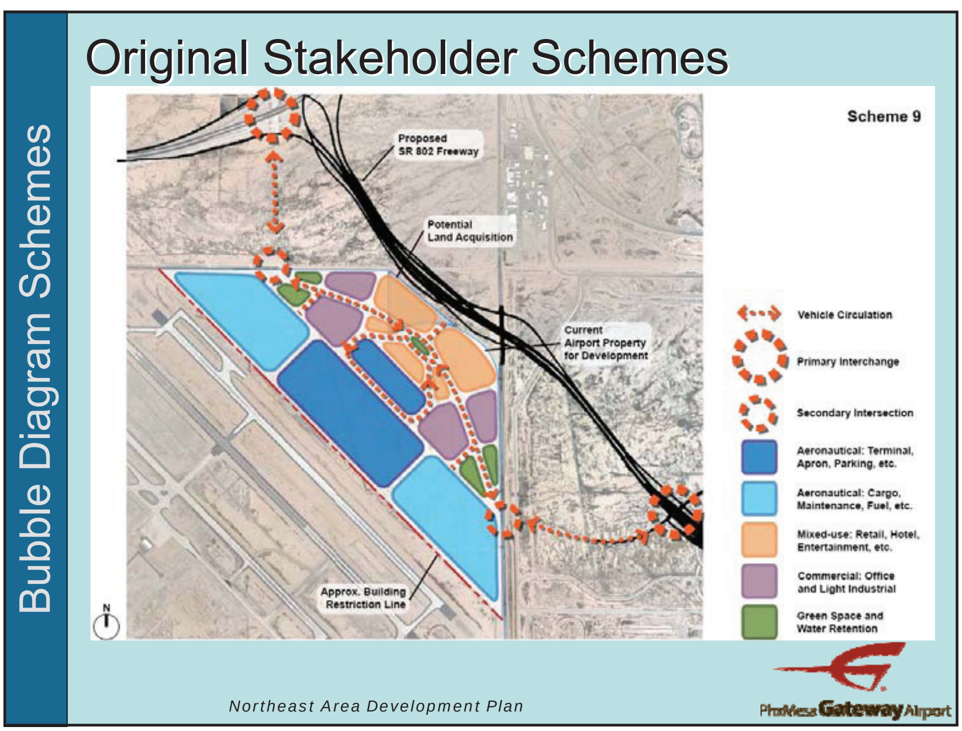
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Original Stakeholder Schemes
Bubble Diagram Schemes
Scheme 9
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
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Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport

Project Visioning / Goals

Aviation / Airport Related

- Support / advance the vision for the Airport
- Preserve ultimate Airport capacity
- Non-aeronautical land uses that embrace aviation growth goals
- Travel profile - leisure primary & business secondary
- Integrated parking solutions that serve demand & maximize revenue
- Sound implementation plan supporting staged growth
- Pursue myriad funding sources, including Public/Private Partnership (PPP)

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Visioning / Goals

Infrastructure (Transportation/Utilities)

- Balanced travel routes focused on primary services:
  - Airport specific trips,
  - internal trips,
  - through travel,
  - amenities
- Easy access w/multiple layers of transportation access
- Multi-modal system / pedestrian & bicycle friendly
- Penetrate SR 802 corridor w/no negative impacts on freeway system
- Connect Ray & Ellsworth employment centers to Airport
- Adequately serve surrounding private properties
- Easy / clear / communicative wayfinding & branding
- Prioritized, long-range plan for infrastructure elements

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Visioning / Goals

Economic Development

- Maximize opportunities – both Airport & private
- Boundary-less, flexible growth between Airport / community
- Quality, well-rounded destination development (convention facilities, hotels, multi-story offices, national attractions, industry)
- Urban center - Airport oriented employment villages
- Premier, diverse job center with high wage strategy
- High visibility - branding, special features & corporate amenities
- Sustainable concepts built into development
- Industry leading site design & construction techniques
- Discourages residential development near the Airport

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Visioning / Goals

Lifestyle Oriented

- Clear, strong identity – positive Sense of Place & community
- Stress free, comfortable, non-intimidating, fun place
- Livable community that is a vibrant, active hub of activity
- Development that places value on green space and water features
- Collaboration between communities & Airport
- Remain cognizant of aviation noise impacts
- ASU plans integrated into region and business development plan

Northeast Area Development Plan

PhxMesa Gateway Airport

Bubble Diagram Schemes

Key Screening Factors

- Safety & Standards
  - Airspace, airside separation standards
  - Roadway interchange & intersection spacing
- Operational
  - Multi-use trail network, accessibility to commercial properties, promotes Transit Oriented Development
  - Airport and airline efficiencies, proximity of Airport parking
  - Separation of vehicular traffic, capable of access management
  - Accessibility to Ray / Ellsworth / Hawes, intuitive wayfinding
- Capacity
  - Aeronautical growth to 10MAP, maximized terminal area
  - Incrementally expandable, adequacy of aircraft gates
  - Long term Utilities & transportation infrastructure adequacy
  - Ability to support curb rqmts, separation of traffic

Northeast Area Development Plan

PhxMesa Gateway Airport

Bubble Diagram Schemes

Key Screening Factors (cont.)

- Functionality / Flexibility
  - Accommodation of unforeseen demand, trends, technologies
  - Access to SR 802 & 202
  - Ability to mesh with access planning for large adjacent tracts
  - Reduced reliance on “single focal point” for Airport access
  - Ability to accommodate multi-modal aspects
  - Incorporation of green space, sustainability
- Economic Development
  - Creates Sense Of Place, highly visible
  - Maximized economic development
  - Provides diverse commercial land uses, mixed use opportunities near terminal area
  - Aligns development patterns with short & long term market potential

Northeast Area Development Plan

PhxMesa Gateway Airport

Bubble Diagram Schemes

Screening Results Summary

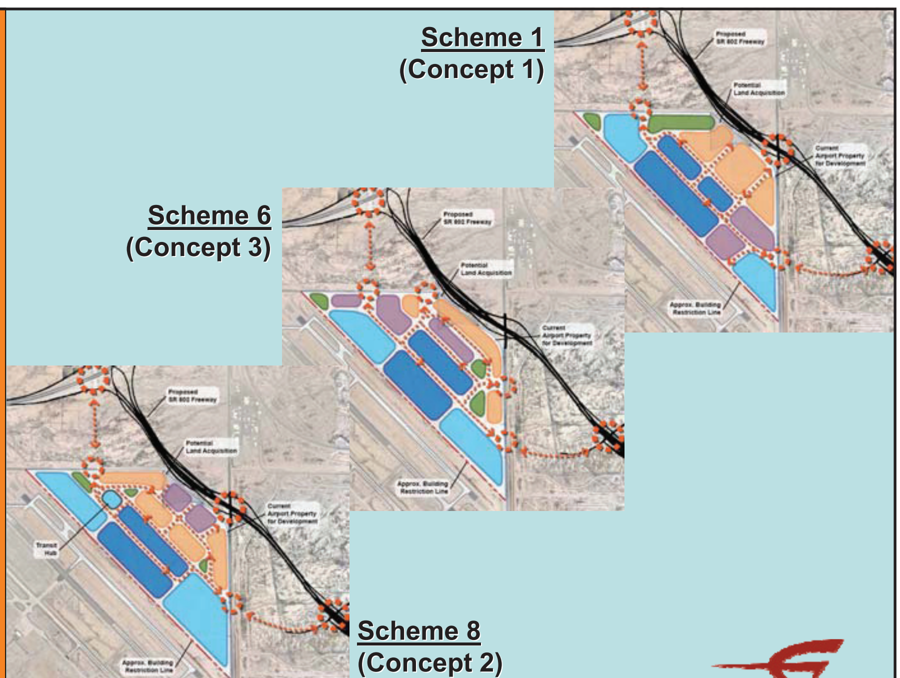
Evaluation Factors	Scheme 1	Scheme 2	Scheme 3	Scheme 4	Scheme 5	Scheme 6	Scheme 7	Scheme 8	Scheme 9
Safety & Standards	13	13	11	14	14	15	13	12	12
Operational	51	51	27	48	48	51	39	51	46
Capacity	39	31	33	36	33	37	38	40	37
Functionality & Flexibility	31	31	26	34	32	39	33	34	33
Economic Development	33	28	24	29	29	30	33	30	33
TOTAL	167	154	121	161	156	172	156	167	161

Source: Jacobs Analysis, 2010.

Northeast Area Development Plan

PhxMesa Gateway Airport

Concept Refinement



Northeast Area Development Plan

PhxMesa Gateway Airport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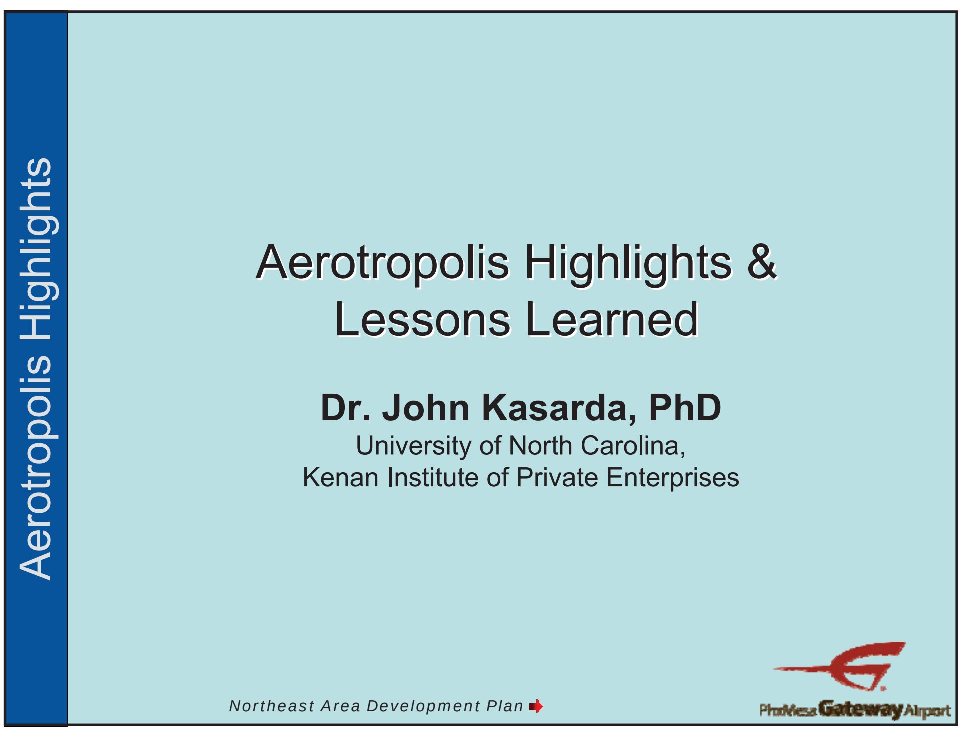
Northeast Area Development Plan
Northeast Area Development Plan
PhxMesa Gateway Airport


Aerotropolis Highlights
Aerotropolis Highlights &
Lessons Learned
Dr. John Kasarda, PhD
University of North Carolina,
Kenan Institute of Private Enterprises
Northeast Area Development Plan
PhxMesa Gateway Airport

Market Analysis Overview

Economic and Real Estate Analysis

Danny Court
Elliott D. Pollack & Co.

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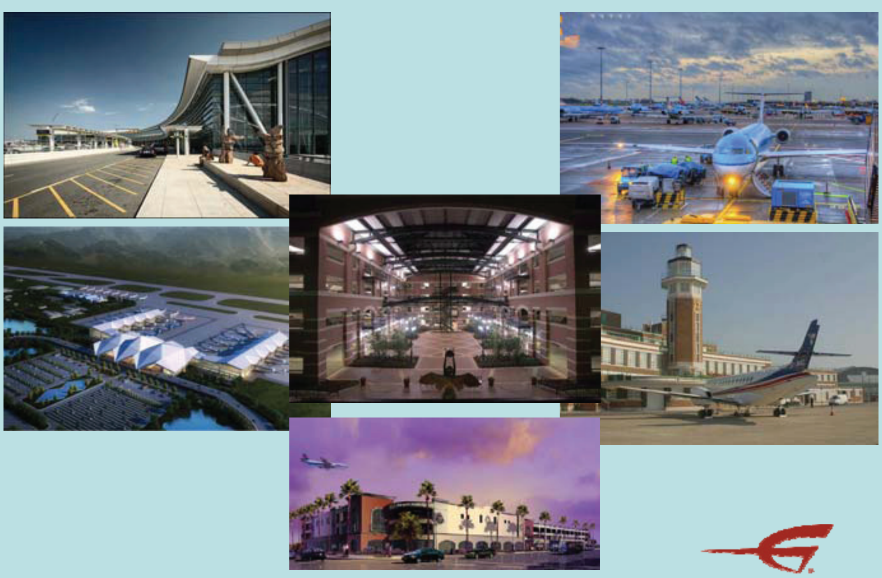
Concept Refinement

Aeronautical Development Types

(Terminal, Apron, Parking, etc.)



Northeast Area Development Plan

PhxMesa Gateway Airport


Concept Refinement
Aeronautical Development Types
(Cargo, Maintenance, Fuel, etc.)
Northeast Area Development Plan
PhxMesa Gateway Airport


Concept Refinement
Commercial Development Types
(Retail, Hotel, Entertainment, etc.)
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Concept Refinement

Commercial Development Types
(Office and Employment)

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Concept Refinement

Open Area Development Types
(Green Space and Water Retention)

Northeast Area Development Plan

PhxMesa Gateway Airport

Concept Refinement

Preferred Schemes / Common Elements

- Compatible with FAA design standards for ARC D-V
- Meets height restrictions for FAR Part 77 surfaces
- Supports development of efficient airline operational areas
- Terminal area, parking and rental car areas support 10 MAP
- Passenger automobile parking proximate the terminal building
- Incrementally expandable development areas
- Proposed vehicular network accommodates projected traffic levels
- Logical & efficient access to freeway system (Loop 202 / SR-802)
- Accommodates new Ray Road & Hawes Road alignments
- Multi-use (Pedestrian or Bike) trail network easily incorporated
- Transit Oriented Development (TOD) easily incorporated
- Utilities network expandable to support full development area

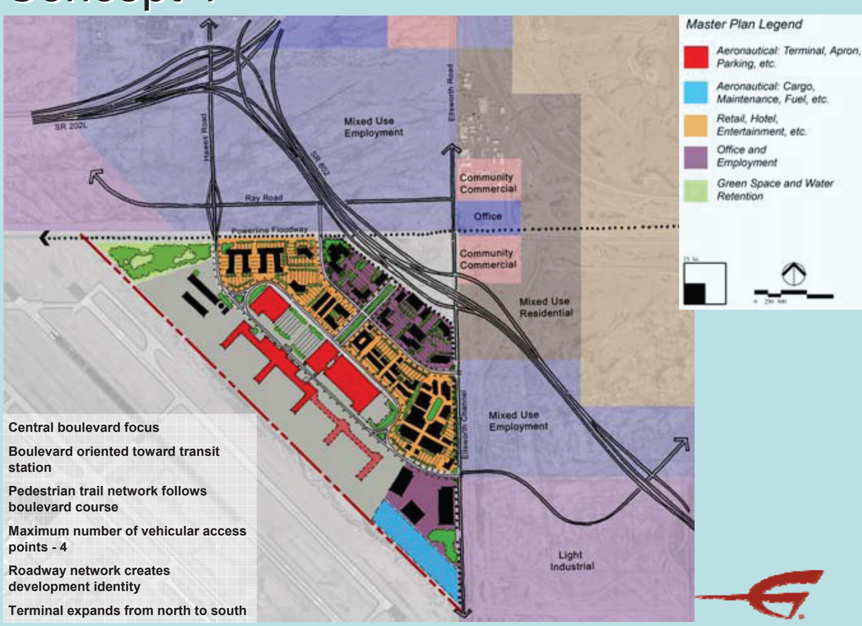
- Land Use inconsistent with current City of Mesa Land Use Plan

Northeast Area Development Plan

PhxMesa Gateway Airport

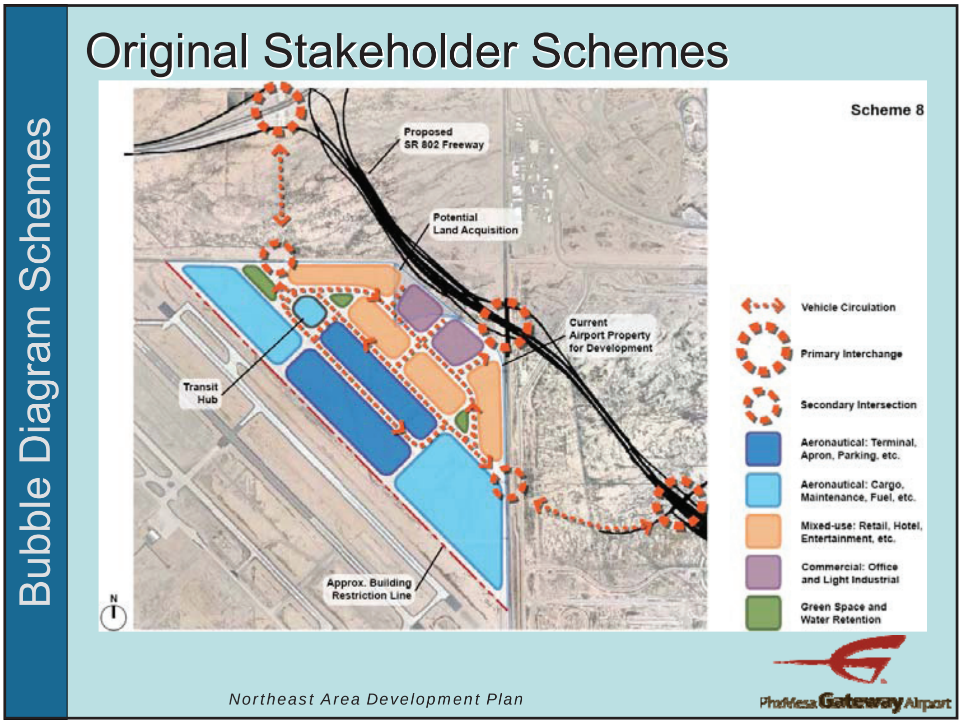
Concept Refinement

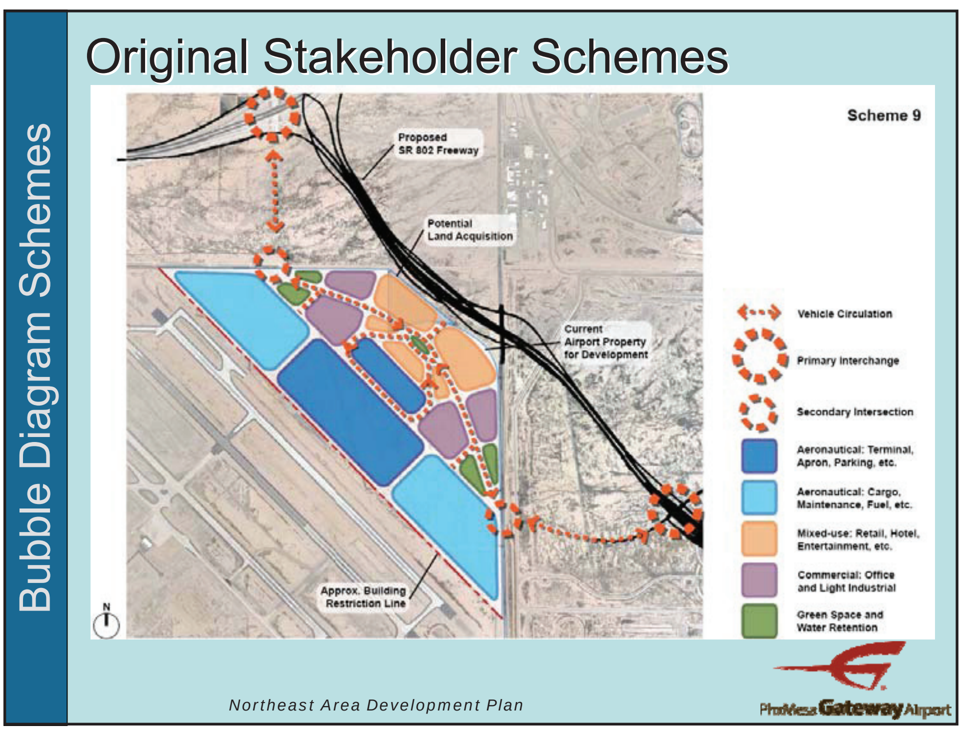
Concept 1



Northeast Area Development Plan

PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 8
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Transit Hub
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport


Bubble Diagram Schemes
Original Stakeholder Schemes
Scheme 9
Proposed SR 802 Freeway
Potential Land Acquisition
Current Airport Property for Development
Approx. Building Restriction Line
N
Vehicle Circulation
Primary Interchange
Secondary Intersection
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Mixed-use: Retail, Hotel, Entertainment, etc.
Commercial: Office and Light Industrial
Green Space and Water Retention
Northeast Area Development Plan
PhxMesa Gateway Airport

Concept Refinement

PhxMesa Gateway Airport

GROUP INTERACTION
&
COMMENTS

Northeast Area Development Plan

PhxMesa Gateway Airport

Summary / Next Steps

- Incorporate Feedback Received To-Date
  – City of Mesa, PMGA Authority, Stakeholder group
- Prepare a Single Preferred Concept
- Establish Level 2 Analysis (iterative)
  – Parcel Sizing & Defined Densities of Development
  – On & Off-Airport Transportation Demand Modeling
  – Economic Development Modeling
  – Implementation Program (Costs, Phasing & Funding)
  – Financial Feasibility
- Final Refinement of Preferred Concept
- Prepare Draft Technical Report
- Stakeholder Meeting – Early October

Northeast Area Development Plan

PhxMesa Gateway Airport

MEETING MINUTES

TO:	Distribution	**DATE:**	Tuesday, June 22, 2010
FROM:	Michael Floyd, Sandy Kukla, Keith O'Connor		
SUBJECT:	Concept Refinement Meeting June 15, 2010	**PROJECT NO:**	W7X87800

At 1:00pm, on Tuesday, June 15, 2010 the 3rd in a series of four stakeholder meetings was conducted for the Northeast Area Development Plan Study. Approximately 35 representatives were in attendance. The Jacobs consultant team providing presentations included Michael Floyd, Dr. John Kasarda (University of North Carolina – Kenan Institute), Danny Court (Elliott D. Pollack & Company), Rick Leisner and Mark Wavering.

Michael Floyd, with Jacobs, led off by introducing the team, including new participants, and then outlining the agenda for the meeting. The meeting objectives were outlined prior to presenting a summary of the original bubble diagram schemes developed by the stakeholders in Meeting #2. There were nine schemes originally developed, three coming from each of the three breakout groups. Schemes 1 through 9 were portrayed with a standardized format, legend, color scheme, and access hierarchy. The following provides highlights of the schemes:

- Of Schemes 1, 2 & 3, originating from Group 1, Schemes 3 was noted as being a unique concept when compared to the others, wherein it represented opportunities for a pier arrangement, only deployed on a radial around a loop road system; access to the terminal area was limited to east (Williams Field Road) and could not be achieved to the north (Hawes Road)
- Schemes 4, 5 & 6 came from Group 2; Scheme 4 provides a Hotel concept at the center flanked by green space, with parking oriented on the perimeter; Scheme 6 articulated more access points, which is largely viewed as a positive by the Team
- Schemes 7, 8 & 9 came from Group 3; Scheme 7 although providing adequate access both east and west, isolating traffic and office land uses to core of the airport, thereby mixing traffic from commercial and airport uses, resulting is problematic flows and capacities; Scheme 8 provides for a centralized circulation pattern; while Scheme 9, another unique concept in terms of land use, provided good access to/from the freeway along with a central focal point for all on-airport circulation, which in concept looks intriguing, but would present significant traffic flow issues.

Goal areas were reviewed from the initial stakeholder kick-off meeting. Jacobs repackaged the vision and goal statements into four key areas: Aviation / Airport Related, Infrastructure (Transportation/Utilities), Economic Development, and Lifestyle Oriented. It was noted that these vision and goal statements were incorporated into the bubble diagram screening process to aid in identifying the top schemes for further refinement. Key screening factors used for evaluating each of the nine schemes included:

- Safety & Standards
- Operational
- Capacity

- Functionality/Flexibility
- Economic Development

For each of the major categories and sub elements considered, a point system of 1-5 was utilized, with 5 being ideal and 1 being the worst. As a result of the consultant evaluations, the screening results revealed that Schemes 1, 6, and 8 were determined to be superior in overall layout, function, and ability to achieve the vision/goals. Moving forward, Schemes 1, 6, and 8 were renamed to Concept 1, 3 and 2, respectively.

Next, the group was provided a presentation by Dr. John Kasarda. Highlights from his presentation are as follows:

- Transportation Infrastructure based development represents “The Fifth Wave”
  - ✓ Fifth Wave Drivers: Globalization, Speed, Agility, Connectivity, Tourism
- Infrastructure decisions should not be based on cycles, rather long range trends.
- Global air cargo could triple from 2009 to 2029.
  - ✓ This airport could grow if infrastructure is provided here.
  - ✓ Example of Dell computer – parts coming by air mostly from all over the globe, only keyboards arrive via truck.
- Airport City: much more than simply aviation infrastructure
  - ✓ Generator of employment
  - ✓ Multi-modal hub
  - ✓ Airside : shopping, upscale boutique, restaurants (higher end), leisure (spas, cinema, fitness), cultural (regional art, music, chapel)
  - ✓ Landside: Hotels and entertainment, office, etc., Free Trade Zone (FTZ) areas
  - ✓ Business Impact: non-aeronautical. (How do you generate revenues to continue to grow.) Many airports now achieve greater % of revenues from non-aeronautical.
- Chief reasons why being near an airport is critical to businesses:
  - ✓ Accessibility
  - ✓ Speed
  - ✓ Agility
- Aerotropolis: Gateway has an opportunity with DMB locating as an Airport “Edge City”
- Basic Airport City & Aerotropolis Schematic
  - ✓ Ring Road, Expressways, Office corridors, Airport edge city, convention, hotel/entertainment corridors, technology corridor
  - ✓ Separation of white collar and blue collar functions; avoid mixing the two, so keep clear separation
  - ✓ Commuter rail
- Inside the Fence / Outside the Fence examples
  - ✓ Amsterdam Schiphol Airport City – Aerotropolis Synergies
  - ✓ Theming (Branding) highlighted in the Memphis airport
  - ✓ HKIA Sky City Master Plan –development timed to the market; including areas of land banking; connectivity is key
  - ✓ Dulles Aerotropolis – defined access corridors
  - ✓ Fastest growing (driven by airport) – Las Vegas, San Bernardino, Dallas-Fort Worth

- Key points
  - ✓ Airports are destinations - within 15 miles of airport
  - ✓ Investors and developers select strategic sites near airport
  - ✓ Airport management can foster further commercial development on airport property to reinforce revenue streams
  - ✓ Mesa's public / private sector leaders can design a Phoenix-Mesa Gateway Aerotropolis
  - ✓ Need new model of airport, urban, business planning brought together
  - ✓ Close working relationship of Gateway airport, member governments and community
- Whether it is planned or not…..there will be an aerotropolis in Mesa; the question is will it be planned (organized, sustainable, grow intelligently) or spontaneous
- Challenges
  - ✓ Learn from past aerotropolis experiences
  - ✓ Prepare infrastructure plan , business plan, action plan guidelines
  - ✓ Make PMGA sustainable
- Attitude toward airport – nuisance or asset. Typically viewed as nuisance because usually not well planned. In Asia, airports are viewed as means to compete in the 21st century
- Planning assets: AZA potential and rapid area growth
- Key example: Mesa Proving grounds
  - ✓ 5,000 acres adjacent to airport
  - ✓ Future Gateway Freeway corridor
  - ✓ Sell a lifestyle (trendsetting and architecturally distinctive bldg; social interaction; open space; green and sustainability – green may cost about 10% more, but there are other benefits such as political; and residential units attractive to young professionals as well as night life)
  - ✓ Final conclusions: Airport and proving grounds can anchor a 21st century Aerotropolis; airport management together with member governments and the development community have a chance to do something remarkable; and today's meeting with Jacobs is important

Next, the group was provided a presentation by Danny Court from Elliot Pollack. Highlights from his presentation are as follows:

- Currently the area is overbuilt
- Elliott Pollack employed 3 approaches to Data Collection
- Airport employment examples: John Wayne Airport; Ontario; San Bernardino (noted higher concentration of employment at the airport zip code vs. surrounding city and county)
- Dallas Ft. Worth Airport – noted retail/entertainment use dedicated area; tremendous amount of airport land for commerce parks, and hospitality/entertainment; an extension of the development already happening in the area; Gaylord, Service Hotels, Freeway system, Golf course, retail mall; goal was to maximize the revenue; blend with current off-airport development (generates higher revenue than industrial); and No opportunity cost to plan for mixed-use. No loss to other industrial areas.
- Economic Development

- National Economic Incentives Environment – AZ is not competitive where TX OK KS, ME IA, MO AR LA MS AL GA, FL, KY, IN, IL are highly competitive in attracting business
- Labor intensive companies tend to prefer states w/ low-cost, skilled labor
- Capital Intensive Companies: prefer lower property tax
- Can AZ compete? Or can a smaller entity like Gateway be successful – difficult since AZ does not have incentives and inducement. But there may be potential for local incentives, such as land banking, industrial park support, infrastructure costs.
- Issues: risks in the short to medium term, industrial is viewed as less risky, moderate risk is office and most risky is retail entertainment; flexibility; retail on periphery; office requires very easy access to make it desirable – transportation is critical for success of office, hotel and retail/entertainment; hotels are common but would likely require convention space nearby; remain flexible with select industrial uses
- Finances
  - ✓ To what extent does the airport need the private sector to cover improvement costs.
  - ✓ Time value of money
  - ✓ Develop plan

Michael Floyd then led into the final segment of the meeting, focusing on the refinement of Concepts 1-3. Image boards were presented for various development types based on each land use category to be shown on the concept plans – these are designed in the legend and in the upper right corner by colored square. The uses represented on the concepts include:

- Aeronautical - Terminal, apron, parking, etc.
- Aeronautical - Cargo, Maintenance, Fuel
- Commercial Development Types- Retail, Hotel, Entertainment
- Commercial Development Types - Office and Entertainment
- Open Area Development Types – Green Space and Water Retention

Of the three preferred schemes / concepts, Common Elements among each were highlighted. There was internal discussion concerning the demand levels expected for the airport and how this may impact the terminal curbside and levels of the terminal itself. A decision point may be necessary to determine whether the system reflects a single level or multilevel operation on opening day or at some point in the future. The following comments were made:

- Grade separate arrivals and departures – works well with jet bridges on airside. (Floyd)
- The challenge is opening day. Our recommendation is to design and plan for a split level operation for opening day. (Floyd)
- Access from the north off the 202 Loop remains a concern given the anticipated significant traffic volumes. (Floyd)
- Brian Davis, with Allegiant, commented that it is expensive for fuel to come here for their airline (6 cents/gal. more than PHX). With jet bridges and split level operations brings additional costs to the airline and Allegiant may not be interested in being here. Gateway is starting to look a lot like PHX in the plans, so Allegiant may need to consider other options to keep costs low (fuel, lease rates, etc.).

- Morgan Neville, Park Properties, asked why it is required to elevate over canal? Mark Wavering stated we are planning for future of traffic levels. Providing for right of way. Balance of opening-day to future levels. Jacobs will perform access modeling based on the total number of people (aviation and commercially driven).

Large wall exhibits portraying the three concepts were displayed on the wall, each reflecting land use and building layouts, along with vehicular flows, intersections and grade separated roadway sections. Rick Leisner and Mark Wavering explained Concepts 1, 2 and 3. The following discussion ensued:

- Gary King representing Kitchell, asked what the density of sf of buildings, noting that approx. 1.6 - 2 million sf of office space is planned for the Kitchell property. This led into a discussion concerning the intersection of Hawes and Ray Roads and the potential volumes.
- Discussion of private development – Susan Demmitt, with Beus Gilbert, would like to see more private sector interface. The plans should show adjacent development plans – which are currently not shown. Agrees that the four access points to the freeways and surface streets are a positive, and further noted that they have not done trip generation studies themselves. Questioned whether the market can accommodate the DMB development and the airport development in this area? Noted that the City is urging the developer to plan for office buildings up to 10 stories.
- Bike discussion by the group – noted that the bike/pedestrian pathways were mostly for employees of the both the private sector development and airport staff.
- Transit station discussion: Mark Venti. w/City is in favor of transit station.
- Michael Floyd clarified that the beige and purple land uses shown on the Airport property are all thought to be private investments, either as land leases, fee simple sale or other. Also noted that the traffic volumes just for the airport at 10 annual enplanements – equals a minimum of 55,000 passengers per day, average. Parking needs to be re-evaluated based on the 10 annual enplanement level.
- John Kasarda clarified that this airport needs to satisfy both types of airlines – mainline/legacy and low cost. The provision of jet bridges is usually a carrier elective, so may be needed to attract other airlines. Vision and image of airport market demands coordination inside and outside the fence, but cautioned that you can’t completely count on a developer’s plan. Believed that office non-aviation uses usually not successful unless they have adequate access to rail/transit, supplemented by tremendous surface access.
- Doug Drown, with PMGA, stated that he liked Concept 2 with access road to the south. This provides aeronautical area for access by trucks, fuel trucks, etc.
- Morgan Neville, with Park Properties, asked about the blue area to the north in Concept 3 – asked if access would be from main line. Mark clarified there would definitely be other smaller access roads.
- Mark Venti, with City, likes green corridor in Concept 3 – all together prefers this concept. Praised the Transit Oriented Development. Provides a transportation center similar to Tempe.
- Michael Floyd clarified that the concepts are illustrative. There is a tremendous amount of apron area. He also clarified the reasons behind why the concepts are limited to the 700 acres of Airport property, noted that it is driven by the contract / scope of services with Mesa and the Airport. It was pointed out that a number of natural boundaries, properties boundaries, freeways and roadways (802, Ellsworth, Ray and the canals) are all limiting factors to consider.

concepts reflect only a few weeks of work, and that a few more months of planning lie ahead to get the plans in a more final form.

- Kelly Park, with Park Properties, stated that they have been hearing about the elevated roadway plan at Hawes and Ray for some time from the City.
- ADOT representative (Amille) and Steve Wilcox, with AECOM, confirmed that they are under design of the 202/802 interface. Amille stated that it is absolutely NOT possible to bring an airport exit off 802 near Ellsworth or to immediately southeast, due to physical constraints and safety. Steve Wilcox, stated a lot of local traffic will use the Ellsworth exit off of the 802, particularly the employees, deliveries etc.
- Gary King, with Kitchell, stated that the 3 concepts are all interesting. The big problem is traffic. Noted that already, with the development that they are aware of, the volumes approach 50,000 vehicles/day on Hawes Road; this excludes the Airport.
- Casey Denney, with PMGA, asked what the Hawes/Ray intersection looks like when it is elevated. Mark Wavering indicated that further study is needed, but it may be 2 lanes in and 2 lanes out, 3 and 3 on each end.
- Susan Demmitt asked how far this study will go as far as analyzing Hawes Road. Mark Wavering stated it is to establish right-of-way. Susan asked is there a difference between traffic coming into the airport versus departing and a particular need to have the flows be direct/quick. Michael Floyd stated there could be creative ways to exit the airport that provided for more flexibility.
- Brian Davis stated that today's traveler is approx. 70% incoming people (non-locals).
- Scot Rigby, with the City, asked John Kasarda his ideas concerning how the City/Airport area can evolve? How do you keep the area moving forward but not hamstring the overall plan? John Kasarda stated this is dependent on the private investment community and the timing of necessary infrastructure. There are other ways to fund through other financial instruments, such as a Public-Private Partnership (PPP). The Airport could share the risk but also share the upside of successful developments. He encouraged the private sector to put money into the area, noting that international companies want to own land. The chief asset for PMGA is location, while the market will determine the density of structures. Preferred alternative needs to be flexible.

To wrap up the meeting, Michael Floyd provided a summary of Next Steps, and assured all in attendance that the presentation, full size exhibits and minutes will be posted to the FTP site. The next stakeholder meeting will be scheduled in the 1st week of October 2010.

<u>Distribution:</u>

City of Mesa staff
PMGA staff
Jacobs consultant team
Stakeholder list

Surface Infrastructure (Transportation/Utilities)

- Balanced travel routes focused on primary services, for: internal trips, through travel, specific trips to the Airport, and amenities
- Easy access w/ multiple layers of transportation access & modes
- Multi-modal system establishment, that is pedestrian and bicycle friendly
- Penetrate SR 802 corridor (no negative impacts on regional freeway system)
- Ray / Ellsworth area employment center connections to the Airport
- Adequately serve surrounding private properties
- Easy / clear / communicative wayfinding & Branding
- Prioritized plan for infrastructure
- Long-range utility planning

Economic Development

- Proactive economic development efforts to maximize opportunities – both Airport & private
- Boundary-less growth that is flexible between airport / community
- Quality, well-rounded destination development with convention facilities, hotels, multi-story offices, national attractions, industry
- Urban center - Airport oriented employment villages that are pedestrian oriented
- Premier / diverse job center for east valley with high wage strategy
- High visibility w/ provisions for branding, special features & markers, corporate amenities
- Sustainable concepts built into development (energy, e.g. Biofuel, solar)
- Industry leading site design & construction techniques encouraged for new development
- Discourages residential development in proximity to the Airport

Aviation / Airport Related

- Support and advance the vision for the Airport
- Preserve the ultimate Airport capacity
- Appropriate non-aeronautical land uses that embrace aviation growth goals
- Keep diverse travel profile in mind - leisure primary & business secondary
- Integrated parking solutions that maximize revenue and accommodate peak periods
- Sound implementation plan supporting staged growth
- Pursue myriad funding sources, including Public/Private Partnership (PPP)

Lifestyle Oriented

- Clear, strong identity – a positive Sense of Place & Community
- Stress free, comfortable, non-intimidating, fun place to come
- Livable community that is a vibrant, active hub of activity
- Development that places value on green space and water features
- Ensure that collaboration between communities & Airport continues
- Remain cognizant of aviation noise impacts on community
- ASU plans integrated into region and business development plan

Meeting 4 Notes

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Kaye	Bockmann	Salt River Project			
Roland	Reed	Salt River Project			
Bob	Maldonado	Salt River Project	602.236.8066	602.236.8632	RAMaldon@srpnet.com
Bob	Roessel	Salt River Project	602.236.8648		bob.roessel@srpnet.com
Bob	Trzepkowski	Salt River Project	602.236.8173		bob.trzepkowski@srpnet.com
Gene	Florez	Southwest Gas	480.730.3841		gene.florez@swgas.com
John	Kasarda	University of North Carolina, Kenan Center	919.962.8201		john_kasarda@unc.edu
Scott	Somers	City of Mesa, Councilman - District 6			
Mike	Sutton				msutton@brelusphoenix.com
Tim	Olive	MCDOT	602.506.7999		TimOlive@mail.maricopa.gov
Mike	Sabatini	MCDOT	602-506-8628		mikesabatini@mail.maricopa.gov
Norma	Hernandez	Town of QC	480.358.3142		norma.hernandez@queencreek.org
Dan	Frank	Dibble	602 957-1155		dan.frank@dibblecorp.com

LAWRENCE.KIESER@MESAAZ.GOV
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PhxMesa Gateway Airport

Northeast Area Development Plan
Stakeholder Meeting #4
Preferred Concept

January 25, 2011

Agenda

- Opening Remarks
- Concept Refinement Review
- Roadway Modeling / Analysis
- Preferred On-Airport Concept
- Project Phasing & Costs
- Funding Eligibility
- Next Steps

Opening Remarks

Meeting Objectives

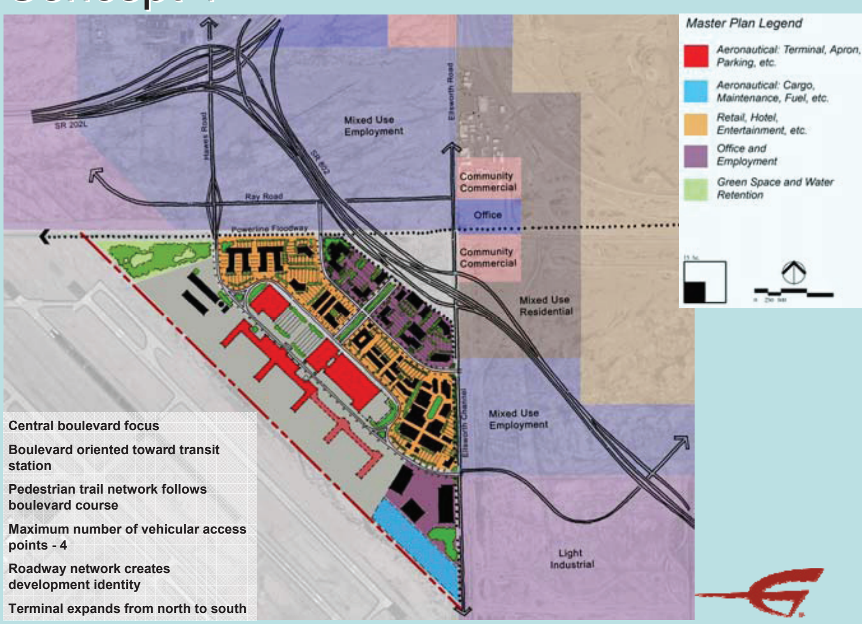
- Review previous “illustrative” concepts & their common attributes
- Review Land Use Types for project development
- Review advanced preferred concept
  - Aeronautical functions
  - Non-aeronautical commercial uses
  - Surface Access network & analysis
- Outline 20-yr and ultimate phasing plans along with supporting cost estimates by type & phase
- Early description of funding source applicability

Northeast Area Development Plan

PhxMesa Gateway Airport

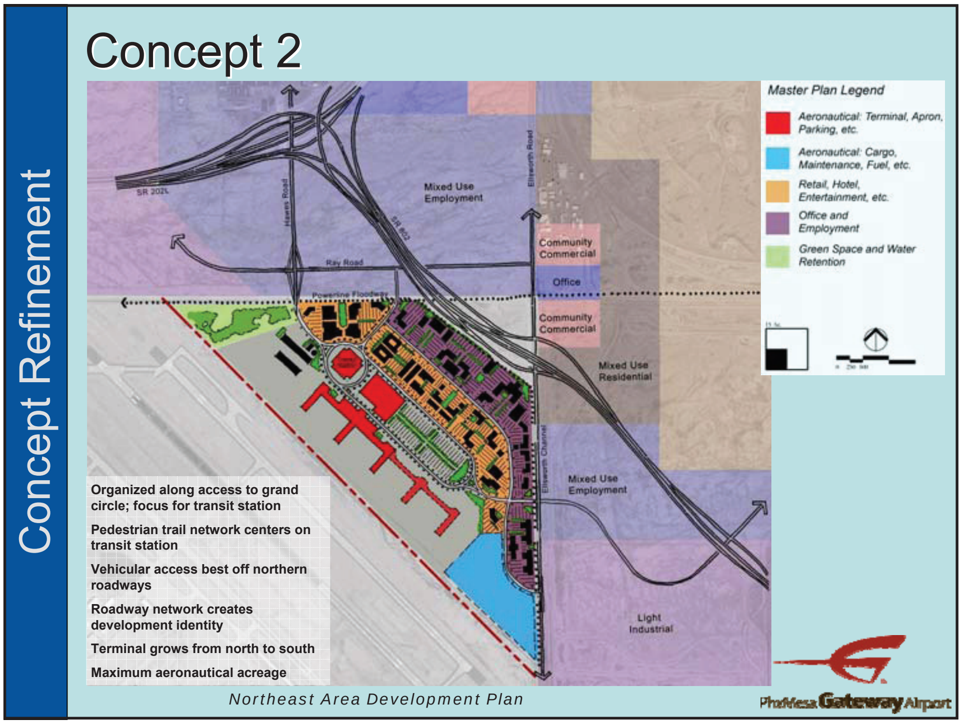
Concept Refinement

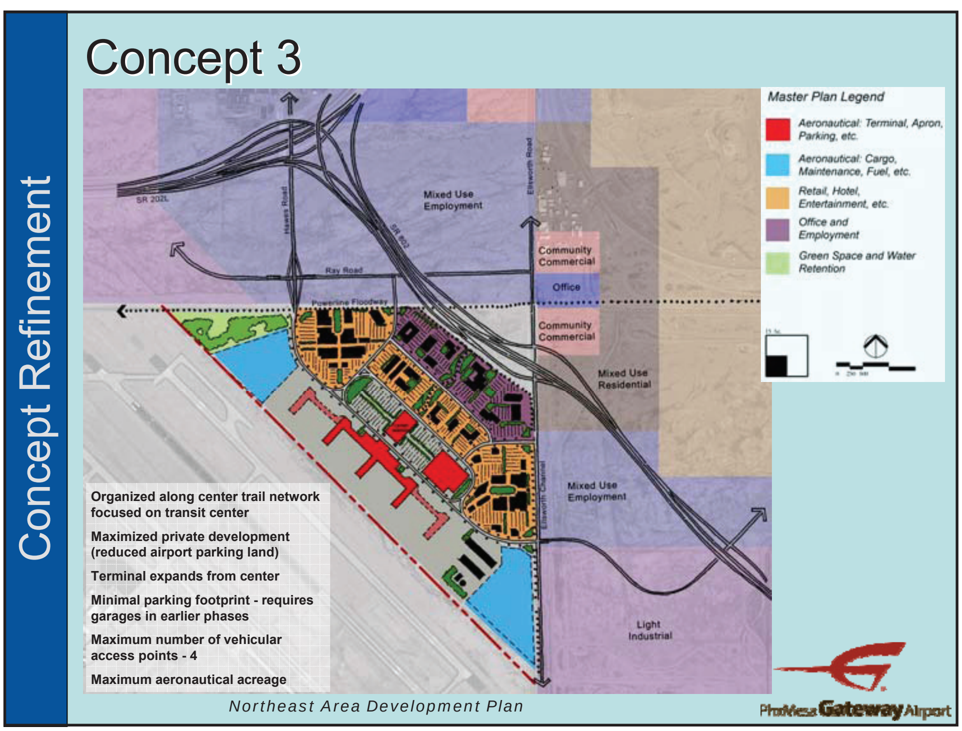
Concept 1



Northeast Area Development Plan

PhxMesa Gateway Airport


Concept Refinement
Concept 2
Master Plan Legend
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Retail, Hotel, Entertainment, etc.
Office and Employment
Green Space and Water Retention
Mixed Use Employment
Community Commercial
Office
Community Commercial
Mixed Use Residential
Mixed Use Employment
Light Industrial
SR 202L
Hawes Road
Ray Road
Ellsworth Road
Powerline Floodway
Organized along access to grand circle; focus for transit station
Pedestrian trail network centers on transit station
Vehicular access best off northern roadways
Roadway network creates development identity
Terminal grows from north to south
Maximum aeronautical acreage
Northeast Area Development Plan
PhxMesa Gateway Airport


Concept Refinement
Concept 3
Master Plan Legend
Aeronautical: Terminal, Apron, Parking, etc.
Aeronautical: Cargo, Maintenance, Fuel, etc.
Retail, Hotel, Entertainment, etc.
Office and Employment
Green Space and Water Retention
Mixed Use Employment
Community Commercial
Office
Community Commercial
Mixed Use Residential
Mixed Use Employment
Light Industrial
SR 202L
Hawes Road
Ray Road
Ellsworth Road
Powerline Floodway
Organized along center trail network focused on transit center
Maximized private development (reduced airport parking land)
Terminal expands from center
Minimal parking footprint - requires garages in earlier phases
Maximum number of vehicular access points - 4
Maximum aeronautical acreage
Northeast Area Development Plan
PhxMesa Gateway Airport

Concept Refinement

Preferred Schemes / Common Elements

- Compatible with FAA design standards for ARC D-V
- Meets height restrictions for FAR Part 77 surfaces
- Supports development of efficient airline operational areas
- Terminal area, parking and rental car areas support 10 MAEP
- Passenger automobile parking proximate the terminal building
- Incrementally expandable development areas
- Proposed vehicular network accommodates projected traffic levels
- Logical & efficient access to freeway system (Loop 202 / SR-24)
- Accommodates new Ray Road & Hawes Road alignments
- Multi-use (Pedestrian or Bike) trail network easily incorporated
- Transit Oriented Development (TOD) easily incorporated
- Utilities network expandable to support full development area

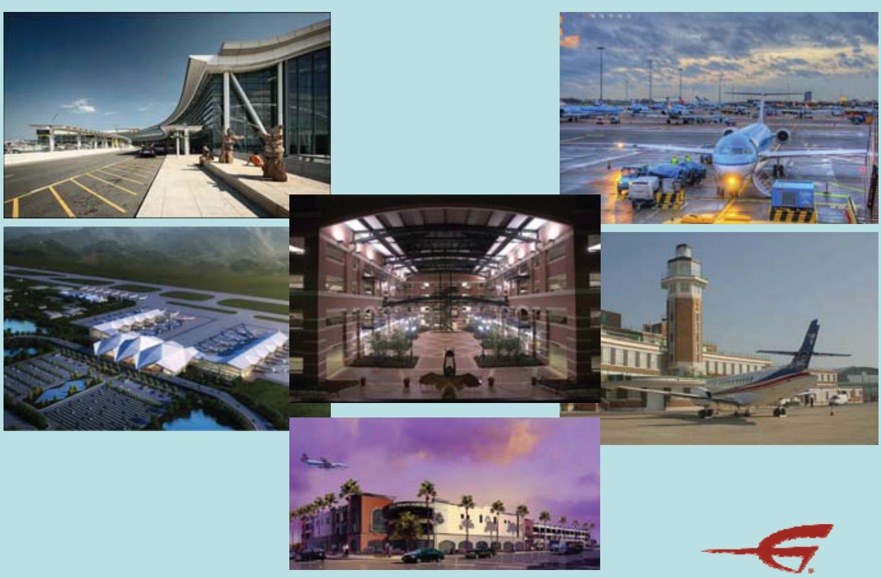
Northeast Area Development Plan

PhxMesa Gateway Airport

Concept Refinement

Aeronautical Development Types

(Terminal, Apron, Parking, etc.)



Northeast Area Development Plan

PhxMesa Gateway Airport


Concept Refinement
Aeronautical Development Types
(Cargo, Maintenance, Fuel, etc.)
Northeast Area Development Plan
PhxMesa Gateway Airport


Concept Refinement
Commercial Development Types
(Retail, Hotel, Entertainment, etc.)
Northeast Area Development Plan
PhxMesa Gateway Airport

Concept Refinement

Commercial Development Types
(Office and Employment)

Northeast Area Development Plan

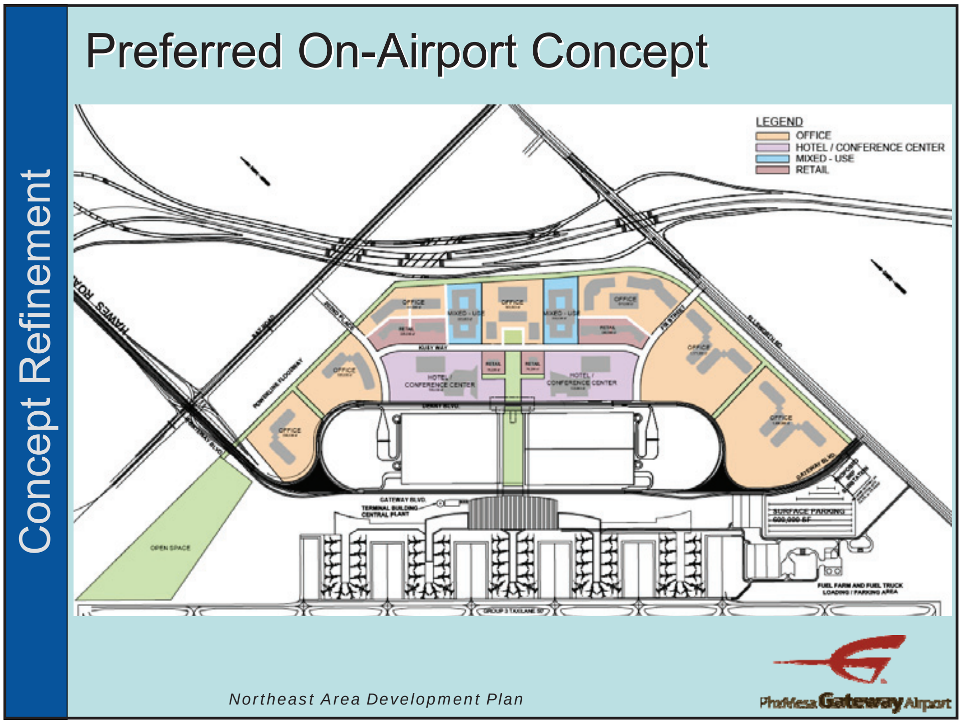
PhxMesa Gateway Airport

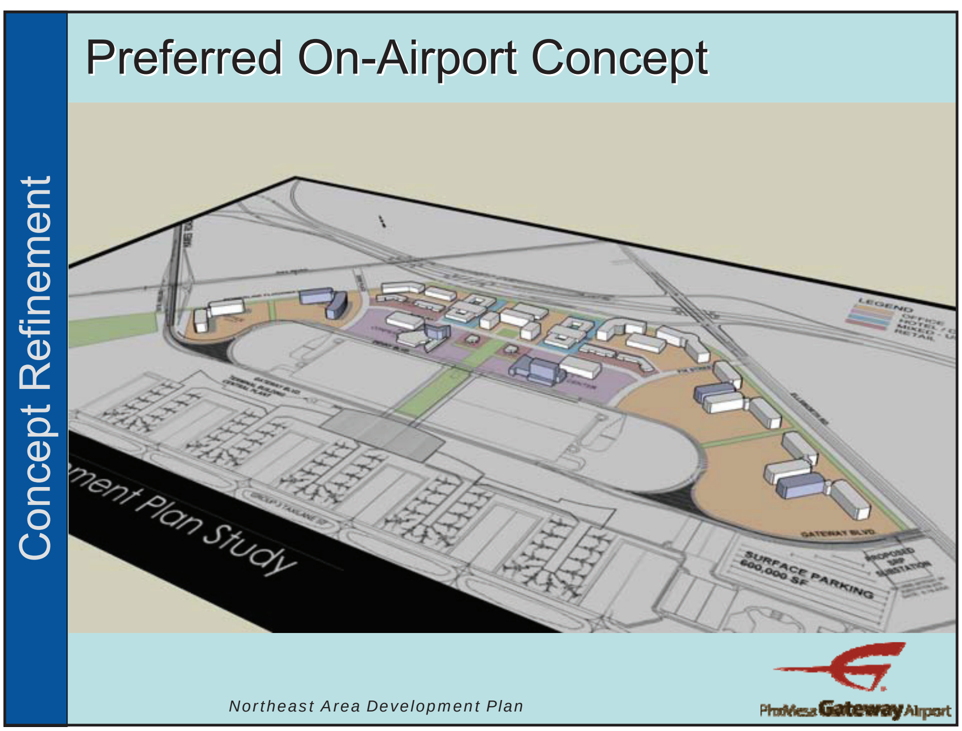
Concept Refinement

Open Area Development Types
(Green Space and Water Retention)

Northeast Area Development Plan

PhxMesa Gateway Airport


Concept Refinement
Preferred On-Airport Concept
LEGEND
OFFICE
HOTEL / CONFERENCE CENTER
MIXED - USE
RETAIL
OFFICE
MIXED - USE
HOTEL / CONFERENCE CENTER
OPEN SPACE
SURFACE PARKING
600,000 SF
FUEL FARM AND FUEL TRUCK LOADING / PARKING AREA
Northeast Area Development Plan
PhxMesa Gateway Airport


Concept Refinement
Preferred On-Airport Concept
ment Plan Study
SURFACE PARKING
600,000 SF
GATEWAY BLVD
Northeast Area Development Plan
PhxMesa Gateway Airport

Roadway Modeling / Analysis

Traffic Forecasting

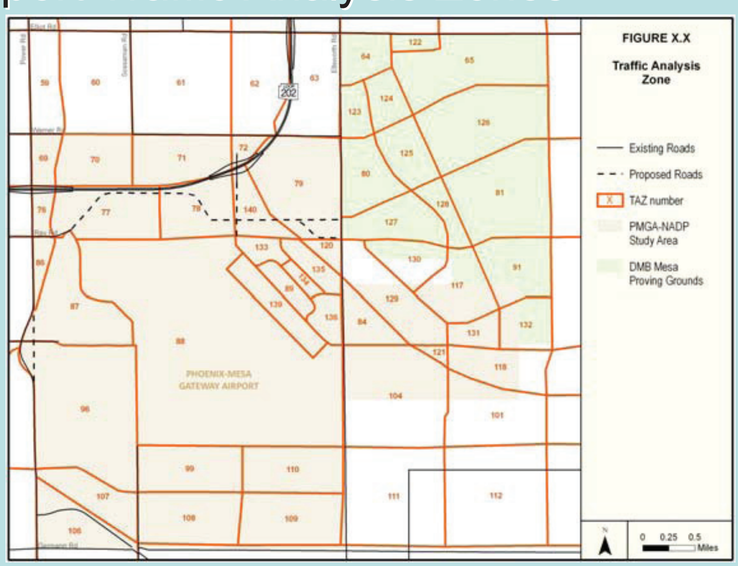
- Used, as base, the travel demand model from the *Mesa Gateway Strategic Development Plan*
- Includes the *Mesa Proving Grounds Master Transportation Plan* land use data
- Includes the latest development plans data for the commercial area along Hawes Road between Ray Road and L 202
- Two enplanement scenarios: 5 and 10 MAEP corresponding to the years 2030 and 2050 for modeling purposes

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Airport Traffic Analysis Zones



Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Socioeconomic Data

2030 Employment

	Employees			
TAZ	Retail	Office	Hotel	Mixed Use
78	6	1,472	288	0
89	0	0		0
133	0	2,272		0
134	76	0	300	0
135	244	3,133		1,320
136	0	5,142		0
140	138	1,658	156	0

2050 Employment

	Employees			
TAZ	Retail	Office	Hotel	Mixed Use
78	6	1,472	288	0
89	0	0		0
133	0	2,272		0
134	152	0	600	0
135	484	3,133		1,320
136	0	5,142		0
140	138	1,658	156	0

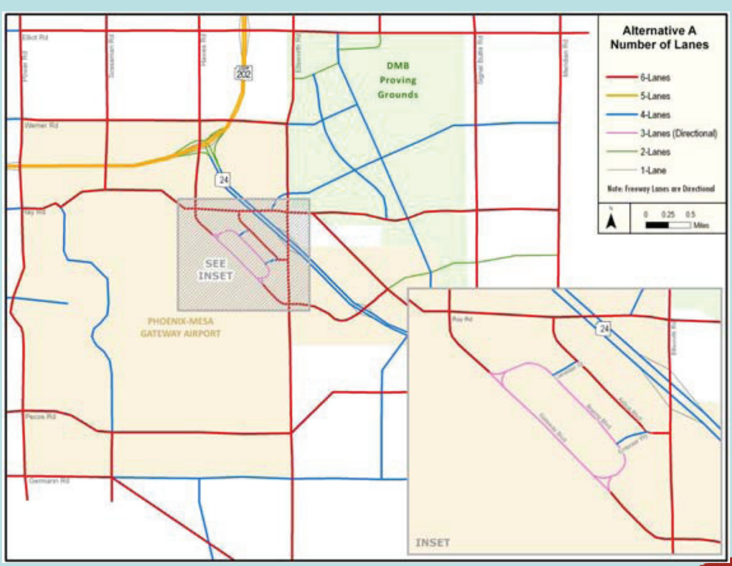
- The airport is a special generator with approximately 17,000 daily trips in 2030 and 32,000 daily trips in 2050

Northeast Area Development Plan

PhxMesa Gateway Airport

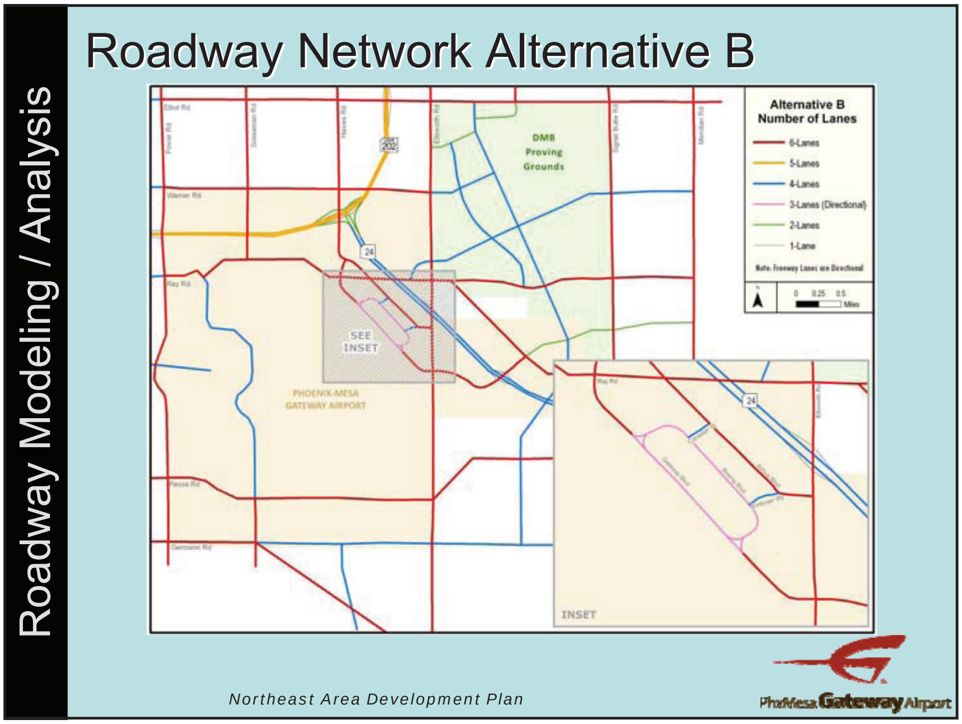
Roadway Modeling / Analysis

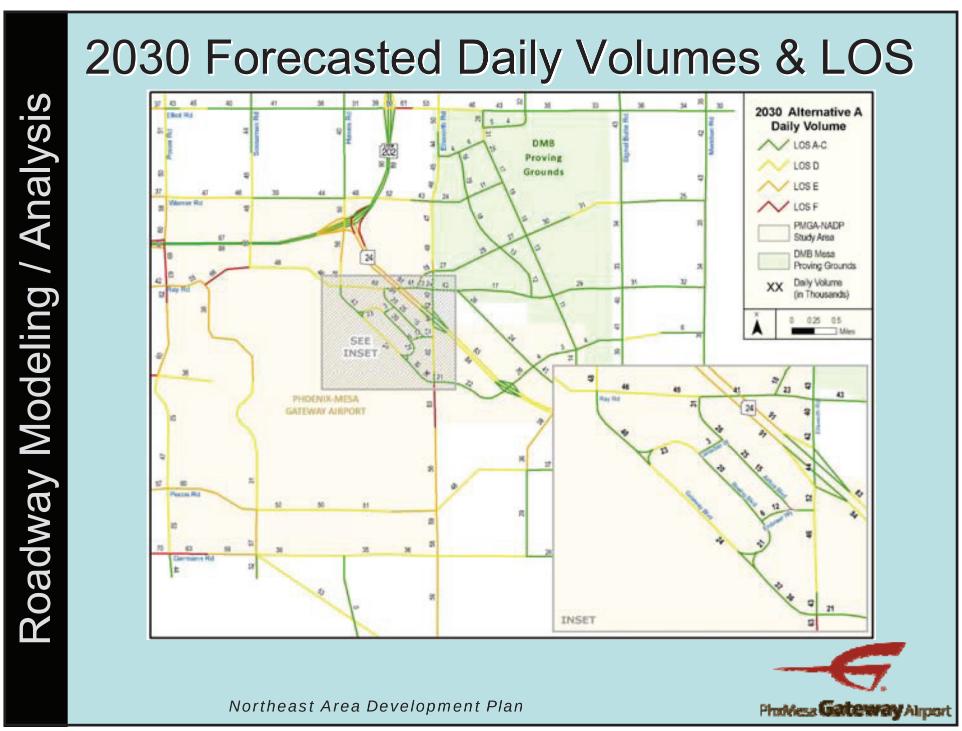
Roadway Network Alternative A

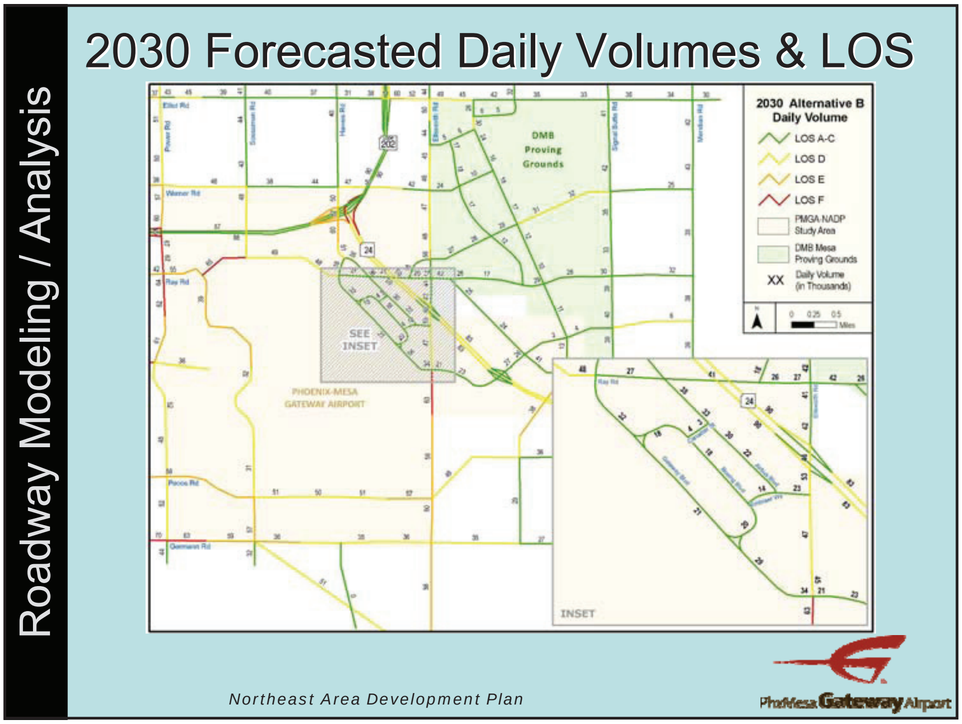


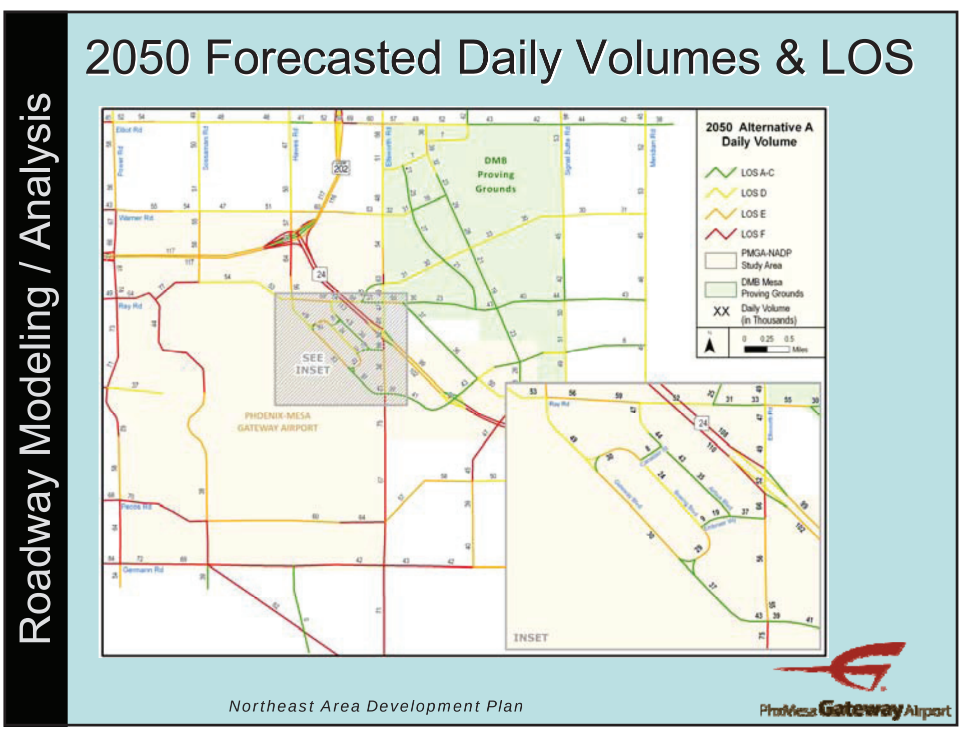
Northeast Area Development Plan

PhxMesa Gateway Airport


Roadway Modeling / Analysis
Roadway Network Alternative B
Alternative B
Number of Lanes
6-Lanes
5-Lanes
4-Lanes
3-Lanes (Directional)
2-Lanes
1-Lane
Note: Freeway Lanes are Directional
DMB Proving Grounds
SEE INSET
PHOENIX-MESA GATEWAY AIRPORT
INSET
Northeast Area Development Plan
PhxMesa Gateway Airport


Roadway Modeling / Analysis
2030 Forecasted Daily Volumes & LOS
2030 Alternative A
Daily Volume
LOS A-C
LOS D
LOS E
LOS F
PMGA-NADP Study Area
DMB Mesa Proving Grounds
XX Daily Volume (in Thousands)
DMB Proving Grounds
SEE INSET
PHOENIX-MESA GATEWAY AIRPORT
INSET
Northeast Area Development Plan
PhxMesa Gateway Airport


Roadway Modeling / Analysis
2030 Forecasted Daily Volumes & LOS
2030 Alternative B
Daily Volume
LOS A-C
LOS D
LOS E
LOS F
PMGA-NADP
Study Area
DMB Mesa
Proving Grounds
XX Daily Volume
(in Thousands)
DMB
Proving
Grounds
SEE
INSET
PHOENIX-MESA
GATEWAY AIRPORT
INSET
Northeast Area Development Plan
PhxMesa Gateway Airport


Roadway Modeling / Analysis
2050 Forecasted Daily Volumes & LOS
2050 Alternative A
Daily Volume
LOS A-C
LOS D
LOS E
LOS F
PMGA-NADP
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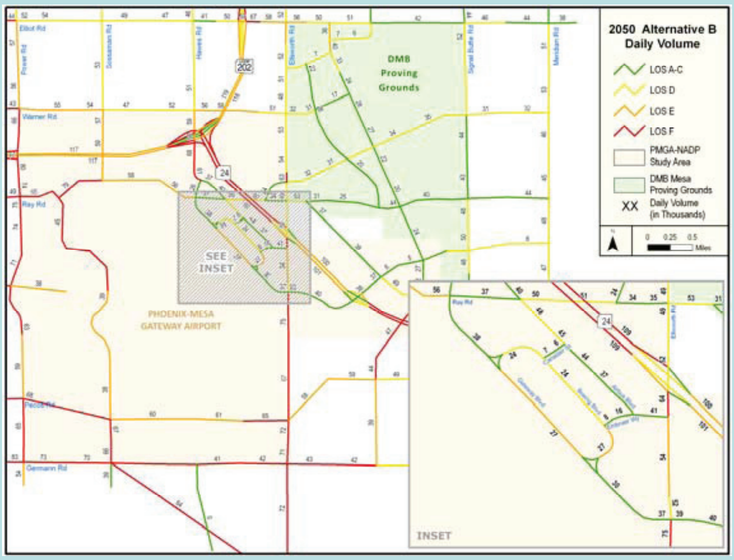
Proving Grounds
XX Daily Volume
(in Thousands)
DMB
Proving
Grounds
SEE
INSET
PHOENIX-MESA
GATEWAY AIRPORT
INSET
Northeast Area Development Plan
PhxMesa Gateway Airport

Roadway Modeling / Analysis

2050 Forecasted Daily Volumes & LOS



Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Traffic Forecasting Findings

- **2030**
  - Ray Road, Ellsworth Road, Pecos Road, and Sossaman Road perform mainly at LOS D and E for Alternatives A & B
  - Hawes Road is LOS D and E north of Ray Road for Alternatives A & B
  - All facilities on airport property function at LOS A-C with the exception of Gateway Boulevard in front of the new proposed terminal in Alternative A, which shows LOS D
  - SR 24 performs at LOS D and E in the study area
- **2050**
  - Ray Road, Ellsworth Road, Pecos Road, and Sossaman Road perform mainly at LOS E and F for Alternatives A & B
  - Hawes Road is LOS F north of Ray Road for Alternatives A & B
  - Most facilities on airport property function at LOS A-C with the exception of Gateway Boulevard loop, which displays LOS D and E, and a portion of Airbus Boulevard in Alternative B which operated at LOS D
  - SR 24 performs at LOS E and F in the study area

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Roadway Network - Operations Analysis

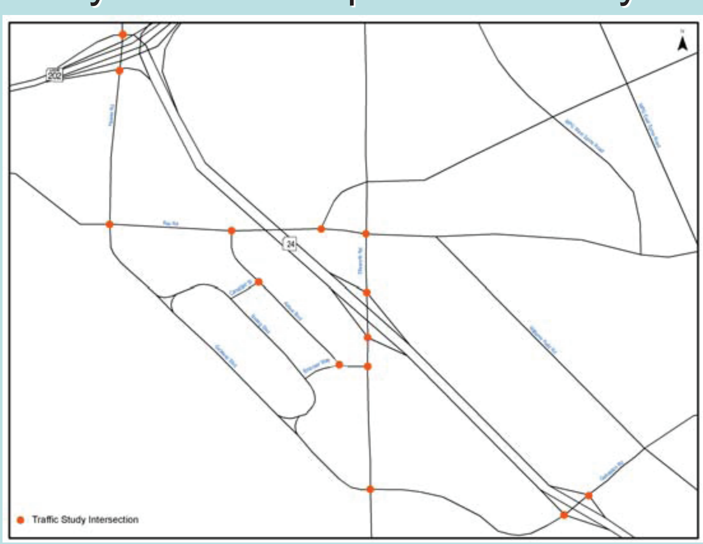
- Roadway network operations were modeled for year 2030 and 2050
  - 2030 and 2050 Peak Hour
  - VISSIM Micro-simulation
- Alternatives analysis
  - Alternative A: Hawes Road aligned w/Gateway Boulevard
  - Alternative B: Hawes Road aligned w/Airbus Boulevard

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Roadway Network - Operations Analysis



Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Roadway Network - Operations Analysis

- 2030 operations
  - Alternative A
  - Alternative B
- All intersections estimated to operate at LOS "D" or better

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Roadway Network - Operations Analysis

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Roadway Network - Operations Analysis

- 2050 Operations
  - Alternative A
  - Alternative B
- All intersections estimated to operate at LOS "D" or better

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Curbside Analysis (on-going)

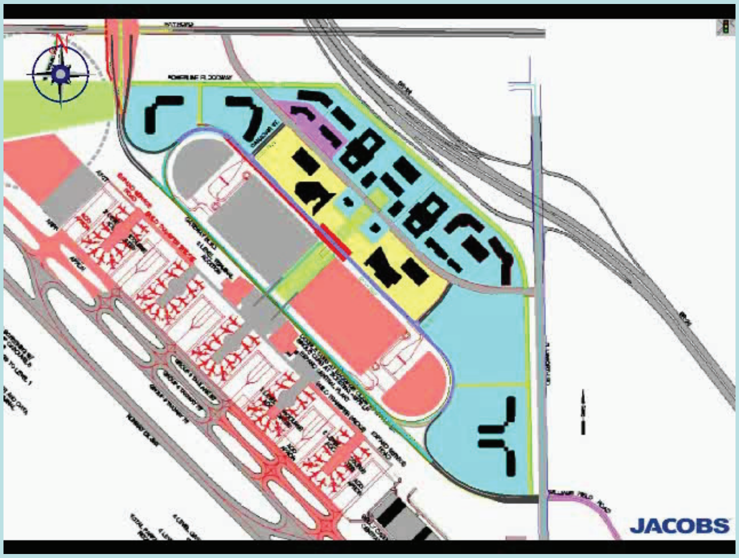
- 2030 conditions and volumes
- 2-Level curbside roadway
  - Departures / Ticketing at upper level
  - Arrivals / Baggage Claim at lower level
- Microscopic Simulation Modeling (VISSIM)
- Work in progress – finalize curbside layout
- Measure of effectiveness will be evaluated to determine curbside roadway requirements

Northeast Area Development Plan

PhxMesa Gateway Airport

Roadway Modeling / Analysis

Curbside Analysis (on-going)

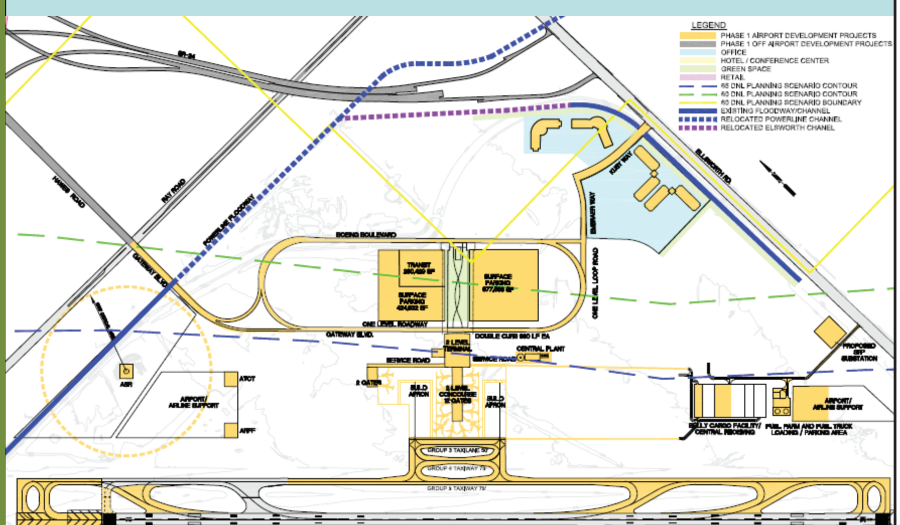


Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Phase I - 1.5 MAEP (5 years)

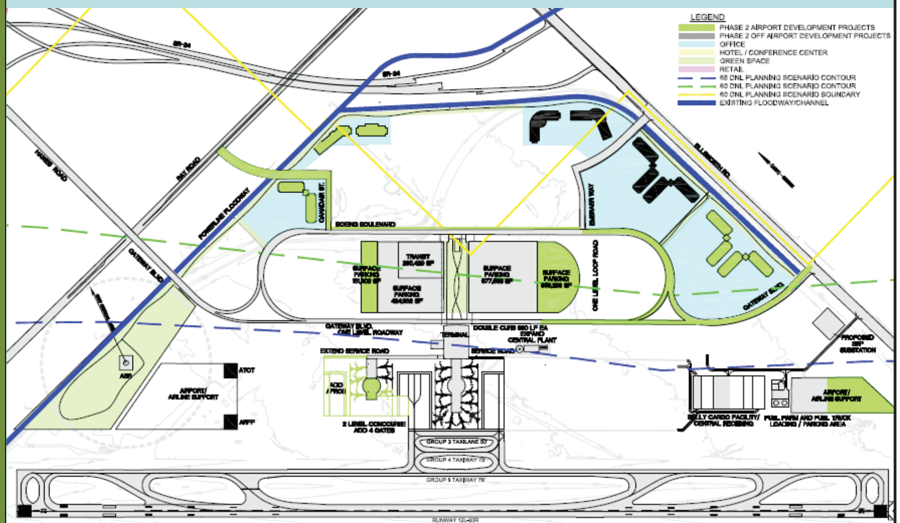


Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Phase II – 2.2 MAEP (10 years)

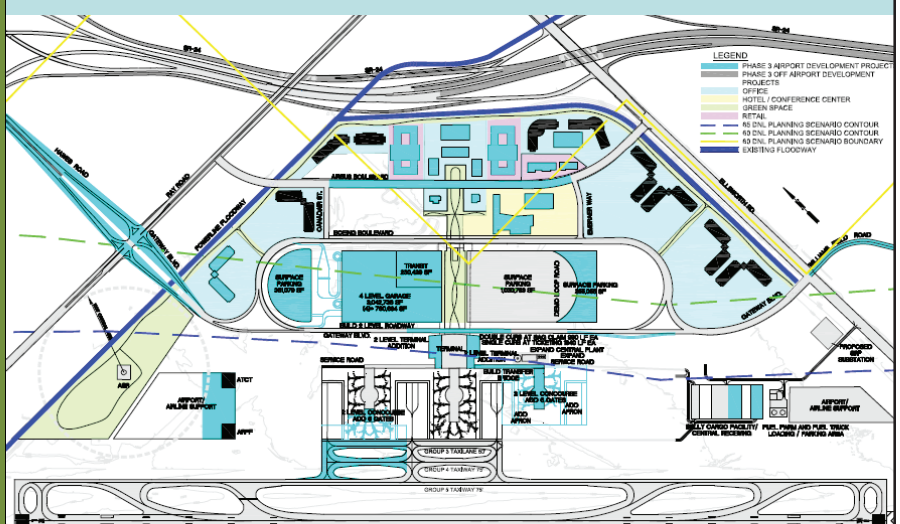


Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Phase III - 5 MAEP (20 years)

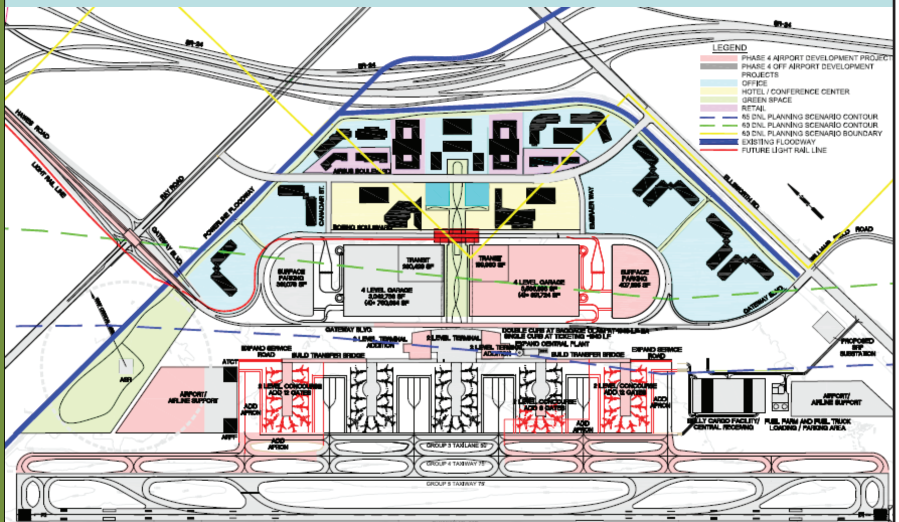


Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Ultimate - 10 MAEP (beyond 20 years)



Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Project Cost Estimates - By Phase

Airfield, Support & Parking Elements

PHASE I	Parallel Taxiway & Exits (RWY 12L-30R) & Apron Areas	$68,790,600
	1000' Extension to RWY 12L-30R, Fuel Farm and Lighting	$29,765,400
	Support Facilities Sitework & Infrastructure	$1,589,900
	Surface & Structured Parking	$4,298,800
	PHASE I TOTAL	**$104,444,700**
PHASE II	Apron Area Expansion	$10,951,900
	Airfield & Apron Lighting	$402,500
	Support Facilities Sitework & Infrastructure	$753,100
	Surface & Structured Parking	$1,412,400
	PHASE II TOTAL	**$13,520,000**
PHASE III	Apron Area Expansion & Apron Edge Taxiways	$26,192,200
	Airfield & Apron Lighting	$1,126,400
	Support Facilities Sitework & Infrastructure	$1,157,800
	Surface & Structured Parking	$209,895,800
	PHASE III TOTAL	**$238,372,300**
PHASE IV	Dual Parallel Taxiway & Exits (RWY 12L-30R) & Apron Areas	$78,438,900
	Airfield & Apron Lighting	$4,522,400
	Support Facilities Sitework & Infrastructure	$1,730,900
	Surface & Structured Parking	$244,232,500
	PHASE IV TOTAL	**$328,924,700**
	AIRFIELD, SUPPORT & PARKING TOTAL	**$685,261,600**

* *All estimates in 2010 dollars.*

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Project Cost Estimates - By Phase

Roadway & Transit Elements

PHASE I	Hawes & Gateway (Offsite)	$2,614,600
	Right Of Way Acquisition	$1,045,400
	Airport Loop (Gateway & Boeing)	$25,261,700
	Ellsworth Connection (Airbus Blvd & Embraer Way)	$4,405,200
	PHASE I TOTAL	**$33,326,900**
PHASE II	Airport Loop & Ellsworth Connection (Boeing & Gateway)	$10,294,200
	Ray Connection (Canadair & Airbus)	$2,086,800
	Airbus (Offsite)	$1,758,200
	PHASE II TOTAL	**$14,139,200**
PHASE III	Hawes & Ray SPUI (Offsite)	$5,271,400
	Upper Level & Lower Level Expansion	$44,283,000
	Airbus Connection	$6,478,700
	PHASE III TOTAL	**$56,033,100**
PHASE IV	Hawes Overpass	$6,900,900
	Light Rail Line	$135,520,700
	Upper Level Expansion	$28,591,500
	PHASE IV TOTAL	**$171,013,100**
	ROADWAY NETWORK TOTAL	**$274,512,300**

** All estimates in 2010 dollars.*

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Project Cost Estimates - By Phase

Terminal Elements

PHASE I	Terminal and Concourses (incl. Central Plant Functions)	$142,388,200
PHASE II	Concourse Expansion	$20,672,900
PHASE III	New Concourse, Concourse Expansion and Terminal Expansion	$162,183,600
PHASE IV	2 New Concourses, Terminal, Concourse & Central Plant Expansion	$313,330,300
	TERMINAL, CONCOURSE AREA & CENTRAL PLANT TOTAL	**$638,575,000**

** All estimates in 2010 dollars.*

Northeast Area Development Plan

PhxMesa Gateway Airport

Project Phasing & Costs

Project Cost Estimates - By Phase

Commercial Development Elements

PHASE I	Commercial Development Soft Costs *	$709,500
PHASE II	Commercial Development Soft Costs *	$866,300
PHASE III	Commercial Development Soft Costs *	$1,089,000
PHASE IV	Commercial Development Soft Costs *	$376,200
	Property Acquisition (Northeast 31 Acres)	$232,500
	COMMERCIAL DEVELOPMENT TOTAL	**$3,273,500**

** Includes: engineering, surveys, legal, permitting, marketing & promotion, and approvals*

** All estimates in 2010 dollars.*

Northeast Area Development Plan

Project Phasing & Costs

Program Costs - Cost Center & Phase

COST CENTER	PHASE I	PHASE II	PHASE III	PHASE IV	TOTAL
Airfield, Support & Parking	$104,444,700	$13,520,000	$238,372,300	$328,924,700	$685,261,700
Roadway & Transit	$33,326,900	$14,139,200	$56,033,100	$171,013,100	$274,512,300
Terminal	$142,388,200	$20,672,900	$162,183,600	$313,330,300	$638,575,000
Commercial Development	$942,000	$866,300	$1,089,000	$376,200	$3,273,500
TOTALS BY PHASE	**$281,101,800**	**$49,198,400**	**$457,678,000**	**$813,644,300**	**$1,601,622,500**

** All estimates in 2010 dollars.*

Northeast Area Development Plan

Funding Eligibility

Program Funding Eligibility

COST CENTER	Federal	State	Local *	Other *
Airfield, Support & Parking - Airfield - Support Facilities - Parking Facilities	 90%		 10% 100% 100%	 100% 100%
Roadway	50%	50%	10%	
Transit	80%		20%	
Terminal **	90%	5%	5%	100%
Commercial Development		10%	90%	90%
Type of Funding	Entitlements, Discretionary, PFCs, MAP, FTA grants, FHWA CMAQ	Sustainable Development Grants, HURF	R&E, Municipal Bonds, MAG Future Prop 500	Revenue Bonds, Private Investment

** Percentages are mutually exclusive, only one category applies depending on nature of project*
*** Applicable to public spaces only*

Northeast Area Development Plan

PhxMesa Gateway Airport

Summary / Next Steps

- Incorporate Feedback Received
  - City of Mesa, PMGA Authority, Stakeholders
- Finalize Implementation Program
  - Update Costs & Phasing
  - Determine Applicable Funding Sources & Amounts
  - Conduct Financial Feasibility Analysis
- Prepare Draft Technical Report
- Submit to City of Mesa & PMGA Authority for Comment
- Address Comments & Finalize Technical Report
- Prepare Executive Summary

Northeast Area Development Plan

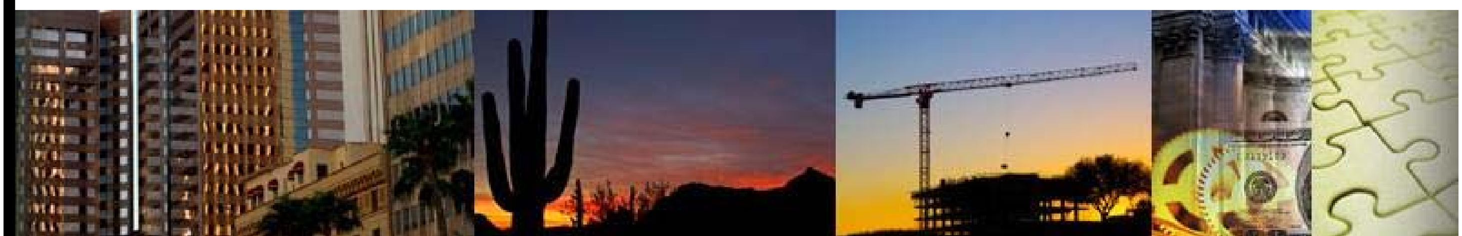
PhxMesa Gateway Airport


Summary / Next Steps
QUESTIONS / COMMENTS
Northeast Area Development Plan
PhxMesa Gateway Airport

Economic and Fiscal Impact of Commercial Land Uses

Economic and Fiscal Impact of Commercial Land Uses

Northeast Area Development Plan
Phoenix-Mesa Gateway Airport



Prepared for:
Phoenix-Mesa Gateway Airport Authority

Prepared:
August, 2011

Prepared by:

Elliott D. Pollack & Company
7505 East 6th Avenue, Suite 100
Scottsdale, AZ 82521

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- 3.1 Economic Impact of Construction 11
- 3.2 Fiscal Impact of Construction 13

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- 4.1 Economic Impact of Operations 15
- 4.2 Fiscal Impact of Operations 17

Executive Summary

Elliott D. Pollack and Company has been retained to perform an economic and fiscal impact study of the commercial land use component of the Northeast Area Development Plan for the Phoenix-Mesa Gateway Airport. The commercial component of the Plan is comprised of privately-owned retail, office and hotel buildings that would be located on Airport property under land leases. This analysis assumes that 2,580,000 square feet of commercial space would be built on approximately 166 acres located in the northeast part of the Northeast Area. The economic and fiscal impact analysis is based on full build-out of the property.

Economic and Fiscal Impact Analysis

This economic and fiscal impact study focuses on the economic and fiscal impacts derived from (a) the construction of the project, and (b) ongoing operations at the property once completed. Economic impact analysis examines the regional implications of an activity in terms of three basic measures: output, earnings, and employment. Fiscal impact analysis evaluates the public revenues created by a particular activity. In a fiscal impact analysis, the primary revenue sources of a governing entity are analyzed to determine how the activity may financially affect them. A full description of the methodology and modeling inputs is included in the body of this report.

Economic Impacts

The direct economic impact from construction of the commercial uses proposed in Northeast Area Plan is based on an estimated $384.5 million of cost construction. The project would generate 3,287 direct person years of employment during the construction phase. Person years of employment are the aggregate of each construction job that is recreated year after year throughout the construction time period. To derive the respective annual averages, employment, wages, and economic output can be divided by the expected number of years it may take to complete the development. About $175.6 million in direct wages would be generated based on the total construction activity. Another 2,694 indirect and induced jobs would be created in the local economy. Wages for these indirect and induced employees would be about $125.5 million. Altogether, the project would create approximately 5,982 person years of employment, $301.1 million in wages, and over $730.6 million in economic activity during the construction timeframe.

The operations related to the commercial uses within the Northeast Plan would have a notable impact on the local and regional economy. Roughly 8,265 direct jobs would be created at build-out. In total, approximately 12,459 permanent direct, indirect, and induced jobs would be created throughout Greater Phoenix as a result of the commercial uses within the Northeast Area Development Plan. That equates to over $467.7 million in annual wages and $1,031.7 million in annual economic output. The majority of these jobs would be office related.

The economic impacts noted above are stated at the regional, metro-wide level and will affect all of Greater Phoenix. While most of the impact will fall on the Southeast Valley, cities across the region will all benefit to some extent from the commercial uses in the Northeast Area Plan.

Economic Impact Northeast Area Commercial Uses Phoenix-Mesa Gateway Airport Greater Phoenix (2011 Dollars)								
Total Construction Impact					**Annual Operations Impact**			
Impact Type	Person Years of Employment	Total Wages	Economic Output		Impact Type	Jobs	Annual Wages	Economic Output
Direct	3,287	$175,600,000	$384,500,000		Direct	8,265	$283,700,000	$523,100,000
Indirect	833	$46,300,000	$123,000,000		Indirect	1,313	$61,100,000	$162,700,000
Induced	1,861	$79,200,000	$223,100,000		Induced	2,882	$122,900,000	$345,900,000
Total	**5,982**	**$301,100,000**	**$730,600,000**		**Annual at Buildout**	**12,459**	**$467,700,000**	**$1,031,700,000**
Sources: Elliott D. Pollack & Company; IMPLAN					Sources: Elliott D. Pollack & Company; IMPLAN			

Fiscal Impacts

Construction of the commercial uses within the Northeast Area would also create significant tax revenues for the City of Mesa. Revenues have been defined in this analysis as either primary or secondary, depending on their source and how the dollars flow through the economy into City tax accounts. For instance, some revenues, such as construction sales taxes, are straightforward calculations based on the cost of construction. These revenues are described in this study as primary revenues and include construction sales taxes, use taxes, property taxes, and taxes on lease payments. Secondary revenues, on the other hand, flow from the wages of those direct, indirect and induced employees who are supported by the project. Revenue projections are based on typical wages of the employees working in the project, their spending patterns, and estimates of where they might live. All values in this report are stated in 2011 dollars.

Primary revenues generated to the City would total nearly $4.5 million over the construction period. In addition, the City would benefit from the spending of construction workers within City limits. Sales tax collections on employee spending for the City were estimated at an additional $335,000 for the entire construction period. Other secondary revenues include residents' property taxes and state shared revenues. In total, the City of Mesa would expect to collect nearly $5.5 million in tax revenue from the construction-related activity associated with the commercial uses. Additional fiscal benefits would accrue to the State of Arizona and Maricopa County.

As the commercial uses are completed in Northeast Area, operations related to the office, retail and hotel uses will create tax revenue for the City of Mesa. Retail sales from stores as well as within the hotel would generate approximately $1.3 million annually at build-out. Bed taxes from the hotel would contribute another $1.1 million annually. Property tax collections from the commercial properties, assuming an in-lieu tax is levied, would add another $266,000 annually. In total, nearly $5.8 million would be collected each year by the City. The following table shows the ongoing tax revenue that the City of Mesa would expect to collect based on the construction and operations of the commercial uses within the Northeast Area.

In addition, the Airport Authority would collect $7,231,000 annually at build-out from developers who lease land for the commercial buildings.

Fiscal Impact Summary Northeast Area Commercial Uses Phoenix-Mesa Gateway Airport City of Mesa (2011 Dollars)							
Total Construction Impact				**Annual Operations Impact**			
Impact Type	Primary	Secondary	Total	Impact Type	Primary	Secondary	Total
Direct	$4,525,000	$572,000	$5,097,000	Direct	$3,529,000	$1,638,000	$5,167,000
Indirect	N/A	$131,000	$131,000	Indirect	N/A	$190,000	$190,000
Induced	N/A	$259,000	$259,000	Induced	N/A	$401,000	$401,000
Total Revenues	**$4,525,000**	**$962,000**	**$5,487,000**	**Total Revenues**	**$3,529,000**	**$2,229,000**	**$5,758,000**
Sources: Elliott D. Pollack & Company				Sources: Elliott D. Pollack & Company			

1.0 Introduction

Elliott D. Pollack and Company has been retained to perform an economic and fiscal impact study of the commercial land use component of the Northeast Area Development Plan for the Phoenix-Mesa Gateway Airport. The commercial component of the Plan is comprised of privately-owned retail, office and hotel buildings that would be located on Airport property under land leases.

The economic and fiscal impact portion of the study focuses on the economic and fiscal impacts of the following:

1. Construction of the commercial uses.
2. Impact from the operations of the commercial uses once construction is completed.

Economic impact analysis examines the regional implications of an activity in terms of three basic measures: output, earnings, and job creation. Fiscal impact analysis evaluates the public revenues and costs created by a particular activity. In a fiscal impact analysis, the primary revenue sources of a city, county, or state government are analyzed to determine how the activity may financially affect them.

This study prepared by Elliott D. Pollack and Company is subject to the following considerations and limiting conditions.

- The reported economic and fiscal impact findings outlined in this report represent the considered judgment of Elliott D. Pollack and Company based on the assumptions, analyses, and methodologies described in the report.

- Except as specifically stated to the contrary, this study will not give consideration to the following matters to the extent they exist: (i) matters of a legal nature, including issues of legal title and compliance with federal, state and local laws and ordinances; and (ii) environmental and engineering issues, and the costs associated with their correction. The user of this study will be responsible for making his/her own determination about the impact, if any, of these matters.

- This study is intended to be read and used as a whole and not in parts.

- This economic and fiscal impact study evaluates the potential "gross impacts" of the project on various governmental jurisdictions. The term "gross impacts" as used in this study refers to the total revenue, jobs and economic output that will be generated by the project.

- This analysis does not consider the costs associated with providing services to the project. Such analysis is beyond the scope of this study. In addition, the analysis is based on the current tax structure and rates imposed by the affected municipalities. Changes in those rates would alter the findings of this study. All dollar amounts are stated in 2011 dollars and, unless indicated, do not take into account the effects of inflation.

- The analysis outlined in this study is based on currently available information and estimates and assumptions about long-term future trends. Such estimates and assumptions are subject to uncertainty and variation. Accordingly, we do not represent them as results that will be achieved. Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur; therefore, the actual results achieved may vary materially from the forecasted results. The assumptions disclosed in this market study are those that are believed to be significant to the projections of future results.

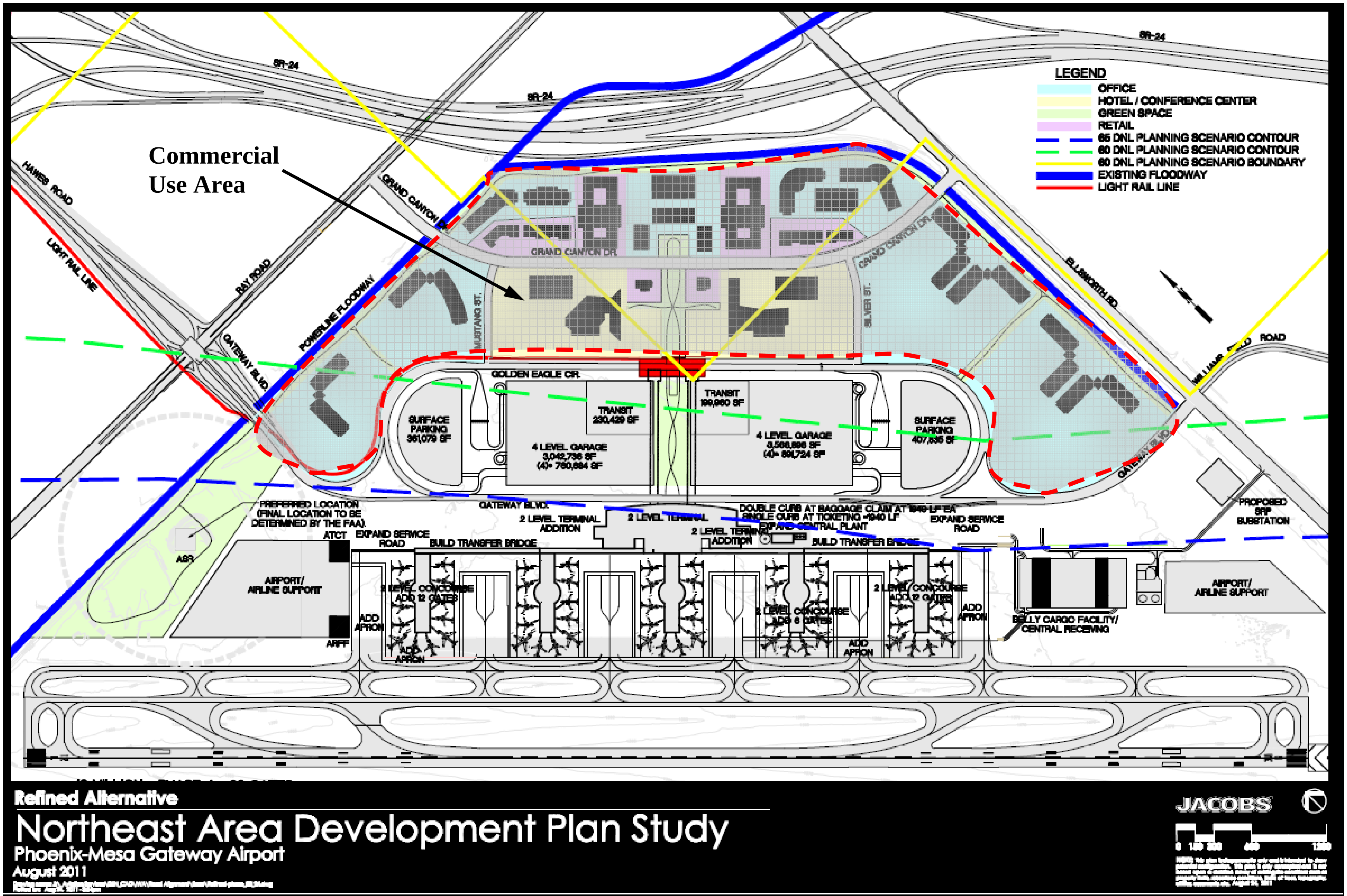
The following section will describe the assumptions and methodologies used to estimate the economic and fiscal impact of the commercial uses within the Northeast Area. Section 3.0 will describe the impact of construction on the local economy. Section 4.0 outlines the effect of the commercial land use operations on the City of Mesa at project completion.

2.0 Methodology & Assumptions

2.1 Project Assumptions

This analysis outlines the economic and fiscal impact of the commercial land use component of the Northeast Area Development Plan for the Phoenix-Mesa Gateway Airport. The commercial component of the Plan is comprised of privately-owned retail, office and hotel buildings that would be located on Airport property under land leases. This analysis assumes that 2,580,000 square feet of commercial space would be built in the northeast part of the Northeast Area. The economic and fiscal impact analysis is based on full build-out of the property.

The assumptions used to estimate the economic and fiscal impacts of the construction and operations of the commercial uses within the Northeast Area of Phoenix-Mesa Gateway Airport have been developed from a variety of sources. The most important source is the development plan that was prepared during the course of the study. Based on that plan, an estimated 166 acres are available for private development of uses that would support the Airport as well as provide services to the surrounding area. The concept plan for the property is shown on the following page.


Commercial
Use Area
LEGEND
OFFICE
HOTEL / CONFERENCE CENTER
GREEN SPACE
RETAIL
65 DNL PLANNING SCENARIO CONTOUR
60 DNL PLANNING SCENARIO CONTOUR
60 DNL PLANNING SCENARIO BOUNDARY
EXISTING FLOODWAY
LIGHT RAIL LINE
SR-24
GRAND CANYON DR
GOLDEN EAGLE CIR.
SURFACE PARKING 361,079 SF
4 LEVEL GARAGE 3,042,736 SF (4)= 760,684 SF
TRANSIT 230,429 SF
TRANSIT 199,960 SF
4 LEVEL GARAGE 3,566,896 SF (4)= 891,724 SF
SURFACE PARKING 407,535 SF
GATEWAY BLVD.
ELLSWORTH RD.
AIRPORT/ AIRLINE SUPPORT
BELLY CARGO FACILITY/ CENTRAL RECEIVING
PROPOSED SRP SUBSTATION
Refined Alternative
Northeast Area Development Plan Study
Phoenix-Mesa Gateway Airport
August 2011
JACOBS

As initially conceived, the commercial land use area is comprised of four parts separated by roadways. Two areas on the far east and west sides of the site are designated for office space. A mixed use area composed of office and retail uses is in the northeastern portion of the site and two conference hotels with a total of 600 rooms are located just northeast of the parking garages.

The assumptions for the construction of the buildings within the Northeast Area are shown on the following table. Overall, the floor area ratio (FAR) for the property is 0.36. Based on the available land, assumptions were made about the type of parking. Parking for the mixed use development is assumed to be in parking garages while the remaining sites will have surface parking.

Project Construction Assumptions
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport

Land	Area	
Project Site	**166**	**acres**
Total Development	**2,580,000**	**SF**
Offices East	840,000	SF
Offices West	420,000	SF
Mixed Use	900,000	SF
Retail	300,000	SF
Office	600,000	SF
Hotel	420,000	SF
Rent		
Land Value	$10	per SF
Annual Land Rent	$1	per SF
Construction Costs		
Offices	$154	per SF
Retail	$87	per SF
Hotel	$120,000	per room
Parking spaces		
Retail and Office demand	1	space per 250 SF
Hotels	1.5	spaces per room
Garages	3,600	spaces
Cost per space	$15,000	
Parking Lots	5,940	spaces
Cost per space	$1,500	
FF&E	**% of Construction Cost**	
Hotel	12%	

Source: Elliott D. Pollack and Company, RSMeans Construction Cost Estimator, Chain Store Age Construction Cost Survey

Several assumptions were also made regarding the operations of the commercial properties. For office and retail operations, the number of jobs was determined using estimates of square feet per employee. Hotel operations were based on the number of employees per room. All figures assume vacancy rates for the project that are consistent with a normalized regional market (6% for retail and 10% for office). The following table contains a summary of the primary assumptions of the study. It should be noted that while office employment is listed in the subsequent impact tables as jobs created within the commercial area, in actuality, office space only serves as a place where jobs can be situated. The businesses that occupy the office buildings are actually creating jobs.

Project Operations Assumptions
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport

Employees		
Offices	250	SF per employee
Retail	800	SF per employee
Hotel	0.75	employees per room
Revenues		
Retail	$250	per SF
Hotel		
Number of Rooms	600	
Occupancy Rate	70%	
Days of Operation	365	
Average Nightly Rate	$150	per room
Food, Beverage, and other Taxable Sales	24%	of room revenues
Rent		
Retail Rent	$22	per SF
Vacancy Rate	6%	
Office Rent	$25	per SF
Vacancy Rate	10%	

Source: Elliott D. Pollack and Company

2.2 Economic Impact Methodology

Economic impact analysis examines the economic implications of an activity in terms of output, earnings, and employment. For this study, the analysis focuses on the jobs and corresponding output and wages that are created during construction as well as the jobs and output that are created through the operations of the complex and residential activity within the project.

The different types of economic impacts are known as direct, indirect, and induced, according to the manner in which the impacts are generated. For instance, direct employment consists of permanent jobs held by the project employees. Indirect employment is those jobs created by businesses that provide goods and services essential to the operation or construction of the project. These businesses range from manufacturers (who make goods) to wholesalers (who deliver goods) to janitorial firms (who clean the buildings). Finally, the spending of the wages and salaries of the direct and indirect employees on items such as food, housing, transportation and medical services creates induced employment in all sectors of the economy, throughout the county. These secondary effects were captured in the analysis conducted in this study.

Multipliers have been developed to estimate the indirect and induced impacts of various direct economic activities. The Minnesota IMPLAN Group developed the multipliers used in this study. The economic impact is categorized into three types of impacts:

(1) Employment Impact – the total wage, salary and self employed jobs in a region. Jobs include both part time and full time workers, though the figure is expressed in full time equivalents.

(2) Earnings Impact – the personal income, earnings or wages, of the direct, indirect and induced employees. Earnings include total wage and salary payments as well as benefits of health and life insurance, retirement payments and any other non-cash compensation.

(3) Economic Output – the economic output relates to the gross receipts for goods or services generated by the project's operations.

Economic impacts are by their nature regional in character. The direct impact of job creation will be primarily concentrated in the City of Mesa, however much of the impact will be felt throughout all of Maricopa County. All dollar figures, unless otherwise stated, are expressed in 2011 dollars.

2.3 Fiscal Impact Methodology

Fiscal impact analysis quantifies the public revenues associated with a particular economic activity. The primary revenue sources of local, county, and state governments (i.e. taxes) are analyzed to determine how an activity may affect the various jurisdictions. This report will evaluate the impact of the commercial uses on the City of Mesa. In addition, the Airport Authority will also collect land rents from the lessee's of the commercial property.

The fiscal impact figures cited in this report have been generated from information provided by a variety of sources including the U.S. Bureau of the Census, the U.S. Department of Labor, the Internal Revenue Service, Maricopa County, the state of Arizona, the Arizona Tax Research Association, and the U.S. Consumer Expenditure Survey. Elliott D. Pollack and Company has relied upon current market averages for estimates of construction cost. Unless otherwise stated, all dollar values are expressed in 2011 dollars.

Fiscal impacts are categorized by type in this study, similar to the economic impact analysis. The major sources of revenue generation for governmental entities are related to construction of the project and ongoing impact from the operations and resident spending.

Construction impacts relate to the revenues generated from development of the project and include the state and local sales taxes levied on construction materials. In addition, the City of Mesa and other cities in the Southeast Valley will benefit from the spending of construction workers within City limits.

Once the project is completed, the ongoing fiscal impacts of the commercial uses will create revenue for the City. For Mesa, revenues will be generated through sales tax, lease tax, property tax (if an in-lieu tax is imposed), and State shared revenue.

The following is a description of the applicable revenue sources that will be considered for this analysis.

- <u>Construction Sales Tax</u>
  The state, counties and cities in Arizona levy a sales tax on materials used in the construction of buildings or development of land improvements. That tax is calculated by state law under the assumption that 65% of the construction cost of the facility and its land improvements are related to construction materials with the remaining 35% devoted to labor. The sales tax rate is then applied to the 65% materials figure.

  The sales tax on construction materials is a one-time collection by the governmental entity. Construction sales tax is generated during any new building construction as well as from improvements. Mesa has a construction sales tax rate of 1.75%.

- <u>Use Tax</u>
  The State and local cities charge a use tax that is assessed on items purchased outside the jurisdiction and brought in for storage, use or consumption. This tax rate will be applied

to the FF&E (furniture, fixture and equipment) estimate of the hotel projects. The use tax rate for City of Mesa is 1.75%. No exemptions are given for this tax category.

- Sales Tax
  The state, counties, and incorporated cities and towns charge sales tax on retail goods and services. The sales tax rate for the City of Mesa is 1.75%. These tax rates are applied to the retail sales within the development.

- Lease Tax
  The State, counties, and incorporated cities and towns typically charge a lease tax on commercial rents. The lease tax rate for the City of Mesa is 1.75%. These tax rates are applied to the taxable rent that is collected by the landlord for each rental property.

- Property Taxes
  Property taxes are normally collected for commercial buildings. However, since the land is owned by the Airport Authority, a tax is not normally collected. For this project, however, it is assumed that the Airport Authority will levy an in-lieu tax that would essentially replicate the normal property tax. The in-lieu tax is shown as revenue to the City of Mesa. The taxable value for the commercial buildings was based on the construction costs and the commercial assessment rate of 20%. The City of Mesa property tax rate is currently 0.35 per $100 of assessed value.

- State Shared Revenues
  Each county in Arizona receives a portion of State revenues from three different sources - state sales tax, state income tax, vehicle license tax (VLT) and highway user revenue fund (HURF) tax. The formulas for allocating these revenues are primarily based on population.

  - State Income Tax
    The State of Arizona collects taxes on personal income. The tax rate used in the analysis averages about 1.6% for earnings. These percentages are based on the most recently available income tax data from the State and the projected wage levels of jobs created by the construction and operations impact. This tax is applied to the wages and earnings of direct, indirect and induced employment. Portions of this tax are redistributed through revenue sharing to cities and towns throughout Arizona based on population.

  - HURF Taxes
    The State of Arizona collects specific taxes for the Highway User Revenue Fund (HURF). Both the registration fees and the motor vehicle fuel tax (gas tax) are considered in this analysis. The motor vehicle fuel tax is $0.18 per gallon and is calculated based on a vehicle traveling 12,000 miles per year at 15 miles per gallon. Registration fees average $66 per employee in the State of Arizona. These factors are applied to the projected direct, indirect and induced employee count. Portions of these taxes are distributed to counties and cities throughout Arizona based on a formula that includes population and the origin of gasoline sales.

- Vehicle License Tax
  The vehicle license tax is a personal property tax placed on vehicles at the time of annual registration. This factor is applied to the projected direct, indirect and induced employee count. The average tax used in this analysis is $358 and portions of the total collections are distributed through the Highway User Revenue Fund. The remaining funds are shared between counties and cities in accordance with population based formulas.

The above tax categories represent the largest sources of revenues that will be generated for the City of Mesa. This analysis considers gross tax collections and does not differentiate among dedicated purposes or uses of such gross tax collections.

In addition to the tax revenues that accrue to the City of Mesa, the Airport Authority would also collect rents on land that is leased to developers of the commercial properties. In 2011 dollars, that land could be valued at $10 per square foot. The traditional investment return on land leases is 10% per year or $1.00 dollar per square foot.

3.0 Impact of Construction

This section of the report outlines the economic and fiscal impact of the construction of commercial buildings at full build-out. Construction phase impacts are generally short-term effects related to onsite and offsite construction employment and other supporting industries. The long-term consequences of a project are the operational phase impacts that are described in Section 4.0.

The total construction cost of the commercial buildings in the Northeast Area is estimated at $384.5 million. The economic impacts are expressed over the entire duration of the construction.

3.1 Economic Impact of Construction

The economic impact of the construction of the commercial buildings in the Northeast Area is outlined in the following table based on the $384.5 million cost. The project would generate 3,287 direct person years of employment during the construction phase. Person years of employment represent the total construction jobs created each year throughout the construction period. To derive the respective annual averages, employment, wages, and economic output can be divided by the expected number of years it may take to complete the development. For instance, if the project requires 15 years to complete, on average 399 construction jobs would be created each year. About $175.6 million in direct wages would be generated based on the total construction activity.

Another 2,694 indirect and induced person years of employment would be created in the local economy. Wages for these indirect and induced employees would total about $125.5 million. Altogether, the project would create approximately 5,982 jobs during the construction timeframe, $301.1 million in wages and over $730 million in economic activity. These impacts would be extinguished when construction is completed.

Economic Impact of Construction
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
Greater Phoenix
(2011 Dollars)

Impact Type	Person Years of Employment	Wages	Economic Output
Direct	3,287	$175,600,000	$384,500,000
Indirect	833	$46,300,000	$123,000,000
Induced	1,861	$79,200,000	$223,100,000
Total	**5,982**	**$301,100,000**	**$730,600,000**

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

The following table shows the economic impact by land use.

Economic Impact of Construction Northeast Area Commercial Uses Phoenix-Mesa Gateway Airport Greater Phoenix (2011 Dollars)			
Land use Impact Type	Person Years of Employment	Wages	Economic Output
Office East			
Direct	1,106	$59,100,000	$129,400,000
Indirect	280	$15,600,000	$41,400,000
Induced	626	$26,700,000	$75,000,000
Total	**2,012**	**$101,400,000**	**$245,800,000**
Office West			
Direct	553	$29,500,000	$64,700,000
Indirect	140	$7,800,000	$20,700,000
Induced	313	$13,300,000	$37,500,000
Total	**1,006**	**$50,600,000**	**$122,900,000**
Mixed Use			
Retail			
Direct	223	$11,900,000	$26,100,000
Indirect	57	$3,100,000	$8,300,000
Induced	126	$5,400,000	$15,100,000
Total	**406**	**$20,400,000**	**$49,500,000**
Office			
Direct	790	$42,200,000	$92,400,000
Indirect	200	$11,100,000	$29,600,000
Induced	447	$19,000,000	$53,600,000
Total	**1,437**	**$72,300,000**	**$175,600,000**
Hotels			
Direct	616	$32,900,000	$72,000,000
Indirect	156	$8,700,000	$23,000,000
Induced	348	$14,800,000	$41,800,000
Total	**1,120**	**$56,400,000**	**$136,800,000**
Total Project			
Direct	3,287	$175,600,000	$384,500,000
Indirect	833	$46,300,000	$123,000,000
Induced	1,861	$79,200,000	$223,100,000
Total	**5,982**	**$301,100,000**	**$730,600,000**

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

3.2 Fiscal Impact of Construction

The construction of the commercial uses in the Northeast Area of the Phoenix-Mesa Gateway Airport would create significant tax revenues for the City of Mesa as shown on the following table. Revenues have been defined in this analysis as either primary or secondary, depending on their source and how the dollars flow through the economy into City tax accounts. For instance, some revenues, such as construction sales taxes, are straightforward calculations based on the cost of construction. These revenues are described in this study as primary revenues and include retail sales taxes, property taxes and taxes on lease payments. Secondary revenues, on the other hand, flow from the wages of those direct, indirect and induced employees who are supported by the project. Revenue projections are based on typical wages of the employees working in the project, their spending patterns, and estimates of where they might live. These impacts cover the entire construction period, and are not annualized.

Primary revenues generated to the City from the construction sales tax and FF&E sales tax would total $4.5 million over the construction period. In addition, the City would benefit from the spending of construction workers within City limits. Sales tax collections for the City were estimated at an additional $335,000 for the entire construction period. Other secondary revenues include property taxes and State shared revenues. In total, the City of Mesa would expect to collect nearly $5.5 million in tax revenue from the construction and construction-related activity. The following tables detail the fiscal impacts of construction for the Phoenix-Mesa Gateway Airport.

Fiscal Impact of Construction
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
City of Mesa
(2011 Dollars)

	Primary Revenues		Secondary Revenues			
Impact Type	Construction Sales Tax	FF&E Sales Tax	Employee Spending Sales Tax	Resident Property Tax	State Shared Revenues	**Total Revenues**
Direct	$4,374,000	$151,000	$335,000	$52,000	$185,000	**$5,097,000**
Indirect	N/A	N/A	$87,000	$13,000	$31,000	**$131,000**
Induced	N/A	N/A	$169,000	$30,000	$60,000	**$259,000**
Total Revenues	**$4,374,000**	**$151,000**	**$591,000**	**$95,000**	**$276,000**	**$5,487,000**

1/ The figures are intended only as a general guideline as to how the City could be impacted by the project. The above figures are based on the current economic structure and tax rates of the State of Arizona and City of Mesa.

2/ Numbers may not add up exactly due to rounding.

Source: Elliott D. Pollack & Company; IMPLAN; Arizona Department of Revenue; Arizona Tax Research Association

The following table shows the fiscal impact of the project by land use.

Fiscal Impact of Construction
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
City of Mesa
(2011 Dollars)

Land use / Impact Type	Primary Revenues: Construction Sales Tax	Primary Revenues: FF&E Sales Tax	Secondary Revenues: Employee Spending Sales Tax	Secondary Revenues: Resident Property Tax	Secondary Revenues: State Shared Revenues	Total Revenues
Office East						
Direct	$1,471,500	$0	$112,600	$17,600	$62,200	**$1,663,900**
Indirect	N/A	N/A	$29,100	$4,500	$10,500	**$44,100**
Induced	N/A	N/A	$56,900	$10,000	$20,100	**$87,000**
Total Revenues	**$1,471,500**	**$0**	**$198,600**	**$32,100**	**$92,800**	**$1,795,000**
Office West						
Direct	$735,700	$0	$56,300	$8,800	$31,000	**$831,800**
Indirect	N/A	N/A	$14,600	$2,200	$5,200	**$22,000**
Induced	N/A	N/A	$28,500	$5,000	$10,100	**$43,600**
Total Revenues	**$735,700**	**$0**	**$99,400**	**$16,000**	**$46,300**	**$897,400**
Mixed Uses						
Retail						
Direct	$296,900	$0	$22,700	$3,600	$12,600	**$335,800**
Indirect	N/A	N/A	$5,900	$900	$2,100	**$8,900**
Induced	N/A	N/A	$11,500	$2,000	$4,100	**$17,600**
Total Revenues	**$296,900**	**$0**	**$40,100**	**$6,500**	**$18,800**	**$362,300**
Office						
Direct	$1,051,100	$0	$80,400	$12,600	$44,400	**$1,188,500**
Indirect	N/A	N/A	$20,800	$3,200	$7,500	**$31,500**
Induced	N/A	N/A	$40,700	$7,100	$14,400	**$62,200**
Total Revenues	**$1,051,100**	**$0**	**$141,900**	**$22,900**	**$66,300**	**$1,282,200**
Hotel						
Direct	$819,000	$151,000	$62,700	$9,800	$34,600	**$1,077,100**
Indirect	N/A	N/A	$16,200	$2,500	$5,800	**$24,500**
Induced	N/A	N/A	$31,700	$5,500	$11,200	**$48,400**
Total Revenues	**$819,000**	**$151,000**	**$110,600**	**$17,800**	**$51,600**	**$999,000**
Total Project						
Direct	$4,374,000	$151,000	$335,000	$52,000	$185,000	**$5,097,000**
Indirect	N/A	N/A	$87,000	$13,000	$31,000	**$131,000**
Induced	N/A	N/A	$169,000	$30,000	$60,000	**$259,000**
Total Revenues	**$4,374,000**	**$151,000**	**$591,000**	**$95,000**	**$276,000**	**$5,487,000**

1/ The figures are intended only as a general guideline as to how the City could be impacted by the project. The above figures are based on the current economic structure and tax rates of the State of Arizona and City of Mesa.

Source: Elliott D. Pollack & Company; IMPLAN; Arizona Department of Revenue; Arizona Tax Research Association

4.0 Operations Impact at Build-Out

Once construction is completed, the impact of the operations would begin to produce jobs and tax revenue. The buildings would generate property and rental taxes. The retail operations would result in sales tax revenue, and the hotel would generate bed tax revenue. The spending by employees would create secondary revenues in the form of sales tax. Secondary revenues also include property taxes for employees that live within the City.

4.1 Economic Impact of Operations

The operations of the commercial uses within the Northeast Area would have an impact on the local and regional economies. An estimated 8,265 direct employees would be employed within the development. The majority of the jobs (7,440) would occupy the office buildings within the Area. Retail uses would create 375 jobs while the hotel would employ another 450. Taking into account the ripple effect of the regional multipliers, approximately 12,459 permanent direct, indirect, and induced jobs would be supported throughout Greater Phoenix as a result of the development of the commercial uses in the Northeast Area of the Airport. The following tables quantify the ongoing economic impact of the project at build out.

Annual Economic Impact of Operations
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
Greater Phoenix
(2011 Dollars)

Impact Type	Annual Employment	Wages	Economic Output
Direct	8,265	$283,700,000	$523,100,000
Indirect	1,313	$61,100,000	$162,700,000
Induced	2,882	$122,900,000	$345,900,000
Total	**12,459**	**$467,700,000**	**$1,031,700,000**

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

Economic Impact of Operation
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
Greater Phoenix
(2011 Dollars)

Land Use Impact Type	Annual Employment	Wages	Economic Output
Offices East			
Direct	3,360	$115,200,000	$202,900,000
Indirect	497	$23,000,000	$60,900,000
Induced	1,154	$49,200,000	$138,600,000
Total	**5,011**	**$187,400,000**	**$402,400,000**
Offices West			
Direct	1,680	$57,600,000	$101,400,000
Indirect	248	$11,500,000	$30,500,000
Induced	577	$24,600,000	$69,300,000
Total	**2,505**	**$93,700,000**	**$201,200,000**
Mixed Use			
Retail			
Direct	375	$10,800,000	$19,700,000
Indirect	26	$1,200,000	$3,700,000
Induced	101	$4,300,000	$12,100,000
Total	**503**	**$16,300,000**	**$35,500,000**
Offices			
Direct	2,400	$82,300,000	$144,900,000
Indirect	355	$16,400,000	$43,500,000
Induced	824	$35,200,000	$99,000,000
Total	**3,579**	**$133,900,000**	**$287,400,000**
Hotel			
Direct	450	$17,800,000	$54,200,000
Indirect	187	$9,000,000	$24,000,000
Induced	224	$9,600,000	$26,900,000
Total	**861**	**$36,400,000**	**$105,100,000**
Total Project			
Direct	8,265	$283,700,000	$523,100,000
Indirect	1,313	$61,100,000	$162,700,000
Induced	2,882	$122,900,000	$345,900,000
Total	**12,459**	**$467,700,000**	**$1,031,700,000**

1/ The total may not equal the sum of the impacts due to rounding. All dollar figures are in constant dollars. Inflation has not been included in these figures.

Source: Elliott D. Pollack & Company; IMPLAN

4.2 Fiscal Impact of Operations

Once the commercial uses within the Northeast Area are completed, the operations of the retail, office and hotel uses would increase tax revenue for the City of Mesa. The commercial elements were examined to determine their impact on government tax collections.

The following tables show the ongoing tax revenue that the City of Mesa would expect to collect based on the revenues generated by the complex itself as well as secondary revenue sources. Sales tax from the retail and hotel components would result in $1.3 million in tax collection. Bed tax from the hotel contributes another $1.1 million. Secondary revenues total $1.6 million for the project at build out. In total, nearly $5.8 million would be collected each year by the City.

Annual Fiscal Impact of Operations at Build out
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
City of Mesa
(2011 Dollars)

	Primary Revenues				Secondary Revenues			
Impact Type	Sales Tax	Rental Tax	Bed Tax	Property Tax	Employee Spending Sales Tax	Resident Property Tax	State Shared Revenues	**Total Revenues**
Direct	$1,330,000	$841,000	$1,092,000	$266,000	$683,000	$132,000	$823,000	**$5,167,000**
Indirect	N/A	N/A	N/A	N/A	$125,000	$21,000	$44,000	**$190,000**
Induced	N/A	N/A	N/A	N/A	$262,000	$46,000	$93,000	**$401,000**
Annual Revenues	**$1,330,000**	**$841,000**	**$1,092,000**	**$266,000**	**$1,070,000**	**$199,000**	**$960,000**	**$5,758,000**

1/ The figures are intended only as a general guideline as to how the City could be impacted by the project. The above figures are based on the current economic structure and tax rates of the State of Arizona and City of Mesa.

2/ Numbers may not add up exactly due to rounding.

Source: Elliott D. Pollack & Company; IMPLAN; Arizona Department of Revenue; Arizona Tax Research Association

Fiscal Impact of Construction
Northeast Area Commercial Uses
Phoenix-Mesa Gateway Airport
City of Mesa
(2011 Dollars)

Land use / Impact Type	Primary Revenues: Construction Sales Tax	Primary Revenues: FF&E Sales Tax	Secondary Revenues: Employee Spending Sales Tax	Secondary Revenues: Resident Property Tax	Secondary Revenues: State Shared Revenues	Total Revenues
Office East						
Direct	$1,471,500	$0	$112,600	$17,600	$62,200	**$1,663,900**
Indirect	N/A	N/A	$29,100	$4,500	$10,500	**$44,100**
Induced	N/A	N/A	$56,900	$10,000	$20,100	**$87,000**
Total Revenues	**$1,471,500**	**$0**	**$198,600**	**$32,100**	**$92,800**	**$1,795,000**
Office West						
Direct	$735,700	$0	$56,300	$8,800	$31,000	**$831,800**
Indirect	N/A	N/A	$14,600	$2,200	$5,200	**$22,000**
Induced	N/A	N/A	$28,500	$5,000	$10,100	**$43,600**
Total Revenues	**$735,700**	**$0**	**$99,400**	**$16,000**	**$46,300**	**$897,400**
Mixed Uses						
Retail						
Direct	$296,900	$0	$22,700	$3,600	$12,600	**$335,800**
Indirect	N/A	N/A	$5,900	$900	$2,100	**$8,900**
Induced	N/A	N/A	$11,500	$2,000	$4,100	**$17,600**
Total Revenues	**$296,900**	**$0**	**$40,100**	**$6,500**	**$18,800**	**$362,300**
Office						
Direct	$1,051,100	$0	$80,400	$12,600	$44,400	**$1,188,500**
Indirect	N/A	N/A	$20,800	$3,200	$7,500	**$31,500**
Induced	N/A	N/A	$40,700	$7,100	$14,400	**$62,200**
Total Revenues	**$1,051,100**	**$0**	**$141,900**	**$22,900**	**$66,300**	**$1,282,200**
Hotel						
Direct	$819,000	$151,000	$62,700	$9,800	$34,600	**$1,077,100**
Indirect	N/A	N/A	$16,200	$2,500	$5,800	**$24,500**
Induced	N/A	N/A	$31,700	$5,500	$11,200	**$48,400**
Total Revenues	**$819,000**	**$151,000**	**$110,600**	**$17,800**	**$51,600**	**$999,000**
Total Project						
Direct	$4,374,000	$151,000	$335,000	$52,000	$185,000	**$5,097,000**
Indirect	N/A	N/A	$87,000	$13,000	$31,000	**$131,000**
Induced	N/A	N/A	$169,000	$30,000	$60,000	**$259,000**
Total Revenues	**$4,374,000**	**$151,000**	**$591,000**	**$95,000**	**$276,000**	**$5,487,000**

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Source: Elliott D. Pollack & Company; IMPLAN; Arizona Department of Revenue; Arizona Tax Research Association

While not shown on the tax revenue tables, the Airport Authority would collect $7,231,000 annually (in 2011 dollars) at build-out from developers who lease land for the commercial buildings.

Preliminary Typical Sections

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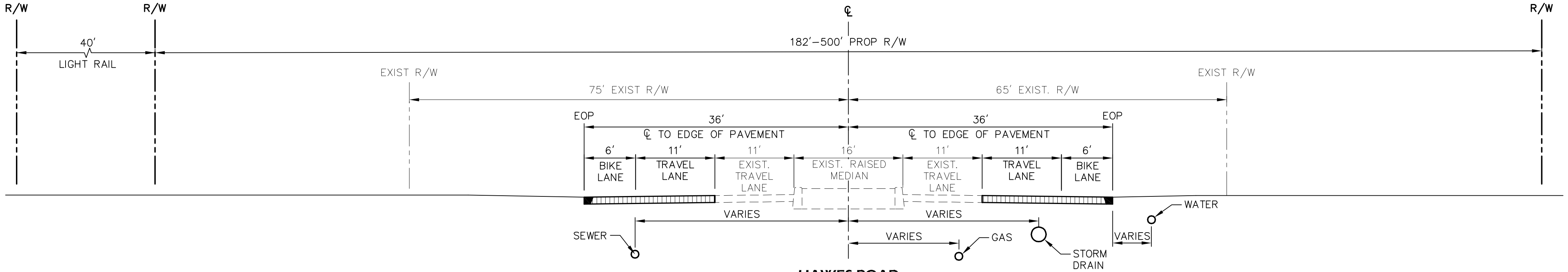

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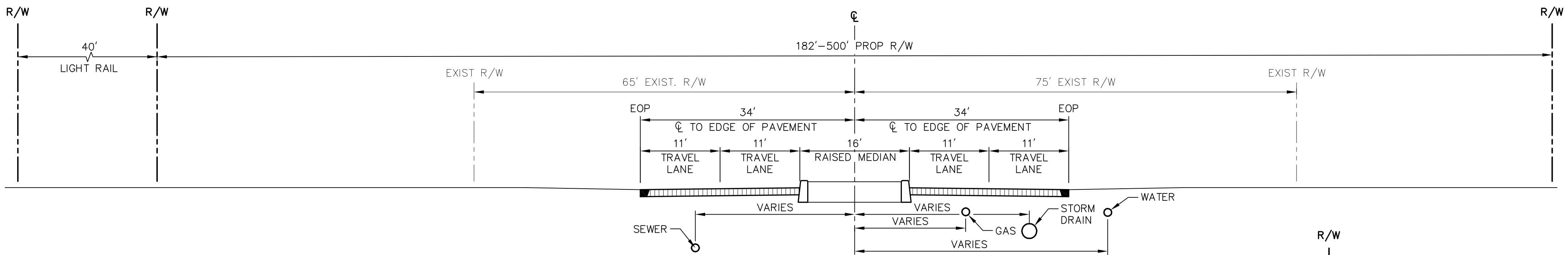

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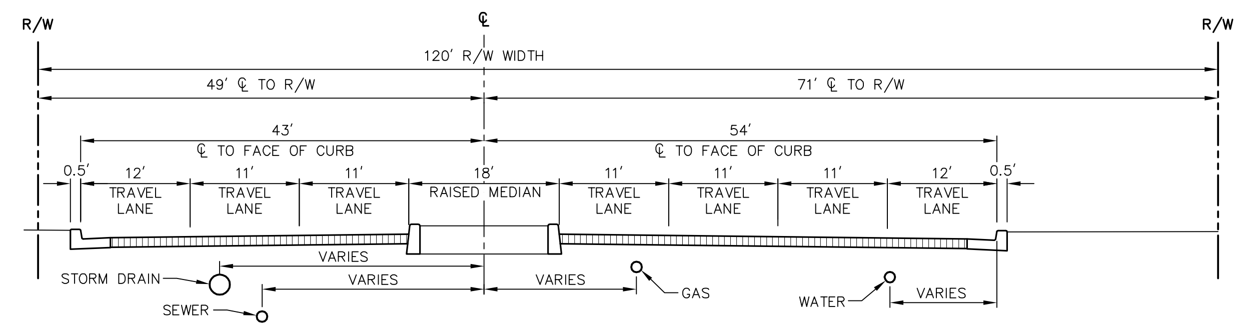

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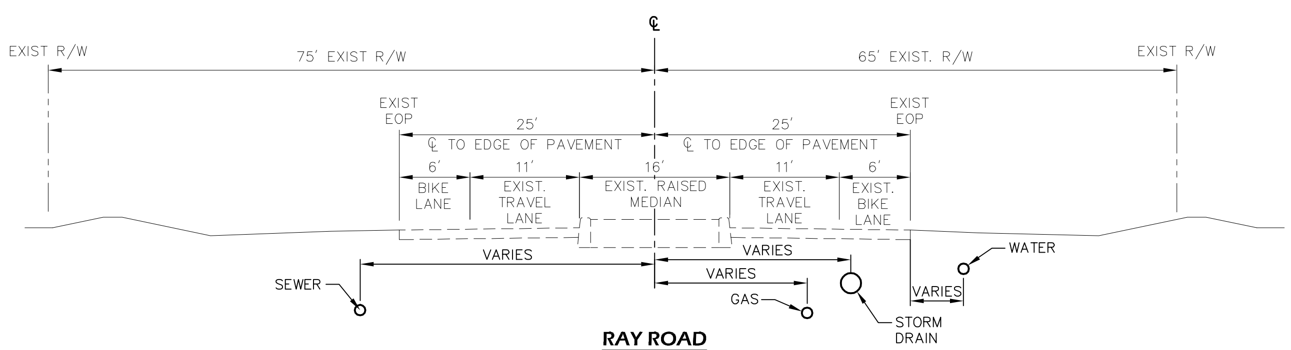

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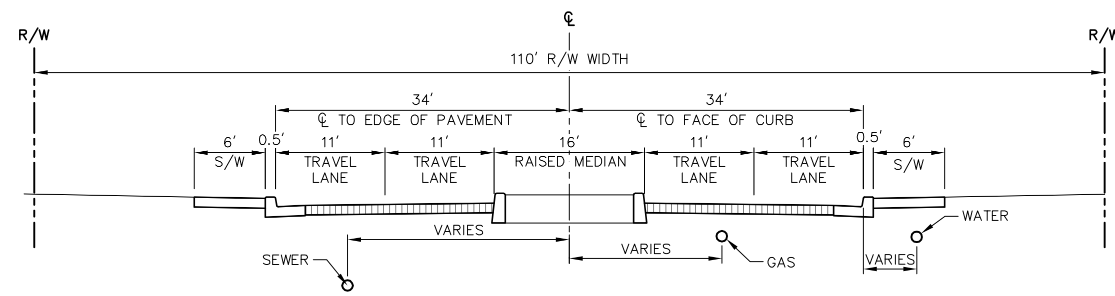

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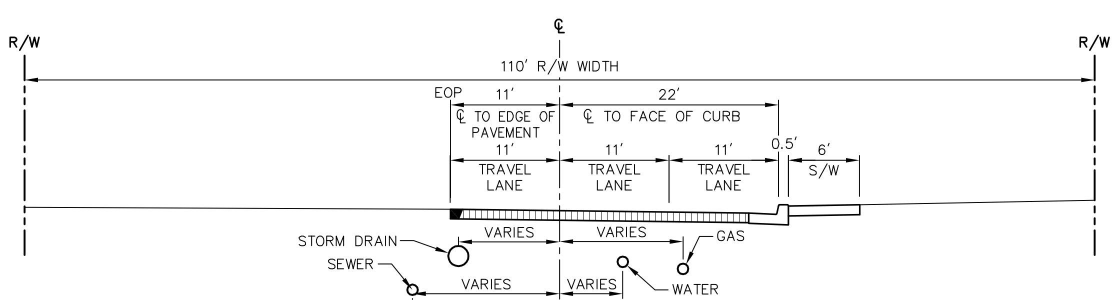

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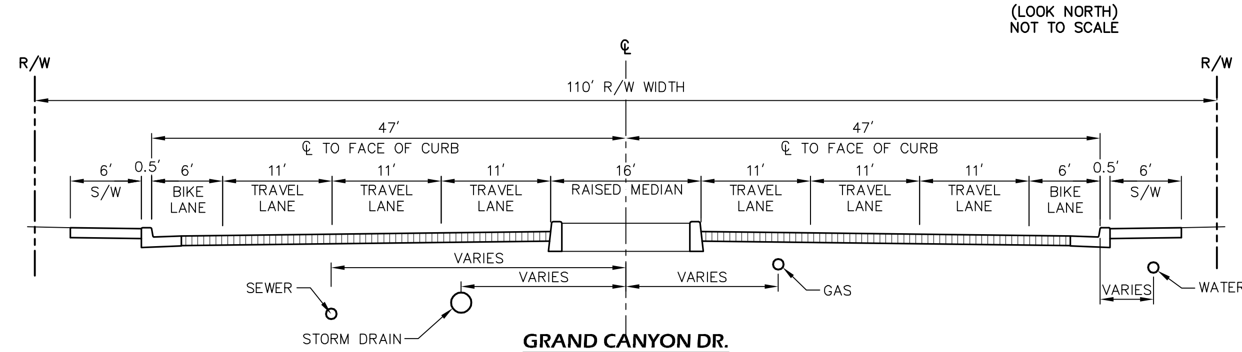

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NORTHEAST AREA DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT PHASE 1 PRELIMINARY TYPICAL SECTIONS

Date: 01-13-2011	JOB NO:	SHEET 1 OF 1

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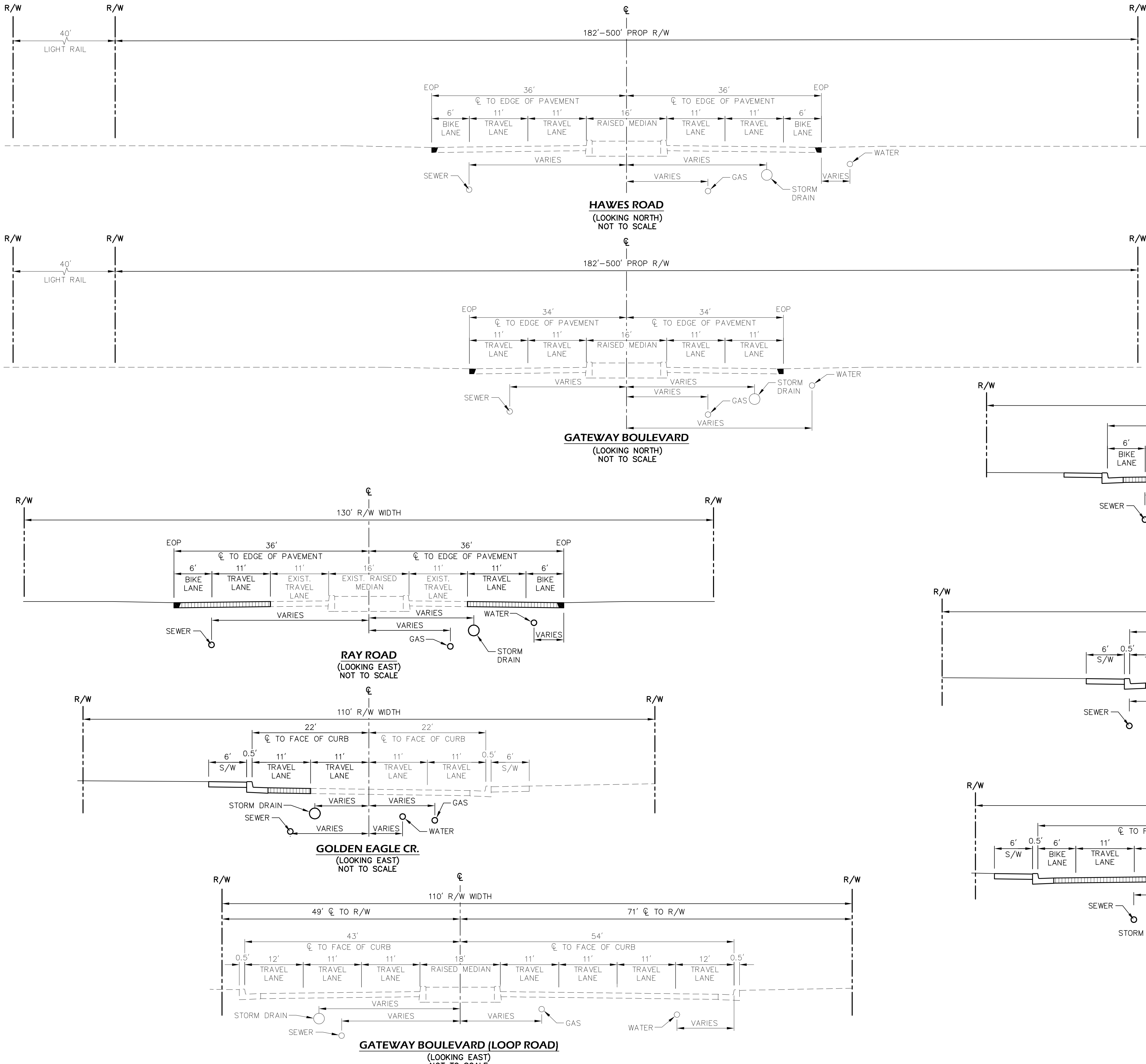

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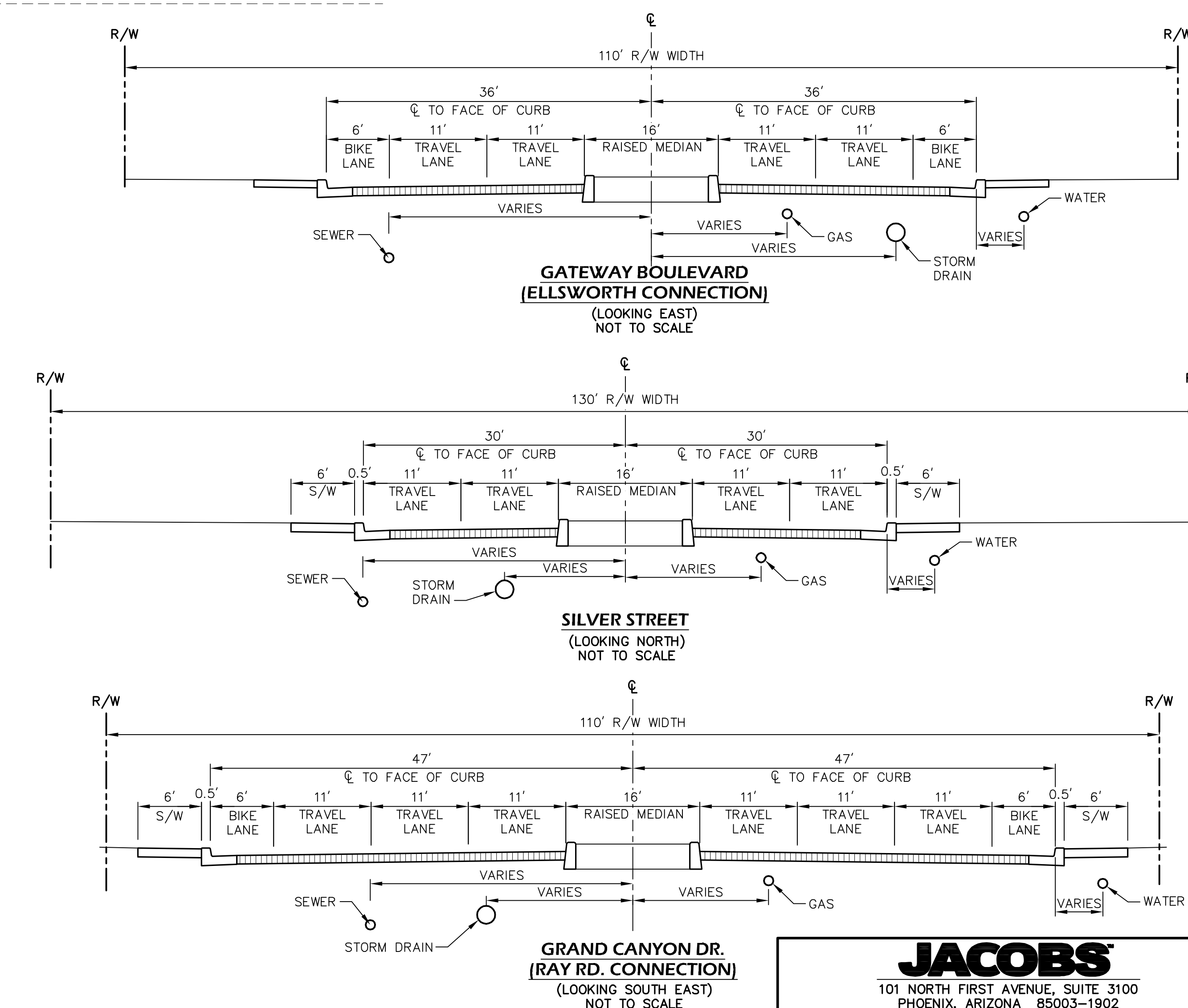

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NORTHEAST AREA DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT PHASE 2

PRELIMINARY TYPICAL SECTIONS

Date: 01-13-2011 | JOB NO: | SHEET 1 OF 1

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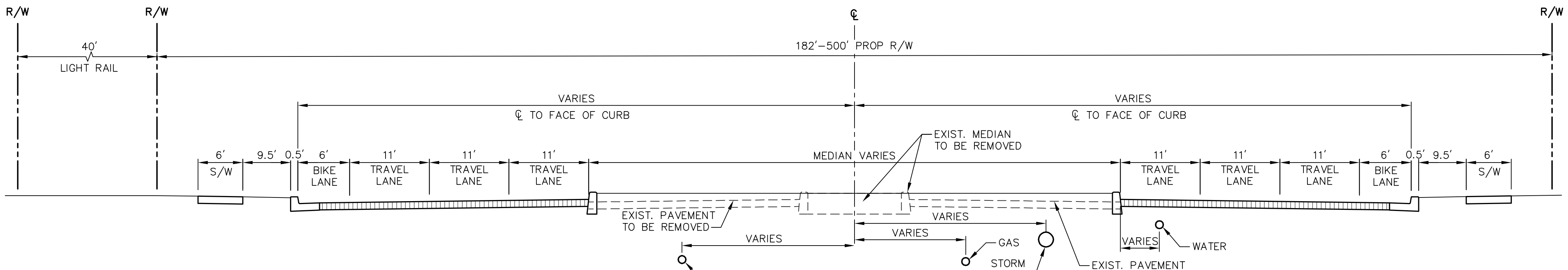

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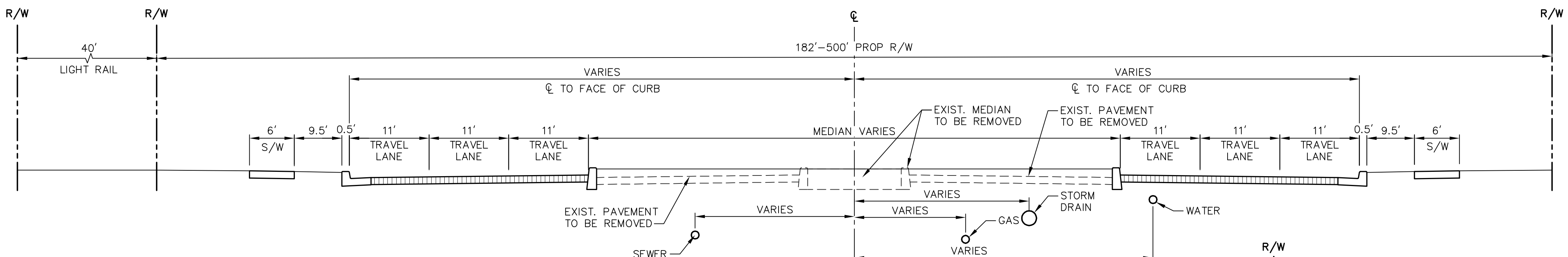

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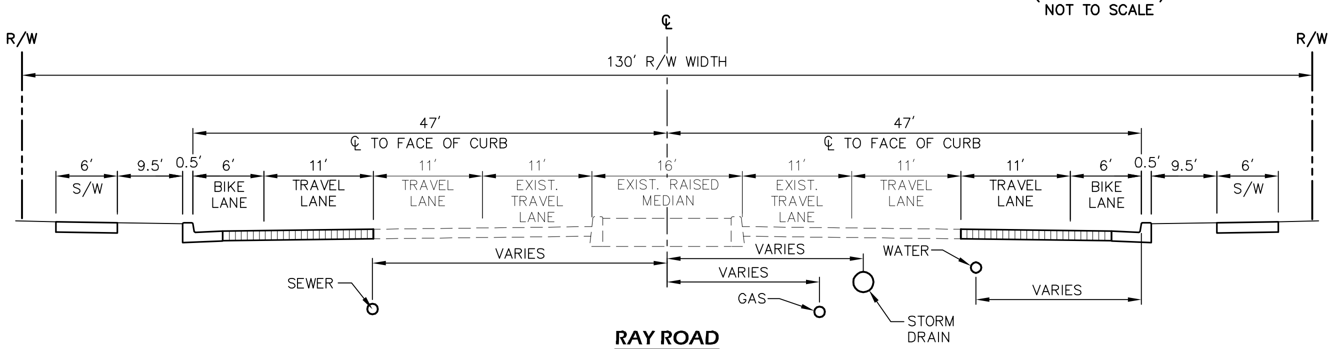

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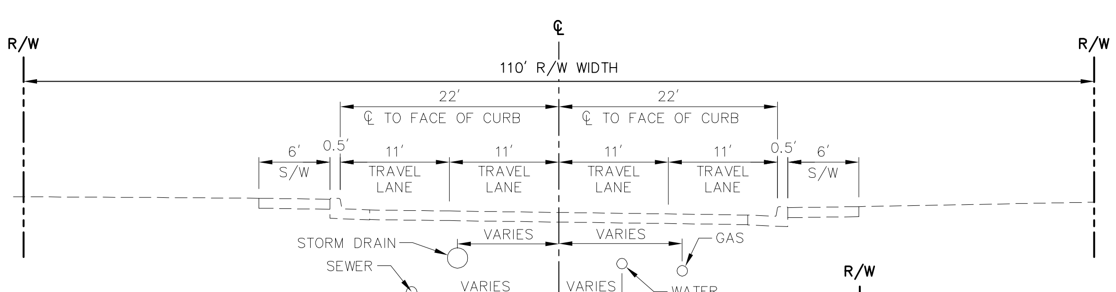

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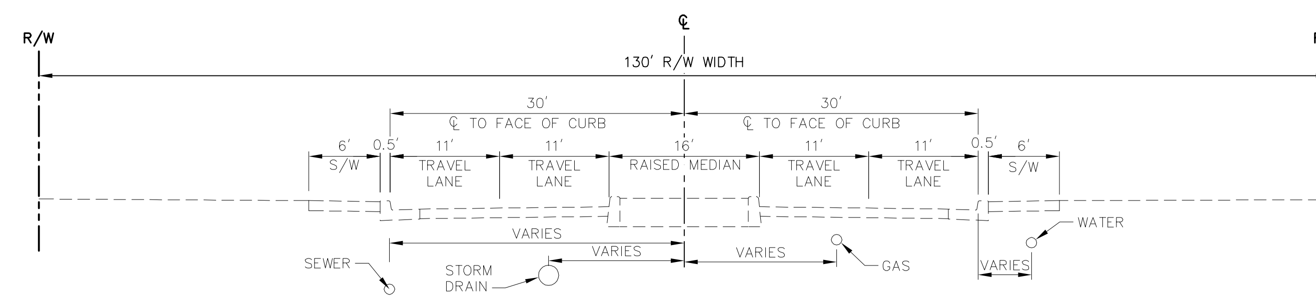

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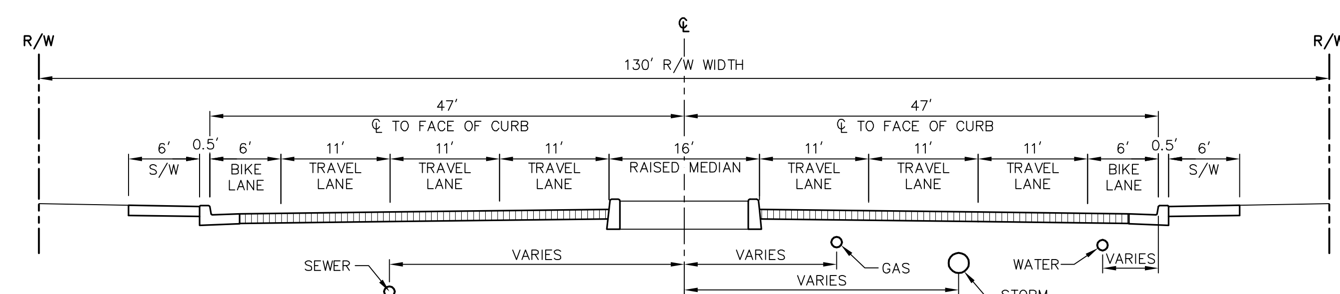

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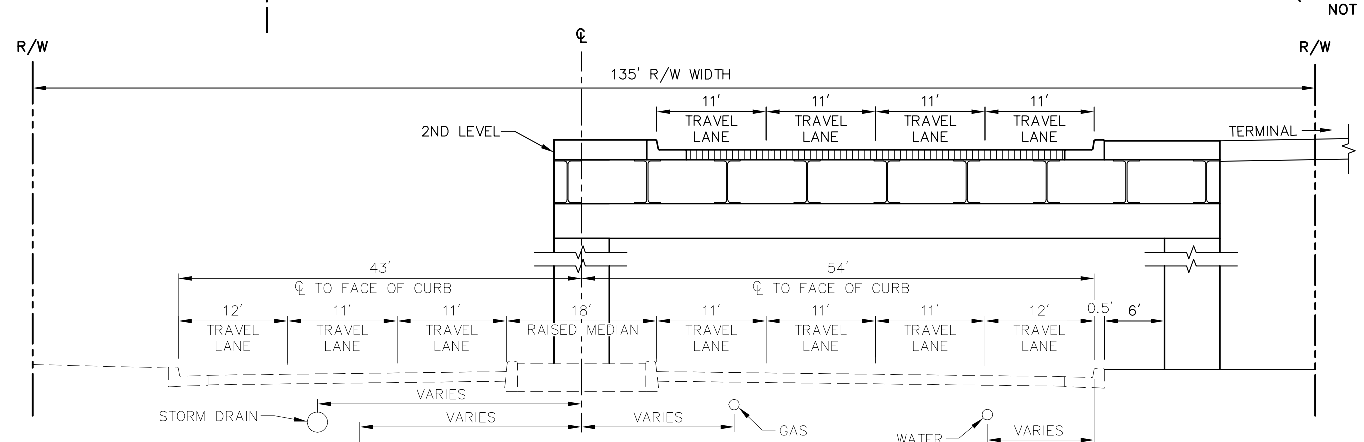

GATEWAY BOULEVARD (LOOP ROAD)
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NORTHEAST AREA DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT
PHASE 3
PRELIMINARY TYPICAL SECTIONS

Date: 01–13–2011	JOB NO:	SHEET 1 OF 1

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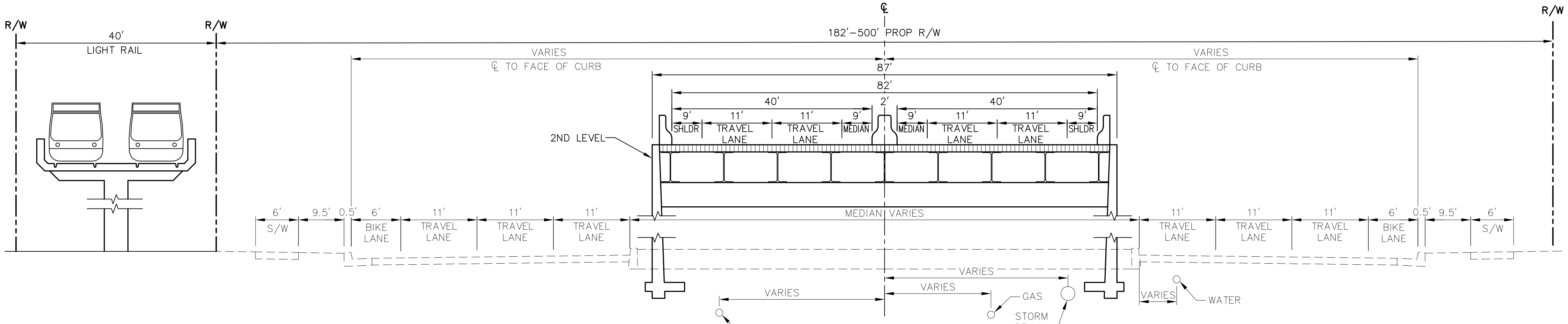

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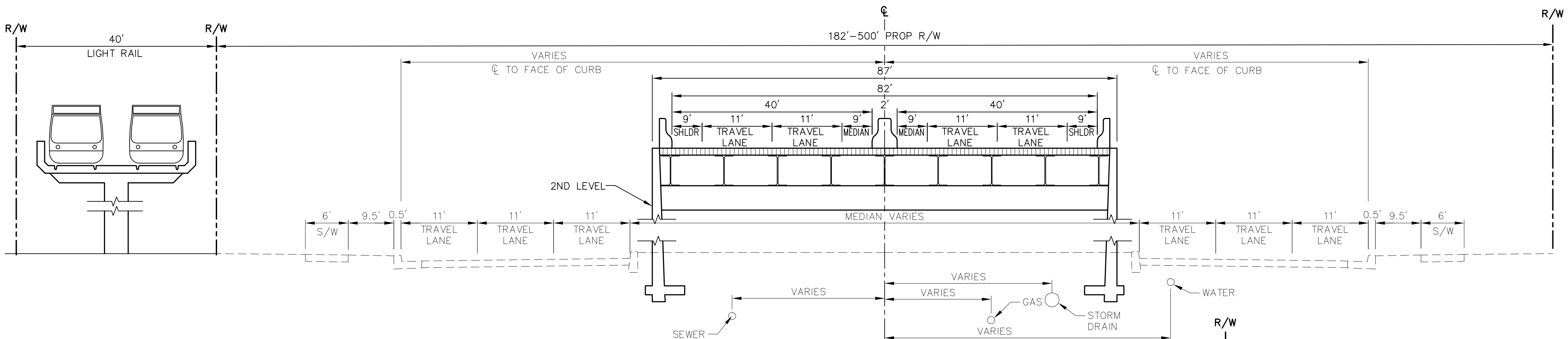

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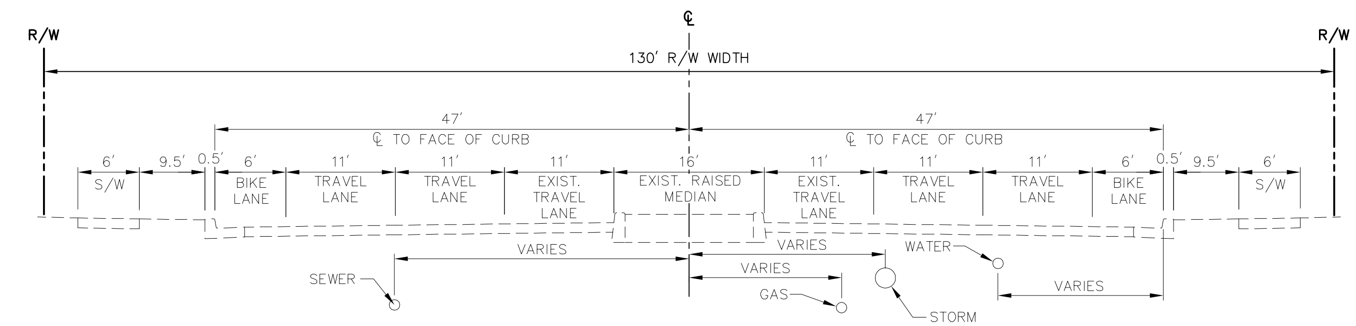

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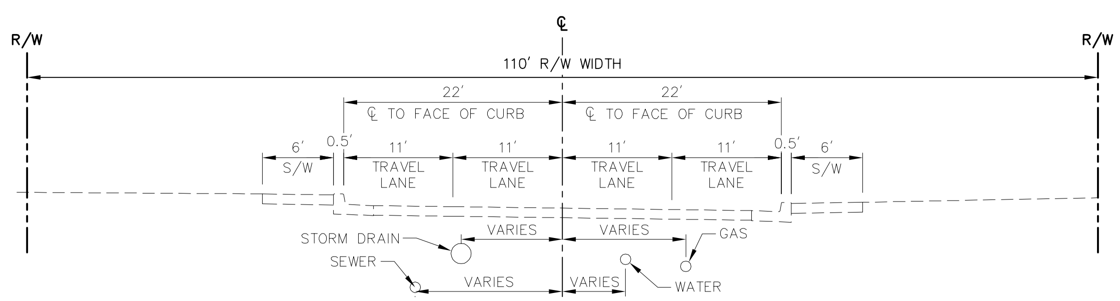

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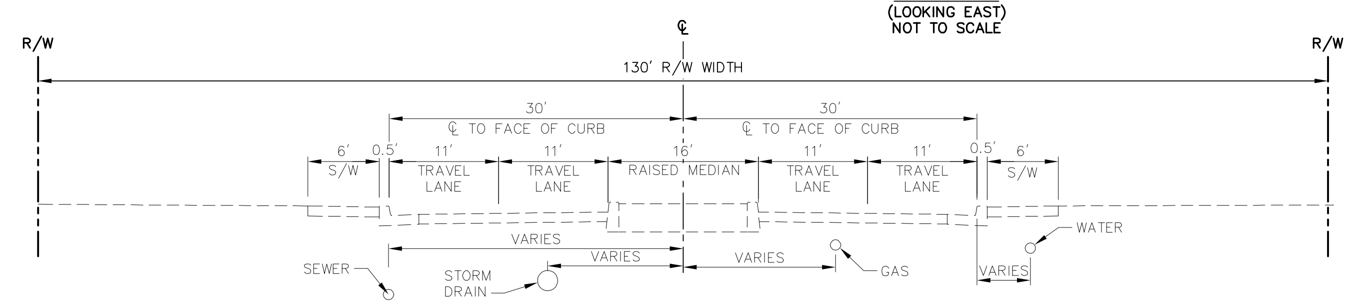

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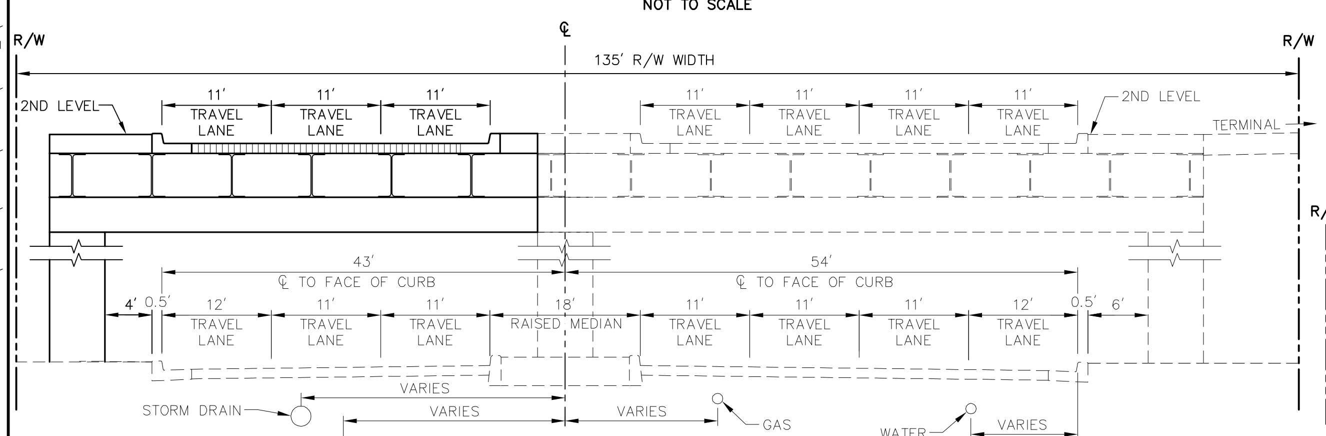

GATEWAY BOULEVARD (LOOP ROAD)

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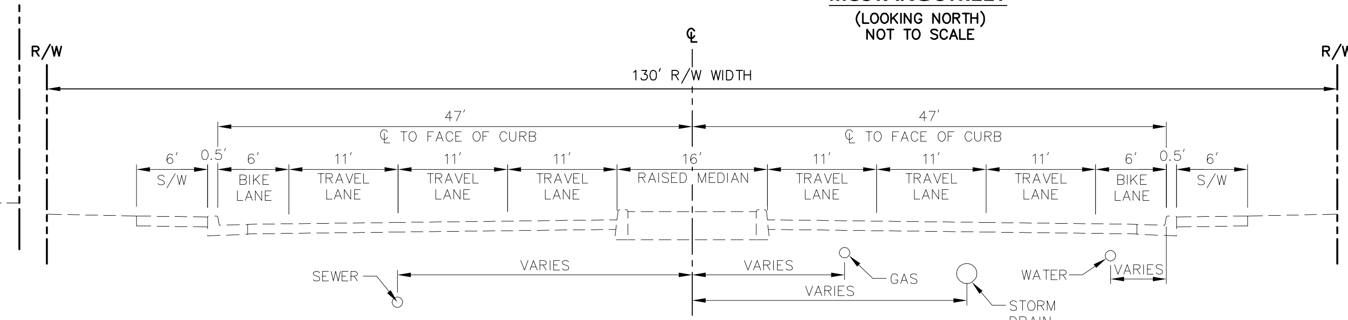

GRAND CANYON DRIVE

(LOOKING EAST)
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NORTHEAST AREA DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT PHASE 4 PRELIMINARY TYPICAL SECTIONS

Date: 01–13–2011 | JOB NO: | SHEET 1 OF 1

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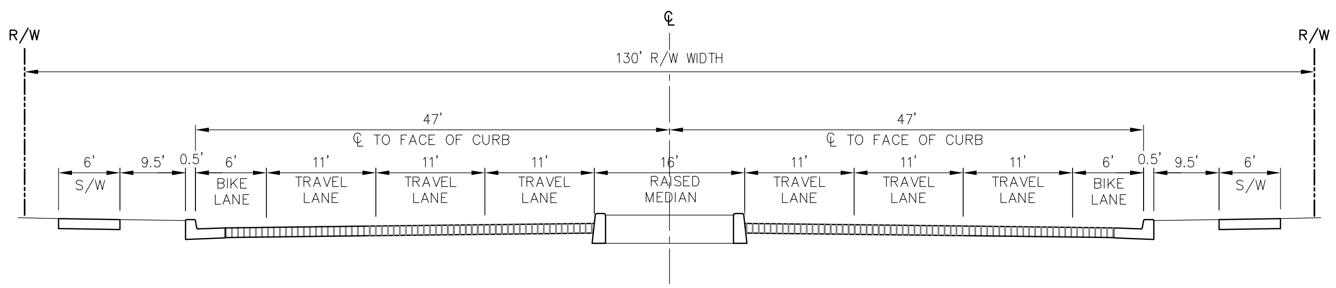

SECTION A-A

RAY ROAD (Ultimate Typical Section)

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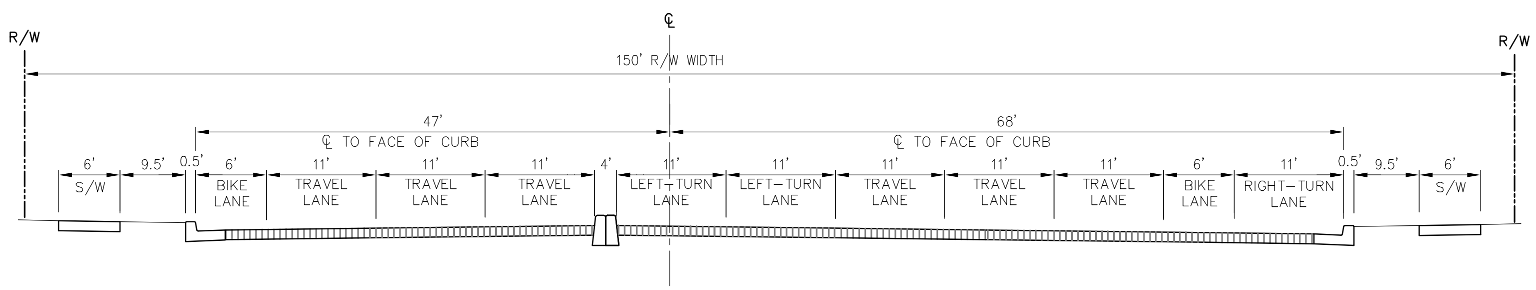

SECTION B-B

RAY ROAD (Ultimate Typical Section)

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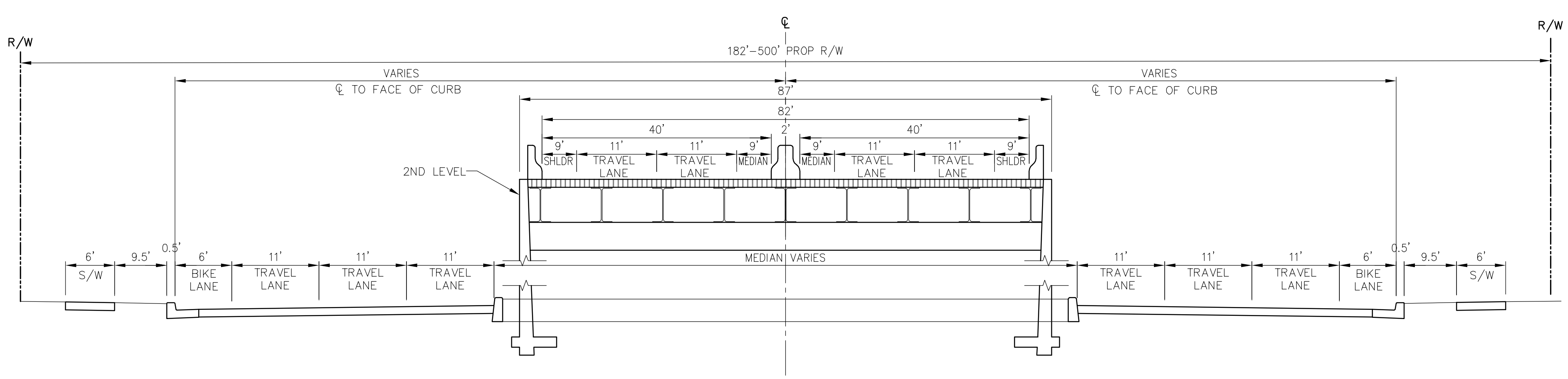

SECTION C-C

HAWES ROAD (Ultimate Typical Section)

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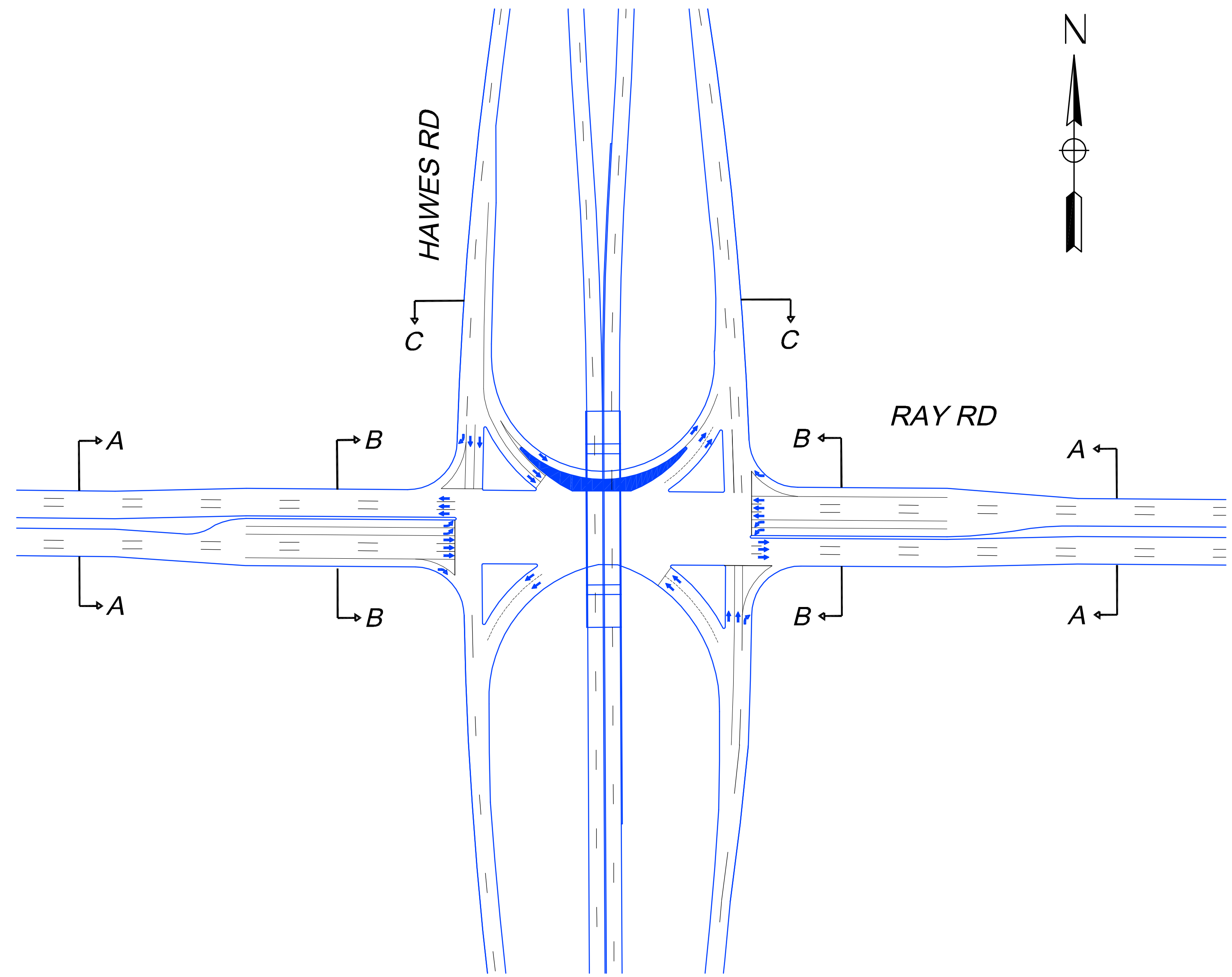

HAWES ROAD AND RAY ROAD

CONCEPTUAL INTERSECTION LAYOUT

(Ultimate Configuration)

NOT TO SCALE

DRAFT

FOR INFORMATION ONLY

JACOBS

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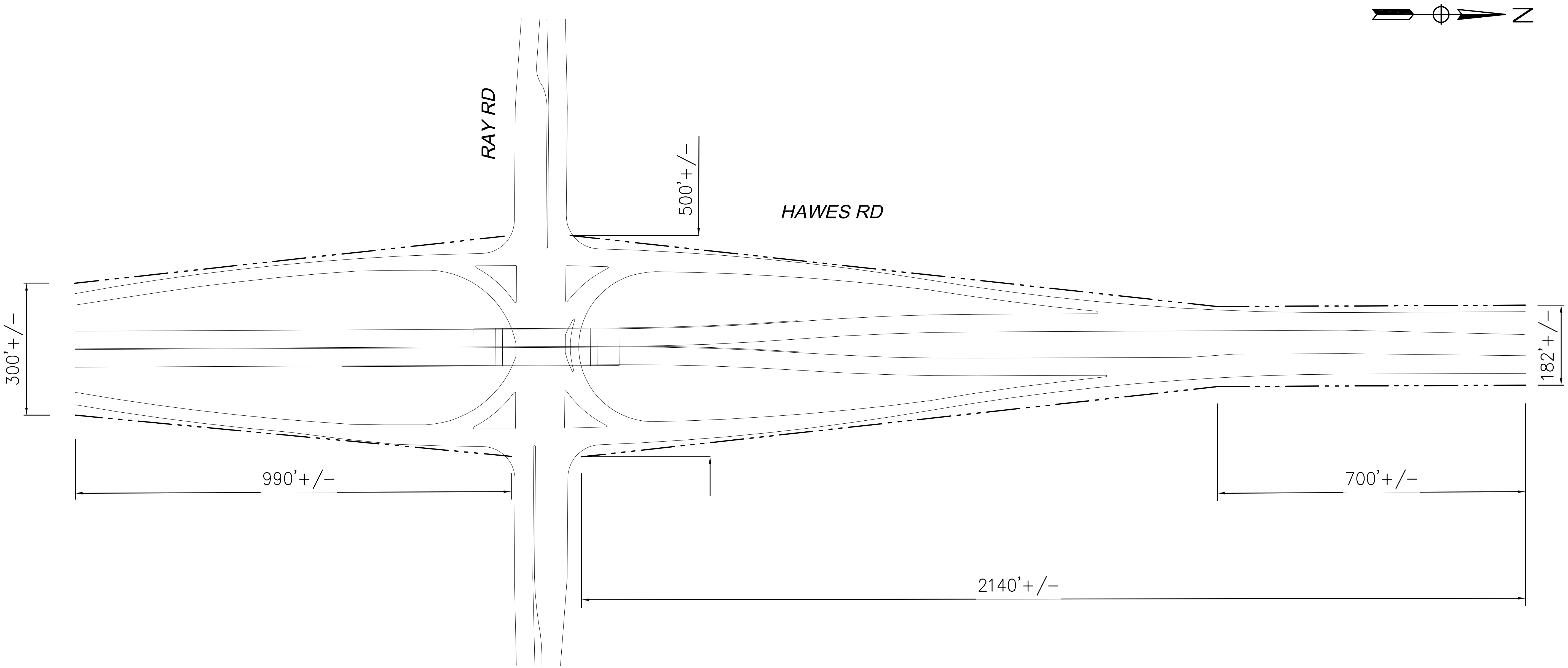
NORTHEAST AREA DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT
HAWES ROAD AND RAY ROAD
PRELIMINARY INTERSECTION LAYOUT
AND TYPICAL SECTIONS

Date: 01-15-2012	JOB NO:	SHEET 1 OF 1



HAWES ROAD AND RAY ROAD

RIGHT-OF-WAY (APPROXIMATE)
(Ultimate Configuration)
NOT TO SCALE

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NORTHEAST AREA
DEVELOPMENT PLAN STUDY

PHOENIX-MESA GATEWAY AIRPORT
HAWES ROAD AND RAY ROAD
RIGHT-OF-WAY (APPROXIMATE)

Date: 04-13-2012	JOB NO:	SHEET 1 OF 1