CITY OF PRESCOTT
ARIZONA
PRESCOTT REGIONAL AIRPORT
Ernest A. Love Field

Prepared For:
City of Prescott
Prescott, Arizona

PRESCOTT REGIONAL AIRPORT - ERNEST A. LOVE FIELD AIRPORT MASTER PLAN

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Table of Contents

Chapter One | Introduction 1-1
1 | Section 1 - Introduction 1-1
1 | Section 2 - Study Design 1-2
Chapter Two | Existing Conditions 2-1
2 | Section 1 - Existing Conditions Inventory 2-1
2 | Section 2 - Airport Background 2-2
2.2 | Part 1 - Airport Role and Classification 2-2
2.2 | Part 2 - Airport Location 2-4
2.2 | Part 3 - Airport History 2-6
2.2 | Part 4 - Summary of Commercial Service 2-10
2.2 | Part 5 - Ownership and Management 2-10
2 | Section 3 - Regional Context 2-12
2.3 | Part 1 - Surrounding Airports 2-12
2.3 | Part 2 - Climate and Topography 2-14
2.3 | Part 3 - Service Area and Demographic Profile 2-15
2.3 | Part 4 - Surrounding Land Use 2-25
2.3 | Part 5 – Through-the-Fence Agreements 2-26
2 | Section 4 - Description of Existing Facilities 2-27
2.4 | Part 1 - Existing Airport Layout 2-27
2.4 | Part 2 - Existing Design Criteria 2-30
2.4|Part 3 - Airspace 2-35
2.4| Part 4 - Airside Facilities 2-47
2.4 | Part 5 - Landside Facilities 2-81
2.4 | Part 6 - Support Facilities and Services 2-86
2.4 | Part 7 Other On-Airport Facilities 2-93
2.4 | Part 8 - Utilities 2-96
2 | Section 5 - Historical Levels and Trends of Aviation Demand 2-98
2.5 | Part 1 - Enplanements 2-99
2.5 | Part 2 - Operations 2-101
2.5 | Part 3 - Based Aircraft 2-104
2 | Section 6 - Environmental Overview 2-107
2.6 | Part 1 - Air Quality 2-108
2.6 | Part 2 - Biological Resources 2-109
2.6 | Part 3 - Climate 2-109
2.6 | Part 4 - Coastal Resources 2-109
2.6 | Part 5 - Department of Transportation Act: Section 4(f) 2-110
2.6 | Part 6 - Farmlands 2-110
2.6 | Part 7 - Hazardous Materials, Solid Waste, and Pollution Prevention 2-110
2.6 | Part 8 - Historical, Architectural, Archaeological, and Cultural Resources 2-111
2.6 | Part 9 - Land Use 2-111
2.6 | Part 10 - Natural Resources and Energy Supply 2-113
2.6 | Part 11 - Noise and Noise - Compatible Land Use 2-113
2.6 | Part 12 - Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks 2-116
2.6 | Part 13 - Visual Effects 2-117
2.6 | Part 14 - Water Resources 2-117
2 | Section 7 - Financial Data, Businesses, and Tenants 2-119
2.7 | Part 1 - Historical Airport Revenues 2-120
2.7 | Part 2 - Historical Operating Expenses 2-121
2 | Section 8 - Summary of Existing Conditions 2-123

Chapter Three | 3-1
Forecasts of Aviation Demand 3-1
3 | Section 1 - Introduction 3-1
3 | Section 2 - General Aviation Demand 3-3
3.2 | Part 1 - Types of General Aviation Operations 3-3
3.2 | Part 2 - Review of Applicable Prior Planning Studies 3-5
3.2 | Part 3 - Baseline of Actual Based Aircraft 3-8
3.2 | Part 4 - General Aviation User Survey 3-9
3.2 | Part 5 - General Aviation Forecasts 3-10
General Aviation Forecasts 3-14
3 | Section 3 - Air Carrier Demand 3-21
3.3 | Part 1 - Introduction 3-21
3.3 | Part 2 - Federal Subsidy Programs 3-22
3.3 | Part 3 - Federal and State Grants-in-Aid Pertaining to Air Carrier Service 3-24
3.3 | Part 4 - Airline Passenger/Activity Survey/Studies 3-25
3.3 | Part 5 - Development of the Air Carrier Demand Model 3-28
3 | Section 4 - Air Cargo Demand 3-43
3.4 | Part 1 - Introduction - Historical Activity 3-43
3.4 | Part 2 - Forecasts of Future Activity 3-43
3 | Section 5 - Training Activity 3-45
3.5 | Part 1 - Current Activity 3-45
3.5 | Part 2 - Forecasts of Future Activity 3-45
3 | Section 6 - U.S. Forest Service Activity 3-46
3.6 | Part 1 - Introduction - Historical Activity 3-46
3.6 | Part 2 - Forecasts of Future Activity 3-46
3 | Section 7 - Military Operations 3-48
3.6 | Part 1 - Existing and Future Activity 3-48
3 | Section 8 - Critical Aircraft Determination 3-49
3.8 | Part 1 - Introduction 3-49
3.8 | Part 2 - Total Fleet Mix / Forecasts of Operations by Type for GA and Air Carrier Activity 3-49
3.8 | Part 3 - Itinerant / Local Operations Distribution 3-52
3.8 | Part 4 - Transient / Based Operations Distribution 3-52
3.8 | Part 5 - Critical Aircraft 3-55
3 | Section 9 - Demand / Capacity Analysis 3-58
3.9 | Part 1 - Introduction 3-58
3.9 | Part 2 - Seasonal Use of the Airport 3-58
3.9 | Part 3 - Peaking Tendencies 3-60
3.9 | Part 4 - Annual Service Volume 3-61
3.9 | Part 5 - Hourly Capacity 3-62
3 | Section 10 - Summary of Aviation Demand Forecasts 3-63
3.10 | Part 1 - General Aviation Forecasts 3-63
3.10 | Part 2 - Air Carrier Forecasts 3-64
3.10 | Part 3 - Summary of Forecasts 3-66
Chapter Four | 4-4
Facility Requirements 4-4
4 | Section 1 - Introduction 4-4
4 | Section 2 - Criteria for Determination of Facility Requirements Recommendation 4-6
4 | Section 3 - FAA Design Standards & Non-Standard Conditions 4-8
4 | Section 4 - Airfield and Airspace Capacity 4-10
4.4 | Part 1 - Runway Capacity 4-11
4.4 | Part 2 - Airspace Capacity 4-11
4.4 | Part 3 - Part 77 Penetrations 4-12
4.4 | Part 4 - Obstructions to Runway Design Surfaces 4-13
4 | Section 5 - Airside Facility Requirements 4-14
4.5 | Part 1 - Runway Requirements 4-14

4.5 | Part 2 - Taxiway Requirements 4-40
4.5 | Part 3 - Apron Requirements 4-46
4.5 | Part 4 - Airfield Lighting Systems and Visual Approach Aids 4-50
4.5 | Part 5 - Navigational Aids (NAVAIDs) 4-52
4.5 | Part 6 - Instrument Approach Procedures 4-53
4.5 | Part 7 - Weather Reporting Systems 4-53
4|Section 6 - Landside Facility Requirements 4-55
4.6 | Part 1 - Commercial Service Terminal Building 4-55
4.6 | Part 2 - Hangars 4-56
4.6 | Part 3 - FBO Buildings 4-58
4.6 | Part 4 - Airport Access 4-59
4.6 | Part 5 - Automobile Parking 4-59
4.6 | Part 6 - Wayfinding 4-63
4 | Section 7 - Support Facilities 4-64
4.7 | Part 1 - Aviation Fuel Storage and Delivery Area 4-65
4.7 | Part 2 - Aircraft Rescue & Firefighting (ARFF) Building 4-65
4.7 | Part 3 - Maintenance Equipment and Storage 4-66
4.7 | Part 4 - Snow Removal Equipment and Storage 4-66
4.7 | Part 5 - Ground Support Equipment (GSE) Storage Building 4-66
4.7 | Part 6 - Airport Administrative Building 4-67
4.7 | Part 7 - Airport Security Program Requirements and Perimeter Fencing 4-67
4.7 | Part 8 - Air Traffic Control Tower 4-68
4.7 | Part 9 - Aircraft Wash Facility 4-68
4.7 | Part 10 - Rental Car Service Facility 4-69
4.7 | Part 11 - Airport Perimeter Road 4-69
4 | Section 8 - Land & Easement Acquisition 4-70
4 | Section 9 - Facility Requirement Summary 4-71
Chapter Five | Alternatives Development and Evaluation 5-4
5 | Section 1 - Alternatives Analysis 5-4
5 | Section 2 - Methodology and Evaluation Criteria 5-5
5 | Section 3 - Runway Alternatives 5-7
5.3 | Part 1 - Runway 3R-21L 5-7
5.3 | Part 2 - Runway 3L-21R 5-21
5.3 | Part 3 - Runway 12-30 5-29
5.3 | Part 4 - Runway Visibility Zone 5-36
5 | Section 4 - Taxiway Alternatives 5-41
5.4 | Part 1 - Taxiway E 5-41
5.4 | Part 2 - Taxiway F 5-48
5 | Section 5 - Air Traffic Control Tower Alternatives 5-58
5.5 | Part 1 - ATCT 5-58
5 | Section 6 - GA Development Alternatives 5-65
5.6 | Part 1 - North Development 5-65
5.6 | Part 2 - East Development 5-71
5.6 | Part 3 - South Development 5-77
5.6 | Part 4 - Clubhouse Drive 5-83
5 | Section 7 - Preferred Alternative 5-90
5 | Section 8 - Noise 5-95
Chapter Six | Funding Feasibility and Implementation Plan 6-4
6 | Section 1 - Introduction 6-4
6 | Section 2 - Funding Sources 6-6
6.2 | Part 1 - Federal Aviation Administration (FAA) Funds 6-6
6.2 | Part 2 - Arizona Department of Transportation - Aeronautics Division (ADOT) Funds 6-7
6.2 | Part 3 - Local Funds 6-8
6.2 | Part 4 - Other Capital Funds 6-8
6.2 | Part 5 - Passenger Facility Charges 6-8
6.3 | Part 6 - Customer Facility Charge 6-9

6 | Section 3 - Airport Capital Improvement Program (ACIP) 6-10
6.3 | Part 1 - Phase I Development 6-11
6.3 | Part 2 - Phase II Development 6-13
6.3 | Part 3 - Phase III Development 6-13
6 | Section 4 - ACIP Summary 6-17
6 | Section 5 - Financial Analysis 6-18
6.5 | Part 1 - Airport Financial Structure 6-18
6.5 | Part 2 - Historic and Projected Airport Revenue 6-19
6.5 | Part 3 - Historic and Projected Operating Expenses 6-20
6.5 | Part 3 - Historic and Projected Operating Expenses 6-21
6.5 | Part 4 - Historic and Projected Net Income 6-22
6 | Section 6 - Conclusions 6-24

List of Tables

Table 2-1. Grant History 2-8
Table 2-1. Grant History (Continued) 2-9
Table 2-2. Arizona/Yavapai Population 2-16
Table 2-2. Arizona and Yavapai County Population 2-16
Table 2-3. Arizona and Yavapai County Per Capita Income 2-17
Table 2-4. Yavapai County Top Employers 2-18
Table 2-5. Yavapai County Population 2-19
Table 2-6. Estimated General Aviation Service Area Population 2-24
Table 2-7. Typical Aircraft Operating at PRC 2-32
Table 2-8. Wind Coverage 2-34
Table 2-9. Airport Communications 2-36
Table 2-10. Existing Runway Protection Zones 2-44
Table 2-11. Declared Distances for Runway 3R-21L 2-45
Table 2-12. Declared Distances for Runway 3L-21R 2-45
Table 2-13. Declared Distances for Runway 12-30 2-46
Table 2-14. Existing Runway Data 2-51
Table 2-15. Runway Designation Analysis 2-52
Table 2-16. Lighting Analysis 2-57
Table 2-17. Wind Cone Summary 2-60
Table 2-18. REILs Summary 2-61
Table 2-19. PAPI Summary 2-61
Table 2-20. Approach Summary 2-65
Table 2-21. Pavement Area Summary 2-74
Table 2-22. Breakdown of Pavement by Age 2-75
Table 2-23. Non-Standard Conditions 2-80
Table 2-24. Size and Description of Executive Hangars 2-82
Table 2-25. Size and Description of T-Hangars and Shade Hangars 2-82
Table 2-26. Size and Description of Storage and Maintenance Hangars 2-83
Table 2-27. Fuel Storage and Dispensing Equipment 2-87
Table 2-29. ARFF Equipment. 2-88
Table 2-28. Fuel Sales 2-88
Table 2-30. Maintenance Equipment 2-89
Table 2-31. Snow Removal Equipment 2-90

Table 2-32. Automobile Parking 2-92
Table 2-33. Other Buildings 2-94
Table 2-34. Businesses on the Airfield 2-95
Table 2-35. Monthly Enplanements 2-98
Table 2-36. Annual Enplanements 2-99
Table 2-37. Annual General Aviation Operations 2-102
Table 2-38. Annual Military Operations 2-103
Table 2-40. Current Based Aircraft 2-104
Table 2-39. Historical Cargo Operations 2-104
Table 2-41. Based Aircraft 2-105
Table 2-42. Based Aircraft Fleet Mix 2-106
Table 2-43. Historical Airport Revenue 2-121
Table 2-44. Historical Airport Operating Expenses 2-122
Table 3-1. Comparison of Prior Forecasts - General Aviation Operations 3-6
Table 3-2. Comparison of Prior Forecasts - Based Aircraft 3-7
Table 3-3. Actual Based Aircraft Inventory Results 3-9
Table 3-4. Based Aircraft / Population - Arizona and Yavapai County 3-12
Table 3-5. FAA Aerospace Forecasts - Growth Factors 3-14
Table 3-6. Forecast of General Aviation Demand - Based Aircraft 3-16
Table 3-7. Historical Operations and 2016 Operations Adjustment 3-17
Table 3-8. Forecast of General Aviation Demand - Operations 3-18
Table 3-9. Comparison of Based Aircraft Forecast to FAA Terminal Area Forecasts 3-19
Table 3-10. Comparison of General Aviation Operations to FAA Terminal Area Forecasts 3-20
Table 3-11. Passenger 3-29
Enplanements at PRC 3-29
Table 3-12. Comparison of Prior Forecasts - Air Carrier Operations 3-32
Table 3-13. Comparison of Prior Forecasts - Enplanements 3-33
Table 3-14. Airline Activity Forecasts - Growth/Maintenance Plan 3-37
Table 3-15. Airline Activity Forecasts - Full Market Capture Plan 3-39
Table 3-16. Comparison of Airline Operations Forecast to FAA Terminal Area Forecasts 3-41
Table 3-17. Comparison of Enplanements Forecast to FAA Terminal Area Forecasts 3-42
Table 3-18. Forecast Air Cargo Operations 3-44
Table 3-19. U.S. Forest Service Activity 3-47
Table 3-20. Total General Aviation and Air Carrier Operations 3-50
Table 3-21. Fleet Mix - Total General Aviation and Air Carrier Operations 3-51
Table 3-22. Itinerant / Local Operations Distribution 3-53
Table 3-23. Transient / Based Operations Distribution 3-54
Table 3-24. Potential Aircraft 3-56
Table 3-25. Potential Critical Aircraft - Existing and Ultimate 3-57
Table 3-26. Average Seasonal Use by Month 3-59
Table 3-27. Peak Activity - Monthly, Daily, Hourly 3-61
Table 3-28. Summary of Forecasts 3-67
Table 4-1. Non-Standard Conditions 4-9
Table 4-2. Comparison of Existing Demand vs. Existing Capacity 4-11
Table 4-3. Forecasted Demand vs. Future Runway Capacity 4-11
Table 4-4. Known Runway Penetrations 4-12
Table 4-5. Obstructions 4-13
Table 4-6. Approximate Takeoff RW Requirements - Runway 12-30 - Design Aircraft - Embraer E170 4-27
Table 4-7. Runway Design Code 4-28

Table 4-8. Runway Safety Area Recommendations 4-29
Table 4-9. Runway Object Free Area Summary 4-32
Table 4-10. Runway Protection Zone Summary and Recommendations 4-36
Table 4-11. Runway Design Code 4-36
Table 4-12. Summary of Existing Design Standard Conditions at PRC Runways 4-37
Table 4-13. Runway Magnetic Declination 4-38
Table 4-14. Taxilanes with Non-Standard TLOFA 4-44
Table 4-15. Taxiway Pavement Maintenance 4-45
Table 4-16. Summary of Taxiway Design Standards 4-45
Table 4-17. Transient Aircraft Activity for Planning Period 4-47
Table 4-18. Apron Parking Area Requirements for Transient Aircraft 4-47
Table 4-19. Based Aircraft Apron Requirements Summary 4-48
Table 4-20. Apron Pavement Maintenance Plan 4-49
Table 4-21. Published Instrument Approach Procedures 4-53
Table 4-22. Aircraft Storage Breakdown 4-56
Table 4-24. Total Hangar Requirements 4-57
Table 4-23. Hangar Planning Criterion 4-57
Table 4-25. Southside (Legend Aviation) Automobile Parking Requirements 4-60
Table 4-26. Eastside (Rittaire) Automobile Parking Requirements 4-60
Table 4-27. Westside (Guidance/Admin) Automobile Parking Requirements 4-61
Table 4-28. Commercial Service Terminal Automobile Parking Requirements 4-62
Table 4-29. Proposed Facility Requirements 4-72
Table 6-1. Current Estimated Costs of each phase 6-11
Table 6-2. Airport Capital Improvement Plan Phase I 6-12
Table 6-3. Airport Capital Improvement Plan Phase II 6-14
Table 6-4. Airport Capital Improvement Plan Phase III 6-16
Table 6-5. Funding Services 6-17
Table 6-6. Historical Airport Revenue 6-19
Table 6-7. Projected Airport Revenue 6-20
Table 6-8. Historic Operating Expenses 6-20
Table 6-9. Projected Operating Expenses 6-21
Table 6-10. Historic Net Income 6-22
Table 6-11. Projected Net Income 6-22
Table 6-12. Projected Net Income (Capital Project Needs) 6-23

List of Figures

Figure 2-1. Airport Vicinity Map 2-4
Figure 2-2. Airport Location Map 2-5
Figure 2-3. Airport Timeline 2-7
Figure 2-4. Airport Management Hierarchy 2-11
Figure 2-5. Surrounding Airports 2-13
Figure 2-6. Prescott Regional Airport - Ernest A. Love Field Climate 2-14
Figure 2-7. Arizona Population 2-16
Figure 2-8. Yavapai County Population 2-16
Figure 2-9. Arizona and Yavapai County Per Capita Income 2-17

Figure 2-10. Based Aircraft Owner Locations 2-22
Figure 2-11. Airline Passenger Service Area (Yavapai County) 2-23
Figure 2-12. Surrounding Land Use 2-26
Figure 2-13. Airfield Equipment and Support Facilities 2-28
Figure 2-14. Federal Airspace Classifications 2-37
Figure 2-15. IFR Airspace 2-38
Figure 2-16. VFR Airspace 2-39
Figure 2-17. Existing FAR Part 77 Airspace 2-40
Figure 2-18. Airfield System 2-48
Figure 2-19. Airport Diagram 2-54
Figure 2-20. Ramps 2-56
Figure 2-21. Overall Ramps 2-58
Figure 2-21. ILS Approach Procedure, Runway 21L 2-67
Figure 2-22. RNAV Approach Procedure, Runway 21L 2-68
Figure 2-23. RNAV/GPS Approach Procedure, Runway 3R 2-69
Figure 2-24. RNAV/RNP Approach Procedure, Runway 3R 2-70
Figure 2-25. RNAV/GPS Approach Procedure, Runway 12 2-71
Figure 2-26. VOR Approach Procedure, Runway 12 2-72
Figure 2-27. Pavement Type 2-75
Figure 2-28. Pavement Condition Index Summary (PCI) 2-76
Figure 2-29. Pavement Condition by Area Type 2-77
Figure 2-30. Pavement Condition Index 2-78
Figure 2-31. Existing Buildings 2-84
Figure 2-32. Historical Enplanements 2-100
Figure 2-33. Historical Air Carrier Operations 2-100
Figure 2-34. General Aviation Operations 2-102
Figure 2-35. Military Operations 2-103
Figure 2-36. Historical Based Aircraft 2-105
Figure 2-37. Historical Based Aircraft by Type 2-106
Figure 2-38. Existing Noise Contours 2-115
Figure 3-1. Comparison of Prior Forecasts - General Aviation Operations 3-6
Figure 3-2. Comparison of Prior Forecasts - Based Aircraft 3-7
Figure 3-3. Based Aircraft / Population - Arizona and Yavapai County 3-12
Figure 3-4. Aircraft Fleet Mix Forecast - Based Aircraft 3-16
Figure 3-5. Historical Operations and 2016 Operations Adjustment 3-17
Figure 3-6. Aircraft Fleet Mix Forecast - Based Aircraft 3-18
Figure 3-7. Comparison of Based Aircraft Forecast to FAA Terminal Area Forecasts 3-19
Figure 3-8. FAA Terminal Area Forecasts Comparison - General Aviation Operations 3-20
Figure 3-9. Passenger Enplanements At PRC 3-29
Figure 3-10. Comparison of Prior Forecasts - Air Carrier Operations 3-32
Figure 3-11. Comparison of Prior Forecasts - Enplanements 3-33
Figure 3-12. Airline Activity Forecasts - Growth/Maintenance Plan 3-37
Figure 3-13. Airline Activity Forecasts - Full Capture Plan 3-39
Figure 3-14. FAA Terminal Area Forecasts Comparison - Airline Operations 3-41
Figure 3-15. FAA Terminal Area Forecasts Comparison - Enplanements 3-42
Figure 3-16. Forecast Air Cargo Operations 3-44
Figure 3-17. Total General Aviation and Air Carrier Operations 3-50
Figure 3-18. Fleet Mix - Total General Aviation and Air Carrier Operations 3-51
Figure 3-19. Itinerant / Local Operations Distribution 3-53
Figure 3-20. Transient / Based Operations Distribution 3-54

Figure 3-21. Average Seasonal Use by Month - 1986 through 2016 3-59
Figure 3-22. Summary of Forecasts 3-67

List of Appendices

Appendix A - Existing Condition Noise Analysis
Appendix B - General Aviation User Survey Results
Appendix C - Yavapai County Airline Passenger Survey Results
Appendix D - Embry-Riddle Aeronautical University: Current and Projected Activity
Appendix E - Runway Incursion Mitigation(RIM) Study
Appendix F - Terminal Building Site Assessment
Appendix G - Future Condition Noise Analysis
Appendix H - Traffic Retention and Leakage Study

Chapter One | Introduction

Section 1 - Introduction
Section 2 - Study Design

Image by Delta Airport Consultants, Inc.

1 | Section 1 - Introduction

The City of Prescott, in conjunction with the FAA and ADOT, has undertaken this Airport Master Plan

The Prescott Regional Airport - Ernest A. Love Field (PRC) is a dynamic aviation facility situated to the east of Prescott National Forest in Arizona. In recent years, the combination of shifts in commercial airline service, fluctuations in general aviation activity, the completion of various improvement projects, and updates to Federal Aviation Administration (FAA) design criteria have all contributed to changing conditions at the airport. In order to provide guidance through these changing conditions and in anticipation of emerging trends, the City of Prescott, in conjunction with the FAA and the Arizona Department of Transportation (ADOT), has chosen to undertake this airport master planning effort. The outcome of this effort will provide a 20-year outlook related to aviation demand and will provide guidance and recommendations for future developments and infrastructure needs for PRC.

1 | Section 2 - Study Design

Development of airport master plans is guided by procedures and requirements stipulated in FAA *Advisory Circular (AC) 150/5070-6B, Airport Master Plans*. The criteria contained in this AC calls for the collection and review of existing conditions at an airport and in the community it serves, development of forecasts of aviation demand, and an evaluation of these demand inputs on existing airport facilities and infrastructure to guide the development of a recommended 20-year capital improvement plan.

Beyond these fundamental planning elements, a high-level overview of environmental issues is conducted along with an examination of airspace obstructions both on and off the airport which may impact the safe operation of aircraft.

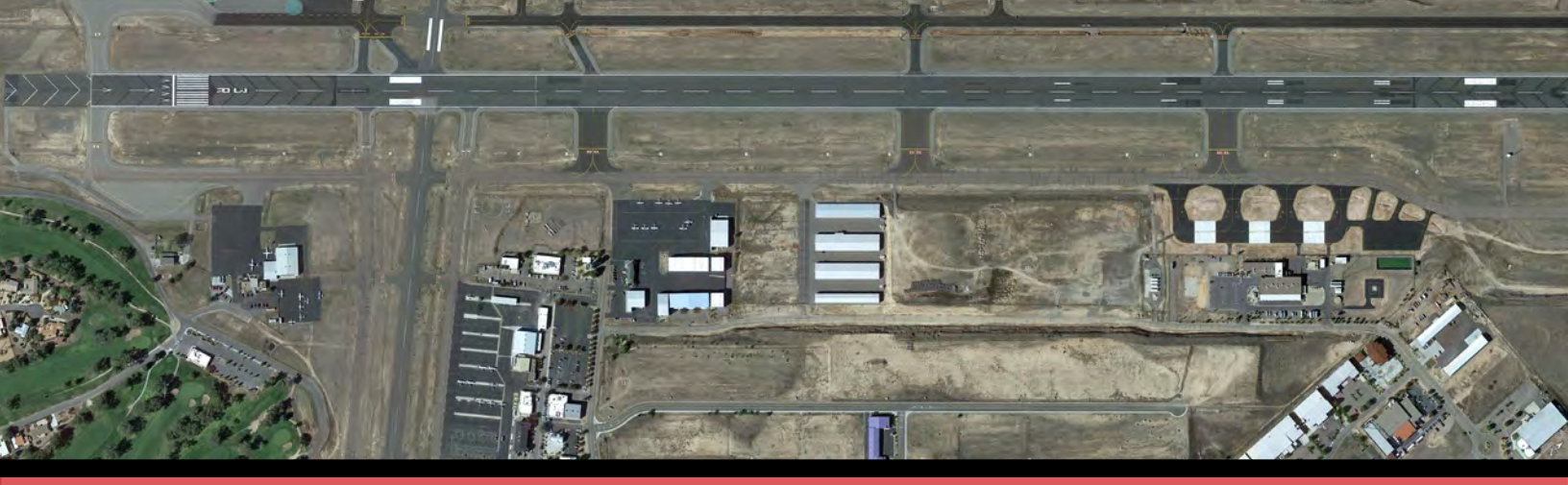
This PRC Airport Master Plan (Master Plan) conforms to the criteria established in the AC as described above. In addition, a financial feasibility and implementation plan will be created to help guide the execution of the proposed alternative. The critical output for the Master Plan is the development of an updated Airport Layout Plan (ALP) set, which graphically depicts current and future recommended facilities for PRC, along with a property map and airspace and obstruction drawings. The ALP is a critical document for FAA funding. The FAA will not fund improvement projects unless they are identified on the Airport's ALP.

Understanding... Airport Master Planning

Master plans offer airport officials, state aviation agencies, the FAA, community planners, and local governmental officials a valuable decision making tool to help guide future development at an airport.

The master planning process is comprised of a series of fundamental elements; each element is typically identified as a defined task in the study effort and may be presented as an individual chapter in the Master Plan report.

At the completion of the PRC master planning process, the FAA, ADOT, and the City will review all elements to ensure sound planning techniques have been applied. These agencies only approved the aviation forecasts and the ALP drawing set.



Chapter Two | Existing Conditions

Section 1 - Existing Conditions Inventory
Section 2 - Airport Background
Section 3 - Regional Context
Section 4 - Description of Existing Facilities
Section 5 - Historic Levels and Trends of Aviation Demand
Section 6 - Environmental Overview
Section 7 - Financial Data, Businesses, and Tenants
Section 8 - Summary of Existing Conditions

Image by Google Earth

2 | Section 1 - Existing Conditions Inventory

This chapter provides an overview of existing conditions at the Prescott Regional Airport - Ernest A. Love Field (PRC). Sources of information referenced for this chapter include, but are not limited to:

- 1986 Airport Master Plan
- 1998 Airport Master Plan
- 2010 Airport Master Plan
- 2008 Arizona State Airport System Plan (SASP) Update
- U.S. Census Bureau
- FAA Order 1050.1F, Environmental Impacts: Policies and Procedures
- PRC Airport Records
- On-site visual inspection of PRC

Section Overview

Part 1 | Airport Role and Classification
Part 2 | Airport Location
Part 3 | Airport History
Part 4 | Summary of Commercial Service
Part 5 | Ownership and Management

Image by Delta Airport Consultants, Inc.

2 | Section 2 - Airport Background

2.2 | Part 1 - Airport Role and Classification

2017-2021 National Plan of Integrated Airport Systems lists PRC as a Regional Airport with Non-Primary Commercial Service

Prescott Regional Airport - Ernest A. Love Field is a Primary Commercial Service airport and is certificated by the Federal Aviation Administration (FAA) in accordance with 14 CFR Part 139 to accommodate air carrier activity. It serves the commercial and general aviation (GA) needs of Yavapai County, including Prescott, Chino Valley, Prescott Valley, Dewey-Humboldt, and Mayer. Prescott provides a myriad of services to the flying public and links the region to markets both domestically and internationally.

Based on 2018 Passenger Emplanements, PRC is considered a Non-Hub Primary Commercial Service Airport

For purposes of defining Prescott Regional Airport - Ernest A. Love Field's role within the 20-year planning horizon in the context of the national and state aviation systems, the National Plan of Integrated Airport Systems (NPIAS) 2017-2021 lists PRC as a Regional airport with Non-Primary Commercial Service. While not identified in the NPIAS, PRC became a non-hub primary commercial service airport in 2019 due to passenger enplanements. The 2008 Arizona State Airports System Plan classifies PRC as a Commercial Service airport. As a Commercial Service airport, PRC provides scheduled air carrier service and/or commuter service to domestic locations. According to the Arizona State Airports System Plan the objective for Commercial Service airports such as PRC is to maintain a minimum FAA Airport Reference Code of Category "C" design criteria (ARC-C) and provide a precision instrument approach where practicable.

Understanding...Airport Classifications

Federal airport classifications are published within the National Plan of Integrated Airport Systems (NPIAS) as required by the Airport and Airways Improvement Act of 1982. This FAA planning document is updated bi-annually in an effort to identify the nation's airport needs over a 10-year planning period and classify airports based on their significance to the air transportation system.

Only those airports within the NPIAS are eligible to receive federal Airport Improvement Program (AIP) funding. As of February 2016, there are 5,136 public-use airports in the United States. Of these, 3,332 (65 percent) have been deemed significant to air transportation and have therefore been included in the NPIAS.

Likewise, the State of Arizona classifies the role of airports within the Arizona State Airports System Plan.

Commercial Service - Primary

Airports that enplane less than 0.05 percent of all commercial passenger enplanement but have more than 10,000 annual enplanements

Commercial Service - Non-Primary

Airports that have between 2,500 and 10,000 annual passenger enplanements

Cargo Airport

Served by aircraft providing air transportation of only cargo with a total annual landed weight of more than 100 million pounds.

Reliever Airport

High-capacity general aviation airports in major metropolitan areas that are open to the public, have 100 or more based aircraft, or have 25,000 annual itinerant operations

General Aviation Airport

Do not receive scheduled commercial service or do not meet the criteria for commercial service airport. Classification in the NPIAS typically requires at least 10 based aircrafts and at least 20 miles from the nearest NPIAS airport.

2.2 | Part 2 - Airport Location

Highway 89 and 89A connect PRC to other major regions and points of commerce

PRC is located within Yavapai County, Arizona, in the central portion of the state approximately ten miles northeast of the City of Prescott. PRC is approximately eight miles south of Chino Valley, AZ, ten miles north of Prescott Valley, and 20 miles northwest of Dewey-Humboldt. The City of Prescott serves as the official County seat for Yavapai County.

PRC is located at the crossroads of Highways 89 and 89A (**Figure 2-1**). These highways strategically connect the region to major areas of commerce to points north, south, east, and west. Other significant roadways in the region include U.S. Highways 69, 260, 169, and Interstate 17.

PRC is located approximately 100 miles north of Phoenix, 95 miles southwest of Flagstaff, and 115 miles south of the Grand Canyon National Park. **Figure 2-2** depicts the overall location of PRC in Arizona with the adjacent interstate highways noted.

Airport Vicinity Map

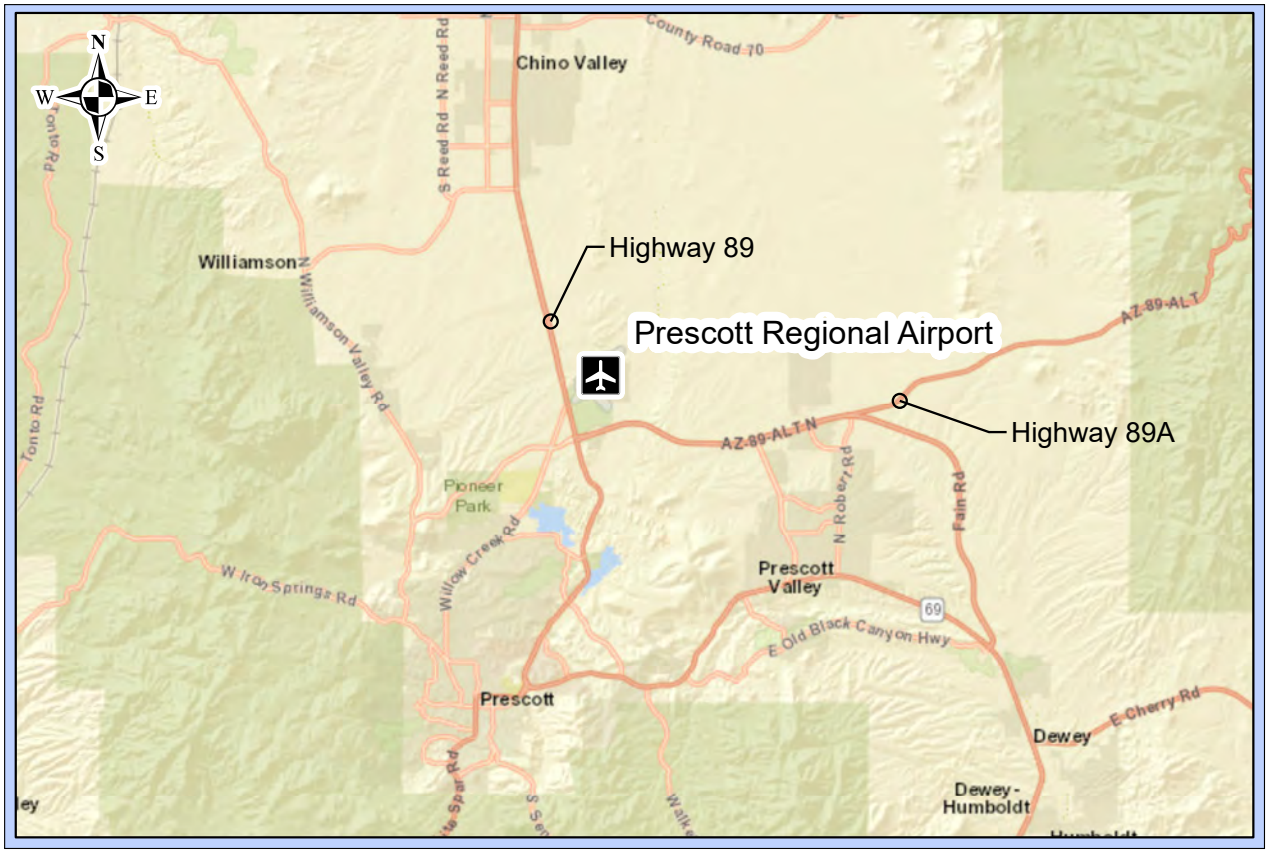


Figure 2-1. Airport Vicinity Map

Source: Delta Airport Consultants, Inc., Esri, HERE, DeLorme, USGS, Intermap, Increment P. Corp., NRCAN

Airport Location Map

Figure 2-2. Airport Location Map

Source: Delta Airport Consultants, Inc., Background from National Geographic, Esri, DeLorme, HERE, UNEP-WCNC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, Increment P. Corp.

Image by Delta Airport Consultants, Inc.

2.2 | Part 3 - Airport History

1926: Prescott Regional Airport - Ernest A. Love Field was opened on July 4. The land was leased to the Yavapai County Chamber of Commerce by Perkins Cattle Co. The airport consisted of two airstrips with 100 foot wide aircraft parking area at the intersection of the two airstrips.

1920s and 1930s: Growth and development occurred with the installation of a telephone line and booth (1928), building of three hangars (1932), a boxcar was placed for use as a terminal building (1934), financing for the airport was included in the city budget to pay for the phone line and the sale of the property to the City, and additional runway grading was completed to improve safety.

The airport is named to honor Ernest Alexander Love (1895–1918), First Lieutenant, United States Army Air Service. Love was born in New Mexico and raised in Prescott. He was a graduate of Prescott High School and later studied mechanical engineering at Stanford University. During World War I, he served as a fighter pilot. Lieutenant Love's aircraft was shot down near Verdun, France on September 16, 1918; he died of his wounds as a prisoner of war a few days later. Lieutenant Love is buried at Arlington National Cemetery. The airport was officially rededicated in his name as Ernest A. Love Field on August 28, 1928.

Source: wwww.prcairport.com

1940s and 1950s: Prescott Regional Airport - Ernest A. Love Field doubled in size and added lights to the airfield. Stinson Flying School was developed, more hangar buildings were added, and management of the airport was handed over to the City (1942). A restaurant opened, and Monrovia Flying Service and Colbach Flying Service began operating on the airfield (1943). The airport constructed a control tower to monitor the airfield, and the U.S. Navy began leasing hangars and buildings to train new recruits (1944). Commercial Airlines began to establish themselves on the airfield with Arizona Airways in 1946 and Frontier Airlines in 1950. In 1948, the administration building was built, which is now the commercial terminal building. Due to the additional traffic, improvements and lengthening of the runway were required, bringing the total length to 7,616 feet (1951). A terminal building was built (1959) along with fuel tanks to increase fuel availability.

1960s and 1970s: Bonanza Airline replaced Frontier Airlines in 1962. The same year, the U.S. Forest Service fire-fighting facility opened up on the airport. In 1970, a new flight service building was constructed along with new hangars in the following years. The airport upgraded its lighting system and updated the Master Plan in 1974, and bought a fire truck to help respond to potential fires on the airfield. A new flight school, Embry-Riddle Aeronautical University (ERAU), was founded in 1977.

1980s and 1990s: The FAA set up an Automated Flight Service Station at the airport (1984). The U.S. Forest Service built a new fire-fighting facility at the airport (1988). Runway 3L-21R was constructed to help relieve the traffic on Runway 3R-21L (1993). A new Master Plan study was developed to help the airport set goals for supporting the needs of the region (1998). The airport built a new aviation fuel storage facility (1998). Additional hangars and safety improvements were constructed throughout the 1990s.

2000s to Present: There have been continuous efforts to rehabilitate the existing pavement, in addition to new construction to maintain the existing airfield environment. There have also been improvements to the overall traffic flow of the airfield with construction of additional taxiways and taxilanes. Increased upgrades to the airfield lighting system to improve visibility at nighttime navigation. Runway safety area improvements and obstruction removal have been addressed to improve airfield and airspace safety.

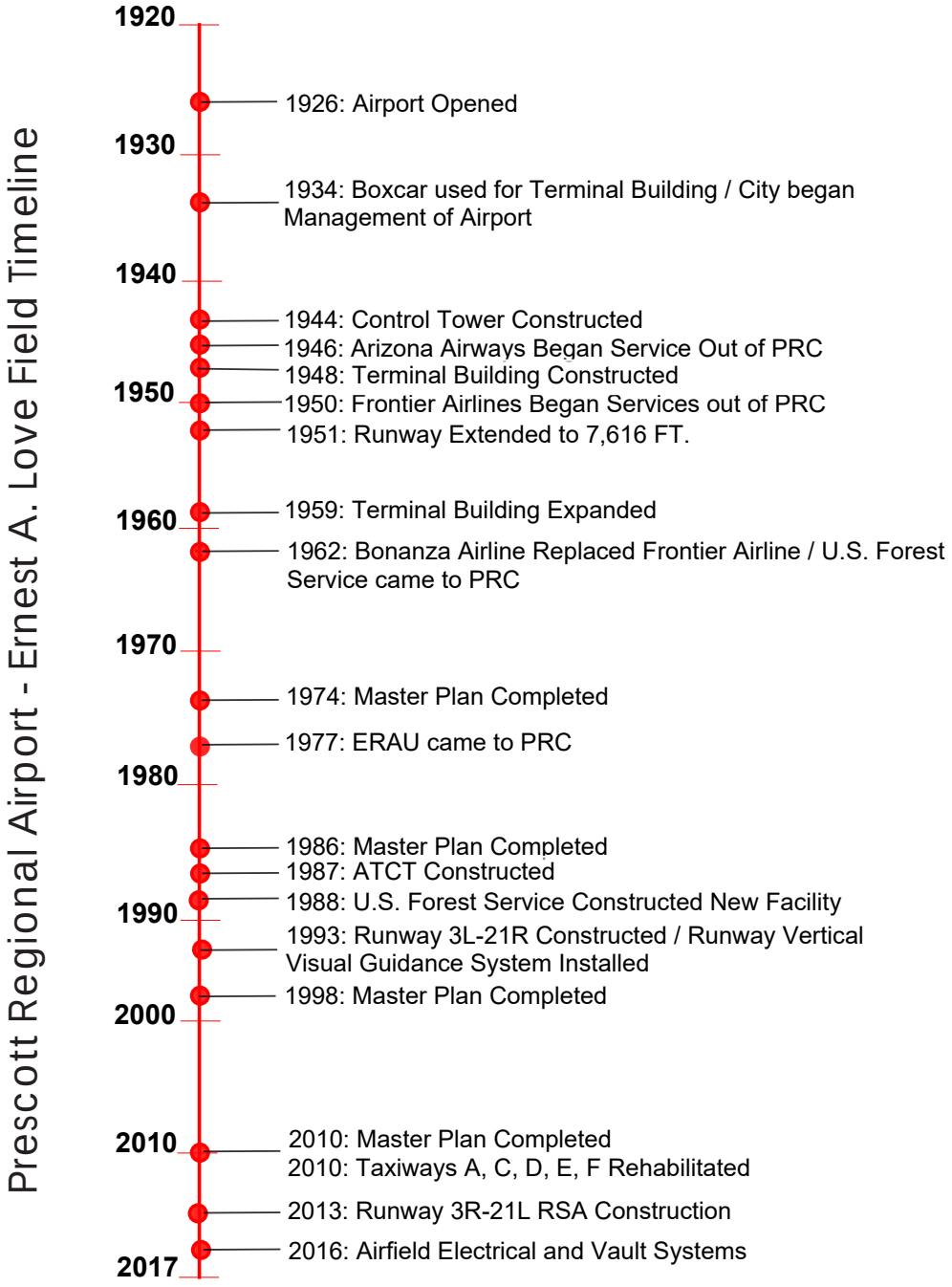


Figure 2-3. Airport Timeline
Source: Airport Records

Table 2-1 summarizes the grant history at PRC since 1982. The grants have included a wide range of projects on the airfield to improve or maintain the airport facility.

Table 2-1. Grant History

Year	Description	Amount
1982	Acquire Land for Approaches	$ 169,785
1983	Rehabilitate Aprons and Taxiways	$ 792,671
1984	Construct Apron and Rehabilitate Runway	$ 729,075
1985	Airport Master Plan Update	$ 80,907
1987	Improve Access Road	$ 369,532
1988	Site Preparation New Apron, Terminal Building, and Taxiway	$ 650,000
1989	Install Security Fencing and Gate, Install Guidance Signs, Air Traffic Control Tower (ATCT) Lighting Panel, Construct New Taxiway, Expand Apron	$ 904,956
1989	Environmental Assessment	$46,915
1990	Acquire Land for New Taxiways	$ 1,303,216
1991	Acquire Land for Airport Improvement and Site Preparation for Runway and Taxiways	$ 3,107,981
1992	Construct new Runway and Taxiway, Improve Airport Drainage	$ 4,481,727
1993	Rehabilitate Apron and Taxiway, Install Runway Vertical Visual Guidance System	$ 809,952
1994	Rehabilitate Runway and Taxiway Lighting, Install Apron Lighting and Construct Taxiway	$ 989,473
1995	Rehabilitate Runway and Land Acquisition for Approaches	$ 615,412
1996	Expand Apron	$ 383,697
1997	Rehabilitate Taxiway and Apron	$ 476,887
1998	Improve Runway Safety Area	$ 500,000
2000	Acquire Aircraft Rescue and Fire Fighting (ARFF) Equipment	$ 374,107

Source: Airport Management, 2010 ALP Report

Table 2-1. Grant History (Continued)

Year	Description	Amount
2001	Construct Service Road and Runway Safety Area	$ 1,585,250
2002	Construct Access Road	$ 150,000
2003	Conduct Environmental Impact Statement Study	$ 93,615
2004	Install Perimeter Fencing and Gate, Conduct Runway Safety Area Study	$ 748,805
2005	Conduct Runway Safety Area Study and Rehabilitate Taxiway Lighting	$ 871,754
2006	Update Master Plan Study	$ 185,000
2008	Security Enhancements	$ 25,000
2008	Conduct Environmental Study	$ 180,000
2009	Construct Aircraft Rescue and Fire Fighting Building	$ 100,000
2009	Update Master Plan Study	$ 23,750
2009	Conduct Wildlife Hazard Assessment	$ 80,081
2010	Rehabilitate Taxiways A, C, D, E, F and Improve Taxiway Markings	$ 202,033
2011	Improve Runway 3R-21L Safety Area	$ 2,571,365
2011	Improve Runway 3R-21L Safety Area	$ 6,769,559
2015	Install Emergency Generator, Install Taxiway Lighting	$ 3,539,500
2015	Acquire Aircraft Rescue and Fire Fighting Vehicle	$ 380,000
2018	Runway 3R-21L Rehabilitation, Hot Spot Mitigation	$5,685,767
2019	Terminal Design	$1,000,000
2019	New Terminal	$10,000,000
2019	Taxiway C Relocation, Hot Spot Mitigation (Design)	$807,000

Source: Airport Management, 2010 ALP Report

2.2 | Part 4 - Summary of Commercial Service

Commercial airline service was offered by Great Lakes Airlines until April 30, 2017

Commercial airline service at Prescott Regional Airport - Ernest A. Love Field was recently offered by Great Lakes Airlines. Great Lakes utilized Beechcraft 1900 and Embraer EMB-120 aircraft. These aircraft made four flights Monday - Friday, two flights Sunday, and one flight Saturday to and from Los Angeles International Airport (LAX). Wednesday and Sunday there was one flight to and from Denver International Airport (DEN) connecting through New Mexico. Great Lakes provided service through the Essential Air Service (EAS) program funded by the U.S. Department of Transportation. The EAS contract was for a two year period from May 1, 2015 to April 30, 2017. The next EAS contract was from May 1, 2017 to April 30, 2019. Great Lakes Airlines ceased operations in March of 2018. See Air Carrier Service Area, **Section 2.3.3**, for additional information.

2.2 | Part 5 - Ownership and Management

PRC is owned and operated by the City of Prescott

The airport is owned and operated by the City of Prescott. The City of Prescott is currently responsible with the maintenance, operation, and development of the airport. The City is fully responsible and accountable for all fiscal matters and management including annual operating budget approval, funding deficits, establishing the airport capital improvement plan, setting rates and charges, acquiring and disposing of property, and contract negotiations.

The City of Prescott hires an Airport Director who is responsible for implementing policy decisions of the City of Prescott and for the day-to-day operations of the airport. The Airport Director reports to the City Manager. An Assistant Airport Director coordinates the administrative, budget, and daily activities of airport services.

The Operations/Maintenance Supervisor has three full-time Operations Technicians and two Maintenance Specialists who help oversee airport operations, maintenance, public safety, and security at the airport, including compliance with 14 CFR Part 139 and Part 1542 Airport Security. Collectively, the Airport Staff is comprised of nine full-time employees. **Figure 2-4** depicts the staff organization at PRC.

Staff Organizational Chart

Prescott Regional Airport - Ernest A. Love Field

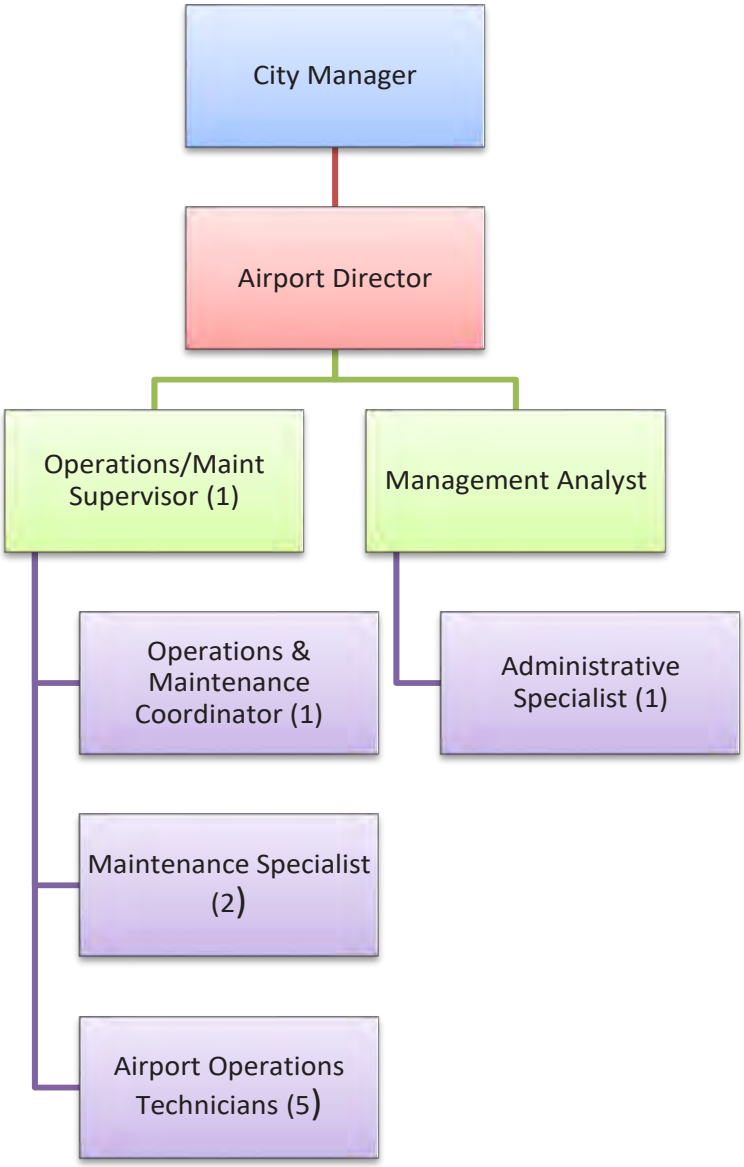


Figure 2-4. Airport Management Hierarchy
Source: Airport Management, based on the PRC Organizational Chart effective November 2019.

Section Overview

Part 1 | Surrounding Airports
Part 2 | Climate and Topography
Part 3 | Service Area and Demographic Profile
Part 4 | Surrounding Land Use
Part 5 | Through-the-Fence Agreements

Image by PRC

2 | Section 3 - Regional Context

2.3 | Part 1 - Surrounding Airports

There are four publicly owned airports in Yavapai County

Within Arizona, there are 52 public-use airports included in the FAA's National Plan of Integrated Airport System (NPIAS). Of these, 35 are general aviation airports, eight are reliever airports, six are Non-Primary Commercial Service airports, two small Primary Commercial Service hubs, and one large Primary Commercial Service hub. As can be seen in **Figure 2-5**, several general aviation and commercial service airports are located in close proximity to PRC.

There are four other publicly owned airports in Yavapai County: Seligman Airport, Sedona Airport, Cottonwood Airport, and Bagdad Airport. Each of these facilities only has a single runway. Cottonwood Airport and Sedona Airport are in the NPIAS and listed as Basic and Regional Airports respectively, but none offer the level of service or facilities currently available at PRC.

Other airports offering commercial service that are near Prescott include: Flagstaff Pulliam Airport in Flagstaff, Arizona; Phoenix Sky Harbor International, in Phoenix, Arizona; Phoenix-Mesa Gateway Airport, in Mesa, Arizona; and Grand Canyon National Park Airport, located in Grand Canyon Village, Arizona. Phoenix Sky Harbor is designated in the NPIAS as a Primary Large-hub airport. Phoenix-Mesa Gateway is designated in the NPIAS as a Primary Small-hub airport. Flagstaff and Grand Canyon are both designated as Primary Non-hub Commercial Service airports.

Surrounding Airports

Prescott Regional Airport - Ernest A. Love Field

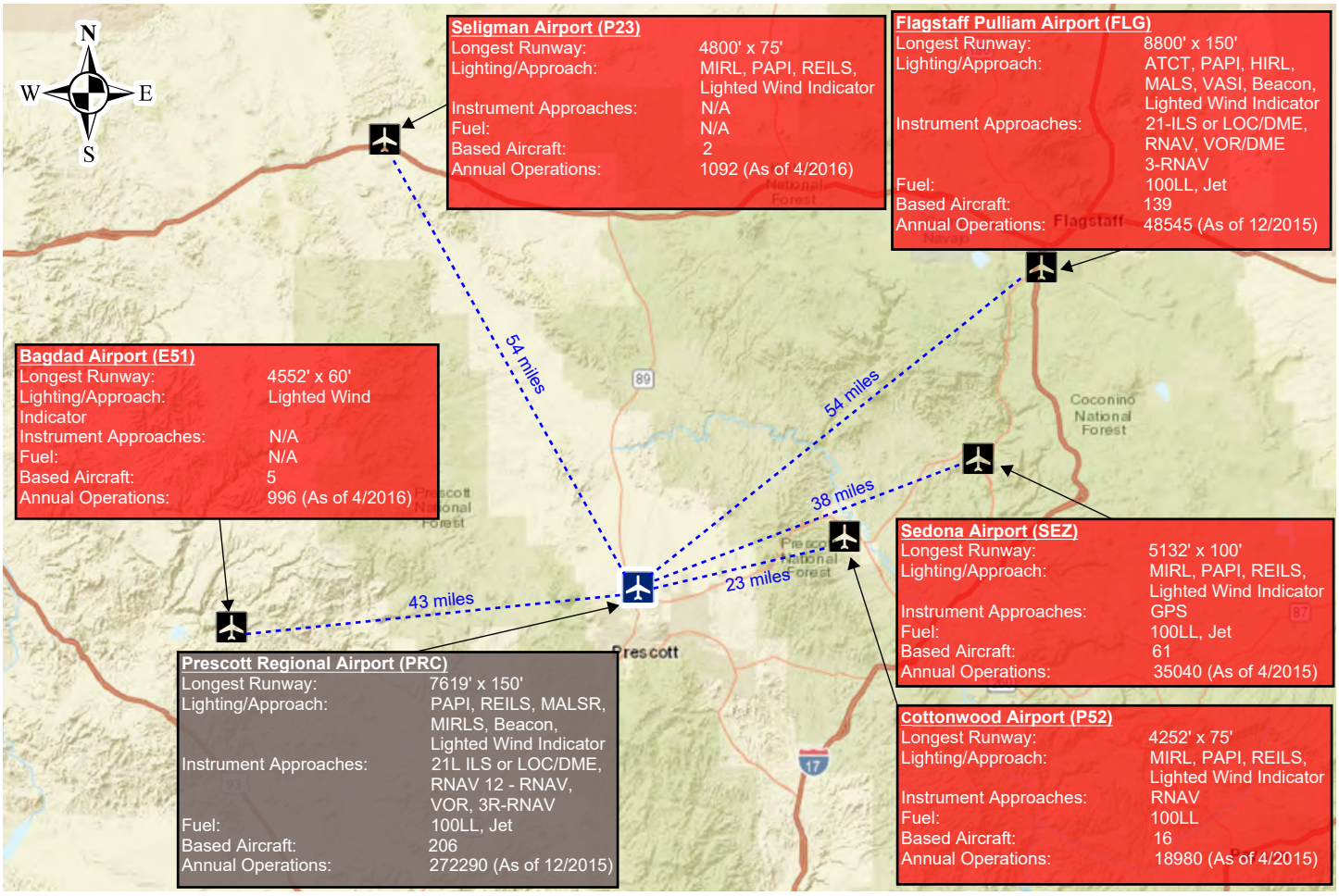


Figure 2-5. Surrounding Airports

Source: FAA 5010 Master Record. AIRNAV. Map created by Delta Airport Consultants, Inc., December 2016

Notes: LIRL/MIRL/HIRL = Low/Medium/High Intensity Runway Light

PAPI= Precision Approach Path Indicator

REIL = Runway End Identifier Light

RNAV = Area Navigation

LOC = Localizer

ILS = Instrument Landing System

2.3 | Part 2 - Climate and Topography

Image by Delta Airport Consultants, Inc.

Runway 3L looking North

PRC is situated at the fringe of Prescott National Forest, which includes the Bradshaw Mountain Range. PRC is surveyed at an elevation of 5,044.9 feet above mean sea level, with the airport reference point at 34° 39' 17.400" North and 112° 25' 09.200" West.

The surrounding topography is a high desert valley located between two mountain ranges. The mountain ranges are Bradshaw Mountains to the west and the Black Hills to the east, which reach roughly 8,000 feet on either side of the valley. The valley area ranges from 4,000 to 5,000 feet in elevation.

PRC is located in central Arizona near Prescott National Forest where average annual precipitation is relatively moderate, receiving approximately 17.9 inches of rain and 13 inches of snow annually. Average temperatures range from 24°F in January to 89°F in July. **Figure 2-6** depicts the climate by month for the area surrounding PRC.

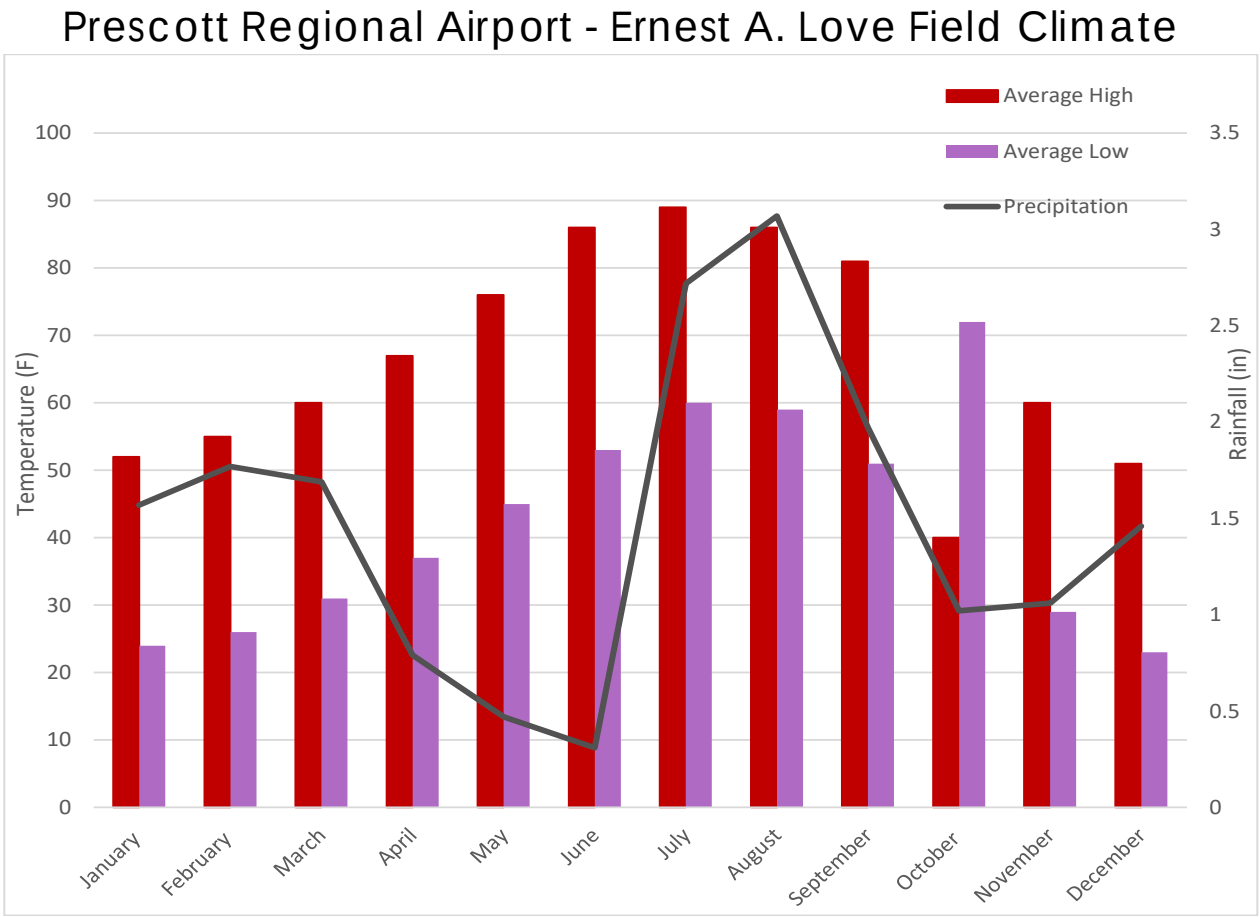


Figure 2-6. Prescott Regional Airport - Ernest A. Love Field Climate

Source: U.S. Climate Data, 2015-2018

2.3 | Part 3 - Service Area and Demographic Profile

2.3.3 | 1 - Demographics

The various economic characteristics of the local area that an airport serves will affect its demand for aviation services. National and regional economic trends may also affect the demand at the airport, but several specific and identifiable local economic factors that may be unique to the geographic area served by the airport might also play a significant role in determining demand. The types of industry and commercial activity within an airport's service area could also affect aviation demand. Manufacturing and service industries tend to generate more aviation activity than resource industries such as mining and agriculture.[1] Concentrated pilot training or on-airport aircraft repair businesses also affect demand, and this factor is driven primarily by the aircraft industry trends.

Typically, the demographic characteristics of the airport's service area may also affect the demand for aviation services. These characteristics can influence the level, type, and growth in both local air traffic activity and traffic from other areas. In the past, population growth (or decline) has been a simple and an important measure of the potential demand for air services. Factors such as relative available leisure time and recreational activity may also be important in estimating activity, but can be difficult to measure. Another important demographic factor is the service area's level of income, usually measured on a per capita basis, which, in the past, has been a good indicator of the propensity for the population to travel via commercial service airlines, the level of use of existing based general aviation aircraft, and also the potential for the population to purchase general aviation aircraft and services at the airport.[1] As will be discussed in the following narrative, and further in *Chapter 3, Forecasts of Aviation Demand* these indicators have become much less reliable, especially for smaller airports.

A summary of historical demographic indicators for the 2005-2014 period of record is presented below in **Tables 2-2 and 2-3**. The indicators included represent the population and per capita income for Yavapai County as compared to that of the State of Arizona for the same period.

2.3.3 | 2 - Population

Table 2-2 indicates that while the State's population[2] grew at an average 10-year rate of 1.44%, Yavapai County's average population[2] growth lagged by 0.3%. The County's population 10-year growth was 1.14%. County population actually decreased during 2009-2010 in response to the economic downturn that began in 2007. This may be a reflection of people leaving the area to seek employment elsewhere, quite possibly to the Phoenix metropolitan area. However, recovery within the County began in 2011 and appears to be gathering strength, actually outpacing the State's growth in 2013 and 2014.

Table 2-2. Arizona and Yavapai County Population

Year	Arizona Population	Annual Change	Yavapai County Population	Annual Change
2005	5,839,077	-	195,424	-
2006	6,029,141	3.26%	204,082	4.43%
2007	6,167,681	2.30%	208,773	2.30%
2008	6,280,362	1.83%	211,211	1.17%
2009	6,343,154	1.00%	211,172	-0.02%
2010	6,411,999	1.09%	210,517	-0.31%
2011	6,472,867	0.95%	211,185	0.32%
2012	6,556,236	1.29%	212,509	0.63%
2013	6,634,997	1.20%	215,389	1.36%
2014	6,731,484	1.45%	218,844	1.60%
Average Growth (10- year) :		**1.44%**	-	**1.14%**

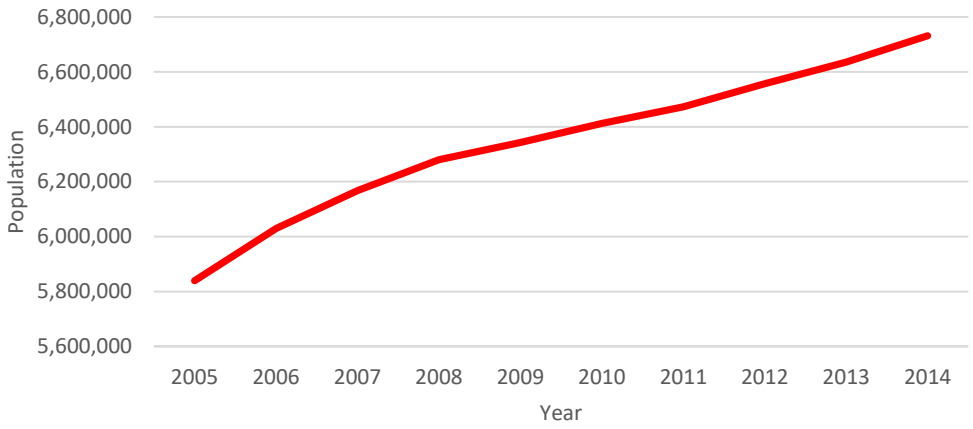


Figure 2-7. Arizona Population

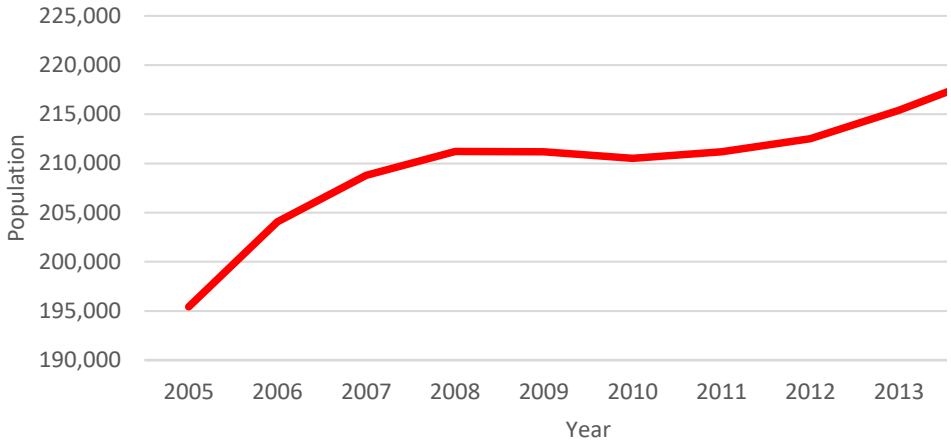


Figure 2-8. Yavapai County Population

Source: Bureau of Economic Development, U.S. Department of Commerce - October 31, 2016

2.3.3 | 3 - Per Capita Income

With reference to **Table 2-3**, it is interesting to note that per capita income[2] growth outpaced the State's 10-year average by 0.31%. The County's rate was 1.88% over the 10-year period, as compared with the State's rate of 1.57%. The economic downturn that began in 2007 is reflected in both the State data and the County data. However, a relatively strong recovery seems to be in progress, with the County now outpacing the State in annual per capita income growth from 2012 through 2014. In 2014, per capita income in Yavapai County lagged 13.5% below the Arizona statewide level.

Table 2-3. Arizona and Yavapai County Per Capita Income

Year	Arizona Per Capita Income	Annual Change	Yavapai County Per Capita Income	Annual Change
2005	$32,429	-	$27,212	
2006	$34,848	7.46%	$28,809	5.87%
2007	$35,929	3.10%	$30,435	5.64%
2008	$36,077	0.41%	$30,270	-0.54%
2009	$34,063	-5.58%	$28,757	-5.00%
2010	$34,185	0.36%	$28,869	0.39%
2011	$35,675	4.36%	$30,045	4.07%
2012	$36,788	3.12%	$31,016	3.23%
2013	$36,723	-0.18%	$31,623	1.96%
2014	$37,895	3.19%	$32,774	3.64%
Average Growth (10 Year)		**1.57%**	-	**1.88%**

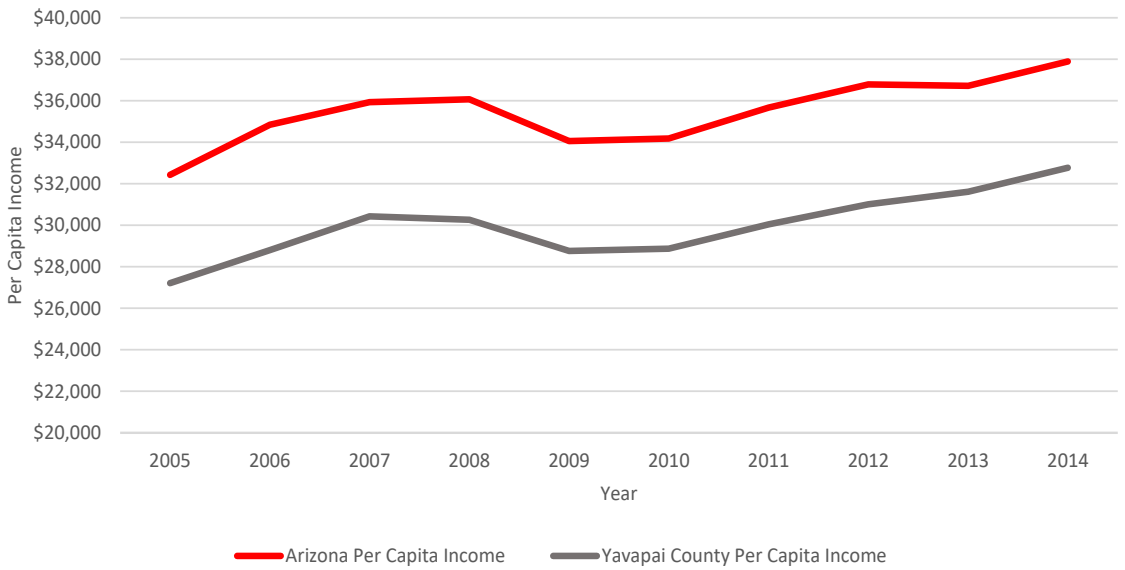


Figure 2-9. Arizona and Yavapai County Per Capita Income
Source: Bureau of Economic Development, U.S. Department of Commerce October 31, 2016

2.3.3 | 4 - Local Employers

Continued expansion of Embry-Riddle Aeronautical University (ERAU), a strong medical and business climate, and increased residential in-fill in the region precipitated this growth.

The PRC market area supports a diversified array of agricultural, business, governmental, health care, and small business interests. Its history, cultural amenities, natural beauty, and proximity to the Grand Canyon, Prescott National Forest, and surrounding mountain ranges drive a vibrant tourism industry as well. Major employers in the PRC service area include Yavapai County, Yavapai Regional Medical Center, Veterans Administration Medical Center, Sturm Ruger and Co., and the State of Arizona (**Table 2-4**).

Table 2-4. Yavapai County Top Employers

Employers	Personnel
Yavapai County	1,000-1,500
Yavapai Regional Medical Center	1,000-1,500
Veterans Adm. Medical Center	600-700
Sturm Ruger and Co.	500+
State of Arizona	500-600
Prescott Unified School District	500-600
City of Prescott	400-500
Embry Riddle Aeronautical University	300-499
Yavapai College	300-499
Better-Bitt	300-400
Cobham Aerospace Communications	200-300
Walmart	100-200
Pure Water	100-200
Fann Contracting, Inc.	100-200
Davidson's	100-200
European Techniques	50-100

Source: DEI Research, City Town Info.com

2.3.3 | 5 - Air Carrier Service Area

United Express, operated by SkyWest Airlines provides non-stop service to Los Angeles, CA and Denver, CO.

Air carrier service at Prescott Regional Airport- Ernest A. Love Field (PRC) is served by a single air carrier, United Express, operated by SkyWest Airlines who provides non-stop daily service to Los Angeles, CA (LAX) and Denver, CO (DEN). Service began with United Express, operated by SkyWest Airlines on August 29, 2018 under the Essential Air Service Program administered by the US Department of Transportation. All flights are operated with a CRJ-200, a 50-seat regional jet. PRC has experienced unprecedented growth since service began with United Express, and experienced a new record number of total paddengers in their first year of operations with over 53,000 passengers utilizing the commercial air service at PRC.

PRC is positioned to provide service to the population centers of Prescott and Prescott Valley, the nearby communities of Chino Valley, Dewey/Humboldt, Paulden and Kirkland, as well as the majority of greater Yavapai County. The theoretical service area may extend as far north as Williams and Seligman, south to Congress and Wickenburg, west to Bagdad, and east as far as Sedona and beyond Camp Verde. For the purposes of this Master Plan, the general Air Carrier Service Area for PRC is identified as the full extent of Yavapai County. It is reasonable to believe that this is the geographic area from which potential airline passengers may be attracted. However, it is evident that the majority of this population is currently traveling to Phoenix Sky Harbor International Airport for airline service. A county wide survey of potential airline passengers has been conducted as part of this Master Plan as a means to quantify this passenger leakage, and to gain insight into the reasons behind it. The results of the survey are presented in Chapter 3, Forecasts of Aviation Demand.

For the purposes of this Master Plan, the relevant potential airline passenger population that could be reasonably served by PRC is assumed to be the population of the entire County. Historical population data with comparisons to the Arizona population trends are presented in **Table 2-2. Table 2-5** lists the current estimated Air Carrier Service Area population.

Table 2-5. Yavapai County Population

	2010 Census Population[5]	2016 Estimated Population
Total Estimated Service Area (Yavapai County) Population:	210,517	222,039

Source: U.S. Census Bureau, Arizona Office of Employment and Population Statistics

2.3.3 | 6 - General Aviation Service Area

There are currently 338 based aircraft at PRC

General aviation (GA) activity at PRC includes business travel, recreational travel, sport aviation, and flight training. As has been the case nationally, GA activity at PRC has been in a state of moderate decline for some time. And, this decline steepened with the national economic decline that began in 2007.

The geographic area that an airport serves is called its Service Area. The airport's Service Area may be subdivided or extended into a Primary Service Area (usually the owning/sponsoring city or town, plus nearby population centers) and an Extended Service Area. The Extended Service Area may vary depending on observation of the actual locations of airport users, distance to other competing GA airfields, or other unique circumstances.

The FAA has stated that, "The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically by having most of the population within 20 miles of [an] airport".[3] In addition to this criteria, an airport Service Area for a particular role or function logically extends halfway to nearby airports which are capable of serving the same function ("competing" airports). For many years, a reasonable rule of thumb for establishing a Primary Service Area has been to assume that a 30 minute drive (or about 25 miles) is a reasonable drive time for potential GA airport users.

Figure 2-10 shows the locations of the residences of the current (2016) based aircraft owners as recorded by PRC as of October 31, 2016.[4] According to these records, there were 304 aircraft based at the airport, and 259 of these (85%) were owned by residents who live within approximately 25 miles of the airport. The airport staff completed a new, more thorough inventory of the actual number of based aircraft during the initial phases of this Master Plan (January, 2017)[7]. The new inventory indicates that there are actually 338 aircraft based at PRC. This represents a significant difference from the airport's prior records, as well as the FAA records. For the purposes of the GA Service Area development, the older records have been used, since the new inventory does not include the addresses of all the aircraft owners. It is also assumed that the reporting methods used in prior years were consistent in themselves. That is, it is assumed that the missing information was consistent in its omission from all annual reports. The data contained in the historical records are still useful to illustrate past historical trends.

Figure 2-11 represents the Primary Service Area for general aviation services, and suggests validation of the 25-mile/30-minute rule of thumb presented above. This approximate Primary Service Area includes the City of Prescott, Prescott Valley, and Chino Valley, as well as the towns and unincorporated areas in the immediate vicinity. This area is truncated halfway between PRC and Camp Verde airports.

Based on the residence locations of the based aircraft owners[4], the Extended Service Area may be assumed to be a general area encompassing as much as a 100 mile radius from the airport. As shown on **Figure 2-11,** there are 29 based aircraft whose owners reside as much as 100 miles away. These include 23 owners in the Phoenix metropolitan area. It is probable that these owners reside in the Prescott area only seasonally but prefer to officially base their aircraft at Prescott.

With reference to the actual locations of the based aircraft owners, we can assume that a driving distance of up to 25 miles is a reasonable distance for most users of the airport's services, and that a significantly longer distance is also considered reasonable by many current and potential users.

For the purposes of this Master Plan, the relevant population that is served by the airport was estimated by including only the population of the communities that are within the Primary Service Area. These communities and their populations are listed in **Table 2-6** (identified by Zip Codes). The population of these communities represents the primary demographic base that will affect the demand on the airport to the greatest extent.

About 15% of the current based aircraft owners reside outside of the Primary Service Area.[4] Many of these airport users have reasonable access to multiple airports offering similar general aviation services. Because of this, it is assumed that if economic conditions declined these users will tend to utilize the services of the airports that are located in closer proximity to their residences.

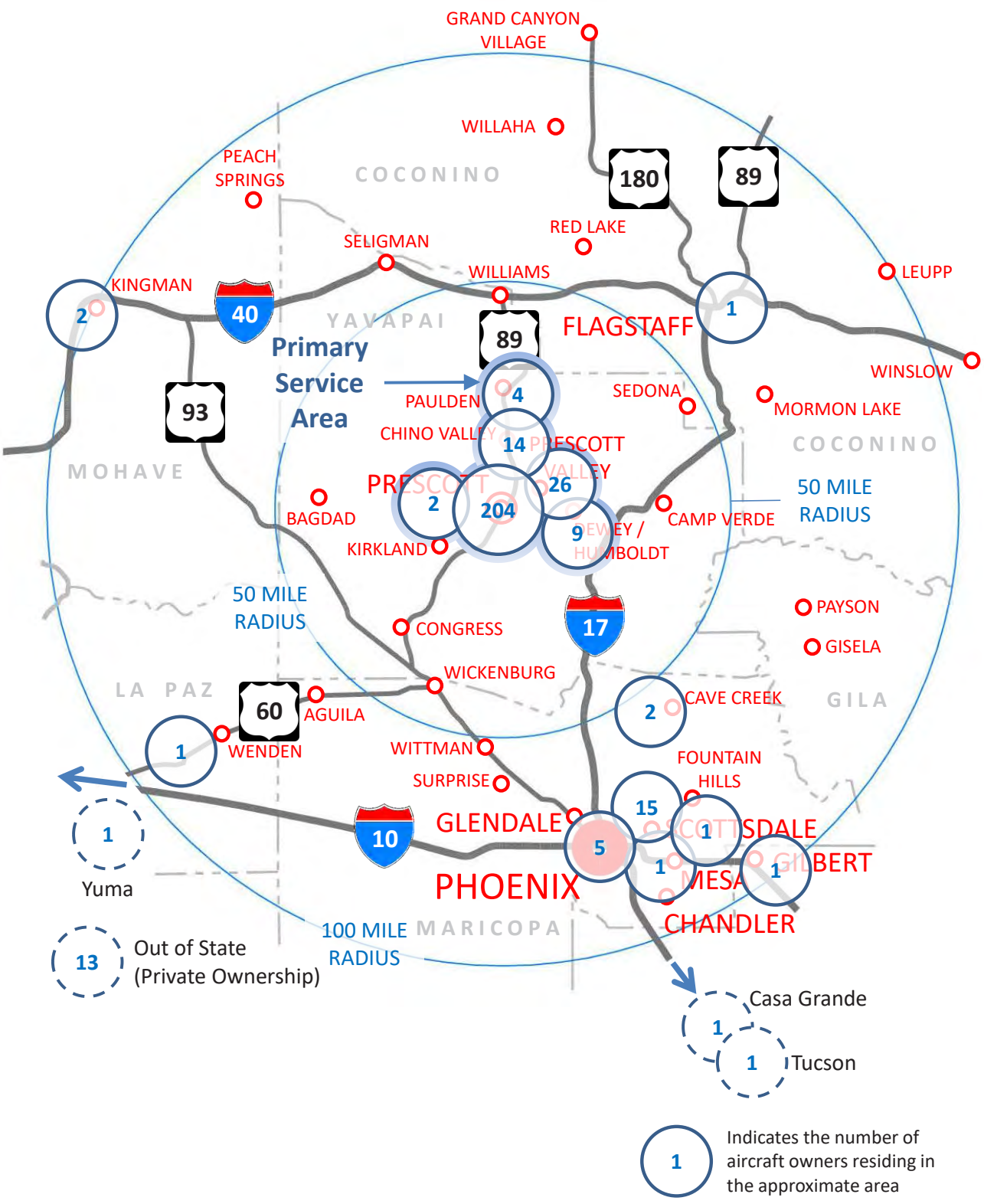


Figure 2-10. Based Aircraft Owner Locations

Source: Prescott Regional Airport - Ernest A. Love Field Reference, Nicholas J Pela & Associates

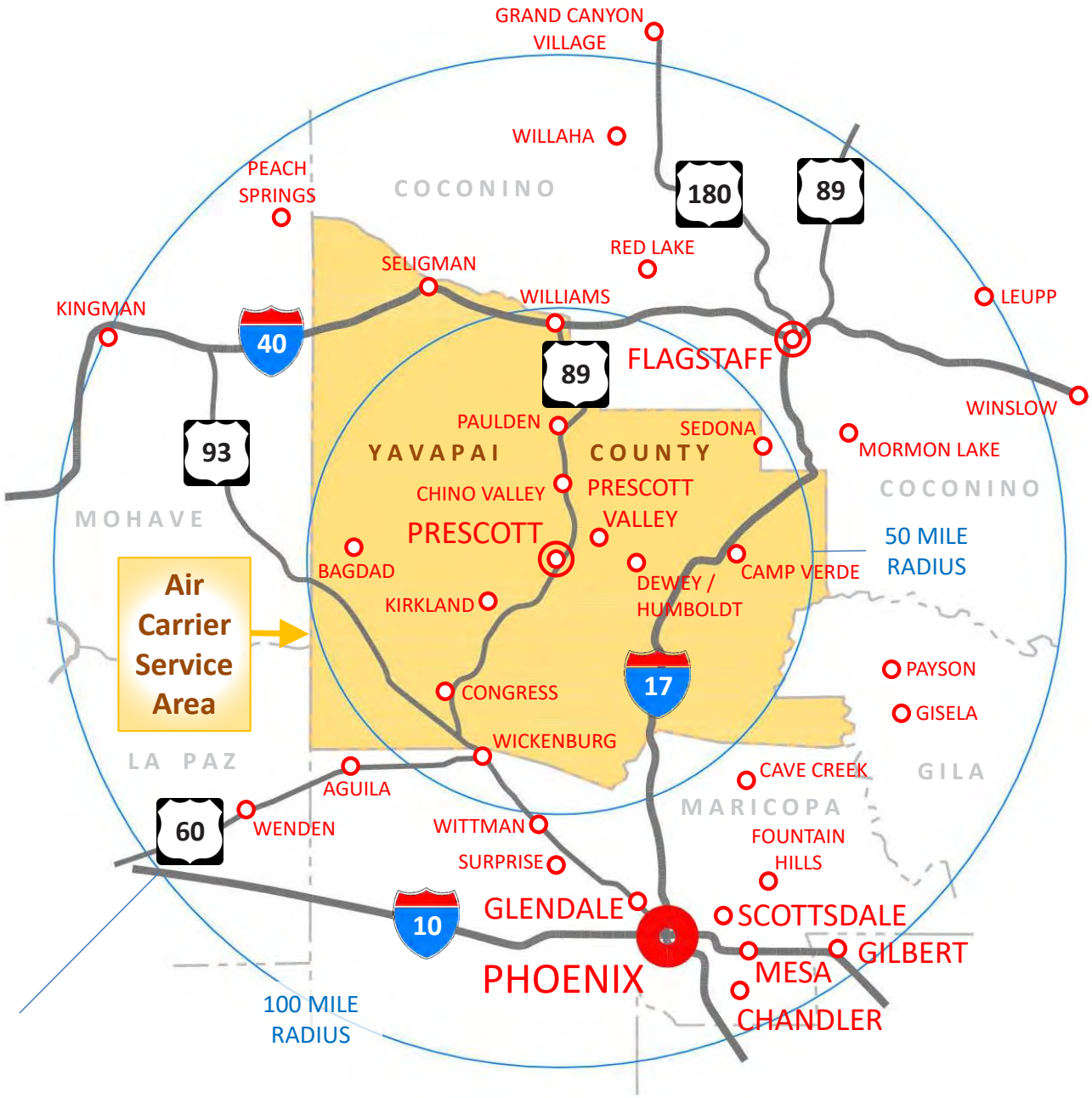


Figure 2-11. Airline Passenger Service Area (Yavapai County)
Source: Nicholas J Pela & Associates

Table 2-6. Estimated General Aviation Service Area Population

Community Zip Codes	2010 Census Population[5]	2016 Estimated Population[6]
Prescott 86301, 86302, 86303, 86313, 86304, 86305	55,321	57,863
Prescott Valley 86314, 86312, 86315	41,635	43,548
Chino Valley 86323	15,822	16,549
Dewey 86327	8,858	9,265
Mayer 86333	5,734	5,997
Paulden 86334	4,985	5,214
Kirkland 86332	1,637	1,712
Humboldt 86329	1,179	1,233
Skull Valley 86338	743	777
Total Estimated Service Area Population	**135,914**	**142,159**

Source: 2010 Census Data – U.S. Census Bureau, December 5, 2016
2016 Estimated Population – Arizona Office of Employment and Population Statistics

2.3 | Part 4 - Surrounding Land Use

Current Zoning and land use designation for PRC is Industrial Light

Airports generally consist of large tracts of land and oftentimes they impact adjoining properties and land uses. It is therefore important to integrate Airport Master Plans with local land use development plans. Because of its location, PRC falls under the purview of the City of Prescott's adopted General City Plan, Zoning Ordinance, and Land Use Plan. The General City Plan approved by the City in 2015 is a general road map for the future development of the City of Prescott and its surrounding areas. Additionally, there is also an Airport Specific Area Plan adopted by the City in 2001 to help govern land use, wildlife habitat, and cultural resources surrounding the airport.

Yavapai County encompasses approximately 8,123 square miles (5,198,720 acres). According to the 2012 Update to the Yavapai County Comprehensive Plan, approximately 74 percent of this land is federally and state owned. The 2012 Yavapai County Comprehensive Plan recommends that the County attempt to review all regional transportation plans for compatibility and development. This includes the County working with the City of Prescott to address airport land use and incompatible land use plans for future development of the airport in the region.

The current zoning and land use designation for PRC is Industrial Light (IL). The land uses within a mile of the airport include industrial/commercial, residential, agricultural, recreation, and business. A majority of the area is considered residential, agricultural, and commercial land use. **Figure 2-12** depicts the zoning of land around PRC with a one mile radius around the airport. A more in depth discussion on the compatibility of adjacent land uses is discussed within the Environmental Overview in Section 6 of this chapter.

Chapter References

[1] FAA Advisory Circular 150/5070-6B, Airport Master Plans, May 1, 2007
[2] U.S. Department of Commerce, Bureau of Economic Analysis, October 31, 2016 (From U.S. Census Records)
[3] National Plan of Integrated Airport Systems (NPIAS) 2013-2017, September 27, 2012
[4] Prescott Regional Airport - Ernest A. Love Field Records
[5] 2010 Census Data - U.S. Census Bureau, December 5, 2016
[6] 2016 Estimated Population - Arizona Office of Employment & Population Statistics (Medium Series Growth Projections), December 5, 2016
[7] Prescott Regional Airport - Ernest A. Love Field Inventory of Based Aircraft, January 2017

Surrounding Land Use

Prescott Regional Airport - Ernest A. Love Field

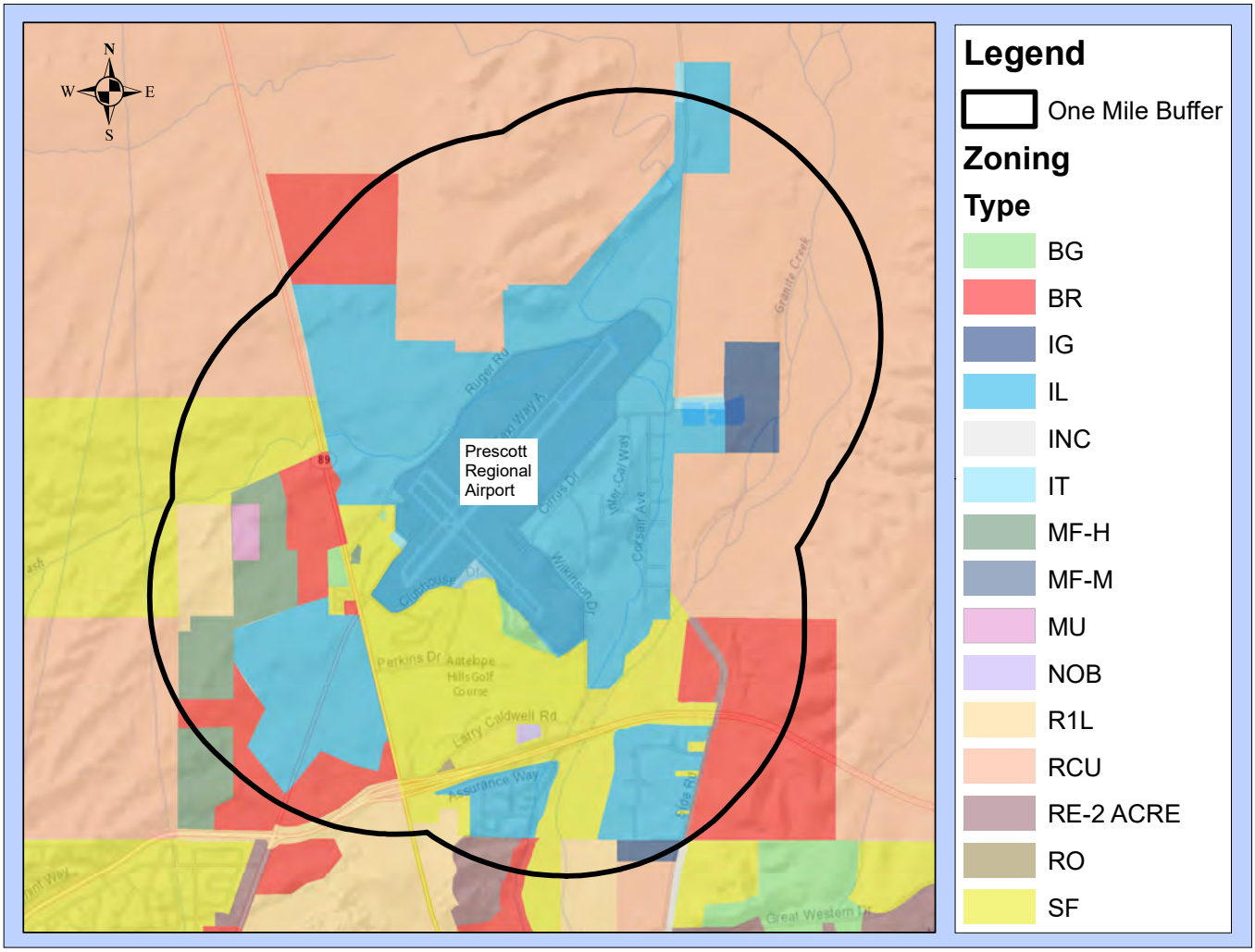


Figure 2-12. Surrounding Land Use

Source: Map created by Delta Airport Consultants. GIS data provided by Yavapai County.

2.3 | Part 5 – Through-the-Fence Agreements

The City of Prescott has entered into through-the-fence agreements with several adjacent land owners. These through-the-fence agreements permit the landowners to access airport property for aeronautical purposes. The current agreements are with Wulfsberg Electronics and Yavapai County Community College.

Image by Google

Section Overview

Part 1 | Existing Airport Layout
Part 2 | Existing Design Criteria
Part 3 | Airspace
Part 4 | Airside Facilities
Part 5 | Landside Facilities
Part 6 | Support Facilities and Services
Part 7 | Other On-Airport Facilities
Part 8 | Utilities

2 | Section 4 - Description of Existing Facilities

2.4 | Part 1 - Existing Airport Layout

Prescott Regional Airport- Ernest A. Love Field consists of approximately 760 acres. Key elements and facilities include Runway 3R-21L, Runway 3L-21R, Runway 12-30, Parallel Taxiways A, C, D, E, and F, a connector taxiway system, commercial airline terminal building, FBO facilities, navigational aids, automobile parking, a fuel storage area, support facilities, aircraft rescue and firefighting station, U.S. Forest Service facilities, aircraft tie-downs, and aircraft storage hangars. These features are depicted on the Airfield Equipment and Support Facilities (**Figure 2-13**).

Figure 2-13. Airfield Equipment and Support Facilities
Source: Delta Airport Consultants, Image by Google

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2.4 | Part 2 - Existing Design Criteria

2.4.2 | 1 - Design Criteria and Design Aircraft

PRC's Airport Reference Code is C-III

The 2010 Master Plan identified airfield design standards based upon an Airport Reference Code (ARC) Category C-III, with the design aircraft being the CRJ700. Typical ARC C-III aircraft include the Airbus A320 family of aircraft, Boeing 737 family of aircraft, MD-80 family of aircraft, and larger regional jets like the Bombardier CRJ700 and Embraer E-170.

PRC's Taxiway Design Group is TDG 3

Another component of airfield planning and design is the Taxiway Design Group (TDG). The TDG is used to determine taxiway width, shoulder width, fillets, and in some cases, taxiway to taxiway separation. The TDG is based on the outer to outer main gear width (MGW), and the cockpit to main gear distance (CMG). The existing facilities at Prescott Regional Airport - Ernest A. Love Field are designed to TDG 2 or TDG 3 design standard depending on the location on the airfield. The taxiways leading to Runway 3L-21R and Runway 12-30 are typically TDG 2. The taxiways leading to Runway 3R-21L are typically TDG 3. Typical TDG 3 aircraft include the Airbus A320 family of aircraft, Boeing 737 family of aircraft, and the Bombardier Dash 8 family of aircraft. **Table 2-7** summarizes the typical aircraft operating at PRC which were used to help determine the Airport Reference Code and taxiway design standard.

Understanding...Design Criteria

The Airport Reference Code (ARC) is used for planning and design. Unlike the Runway Design Code, it does not limit the aircraft that may be able to operate safely on an airport.

The ARC consists of two components. The first component is the aircraft approach category (AAC) which relates to approach speed of the aircraft. The second relates to the either the aircraft wingspan or tail height and is known as the airplane design group (ADG). According to FAA AC 150/5300-13A, *Airport Design*, the following criteria determine the AAC and ADG.

Aircraft Approach Category:

Approach Speed	
A	Less than 91 knots
B	91 knots-120 knots
C	121 knots - 140 knots
D	141 - 166 knots
E	166 knots or more

Image provided by PRC

Understanding...Design Criteria

Airplane Design Group:

Airport Reference Code:
C-III

	Tail Height (ft [m])	Wingspan (ft [m])
Group I	Less than 20 feet	Less than 49 feet
Group II	20 feet to less than 30 feet	49 feet to less than 79 feet
Group III	30 feet to less than 45 feet	79 feet to less than 118 feet
Group IV	45 feet to less than 60 feet	118 feet to less than 171 feet
Group V	60 feet to less than 66 feet	171 feet to less than 214 feet
Group VI	66 feet to less than 80 feet	214 feet to less than 262 feet

Table 2-7. Typical Aircraft Operating at PRC

Aircraft	Approach Speed (Knots)	Wingspan (Feet)	Max. Takeoff Weight (lbs.)
Bonanza	75	37.83	3,650
Cessna 182	54	36	2,550
Matrix	75	43	4,340
Cessna 172	57	36	2,450
SR 22	78	38.3	3,600
TBM 859	85	41.5	7,394
Diamond DA42	85	44.5	4,407
Trinidad TB20	70	32	3,083
400 Beechjet	120	43.5	16,100
Cessna 340	92	38.1	5,990
Citation CJI	115	46.8	10,700
Mustang	100	43.1	8,645
Beech 1900	113	54.5	16,500
Cessna Conquest II	99	49.3	9,850
Citation CJ3	130	53.3	14,070
King Air 90	101	50.2	10,100
Metro	112	57	16,000
PC-12	95	53.2	10,450
Phenom 300	111	52.1	17,529
Super King Air 200	98	54.5	12,500
Super King Air 350	110	57.9	15,000
Phenom 100	100	40.2	10,472
680 Citation Sovereign	127	72.3	30,775
BD 100, Challenger 300	124	68.8	38,850
HS 125	139	54.3	28,000
Gulfstream IV	145	77.8	74,600
Learjet 31	151	43.08	16,500
Learjet 45	142	47.1	19,500
Learjet 60	152	43.75	22,750
Citation 10	151	69.1	36,400
EMB-120 Brasilia	118	65	26,433
Robinson R22	-	25.3	1,370
Robinson R44	-	33	2,500
Bombardier CRJ 200	140	64.33	47,450

Source: FAA AC13A, Aircraft Manufacturers

2.4.2 | 2 - Airport Operating Certificate

PRC is a 14 CFR Part 139 certified Class 1 airport with ARFF Index A

As an airport that supports air carrier operations, Prescott Regional Airport- Ernest A. Love Field is required to meet the safety requirements promulgated through 14 CFR Part 139. These regulations stipulate that PRC must provide ongoing evidence of compliance with these standards and be issued an airport operating certificate (AOC) by the FAA. As a requirement of the AOC, Prescott Regional Airport- Ernest A. Love Field maintains a Certification Manual which outlines training requirements for, and responsibilities of, airport personnel, Aircraft Rescue and Fire Fighting (ARFF) equipment, and certain operational and safety standards such as non-standard conditions. Part 139 airports are subject to an annual certification inspection to verify continued conformance with these standards. In addition, PRC staff perform daily inspections of the airfield and support facilities to ensure a safe operating environment consistent with these standards and best management practices.

Prescott Regional Airport - Ernest A. Love Field serves scheduled small air carrier and small and large unscheduled air carrier aircraft and is therefore classified as a Class I airport. Class I airports are those that actively serve all types of scheduled operations of air carrier aircraft. Based on the class and size of air carrier aircraft served, PRC maintains an ARFF Index of A. The requirements for personnel, equipment, and response requirements for emergency incidents associated with this classification are described later in this chapter.

2.4.2 | 3 - Wind Analysis

The combined Runway environment of Runway 3R-21L and Runway 12-30 provides sufficient wind coverage

Based on FAA standards for a Runway Design Code (RDC) of C-III, the allowable crosswind component for Runway 3R-21L is 16 knots. Given the significant number of small, single engine piston, and twin engine piston aircraft which use PRC's three runways, the runway has also been evaluated for the more conservative 10.5 knot and 13 knot crosswind components.

Based on this analysis, the orientation of Runways 3L-21R, 3R-21L, and 12-30 provides sufficient wind coverage in a 10.5 knot, 13 knot, and 16 knot crosswind over 90 percent of the time during all weather conditions. **Table 2-8** summarizes the Instrument Flight Rules (IFR) and All Weather conditions for 10.5 knots, 13 knots, and 16 knots for each runway end.

Source: National Climatic Data Center FAA Standard wind analysis tool (2006-2014) Delta Airport Consultants, Inc.

Notes: < 1,000 feet ceiling and/or visibility < 0.3 miles but > 200 feet ceiling and > 5 miles visibility.

Table 2-8. Wind Coverage

	10.5 Knots	13 Knots	16 Knots
Runway 3R			
IFR	37.89%	38.50%	39.33%
All Weather	31.90%	32.65%	33.39%
Runway 21L			
IFR	75.67%	77.40%	78.79%
All Weather	81.26%	82.40%	83.22%
Runways Combined, 3R-21L			
IFR	94.67%	96.99%	99.18%
All Weather	96.07%	97.94%	99.48%
Runway 3L			
IFR	37.89%	38.50%	39.33%
All Weather	31.90%	32.65%	33.39%
Runway 21R			
IFR	75.6%	77.40%	78.79%
All Weather	81.26%	82.40%	83.22%
Runway Combined 3L-21R			
IFR	94.67%	96.99%	99.18%
All Weather	96.07%	97.94%	99.48%
Runway 12			
IFR	55.25%	57.98%	61.16%
All Weather	67.11%	69.38%	71.60%
Runway 30			
IFR	49.05%	51.11%	53.00%
All Weather	40.19%	41.80%	43.44%
Runway Combined 12-30			
IFR	85.53%	90.18%	95.33%
All Weather	90.21%	94.08%	97.91%

2.4.2 | 4 - Approach Procedures

Under Visual Flight Rules (VFR) conditions, pilots normally approach PRC from the northeast since Runway 21L is designated the calm wind runway.

PRC uses standard left hand visual pattern for Runway 3L, Runway 3R, Runway 12, and Runway 30. Runway 21L and Runway 21R follow a right hand visual pattern. For light aircraft, all runways have a pattern altitude of 1,000 feet Mean Sea Level (MSL). For larger aircraft such as turbo prop and jet, all runways have a pattern altitude of 1,500 feet MSL.

2.4|Part 3 - Airspace

2.4.3|1 - Airspace Description

PRC is located in Class D and Class E airspace

PRC is located in Class D and Class E airspace. It is classified as Class D airspace between 6:00 a.m. and 10:00 p.m. when the Air Traffic Control Tower (ATCT) is active. Class D airspace is located between ground level and an altitude of 2,500 feet MSL and is classified around airports that have an ATCT, but may not have radar approach control in the ATCT. The horizontal dimension of Class D airspace varies based upon specific airport needs such as type of arriving and departing aircraft, level of IFR/VFR activity, and aircraft approach and departure routes. Aircraft must request permission from ATC and remain in constant radio communication to operate in this airspace.

PRC airspace is considered Class E airspace at all other times. Class E airspace is a controlled area which includes airspace corridors identified as federal airways, or which accommodate jet traffic at low altitudes. The Class E controlled airspace around PRC starts at 700 feet Above Ground Level (AGL) and extends vertically to 18,000 feet Mean Sea Level (MSL) when it reaches Class A airspace. **Figure 2-14** depicts the Class E airspace surrounding PRC. Established Instrument Flight Rules (IFR), en route airways, and associated reporting points in the vicinity of PRC can be seen in **Figure 2-15**. Visual Flight Rules (VFR) chart with notices to the pilot is shown in **Figure 2-16**.

2.4.3|2 - Air Traffic Control (ATC) Procedures and Communications

PRC has an FAA Air Traffic Control Tower (ATCT). It is located on the east side of the field where Runway 3R-21L and Runway 12-30 intersect. The tower was built in 1987 and is operated by the FAA Air Traffic Controllers from 6:00 a.m. to 10:00 p.m. local time.

The ATCT is responsible for the safe separation of aircraft on final approach, initial climb-out after departure, aircraft and vehicle traffic on the airfield, and the separation of all aircraft operating under IFR flight plans within controlled airspace. When the tower is not in operation, coordination between pilots is accomplished through Common Traffic Advisory Frequency (CTAF) upon which a pilot can report the position of his or her aircraft with other aircraft operation within the airport's airspace.

Basic radar services outside the Prescott Airspace are provided by Albuquerque Air Route Traffic Control Center (ARTCC) located in Albuquerque, New Mexico, which is responsible for the safe separation of aircraft in airspace surrounding the airport.

Ground Control is a position within the ATCT that is responsible for the movement of aircraft and vehicles on runways, taxiways, and aprons located within the aircraft movement area. All aircraft, vehicles, personnel, and equipment are required to: request permission from Ground Control to enter the movement area; remain in constant radio communication with Ground Control while within the movement areas; and notify Ground Control upon exiting the movement area. The tower controller position is responsible for the safe separation of arriving and departing aircraft from the airport. In addition to providing landing and takeoff clearances, the tower controller also is responsible for the separation of aircraft that transition to and from the airspace around the airport.

During busy operational times, tower frequency Local 1 controls the Runway 3R-21L and east arrivals and departures. Local 2 controls Runway 3L-21R at west arrivals and departures.

When Runway 12-30 is in use during busy operational times, Local 1 controls Runway 12-30 and all airspace while Local 2 controls helicopter operations on the north end of the airfield.

The approach and departures are controlled by Phoenix Approach (APP) and Departure (DEP) frequencies.

Table 2-9 summarizes the communication frequencies utilized by ATC controllers at the airport. In addition to Ground Control, Tower, and Approach/ Departure, frequencies are also assigned for the continual broadcast of airport conditions information through the Automatic Terminal Information Service (ATIS) and emergencies and non-ATC related radio traffic through the universal communications frequency (UNICOM).

Table 2-9. Airport Communications

Airport Communications	Frequencies / Contact
ATCT (Local 1)	125.3
ATCT (Local 2)	128.75
Ground	121.7
Unicom	122.95
ATIS	127.2
ASOS	(928) 717-1287*
RCO	122.2
CTAF	125.3
Phoenix APP	133.575
Phoenix DEP	133.575
Clearance Delivery	119.25

Source: Airport Management, FAA Chart Supplement

Notes:
CTAF - Common Traffic Advisory Frequency
UNICOM - Universal Communications
APP - Approach
DEP - Departure
ASOS - Automated Weather Surface Observation Station
RCO - Remote Communications Outlet
*Weather is available on ATIS when ATCT is closed.

Understanding...Airspace

The airspace over the United States, to an altitude of approximately 60,000 feet MSL (Flight Level – FL600), is separated into two parts, terminal and en route airspace. Terminal airspace is that area around the nation's major airports extending to a specified altitude that may encompass an area of 60 miles in diameter and include several airports. En route airspace is the area within which aircraft transit from one terminal airspace to another. There is no specified bottom altitude for en route airspace and the top extends to the upper performance limits of civil aircraft. U.S. airspace is further divided into several different categories, each with its own rules and regulations.

The airspace categories are designated Class A, B, C, D, E, and G (Figure 2-14), transition areas, and continental control area. The Class B, C, and D areas are ascribed to Airport Traffic Areas (ATA). Each class of ATA has a given radius, with Classes B and C having extensions (transition areas) to encompass the final portion of an instrument approach procedure.

Victor airways are low altitude airways, used by both VFR and IFR aircraft traffic, defined in straight line segments between either two very high frequency omnidirectional range (VOR) station, or a VOR and a VOR intersection. Victor airways have a floor of 1,200 feet above ground level (AGL) and a ceiling of 17,999 feet MSL. They are normally eight nautical miles wide.

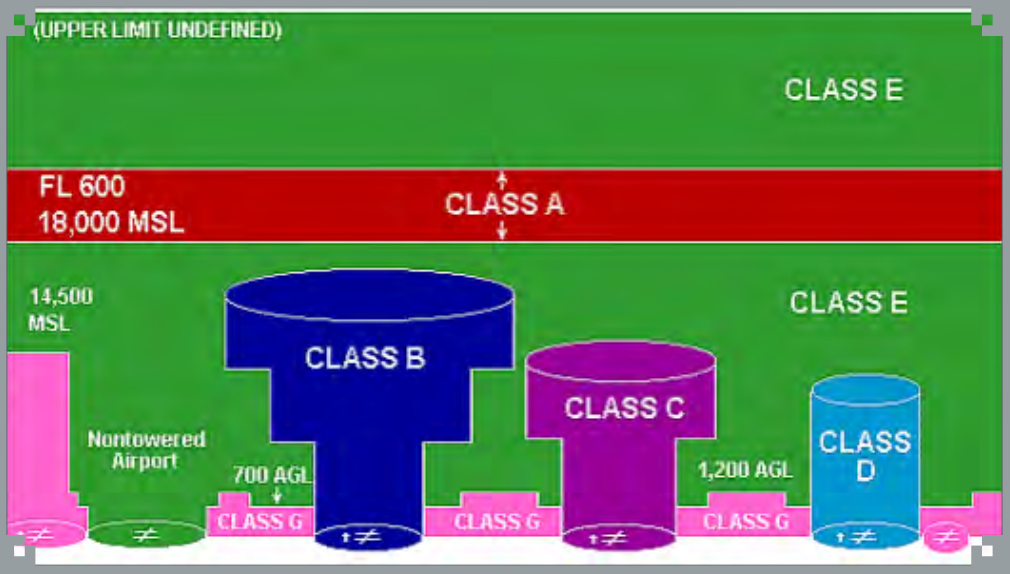


Figure 2-14. Federal Airspace Classifications
Source: Federal Aviation Administration

IFR Airspace and Air Traffic Control

Prescott Regional Airport - Ernest A. Love Field

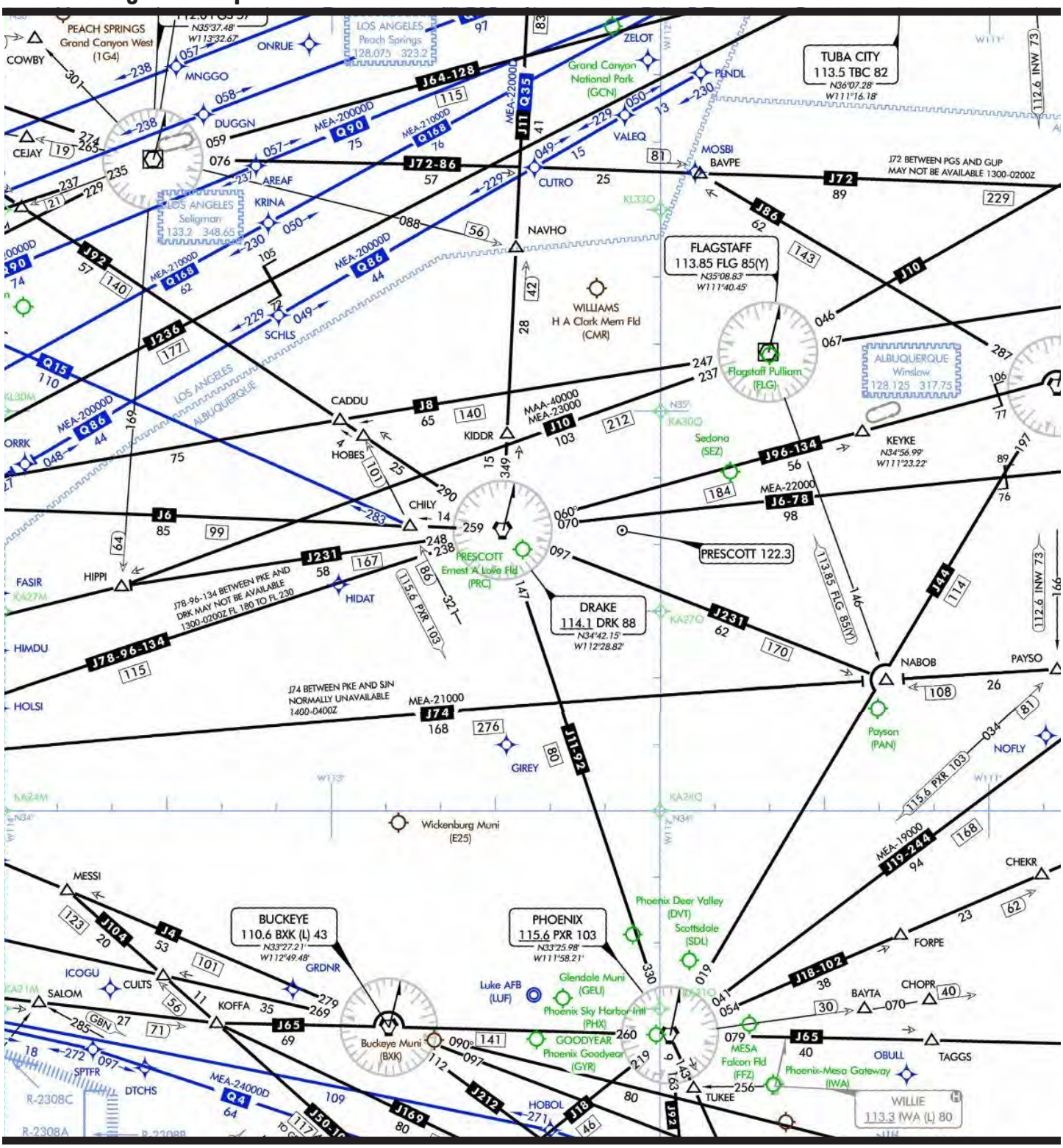


Figure 2-15. IFR Airspace
Source: Flight Vector

VFR Airspace

Prescott Regional Airport - Ernest A. Love Field

Figure 2-16. VFR Airspace
Source: Flight Vector

2.3.4 | 3 - FAR Part 77 Imaginary Surfaces

Fixed or mobile objects of greater height than the surfaces outlined in FAR Part 77.23 are classified as obstructions to air navigation unless proven otherwise by the FAA. In order to fully protect PRC environs from potential hazards to air navigation, it is important that an obstruction analysis be conducted to evaluate penetrations based on the Part 77 imaginary surfaces. This analysis was completed as part of this planning effort and is summarized in Chapter 4. **Figure 2-17** shows the existing FAR Part 77 Airspace at PRC.

Existing FAR Part 77 Airspace

Prescott Regional Airport - Ernest A. Love Field

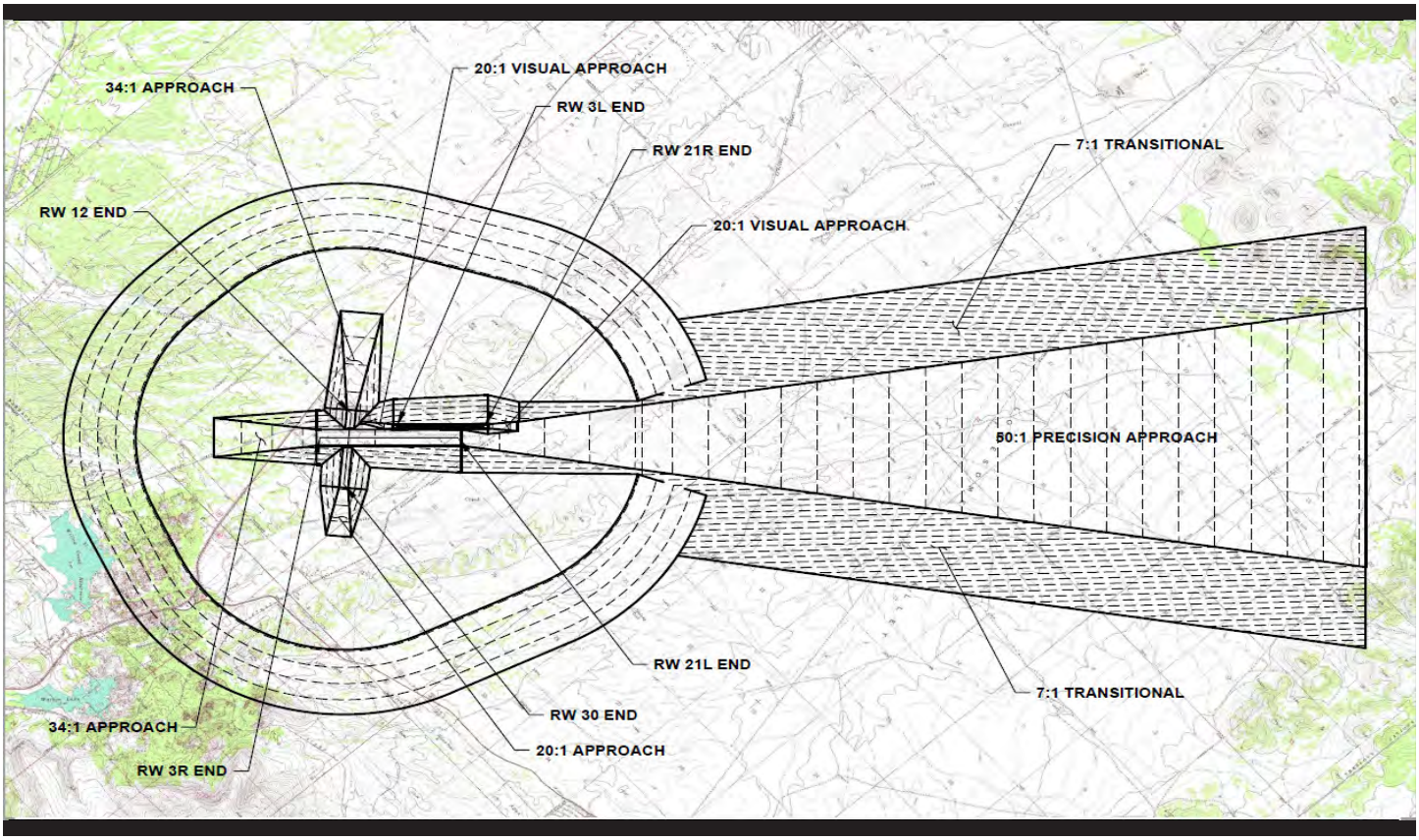


Figure 2-17. Existing FAR Part 77 Airspace
Source: Delta Airport Consultants, Inc.
Image by USGS

Understanding...FAR Part 77

FAR Part 77:

1. Establishes standards for determining obstructions in navigable airspace
2. Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration
3. Provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace
4. Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation
5. Provides standards for establishing antenna farm areas.

Obstructions to air navigation are any existing or proposed objects, fixed or mobile, in greater height than the imaginary surfaces outlined within FAR Part 77.23. Civil airport imaginary surfaces established under FAR Part 77 for each runway include:

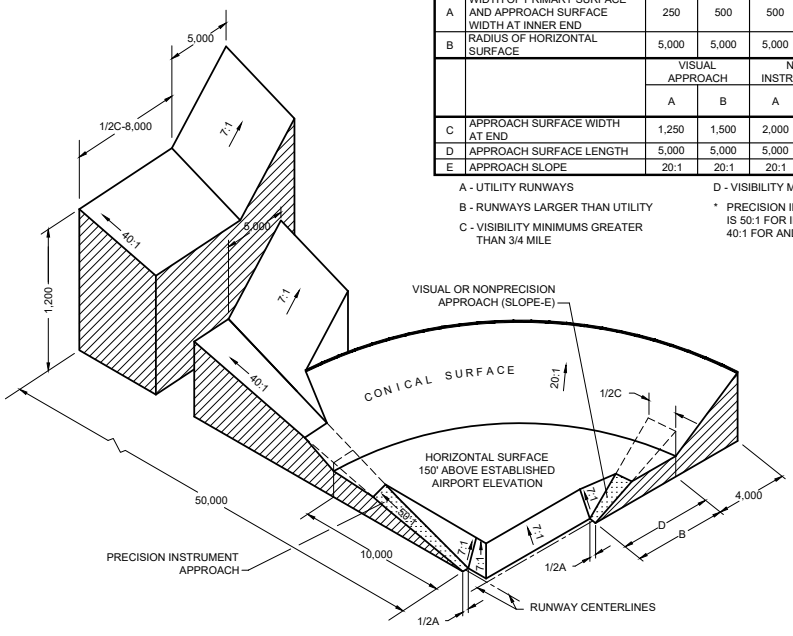
- Primary Surface
- Approach Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface

Existing penetrations to the FAR Part 77 surfaces are considered hazards unless they have been studied by FAA and determined not to be hazards. The determination of whether a proposed obstruction is a hazard is accomplished through an aeronautical study. The standards apply to all objects, whether manufactured, natural growth, or terrain.

SOURCE: FEDERAL AVIATION ADMINISTRATION
FAR PART 77.25

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NONPRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NONPRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A - UTILITY RUNWAYS
B - RUNWAYS LARGER THAN UTILITY
C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AND ADDITIONAL 40,000 FEET.



NOVEMBER 7, 2007
TERPS directory

ISOMETRIC VIEW OF AIRPORT IMAGINARY SURFACES (PART 77)

2.4.3 | 4 - Runway Protection Zones

Runway Protection Zones (RPZs) are airfield design elements intended to protect airspace, prevent incompatible land uses, and protect people and property on the ground within the vicinity of a runway end. RPZs are trapezoidal-shaped areas located on both the arrival and departure ends of a runway within the innermost portion of the FAR Part 77 approach surface. The dimensions of an RPZ are based on the type of aircraft expected to use a runway and its approach visibility minimums. Airports are required by the FAA to control to the greatest extent possible the land within an RPZ to prevent the creation of hazards to landing and departing aircraft and to eliminate hazards on the ground by incompatible land uses. As per AC 150/5300-13A, "control" is exercised through the acquisition of property interest as well as the clearing and maintenance of RPZ areas of incompatible objects and activities. The FAA prefers the airport owner control the defined RPZ area to enhance protection of people and property on the ground. Such control includes the clearing and maintenance of incompatible objects and activities. The specific dimensions for each runway end are summarized in **Table 2-10**. Below are brief descriptions and exhibits of each runway protection zone.

Runway 3R RPZ

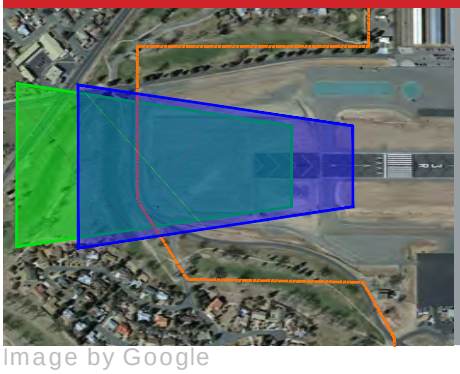


Image by Google

The entire Runway 3R RPZ is not within the airport property boundaries or under airport control and has land uses that the FAA defines as incompatible within. The incompatible land uses are public roads and a golf course. Runway 3R has a separate departure RPZ (Green) and approach RPZ (blue) due to the runway's displaced threshold.

21L RPZ

Image by Google

The majority of the Runway 21L RPZ is within airport property boundaries, though a small portion is not under airport control.

Runway 3L RPZ

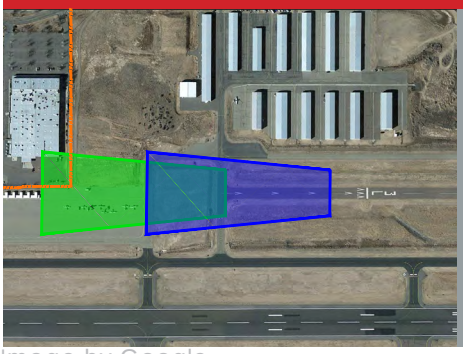


Image by Google

The Runway 3L RPZ is not completely within the Airport property boundaries or under airport control and it has incompatible land uses including an aircraft parking area, a fuel facility, and commercial property. Runway 3L has a separate departure RPZ (green) and approach RPZ (blue) due to declared distance requirements.

Runway 21R RPZ

Image by Google

The Runway 21R RPZ is within airport property boundaries and does not have any incompatible land uses.

Runway 12 RPZ

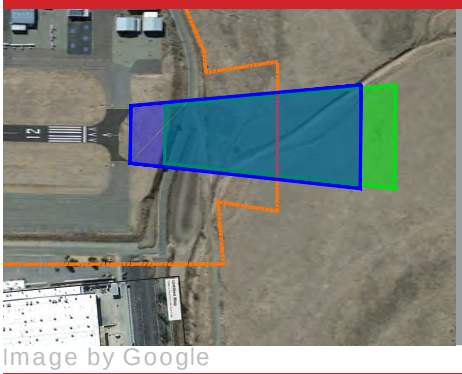


Image by Google

A large portion of the Runway 12 RPZ is not within the airport boundary, and incompatible land uses are present in the form of a public road. Runway 12 has a separate departure RPZ (green) and approach RPZ (blue) due to declared distance requirement.

Runway 30 RPZ

Image by Google

The majority of the Runway 30 RPZ is within airport property boundaries, though there are incompatible land uses in the form of a golf course, public road, and a maintenance building.

Table 2-10. Existing Runway Protection Zones

Runway End	Length (ft)	Inner Width (ft)	Outer Width (ft)	RPZ-Acres
Runway 3R	1,700	500	1,010	29.465
Runway 21L	2,500	1,000	1,750	78.914
Runway 3L	1,000	250	450	8.035
Runway 21R	1,000	250	450	8.035
Runway 12	1,000	250	450	8.035
Runway 30	1,000	250	450	8.035

Source: Delta Airport Consultants, Inc.

The FAA issued a Memorandum on September 27, 2012 titled "Interim Guidance on Land Uses within a Runway Protection Zone." The memorandum was issued to help clarify questions raised with the new Airport Design Advisory Circular (150/5300-13A) with regard to new guidance on runway protection zones. The memorandum discussed land use with respect to existing conditions verses proposed or modified conditions.

As the incompatible land uses noted above are existing conditions at PRC and not a result of a proposed action, based on the interim guidance, there is no requirement to remove or mitigate them at this time. The memorandum notes that the FAA will work with the airport sponsor to remove or mitigate the existing incompatible land uses where practical. Any proposed changes to the runway will have to take into account the RPZ incompatible land uses as outlined in the memorandum. This is discussed more in Section 2.4.4-11, Non-Standard Conditions.

2.4.3 | 5 - Declared Distances

Declared distances represents the maximum distance available and suitable for meeting takeoff, rejected takeoff, and landing distance performances requirements for turbine-powered aircraft. The types of declared distances are Takeoff Run Available (TORA), Takeoff Distance Available (TODA), Accelerated Stop Distance Available (ASDA), and Landing Distance Available (LDA). The TORA and TODA both refer to takeoff, ASDA refers to rejected takeoff, and LDA refers to landing. These declared distances can help airports achieve additional area for Runway Safety Area or Runway Object Free Area, or they can help mitigate incompatible land uses within the Runway Protection Zone. The declared distances are not equal to the physical length of the runway and often times have an associated displaced threshold. **Tables 2-11**, **2-12**, and **2-13** summarize the TORA, TODA, ASDA, and LDA for each runway.

Runway 3R-21L

For operations on Runway 21L, the full runway length of 7,619 feet is available for TORA, TODA, ASDA, and LDA.

For operations departing on Runway 3R, the full runway length of 7,619 feet is available for TORA, TODA, and ASDA. For operations landing on Runway 3R, the Runway 3R threshold has been displaced 379 feet to remove obstructions to the approach to Runway 3R, resulting in an LDA of 7,240 feet. If the obstructions are removed, the displacement may be able to be removed and the LDA may be returned to 7,619 feet. **Table 2-11** provides a summary of declared distances for Runway 3R-21L.

Table 2-11. Declared Distances for Runway 3R-21L

	Runway 3R	Runway 21L
TORA	7,619	7,619
TODA	7,619	7,619
ASDA	7,619	7,619
LDA	7,240	7,619

Source: FAA Chart Supplement

Runway 3L-21R

For operations departing on Runway 21R, the full runway length of 4,846 is available for TORA and TODA. ASDA has been reduced to 4,608 feet to provide sufficient safety area at the end of the runway environment. For operations landing on Runway 21R, the LDA has been reduced to 4,608 feet to provide sufficient safety area at the end of the runway environment. The area beyond the end of the runway pavement does not meet current grading standards. If the area were to be graded, the LDA and ASDA may be able to be increased to utilize the full runway pavement.

For operations departing on Runway 3L, the full runway length of 4,846 feet is available for TORA, TODA, and ASDA. For operations landing on Runway 3L, the Runway 3L threshold has been displaced 811 feet to remove incompatible land uses from the approach RPZ, resulting in an LDA of 4,037 feet. **Table 2-12** provides a summary of declared distances for Runway 3L-21R.

Table 2-12. Declared Distances for Runway 3L-21R

	Runway 3L	Runway 21R
TORA	4,846	4,846
TODA	4,846	4,846
ASDA	4,846	4,608
LDA	4,037	4,608

Source: FAA Chart Supplement

Runway 12-30

For operations on Runway 12, the full runway length of 4,408 feet is available for TORA, TODA, and ASDA. For operations landing on Runway 12, the Runway 12 threshold has been displaced 150 feet to allow sufficient runway end safety area for aircraft landing on Runway 12, resulting in an LDA of 4,258 feet.

For operations on Runway 30, the full runway length of 4,408 is available for TORA and TODA. ASDA has been reduced to 4,258 feet to provide sufficient safety area at the end of the runway environment. For operations landing on Runway 30, the LDA has been reduced to 4,308 feet to provide sufficient safety area at the end of the runway environment. The area beyond the end of the runway pavement does not meet current grading standards. If the area were to be graded, the LDA and ASDA may be able to be increased to utilize the full runway pavement. **Table 2-13** provides a summary of declared distances for Runway 12-30.

Table 2-13. Declared Distances for Runway 12-30

	Runway 12	Runway 30
TORA	4,408	4,408
TODA	4,408	4,408
ASDA	4,408	4,258
LDA	4,258	4,308

Source: FAA Chart Supplement

2.4| Part 4 - Airside Facilities

Airside facilities at Prescott Regional Airport- Ernest A. Love Field include:

- Runway 3R-21L
- Runway 3L-21R
- Runway 12-30
- Aircraft Parking Ramps
- Parallel Taxiway A
- Parallel Taxiway C
- Parallel Taxiway D
- Parallel Taxiway E
- Parallel Taxiway F
- Connector Taxiways
- Taxiway H
- Taxilanes
- Airfield Electrical and Lighting Components
- NAVAIDs

Image by PRC

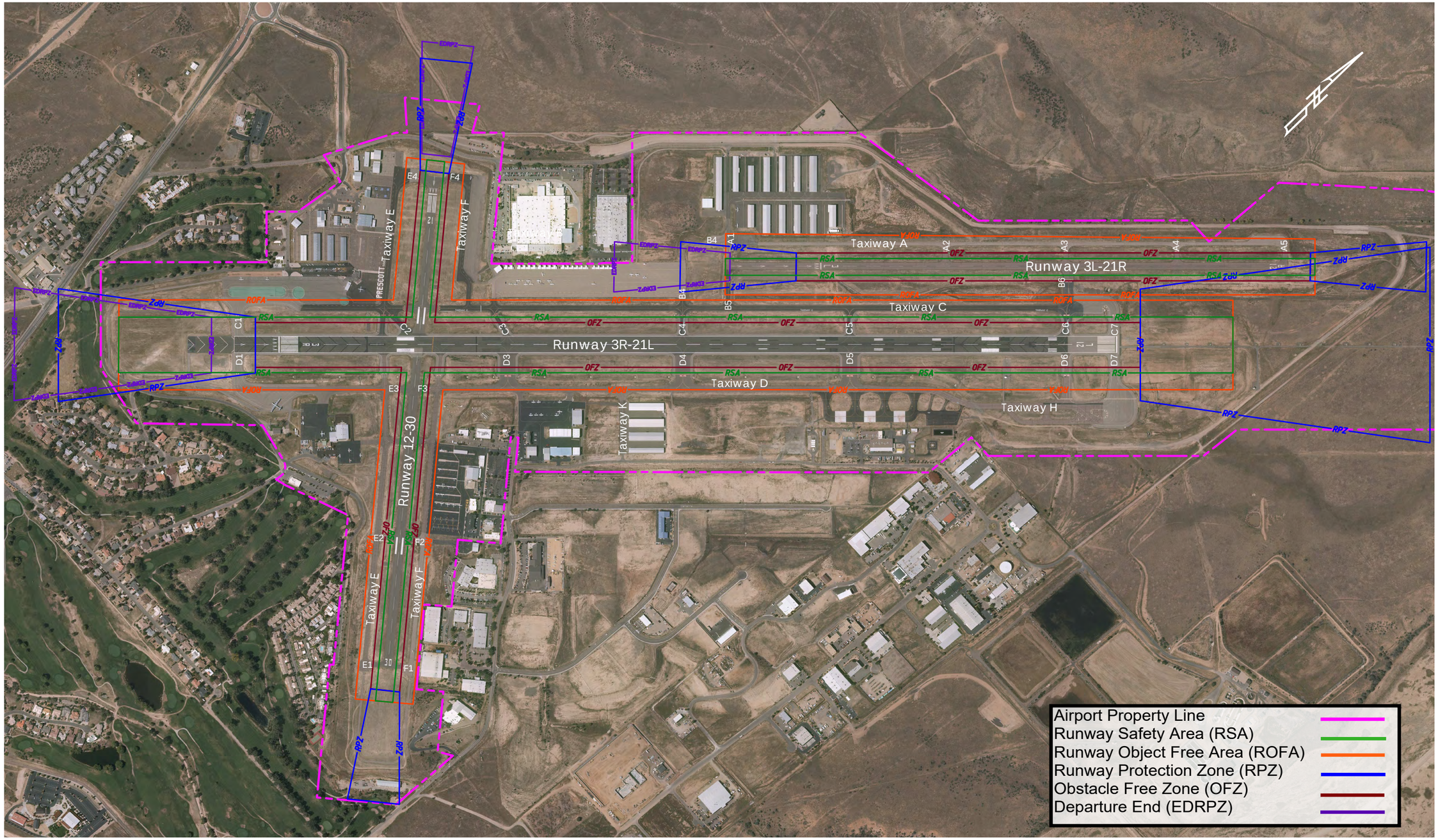


Figure 2-18. Airfield System
Source: Delta Airport Consultants, Image by Google

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2.4.4 | 1 - Runways

Runway 3R-21L is 7,619 feet long and 150 feet wide with an RDC of C-III

PRC consists of three runways, Runway 3R-21L, which is 7,619 feet long and 150 feet wide, and Runway 3L-21R, which is 4,846 feet long and 60 feet wide; both oriented in a southwest-northeast direction. Runway 12-30, which is 4,408 feet long and 75 feet wide, is considered the cross-wind runway and is oriented perpendicular to the other two in a generally northwest and southeast direction. Further summary of these runways characteristics and features are listed in **Table 2-14**. A depiction of the runways with their associated safety areas is shown on **Figure 2-18**. All of the runways are constructed of asphalt and none of the runways are grooved.

Runway numerals for each runway end are determined from the approach direction to the runway end and should be equal to one-tenth of the magnetic azimuth of the runway centerline, measured in the clockwise direction from magnetic north. Although the true bearing of the runway will not change over time, the magnetic bearing will change as the location of magnetic north shifts.

Table 2-15 provides a summary of the true (geographic) compass readings for each runway end and notes the magnetic declination required to adjust to the magnetic compass readings. Based on this analysis, the designations for runways 3R-21L and 3L-21R remain unchanged from the 2010 PRC Airport Layout Plan; however, Runway 12-30 numerals will need to be adjusted to 13-31 based on the changes in magnetic declination during the next project involving this Runway. According to the National Geophysical Data Center the rate of change to the magnetic declination in this area is 0.06°W per year, at this rate, PRC's two parallel runway designations would remain stable for the next 45 years.

Refer to Section 2.4.4 Part 9 for discussions of the runway pavement conditions.

Table 2-14. Existing Runway Data

	Runway 3R		Runway 21L
Length		7,619’	
Width		150’	
Displaced Threshold	379’		None
Runway End Elevations (MSL)	5,027.9’		4,958.1’
Lighting		MIRL	
Marking	Non-Precision		Precision
Visual Aids	PAPI, REILs		PAPI, MALSR
Navigational Aids			ILS
RDC		C-III	
Pavement Strength	SW 63.0	DW 80.0	(PCN 8 F/D/Y/T)
	Runway 3L		Runway 21R
Length		4,846’	
Width		60’	
Displaced Threshold	811’		None
Runway End Elevations (MSL)	4,975.0’		4,937.7’
Lighting		MIRL	
Marking	Basic		Basic
Visual Aids	PAPI		PAPI
RDC		B-I (Small)	
Pavement Strength		SW 12.5	(PCN 2 F/D/X/T)
	Runway 12		Runway 30
Length		4,408’	
Width		75’	
Displaced Threshold	150’		None
Runway End Elevations (MSL)	5,017.1’		5,044.9’
Lighting		MIRL	
Marking	Non-Precision		Basic
Visual Aids	PAPI, REILs		PAPI, REILs
RDC		B-I (Small)	
Pavement Strength		SW 12.5	(PCN 10 F/C/Y/T)

Source: Delta Airport Consultants, Inc., ALP, FAA Form 5010-1
Notes: MIRL - Medium Intensity Runway Lights
PAPI - Precision Approach Path Indicator
REIL - Runway End Identifier Light
SW - Single Wheel
DW - Dual Wheel
ILS - Instrument Landing System
MALSR - Medium Approach Light System with Runway Alignment Indicator Lights
PCN - Pavement Condition Number
RDC - Runway Design Code
MSL - Mean Sea Level
Source: National Geophysical Data Center (ngdc.noaa.gov)
2014 PRC Airport Layout Drawing, FAA Form 5010

Table 2-15. Runway Designation Analysis

	Runway 3L	Runway 21R
True Compass Reading	N41° 16' 12.0" E	S41° 16' 12.0" W
Magnetic Declination	10° 43' 58.8" W	10° 43' 58.8" W
Magnetic Compass Reading	N30° 32' 13.2" E	S30° 32' 13.2" W
Magnetic Azimuth	30° 32'	210° 32'
Runway Designation	3	21
Time Until Change Required	~45 Years	~45 Years
	Runway 3R	Runway 21L
True Compass Reading	N41° 16' 48.0" E	S41° 16' 48.0" W
Magnetic Declination	10° 43' 49.2" W	10° 43' 58.8" W
Magnetic Compass Reading	N30° 32' 13.2" E	S30° 32' 13.2" W
Magnetic Azimuth	30° 32'	210° 33'
Runway Designation	3	21
Time Until Change Required	~45 Years	~45 Years
	Runway 12	Runway 30
True Compass Reading	N136° 32' 24.0" E	S136° 32' 24.0" W
Magnetic Declination	10° 43' 58.8" W	10° 43' 58.8" W
Magnetic Compass Reading	N125° 48' 25.2" E	S125° 48' 25.2" W
Magnetic Azimuth	125° 48'	305° 48'
Runway Designation	13	31
Time Until Change Required	NOW	NOW

Source: FAA GIS

2.4.4 | 2 - Taxiways

Runway 3R-21L is supported by parallel Taxiways C and D. Both are full length parallel taxiways. Runway 12-30 is supported by parallel Taxiways E and F. Taxiway E is a full length parallel taxiway, while Taxiway F is a partial parallel taxiway. Runway 3L-21R is supported by Taxiway A, a full length parallel taxiway, and Taxiway C which is a partial parallel taxiway. Each runway and parallel taxiway system include entrance and exit taxiways to provide egress to and from the runway environment. A taxilane system provides access to hangars, aprons, and aircraft storage/maintenance areas. Refer to Section 2.4.4 Part 9 for discussions of the taxiway pavement conditions.

Taxiway C does not meet FAA runway-taxiway separation requirement and will be further discussed within Section 2.4.4 Part 11, Non- Standard Conditions. All remaining taxiway safety areas and object free areas meet current FAA standards. The existence of non-standard conditions for the existing parallel taxiways does not impact existing airport operations.

2.4.4 | 3 - Airfield Markings

Taxiway Markings

Runway 3R has non-precision markings and Runway 21L has precision markings, both of which are in good condition. Runway 3L and Runway 21R both have basic marking in fair condition. Runway 12 has non-precision marking and Runway 30 has basic marking, both of which are in fair condition. All runway markings meet the minimum requirements required by the FAA.

2.4.4 | 4 - Airfield Hotspots

At Prescott Regional Airport - Ernest A. Love Field there are four documented hotspots as shown a **Figure 2-19**. The first hotspot (HS1) is located at Taxiway F1. The reason for this hotspot is that the Air Traffic Control Tower (ATCT) workers cannot visually see the intersection of Taxiway F and Taxiway F1. There have been cameras installed in the area to feed directly back to the ATCT to help mitigate this hotspot. The second hotspot (HS2) is the intersection of Taxiway C, Taxiway C2, and Taxiway E. There is direct access from each of these taxiways to their connecting runways. This hotspot was removed in 2018 and is pending removal from the airport diagram. The third hotspot (HS3) is the intersection of Taxiway B5, Taxiway A1, and Runway end 3L. Both the taxiways lead directly to the end of the runway and are often confused with Taxiway B4 directly beside each of these taxiways. The fourth hotspot (HS4) is the intersection of Taxiway C4 and Taxiway D4 with Runway 3R and 21L. This intersection is about half way down the runway and has a high volume of runway crossings. The ATCT helps to mitigate most of the intersection hotspots during its hours of operation.

2.4.4 | 5 - Ramps

There are ten ramp areas at PRC which total approximately 1.1 million square feet. See **Figure 2-20** for an overview of all the ramps on the airfield. Refer to Section 2.4.4 Part 9 for discussions of the ramp pavement conditions.

Airport Diagram

Prescott Regional Airport - Ernest A. Love Field

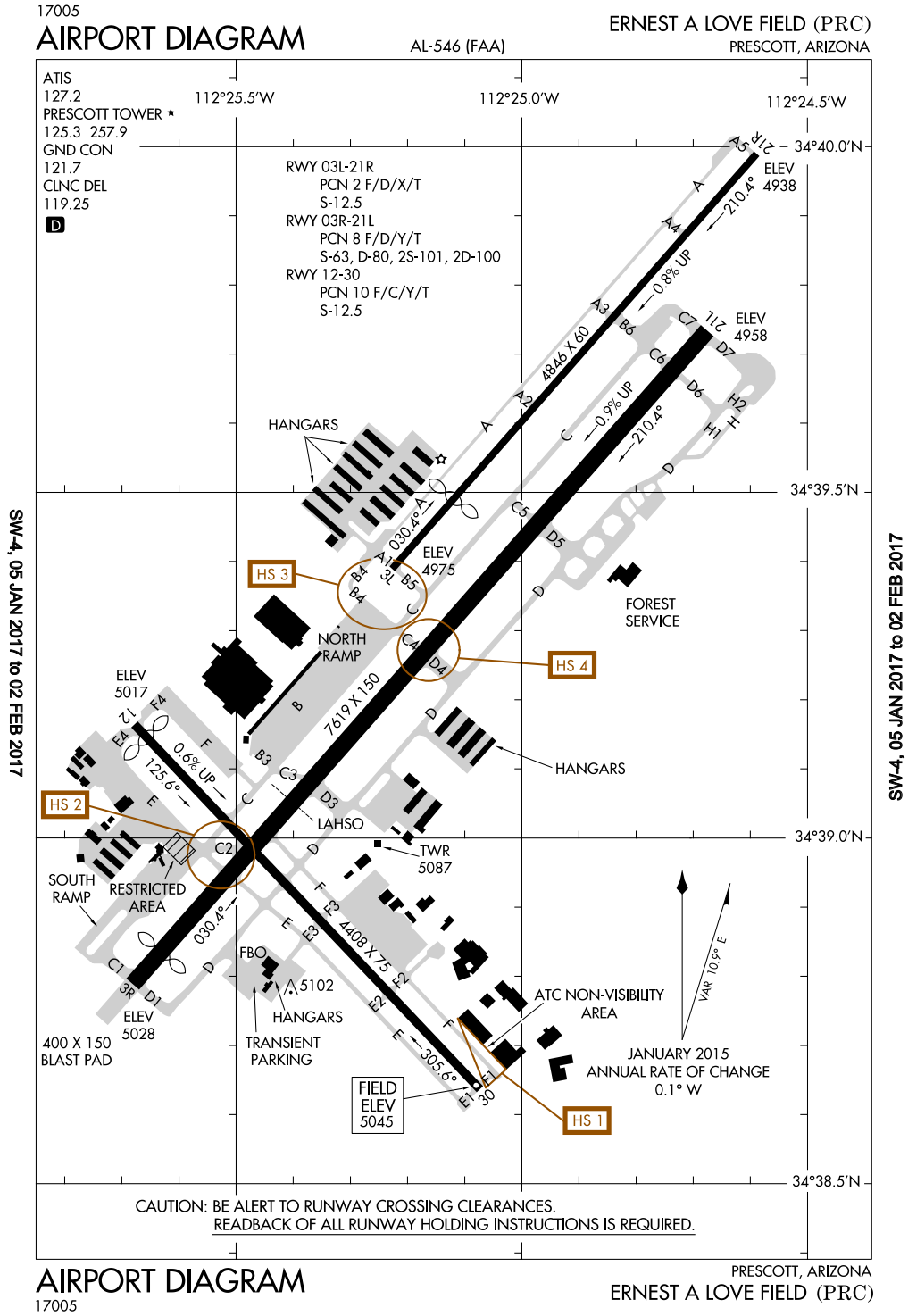


Figure 2-19. Airport Diagram
Source: AIRNAV

Guidance Aviation Ramp

- 9 helicopter parking positions
- Access from Crystal Lane and Janine Drive

North Ramp

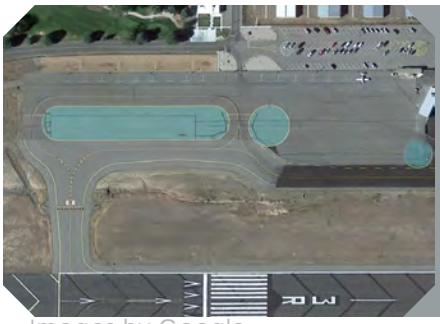
- Parallel to Taxiway C
- Based aircraft parking
- 63 tie-down positions
- 21 single unit T-Hangars and 1 conventional hangar
- Landside access from Ruger Road

U.S. Forest Service Ramps

- Access from Melville Road
- Northeast corner of airfield
- 2 aircraft tie-downs
- Fire suppression loading bays
- 3 aircraft pits

Terminal Ramp

- Commercial service terminal
- Terminal parking lot accessed from MacCurdy Drive
- 2 Commercial Service Aircraft parking positions



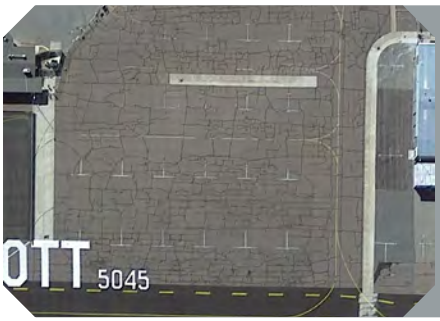
South Ramp

- Main transient aircraft area
- Adjacent to commercial terminal
- 9 tie-down positions
- Accessed from MacCurdy Drive

Images by Google

West Ramp

- No official parking positions, but utilized for heavy military and forest service parking as space is needed
- Adjacent to Taxiway F
- Landside access from Ruger Road



Airport Administration Ramp

- Access to hangars
- Accessed from parking lot
- Eviation hangar access

Embry-Riddle Ramp

- 19 helicopter parking positions
- 30 small aircraft tie-downs
- Aeronautical University
- Access from Wilkinson Road

Legend Aviation Ramp

- FBO terminal building
- 17 tie-down positions
- Road access from Clubhouse Drive

North Aire Ramp

- Northaire offices
- 21 tie-down positions
- Access from N. Wilkinson Drive
- Self-fueling AVGAS fuel facility

Images by Google

Figure 2-20. Ramps
Source: Delta Airport Consultants, Inc.
Image by USGS

2.4.4 | 6 - Airfield Electrical and Visual Aids

Airfield electrical and lighting systems at Prescott Regional Airport- Ernest A. Love Field aid the pilot in locating and operating on the airport. All airport lighting at PRC is inspected daily. Definitions of airfield electrical and lighting components are provided on page 2-62.

Runway Lights

All Runways at PRC are equipped with Medium Intensity Runway Lights (MIRLs) and are supplemented by a pilot lighting system which enables a pilot to increase the intensity of these lights on approach to PRC at night and in inclement weather. The frequency of the lighting system for Runway 3R-21L is 125.3 and for Runway 12-30 is 128.75MHz, and the availability of this system is published on the instrument approach chart and in other appropriate aeronautical publications. The runway lighting systems at PRC are in fair to poor condition.

Taxiway Lights

All taxiways at PRC are equipped with Medium Intensity Taxiway Lights (MITLs). This lighting system is in fair to good condition. **Table 2-16** summarizes the taxiway lights at PRC.

Table 2-16. Lighting Analysis

Facility	Type	Condition	Age (Years)
Runway 3L-21R	MIRL	Fair	±23
Runway 3R-21L	MIRL	Fair	±15
Runway 12-30	MIRL	Poor	±15
Parallel Taxiway A	MITL	Fair	10+
Parallel Taxiway B	MITL	Fair	10+
Parallel Taxiway C	MITL	Fair	10+
Parallel Taxiway D	MITL	Good	10+
Parallel Taxiway E	MITL	Good	3
Parallel Taxiway F	MITL	Fair	10+

Source: Dibble Engineering

Airfield Signage

Consistent with FAA requirements, PRC has installed lighted signs on the airfield that identify the runway distance remaining, runway exits, critical area hold positions, taxiway location and direction, taxiway and runway intersections, airfield location, and directions to key components of the airfield. These signs are in fair to good condition. The signs associated with Runway 3L-21R are in poor condition.

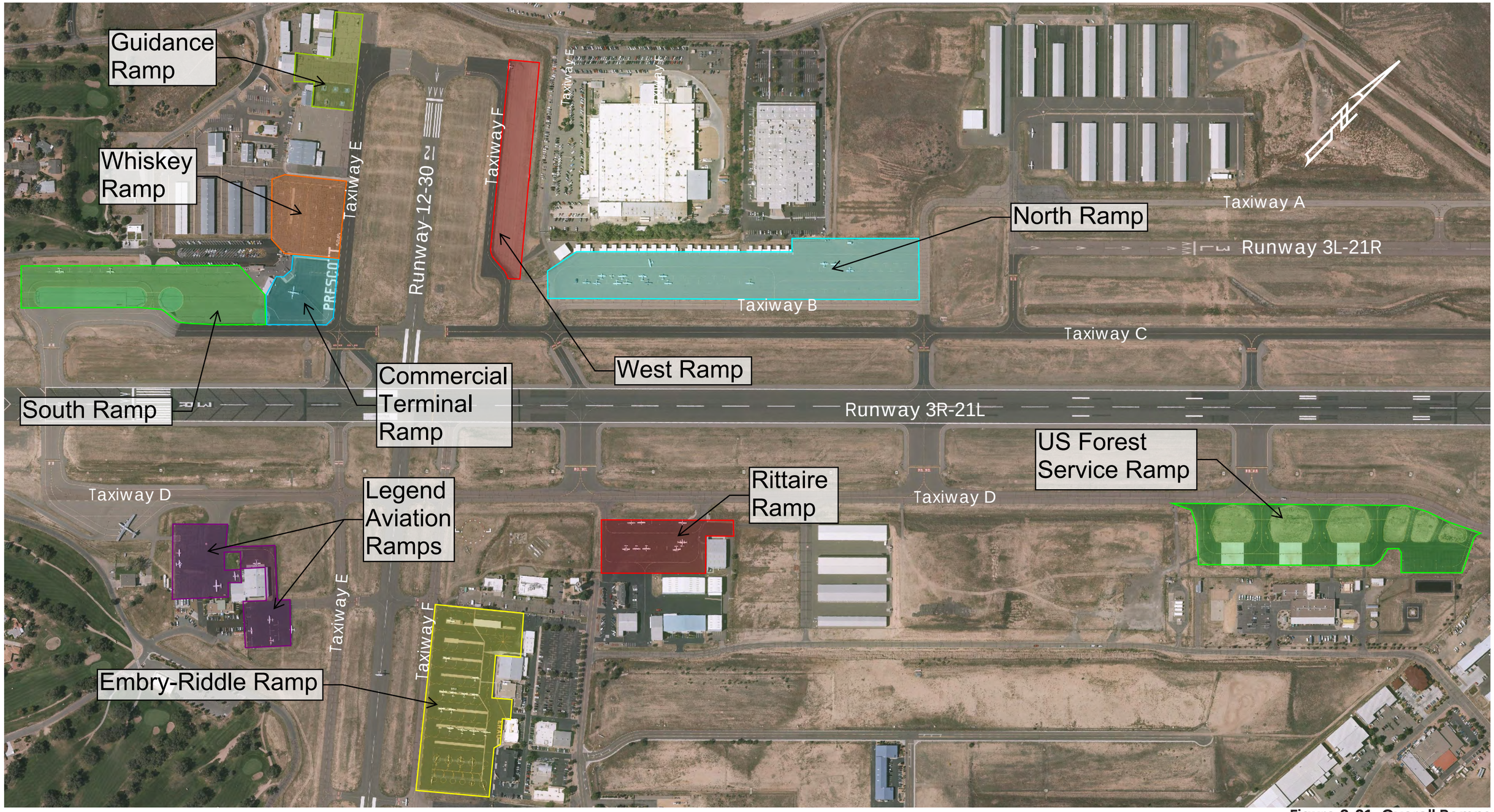


Figure 2-21. Overall Ramps
Source: Delta Airport Consultants, Inc., Image by Google

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Segmented Circle

PRC has a segmented circle co-located with the primary wind cone in good condition.

Image by Delta Airport Consultants, Inc.

Primary Windcone

Wind Cone

The primary wind cone is lighted, is located northeast of the intersection of Runway 12-30 and Runways 3R-21L, and is in good condition. Additionally, there are eight, smaller non-lighted supplemental cones on the airfield. **Table 2-17** summarizes the existing wind cones at PRC.

Table 2-17. Wind Cone Summary

Wind Cone	Condition	Age
Primary	Good	<1
Supplemental Midfield TW D4 and TW D5	Fair	10+
Supplemental RW 21L	Good	3+
Supplemental RW 21R	Fair	10+
Supplemental RW 3L	Fair	10+
Supplemental RW 3R	Good	3+
Supplemental RW 12	Good	3+
Supplemental RW 30	Good	<1

Source: Dibble Engineering

Image by Delta Airport Consultants, Inc.

Rotating Beacon

Rotating Beacon

The rotating beacon at PRC is mounted atop a tower located adjacent to the airfield electrical vault, west of Runway 3L-21R. The beacon operates sunset to sunrise and is in good condition.

Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)

Runway 21L has a medium intensity approach lighting system with runway alignment indicator lights (MALSR). The system is a series of lights that begins at the runway threshold and extends approximately 2,400 feet prior to the runway threshold. It consists of a lighted threshold bar, seven light stations with steady burning lights, and five stations with flashing or strobe lights to help aircraft align with the runway during poor weather conditions. The MALSR is owned and maintained by the FAA, and is in good condition.

Runway End Identifier Lights (REIL)

Runway 3R, Runway 12, and Runway 30 all have a set of Runway End Identifier Lights (REILS). The REILS are omni-directional and are powered from their respective runway circuit. These units are in good condition. **Table 2-18** summarizes the existing REILs and their condition at PRC.

Table 2-18. REILs Summary

Facilities	Condition	Age
Runway 3R REILS	Good	1+
Runway 12 REILS	Good	1
Runways 30 REILS	Good	1

Source: Dibble Engineering

Precision Approach Path Indicator (PAPI)

Runway 3R and 21L are each served by a four box PAPI systems. Runways 3L, 21R, 12, and 30 are each served by a two box PAPI system. **Table 2-19** summarizes the existing PAPIs and their condition at PRC.

Table 2-19. PAPI Summary

Facility	Type	Condition	Age (Years)	Glide Path Angle
Runway 3R	4 Box PAPI	Good	<1	4.1 degrees
Runway 21L	4 Box PAPI	Good	<1	3.0 degrees
Runway 3L	2 Box PAPI	Poor	10+	3.0 degrees
Runway 21R	2 Box PAPI	Poor	10+	3.0 degrees
Runway 12	2 Box PAPI	Good	<1	4.24 degrees
Runway 30	2 Box PAPI	Good	<1	3.6 degrees

Source: Dibble Engineering

Image by Delta Airport Consultants, Inc.

Airfield Electrical Vault

Airfield Electrical Vault

The airport's airfield electrical systems are fed from an electrical vault located on the north portion of the airfield between the last T-hangar in the north T-hangar area and Taxiway A near the Runway 3L end. The vault has constant current regulators (CCRs) that power the runway lights, taxiways lights, airfield signs, and PAPIs. The vault has an emergency generator that is located adjacent to it. The generator has a capacity of 275 kw. Both were constructed in 2016 and both are in excellent condition.

Understanding...Electrical and Lighting

- Runway Lights: Outline the edges of runways during periods of darkness or restricted visibility conditions. These light systems are classified according to the intensity or brightness they are capable of producing, and are identified as High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL) or Low Intensity Runway Lights (LIRL).

- Taxiway Lights: Outline the edges of taxiways during periods of darkness or restricted visibility conditions.

- Airfield Signage: Not typically associated as a NAVAID but serves an important navigational element for movement of aircraft on the ground. Airfield signage indicates distance remaining on a runway and identifies the location of runways, taxiways, aprons, and other airfield destinations.

- Segmented Circle: A ground based marking indicating the traffic pattern, wind direction, and wind strength to pilots en route. A segmented circle features a series of white or orange markings arranged in a circle with traffic pattern indicators protruding from the circle to specify the direction of the traffic pattern. A lighted wind indicator is placed inside the segmented circle markings to indicate the direction and intensity of the wind.

- Wind Cone: Orange fabric cones that indicate the strength and direction of the wind. These NAVAIDs assist pilots in making navigational corrections to adjust for surface prevailing winds moments before touchdown or prior to departure.

Understanding...Electrical and Lighting

- Rotating Beacon: A high-intensity light that rotates 360 degrees and is operated at night and in inclement weather conditions to assist pilots in identifying the location of an airport from a distance in the air. The beacon is equipped with a green lens and a white lens separated 180 degrees from one another that emit alternating white and green flashes indicating an airport is available for public use.

- MALSR: A 2,400 foot approach lighting system that provides visual reference to the runway end. The first 1,400 feet are steady burning lights and the last 1,000 feet are synchronized flashing lights.

- Runway End Identifier Lights (REIL): A pair of synchronized flashing lights located on each side of the runway threshold. REILs provide a rapid and positive identification of the approach end of a particular runway. REILs may be either omnidirectional or unidirectional.

- Precision Approach Path Indicator (PAPI): A system of lights arranged to provide visual descent guidance information during the approach to a runway. These lights are visible from three to five miles during the day and up to 20 miles at night. The visual glide path of the PAPI provides safe obstruction clearance within plus or minus ten degrees of the extended runway centerline and to four nautical miles from the runway threshold. The basic principle of the PAPI is that of color differentiation between red and white. Each light unit projects a beam of light having a white segment in the upper part of the beam and a red segment in the lower part of the beam. The light units are arranged so that the pilot using the PAPIs during an approach will see a combination of the red and white light segments to determine the glide slope the aircraft is flying.

2.4.4 | 7 - Navigational Aids

Prescott Regional Airport - Ernest A. Love Field is equipped with various ground based navigational aids (NAVAIDs). The airport has both a localizer and a glide slope system. Together these two systems form an Instrument Landing System (ILS). The localizer provides horizontal guidance to the runway and the glide slope provides vertical guidance.

Localizer

PRC has a localizer system that serves approaches to Runway 21L. The system consists of an eight element Mark 1S localizer antenna array and an equipment shelter. The antenna array is located outside the runway safety area off the end of Runway 3R in line with the runway centerline. The localizer shelter is located the same distance from the runway end as the antenna, but is approximately 275 feet east of the antenna array. The localizer system is owned and maintained by the FAA and is in good condition.

Image by Delta Airport Consultants, Inc.

Glideslope Antenna

Glide Slope

PRC's glide slope is located approximately 950 feet from the Runway 21L threshold between the runway and Taxiway D. The glide slope antenna and Runway 21L PAPI are co-located with one another. The glide slope antenna array is a capture effect array. The glide slope system is owned and maintained by the FAA and is in good condition.

2.4.4 | 8 - Instrument Approaches

Prescott Regional Airport - Ernest A. Love Field has four published instrument approach procedures to Runway 3R-21L and two published instrument approach procedures to Runway 12-30. Runway 21L has a precision Instrument Landing System (ILS) or Localizer (LOC) (**Figure 2-21**) and an RNAV/GPS (Area Navigation/ Global Positioning System) approach (**Figure 2-22**). Runway 3R has a RNAV/GPS approach and a RNAV/RNP (Area Navigation/Required Navigation Performance) approach (**Figures 2-23** and **2-24**). Runway 12 has a RNAV/GPS approach (**Figure 2-25**) and a VOR (Very High Frequency (VHF) Omnidirectional Range) approach (**Figure 2-26**). Runway 3L-21R does not have any instrument approaches.

Each instrument approach procedure includes a decision altitude (DA) or minimum descent altitude (MDA) and minimum visibility, beyond which point the pilot must execute a missed approach and re-attempt the landing effort, or divert to another airport. The altitude references are expressed in both MSL (Mean Sea Level) and AGL (Above Ground Level) on published instrument approach charts used by pilots. The visibility minimums for the published approaches at PRC vary depending on the approach category of the given aircraft. A summary of the approach minimums can be found in **Table 2-20**.

Instrument Landing System/Localizer (ILS)

The ILS approach to Runway 21L provides minimums as low as 200 feet above the threshold and ½ mile visibility. These represent the best minimums available for a Category I ILS approach.

Area Navagation (RNAV)/ Global Positioning System (GPS)

The RNAV/GPS approach to Runway 21L provides minimums as low as 200 feet above the threshold and 1/2-mile visibility for an LPV approach. These represent the best minimums available for an LPV approach. LNAV/ VNAV, LNAV, and Circling approaches are also available to Runway 21L with the RNAV (GPS) approach. The RNAV (GPS) approach to Runway 3R provides minimums as low as 300 feet above the threshold and one-mile visibility for an LPV approach. LNAV/VNAV, LNAV, and Circling approaches are also available to Runway 3R with the RNAV (GPS) approach. The RNAV/GPS approach to Runway 12 provides minimums as low as 300 feet above the threshold and one-mile visibility for an LPV approach. LNAV/ VNAV, LNAV, and Circling approaches are also available to Runway 12 with the RNAV (GPS) approach.

Very High Frequency Omnidirectional Range (VOR)

The VOR approach to Runway 12 end offers one-mile visibility. The VOR facility is located offsite of the airport just south of Chino Valley.

Table 2-20. Approach Summary

Approach	Runway	Ceiling Minimum	Visibility (Miles)
ILS	21L	200 (feet)	1/2
RNAV (GPS)	12	300 (feet)	1
RNAV (GPS)	21L	200 (feet)	1/2
RNAV Y (GPS)	3R	300 (feet)	1
RNAV Z (GPS)	3R	500 (feet)	1 5/8
VOR	12	500 (feet)	1

Source: FAA Terminal Procedures Publication

Understanding...NAVAIDs

Navigational aids (NAVAIDs) are designed to assist pilots in identifying and navigating to an airport. NAVAIDs are most useful in nighttime conditions or when a pilot's visibility is limited. While most NAVAIDs are ground-based equipment that are installed on an airfield, some are satellite-based that provide navigational signals for properly equipped aircraft.

- The ILS is a precision approach landing system designed to provide an approach path for exact alignment with the runway and a vertical guidance system to provide descent information for an aircraft on final approach to a runway. The ILS is used when instrument meteorological conditions (IMC) require the pilot to employ instrument flying rules (IFR).

- Area Navigation (RNAV) is used to fly point to point and on non-precision approaches. An onboard navigation database and a flight management system are required to use this approach. This method of navigation allows the pilot to choose any path within a network of navigation beacons, rather than navigating to and from them directly.

- Global Positioning System (GPS) is a space-based radio-navigation system. It consists of 24 satellites, which orbit the earth at 12,500 miles, as well as ground stations. GPS provides users with accurate information on position, velocity, and time anywhere and in all weather conditions. There are three GPS airport instrument approach procedures: the overlay approach, the GPS-only approach, and the Area Navigation (RNAV) approach.

ILS Approach Procedure, Runway 21L

Prescott Regional Airport - Ernest A. Love Field

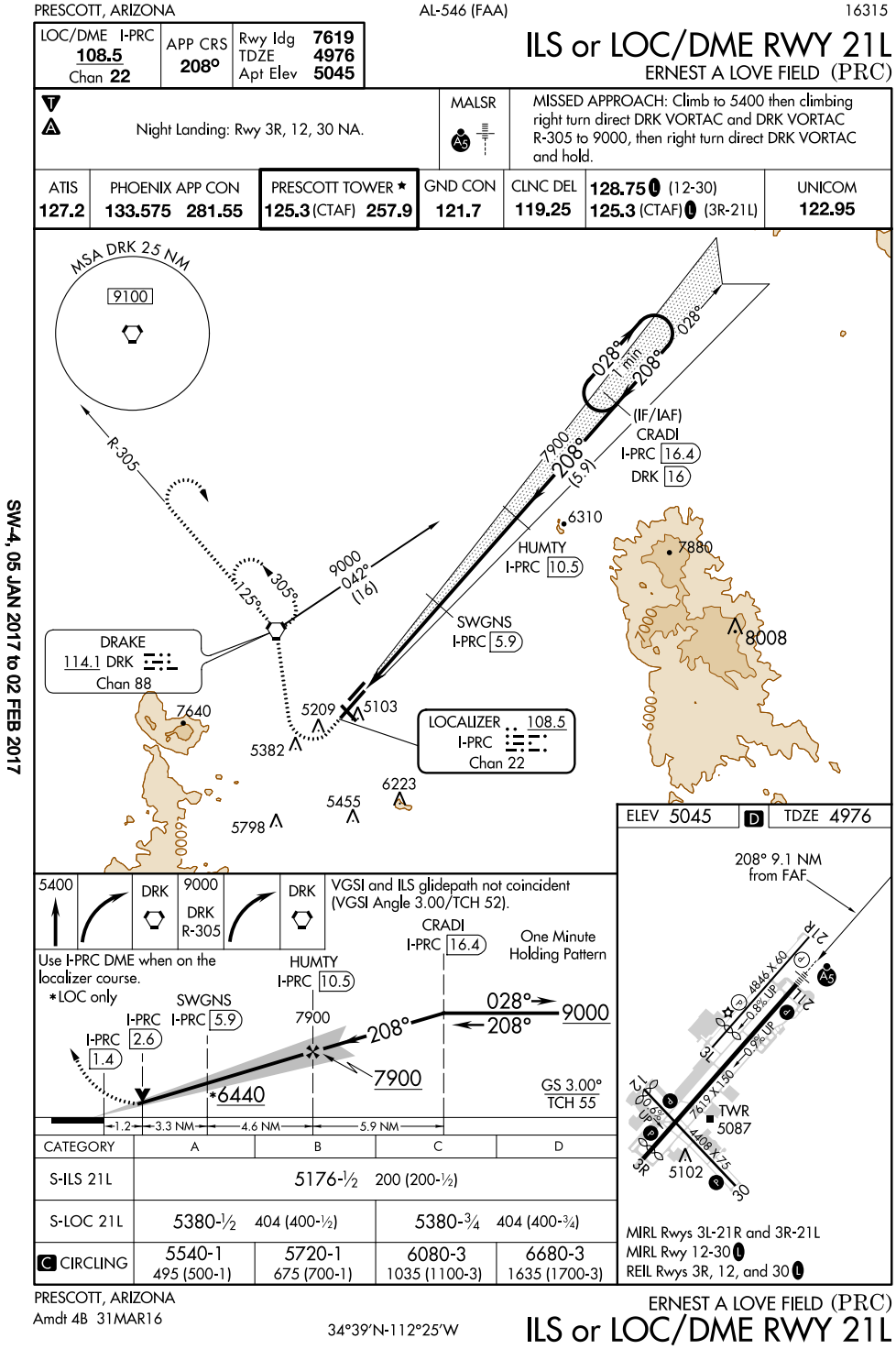

Figure 2-21. ILS Approach Procedure, Runway 21L
Source: AIRNAV

RNAV Approach Procedure, Runway 21L

Prescott Regional Airport - Ernest A. Love Field

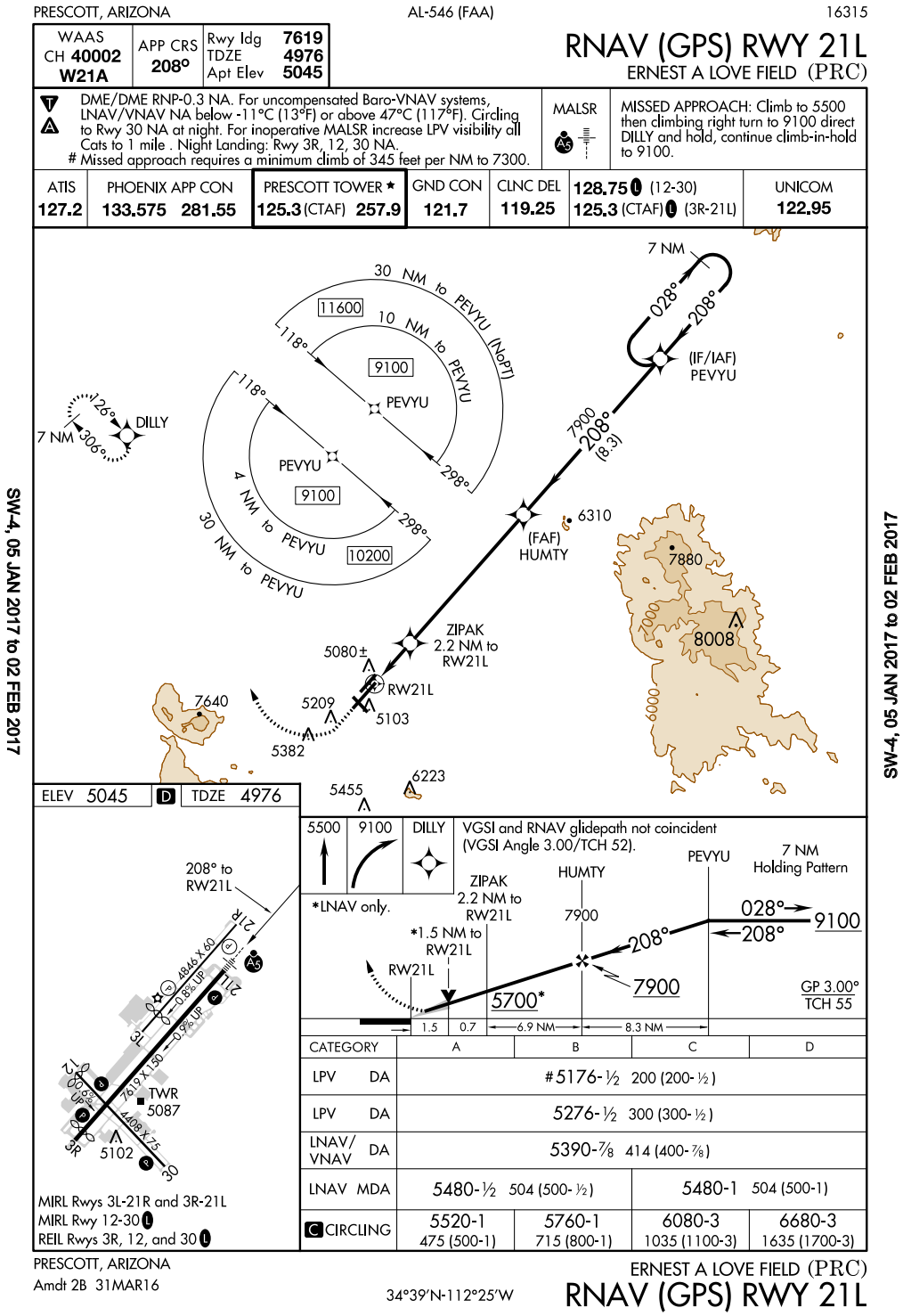

Figure 2-22. RNAV Approach Procedure, Runway 21L

Source: AIRNAV

RNAV/GPS Approach Procedure, Runway 3R

Prescott Regional Airport - Ernest A. Love Field

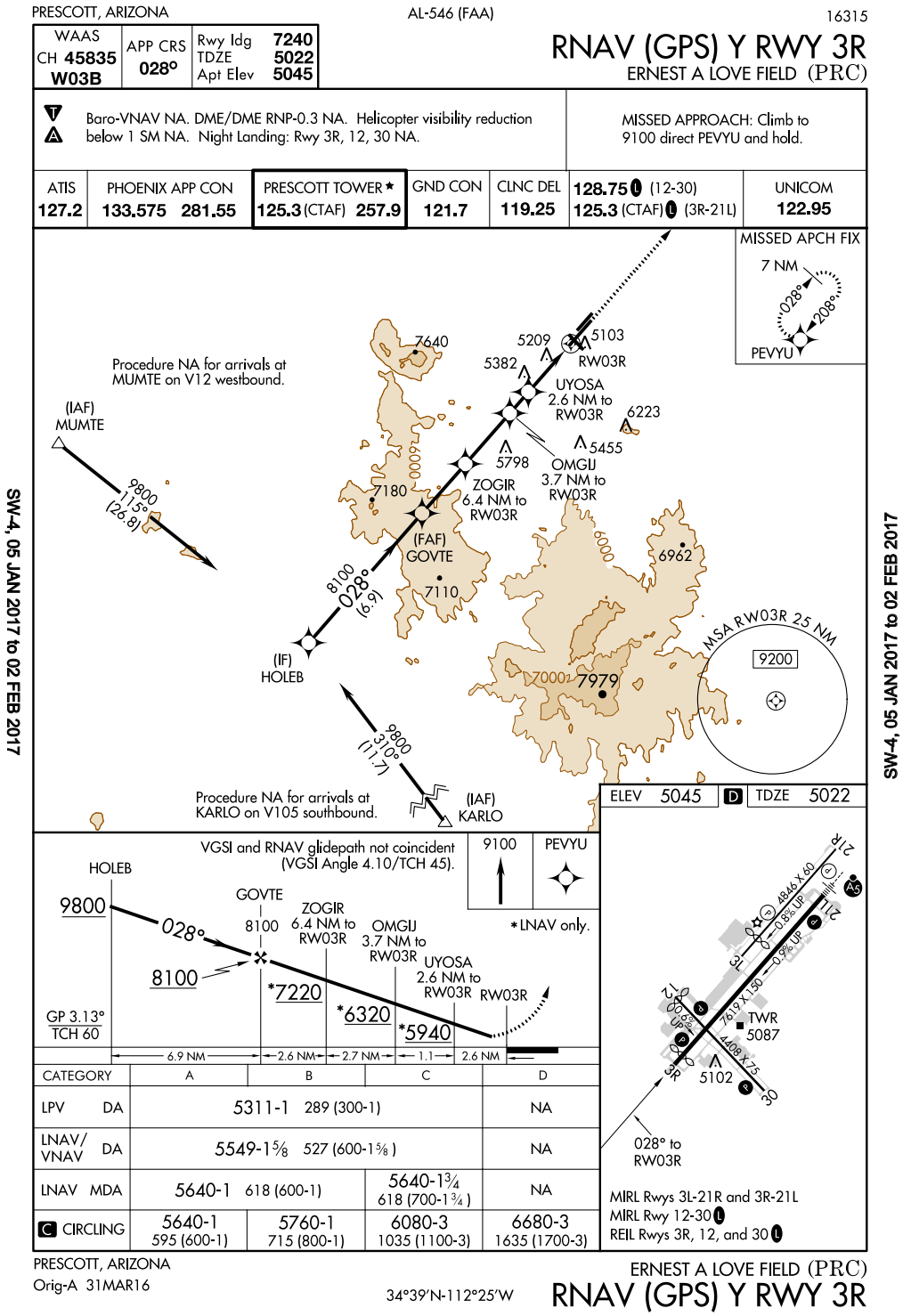

Figure 2-23. RNAV/GPS Approach Procedure, Runway 3R

Source: AIRNAV

RNAV/RNP Approach Procedure, Runway 3R

Prescott Regional Airport - Ernest A. Love Field

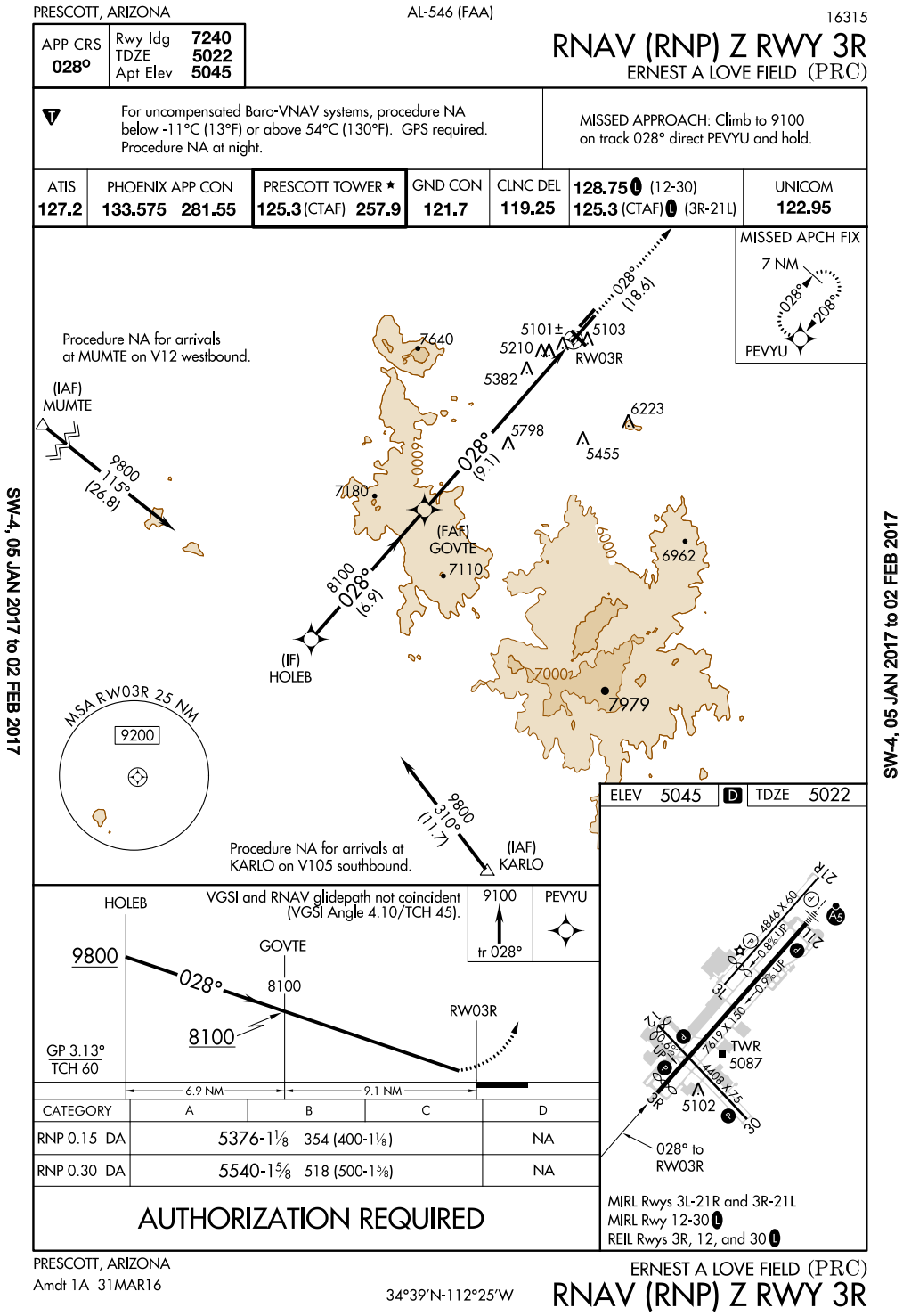

Figure 2-24. RNAV/RNP Approach Procedure, Runway 3R

Source: AIRNAV

RNAV/GPS Approach Procedure, Runway 12

Prescott Regional Airport - Ernest A. Love Field

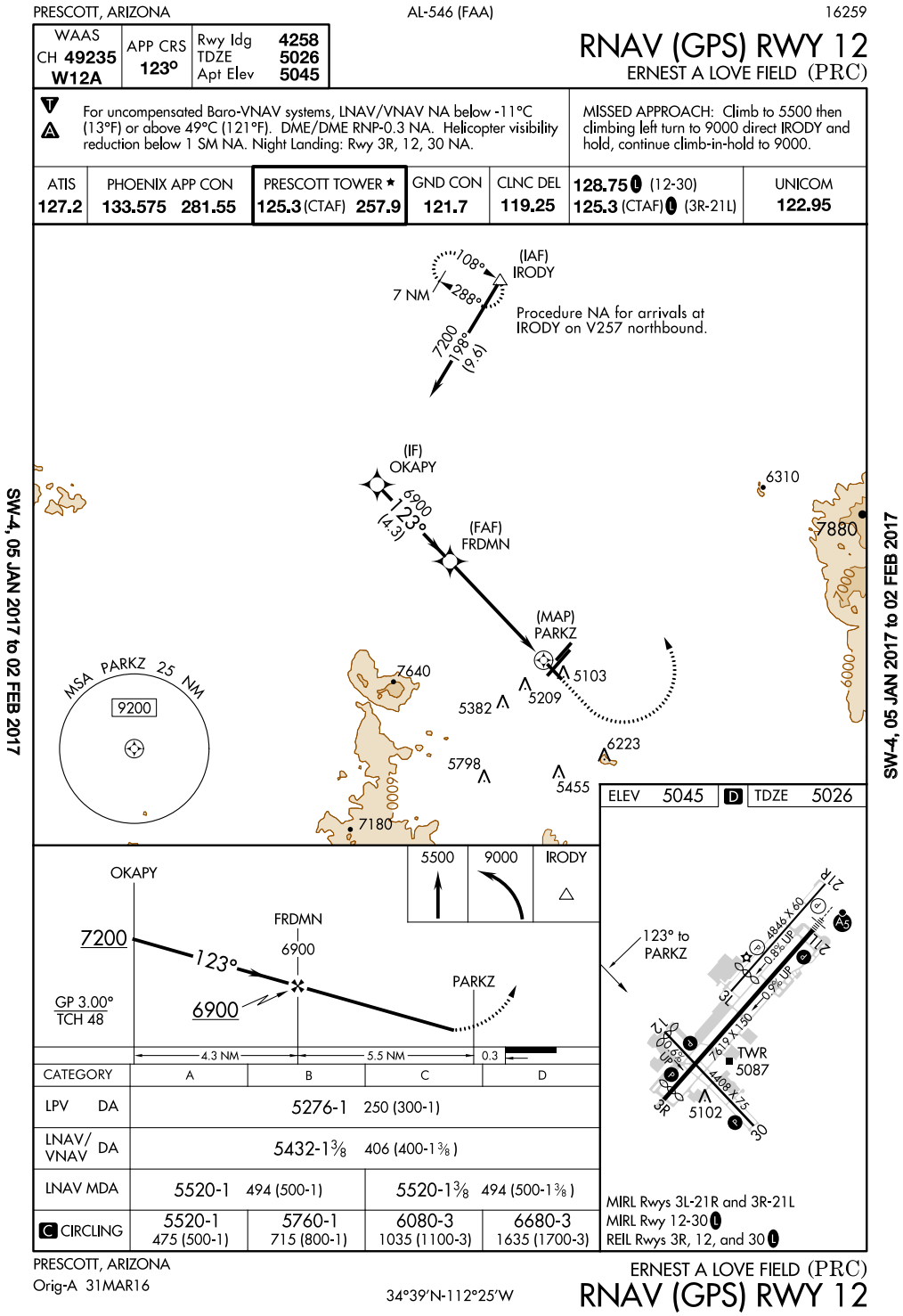

Figure 2-25. RNAV/GPS Approach Procedure, Runway 12

Source: AIRNAV

VOR Approach Procedure, Runway 12

Prescott Regional Airport - Ernest A. Love Field

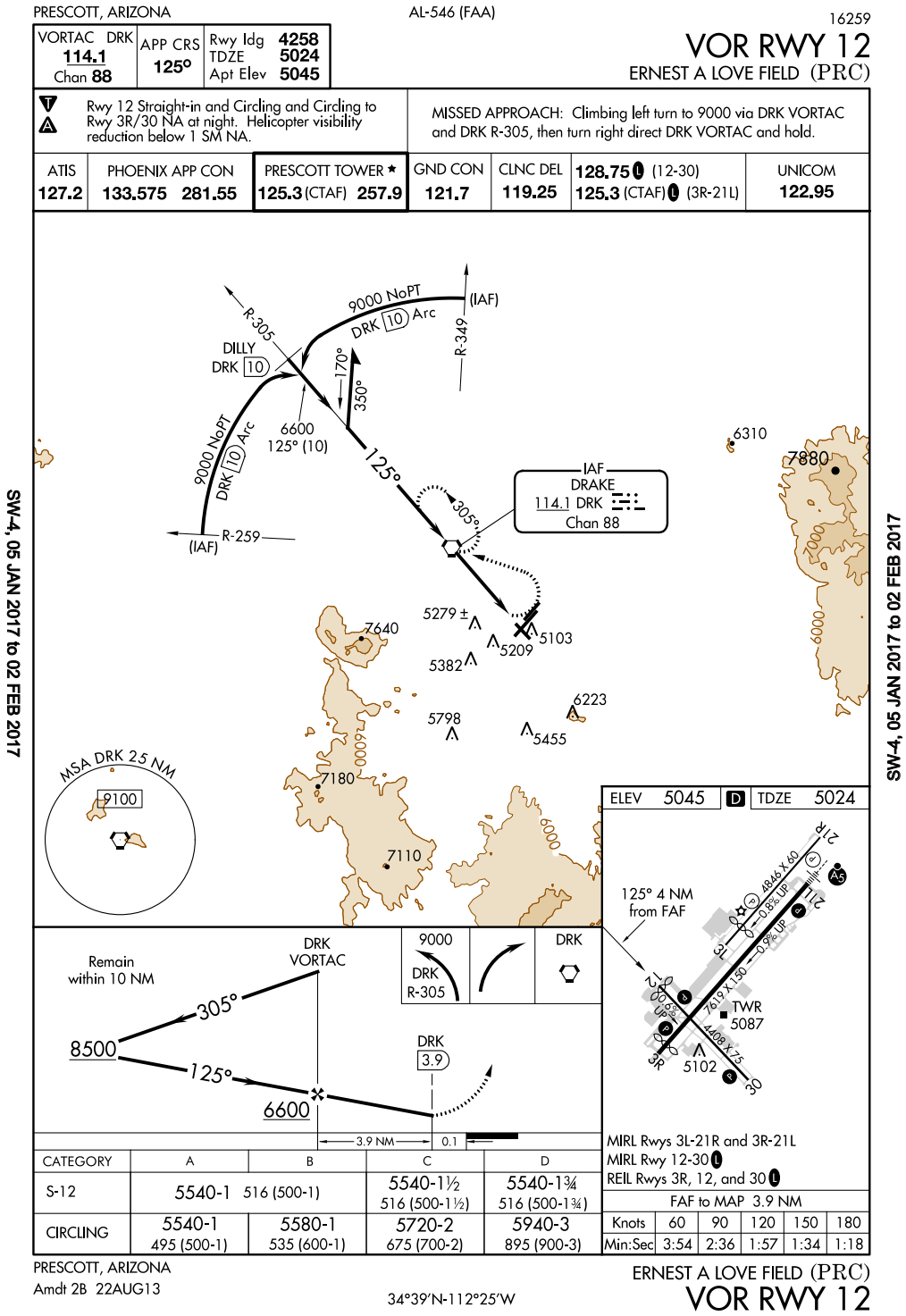

Figure 2-26. VOR Approach Procedure, Runway 12
Source: AIRNAV

2.4.4 | 9 - Pavement Condition

PRC has approximately 5.5 million total square feet of pavement

Airfield pavements are designed, constructed, and maintained to support the critical loads imposed on them and produce a smooth, skid-resistant, safe-riding surface necessary for the safe operation of aircraft under all weather conditions. Immediately after construction, airport pavements begin a gradual deterioration attributable to several factors, including: surface weathering, fatigue effects, and differential movement in the underlying sub-base over a period of years. Consequently, airport pavements require continual routine maintenance, rehabilitation, and upgrading. In October 2014, the FAA issued Advisory Circular (AC) 150/5380-7B, ***Airport Pavement Management Program (PMP)***.

The PMP serves as a quantifiable basis to guide the formation and implementation of programs aimed at effectively and efficiently maintaining and preserving airfield pavement. The Arizona Department of Transportation Aeronautics Group (ADOT) conducts PMP studies for Arizona's system of airports. The most recent study at Prescott was undertaken by Applied Pavement Technology, Inc. (AP Tech). In June 2013, AP Tech conducted a visual inspection of the condition of airfield pavement at PRC. The software PAVER was used to determine Pavement Condition Indexes (PCI) for various locations around the airfield and ultimately determine an overall pavement grade for the airport.

Per the PMP criteria, pavement condition is assessed using the PCI, a value range from 0 (Failed) to 100 (Excellent). The "critical PCI" indicates the point at which rehabilitation should be undertaken before a steep decline in pavement quality occurs. Typically, a PCI of 65 for air carrier airports like PRC is the point at which a PMP is recommended to be undertaken.

Pavement at PRC includes Runway 3R-21L, Runway 3L-21R, Runway 12-30, five parallel taxiways, connector taxiways, and apron areas totaling approximately 5.5 million square feet of pavement area. There are 21 pavement sections identified in the ADOT PMP Study. A pavement section is defined as the smallest management unit used for maintenance and rehabilitation units. **Table 2-21** shows the different pavement branches at PRC, with the number of sections and approximate area. These numbers are useful when determining a weighted PCI for PRC. The largest single pavement area is Runway 3R-21L at 1,080,899 square feet.

Table 2-21. Pavement Area Summary

PMU Identifier	Branch Name	Area (SF)
ANORTHPR-10	Apron North	102,631
ASOUTHPR-10	Apron South	137,385
ASOUTHPR-20	Whiskey Ramp	320,476
AWESTERPR-10	West Ramp	102,631
ATANKERPR-10	Forest Service	91,696
RW1230RP-10	Runway 12-30	383,908
RW3R21LPR-10	Runway 3R-21L	1,080,899
RW3L21RPR-10	Runway 3l-21R	290,741
TH01PR-10	Hangars near Whiskey Ramp	115,411
TH02-10	Bottleneck Hangars	489,331
TWAPR-10	Taxiway A	197,100
TWCPR-10	TW C, TW E, TW F, South Ramp	670,360
TWCPR-20	Hold Apron RW 21L	55,799
TWDPR-10	TW D, TW E, TW F	827,089
TWDPR-20	Hold Apron RW 21L	70,711
TWDPR-30	Hold Apron RW 3R	99,254
TWFPR-10	Taxiway F	53,254
TWKPR-10	Taxiway K	27,822

Source: PRC 2013 Pavement Management Update

The majority of PRC pavement is Asphalt Overlay

The airside pavement consists of Asphalt Concrete (AC), Asphalt Overlays on AC (AAC) pavements, and Portland Cement Concrete (PCC). Asphalt Overlays on AC is the most prevalent pavement type, with 3.12 million square feet of surface area. AC comprises 43 percent of pavement area and PCC comprises 0.2 percent of pavement area. **Figure 2-27** shows the distribution of airfield pavement by surface types.

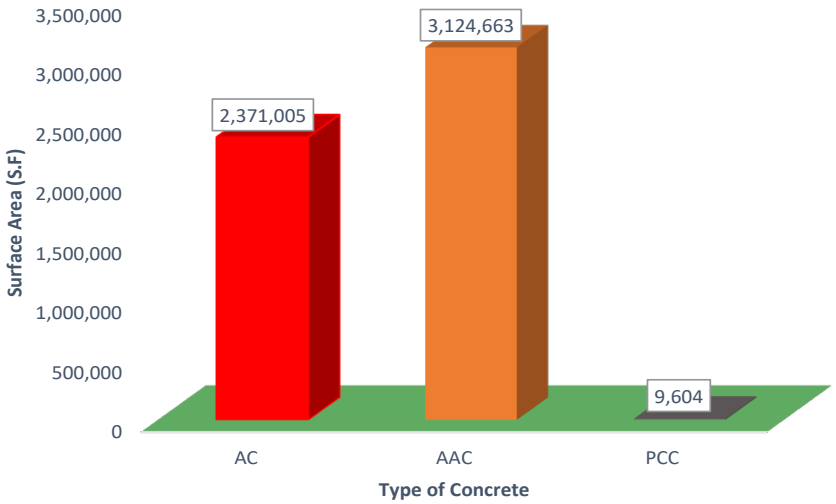

Figure 2-27. Pavement Type
Source: PRC 2013 Pavement Management Update

A majority of the pavement at PRC is over 15 years old.

Table 2-22 shows the age of pavement sections and gives an indication of the overall percentage of pavement within a given age. The majority of pavement sections are more than 15 years old.

Table 2-22. Breakdown of Pavement by Age

Age (Years)	No. of Sections	Percent of Total Area	Area (SF)
0-5	3	4%	226,019
6-10	0	0%	0
11-15	5	32%	1,788,691
16-20	3	27%	1,503,962
More than 20	10	37%	1,986,600

Source: PRC 2013 Pavement Management Update

Overall pavement condition at PRC is Fair with a PCI of 78

According to the 2013 Arizona Airports Pavement Management System Update, Runway 3L-21R maintains a PCI of 80, Runway 3R-21L maintains a PCI of 68, Runway 12-30 maintains a PCI of 100. The North Apron area at PRC has a PCI of 61, the South Apron area has a PCI of 65 and a PCI of 88 in the more recently built section, and the U.S. Forest Service Apron is listed as 23 for the AC pavement and 72 for the PCC pavement; however, the AC pavement has been rehabilitated since the study in 2013 and appears to be in good condition from a visual inspection. The pavement on the apron area near Taxiway F4 and along Taxiway F has a PCI of 47. The PCI for the parallel Taxiway A is 73. The PCI for the parallel Taxiway C is 68; however, a portion was recently added and has a PCI of 100. The PCI for the parallel Taxiway D is 67; however, two new sections have recently been added to Taxiway D and their PCI values are both 100. The PCI for the parallel Taxiway F is 62. Taxiway K which is the Taxilane leading to the Monarch T-hangars has a PCI of 74. The pavement in front of the T-hangar 2 (Bottle Neck Hangar) area was determined to be a PCI of 53, and the pavement in front of the T-hangar 1 (South Apron) area has a PCI of 62. PCI values for PRC ranges from a low of 53 (Portions of Taxiway A) to a high of 99 for Taxiway F. Overall, the pavements at PRC were given a weighted PCI of 78. This indicates that overall, the pavement at PRC is considered Fair by FAA guidance. The 2013 condition of the PRC airfield pavements are highlighted in **Figure 2-28**.

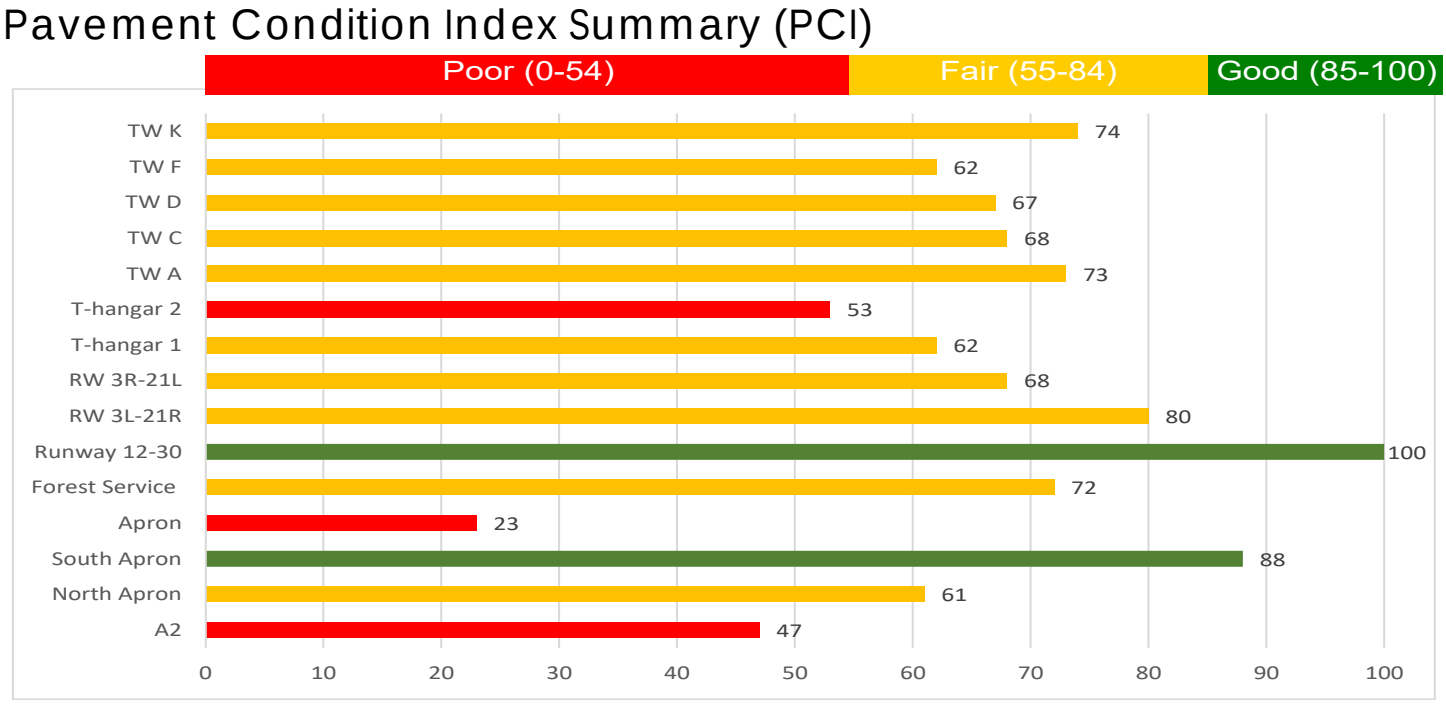

Figure 2-28. Pavement Condition Index Summary (PCI)
Source: PRC 2014 Pavement Management Update

Figure 2-29 below shows the condition of pavement by percentage of area. As seen, most airfield pavement at PRC is in fair condition. The main runway, given a PCI of 68, greatly affected this percentage. There is a small amount of good condition and a small portion of pavement in poor condition. This maintenance could range from routine crack sealing to major asphalt reconstruction and varies greatly depending on the section of pavement.

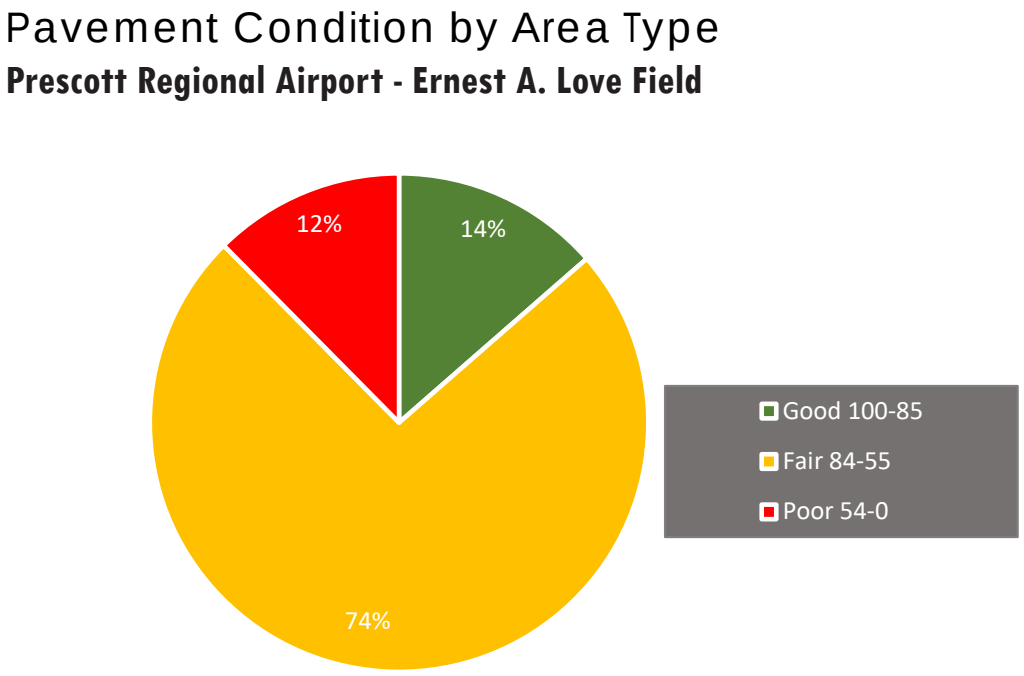

Figure 2-29. Pavement Condition by Area Type
Source: PRC 2013 Pavement Management Update

Sections of these areas are currently considered fair or worse based on PCI values obtained from the study. This indicates a need in the near future for maintenance and rehabilitation. The total estimated cost of the ADOTs planned rehabilitation of the pavement projects at PRC for the above areas is approximately $9.2 million. The results of this analysis will be considered and discussed in Chapter 4 Facility Requirements of this planning effort. **Figure 2-30** depicts the pavement at PRC with its associated pavement condition of good, fair, and poor.

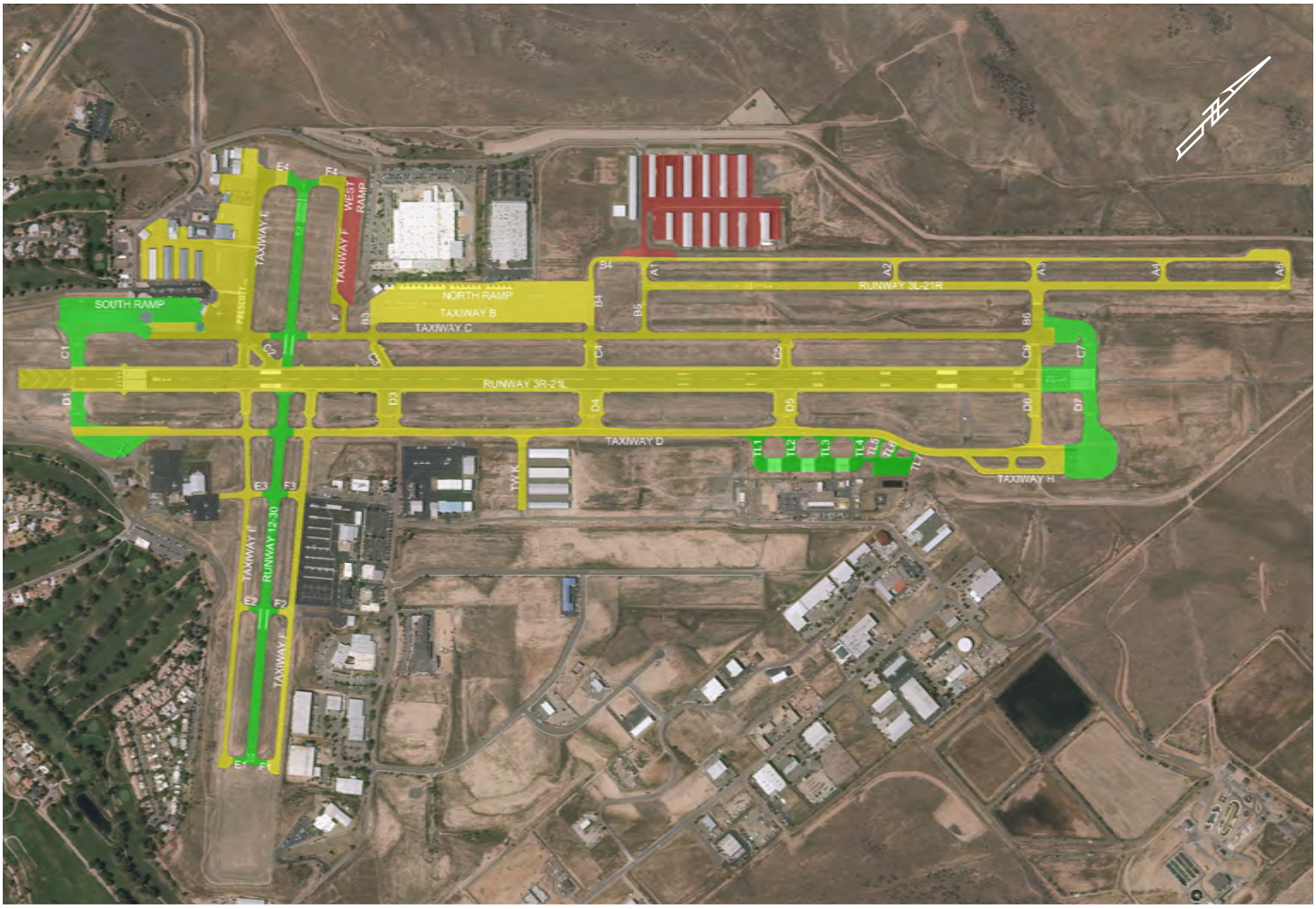

Figure 2-30. Pavement Condition Index
Source: Delta Airport Consultants, Inc., Image by Google
2013 Arizona Airports Pavement Management System Update

2.4.4 | 10 - Weather Equipment

PRC has an Automated Surface Observation System (ASOS). The system reports current altimeter settings, wind data, temperature, dew point, density altitude, visibility, cloud/ceiling data, and type of precipitation. This system is located at the intersection of Taxiway D and Taxiway F near the Embry Riddle apron area. When the ATCT is in operation, the ASOS information is accessed via a telephone number. When the tower is closed, pilots can use the ATIS Frequency. This system was originally installed over 18 years ago. Since this time, the system has undergone several updates and is currently in good condition. The ASOS is owned and maintained by the National Weather Service.

PRC also has a Stand Alone Weather System (SAWS). The system reports up to the minute weather observations such as temperature, wind speed, altimeter, and dewpoint directly to ATCT. The system is located next to the fuel farm. The system was installed approximately three years ago and is owned and maintained by the FAA. The system is in good condition.

Image by Delta Airport Consultants, Inc.

ASOS and Primary Windcone

2.4.4 | 11 - Non-Standard Conditions

FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, provides design standards for airport geometrical layout, runway and taxiway/taxilane design, and associated elements. The guidance provided by AC 150/5300-13A references many other AC documents for specific applications and is complemented by FAR Part 77 which establishes standards for determining obstructions in navigable airspace and provides for aeronautical studies of potential hazards to air navigation. As part of the master planning process, non-standard conditions will be reviewed for recommendations to bring the elements into compliance with FAA standards. The non-standard conditions are summarized in **Table 2-23**.

Table 2-23. Non-Standard Conditions

#	Non-Standard Condition	Existing	Standard
1	Runway Visibility Zone (RVZ)	Buildings and Objects within RVZ	No buildings and objects within RVZ
2	Runway Approach Surfaces	Approach Surface Penetrations	No Penetrations
3	Runway 12 Runway Safety Area (RSA)	120' Wide x 200' Long (mitigated by declared distances)	120' Wide x 240' Long
4	Runway 3L RSA	120' Wide x 0' Long (mitigated by declared distances)	120' Wide x 240' Long
5	RW 21L Runway Object Free Area (ROFA) beyond Departure end of Runway	800' Wide x 600' Long	800' Wide x 1,000' Long
6	RW 3R-21L/TW C Centerline to Centerline Separation	Insufficient Separation (325'): existing separations (325') is sufficient for the design aircraft (B-II), but is not sufficient for the Runway Design Code (RDC) for Runway 3R-21L, which is C-III	400'
7	Runway 3L Runway Protection Zone (RPZ)	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
8	Runway 3R RPZ	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
9	Runway 21L RPZ	Lack of Complete Control of RPZ	Control of RPZ
10	Runway 12 RPZ	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
11	Runway 30 RPZ	Incompatible Objects within RPZ	Remove incompatible objects
12	Runway 3R End Gradient	Centerline gradient of the last quarter of the Runway 3R end is 1.5%	Gradient may not exceed +/-0.8 percent in the first or last quarter or 2,500 feet, whichever is less

Source: 2014 Airport Layout Drawing, Delta Airport Consultants, Inc.

2.4 | Part 5 - Landside Facilities

Landside facilities at Prescott include:

- Commercial Passenger Terminal
- Aircraft Storage
- FBO Terminals

Figure 2-31 depicts and labels each of the buildings on the airfield and their associated category. Additional information about each of the buildings is given in tables within this section.

2.4.5 | 1 - Commercial Service Terminal

Image by Delta Airport Consultants, Inc.

Commercial Service Terminal

The commercial service terminal at PRC is located on the west side of the airfield near the intersection of Runway 3R-21L and Runway 12-30. It consists of a single story building that is approximately 10,600 square feet. The building was last renovated in 2018. The building consists of an airline ticketing/operational area, baggage claim area, non-secure passenger lounge, passenger screening area, secure passenger lounge, a rental car counter, a restaurant, and restrooms.

The terminal building is in fair condition, though it has insufficient space to provide the amenities that are required for the volume of passengers using PRC at the current time. It was constructed in 1947 and has been renovated several times. Modular trailers have been added for Transportation Security Administration (TSA) screening purposes and additional office space. Due to the building's age, it is eligible to be listed on the National Historic Registry.

2.4.5 | 2 - Aircraft Storage

Image by Delta Airport Consultants, Inc.

Executive Hangar

Hangars

Conventional hangars typically provide storage for multiple aircraft of various sizes and types. T-hangars are individually nested structures that are capable of accommodating a single aircraft per unit. Shade hangars are basic, open ended structures that provide a roof to shield the aircraft from weather elements. Executive hangars are stand alone buildings with 4 walls completely enclosing the aircraft from outside elements. T-hangars and shade hangars are usually sized for single engine and small twin engine aircraft only, while larger aircraft are generally stored in executive hangars. Hangars are at various locations across PRC. **Figure 2-31** depicts all hangars located on PRC which are all owned and managed by various entities. **Tables 2-24**, **2-25**, and **2-26** provide further breakdown of use within the hangars, sizes, and access doors.

Table 2-24. Size and Description of Executive Hangars

Executive Hangar	Units	Owner	Condition	Comment	Year Built	Door Height
N2	3	Public	Good	66' x 50' Units	97-02	20'
N12	3	Public	Good	65' x 60' Units	2003	20'
N22	9	Private	Good	50' x 50' Units	2007	14'
E4	6	Private	Good	50' x 40' Units	07-10	14'
E5	14	Private	Good	40' x 30' Units	07-10	14'
E6	14	Private	Good	40' x 30' Units	07-10	14'
E7	5	Private	Good	60' x 60' Units	12-14	14'

Source: Delta Airport Consultants, Inc.

Images by Delta Airport Consultants, Inc.

Shade Hangars

Images by Delta Airport Consultants, Inc.

T-Hangars

Table 2-25. Size and Description of T-Hangars and Shade Hangars

T-Hangar	No. of Units	Owner	Condition	Year Built
W12	4	Public	Fair	Pre-1985
W14	10	Public	Fair	Pre-1985
W15	10	Public	Fair	Pre-1985
• W20	10	Public	Fair	Pre-1985
• W21*	10	Public	Fair	Pre-1985
N1	14	Public	Good	91-96
N3*	10	Public	Good	92-96
N4	10	Public	Good	97-02
N5	10	Public	Good	92-96
N6	10	Public	Good	97-02
N7	14	Public	Good	2003
N8	10	Public	Good	97-02
N9	14	Public	Good	2003
N10	10	Public	Good	91-02
N11	14	Public	Good	Pre-1985
N24	2	Private	Fair	Pre-1985
N25	8	Private	Fair	Pre-1985
N26	6	Private	Fair	Pre-1985
N27	5	Private	Fair	Pre-1985
F9*	3	Private	Good	03-07

Source: Delta Airport Consultants, Inc.
Notes: *Shade Hangar
• Removed in 2019

Table 2-26. Size and Description of Storage and Maintenance Hangars

Storage Hangar	Area (SF)	Office Area (SF)	Owner	Condition	Year Built	Door Height
S3	11,800	700	Private	Good	92-96	18'/18'
W1	4,800	1,586	Public	Good	85-92	18'
W2	4,800	1,586	Public	Good	85-92	18'
W5	4,800	500	Private	Good	1996	16'/12'
W6	2,700	1,270	Private	Good	Pre-1985	12'
W7	8,000	6,000	Public	Fair	Pre-1985	18'
• W11	3,000	1,000	Public	Good	Pre-1985	12'
W13	4,225	250	Private	Good	92-96	16'
N21	6,400	800	Private	Good	2007	18'
N23	2,700	-	Private	Good	09-07	16'
E9	5,800	800	Private	Good	85-92	16'
E10	5,000	100	Private	Good	96-02	18'
E11	12,150	300	Private	Good	96-02	20'/22'/20'
E12	3,900	-	Private	Good	03-07	16'
E13	12,000	-	Private	Good	03-07	20'
E14	2,900	1,000	Private	Good	03-07	20'
E15	9,600	-	Private	Good	03-07	16'
F4	3,300	4,700	Private	Good	85-92	18'
F5	10,000	1,600	Private	Good	1996	18'

Source: Delta Airport Consultants, Inc.
Notes: • Removed in 2019

Tie downs

Another method of aircraft storage is that of aircraft tie-downs on aircraft parking aprons. The location and number of tie downs can be seen with the ramp figures in Section 2.4.4 Part 5.

2.4.5 | 3 - FBO Terminal

There is no dedicated GA terminal building at PRC. Rather, GA traffic is managed at the FBO terminal operated by Legend Aviation. It is located at the south side of the intersection of Runway 3R-21L and Runway 12-30 (see **Figure 2-13**, Airfield Equipment and Support Facilities). The building, which was built in 1969 as a flight service station, is approximately 5,000 square feet, has been renovated several times. It consists of a passenger lounge, pilot facilities, administration offices, training facilities, and operations facilities. The building also has a restaurant and kitchen that are currently not in use.

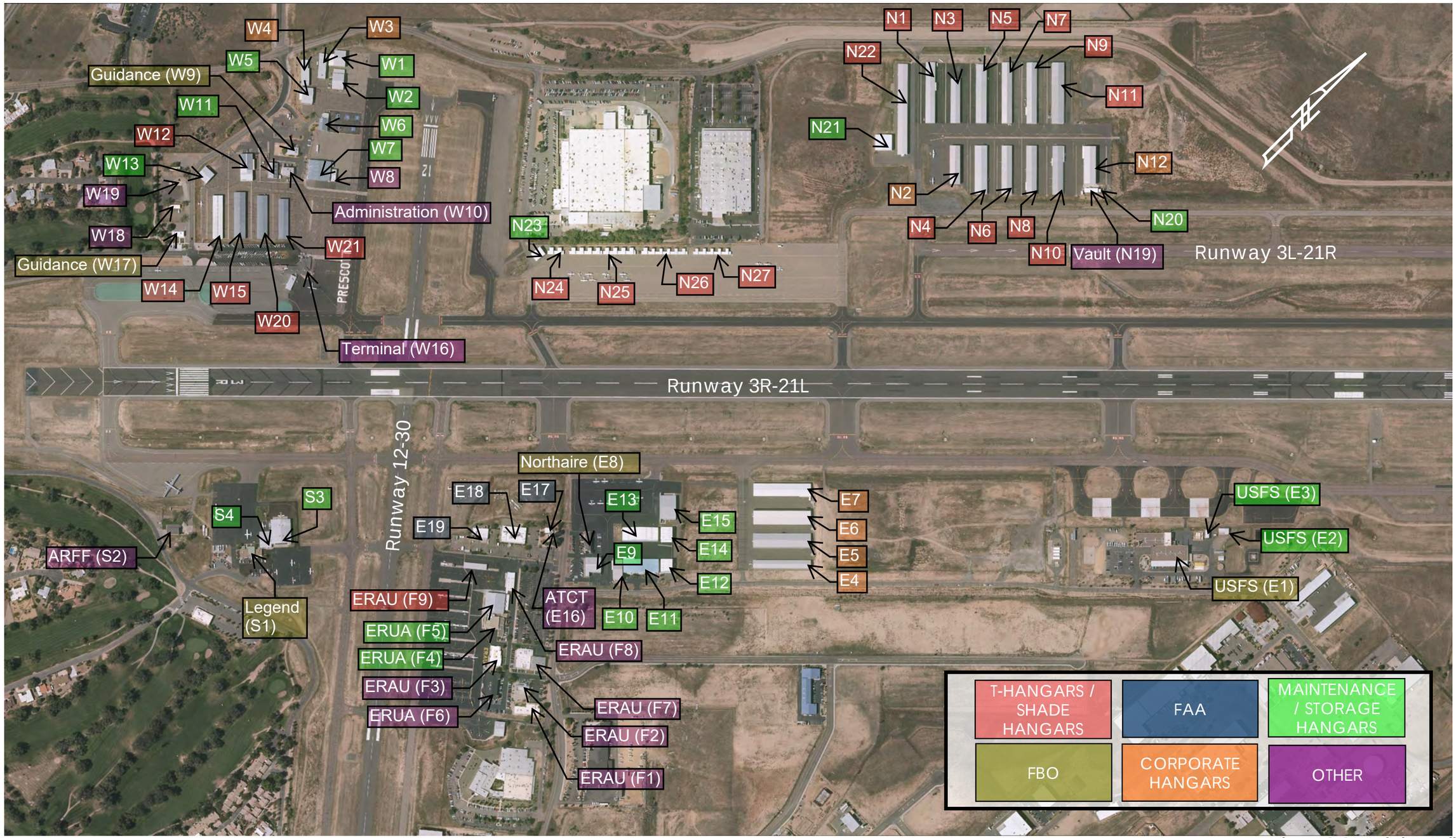

Figure 2-31. Existing Buildings
Source: Delta Airport Consultants, Inc., Image by Google

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2.4 | Part 6 - Support Facilities and Services

Support facilities and services at Prescott Regional Airport - Ernest A. Love Field include:

- Fuel Storage and Dispensing
- Aircraft Rescue and Fire Fighting
- Maintenance
- Snow Removal
- Ground Support
- Security
- Ground Access
- Parking
- Air Traffic Control Tower (ATCT)
- FAA Support Facility
- U.S. Forest Service Fire Tanker Base

Within this section, each of these components has been inventoried and assessed for their existing condition.

2.4.6 | 1 - Fuel Storage and Dispensing

The existing fuel farm consists of four above ground storage tanks that provide a total of 80,000 gallons of storage capacity for PRC

The PRC fuel farm consists of four above ground storage tanks that provide a total of 80,000 gallons of storage capacity of Prescott (40,000 gallons Jet-A and 40,000 gallons Avgas). These tanks were manufactured and installed in 1986. An earthen containment area and chain linked fence with locked gates are located along the perimeter. The fuel farm facility is owned by the airport and managed by Legend Aviation. Legend Aviation has an approved Spill Prevention, Control, and Countermeasure Plan (SPCC) and an Oil Discharge Prevention and Contingency Plan in place. They conduct daily inspections and conform to the requirements of 14CFR Part 139 for the safe handling, storage, and dispensing of aviation fuel. Two 1,000 gallon tanks are also located in the fuel farm area for storage and dispensing of motor vehicle gasoline and diesel fuel as well as a 470 gallon tank for used oil. Fuel product stored in these tanks is utilized by the City of Prescott for its maintenance, ARFF, and snow removal equipment.

In addition to the main fuel farm, there are other fuel facilities around the airfield. A 6,000 gallon self-serve AVGAS tank managed by Legend Aviation is located on the North Ramp. North-Aire also has a 6,000 gallon AVGAS tank for their own flight training aircraft and is located at their facilities near the ATCT.

Legend Aviation utilizes four trucks to refuel aircraft. These trucks are listed in **Table 2-27**.

Table 2-28 lists historical fuel sales at PRC for 2012-2018. During this seven-year period, Legend Aviation has sold an average of 391,998 gallons of Avgas and 394,956 gallons of Jet-A fuel per year. Fuel sales peaked in 2013 due to the fact there was a big fire season and the U.S. Forest Service was buying more fuel than usual at PRC.

Image by Delta Airport Consultants, Inc.

Airfield Fuel Tanks

Image by Delta Airport Consultants, Inc.

Vehicle Fuel Tanks

Table 2-27. Fuel Storage and Dispensing Equipment

Equipment	Capacity	Fuel Type
AST	20,000 gallons	AvGas (100LL)
AST	20,000 gallons	AvGas (100LL)
AST	20,000 gallons	Jet A
AST	20,000 gallons	Jet A
AST	1,000 gallons	Diesel Fuel
AST	1,000 gallons	Reg. Unleaded Gasoline
AST	6,000 gallons	AvGas
AST	6,000 gallons	AvGas
Fuel Tender	2,000 gallons	AvGas
Fuel Tender	2,000 gallons	AvGas
Fuel Tender	3,000 gallons	Jet A
Fuel Tender	5,000 gallons	Jet A

Source: Legend Aviation
Notes: AST-Above Ground Storage Tank

Image by Delta Airport Consultants, Inc.

Self-Serve Fuel Facility

Table 2-28. Fuel Sales

Year	AvGas (gallons)	Jet-A (gallons)	Total
2012	430,000	411,000	841,000
2013	422,000	519,000	941,000
2014	434,000	335,000	769,000
2015	431,000	300,000	731,000
2016	385,000	315,000	700,000
2017	354,388	433,762	788,150
2018	287,598	450,929	738,527

Source: Legend Aviation

2.4.6 | 2 - Aircraft Rescue and Fire Fighting (ARFF)

Prescott Regional Airport - Ernest A. Love Field does not serve air carrier aircraft longer than 90 feet; though it maintains an Aircraft Rescue and Fire Fighting (ARFF) Index A as defined by 14CFR Part 139. Equipment used to meet Index A standards at PRC includes a Rosenabuer Air-Wolf and E-One Titan. The characteristics of this equipment are detailed in **Table 2-29**. The Rosenabuer Air-Wolf carries 500 gallons of water. The E-One Titan has the capacity of 1,500 gallons of water and 200 gallons of foam.

Image by Delta Airport Consultants, Inc.

Rosenbauer Air-Wolf

The PRC ARFF facility is located just to the east of the Runway 3R end. It measures approximately 3,600 square feet and has four vehicle bays. Since its location is so far to the south of the airfield, responding units do not have direct access to the northern side of the airfield which can hinder response times required by FAA regulations. In addition to serving PRC, this building also serves parts of the surrounding area as well. This building was constructed prior to 1985 and is in fair condition.

Image by Delta Airport Consultants, Inc.

E-One Titan

Table 2-29. ARFF Equipment.

Vehicle Manufacturer	Vehicle Type	Capacity of Prescott	Year	Condition
E-One	Titan	1,500 gallons of water 200 gallons of AFFF foam	2001	Good
Rosenbauer	Air-Wolf	500 gallons of water	2015	Good

Source: Airport Management

2.4.6 | 3 - Maintenance/ Equipment and Storage

The City of Prescott has a fleet of equipment to maintain the airport grounds and facilities. This equipment is housed either in a unit of T-hangar W12, which is used for airport storage, or it is located outside the unit in the open air. The equipment and their conditions are listed in **Table 2-30**.

Table 2-30. Maintenance Equipment

Equipment	Manufactured	Condition
Ford F350*	2007	Good
Ford F350	2007	Good
Ford F350	2007	Good
Ford Explorer	2007	Fair
Ford Explorer	2007	Fair
International Dump*	1999	Fair
Caterpillar 426B Backhoe	1995	Poor
John Deere 6320	2003	Fair
Tiger Triple Gang Flail Mower	Unknown	Poor
Bobcat 5600 Toolcat*	2016	Good
Bobcat Rotary Flail	Unknown	Good
Chevrolet Aerial Lift Truck	1993	Poor
Tymco 600-BAH Sweeper	2007	Fair

Source: Airport Management
* Used as carrier vehicle for snow plows

Image by Delta Airport Consultants, Inc.

Bobcat 5600

Image by Delta Airport Consultants, Inc.

Maintenance Equipment

2.4.6 | 4 - Snow Removal Equipment and Storage

Due to the climate and geographic location of PRC, and as required by 14CFR Part 139, the City of Prescott also maintains several pieces of snow removal equipment to aid in the removal of snow and ice from airfield surfaces.

The City of Prescott also has in place an FAA approved Snow Removal Plan to guide the use of personnel, equipment, and supplies in removing snow and ice from airfield surfaces. This plan prioritizes areas for removal of snow, assignment of personnel, and use of equipment and apparatus during snow removal operations. The snow removal equipment is either housed in a unit of T-hangar W12 or is left outside in the open air. A list of snow removal equipment and the condition of the equipment at PRC is listed within **Table 2-31**.

Table 2-31. Snow Removal Equipment

Equipment	Manufactured	Condition
Viking 132" Plow	Unknown	Good
Snow Dogg 108" Plow	Unknown	Good
Plow Bobcat 96" Plow	Unknown	Good

Source: Airport Management

2.4.6 | 5 - Ground Support Equipment and Storage

The City of Prescott does not own any Ground Support Equipment (GSE). All the GSE equipment is owned and maintained by a private entity.

2.4.6 | 6 - Airport Administrative Building

The Airport Administration is housed in a pre-fabricated 2-story metal building in the vicinity of the commercial service terminal on the west side of the airport adjacent to the Whiskey Ramp. The 4,800 square foot building was constructed in 1973. The first floor is offices and the second floor is conference rooms and training space. The building has been renovated several times and is in good condition.

2.4.6 | 7 - Airfield Security

The Airport includes security fencing and gates that enclose the entire perimeter of the aircraft movement areas. The majority of fencing is 8-ft in height, including 6-ft of chain link fabric and 2-ft of 3-strand barbed wire. There are various segments of perimeter fencing adjacent to commercial and individual tenants that do not include 3-strand barbed wire. The airport hopes to provide future replacement fencing in these areas.

In addition to the security fencing, the airport has 43 vehicular gates and 26 pedestrian gates. The majority of the gates are swing gates of various sizes. All gates include locking devices. Currently there are 10 general-use powered access gates operated by the airport tenants. These gates are accessed by key pads. None of the gates include security cameras operated by the airport or City.

There are security updates planned to be completed in 2020. These updates include new cameras and a new access system.

2.4.6 | 8 - Ground Access

The closest interstate highways to PRC are Interstate 17, 30 miles to the east, and Interstate 40, 45 miles to the north. PRC is adjacent to AZ Routes 89 and 89A (Pioneer Parkway). These roads, along with Fain Road and AZ Route 69, provide excellent access to the service area and connection to the interstate system. There are multiple access points to the Airport from AZ 89 and AZ 89A, with the terminal area accessed by MacCurdy Drive.

2.4.6 | 9 - Automobile Parking

Currently there are 833 paved automobile parking spaces spread throughout the airfield. **Table 2-32** summarizes the number and location of the spaces. Prescott provides free parking for customers and guests.

Table 2-32. Automobile Parking

Location	Number of Spaces
Terminal Building	177
Airport Administration Area	125
Forest Service	53
Northaire	39
Embry-Riddle	337
Legend Aviation	42
ARFF Building	6
Bottleneck Hangars	20
Terminal Overflow Area (Unpaved)	34

Source: Delta Airport Consultants, Inc.

2.4.6 | 10 - Air Traffic Control Tower

Image by Delta Airport Consultants, Inc.

Air Traffic Control Tower

The Air Traffic Control Tower (ATCT) is located on the east side of the airfield near the intersection of Runway 3R-21L and Runway 12-30. It is adjacent to the Rittaire apron area. The tower was built in 1987 and is in good condition; it is owned and operated by the FAA. Due to development and topography, the tower does have line-of-sight issues to several areas of the airport. The end of Runway 30 is obstructed by buildings, and the end of Runway 21R is too far from the tower. Remote cameras provide visibility for the controllers in the tower. The tower is operational daily from 6:00 A.M. to 10:00 P.M. local time.

2.4|Part 7 Other On-Airport Facilities

There are a variety of storage hangars, maintenance hangars, and office/classroom buildings on the airport. See **Table 2-33** for additional building information. They base and operate a variety of aircraft for flight training purposes.

2.4.7 | 1 - Embry-Riddle Aeronautical University

Image by Delta Airport Consultants, Inc.

Embry-Riddle Sign

Embry-Riddle Aeronautical University (ERAU) has a flight school located on the east side of the airfield along Runway 12-30. This facility has over 200,000 square feet of apron space with nine helicopter parking spots and 30 tie-downs as well as landside parking.

2.4.7 | 2 - FAA Support Facilities

The FAA has several support facilities located on PRC airfield. These facilities include 1,000 square feet of office space (located at the base of the ATCT), 10,500 square feet for the FAA Tech Ops, and a storage building.

The FAA Tech Ops building was originally built in 1984 as a Flight Service Station before closing and being purchased by the airport. The other two buildings were built between 1985 and 1992; all of which are in good condition.

2.4.7 | 3 - U.S. Forest Service

Image by Delta Airport Consultants, Inc.

U.S. Forest Service Sign

The U.S. Forest Service has a large facility located at PRC. The Prescott Fire Center and Henry Y.H. Kim Aviation Facility are located on the east side of the airfield near the Runway 21L end. They have a main building of approximately 26,800 square feet that was constructed in 1991 with adjacent landside parking. They also have two storage units that were built between 1992 and 1996. They have a helipad that was rehabilitated in the last two years. There are two tie down locations on a small apron connecting to Taxiway D that were also restored within the last two years. This apron is used for smaller Lead and Air Attack planes. They have four larger taxilanes that all connect to each other as well as Taxiway D. These taxilanes provide access to three concrete pads used for large airtanker aircraft parking while they are refueling or taking on fire retardant. This area was also reconstructed within the last two years. All of their facilities are private use with their own separate gate access to their facilities which are in good condition.

Table 2-33. Other Buildings

Building	Name	Square Feet	Owner	Condition	Year Built
S1	Legend FBO (Old FSS Building)	5,000	Public	Good	1969
S2	ARFF Facility	3,600	Public	Fair	1974
S4	Legend Maintenance Shop	4,600	Private	Good	92-96
W8	Office Trailer	1,320	Public	Fair	92-02
W9	Guidance	2,400	Public	Good	03-07
W10	Administration Building	4,800	Public	Good	1973
W16	Terminal Building	10,600	Public	Fair	1947
W17	Guidance	1,500	Private	Good	92-96
N19	Airfield Electrical Vault	1,300	Public	Good	2016
N20	Airfield Storage Building	175	Public	Good	03-07
E1	USFS Main Building	26,800	Private	Good	1991
E2	USFS Storage Unit 1	835	Private	Good	92-96
E3	USFS Storage Unit 2	800	Private	Good	92-96
E8	Northaire	5,780	Private	Good	85-92
E16	ATCT	170	Public	Good	1987
E17	FAA Offices	1,000	Public	Good	1987
E18	FAA Tech Ops	10,500	Public	Good	1984
E19	FAA Storage Building	3,400	Public	Good	85-92
F1	Embry-Riddle Office	8,000	Private	Good	Prior 1985
F2	Embry-Riddle Office	13,000	Private	Good	85-92
F3	Embry-Riddle Office	5,600	Private	Good	85-92
F6	Embry-Riddle Office	8,400	Private	Good	85-92
F7	Embry-Riddle Multi-Purpose Building	13,000	Private	Good	Prior 1985
F8	Embry-Riddle Multi-Purpose Building	2,200	Private	Good	2003

Source: Delta Airport Consultants, Inc.

2.4.7 | 4 - On Airport Business

PRC has several businesses at the airport. These businesses offer a wide range of different aeronautical and landside services. A list of on airport business are summarized below in **Table 2-34**.

Table 2-34. Businesses on the Airfield

Business	Type of Service
PRC Operations	Tower/Administration/Security
TSA	
ARFF	
United States Forest Service	
United Express	
Legend Aviation	Charter/Flight Instructions/Rentals/Maintenance/Fuel/Catering
Arizona Air-Craftsman	Aircraft Repairs/Avionics/Service Support
Mile High Avionics	
Cobham Aerospace / Chelton Avionics	
Powell Upholstery	Aircraft Repairs/Avionics/Service Support
FAST INC	Failure Analysis Services Technology
Universal Helicopters	Charter/Flight Instructions/Rentals
Susie's Restaurant	
Hertz Rental Car	
Ditch and Go Valet Services	
Guidance Aviation	Charter/Flight Instructions/Rentals
Tac-Aero	
North-Aire	Charter/Flight Instructions/Rentals
E.R.A.U.	
Prescott Aircraft	Aircraft Repairs/Avionics/Service Support
Granite Mountain Aviation Services	Aircraft Repairs/Avionics/Service Support
Leighnor Aircraft	Rentals/Flight Instruction
Air-Co	
Eviation Aircraft, Inc.	

Source: Delta Airport Consultants, Inc.

Image by Delta Airport Consultants, Inc.

North-Aire FBO

Civil Air Patrol – Composite Squadron 206

The Civil Air Patrol (CAP) is an emergency services organization at the airport. They are made up of adults as well as younger Cadets totaling approximately 50 members. They have one aircraft based at the airport. Their focus is on helping in emergency situations in the area and offering youth programs to the cadets. Additionally, they offer aerospace education programs in which the public can participate.

Experimental Aircraft Association – Chapter 658

Experimental Aircraft Association (EAA) has monthly meetings at the airport. They provide members with a forum for experimental aircraft on the airfield. They have approximately 40 members.

Prescott Airport Users Association

The Prescott Airport Users Association (PAUA) has approximately 180 members, hold 11 executive meetings throughout the year, and support several aviation events annually. Their purpose is to represent the interest, safety, rights, and privileges of all pilots and airport users of the Prescott Regional Airport- Ernest A. Love Field.

2.4 | Part 8 - Utilities

2.4.8 | 1 - Electrical Power

Electrical power to the airport is supplied by Arizona Public Service (APS). APS supplies power to the airfield electrical vault which powers the airfield lighting, and they supply power to all the airport buildings. The airport has an emergency generator located next to the airfield electrical vault to power the airfield lighting.

2.4.8 | 2 - Telephone, Internet, and Wi-Fi

Telephone is provided by Century Link, while Internet, wi-fi and cable television service are provided by Sparklight. City phones are VOIP through Sparklight, all other phone service in Century Link. The City of Prescott provides network access to the ARFF Facility, Terminal Building, Administration Building, and Airfield Electrical Vault.

2.4.8 | 3 - Water

PRC has water provided by the City of Prescott. The main water supply to the buildings originates from six production wells that tap into the Little Chino Sub-Basin.

2.4.8 | 4 - Sewer

PRC sewer services are provided by the City of Prescott.

2.4.8 | 5 - Gas

PRC gas service is provided by UniSource Energy Services.

Section Overview

Part 1 | Enplanements

Part 2 | Operations

Part 3 | Based Aircraft

Image by Delta Airport Consultants, Inc.

2 | Section 5 - Historical Levels and Trends of Aviation Demand

PRC supports commercial and general aviation activities

Prescott Regional Airport - Ernest A. Love Field supports commercial and general aviation activities. For purposes of this planning study, four metrics of aviation activity are being measured: aircraft operations, general aviation based aircraft, commercial service enplanements, and the presence of special operators which may require unique accommodation. For this Master Plan, a review of historical levels of aviation activity is used to determine trends in aviation demand. These levels and trends will be used as the basis of the PRC forecast analysis provided within Chapter 3 of this Master Plan.

Table 2-35. Monthly Enplanements

	2013	2014	2015	2016
January	318	225	228	204
February	321	208	200	220
March	387	338	268	263
April	417	318	270	194
May	489	369	327	250
June	527	367	338	248
July	535	392	332	278
August	457	348	252	295
September	420	311	184	257
October	434	317	324	309
November	338	328	299	405
December	520	356	301	531
Total	5,163	3,877	3,323	3,454

Source: Airport Records

2.5 | Part 1 - Enplanements

Image by Delta Airport Consultants, Inc.

Commercial Service Terminal

Enplanements are passenger boardings of commercial service aircraft for both scheduled and unscheduled service. Passenger enplanements counts are provided to airport management by commercial air carriers and are reported to the FAA. Monthly enplanements for the period 2013-2016 are listed within **Table 2-35**.

The number of enplaned passengers impacts the facilities needed within the commercial terminal area and may indicate changing trends in commercial aircraft and service frequency when compared to current service and market trends. Non-Primary Commercial Service Airports, like PRC, support commercial aviation with less frequency and volume than primary commercial airports. For this reason, even small changes to factors impacting the airport's position within the air carrier market can create acute impacts to operations and forecasts. These airports have a limited capability to impact air carrier decisions leaving minimal resiliency to these acute changes. This lack of resiliency can lead to large, unanticipated changes to operations and enplanements. **Table 2-36** summarizes the enplanements compared to the number of air carrier operations at PRC. **Figures 2-32** and **2-33** show the trends in enplanements and operations for the past 12 years.

Since Enplanements have trended downward at an average rate of -3.35% per year. However, in 2009, at the height of the recent economic downturn passenger enplanements actually spiked upward significantly. Enplanements rose from 5,816 in 2008 to 11,668 enplanements in 2009, then dropped to 7,836 in 2010 and continued a decline through the present time until recent marketing efforts have increased ridership.

Table 2-36. Annual Enplanements

Year	Passenger Enplanements	Air Carrier Operations	Enplanements Per Departure
2005	5,020	5,394	1.9
2006	3,780	5,970	1.3
2007	4,165	5,166	1.6
2008	5,816	4,615	2.5
2009	11,668	5,417	4.3
2010	7,836	3,807	4.1
2011	5,159	3,926	2.6
2012	5,159	4,526	2.3
2013	5,223	4,372	2.4
2014	3,862	3,779	2
2015	3,420	3,293	2.1
2016	3,454	3,869	1.8
Average Growth	-3.35%	-2.98%	-0.50%

Source: FAA Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Record

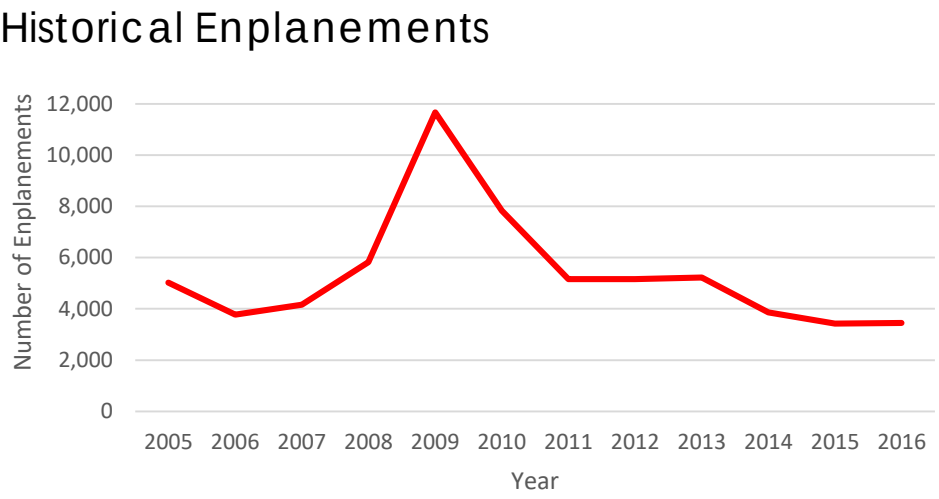


Figure 2-32. Historical Enplanements
Source: FAA Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Record

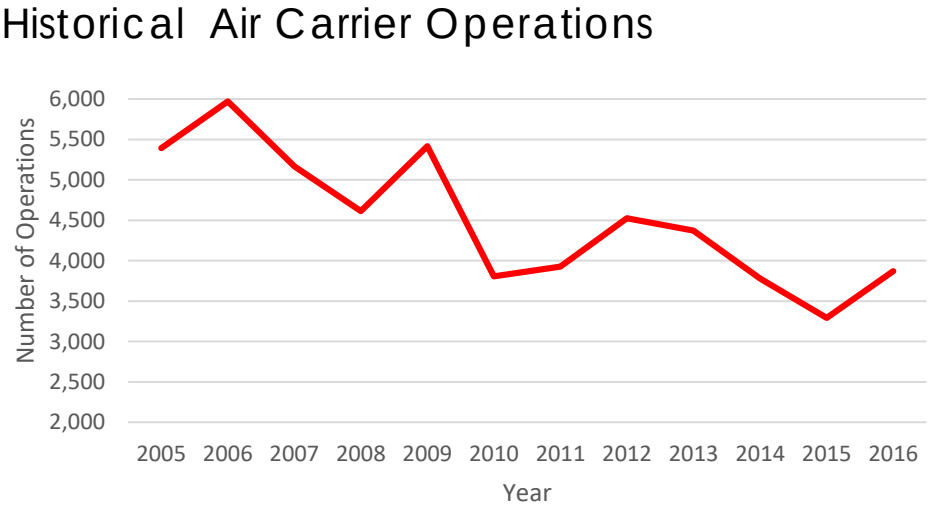


Figure 2-33. Historical Air Carrier Operations
Source: FAA Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Record

2.5 | Part 2 - Operations

Operations are accounted for by the number of arrivals and departures at an airport. At Prescott Regional Airport - Ernest A. Love Field, operations are broken out into four categories, general aviation, air carrier, military, and cargo. In addition to these categories, operations are also divided into itinerant operations and local operations. Itinerant operations are classified by an arrival or departure of a plane to an airport from outside the airport area. Local operations are classified by an arrival or departure where the plane does not leave the local traffic pattern. This is usually considered to be with 20 miles of the airport's tower.

Operations at Prescott Regional Airport - Ernest A. Love Field consist primarily of general aviation aircraft operations. The FAA separates airline operations into two categories, "Air Carrier" and "Air Taxi". These are defined as follows:

Air Carrier: Operations by an aircraft with seating capacity of more than 60 seats or a maximum payload capacity of more than 18,000 pounds, carrying passengers or cargo for hire or compensation.

Air Taxi: Operations by an aircraft designed to have a maximum seating capacity of 60 seats or less or a maximum payload capacity of 18,000 pounds or less, carrying passengers or cargo for hire or compensation.

For the purposes of this Airport Master Plan, the term "Air Carrier" or references to "airline operations" means the combination of these two categories.

Table 2-36 shows the Air Carrier activity for the 2005-2016 period of record, and **Figure 2-33** shows the general trend. It can be seen that both Air Carrier operations and passenger enplanements have generally declined over this period. Operations have trended downward at an average rate of-2.98% per year.

Image by Delta Airport Consultants, Inc.

Aircraft using Runway 3R-21L

2.5.2 | 1 - General Aviation Operations

As opposed to the number of based aircraft, GA operations have experienced an increase over the past decade. **Table 2-37** and **Figure 2-34** show this trend. Although itinerant operations declined at the rate of -1.18% annually since 2005, local operations increased at the rate of +1.65% per year. This may be due to an increase in the number of training operations at the airfield, most significantly those of Embry Riddle Aeronautical University (ERAU).

Table 2-37. Annual General Aviation Operations

Year	Itinerant Operations	Local Operations	Total Operations
2005	80,853	149,597	230,450
2006	78,819	149,252	228,071
2007	78,743	141,525	220,268
2008	82,536	184,625	267,161
2009	74,312	160,391	234,703
2010	66,658	160,793	227,451
2011	74,326	163,566	237,892
2012	81,799	165,836	247,635
2013	82,618	172,662	255,280
2014	85,684	185,538	271,222
2015	78,697	188,744	267,441
2016	70,999	178,922	249,921
Average Growth	-1.18%	1.65%	0.75%

Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Records

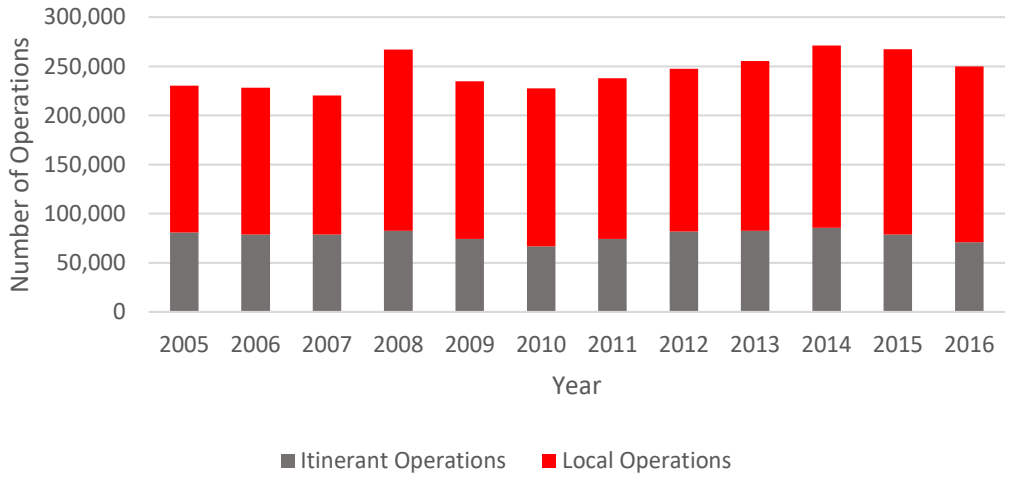


Figure 2-34. General Aviation Operations
Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Records

2.5.2 | 2 - Military Operations

Military activity primarily consists of itinerant operations by helicopters. However, there is some fixed-wing training activity by V-22 Ospreys, T-45s, and T-6s. There are also infrequent "missed approach" fly-bys by fighter jets with no landing taking place. **Table 2-38** shows the FAA's records of military operations at PRC for the 2005-2016 period and **Figure 2-35** shows the general trends. The activity has historically not been at a significant level and has generally declined over the years. Peak activity occurs when maneuvers are taking place.

Table 2-38. Annual Military Operations

Year	Itinerant Operations	Local Operations	Total Operations
2005	312	641	953
2006	277	40	317
2007	874	1,043	1,917
2008	410	29	439
2009	316	7	323
2010	378	32	410
2011	442	61	503
2012	344	24	368
2013	240	132	372
2014	330	53	383
2015	485	153	638
2016	160	392	552
CAGR:	-5.90%	-4.38%	-4.85%

Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Records

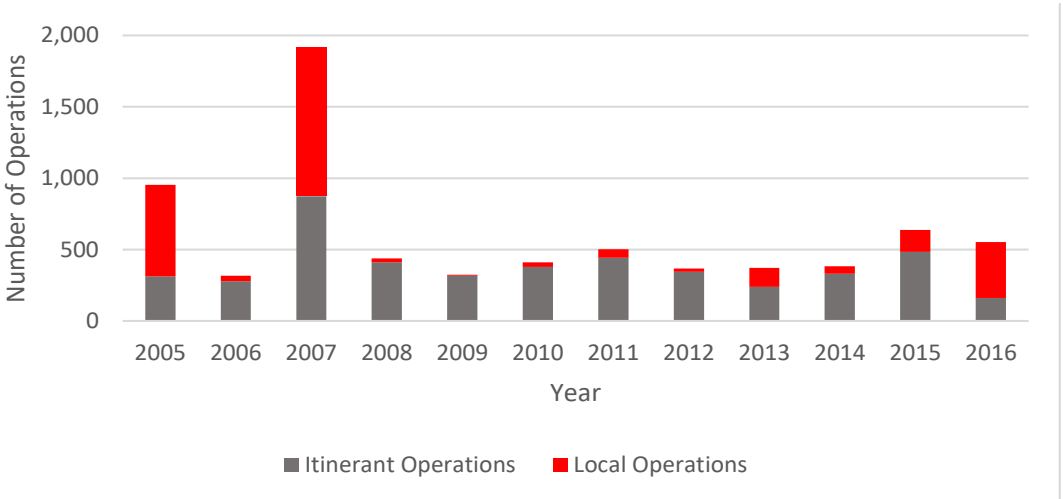


Figure 2-35. Military Operations
Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower Records

2.5.2 | 3 - Cargo Operations

Image by PRC

Ameriflight Cargo Plane

Cargo operations at PRC have remained consistent through 2013 to 2015 with a slight decline of 3.78 percent from 2015 to 2016. The typical aircraft used for the cargo operations is a Fairchild SA-227 Metroliner. **Table 2-39** summarizes the monthly cargo operations for the past four years.

Table 2-39. Historical Cargo Operations

Month	2013	2014	2015	2016
Jan	42	48	40	42
Feb	40	40	40	40
Mar	44	44	42	46
Apr	44	44	44	44
May	44	44	42	40
Jun	44	44	42	44
Jul	36	44	44	42
Aug	46	42	44	42
Sep	36	40	44	44
Oct	46	48	48	14
Nov	36	26	38	38
Dec	40	42	44	38
Total	**498**	**506**	**512**	**474**

Source: Prescott Regional Airport - Ernest A. Love Field Records

2.5 | Part 3 - Based Aircraft

General aviation of Prescott demand is most often determined by aircraft storage space for based aircraft. A based aircraft is an aircraft that is operational and air worthy, which is typically based at a facility for the majority of the year.

Based on the latest inventory conducted by the airport (January 2017), there are currently a total of 338 aircraft based at PRC. (As discussed earlier, the older records indicate fewer aircraft – only 304). The breakdown of the current mix of based aircraft by type is shown below in **Table 2- 40**.

Table 2-40. Current Based Aircraft

Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Total
256	20	8	3	35	16	338

Source: Prescott Regional Airport - Ernest A. Love Field inventory of based aircraft, January 2017

Note: This information is limited to powered aircraft. There is one glider that is not included in this tabulation

According to the prior historical records of the airport and the FAA, over the years the total number of aircraft based at PRC has been in a fairly steady state of decline, showing an average decline of minus 1.25% per year over the 11-year period. The sharp decline that is evident in 2009 is a reaction to the economic downturn that began in 2007. A recovery in 2010 brought the decline back to the prior trend. These trends can be seen in **Table 2-41** and **Figure 2-36**.

Table 2-42 shows the number of based aircraft broken down by type "zoomed in" to the 2010-2016 period (after the initial recovery from the 2007 economic downturn). Again, this information represents the data from historical records prior to completion of the January, 2017 inventory. It is presented here to illustrate historical trends in the available data. Total based aircraft for this period declined at an average of -1.61% per year. The largest drop numerically was in the Single Engine Piston aircraft category, which declined at the rate of -2.41% per year. The largest drop in terms of percentage was in the Jet category, declining an average of -6.54% per year. During this period, the number of based Rotorcraft actually increased by +10.64% per year. These trends are show in **Figure 2-37.**

Table 2-41. Based Aircraft

Year	Based Aircraft
2005	349
2006	340
2007	331
2008	319
2009	242
2010	334
2011	323
2012	315
2013	327
2014	295
2015	313
2016	304

Source:Prescott Regional Airport - Ernest A. Love Field Records

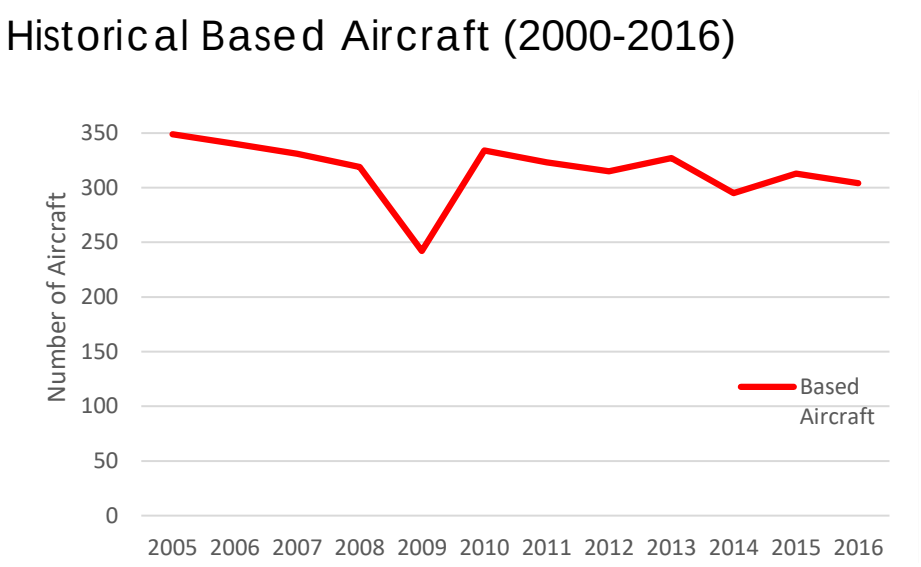


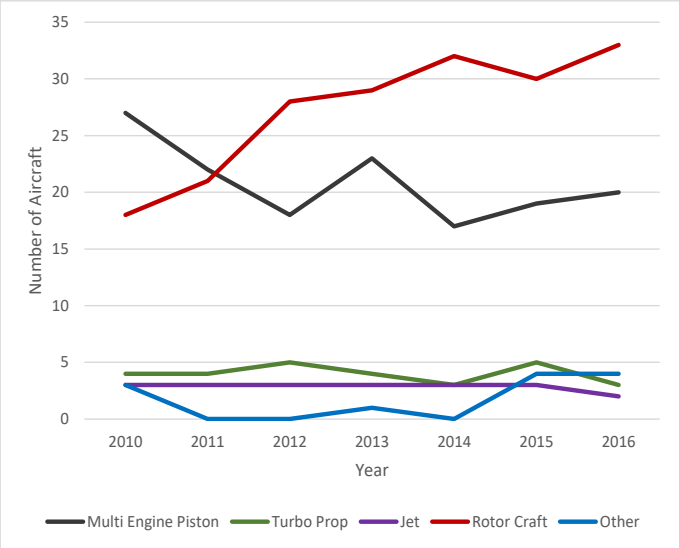
Figure 2-36. Historical Based Aircraft
Source: Prescott Regional Airport - Ernest A. Love Field Records

Table 2-42. Based Aircraft Fleet Mix

Year	Total Based Aircraft	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Helicopter	Other
2010	335	280	27	4	3	18	3
2011	324	274	22	4	3	21	0
2012	316	262	18	5	3	28	0
2013	327	267	23	4	3	29	1
2014	295	240	17	3	3	32	0
2015	314	253	19	5	3	30	4
2016	304	242	20	3	2	33	4
Average Growth	-1.61%	-2.41%	-4.88%	-4.69%	-6.54%	10.64%	

Source: Prescott Regional Airport - Ernest A. Love Field (2010-16)

Historical Based Aircraft by Type



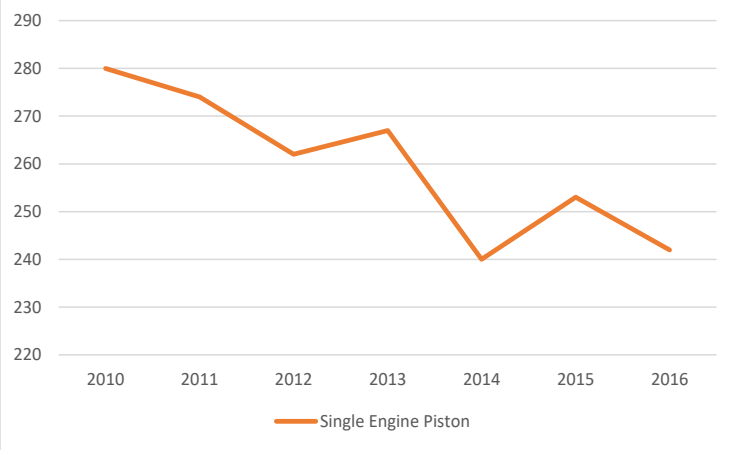


Figure 2-37. Historical Based Aircraft by Type
Source: Prescott Regional Airport - Ernest A. Love Field Records

Section Overview

Part 1 | Air Quality
Part 2 | Biological Resources
Part 3 | Climate
Part 4 | Coastal Resources
Part 5 | Department of Transportation Act: Section 4(f)
Part 6 | Farmlands
Part 7 | Hazardous Materials, Solid Waste, and Pollution Prevention
Part 8 | Historical, Architectural, Archaeological, and Cultural Resources
Part 9 | Land Use
Part 10 | Natural Resources and Energy Supply
Part 11 | Noise and Noise-Compatible Land Use
Part 12 | Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks
Part 13 | Visual Effects
Part 14 | Water Resources

Image by Delta Airport Consultants, Inc.

2 | Section 6 - Environmental Overview

This section provides an overview of environmental baseline conditions at PRC. It identifies existing environmental sensitivities, provides a benchmark of existing environmental impacts, and will inform potential environmental considerations during the creation of the proposed development alternatives during the master planning effort.

A review of publicly available data and previous environmental analyses serves as the source of information used in this section. No environmental field studies were conducted during this master planning effort. This section includes a review of each of the environmental impact categories included in Federal Aviation Administration (FAA) Order 1050.1F, Environmental Impacts: Policies and Procedures which are listed to the side. While the thresholds which determine whether an impact is considered significant are discussed in this section, the assessment of impacts is not included.

Understanding...
Air Quality

The National Ambient Air Quality Standards (NAAQS) has six air pollutant criteria:

- **Carbon Monoxide (CO)**
- **Ozone (O3)**
- **Lead (PB)**
- **Particulate Matter (PM)**
- **Nitrogen Dioxide (NO2)**
- **Sulfur Dioxide (SO2).**

Geographical areas are classified as an attainment, non-attainment, or maintenance area based on whether they are meeting, above, or have recently improved to within the NAAQS standards respectively. Federal agencies cannot fund or approve projects within non-attainment and maintenance areas unless they demonstrate general conformity with the State Implementation Plan (SIP).

2.6 | Part 1 - Air Quality

The U.S. Environmental Protection Agency (EPA) has established two primary laws that apply to air quality: The Clean Air Act (CAA) and the National Environmental Policy Act (NEPA).

2.6.1 | 1 - Clean Air Act

Pursuant to the CAA, Yavapai County meets the levels of the six criteria air pollutants which make up the National Ambient Air Quality Standards (NAAQS). Being located within Yavapai County, Prescott Regional Airport- Ernest A. Love Field is within an attainment area and, therefore, is not subject to further demonstrating general conformity with the Arizona State Implementation Plan (SIP) in order to be eligible for federal funding and approval.

2.6.1 | 2 - National Environmental Policy Act (NEPA)

According to the FAA Order 1050.1F Desk Reference, federal agencies have a responsibility under NEPA to include sufficient analysis in their environmental reviews to disclose the extent of a proposed action's impact on the attainment and maintenance of the NAAQS, and other applicable state air quality standards. Depending on the extent of the project, future development may be subject to further NAAQS analysis during the environmental analysis phase. An action would be considered to have significant impacts to air quality if it caused pollutant concentrations to exceed one or more of the NAAQS for the time periods analyzed, or if it contributed to existing violations.

2.6 | Part 2 - Biological Resources

Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure that any proposed action does not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of associated habitat.

A data search conducted in December 2016 on the United States Fish and Wildlife Services (USFWS) Information, Planning, and Conservation (IPaC) system listed four species which may be found within the vicinity of PRC: the Yellow-billed Cuckoo and Northern Mexican Garter Snake, both endangered species, and the Headwater Chub and Roundtail Chub, both Proposed Endangered species. The IPaC search receipt also produced a list of 28 species of migratory birds, including the bald eagle, which could be present and impacted by development at the airport. The IPaC search identified no critical habitat within the vicinity of the airport.

Coordination with the appropriate agencies (including USFWS, Arizona Department of Environmental Quality (ADEQ), and the Arizona Game and Fish Department (AZGFD) should be conducted before any proposed development takes place.

2.6 | Part 3 - Climate

FAA Order 1050.1F requires that NEPA documents consider the potential effects of Proposed Actions or alternatives on climate change as indicated by greenhouse gas (GHG) emissions. GHGs are defined as including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydro-fluorocarbons (HFCs), per-fluorocarbons (PFCs), and sulfur hexafluoride (SF6). Of the six recognized GHGs, only CO2 is a direct aircraft combustion product. As stated in the FAA Order, there are no significance thresholds for aviation GHG emissions, and there are currently no accepted methods of determining significance applicable to aviation projects given the small percentage of emissions they contribute. Further research would need to be completed on a project by project basis to meet this requirement.

2.6 | Part 4 - Coastal Resources

Federal activities involving or affecting coastal resources are governed by the Coastal Barriers Resources Act (CBRA), the Coastal Zone Management Act (CZMA), and Environmental Order 13089, Coral Reef Protection. Arizona is not located within a Coastal Zone. Therefore, future development on the airport is not anticipated to affect federally or state-protected coastal areas.

Understanding...
DOT Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 states that a federally funded project requiring the use of land from:

- a publicly-owned land from a public park or recreation area
- a national or state wildlife or waterfowl refuge
- a historic site of national, state, or local significance

shall not be approved unless there is no feasible and prudent alternative for the use of such land. A significant impact would occur pursuant to NEPA when a proposed project either involves more than a minimal physical use of a Section 4(f) property or is deemed a "constructive use" substantially impairing the 4(f) property.

2.6 | Part 5 - Department of Transportation Act: Section 4(f)

The Antelope Hills Golf Course, a public facility, is situated immediately southeast of airport property. The Prescott National Forest runs along the west side of the airport and the Tonto National Forest runs along the east side of the airport; however, there are no plans to impact these lands. Section 4(f) also protects public and private historic sites. The existing commercial service terminal building has been determined to be eligible for listing on the National Register of Historic Places (NRHP). Future development should be evaluated to assess potential physical or constructive impacts to any Section 4(f) resources. See Section 2.6, Part 8 for discussion of Historical, Architectural, Archaeological, and Cultural Resources.

2.6 | Part 6 - Farmlands

The Farmland Protection Policy Act (FPPA) of 1984 regulates federal actions with the potential to convert farmland to non-agricultural uses. The airport property does not meet the definition of farmland contained in the FPPA and the Yavapai County Comprehensive Plan does not report prime farmlands in the vicinity of the airport property. Coordination with the U.S. Natural Resources Conservation Service (NRCS) may be necessary for any future off airport development.

2.6 | Part 7 - Hazardous Materials, Solid Waste, and Pollution Prevention

2.6.7 | 1 - Airport Property

The hazardous substances known to be found at the airport are aircraft and ground equipment fuel, deicing chemicals, and fire-fighting chemicals.

According to the airport's Spill Prevention, Control, and Countermeasures Plan (SPCC), the airport's fuel farm has a sloped concrete containment area for the loading and unloading of fuel to help contain any spills or release that may occur. Fuel is transported using four mobile tankers. There are additional Aboveground Storage Tanks (AST) on airport property, including a 6,000 gallon self-serve AVGAS tank located on the North Ramp and a 6,000 AVGAS tank in the Rittaire Complex.

2.6.7 | 2 - Airport Vicinity

A search of the EPA Enviro-mapper database conducted in December 2016 identified no facilities generating hazardous waste and no hazardous waste clean-up sites within the zip code of Prescott, Arizona (86301), where the airport is located. Similarly, no known Superfund or Brownfield sites are located in the vicinity of the airport.

There are no landfills in the airport vicinity. Solid waste in Yavapai County is disposed of at the Yavapai Hauling and Gray Wolf Regional Landfill, located 30 miles east of the City of Prescott in Dewey.

The landfill accepts solid waste and recyclables, as well as construction and demolition materials.

2.6 | Part 8 - Historical, Architectural, Archaeological, and Cultural Resources

The National Historic Preservation Act of 1966, as amended, and the Archaeological and Historic Preservation Act of 1974 are the two laws that establish the requirements for determining historic, architectural, archaeological, and cultural resource significance within the airport vicinity. During a previous project, two Quonset Huts and the existing terminal building were recommended as eligible for listing on the NRHP. The FAA determined, with the State Historic Preservation Office's (SHPO) concurrence, that the existing terminal building is eligible for listing on the NRHP but that the Quonset Huts are not eligible for listing.

Similarly, a previous survey identified the old Santa Fe, Prescott, and Phoenix (SFP & P) Railway, which runs north-south through airport property, east of the Runway 12L end. While FAA and SHPO have determined that this portion of the abandoned railroad is not eligible for listing on the NRHP, they did recommend that a data recovery plan be implemented if future construction activities would impact the site. An assessment of the site for mitigation purposes was conducted in 2010 after an extension to Runway 12L was proposed, and additional, potential mitigation measures were coordinated with the City's Historic Preservation Specialist and Parks and Recreation Department. Any future development should take into account these resources and the potential impacts of proposed construction, and the proper City and agency coordination should be conducted.

2.6 | Part 9 - Land Use

2.6.9 | 1 - Land Use: Public Safety and Noise Compatibility

As summarized within the Airport Background and Regional Context, Sections 2.2 and 2.3 the land uses around the airport are agricultural and industrial, with portions of residential scattered throughout, especially on the southwest side of airport property. See **Figure 2-12**. With the exception of residential, the above-mentioned land uses are generally considered to be compatible with airport operations. The presence of residential uses can create a conflict with noise impacts which will be further investigated later in this section within Section 2.6.11 Noise and Noise- Compatible Land Use.

Areas where high concentrations of people gather, such as schools, churches, or arenas, are generally considered to be incompatible with airport operations. Land use around an airport is the primary concern with the Runway Protection Zone (RPZ). The FAA requires the airport owner to control the defined RPZ area to enhance protection of people and property on the ground. As stated in FAA AC 150/5300-13A, *Airport Design*, "control" is exercised through the acquisition of property interest and the clearing and maintenance of incompatible objects and activities. Runway 3R end RPZ and Runway 21L end RPZ are the only two RPZs entirely controlled by the airport through fee-simple per FAA guidelines. Within the Runway 3L end RPZ, there is an existing building and tie down locations on the North Apron, and in the Runway 21L end RPZ, there is just open space. In the Runway 12 end RPZ approximately 3.4 acres, in the Runway 30 end approximately .01 acres, in the Runway 3R end RPZ approximately 8.4 acres, and in Runway 21R end RPZ approximately 1.3 acres are not controlled by the airport. Runway 12 end and Runway 30 end each have a public use road located within the RPZ area. Runway 3R end has a public road and public golf course on the land within the RPZ area. Runway 21L end just has open space located within the RPZ area.

2.6.9 | 2 - Land Use: Operational Safety

Wildlife and bird attractants, such as wetlands, bodies of open water, waste disposal sites, and certain crops, can cause safety hazards at airports. FAA guidance recommends that airports serving turbine-powered aircraft, such as PRC, maintain a separation distance of 10,000-feet from the edge of the Air Operations Area (AOA) and any hazardous wildlife attractant. Additionally, all airports should maintain a distance of five statute miles between the AOA and the hazardous wildlife attractant, if that attractant could cause wildlife to move into or across the approach or departure airspace.

The National Wetlands Inventory (NWI) data indicates the presence of several small wetland areas on and around airport property. There are four small known bodies of water near the airport on the adjacent golf course, but no landfills on or in the vicinity of PRC. The presence of wetlands may create a hazardous wildlife attractant.

Structures such as cell towers, wind turbines, vegetation, terrain, and tall buildings can inhibit airport operations and pose a safety concern. Also, land uses which can interfere with pilot visibility, such as smoke stacks or reflective solar panels should be avoided in the vicinity of an airport. It is recommended that the Yavapai County zoning ordinance incorporate an Airport Overlay (APO) District to protect the airspace around the airport by preventing these types of physical obstructions from occurring.

2.6 | Part 10 - Natural Resources and Energy Supply

Executive Order (E.O.) 13123, Greening the Government through Efficient Energy Management, encourages federal agencies to expand the use of renewable energy within its facilities and in their activities; and to encourage the development of facilities that exemplify the highest standards of design including the principles of sustainability. In addition, any proposed development at PRC should be examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources. According to the FAA, most airport development projects will not produce changes in energy use or other natural resource consumption resulting in significant impacts.

2.6 | Part 11 - Noise and Noise - Compatible Land Use

Noise contours have been generated to evaluate potential aircraft noise effects for the existing (2016) conditions at PRC. Inputs were based on the 2016 base year data; further detail on the methodology is included in Appendix A. This analysis was conducted using the following data inputs: runway layout and use; number of aircraft operations; aircraft fleet mix; and flight tracks and profiles.

Noise is measured in decibels (dB). The FAA-prescribed method of establishing cumulative noise energy exposure is the Yearly Day-Night Average Sound Level (DNL), the FAA's primary noise metric. The DNL takes into account the noise levels of individual aircraft events over a 24-hour period, with a 10-dB penalty applied for noise events between 10 o'clock in the evening and 7 o'clock in the morning.

Generally, the FAA considers DNL 75 and higher to be incompatible with most land uses, while below DNL 65 is compatible with most land uses. Above 65 DNL, noise sensitive land uses (such as residential, school, churches, and hospitals) are typically discouraged.

Figure 2-38 depicts the existing (2016) noise contours for PRC. The contours for DNL 70 and 75 remain within the airport property line. The DNL 65 noise contour extends off airport property slightly, over the Antelope Hills public golf course on the Runway 3R end and a residential area on the Runway 30 end. An estimated 20 townhouses are encompassed within the existing DNL 65 noise contour. As it may be considered a Section 4(f) property, special consideration should be taken with the golf course in any follow-up environmental efforts, before airport construction takes place.

Due to the potential land use incompatibilities between "noise sensitive" and airport land uses, the FAA encourages localities to take actions to reduce and

prevent incompatible land uses around airports. The City's 2001 Airport Specific Area Plan includes restrictions on residential development around the airport in order to prevent these types of incompatibilities.

According to FAA Order 1050.1F Desk Reference, common mitigation measures related to noise and noise-compatible land use include:

- acquisition of land or land interests, including air rights, easements, and development rights, to ensure the use of property for purposes compatible with noise exposure;
- sound insulation of residences and other noise sensitive structures; and
- construction of noise barriers or acoustic shielding to mitigate ground-level noise.

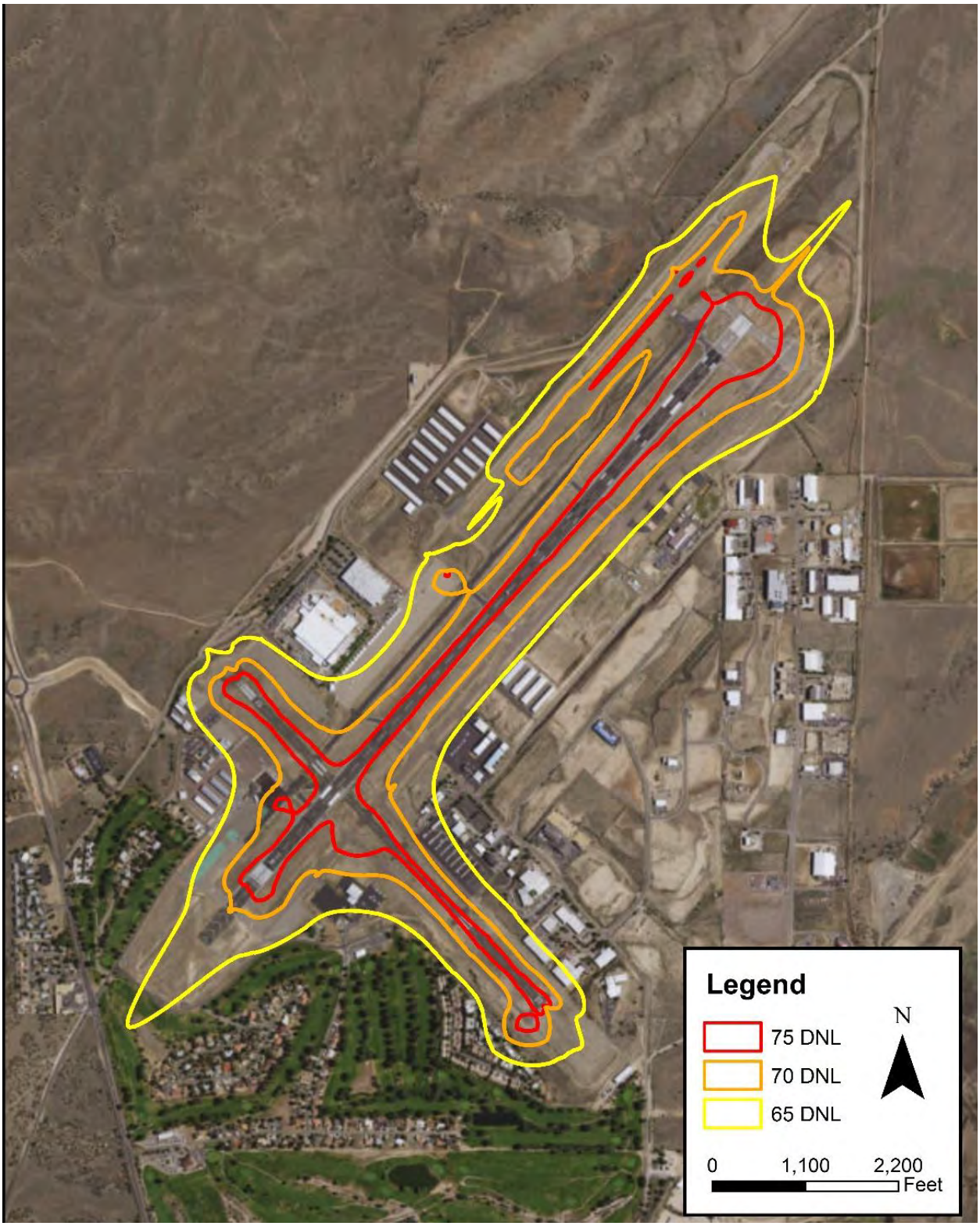
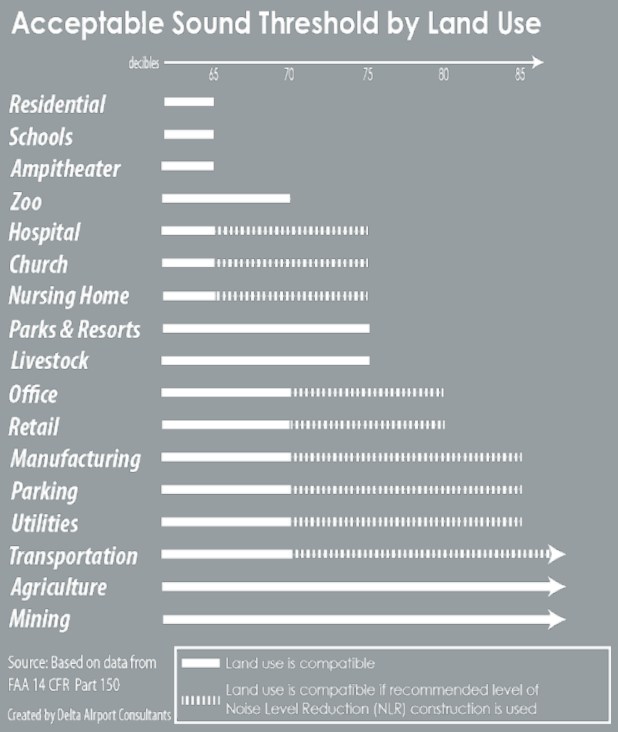


Figure 2-38. Existing Noise Contours
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNESAirbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Understanding...Noise Impacts

Noise is typically the most significant off-airport environmental impact associated with aircraft operations. Noise is measured in decibels (dB). The Day Night Average Sound Level (DNL or Ldn) is an average cumulative sound level that provides a measure of the total sound energy during a 24-hour period.



2.6 | Part 12 - Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and the accompanying Presidential Memorandum, and DOT Order 5610.2, Environmental Justice, require FAA to provide for meaningful public involvement by minority and low-income populations and analysis that identifies and addresses potential impacts on these populations which may be disproportionately high and adverse. Additionally, pursuant to E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks, federal agencies are directed as appropriate to prioritize environmental health risks which may disproportionately affect children. Any proposed development at PRC should be analyzed to assess impacts to low-income or minority populations as well as impacts to children's health and safety.

The USEPA EJView mapper was used to determine detailed information about the area within an approximately one-mile buffer around the airport. The EJView mapper contains U.S. Census Bureau data from 2006-10. The population within this one-mile buffer is reported to be 745 people, of which 20 percent are determined to be minority. Thirteen percent is determined to be under the age of eighteen. Sixty percent of housing units within this area are owner occupied; and household

income is reported to be $25,000 or higher for 60 percent of the households. This data suggests that children and minority and low-income households may not be disproportionately affected by any proposed development on the airport.

2.6 | Part 13 - Visual Effects

Airports convey a significant amount of light, including approach lighting systems. Visual impacts are difficult to define because of the subjectivity and may create an annoyance among people in the vicinity or interfere with their normal activities. There are residential areas immediately southwest of airport property; however, the houses have been located adjacent to an operating airport since they were constructed in between the early 1990s and 2000s.

Nevertheless, future development projects involving the installation, replacement, or relocation of airfield lighting should be evaluated for adverse light emissions and visual impacts to the surrounding community.

Any new development should comply with Section 6-11 of the City of Prescott Zoning Ordinance, Outdoor Lighting. This section of the ordinance applies to new buildings, parking lots, and outdoor luminaries installed after 1997, and is intended to minimize light pollution and light trespass and benefit astronomical research and observations.

2.6 | Part 14 - Water Resources

2.6.14 | 1 - Wetlands

USFWS NWI data consulted in December 2016 reports several patches of wetland areas on airport property and in the airport vicinity. There are freshwater ponds on the north and south side of the airport property in the vicinity. One patch of freshwater forested/shrub wetland is located east of the airfield along the riverine that runs along the east side of the airfield. One of the ponds located closest to the airfield pavement on the north side of the airfield appears to be a drainage structure for the pipe network on the airfield. An updated wetland delineation to ascertain wetland locations and extents is recommended before any airport construction can begin.

2.6.14 | 2 - Floodplains

Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. According to FEMA Firm Map 0425C1695G there is a flood hazard area associated

with Bottleneck Wash located north of the vicinity of the airport property. Coordination with the locality and the Federal Emergency Management Agency (FEMA) may be required for any development proposed which would encroach on floodplain areas.

2.6.14 | 3 - Surface Water

The Clean Water Act provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, and prevent or minimize the loss of wetlands. Water quality regulations and the issuance of permits before construction projects at PRC will normally identify any deficiencies in the proposed development with regard to water quality or any additional information necessary to make judgments on the significance of impacts.

Bottleneck Wash is approximately 500 feet north of Runway 12 and 1,200 northeast of Runway 21R. This area is currently monitored and tested per existing Stormwater Pollution Prevention Plan (SWPPP), and the area will be included in future projects on the airfield. Future projects located on the airfield will also need to be evaluated to ensure they meet local and state regulations regarding water quality and have an appropriate SWPPP and Erosion and Sediment control plan. The airport's SPCC plan notes that the fuel farm has been provided with a sloped concrete fuel loading/unloading area that directs any spill/release to the concrete containment area for the fuel farm. The topography at the airport is relatively flat with a gradual slope to the northeast. If a larger spill were to occur that could not be contained in the area of the spill it would eventually get into the stormwater conveyance system and, be detained by the retention pond on the northeast side of the airfield.

2.6.14 | 4 - Ground Water

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. There are no aquifers in the vicinity of the airport. Additional research would need to be completed as projects are developed to ensure each project has a specific SWPPP and Erosion and Sediment Control plan unique to the project, to ensure no impacts to ground water.

2.6.14 | 5 - Wild and Scenic Rivers

There are two federally-listed Wild and Scenic Rivers in Arizona. There are Fossil Creek and Verde River, neither of which are located in the vicinity of the airport. Projects at PRC are not anticipated to impact any Wild and Scenic Rivers or other federally listed river segment.

Section Overview

Part 1 | Historical Airport Revenues

Part 2 | Historical Operating Expenses

Image by Delta Airport Consultants, Inc.

2 | Section 7 - Financial Data, Businesses, and Tenants

The City of Prescott 's Budget and Finance Department is responsible for all major financial management functions of the City. The Department is directly under the supervision of the City Manager. The Budget and Finance Department and the Airport Manager are responsible for maintaining the airport's budgetary as well as revenue and expenditure accounts.

Each year the Prescott Regional Airport- Ernest A. Love Field (PRC) staff prepares an annual budget for consideration and ultimate adoption by the City Council. The airport budget is included in the overall city budget and is not considered separately. It is the goal of the airport and City to conduct its business activities such that it produces breakeven results on an annual basis. Its fiscal year runs from July through June and utilizes the accrual basis of accounting for reporting financial results. As such, revenues are recognized when they become available and measurable and, with a few exceptions, expenditures are posted when liabilities are incurred.

Businesses, organizations, individuals, and governmental entities engage in both aviation and non-aviation related activities at the airport. The airport maintains a host of lease and operating agreements that provide these entities the right to occupy and maintain space on the airport and/or offer services to the public. The airport and City deploy a proactive property management and lease administration program to ensure that the airport charges market-based fees and rental rates to its users/tenants which enables it to provide aviation services and amenities in the most cost-effective and self-sufficient basis possible.

While Great Lakes was providing air carrier service, they occupied a ticket counter, an office, a baggage make up area, and a cargo space for the airline operations. A car rental service occupies a rental counter and 100 square foot office space while a restaurant with a full service kitchen and 60 customer seats occupy 1,515 square feet of the terminal building. TSA operates the passenger checkpoint in the passenger boarding area and occupies 806 square feet of office space in the existing terminal building. The airport also maintains leases with the U.S. Forest Service and FAA to enable these entities to deliver their respective governmental functions to the airport and region.

In order to provide a full complement of general aviation services to the public, the airport has entered into lease and operating agreements with many different businesses. These businesses provide aviation fueling, charter flight services, flight instruction, aircraft rental, aircraft repairs, avionics and service support, and hangar and commercial office space for rent.

Using city records available online, an analysis was prepared to offer the airport a baseline evaluation of revenues and expenses over the past several years in order to provide a framework for understanding future expenditures and revenue streams. The analysis is not intended to serve as a true airport profit and loss statement; instead, it offers insight to emerging trends that could impact the future financial performance of PRC. The techniques utilized in this analysis are consistent with industry practices for similar studies. While it is believed that the approaches and assumptions are reasonable, it should be recognized that some assumptions regarding future trends and events might not materialize.

2.7 | Part 1 - Historical Airport Revenues

The airport has recently revised their accounting practices to divide their revenues into new categories to monitor and evaluate its operating revenues. **Table 2-43** depicts the airport's historical revenues from FY2011 through FY2016. During this period, total airport operating revenue experienced an increase of one percent from $1,425,491 in FY2011 to $1,505,920 in FY2016. These revenues do not include federal or state grant funds received. The category of Ground Rentals saw an increase of four percent from FY 2015 to FY 2016; however, hangar, parking, and tie-downs have seen a decrease of ten percent from FY 2011 to FY 2016. This is reflective of the fact that a majority of the rentals are handled through land leases with a private entity.

Table 2-43. Historical Airport Revenue

Revenue Sources	2011	2012	2013	2014	2015	2016	FY10-15 CAGR
Ground Rentals	-	-	-	-	$442,105	$481,450	4%
Facilities Rentals	-	-	-	-	$197,553	$198,810	0%
Fuel Flowage Fee	$141,383	$114,868	$108,813	$89,099	$87,433	$79,080	-9%
Landing Fees and Airport Services	-	-	-	-	$21,796	$18,300	-8%
Hangar, Parking, and Tiedowns	$1,231,596	$1,190,189	$1,231,174	$1,280,769	$670,196	$661,100	-10%
Miscellaneous and Interest Earnings	$52,512	$129,849	$79,281	$56,900	$32,189	$67,180	4%
Total	$1,425,491	$1,434,906	$1,419,268	$1,426,768	$1,451,272	$1,505,920	1%
Interfund Transfers	-	-	$523,996	$755,636	$972,505	$356,952	-9%
Airport Grants	$796,330	$2,291,595	$51,094	$305,579	$454,050	$6,538,789	42%

Source: Prescott Regional Airport - Ernest A. Love Field City of Prescott, Adopted Budget for FY 2016
Prescott Regional Airport - Ernest A. Love Field City of Prescott, Fiscal Years Ending 2011-2016 (Preliminary) Financial Reports
Delta Airport Consultants, Inc. Analysis

2.7 | Part 2 - Historical Operating Expenses

The airport's historical operating expenses for FY2015 and FY2016 are presented in **Table 2-44**. During this period, total airport operating expenses increased approximately $193,573; from $1,210,041 in FY2015 to $1,403,614 in FY2016.

There are many different categories used by the airport and City to identify operating expenses. Among the categories utilized by the airport to track its expenses, employee salaries and benefits are the biggest expense at roughly 50 percent of the total operational expenses (not including capital) at the airport. Other large operating expense are utilities (10 percent), internal charges (20 percent), which includes a transfer of funds (cost recovery) to various City of Prescott departments for services rendered, such as Information Technology (IT), Human Relations (HR), accounting, legal, insurance, administration, repair work, and engineering charges, and operating supplies (6 percent), which includes office supplies, small tools and equipment, uniforms, education, gas, oil, tires, building materials, equipment material to maintain, revolving inventory, and janitorial supplies, agricultural supplies. All other items on the list are less than five percent of the total operating expenses.

Table 2-44. Historical Airport Operating Expenses

Expenditure Type	2015	2016
Salaries	471,899.43	449,919.92
Overtime	13,503.63	7,380.47
FICA	36,167.54	34,172.15
Retirement Contribution	50,709.33	48,564.33
Health Insurance	61,146.58	62,771.14
Workmen's Compensation	11,263.34	11,167.17
Total Operating Supplies	82,939.35	122,879.70
Total Internal Charges	193,220.59	318,624.47
Uniform Cleaning and Laundry	432.69	768.90
Architectural and Engineering	54.39	1,976.25
Appraisal Services	5,700.00	0.00
Medical Services	158.00	*
Advertising	4,611.86	3,710.05
Other Professional Service	16,627.29	13,966.62
Postage and Freight Charges	317.30	167.33
Telephone	6,067.13	8,047.44
Tipping Fees	651.99	5.00
Training - Conferences	6,525.16	7,703.90
Printing and Binding	99.63	1,153.16
Machinery and Equipment Rent	162.76	1,599.71
Electric	100,840.83	104,692.73
Gas	1,669.98	2,450.87
Water	22,437.41	23,109.60
Janitor Clean and Waste Removal	8,665.00	5,128.50
Maintenance	33,126.25	43,117.75
Licenses and Permits	1,000.00	1,000.00
EMP and Vol Recognition	769.58	873.28
Subscriptions and Memberships	1,774.94	2,295.44
Other Services	75.00	*
Motor Vehicles	*	33,061.83
GRAND TOTAL	**1,210,041.28**	**1,403,614.39**

Source: Prescott Regional Airport - Ernest A. Love Field City of Prescott, Fiscal Years Ending 2015-2016 (Preliminary) Financial Reports
Delta Airport Consultants, Inc. Analysis

Image by Delta Airport Consultants, Inc.

2 | Section 8 - Summary of Existing Conditions

Information collected during the inventory effort of the master planning process provides a method to evaluate the conditions of existing airport facilities and provides a baseline to measure how well current infrastructure will be able to accommodate future aviation demand. Through a review of the inventory information presented in this chapter, subsequent study tasks can be conducted to determine what improvements will be necessary at PRC to meet the air transportation requirements of the Prescott area over the next 20 years. In comparison with future aviation demand projection and demand/capacity analyses, alternatives can be developed to identify a plan for how PRC will address the required improvements. This study effort will help direct the prospective growth and expansion of existing facilities at PRC to meet future aviation needs.

Chapter Three | Forecasts of Aviation Demand

Section 1 - Introduction
Section 2 - General Aviation Demand
Section 3 - Air Carrier Demand
Section 4 - Air Cargo Demand
Section 5 - Training Activity
Section 6 - U.S. Forest Service Activity
Section 7 - Military Operations
Section 8 - Critical Aircraft Determination
Section 9 - Demand/Capacity Analysis
Section 10 - Summary of Aviation Demand Forecasts

Image by Delta Airport Consultants, Inc.

3 | Section 1 - Introduction

In this study, annual forecasts are presented throughout the Initial Term, the Intermediate Term, and the Ultimate Term time frames

Forecasts of aviation demand serve as a guideline for the timing required for implementation of airport improvement programs. Aviation forecasts are typically based upon historical data and from the standpoint of present conditions. While these projections of possible demand are essential to successful comprehensive airport planning, it is important to recognize that forecasts are only estimates of what may happen in the future if other related events occur. They, therefore, must be used with careful consideration, as they may lose their validity through the passage of time. For this reason, an ongoing program of examination of local airport needs, as well as national and regional trends is recommended and encouraged in order to promote the orderly development of the Prescott Regional Airport- Ernest A. Love Field (PRC).

It is also very important to emphasize that the forecasts developed in the Master Plan are not necessarily projections of what the planners believe will occur (since no one can predict the future). They are reasonable projections of the probable maximum levels of activity that should be planned for in the present time in order to be ready to implement actions that will accommodate increases in demand if and when they actually do occur.

The forecast process begins with determining what the current level of activity is at the airport. These are based on the records of the Air Traffic Control Tower (ATCT), the records contained in the FAA's Terminal Area Forecasts, and the records of the airport. The existing activity at PRC has been presented in *Chapter 2, Existing Conditions*. Following the development of a reasonable estimate of the current demand, projections are made based upon established growth rates, area demographics, industry trends, and/or other important or unique indicators.

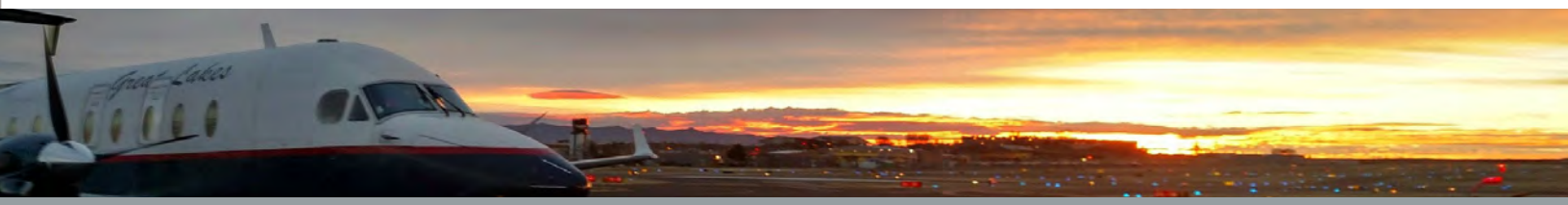
Forecasting is a critical step in the planning process since realistic projections of aviation activity are the heart of a successful airport planning program. They are the pivot point in the planning process. Forecasts are based upon the data gathered in the research phase, and subsequent study recommendations are based upon the forecasts.

In this study, annual forecasts are presented throughout the Initial Term (five-year), the Intermediate Term (ten-year), and the Long Term (fifteen and twenty-year) time frames. Having forecasts within these time frames will allow the programming of airport improvements to be timed to meet demand, but not so early as to remain idle for an unreasonable length of time.

General Aviation (GA) operations include business flights, personal transportation, leisure flying, sport aviation, and other non-revenue activity. Air Carrier operations include both scheduled airline service and air taxi flights. The GA and Air Carrier demand will be addressed separately in this chapter.

The tables in this chapter include year-by-year information to provide a useful reference when comparing actual aviation activity to the projections in this Master Plan.

NOTE: A summary of the results of the forecasts are presented in Section 3.9, at the end of this chapter.



Section Overview

Part 1 | Types of General Aviation Operations
Part 2 | Review of Applicable Prior Planning Studies
Part 3 | Baseline of Actual Based Aircraft
Part 4 | General Aviation User Survey
Part 5 | General Aviation Forecasts

Image by PRC

3 | Section 2 - General Aviation Demand

3.2 | Part 1 - Types of General Aviation Operations

There are five general types of General Aviation Aircraft Operations

An aircraft operation (sometimes also called a "movement") is usually defined as a departure (a "takeoff"), an arrival (a "landing") or a "touch-and-go" training operation. In fact, an operation is actually any time that an aircraft movement results in that aircraft having the exclusive use of the runway. In addition to departures, arrivals, and touch-and-go activity, this can also include use of the runway for taxi operations, for runway overflights or low passes, and for missed approach procedures.

Typically, there are five general types of General Aviation aircraft operations that are considered in the airport master planning process. These are termed *Total Operations, Local Operations, Based Aircraft Operations, Itinerant Operations, and Transient Operations.* They are defined as follows:

- *Total Operations* are defined as the summation of all types and categories of aircraft operations that occur at the airport.

- *Local Operations* are defined as aircraft movements for the purpose of training, pilot currency, or pleasure flying, within the immediate area of the local airport. These operations typically consist of touch-and-go operations, practice instrument approaches, flights to and within local practice areas, and pleasure flights which originate and terminate at the airport under study.

- *Based Aircraft Operations* are defined as the total operations made by aircraft based at the airport under study, with no attempt to classify the operations as to purpose.

- *Itinerant Operations* are defined as arrivals and departures other than local operations, as described above. This type of operation is closely tied to local demographic indicators, such as local industry and business use of aircraft and usage of the facility for recreational purposes.

- *Transient Operations* are defined as the total operations made by aircraft other than those based at the airport under study. These operations typically consist of business or pleasure flights originating at other airports, with termination or a stopover at the study airport.

Local and Itinerant Operations will be presented as meaningful comparisons to prior studies and the Federal Aviation Administration's (FAA's) ongoing planning work. However, this chapter will emphasize *Total Operations* as the most meaningful measure of demand that is placed on the airport's infrastructure. The reasoning behind this is that the demand placed upon the airport's runways and taxiways is not dependent upon the destination, purpose, or where the aircraft comes from, only that the facilities are used by the arriving or departing aircraft.

Transient versus *Based Operations* will also be quantified. These are also important because the demand upon the airport's parking aprons, terminal buildings, fueling and other landside facilities are directly impacted by the number of out-of-town visitors to the airport.

3.2 | Part 2 - Review of Applicable Prior Planning Studies

Comparison with Prior Forecasts

Over the past several years there have been other airport and airport systems planning studies conducted that either directly or indirectly address the Prescott Regional Airport - Ernest A. Love Field. The studies and documents that were reviewed and referenced in this chapter include the following:

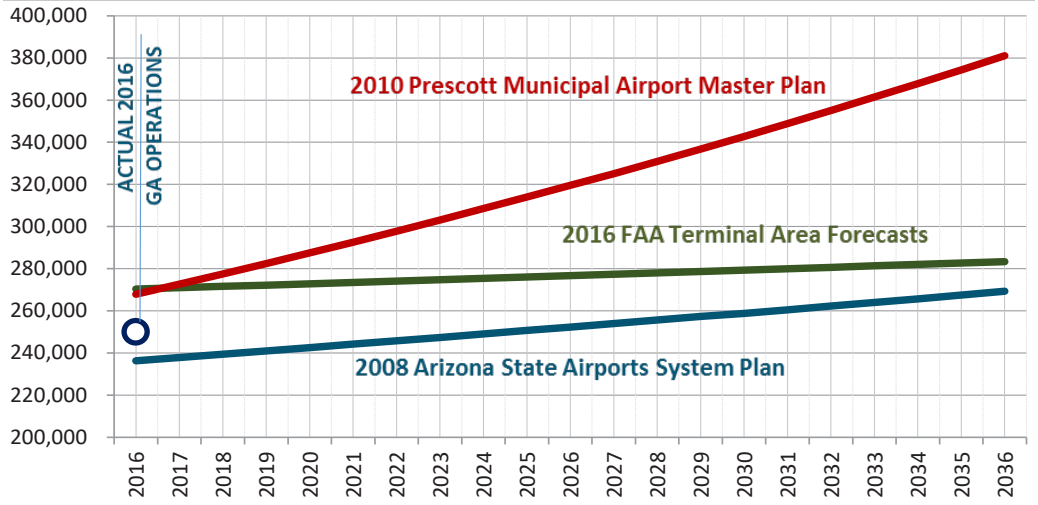
- *FAA Terminal Area Forecasts* (2016 TAF)[1]
- *2008 Arizona State Airports System Plan* (2008 SASP)[2]
- *2010 Prescott Municipal Airport Master Plan (2010 MP)*[3]

The General Aviation activity estimates and projections contained in these prior studies are summarized in **Table 3-1** and **Table 3-2**, as well as **Figure 3-1** and **Figure 3-2** on the following pages.

Table 3-1. Comparison of Prior Forecasts - General Aviation Operations

Year	2008 Arizona State Airports System Plan (1)	2016 FAA Terminal Area Forecasts (2)	2010 Prescott Regional Airport Master Plan (3)
Annual Growth >	0.66%	0.24%	1.78%
2016	236,231	270,294	267,810
2017	237,800	270,929	272,663
2018	239,369	271,566	277,516
2019	240,949	272,204	282,456
2020	242,540	272,844	287,484
2021	244,140	273,485	292,601
2022	245,752	274,128	297,809
2023	247,374	274,773	303,110
2024	249,006	275,420	308,506
2025	250,650	276,069	313,997
2026	252,304	276,719	319,586
2027	253,969	277,371	325,084
2028	255,645	278,024	330,870
2029	257,333	278,679	336,760
2030	258,800	279,335	342,754
2031	260,508	279,994	348,855
2032	262,227	280,654	355,065
2033	263,958	281,316	361,385
2034	265,700	281,980	367,818
2035	267,454	282,645	374,365
2036	269,219	283,312	381,029

Figure 3-1. Comparison of Prior Forecasts - General Aviation Operations

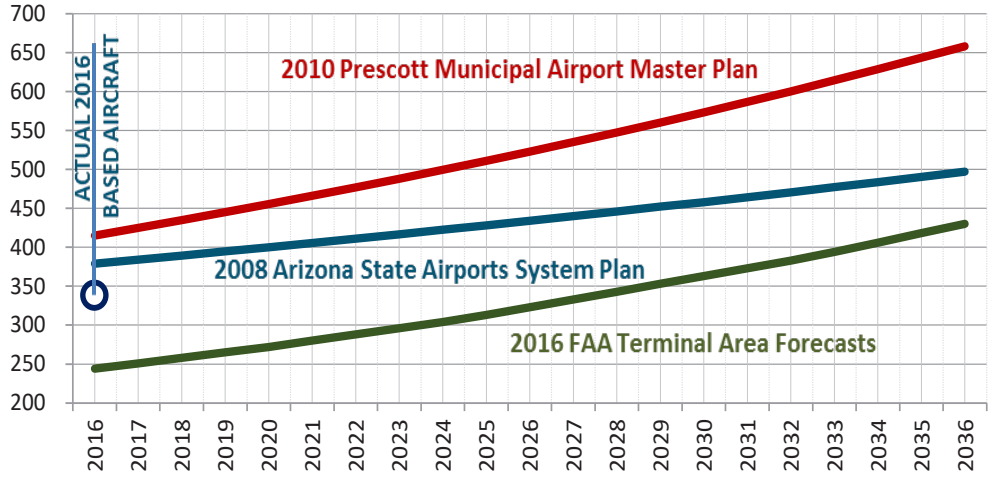


Source: (1) Arizona State Airports System Plan, 2008
(2) FAA Terminal Area Forecasts, January 2016
(3) Airport Master Plan Update, Prescott Regional Airport - Ernest A. Love Field, December 2010

Table 3-2. Comparison of Prior Forecasts - Based Aircraft

Year	2008 Arizona State Airports System Plan (1)	2016 FAA Terminal Area Forecasts (2)	2010 Prescott Regional Airport Master Plan (3)
Annual Growth >	1.37%	2.88%	2.33%
2016	379	244	415
2017	384	251	425
2018	389	258	435
2019	395	265	445
2020	400	272	455
2021	405	280	466
2022	411	288	477
2023	417	296	488
2024	422	304	499
2025	428	313	511
2026	434	323	523
2027	440	333	535
2028	446	343	547
2029	452	353	560
2030	458	363	573
2031	464	373	587
2032	471	383	600
2033	477	394	614
2034	484	406	629
2035	490	418	643
2036	497	430	658

Figure 3-2. Comparison of Prior Forecasts - Based Aircraft



Source: (1) Arizona State Airports System Plan, 2008
(2) FAA Terminal Area Forecasts, January 2016
(3) Airport Master Plan Update, Prescott Regional Airport - Ernest A. Love Field, December 2010

Analysis

Of the three prior forecasts examined in this study, the *2010 Prescott Municipal Airport Master (2010 MP)* was the most ambitious in terms of both the number of based aircraft and the total GA operations. The forecasts prepared in that study were based on historical data that were considered to be valid prior to the economic downturn of 2007, and at that time sound correlation was found between the selected economic and historical activity factors. Although the 2010 MP was not completed and officially adopted until 2010, the forecasts were prepared early in the study process and there was no way to predict whether or not the forecast assumptions and methodology would withstand the test of time. At this point in time, they appear to be unreasonably ambitious, not because of any failure in the prior master planning process but because of the unanticipated changes in the economy and the industry over the past several years.

The *2008 Arizona State Airports System Plan (2008 SASP)* used a different forecast methodology predicated by the uneasiness of the then in progress economic recovery. The 2008 SASP shows a more moderate projection for both GA operations and based aircraft.

The *FAA Terminal Area Forecasts (2016 TAF)* are updated annually and it should therefore be expected to present more reasonable predictions from the present viewpoint. However, the starting point of the 2016 TAF forecasts for 2016 based aircraft was 244, much lower than the recently inventoried number of 338 powered aircraft (this is discussed below). The TAF's GA operations forecast used a higher 2016 starting point of 270,294 operations versus the actual ATCT records' number of 249,921 annual GA operations.

3.2 | Part 3 - Baseline of Actual Based Aircraft

The Prescott Regional Airport - Ernest A. Love Field General Aviation User Survey was distributed to be used as a tool to gain insight into the current activity

Inventory of Actual Based Aircraft

During the inventory phase of this Master Plan study, inconsistency was discovered between the FAA records of based aircraft and the number of actual aircraft present at the airport. The FAA's *Terminal Area Forecasts* indicate 244 based aircraft. The FAA's online *National Based Aircraft Inventory Program* shows 241 aircraft. And, the most current airport records from October, 2016 indicated a total of 304 aircraft based at PRC.

In order to verify the actual number of aircraft based at PRC and provide a more accurate baseline point for this study, in January of 2017 the airport staff conducted an in depth physical inventory of the based aircraft at PRC. In the past, the airport has relied upon records of revenue producing hangar and tie-down rentals and the reports of land lessees to tabulate the number of based aircraft. The new

inventory revealed that many of the hangar lessees were subletting space to other aircraft owners without reporting this to the airport. It was also found that FBO land lessees were not accurately reporting the numbers of their based aircraft. The results of the new inventory indicate a total of 338 based powered aircraft and one glider. These are tabulated by type in **Table 3-3** below (also shown in **Table 2-40** in *Chapter 2, Existing Conditions*).

In the forecasts that follow, the new and more accurate number of 338 powered based aircraft will be used as the baseline point.

Table 3-3. Actual Based Aircraft Inventory Results

Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Total
256	20	8	3	35	16	338

Source: Prescott Regional Airport - Ernest A. Love Field Inventory of based aircraft, January 2017
Note: This information is limited to powered aircraft. There is one glider that is not included in this tabulation

3.2 | Part 4 - General Aviation User Survey

Introduction

As part of the inventory phase of this Master Plan, a user survey (the *Prescott Municipal Airport General Aviation User Survey*) was distributed to be used as a tool to gain insight into the current activity, opinions, concerns, and preferences of the existing owners of aircraft that are based at PRC. While such efforts may not yield definitive quantitative direction with regard to aviation demand, they may be useful in gathering real time subjective information.

Survey Distribution

The survey was made available to known owners of aircraft that used PRC from October 28 through November 30, 2016 (34 days), and during that time it was advertised on the City's and airport's web sites. An email distribution to known users, the Prescott Airport Users Group, and local stakeholders and City leaders was also undertaken during this time.

There are currently 338 powered aircraft based at PRC. There were a total of 67 responses to the survey during the survey period, representing only about 20% of the total based aircraft population.

Validation of Responses

The primary intent of the survey was to quantify and characterize the use of PRC by the current based aircraft. All but one of the survey respondents owns an aircraft

that is based at PRC. The 66 responses by owners of based aircraft were used in the data analysis.

Results of the Survey

The full results of the *Prescott Municipal Airport General Aviation User Survey* are included in **Appendix B** at the end of this chapter. The results that relate to the projections of future activity are summarized as follows.

- The survey respondents reported that they performed an average of 93 operations with their based aircraft during calendar year 2015. They also indicated that their activity would increase by an average of 13.7% in calendar year 2016. This would increase the average use of based aircraft to about 106 operations per based aircraft.

- The survey respondents reported that Prescott's based aircraft are used 63% for pleasure flying and personal transportation, about 14% for business flying, 10% for sport aviation, and about 8% for training operations.

- The respondents indicated that they operate in Visual Flight Rules (VFR) conditions an average of about 95% of the time and in Instrument Flight Rules (IFR) conditions the remaining 5% of the time.

- The respondents indicated that they operate during daylight hours (sunrise to sunset) an average of about 94% of the time. Night flying (sunset to sunrise) accounts for the remainder of 6%.

3.2 | Part 5 - General Aviation Forecasts

Development of GA Forecasting Methodology

In order to arrive at a reasonable conclusion regarding the level of General Aviation activity that may occur at PRC over the next twenty years, research of historical economic and industry indicators was made. These indicators included the following:

- State, County, and local community population trends;
- State and County per capita income trends;
- National and regional employment and unemployment rates;
- State and local records of based aircraft and operations;

An attempt was made to find a statistical correlation between airport activity indicators (based aircraft and operations) and the various economic indicators. This was complicated by the economic downturn of 2007, which caused significant changes in the historical data trends for many of the indicators that are traditionally used in airport demand forecasting. The relationship between population, per capita income, and airport activity had been one that could be relied upon to provide reasonable predictive calculations in the past. However, it was found that no acceptable correlation exists in that relationship with the current data. As Arizona's population continued to increase at a relatively steady rate throughout the 2005-2014 period, Yavapai County's population did not follow suit. County population experienced only minimal growth in 2008, declined slightly in 2010, and then began a moderate recovery of growth through the present time (see also *Chapter 2, Existing Conditions*). During the same period (2005-2014), Yavapai County's per capita income paralleled Arizona's, both declining from 2007 through 2009 in response to the nationwide economic downturn, then beginning a recovery and growing through the present time (see also *Chapter 2, Existing Conditions*).

Another formerly reliable relationship for projecting GA operations is the number of operations per based aircraft. However, while the trend in the recorded total number of aircraft based at PRC declined through the 2005-2014 period, total General Aviation operations at the airport actually increased.

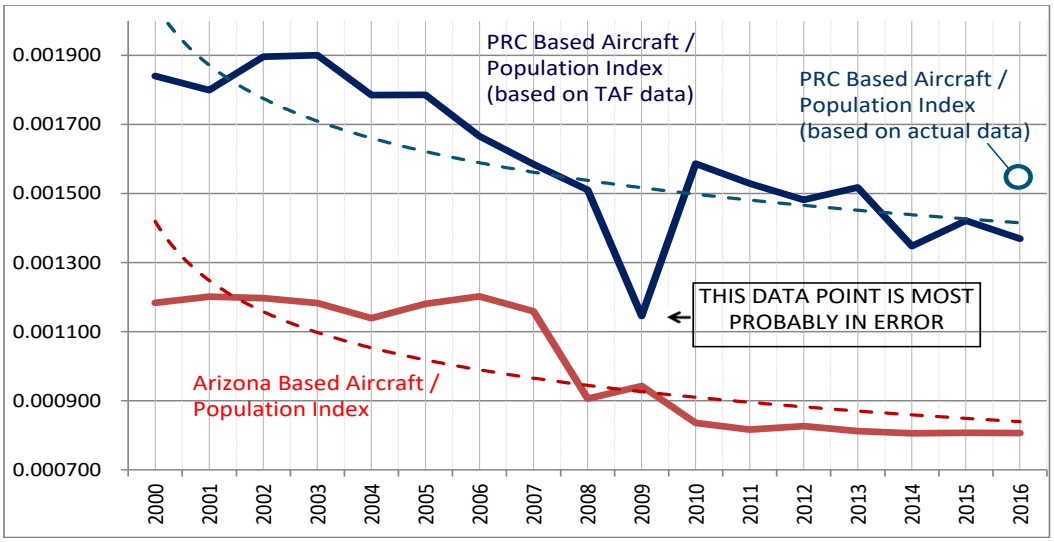
Attempts to find acceptable correlation between other traditional indicators were similarly unsuccessful.

Further research showed that the relationship between based aircraft and population within Arizona and Yavapai County revealed a reliable correlation (where based aircraft is the number of aircraft based at PRC and population is County population). This is illustrated in **Table 3-4** and **Figure 3-3**. Note that this analysis was completed prior to the new inventory of actual based aircraft, and thus reflects the prior airport record-keeping processes and not the more recent based aircraft inventory.

Table 3-4. Based Aircraft / Population - Arizona and Yavapai County

Year	County Population (1)	PRC Based Aircraft (2)	PRC Based Aircraft/ Population	Arizona Population (1)	AZ Based Aircraft (2)	AZ Based Aircraft/ Population
2016 Actual	222,039	338	0.001522			
2000	169,520	312	0.001840	5,175,581	6,126	0.001184
2001	173,343	312	0.001800	5,287,510	6,352	0.001201
2002	176,672	335	0.001896	5,411,164	6,478	0.001197
2003	182,534	347	0.001901	5,554,235	6,572	0.001183
2004	187,623	335	0.001785	5,725,610	6,522	0.001139
2005	195,424	349	0.001786	5,924,476	6,995	0.001181
2006	204,082	340	0.001666	6,116,409	7,353	0.001202
2007	208,773	331	0.001585	6,274,981	7,275	0.001159
2008	211,211	319	0.001510	6,368,649	5,772	0.000906
2009	211,172	242	0.001146	6,389,081	6,026	0.000943
2010	210,517	334	0.001587	6,401,569	5,352	0.000836
2011	211,185	323	0.001529	6,438,178	5,258	0.000817
2012	212,509	315	0.001482	6,498,569	5,370	0.000826
2013	215,389	327	0.001518	6,581,054	5,347	0.000812
2014	218,844	295	0.001348	6,667,241	5,374	0.000806
2015	220,173	313	0.001422	6,758,300	5,455	0.000807
2016	222,039	304	0.001369	6,867,600	5,540	0.000807

Figure 3-3. Based Aircraft / Population - Arizona and Yavapai County



Source: (1) State and County Population are from U.S. Census Bureau
(2) The number of based aircraft were provided by the Airport. Note that the Current 2016 based aircraft were found to actually total 338 powered aircraft by inventory by PRC staff
(3) Airport Master Plan Update, Prescott Regional Airport - Ernest A. Love Field, December 2010

According to the data in **Table 3-4**, while PRC has enjoyed a higher based aircraft/population than Arizona, the trends strongly parallel. Both trends were in a steady decline from 2000 through about 2010, but now appear to have stabilized and are increasing incrementally. Therefore, it can be assumed that as County population continues to increase, the General Aviation demand at PRC will also increase.

Because of the inconsistency in the reporting of based aircraft in the past, the based aircraft/population relationship cannot be used to project future demand. However, in the absence of any other historical data it must be assumed that the reporting methods used in prior years were consistent in themselves. That is, it is assumed that the missing information was consistent in its omission from all prior annual reports. Thus, the trend may be indicative of actual occurrences regardless of the discrepancy in the 2016 based aircraft values. The trend shows that the decline in GA activity has slowed and will possibly rebound in the near future.

Because of the lack of verifiable local correlating historical data, the GA forecasts in this study will rely upon the growth factors developed by the FAA in its *FAA Aerospace Forecasts Fiscal Years 2016-2036*.[5]

The FAA study indicates that the long term outlook for GA growth in numbers of aircraft is favorable. The total number of GA aircraft in the national fleet is forecast by the FAA to increase at the rate of 0.2 percent a year through 2036. This will be led by jet aircraft and rotorcraft, which will grow at the rate of 2.5% per year. Fixed-wing piston aircraft numbers are projected to decrease at -0.6% per year. The relatively new Light Sport category (created in 2005) is predicted to grow at the rate of 4.5% annually. Prior to 2005, existing aircraft that qualified as Light Sport were included in the general fixed-wing piston category.[5]

Similarly, the FAA study predicts that GA operations will also increase through 2036, gaining a moderate 1.2% per year. Fixed-wing piston aircraft operations will follow the decline in numbers of aircraft at the rate of-0.6% per year. Light Sport aircraft operations will increase at the rate of 5% per year. Jet operations will increase by 3.1% per year, and rotorcraft will experience a 2.5% increase annually.[5]

The *FAA Aerospace Forecasts Fiscal Years 2016-2036* growth projections are tabulated in **Table 3-5** below.

The General Aviation forecast methodology was designed as follows:

- Yavapai County population is assumed to continue to grow based upon regression of the ten-year (2006-2016) growth records.

- The number of total based aircraft at PRC is assumed to grow based on the *FAA Aerospace Forecasts Fiscal Years 2016-2036* projected growth rates for each type of aircraft. The baseline number of based aircraft is that determined by the recently completed physical inventory of based aircraft (338).

- Total annual General Aviation operations are assumed to grow based on the *FAA Aerospace Forecasts Fiscal Years 2016-2036* projected growth rates for each type of aircraft.

- The initial distribution of operations between the various types of aircraft at the present time was assumed to be equal to the distribution of based aircraft by type.

Table 3-5. FAA Aerospace Forecasts - Growth Factors

	Growth Rates per Year					
	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport
Aircraft Fleet	-0.60%	-0.60%	2.60%	2.50%	2.50%	4.50%
Operations	-0.60%	-0.60%	2.60%	3.10%	2.50%	5.00%

Source: FAA Aerospace Forecasts FY 2016-2036

General Aviation Forecasts

The resulting General Aviation demand forecast for Based Aircraft is presented in **Table 3-6.** The forecast of GA Operations is presented in **Table 3-8**.

It should be noted that the FAA must approve the forecasts contained in this Master Plan, and their review will begin with comparison of the new forecasts against the most current *Terminal Area Forecasts* (TAF) projections. The FAA prefers that the Master Plan forecasts fall within plus or minus 10% of the TAF forecasts. The General Aviation forecasts that are presented in this Master Plan were developed in an objective manner, with no attempt to correspond with the TAF forecasts. In order to facilitate FAA review of the completed forecasts, a comparison to the 2016 TAF is included (see **Tables 3-9** and **3-10**).

The aircraft fleet mix and forecasts of operations by type of aircraft will be expanded later in this chapter, under Critical Aircraft Determination. This will include the complete mix of both General Aviation and Air Carrier activity. The Local/Based and Local/Itinerant operational distributions will also be presented in that section.

Adjustment of Current Operations Baseline

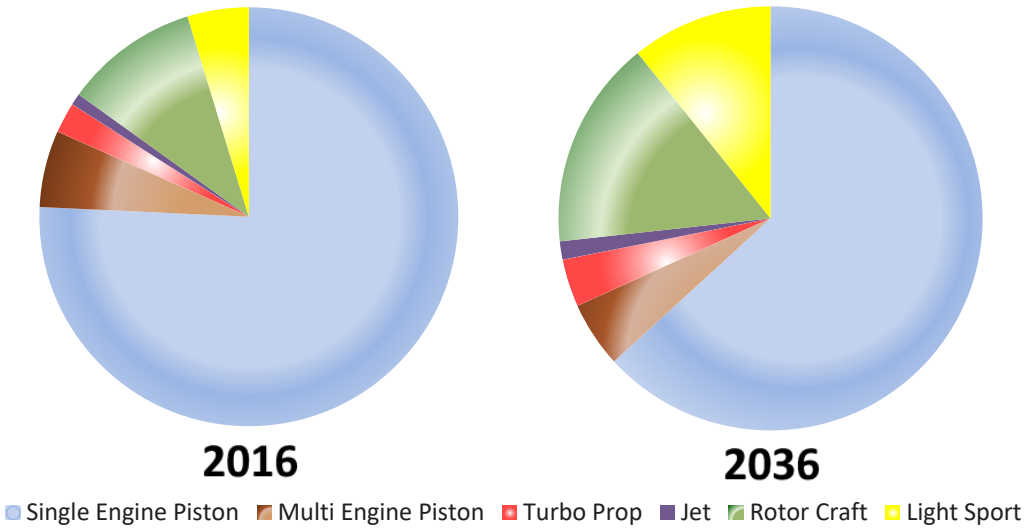
As is evidenced in **Table 3-7** and **Figure 3-5**, the actual number of total operations at PRC has fluctuated considerably over the years. This is typical of any airfield to some degree but can usually be seen to a greater extent at airports that have a preponderance of General Aviation activity, especially if there is a high concentration of training activity. Many variables can affect the number of operations by unscheduled (GA) aircraft, and the affects may be either positive or negative. For example, operations can be reduced by unseasonable weather patterns in a given year, short term economic downturns in local economies, spikes in aviation fuel prices, national security crises, or by construction projects that require closure of runways or of the entire airport for periods of time. Other factors can affect operations positively. These might include recovery from economic downturns, large airshows hosted by the airport, or other events at the airport that attract GA traffic. They may also include sports events or large scale conferences in the area that could cause a spike in GA activity. Large scale construction projects in the area could also cause additional short term air traffic.

Due to the variability of the operations over the years, a mathematical equation was used to provide a reasonable trend in operations and provide a more realistic starting point for operations forecasting.

Table 3-6. Forecast of General Aviation Demand - Based Aircraft

Year	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Total
Growth	-0.60%	-0.60%	2.60%	2.50%	2.50%	4.50%	
2016	256	20	8	3	35	16	**338**
2017	255	20	8	3	36	17	338
2018	253	20	8	3	37	18	339
2019	252	20	9	3	38	18	339
2020	250	20	9	3	39	19	340
2021	249	20	9	4	40	20	**340**
2022	247	19	9	4	41	21	341
2023	246	19	9	4	42	22	341
2024	244	19	10	4	43	23	342
2025	243	19	10	4	44	24	343
2026	241	19	10	4	45	25	**344**
2027	240	19	10	4	46	26	345
2028	238	19	11	4	47	27	346
2029	237	19	11	4	48	28	347
2030	235	19	11	4	49	30	349
2031	234	19	12	5	51	31	**350**
2032	233	18	12	5	52	32	352
2033	231	18	12	5	53	34	354
2034	230	18	13	5	55	35	355
2035	228	18	13	5	56	37	357
2036	227	18	13	5	57	39	**359**

Figure 3-4. Aircraft Fleet Mix Forecast - Based Aircraft

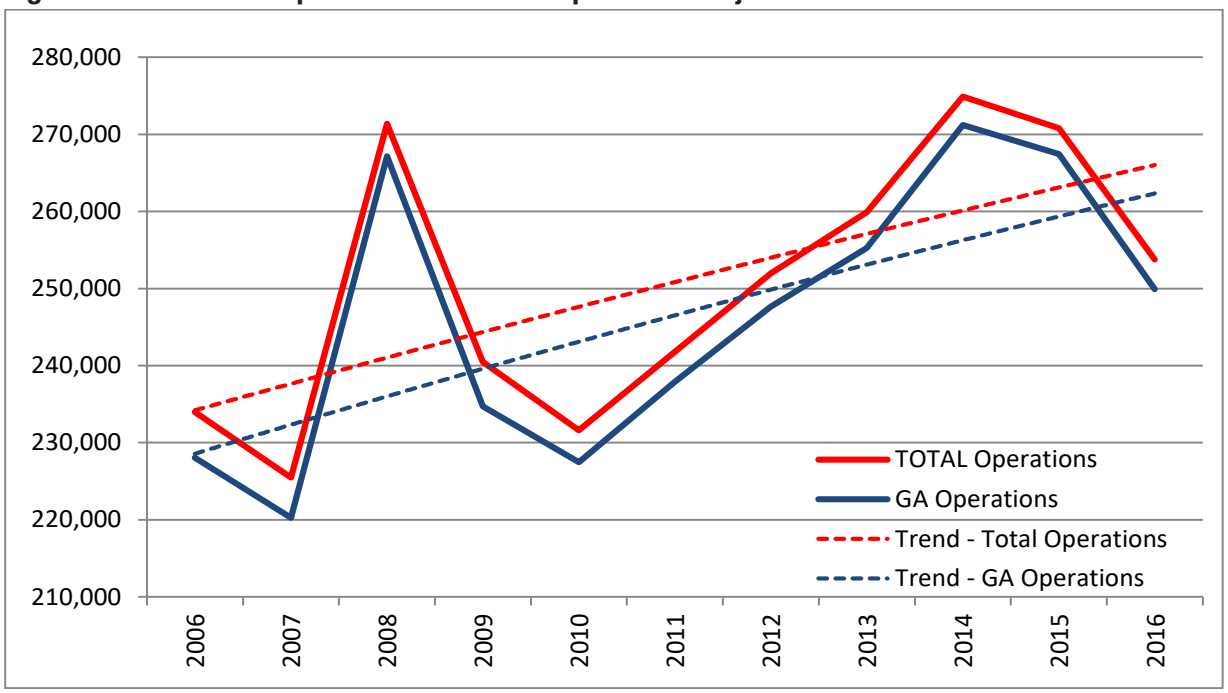


Source of Growth Factors: FAA Aerospace Forecasts FY 2016-2036

Table 3-7. Historical Operations and 2016 Operations Adjustment

Year	Air Carrier Operations	GA Operations	TOTAL Operations
2006	5,901	228,071	233,972
2007	5,201	220,268	225,469
2008	4,230	267,161	271,391
2009	5,792	234,703	240,495
2010	4,183	227,451	231,634
2011	3,901	237,892	241,793
2012	4,307	247,635	251,942
2013	4,624	255,280	259,904
2014	3,695	271,222	274,917
2015	3,343	267,441	270,784
2016	3,869	249,921	253,790
2016 Adjusted	**3,683**	**262,347**	**266,030**

Figure 3-5. Historical Operations and 2016 Operations Adjustment

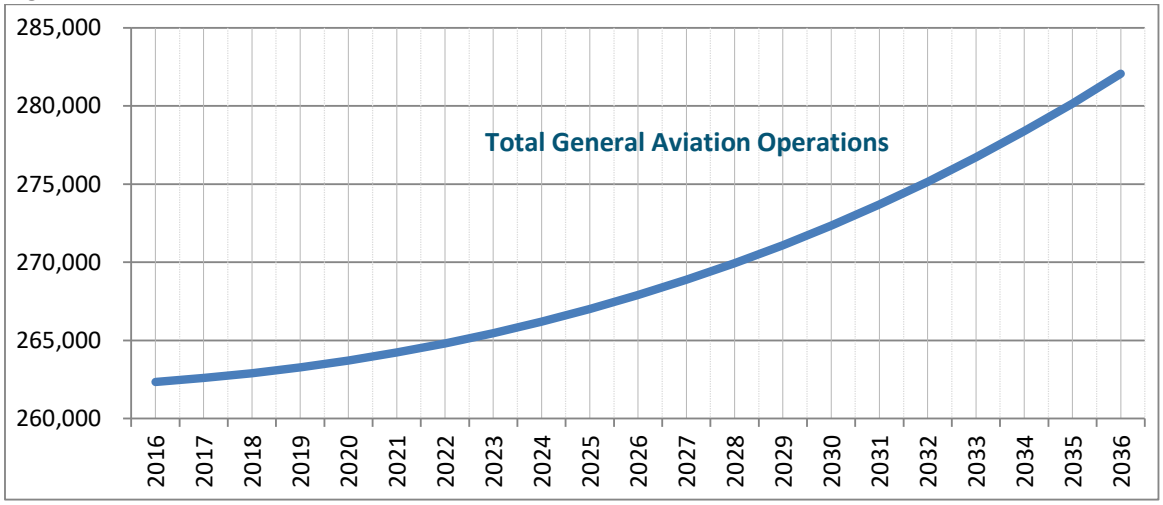


Source: 2006-2015 operations are from the FAA Terminal Area Forecasts (TAF)
2016 operations are from the Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower records
2016 Total and GA operations were adjusted by 2nd order polynomial equations
2016 adjusted Air Carrier operations are the remainder of Total Operations - GA Operations.

Table 3-8. Forecast of General Aviation Demand - Operations

Year	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Total
Growth	-0.60%	-0.60%	2.60%	3.10%	2.50%	5.00%	
2016	198,700	15,523	6,209	2,329	27,166	12,419	**262,347**
2017	197,508	15,430	6,371	2,401	27,845	13,040	262,595
2018	196,323	15,338	6,536	2,475	28,541	13,692	262,906
2019	195,145	15,246	6,706	2,552	29,255	14,376	263,280
2020	193,975	15,154	6,881	2,631	29,986	15,095	263,722
2021	192,811	15,063	7,060	2,713	30,736	15,850	**264,232**
2022	191,654	14,973	7,243	2,797	31,504	16,642	264,813
2023	190,504	14,883	7,431	2,883	32,292	17,475	265,468
2024	189,361	14,794	7,625	2,973	33,099	18,348	266,199
2025	188,225	14,705	7,823	3,065	33,927	19,266	267,010
2026	187,095	14,617	8,026	3,160	34,775	20,229	**267,902**
2027	185,973	14,529	8,235	3,258	35,644	21,240	268,879
2028	184,857	14,442	8,449	3,359	36,535	22,302	269,945
2029	183,748	14,355	8,669	3,463	37,449	23,417	271,101
2030	182,645	14,269	8,894	3,570	38,385	24,588	272,352
2031	181,550	14,184	9,125	3,681	39,345	25,818	**273,702**
2032	180,460	14,098	9,363	3,795	40,328	27,109	275,153
2033	179,377	14,014	9,606	3,913	41,336	28,464	276,711
2034	178,301	13,930	9,856	4,034	42,370	29,887	278,378
2035	177,231	13,846	10,112	4,159	43,429	31,382	280,159
2036	176,168	13,763	10,375	4,288	44,515	32,951	**282,060**

Figure 3-6. Aircraft Fleet Mix Forecast - Based Aircraft



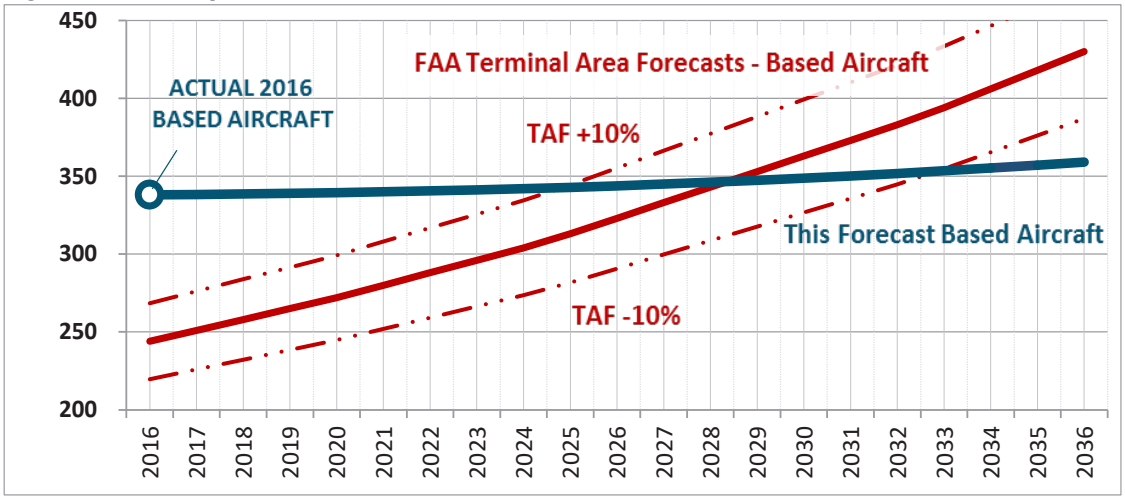
Source of Growth Factors: FAA Aerospace Forecasts FY 2016-2036

Table 3-9. Comparison of Based Aircraft Forecast to FAA Terminal Area Forecasts

Year	Total Based Aircraft (This Master Plan)	Percent Difference	FAA TAF: Total Based Aircraft (1)
2016	**338**	38.52%	244
2017	338	34.78%	251
2018	339	31.28%	258
2019	339	27.96%	265
2020	340	24.82%	272
2021	**340**	21.46%	**280**
2022	341	18.30%	288
2023	341	15.30%	296
2024	342	12.50%	304
2025	343	9.52%	313
2026	**344**	6.44%	**323**
2027	345	3.57%	333
2028	346	0.90%	343
2029	347	-1.59%	353
2030	349	-3.91%	363
2031	**350**	-6.11%	373
2032	352	-8.15%	383
2033	354	-10.28%	394
2034	355	-12.51%	406
2035	357	-14.57%	418
2036	**359**	-16.49%	430

Source: (1) FAA Terminal Area Forecasts, January 2016

Figure 3-7. Comparison of Based Aircraft Forecast to FAA Terminal Area Forecasts



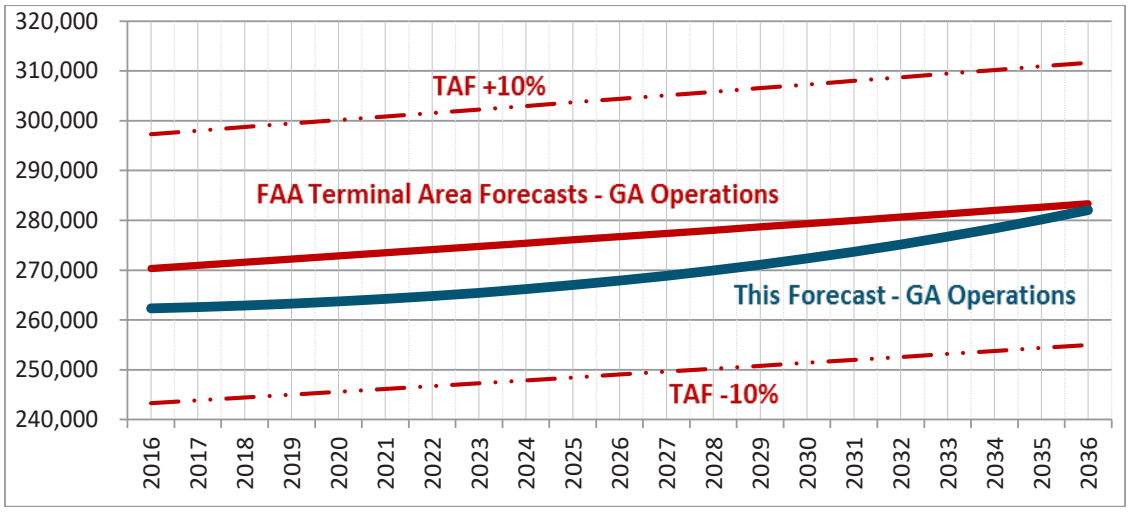
Source of Growth Factors: FAA Aerospace Forecasts FY 2016-2036

Table 3-10. Comparison of General Aviation Operations to FAA Terminal Area Forecasts

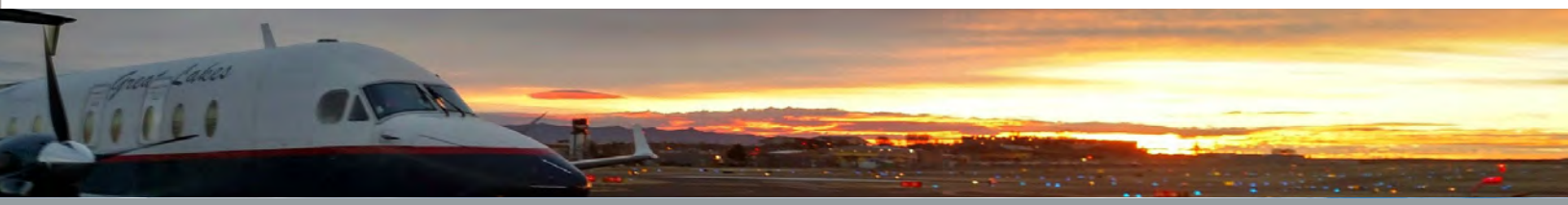
Year	Total Annual GA Operations (This Master Plan)	Percent Difference	FAA TAF: Total GA Operations (1)
2016	**262,347**	-2.94%	**270,294**
2017	262,595	-3.08%	270,929
2018	262,906	-3.19%	271,566
2019	263,280	-3.28%	272,204
2020	263,722	-3.34%	272,844
2021	**264,232**	-3.38%	**273,485**
2022	264,813	-3.40%	274,128
2023	265,468	-3.39%	274,773
2024	266,199	-3.35%	275,420
2025	267,010	-3.28%	276,069
2026	**267,902**	-3.19%	**276,719**
2027	268,879	-3.06%	277,371
2028	269,945	-2.91%	278,024
2029	271,101	-2.72%	278,679
2030	272,352	-2.50%	279,335
2031	**273,702**	-2.25%	**279,994**
2032	275,153	-1.96%	280,654
2033	276,711	-1.64%	281,316
2034	278,378	-1.28%	281,980
2035	280,159	-0.88%	282,645
2036	**282,060**	-0.44%	**283,312**

Source: (1) FAA Terminal Area Forecasts, January 2016

Figure 3-8. FAA Terminal Area Forecasts Comparison - General Aviation Operations



Source: (1) FAA Terminal Area Forecasts, January 2016



Section Overview

Part 1 | Introduction
Part 2 | Federal Subsidy Programs
Part 3 | Federal and State Grants-in-Aid Pertaining to Air Carrier Service
Part 4 | The Yavapai County Airline Passenger Survey
Part 5 | Development of the Air Carrier Demand Model

Image by PRC

3 | Section 3 - Air Carrier Demand

3.3 | Part 1 - Introduction

Air Carrier forecasts contained in this chapter are presented as a road map to be used by the City of Prescott

Prescott Regional Airport- Ernest A. Love Field appears to be at a significant point in its history. For many years, the airport has had only a minimal level of airline service, precariously near the minimum level of activity to ensure continued eligibility to remain in the Essential Air Service (EAS) funding program. The air carrier demand forecasts developed in this section were initially prepared from this standpoint. However, in August 2018, United Express, operated by Skywest Airlines launched air service at PRC, dramatically transforming the airport. As a result, the FAA has agreed to support a revised forecast.

Traditional forecast methodologies, with reliance on historical data to develop a prospective trend for the future do not seem appropriate in light of the many prior forecasts that indicated growth but did not come to fruition. In fact, attempts to find historical data with strong enough correlation to perform those calculations failed. Over the last decade as the State's population continued to rise, Prescott and Yavapai County's population also increased. Although slowing during the 2007 economic downturn, per capita income and other economic indicators also continued on an upward trend. But at the same time, based aircraft continued a downward trend and, conversely, total airfield operations increased slightly. Air carrier operations continued a downward trend, as potential passengers expressed widespread displeasure in the type of service provided by PRC's single airline, Great Lakes Airlines. Through 2017, airline passenger enplanements continued an erratic pattern usually remaining at a level that threatens EAS eligibility. Due to the

entry of United Express at PRC in 2018, passenger enplanements have increased exponentially in the past two years.

Regardless of economic and industry trends and other free market drivers, one factor controlling the level of airline service at PRC at the present time is the existence of EAS funding. The Air Carrier forecasts contained in this chapter are presented as a road map to be used by the City of Prescott to prepare for its expected continued growth.

3.3 | Part 2 - Federal Subsidy Programs

The EAS is subsidized by the United States Department of Transportation (USDOT)

Essential Air Service (EAS)

Prior to 1978, U. S. airlines were strictly regulated by the federal government regarding which markets they could serve and what their fares could be. In 1978, the Airline Deregulation Act (49 U.S.C. §§ 41731–41748) was enacted, giving the airlines freedom to determine their preferred markets, routes, and fares. Because smaller communities are less profitable to serve, it was considered important to take steps to ensure that these communities maintained commercial airline service. The Essential Air Service (EAS) program was enacted to ensure that a minimal level of scheduled air service to these communities would remain.[4]

The EAS is subsidized by the United States Department of Transportation (USDOT), with subsidies being paid to the airlines to serve communities across the country that otherwise would not receive any scheduled air service. At the present time, the EAS subsidizes approximately 160 communities located greater than 100 miles from major hub airports. The decision as to what degree of subsidized service a community requires is made based on identifying a specific hub for that community and then determining the number of trips, seats, and type of aircraft that are necessary to serve that hub.[4]

PRC is included in the EAS program and was previously served by Great Lakes Airlines, who received a maximum annual subsidy of $2,657,002 according to the 2016 contract which expired on April 30, 2017. The 2016 annual subsidy was based on an estimated 15,000 total enplaned or deplaned passengers. However, in 2015 Great Lakes received less than $2 million because of 10% to 15% flight cancellations. The designated hub for PRC is Los Angeles International Airport (LAX). With only 3,454 total annual passenger enplanements at PRC in 2016, this equated to a $769 subsidy per enplaned passenger ($384.50 per total passengers enplaned or deplaned).

PRC is currently served by United Express who receives an annual subsidy of $3, 983,055 through August of 2020. The designated non-stop destinations are Los-Angeles International Airport and Denver International Airport.

According to EAS regulations, no community within the lower 48 states may receive a subsidy greater than $200 per passenger unless that community is more than 210 miles from the nearest large or medium hub airport. To be eligible for the EAS program, a community in the lower 48 states must either maintain an average of 10 or more enplanements per service day or be located more than 175 miles from the nearest large or medium hub airport. As has been stated, in 2016 there were only 3,454 passenger enplanements at PRC (just less than 10 per service day), and PRC is located only 107 miles from Phoenix Sky Harbor International Airport (PHX). As a result, PRC required a waiver to maintain EAS services. Since the introduction of United Express service in 2018 to LAX and DEN, PRC's enplanements have increased such that meeting EAS regulations is not an issue.

Alternative Essential Air Service

The Alternative Essential Air Service program grants funds directly to the municipality or airport authority instead of the airline. This allows the community to recruit air service that would not otherwise meet EAS guidelines, such as more frequent service with smaller aircraft, less-than-daily service, flights to differing destinations at different times of the year or week, on-demand air taxi service, scheduled or on-demand ground surface transportation, regionalized air service, or even purchasing an aircraft. This alternative program has most often occurred as a public charter arrangement as prescribed by Title 14 of the Code of Federal Regulations, Part 380.[4]

There are currently five airports receiving funding under this program, each receiving annual grants averaging $2.4 million.[4] PRC has chosen not to participate in this program.

Community Flexibility Pilot Program

The Community Flexibility Pilot Program was established in 2003 as part of Vision 100-- Century of Aviation Reauthorization Act (P.L. 108-176). Section 405 of that Act established the Community Flexibility Pilot Program, under which communities receiving subsidized Essential Air service may obtain a federal grant equal to twice the subsidy that the Department paid to the EAS carrier in the most recent 12-month period in exchange for foregoing their subsidized EAS for 10 years.[4]

The Program allows up to ten airports to participate. To date, only one airport has applied. Visalia Municipal Airport in Visalia, California opted to receive a one-time grant in the amount of $3,703,368 and will forgo its annual EAS grant for the next ten years.[4] PRC has chosen not to participate in the Community Flexibility Pilot Program.

3.3 | Part 3 - Federal and State Grants-in-Aid Pertaining to Air Carrier Service

FAA Grant Funding Programs

The federal government embarked on a grants-in-aid program shortly after the end of World War II in order to promote the development of a system of airports to meet national defense and transportation needs. The early program, the Federal-Aid Airport Program (FAAP), was authorized by the Federal Airport Act of 1946 and drew its funding from the general fund of the U.S. Treasury.

In 1970, a more comprehensive program was established with the passage of the Airport and Airway Development Act of 1970. This Act provided grants for airport planning under the Planning Grant Program (PGP) and for airport development under the Airport Development Aid Program (ADAP). These programs were funded from a newly established Airport and Airway Trust Fund, into which were deposited revenues from several aviation-user taxes on such items as airline fares, air freight, and aviation fuel. The authority to issue grants under these two programs expired on September 30, 1981.

The current program, known as the Airport Improvement Program (AIP), was established by the Airport and Airway Improvement Act of 1982 (Public Law 97-248). Since then, the AIP has been amended several times, most recently with the passage of the FAA Modernization and Reform Act of 2012. Funds obligated for the AIP are drawn from the Airport and Airway Trust Fund, which is supported by user fees, fuel taxes, and other similar revenue sources.

AIP grants can only be used for eligible capital projects, equipment, and certain types of planning and environmental studies. They cannot be used for airport operating expenses, marketing studies, or for debt financing.

There are two main categories of FAA AIP funding: Discretionary grants and Entitlement grants. In addition, since 2018 Congress has authorized additional support for airports in the form of supplemental (discretionary) funding.

FAA Discretionary Grants

About one third of the AIP's annual funding goes toward discretionary and discretionary set-aside funds for specific projects based on their overall importance and priority.

Discretionary grants are used to fund airfield capacity, safety, security, and noise improvement projects. They may be used for design, planning, construction, and for some administrative costs. These grants are allocated on a competitive basis by the FAA district offices based on a priority rating system.

FAA Entitlement Grants

In general, about two-thirds of the AIP's annual funds are allocated to airports via entitlement grants. These are based on formulas found in title 49 U.S.C., § 47114.

Each airport that is included in the *National Plan of Integrated Airport Systems (NPIAS)* that does not have scheduled air carrier service is eligible to receive an annual Entitlement grant of a maximum of $150,000. The actual amount awarded is subject to the annual AIP funding amount and annual State allocations.[8]

For airports that have scheduled air carrier service, the FAA uses annual enplanement data to calculate annual entitlements to the airport. If an airport with scheduled service meets a 10,001 passenger threshold, the minimum entitlement is $1,000,000. For an airport with 10,000 or fewer passengers, the entitlement drops to a maximum of $150,000. Therefore, an airport that is close to reaching 10,001 enplanements near the end of a calendar year has a significant incentive to employ a variety of methods to meet the 10,001 enplanement threshold.[8]

PRC had been well below the 10,001 enplanement threshold for most of the past twenty years (see **Table 3-11**). In fact, before 2018, there were only two years of enplanements over 10,000 (1996 and 2009). In 2018, PRC exceeded 10,001 enplanements and in 2019, is expected to have nearly 28,000 enplanements. Further market potential to be included in a future forecst.

3.3 | Part 4 - Airline Passenger/Activity Survey/Studies

Passenger Survey Distribution

A 2018 Traffic Retention and Leakage Study, performed by Volaire Aviation Consulting served to validate YCAPS unmet demand of 50K [See Appendix H for Study]

A seven question survey (a separate survey from the *General Aviation User Survey*), the *Yavapai County Airline Passenger Survey (YCAPS)*, was distributed to Yavapai County residents in order to gain insight into the current travel habits of the airport's service area. The survey was open to response from October 28 through November 30, 2016 (34 days), and during that time it was advertised widely on social media (including Facebook, Instagram, and others) as well as via regional internet news channels and the City's and airport's web sites. An email distribution campaign was also undertaken during this time.

During the 34 day run, the social media campaign reached 17,267 people who have Yavapai County zip codes, who are 18 years of age or older, and who use social media.

There were a total of 1,181 responses to the survey. 993 of these responses were the result of the social media advertising. This represents 84% of the total responses received during the advertising period.

Validation of Responses

The intent of the survey was to quantify the airline travel habits of the potential passengers who reside within the Yavapai County service area. Seventeen responses were received from respondents who reside outside of Yavapai County, and these were not considered in the data analysis. Two other responses were disqualified because they contained obviously skewed responses (such as claiming over 1,000 flights during the one year survey period).

There are a total of 1,162 validated responses that were used in the data analysis. Based on the survey responses, these validated respondents represent people who:

1. Are residents of Yavapai County;
2. Are people who do use airline service;
3. Are people who are interested in seeing improvements to the airline services available to them.

It is important not to assume that these responses represent the opinions and/or actions of all residents of the County. It is, however, a valid assumption that the information gathered from the validated respondents is a useful snapshot of the habits of the service area population who currently use airline service, and that these habits will continue into the near future barring any significant change in the available airline services in the region.

Results of the Survey

The full results of the *Yavapai County Airline Passenger Survey* are included in Appendix C. The results of the survey that relate to airline travel activity and analysis are summarized as follows.

- Prescott Regional Airport is currently only capturing about 9% of its potential market share of Yavapai County potential airline passengers. Based on the FAA's records, there were 3,522 passenger enplanements at Prescott Regional Airport in 2015. If these enplanements represent 9% of the total potential market share, then the maximum potential annual enplanements at PRC may total approximately 38,000.

- About 91% of the time, Yavapai County residents who travel by air are doing so from airports other than Prescott Regional Airport. This may represent nearly 34,600 annual enplaned 2015 passengers, or about 91% of the potential passenger base.

- Over 30,200 annual passenger enplanements originating in Yavapai County are leaking to Phoenix Sky Harbor International Airport. This is nearly 80% of the total reported activity.

- Nearly 12% of the time, Yavapai County residents who travel by air and do not go to Phoenix to board their flights are doing so from airports other than Prescott Regional Airport. This represents nearly 4,600 enplaned passengers annually, or about 12% of the potential passenger base.

- If PRC could capture only all enplanements originating at airports other than Phoenix Sky Harbor International (20.5% of the total), the total annual enplanements at PRC could be increased to about 7,800.

- By capturing an additional 17% of the passengers who are now willing to travel to other airports to catch their flights, the annual enplanements at Prescott would reach 10,000. This is an important threshold. PRC now receives an annual entitlement grant of $150,000 because its enplanements are below 10,000. The annual entitlement will increase to $1,000,000 when enplanements reach 10,000.

- The survey results suggest that for the great majority of the potential passenger population the additional time, cost, and inconvenience for ground transportation to another airport is believed to be worth it when compared to using the present services at Prescott Regional Airport.

- 21% of the respondents indicated that more than half of the time they travel for business. 79% fly more than half of the time for pleasure.

- 63% of the passenger population flies only for pleasure. This accounts for 40% of reported ticketed flights. These passengers flew an average of 5 times per year.

- 5% of the passenger population flies only for business. This accounts for about 7% of reported ticketed flights. These passengers flew significantly more than the pleasure-only fliers, at an average of 11 times per year.

- 32% of the passenger population utilizes airline service for a mixture of business and pleasure travel. This accounts for about 53% of reported ticketed flights. As would be expected, these passengers had the highest frequency of use, at an average of 12 times per year.

- The respondents indicated that they would fly an average of 20% more in calendar year 2016 than they did in 2015. This response was expected to have a high degree of reliability since this survey was conducted during the month of November, 2016. The respondents had already completed travel for the first ten months of the year and most probably knew what their travel plans were for the last two months of the year. This response data suggests that the annual enplanements at Prescott Regional Airport may be expected to increase to as much as 20% higher in the current year (2016), increasing from 3,420 to about 4,100 enplanements. However,

the 2016 estimated passenger enplanements are below this number. The estimated total 2016 enplanements were about 3,454, an increase of only about 1% over the 2015 activity. The reported 20% average increase may be overly optimistic. However, the optimism reflected by the survey responses does indicate a potential for some increase in short term demand by people who may be willing to use the airline services available at Prescott Regional Airport if improvements are made.

- Most of the resistance to use of airline service at Prescott Regional Airport is directed toward the level and quality of the service previously provided by Great Lakes Airlines. The vast majority of the respondents want more flights, more destinations, service by larger/jet aircraft, and better reliability of service. About 93% of the respondents asked for flights to more destinations. Over 70% want less expensive airline tickets. Over 66% want more daily flights. Nearly half would prefer service by larger/jet aircraft (the survey was completed just before Great Lakes added service by an Embraer EMB120).

- Only about 13% of the respondents consider that improving the Airport Passenger Terminal is an important improvement related to airline service. However, it is highly likely that when airline service is improved in terms of reliability, cost, equipment, and frequency, the improvement of the Terminal Building would become a very important factor to an increased number of enplaning passengers (and might also increase the potential to attract other airlines).

3.3 | Part 5 - Development of the Air Carrier Demand Model

Existing Airline Service and Historical Trends

Airline service at Prescott Regional Airport - Ernest A. Love Field (PRC) has been erratic for many years (see **Table 3-11** and **Figure 3-9**). The levels of annual passenger enplanements have varied from a high of over 11,000 in 1996 and again in 2009, to a low of 3,035 in 2007.[1]

Over the years there has been a steady declining trend that, at this point, threatens the airport's qualifications for federal subsidies through the Essential Air Service (EAS) program.

In 2014 the City of Prescott established an ad hoc Airport Area Steering Committee. This committee was charged with developing recommendations concerning the future vision and general goals of PRC and its surrounding economic influence area. On December 2, 2014, the committee presented a set of Findings and Recommendations6 for the development of the Airport Area to the Prescott

City Council. These included specific findings and recommended actions for the improvement of PRC. These Airport Recommendations included the following general goals and action items:

"Goal: Develop PRC as a Commercial Airport exceeding 10,000 annual enplanements (qualifying for greater FAA funds) while planning for 50,000 annual enplanements long-term (15 to 20 years)."

Action 1a - Lengthen Runway 3R-21L, structurally strengthen the runway and taxiways, and realign Taxiway C to accommodate larger aircraft (commercial passenger, cargo, and others such as U.S. Forest Service), and construct other facilities required for airport safety and security ($45 million including $3 million local).

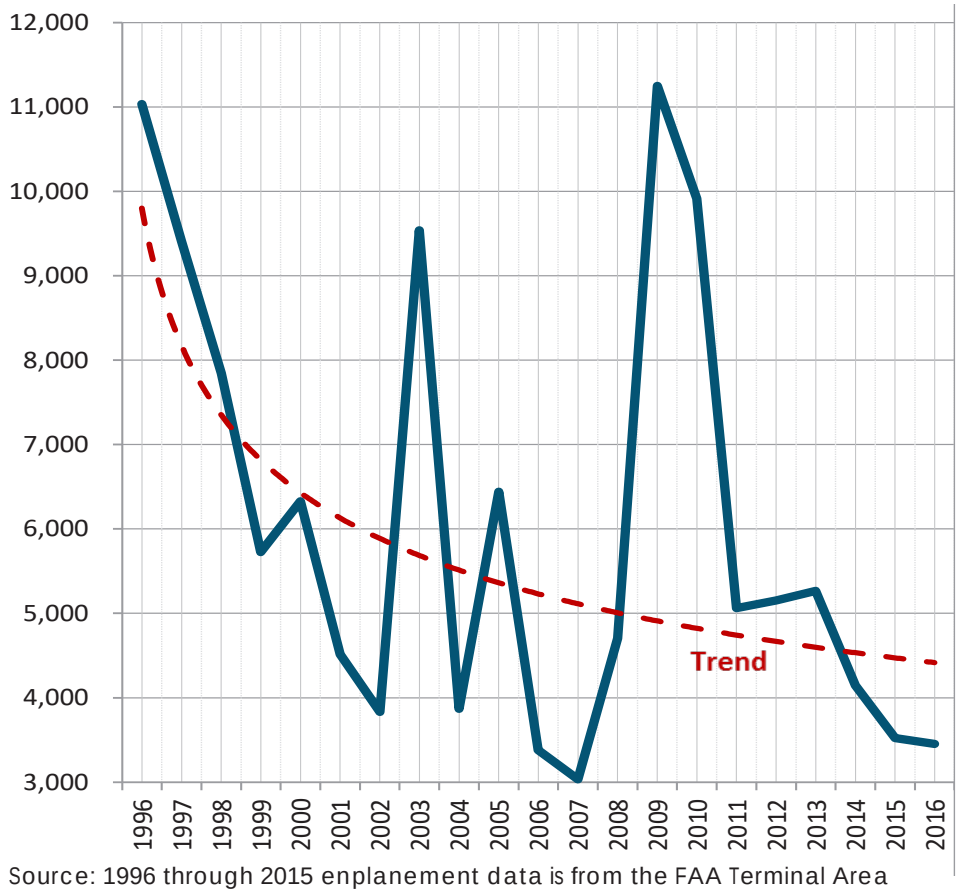
Action 1b - "Replace the existing Airport Terminal at a location to be determined by a detailed site assessment."

Action 2 - "Achieve long-term tenancy for the U.S. Forest Service at PRC as the aerial firefighting base of choice for Northern Arizona".[6]

Table 3-11. Passenger Enplanements at PRC

Year	Annual Enplanements
1996	11,034
1997	9,405
1998	7,844
1999	5,725
2000	6,326
2001	4,515
2002	3,834
2003	9,538
2004	3,870
2005	6,440
2006	3,379
2007	3,035
2008	4,703
2009	11,250
2010	9,915
2011	5,060
2012	5,152
2013	5,266
2014	4,145
2015	3,522
2016	3,454

Figure 3-9. Passenger Enplanements At PRC



Source: 1996 through 2015 enplanement data is from the FAA Terminal Area Forecasts. 2016 Enplanements are estimated by the airport management

The Airport Area Steering Committee's *Findings and Recommendations* were adopted by the City Council by Resolution on December 2, 2014.[7] By this action, the City Council set the airport's vision for the future as that of a regional airline service airfield.

It cannot be overstated that given the current level of service and the apparent declining trend in passenger enplanements, it is imperative that the City make an aggressive attempt to improve the airline service offered at PRC in order to attract additional customers, attain eligibility for increased annual Entitlement grant levels ($150,000 versus $1 million) and, at very least, to retain the current EAS subsidy.

Comparison with Prior Forecasts

As is the case with the GA forecasts, over the past several years there have been other airport and airport systems planning studies conducted that either directly or indirectly address the Prescott Regional Airport- Ernest A. Love Field. The studies and documents that were researched and referenced in the following narrative include the following:

- *FAA Terminal Area Forecasts (2016 TAF)*[1]
- *2008 Arizona State Airports System Plan (2008 SASP)*[2]
- *2010 Prescott Municipal Airport Master Plan (2010 MP)*[3]

The Air Carrier activity estimates and projections contained in these documents are summarized in **Table 3-12** and **Figure 3-10** and **Table 3-13** and **Figure 3-11**, on the following pages.

The *2010 Prescott Municipal Airport Master (2010 MP)* reflected a significant increase in projected enplanements. Although the enplanements in the study's base year of 2007 totaled only 4,233, the 2010 MP projected an increase to over 13,000 enplanements by 2017, increasing to over 23,000 by 2027. As with the GA forecasts, these ambitious projections were based on historical data that were considered to be valid prior to the economic downturn of 2007 and sound correlation was found between the then-available selected economic and historical activity factors. The 2010 MP projects about 1,300 air carrier operations in 2017 (there were 990 in 2007), increasing to over 2,900 in 2027.

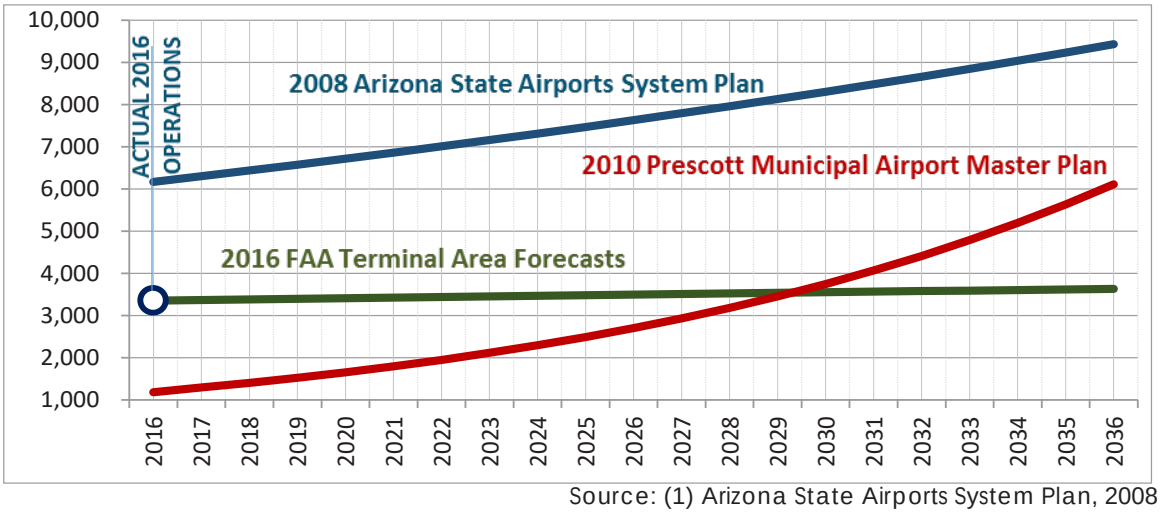
Of the three studies examined, the *2008 Arizona State Airports System Plan (2008 SASP)* presents the most ambitious predictions for both future enplanements and airline operations. The 2008 SASP projects over 45,000 annual enplanements in 2017, increasing to over 62,000 by 2027. Operations are projected to increase from 6,300 in 2017 to 8,300 by 2027. From today's point of view, these projections appear to be unreasonably optimistic.

The *FAA Terminal Area Forecasts (2016 TAF)* are updated annually and it is a reasonable assumption that they should present more realistic predictions than the other two studies that were examined. The starting point of the 2016 TAF forecasts for 2016 enplanements is 3,547, reasonably close to the airport's estimated number of 3,454. Similarly, the TAF's air carrier operations forecast used a 2016 starting point of 3,356 operations versus the actual ATCT records' number of 3,869 annual operations. The 2016 TAF forecasts reflect a realistic view of the probable activity at PRC if there are no significant changes in the airline service environment. These projections show a near "flat line" for air carrier operations through 2036. Passenger enplanements are also projected to remain at virtually the same levels as 2016 through the next twenty years.

Table 3-12. Comparison of Prior Forecasts - Air Carrier Operations

Year	2008 Arizona State Airports System Plan (1)	2016 FAA Terminal Area Forecasts (2)	2010 Prescott Regional Airport Master Plan (3)
Annual Growth >	2.15%	0.41%	8.50%
2016	6,165	3,356	1,188
2017	6,300	3,370	1,298
2018	6,435	3,384	1,408
2019	6,574	3,398	1,528
2020	6,715	3,412	1,658
2021	6,860	3,425	1,799
2022	7,007	3,440	1,952
2023	7,158	3,454	2,118
2024	7,312	3,468	2,298
2025	7,469	3,482	2,493
2026	7,629	3,496	2,705
2027	7,793	3,510	2,934
2028	7,961	3,524	3,183
2029	8,132	3,538	3,454
2030	8,300	3,552	3,748
2031	8,478	3,566	4,066
2032	8,661	3,580	4,412
2033	8,847	3,594	4,787
2034	9,037	3,608	5,194
2035	9,231	3,622	5,635
2036	9,430	3,636	6,114

Figure 3-10. Comparison of Prior Forecasts - Air Carrier Operations

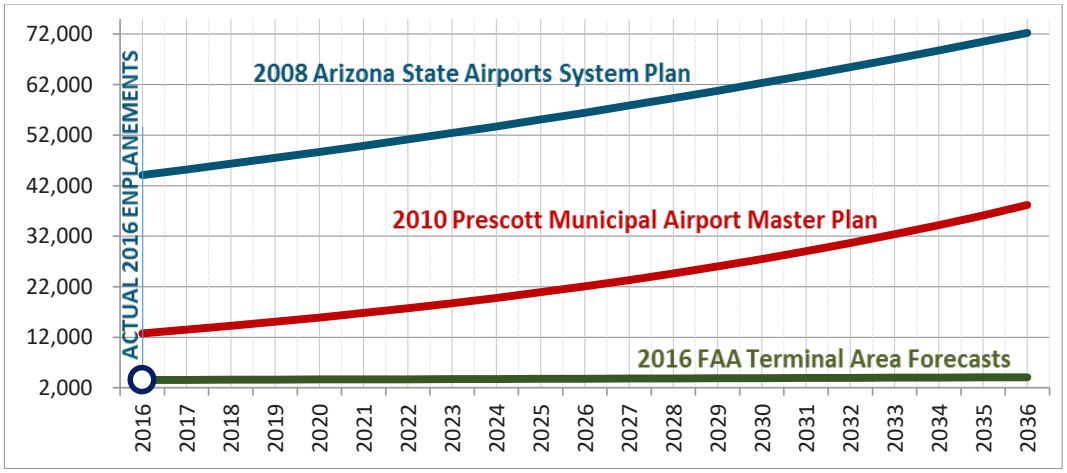


Source: (1) Arizona State Airports System Plan, 2008
(2) FAA Terminal Area Forecasts, January 2016
(3) Airport Master Plan Update, Prescott Regional Airport - Ernest A. Love Field, December 2010
Note: Shaded Values have been extrapolated in order to facilitate comparison between the data

Table 3-13. Comparison of Prior Forecasts - Enplanements

Year	2008 Arizona State Airports System Plan (1)	2016 FAA Terminal Area Forecasts (2)	2010 Prescott Regional Airport Master Plan (3)
Annual Growth >	2.50%	0.72%	5.62%
2016	44,070	3,547	12,743
2017	45,200	3,572	13,502
2018	46,330	3,597	14,261
2019	47,488	3,622	15,062
2020	48,675	3,647	15,909
2021	49,892	3,674	16,803
2022	51,140	3,701	17,747
2023	52,418	3,728	18,745
2024	53,729	3,755	19,798
2025	55,072	3,782	20,911
2026	56,449	3,809	22,086
2027	57,860	3,836	23,327
2028	59,306	3,863	24,638
2029	60,789	3,891	26,023
2030	62,300	3,919	27,485
2031	63,858	3,947	29,030
2032	65,454	3,975	30,661
2033	67,090	4,003	32,384
2034	68,768	4,032	34,204
2035	70,487	4,061	36,127
2036	72,249	4,090	38,157

Figure 3-11. Comparison of Prior Forecasts - Enplanements



Source: (1) Arizona State Airports System Plan, 2008
(2) FAA Terminal Area Forecasts, January 2016
(3) Airport Master Plan Update, Prescott Regional Airport - Ernest A. Love Field, December 2010
Note: Shaded Values have been extrapolated in order to facilitate comparison between the data

Design of the Air Carrier Forecast Methodology

The following section reflects pre-2018 market conditions that existed prior to the August 2018 introduction of United Express service at PRC. Accordingly, it should be noted that the pre-2018 strategies are not currently required, but are noted below in the event that air service viability is ever challenged in the future with an air carrier change, or change in market conditions. This section was completed and approved by the FAA prior to the exponential increase in aircraft enplanements in 2018 via United Express daily 50-seat jet service to Denver and Los Angeles. However, the City and the FAA both acknowledge that this forecast should be revised soon, to better reflect current robust market conditions.

The FAA's Terminal Area Forecasts paint a rather bleak picture of the potential air service volumes at PRC over the next twenty years. And those projections can be assumed to be the best case scenario if nothing changes in the short term. The worst case will be if the EAS program is either canceled in its entirety, or if PRC becomes ineligible to continue to participate in the program. In either case, PRC's airline service may be in jeopardy unless the current conditions are changed to entice air service operations.

With this is mind, rather than presenting a series of projections based on historical data, the forecasts in this Master Plan are based on the City of Prescott taking proactive and immediate action to attempt to improve the current airline service and to capture a larger share of the airline passenger market share. Two scenarios are presented in this study, and both are built on this premise.

Action Planning

The forecasts that follow should be considered only a road map that documents short and long term goals for the future. In order to achieve these goals, the City must design and implement a very aggressive and diverse action plan. The action plan may consist of some or all of the following suggestions:

- Take immediate steps to ensure the continued eligibility of the airport to participate in the EAS program, including discussions with the FAA to make them aware of the plans that the airport is putting in place to improve air service.
- Take immediate action to review data reported by the air carriers. There are always differences between the official enplanement data that is accepted by the FAA (as reported by the air carriers) versus the airport's records of enplanements. The FAA records are nearly always less than the airport's records, and the FAA records are used to determine both EAS eligibility and annual Entitlement grant funding levels.

- Implement an advertising and public relations campaign to inform the public of the services that are currently available and of the benefits of flying from PRC (based on improvements to service, incentives, economic impact to the local economy, etc.). Make certain that the flying public is made aware of the actions of the airport that will improve air service.

- *Most importantly* - Prepare an Air Service Marketing Plan. Such a plan will provide deeper analysis of the PRC air service market than is afforded by this Master Plan. It will evaluate and identify air service improvement opportunities, make recommendations to the airport for potential air service improvement actions, and recommend related air service support programs (such as airline incentives if appropriate). *Some of the following suggested items may or may not be recommended by the Air Service Marketing Plan.*

- Pursue a short-term federal grant through the Small Community Air Service Development Program (SCASDP). This program was established to provide small communities with financial assistance to address air service issues. It affords communities the opportunity to develop their own solutions to their unique air service problems, based on their particular needs and circumstances. The SCASDP is a competitive program that provides a total of about $10 million per year to all recipients. A SCASDP grant must be used solely to market air service and has a term of up to five years for each recipient.

- Reach out to existing Part 135 on-demand aircraft operators that use the airport and ask them to voluntarily report their revenue passenger data. These "air taxi" operations may or may not be being reported to the FAA and may move the annual reported enplanements toward the EAS and/or Entitlement grant thresholds.

- Consider a short term passenger subsidy to offer discounted fares for all airline flights originating at PRC. These subsidies would be directly to the passengers, not the airline (who already receives a substantial EAS subsidy). The subsidy may be a monetary payment, but could also be in the form of discount coupons that are redeemable at local Prescott or greater Yavapai County businesses. It should be noted that an airport is not allowed to use airport funds to directly subsidize flights, which is prohibited by FAA's *Policy and Procedures Concerning the Use of Airport Revenue* 64 (Fed. Reg. 7696, February 16, 1999). However, a community organization such as a Chamber of Commerce can subsidize flights without violating any federal airport policy. Under the FAA's Air Carrier Incentive Program, airports are permitted to offer "fee reduction, fee waiver, or use of airport revenue for acceptable promotional costs, where the purpose is to encourage an air

carrier to increase service at the airport."[9]

- Consider a short term (one year, by law[9]) financial incentive program to a new airline who may be interested in service from PRC.
- Explore the feasibility of transferring from the EAS to the Alternative Essential Air Service program, as previously defined. This may provide more flexibility to PRC in mapping its own course, could motivate the current airline, and could attract another airline to the airport.
- Reconsider the feasibility of applying for the Community Flexibility Pilot Program.

It may be beneficial to appoint a standing working group who would be specifically charged with developing and implementing the action plan. An initial series of work sessions could be convened to strategize and gain insight from various local leaders, stakeholders, and consultants.

The following narrative describes the two Airline Activity Forecast models that were developed in this study, both of which are meant to provide initial goals for the action plan.

Airline Activity Forecasts Model 1: Growth/Maintenance Plan

This model (see **Table 3-14** and **Figure 3-12**) assumes implementation of a successful action plan that will result in gaining and maintaining a total of over 10,000 enplanements by the year 2021. This is an ambitious plan that would require an accumulative increase in enplanements on the average of 23.70% per year for five years. After the initial five years, enplanements would then grow at the projected Yavapai County rate of population growth, +0.66% per year. This would require a continued active effort on the part of the City to monitor and encourage air service.

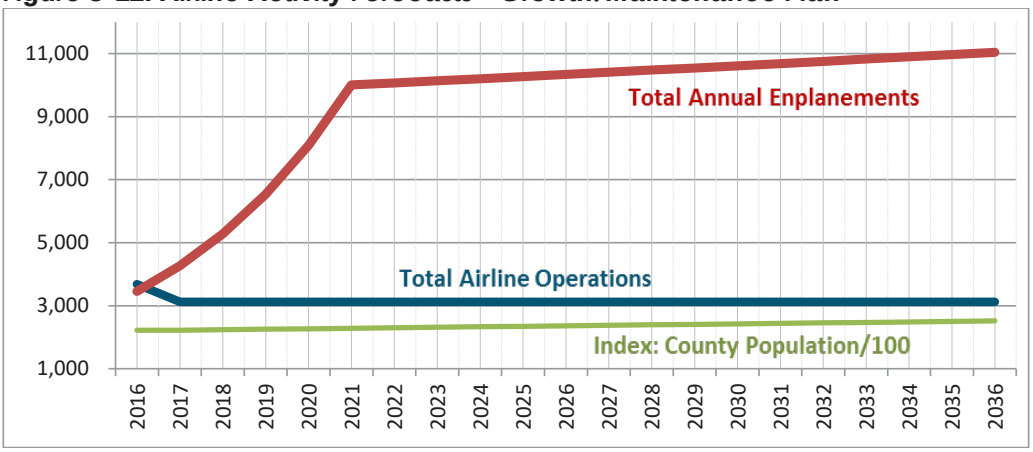
With this scenario, it is assumed that air carrier operations would remain at the current level, with 30 weekly departures. Enplanements would grow and stabilize at 6.4 enplanements/operation over the first five years (by 2021), then would increase in accord with the increase in enplanements. Actual air carrier operations are, of course, dependent upon the type of aircraft that the airline(s) choose to put into service.

Achieving 10,001 annual enplanements would make the airport eligible to receive $1 million in annual Entitlement grants instead of the current level of $150,000 in 2021. This annual Entitlement funding could then be used to assist in improvements to air service related airfield facilities, most importantly the construction of a new Terminal Building and air carrier operations area.

Table 3-14. Airline Activity Forecasts - Growth/Maintenance Plan

Year	County Population (1)	Airline Operations (2)	Annual Enplanements (3)	Enplanements / Departure (3)
2016	222,039	3,683	3,454	1.88
2017	222,465	3,120	4,273	2.74
2018	223,999	3,120	5,285	3.39
2019	225,533	3,120	6,538	4.19
2020	227,067	3,120	8,087	5.18
2021	228,600	3,120	10,004	6.41
2022	230,134	3,120	10,070	6.46
2023	231,668	3,120	10,136	6.50
2024	233,202	3,120	10,203	6.54
2025	234,735	3,120	10,271	6.58
2026	236,269	3,120	10,338	6.63
2027	237,803	3,120	10,407	6.67
2028	239,336	3,120	10,475	6.71
2029	240,870	3,120	10,545	6.76
2030	242,404	3,120	10,614	6.80
2031	243,938	3,120	10,684	6.85
2032	245,471	3,120	10,755	6.89
2033	247,005	3,120	10,826	6.94
2034	248,539	3,120	10,897	6.99
2035	250,073	3,120	10,969	7.03
2036	251,606	3,120	11,041	7.08

Figure 3-12. Airline Activity Forecasts - Growth/Maintenance Plan



Source: (1) County Population was assumed to grow based on the Yavapai County population for 2006-2016. (2) The number of weekly departures is assumed to remain at 30 in this scenario.
(3) Assumes an active program to gain and maintain a total of 10,000 enplanements by 2021. Enplanements will then grow at the County rate of population growth (+0.66%), reaching 6.4 per departure by 2021.

Airline Activity Forecasts Model 2: Full Market Capture Plan

In the short term, this model (see **Table 3-15** and **Figure 3-13**) is identical to Model 1 in that it also assumes implementation of a successful action plan that will result in gaining and maintaining a total of over 10,000 enplanements by the year 2021. However, this model also plans for a continued proactive effort to capture the entire potential passenger market that was identified by the Yavapai County Airline Passenger Survey. That market was identified as 38,000 annual enplanements in 2015 and is assumed to grow in accordance with the projected Yavapai County rate of population growth, +0.66% per year. After 2021, enplanements would grow over the next ten years (by 2031) to intercept the full market share of annual enplanements, about 41,900. After 2031, enplanements would increase with the projected Yavapai County rate of population growth of +0.66% per year, reaching about 43,000 enplaned passengers in 2036.

With this scenario, air carrier operations would increase to meet the new demand, with new flights and larger aircraft being added to maintain at least a 50% average load factor. Of, course, the actual air carrier operations are dependent upon the type of aircraft that the airline(s) choose to place into service.

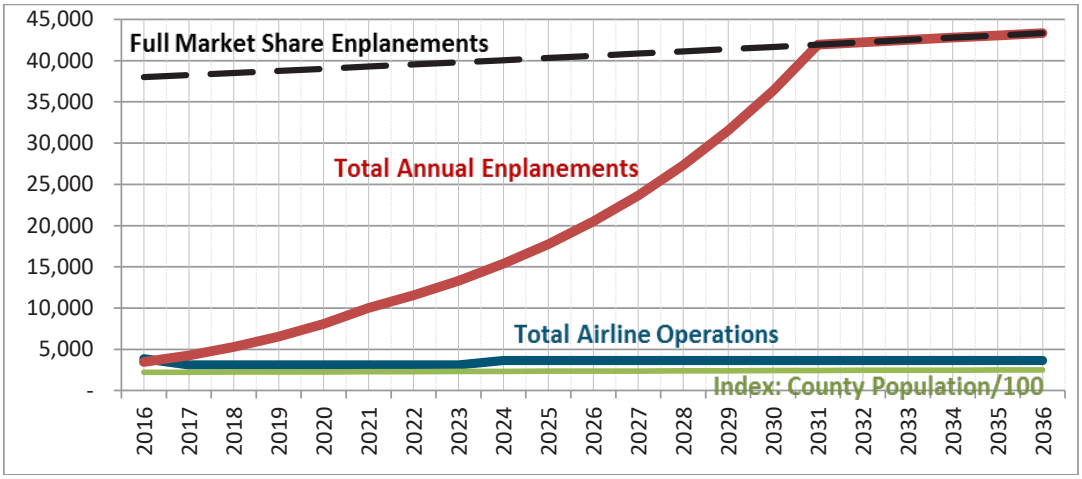
As with the Model 1 plan, achieving 10,001 annual enplanements would make the airport eligible to receive $1 million in Entitlement grants instead of the current level of $150,000 in 2021. This annual Entitlement funding could then be used to assist in improvements to air service related airfield facilities, most importantly the construction and subsequent expansion of a new Terminal Building and air carrier operations area.

In December, 2014 the City of Prescott's Airport Area Steering Committee recommended planning for 10,001 annual passenger enplanements in the short term, and for 50,000 enplanements in an unspecified long term.[6] The Committee's recommendations were adopted by resolution of the City Council[7] thus forming a commitment of the City to pursue development of the airport as an air carrier facility. This forecast model conforms to that commitment, capturing the entire potential passenger market of about 43,000 enplaned passengers by the horizon year of this Master Plan.

Table 3-15. Airline Activity Forecasts - Full Market Capture Plan

Year	County Population (1)	Airline Operations (2)	Annual Enplanements (3)	Enplanements / Departure (3)
2016 Actual				
2016	222,039	3,869	3,454	38,000
2017	222,465	3,120	4,273	38,251
2018	223,999	3,120	5,285	38,503
2019	225,533	3,120	6,538	38,757
2020	227,067	3,120	8,087	39,013
2021	228,600	3,120	10,004	39,271
2022	230,134	3,120	11,547	39,530
2023	231,668	3,120	13,327	39,791
2024	233,202	3,640	15,382	40,053
2025	234,735	3,640	17,754	40,318
2026	236,269	3,640	20,492	40,584
2027	237,803	3,640	23,651	40,852
2028	239,336	3,640	27,298	41,121
2029	240,870	3,640	31,508	41,393
2030	242,404	3,640	36,366	41,666
2031	243,938	3,640	41,941	41,941
2032	245,471	3,640	42,218	42,218
2033	247,005	3,640	42,496	42,496
2034	248,539	3,640	42,777	42,777
2035	250,073	3,640	43,059	43,059
2036	251,606	3,640	43,343	43,343

Figure 3-13. Airline Activity Forecasts - Full Capture Plan



Source: (1) County Population was assumed to grow based on the Yavapai County population for 2006-2016. (2) Operations will increase to meet demand. Add'l flights/larger aircraft will be added to maintain at least a 50% average load factor. (3) Assumes a program to gain a total of 10,000 enplanements by 2021. Enplanements will grow over the following ten years to intercept the full enplanement market share, then at the County rate of population growth (+0.66%) through the remainder of the planning period.

Comparison of Airline Forecasts to FAA Terminal Area Forecasts

The FAA prefers that the Master Plan forecasts fall within plus or minus 10% of the TAF forecasts. The Air Carrier forecasts that are presented in this Master Plan were developed in an objective manner, with no attempt to correspond with the FAA's Terminal Area Forecasts. In order to facilitate FAA review of the completed forecasts, a comparison to the 2016 TAF is included (see **Tables 3-16** and **3-17** and **Figures 3-14** and **3-15**).

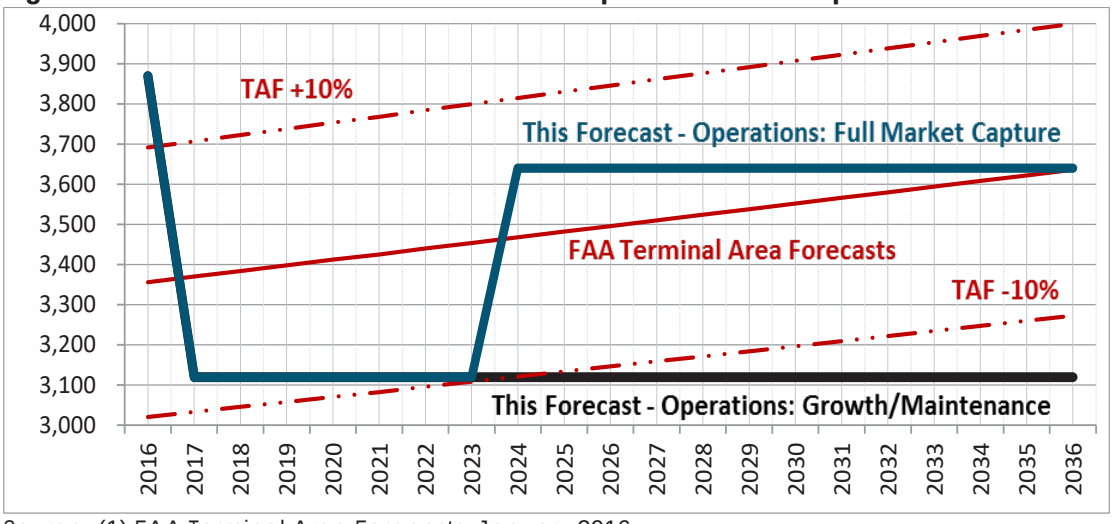
The airline operations projections shown in Model 1 Growth/Maintenance forecasts would fall below the 10% FAA tolerance by the year 2024. However, the Model 2 Full Market Capture plan's projected operations would remain within the FAA tolerance throughout the twenty year planning period.

The enplanement forecasts for both models would quickly move above the FAA TAF tolerance assuming a successful passenger enplanement capture action plan. It is important to note that if nothing changes the future activity will most probably follow the FAA Terminal Area Forecasts closely.

Table 3-16. Comparison of Airline Operations Forecast to FAA Terminal Area Forecasts

Year	Total Airline Operations (Growth/Maintenance)	Total Airline Operations (Full Market Capture)	FAA TAF: Total Airline Operations (1)
2016	3,683	3,683	3,356
2017	3,120	3,120	3,370
2018	3,120	3,120	3,384
2019	3,120	3,120	3,398
2020	3,120	3,120	3,412
2021	3,120	3,120	3,425
2022	3,120	3,120	3,440
2023	3,120	3,120	3,454
2024	3,120	3,640	3,468
2025	3,120	3,640	3,482
2026	3,120	3,640	3,496
2027	3,120	3,640	3,510
2028	3,120	3,640	3,524
2029	3,120	3,640	3,538
2030	3,120	3,640	3,552
2031	3,120	3,640	3,566
2032	3,120	3,640	3,580
2033	3,120	3,640	3,594
2034	3,120	3,640	3,608
2035	3,120	3,640	3,622
2036	3,120	3,640	3,636

Figure 3-14. FAA Terminal Area Forecasts Comparison - Airline Operations

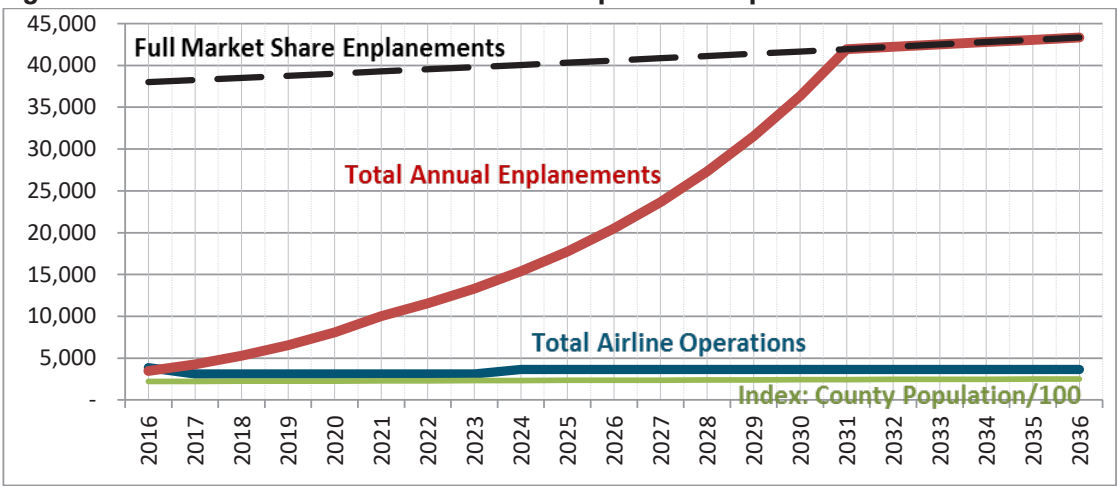


Source: (1) FAA Terminal Area Forecasts, January 2016

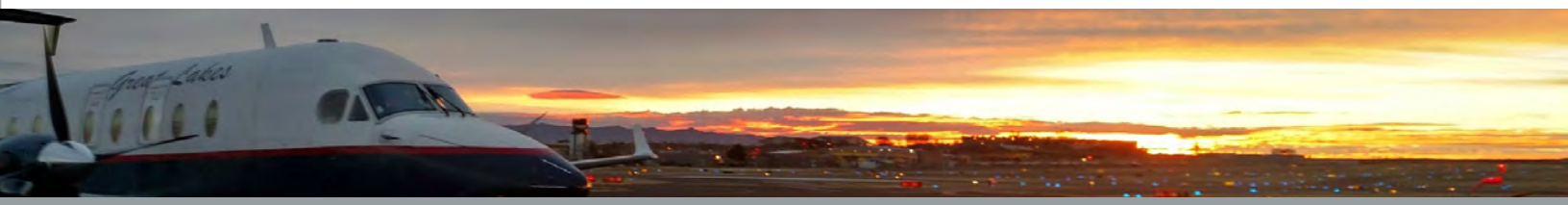
Table 3-17. Comparison of Enplanements Forecast to FAA Terminal Area Forecasts

Year	Total Enplanements (Growth/Maintenance	Total Enplanements (Full Market Capture)	FAA TAF: Total Enplanements (1)
2016	3,454	3,454	3,547
2017	4,273	4,273	3,572
2018	5,285	5,285	3,597
2019	6,538	6,538	3,622
2020	8,087	8,087	3,647
2021	10,004	10,004	3,674
2022	10,070	11,547	3,701
2023	10,136	13,327	3,728
2024	10,203	15,382	3,755
2025	10,271	17,754	3,782
2026	10,338	20,492	3,809
2027	10,407	23,651	3,836
2028	10,475	27,298	3,863
2029	10,545	31,508	3,891
2030	10,614	36,366	3,919
2031	10,684	41,941	3,947
2032	10,755	42,218	3,975
2033	10,826	42,496	4,003
2034	10,897	42,777	4,032
2035	10,969	43,059	4,061
2036	11,041	43,343	4,090

Figure 3-15. FAA Terminal Area Forecasts Comparison - Enplanements



Source: (1) FAA Terminal Area Forecasts, January 2016



Section Overview

Part 1 | Introduction - Historical Activity

Part 2 | Forecasts of Future Activity

Image by PRC

3|Section 4 - Air Cargo Demand

3.4 | Part 1 - Introduction - Historical Activity

The trend in air cargo operations at PRC has remained fairly constant over the past several years

The trend in air cargo operations at PRC has remained fairly constant over the past several years. Service has been primarily from the same carrier, Ameriflight LLC, under contract with UPS to deliver cargo to Phoenix Sky Harbor International Airport. The majority of the operations have been daily flights by a Fairchild SA-227 Metroliner. PRC's air cargo activity has not been a major factor in the demand placed upon the airport in the past, and in 2016 there were only 474 total air cargo operations (based on records of landing charges for activity by Ameriflight).

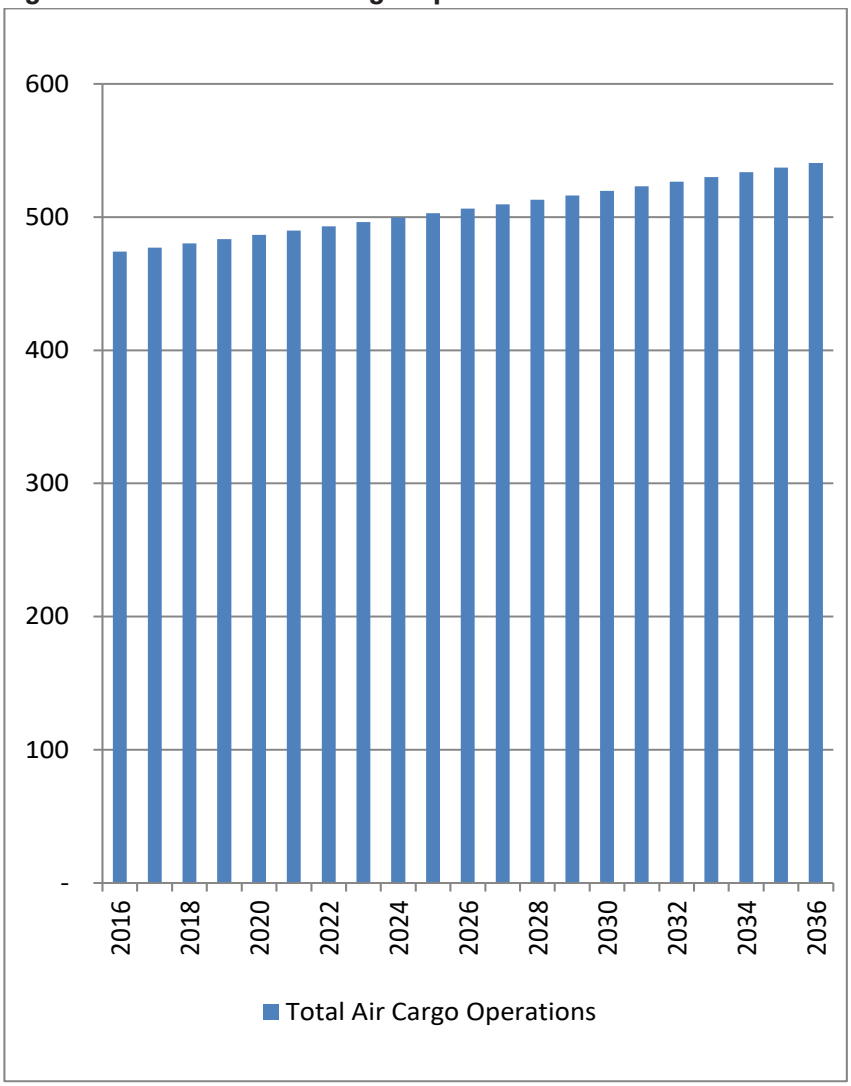
3.4 | Part 2 - Forecasts of Future Activity

The projections for future air cargo activity are presented in **Table 3-18** and **Figure 3-16**. Total air cargo operations are projected to increase from the 2016 number of 474 operations at the rate of Yavapai County projected population growth, about 0.66% per year. They may reach 541 total annual operations by 2036.

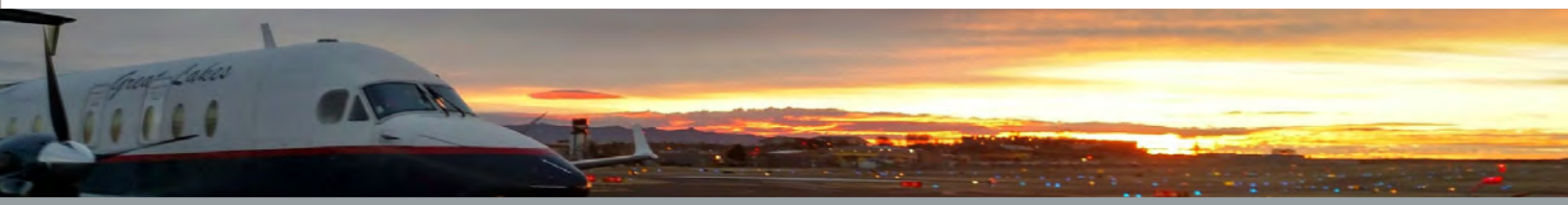
Table 3-18. Forecast Air Cargo Operations

Year	Total Air Cargo Operations
2016	474
2017	477
2018	480
2019	483
2020	487
2021	490
2022	493
2023	496
2024	500
2025	503
2026	506
2027	510
2028	513
2029	516
2030	520
2031	523
2032	527
2033	530
2034	534
2035	537
2036	541

Figure 3-16. Forecast Air Cargo Operations



Source: The current 2016 number of operations (237) was provided by the PRC airport. Total Air Cargo operations are projected to increase from the 2016 number at the rate of Yavapai County projected population growth, about 0.66% / year



Section Overview

Part 1 | Current Activity

Part 2 | Forecasts of Future Activity

Image by PRC

3|Section 5 - Training Activity

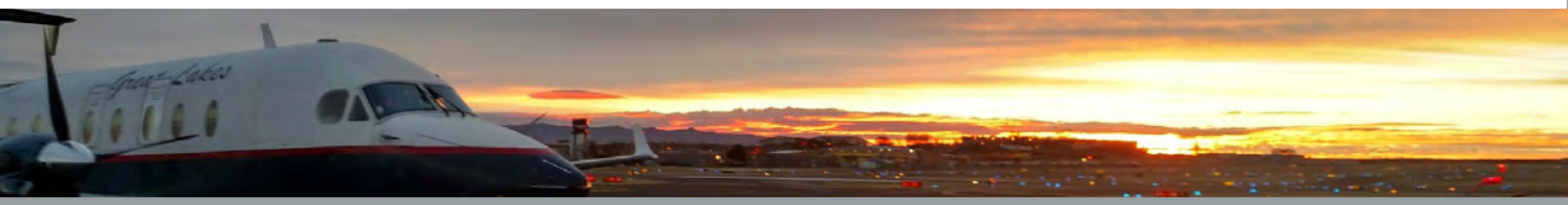
3.5 | Part 1 - Current Activity

There are currently 77 active training aircraft that are owned and operated by flight schools based at PRC

Training activity is a major factor in the total activity at PRC. There are currently 77 active training aircraft that are owned and operated by flight schools based at PRC. Current operations were estimated at 2,300 operations per year per based aircraft, a total of 177,100 annual operations (77 x 2,300). This value is an approximation since no records of actual operations per based aircraft are available. The 2010 Master Plan had estimated that training operations account for as much as 70% of total operations at PRC. The assumption of 2,300 training operations per aircraft equals a bit less than 70% of total 2016 operations.

3.5| Part 2 - Forecasts of Future Activity

Projections of future training operations by based aircraft will be addressed in Section 3.*8 | Part 4 – Transient / Based Operations Distribution* (see **Table 3-23**). In summary, the current estimate of 177,100 annual operations may increase in relationship to total airport activity at the rate of about 0.36% per year (accumulative), or about 7.3% over the twenty year planning period. This may be viewed as a very conservative estimate, and actual operations will be predicated on the business plans and economic growth of the various flight schools and available student populations. The addition of training programs by the schools, the availability of private and/or government financial incentives for potential students, and the general state of the educational system can significantly affect enrollments from year to year.



Section Overview

Part 1 | Introduction - Historical Activity

Part 2 | Forecasts of Future Activity

Image by PRC

3 | Section 6 - U.S. Forest Service Activity

3.6 | Part 1 - Introduction - Historical Activity

The air tanker firefighting base is operated seasonally May through July

The U.S. Forest Service's (USFS's) Prescott Fire Center and Henry Y.H. Kim Aviation Facility are located on the east side of the airfield near the Runway 21L end. The air tanker firefighting base is operated seasonally from May through July, although some fire seasons dictate opening as early as mid-April and closing as late as October. The historical activity over the past three years is presented in **Table 3-19**.

3.6 | Part 2 - Forecasts of Future Activity

The USFS serves a five state area from PRC that includes parts of New Mexico, Utah, Nevada, California, and all of Arizona. Activity at the air tanker base is, of course, dependent upon the occurrence of forest fires. It is not possible to predict what the level of operations will be from year to year, and support resources of the airport are coordinated with the PRC airport staff each year. The base maintains a state of readiness and has expanded and improved its facilities to accommodate worst case scenarios for response to fires within their jurisdictional boundaries.

Historically the number of annual USFS operations does not qualify as critical aircraft activity, since this activity does not reach 500 annual operations. Activity by critical aircraft is used to determine the required runway length and bearing strength for the airport, as well as the required setbacks and geometry for taxiways and aprons (see Chapter 3 | Section 8- Critical Aircraft Determination). The USFS requests flight waivers annually to allow their aircraft to operate at weights that

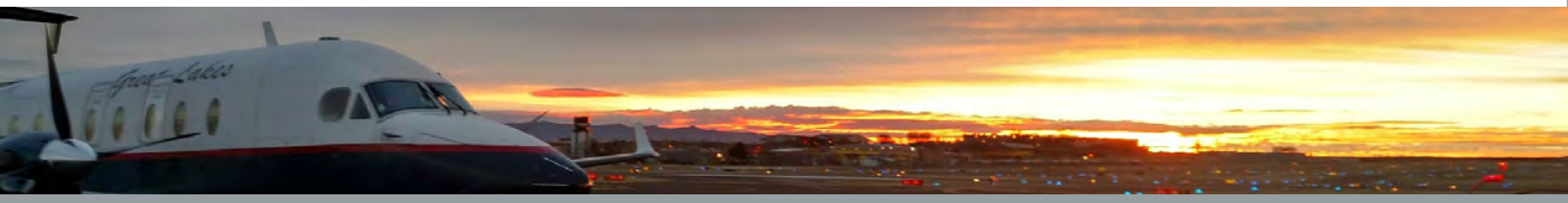
exceed the airport pavements' weight bearing capacities. Departures by the heavily loaded tankers is a challenge during high density altitude operations that can limit maximum loading based on available runway length.

The USFS's future activity may include increased activity by larger aircraft. They are in the process of adding additional C-130 tankers to their fleet and have recently completed an expansion and upgrade to their loading movement area based on this.

Table 3-19. U.S. Forest Service Activity

Aircraft Type	2014 Operations	2015 Operations	2016 Operations
Bae-146	4	- - -	15
Bell 205	- - -	- - -	4
Bell 210	- - -	- - -	3
Bell 407	- - -	- - -	1
CH-234	10	- - -	8
DC-3	- - -	1	- - -
Heli-Tanker	3	- - -	13
KMAX	- - -	- - -	1
L-382G	- - -	- - -	3
P2V	19	- - -	44
RJ85	- - -	- - -	13
S-70	- - -	- - -	1
SEAT	1	18	32
TOTAL ANNUAL OPERATIONS:	37	19	138

Source: U.S. Forest Service Landing Fee Records



Section Overview

Part 1 | Existing and Future Activity

Image by PRC

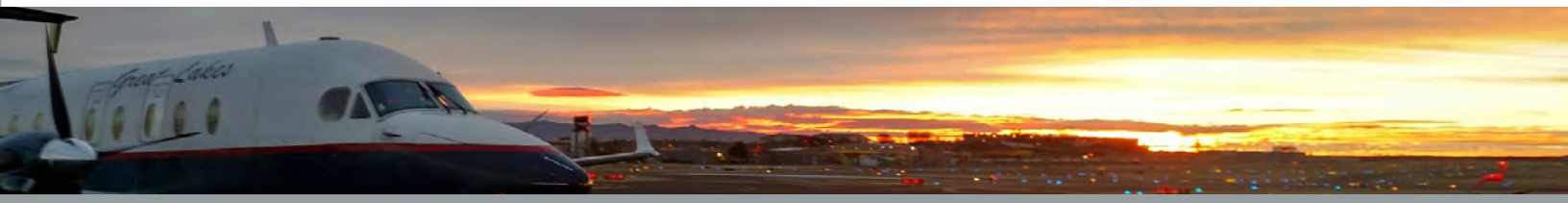
3 | Section 7 - Military Operations

3.6 | Part 1 - Existing and Future Activity

Military activity primarily consists of itinerant operations

The estimated current activity by military aircraft has been presented in *Chapter 2, Existing Conditions*. Current (2016) military activity primarily consists of itinerant operations by helicopters (AH-1, UH-1, AH-64, UH-60, MH-47, and V-22 Ospreys) with some fixed-wing training activity by T-45 Goshawks and T6 Texans. There has been some limited activity by Harrier jets and C130 transports. There are also infrequent "missed approach" fly-bys by F-15 fighter jets with no landing taking place. Total activity included over 500 operations in 2016, and the activity has declined somewhat over the past several years.

Because military operations forecasts have national security implications, the Department of Defense (DOD) does not share information on projected future activity. Therefore, it is assumed that military activity will continue at the current levels.



Section Overview

Part 1 | Introduction

Part 2 | Total Fleet Mix / Forecasts of Operations by Type for GA Air Carrier Activity

Part 3 | Itinerant / Local Operations Distribution

Part 4 | Transient / Based Operations Distribution

Part 5 | Critical Aircraft

Image by PRC

3 | Section 8 - Critical Aircraft Determination

3.8 | Part 1 - Introduction

Different aircraft may govern the requirements for runway design, and for lateral and vertical separation standards

The critical aircraft (or design aircraft) for any given airport facility is defined as that aircraft, or group of aircraft, whose dimensional and/or performance characteristics are the basis for selection of facilities design criteria. The critical aircraft must be demonstrated to account for a minimum of 500 annual actual or forecast operations in order to justify FAA funding of improvements that are required to serve the critical aircraft.[11]

Different aircraft may govern the requirements for runway design, and for lateral and vertical separation standards. The factors considered to establish required runway length are the critical aircraft's performance requirements for takeoff (or for landing in the case of some jets) at the maximum average temperature at the study airport, or other temperature if deemed to be appropriate. The design criteria for other facilities are the critical aircraft's maximum gross takeoff weight (or an appropriately selected reduced load operating weight), the approach speed category, wingspan, and tail height.

3.8 | Part 2 - Total Fleet Mix / Forecasts of Operations by Type for GA and Air Carrier Activity

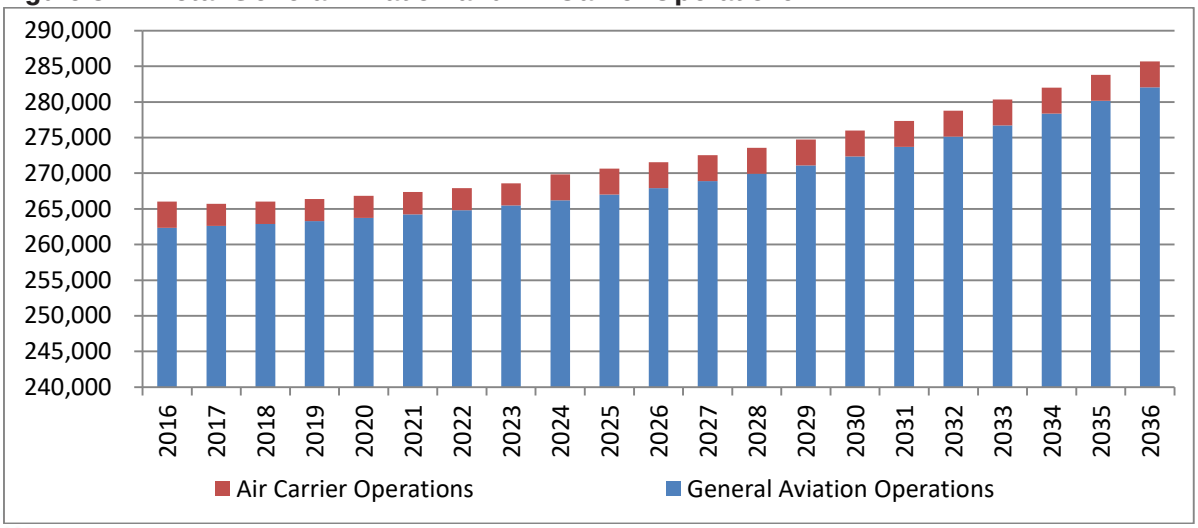
The summation of the total forecasts of operations by both General Aviation and Air Carrier aircraft is presented below in **Table 3-20** and **Figure 3-17**. The breakdown

of total operations by type of aircraft (including both GA and Air Carrier) follows in **Table 3-21** and **Figure 3-18.**

Table 3-20. Total General Aviation and Air Carrier Operations

Year	General Aviation Operations	Air Carrier Operations	TOTAL OPERATIONS
2016	262,347	3,683	266,030
2017	262,595	3,120	265,715
2018	262,906	3,120	266,026
2019	263,280	3,120	266,400
2020	263,722	3,120	266,842
2021	264,232	3,120	267,352
2022	264,813	3,120	267,933
2023	265,468	3,120	268,588
2024	266,199	3,640	269,839
2025	267,010	3,640	270,650
2026	267,902	3,640	271,542
2027	268,879	3,640	272,519
2028	269,945	3,640	273,585
2029	271,101	3,640	274,741
2030	272,352	3,640	275,992
2031	273,702	3,640	277,342
2032	275,153	3,640	278,793
2033	276,711	3,640	280,351
2034	278,378	3,640	282,018
2035	280,159	3,640	283,799
2036	282,060	3,640	285,700

Figure 3-17. Total General Aviation and Air Carrier Operations

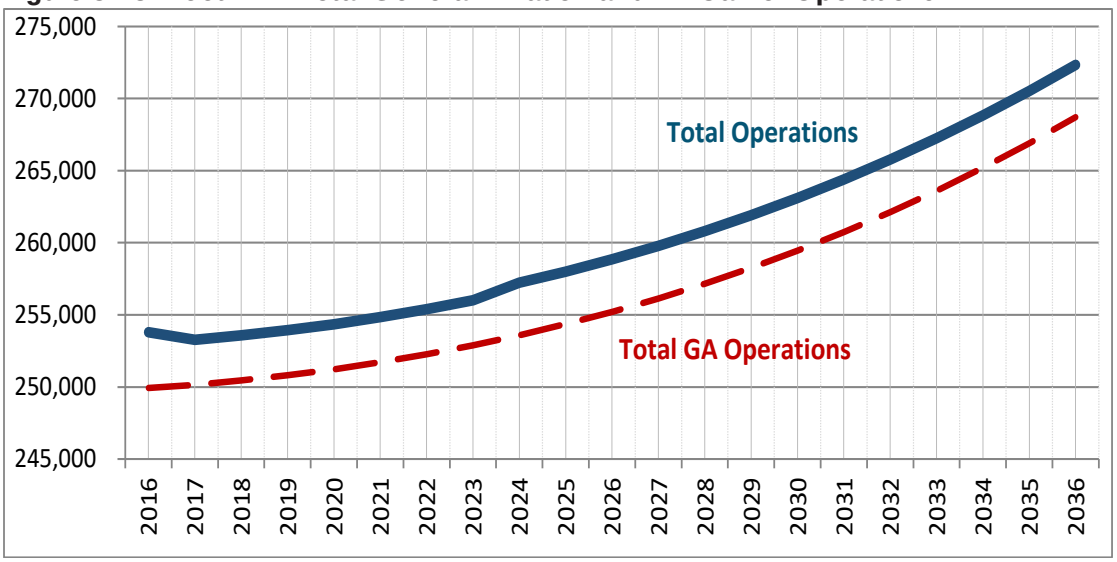


Source: (1) FAA Terminal Area Forecasts, January 2016

Table 3-21. Fleet Mix - Total General Aviation and Air Carrier Operations

Year	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Air Carrier	Total
2016	198,701	15,523	6,209	2,329	27,166	12,419	**3,683**	**266,030**
2017	197,509	15,430	6,371	2,401	27,845	13,040	3,120	265,715
2018	196,323	15,338	6,536	2,475	28,541	13,692	3,120	266,026
2019	195,146	15,246	6,706	2,552	29,255	14,376	3,120	266,401
2020	193,975	15,154	6,881	2,631	29,986	15,095	3,120	266,842
2021	192,811	15,063	7,060	2,713	30,736	15,850	3,120	**267,352**
2022	191,654	14,973	7,243	2,797	31,504	16,642	3,120	267,933
2023	190,504	14,883	7,431	2,883	32,292	17,475	3,120	268,588
2024	189,361	14,794	7,625	2,973	33,099	18,348	3,640	269,840
2025	188,225	14,705	7,823	3,065	33,927	19,266	3,640	270,650
2026	187,096	14,617	8,026	3,160	34,775	20,229	3,640	**271,542**
2027	185,973	14,529	8,235	3,258	35,644	21,240	3,640	272,520
2028	184,857	14,442	8,449	3,359	36,536	22,302	3,640	273,585
2029	183,748	14,355	8,669	3,463	37,449	23,417	3,640	274,741
2030	182,646	14,269	8,894	3,570	38,385	24,588	3,640	275,993
2031	181,550	14,184	9,125	3,681	39,345	25,818	3,640	**277,342**
2032	180,460	14,099	9,363	3,795	40,328	27,109	3,640	278,794
2033	179,378	14,014	9,606	3,913	41,337	28,464	3,640	280,351
2034	178,301	13,930	9,856	4,034	42,370	29,887	3,640	282,018
2035	177,231	13,846	10,112	4,159	43,429	31,382	3,640	283,800
2036	176,168	13,763	10,375	4,288	44,515	32,951	3,640	**285,700**

Figure 3-18. Fleet Mix - Total General Aviation and Air Carrier Operations



Source of Growth Factors: FAA Aerospace Forecasts FY 2016-2036

3.8 | Part 3 - Itinerant / Local Operations Distribution

Itinerant Operations are closely tied to demographic indicators, such as local industry and business use

Local Operations are aircraft movements for the purpose of training, pilot currency, or leisure flying, that occur within the immediate area of the local airport. These operations typically consist of touch and go operations, practice instrument approaches, flights to and within local practice areas, and leisure flights which originate and terminate at the airport under study. Itinerant Operations are arrivals and departures other than Local Operations. This type of operation is closely tied to local demographic indicators, such as local industry and business use of aircraft and usage of the facility for recreational purposes.

The distribution of Itinerant and Local Operations was determined with reference to the records of the PRC Air Traffic Control Tower for the 1990 through 2016 period. It was found that, on the average, Itinerant Operations account for 35.08% of total operations. Local Operations account for the remainder of 64.92%. The projections of Itinerant versus Local Operations are shown in **Table 3-22**. and **Figure 3-19**.

3.8 | Part 4 - Transient / Based Operations Distribution

Based Aircraft Operations are the total operations performed by aircraft that are based at the airport under study, with no attempt to classify the operations as to purpose. Transient Operations are the total operations performed by aircraft other than those based at the airport under study. These operations typically consist of business or pleasure flights originating at other airports, with termination or a stopover at the study airport. The distribution of Transient and Based Operations was determined as follows:

- As has been stated, operations by the 77 based training aircraft that are owned and operated by flight schools were estimated at 2,300 operations per year per based aircraft, a total of 177,100 annual operations (77 x 2,300). This value is an approximation since no records of actual operations per based aircraft are available. The 2010 Master Plan had estimated that training operations account for as much as 70% of total operations at PRC. The assumption of 2,300 training operations per aircraft equals a bit less than 70% of total 2016 operations.

- The number of operations by the 261 based aircraft that are not part of the PRC-based training fleet was determined with reference to the responses from the *General Aviation User Survey*. The survey respondents estimated that they performed 93 operations per based aircraft in 2015, or a total of about 24,200 annual operations. The respondents also estimated that they would increase their activity in 2016 by an average of 13.7%, or an increase to 106 annual operations per based aircraft. Based aircraft activity

by non-training aircraft was calculated as 106 x 261, or 27,666 operations in the 2016 base year. The projections of Transient versus Based operations are shown in **Table 3-23** and **Figure 3-20.**.

Table 3-22. Itinerant / Local Operations Distribution

Year	Itinerant Operations	Local Operations	TOTAL OPERATIONS
Split:	35.08%	64.92%	
2016	**93,323**	**172,706**	**266,030**
2017	93,213	172,502	265,715
2018	93,322	172,704	266,026
2019	93,453	172,947	266,400
2020	93,608	173,234	266,842
2021	**93,787**	**173,565**	**267,352**
2022	93,991	173,942	267,933
2023	94,221	174,367	268,588
2024	94,660	175,180	269,839
2025	94,944	175,706	270,650
2026	**95,257**	**176,285**	**271,542**
2027	95,600	176,920	272,519
2028	95,973	177,611	273,585
2029	96,379	178,362	274,741
2030	96,818	179,174	275,992
2031	**97,291**	**180,050**	**277,342**
2032	97,801	180,993	278,793
2033	98,347	182,004	280,351
2034	98,932	183,086	282,018
2035	99,557	184,243	283,799
2036	**100,223**	**185,476**	**285,700**

Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower data for 1990 through 2016

Figure 3-19. Itinerant / Local Operations Distribution

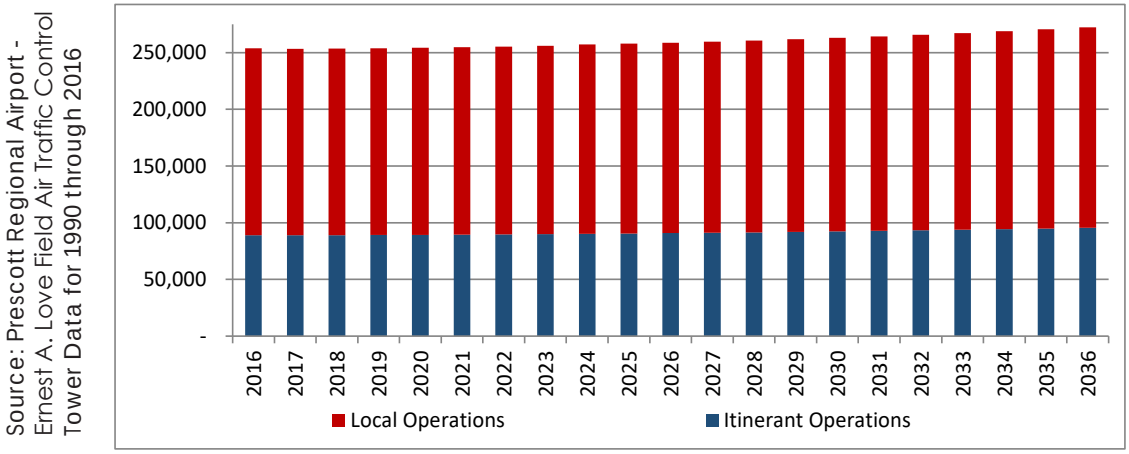
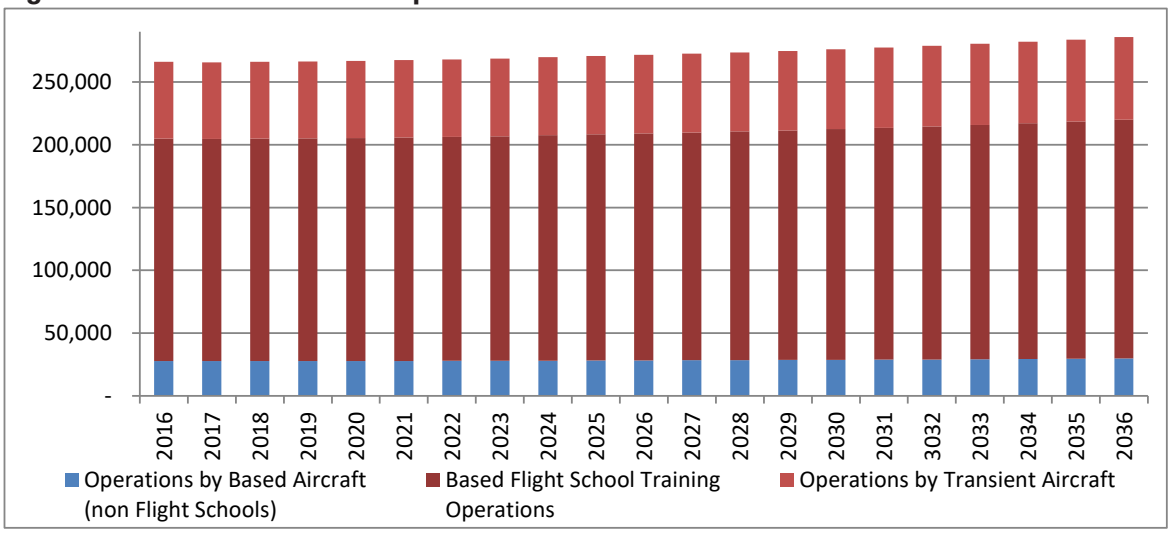


Table 3-23. Transient / Based Operations Distribution

Year	"Operations by Based Aircraft (non Flight Schools)"	"Based Flight School Training Operations"	Operations by Transient Aircraft	"TOTAL OPERATIONS"
Split:	10.40%	66.57%	23.03%	100.00%
2016	**27,666**	**177,100**	**61,264**	**266,030**
2017	27,633	176,890	61,191	265,715
2018	27,666	177,097	61,263	266,026
2019	27,705	177,347	61,349	266,400
2020	27,750	177,640	61,451	266,842
2021	**27,804**	**177,980**	**61,568**	**267,352**
2022	27,864	178,367	61,702	267,933
2023	27,932	178,803	61,853	268,588
2024	28,062	179,636	62,141	269,839
2025	28,146	180,176	62,328	270,650
2026	**28,239**	**180,770**	**62,533**	**271,542**
2027	28,341	181,420	62,758	272,519
2028	28,452	182,129	63,003	273,585
2029	28,572	182,899	63,270	274,741
2030	28,702	183,732	63,558	275,992
2031	**28,842**	**184,631**	**63,869**	**277,342**
2032	28,993	185,597	64,203	278,793
2033	29,155	186,634	64,562	280,351
2034	29,329	187,744	64,946	282,018
2035	29,514	188,930	65,356	283,799
2036	**29,712**	**190,194**	**65,793**	**285,700**

Source: Operations by Based Aircraft are from Prescott Regional Airport - Ernest A. Love Field General Aviation User Survey, 2016. Training operations by based aircraft are estimated as 2,300 operations per year for each training school aircraft. Transient distribution is calculated as the remainder of operations.

Figure 3-20. Transient / Based Operations Distribution



3.8 | Part 5 - Critical Aircraft

The current and ultimate Airport Reference Code (ARC) for PRC is C-III

Existing Conditions

Prior to August 2018, the critical aircraft using the airport facilities was a mix of turboprops and jets, which included Great Lakes Airlines' Beechcraft 1900s and Embraer EMB120 turboprops. In March 2018 Great Lakes discontinued service. Since August 29, 2018, SkyWest Airlines has been operating the Bombardier CRJ200 twice a day, six days a week. This has resulted in 24 operations per week and over 600 operations in the last six months. It is estimated that there are currently about 2,200 annual General Aviation jet operations, and about 5,900 annual operations by turboprops. The aircraft in these categories are currently able to utilize the existing runways and other facilities as appropriate to their operational demand. According to the most current Airport Layout Plan, the current and ultimate Airport Reference Code (ARC) for PRC is C-III. However, the majority of the existing critical aircraft fleet now using the airport are in the ARC B-II classification and C-II classification.

The existing critical aircraft is the ARC C-II Bombardier CRJ200 regional jet. Based on current operations, the CRJ200 is anticipated to account for over 1,200 annual operations.

Future Considerations

PRC has been classified as an ARC C-III airport for many years in anticipation of a potential future increase in airline traffic that would warrant the use of Regional Jets. However as has been noted above, the actual critical use has continued to be by ARC B-II aircraft. This includes the current passenger service activity by the Embraer EMB120 turboprops and past scheduled service by the Beechcraft B1900.

If the actual future events follow the recommended forecast scenario (the Full Market Capture plan), the ultimate critical aircraft could become a Regional Jet such as the Bombardier Canadair CRJ Series or Embraer E-Jet Series. The Full Market Capture forecast would include about 3,600 annual Air Carrier operations with enplanements increasing significantly from the current level of only 3,454 to as many as 43,000 in 2036. The airline industry trend at the present time is to move toward using larger aircraft. Although it is not possible to predict exactly which aircraft the airlines would utilize to serve Prescott, the assumption can be made that the future aircraft would consist of a mix of the Regional Jets that are currently the most prevalent in the U.S. market. Based on the probable level of future enplanements at Prescott, these may include the aircraft listed in **Table 3-24** and **Table 3-25**.

Table 3-24. Potential Aircraft

Aircraft	ARC	Passenger Seats
Bombardier CRJ 700	C-II	65
Bombardier CRJ 900	C-III	76
Embraer E170	C-III	69
Embraer E175	C-III	76

The actual ultimate critical demand could be a mix of these or other Regional Jets, but in order to plan for the worst case scenario it would be wise to assume that the more design-critical C-III types would be in use.

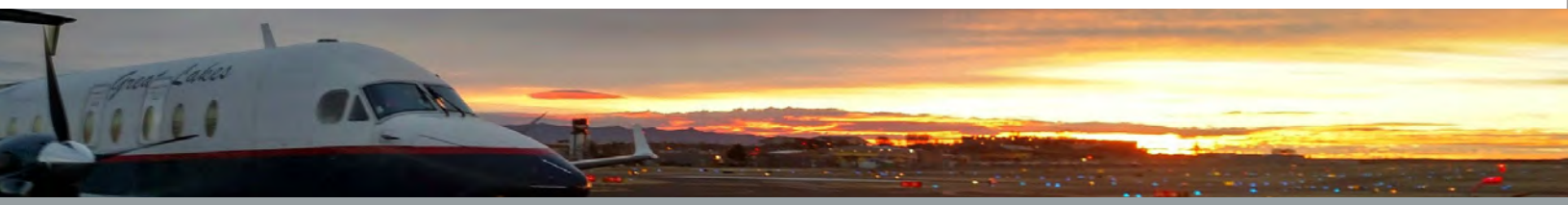
Recommendation

It is recommended that the current classification of the airport continue to be identified as ARC C-III, looking ahead to the probability of a significant change in the type of aircraft that will be utilized by the regional/commuter airlines. The critical aircraft for ultimate design, including runway length requirements determination, should be designated as the Embraer E170/E175 family.

Table 3-25. Potential Critical Aircraft - Existing and Ultimate

Aircraft Type	Airport Reference Code
Ultimate Potential Critical Aircraft - Air Carrier Regional Jets	
Canadair CRJ700	ARC C-III
Canadair CRJ100	ARC C-II
Embraer ERJ135	ARC C-II
Canadair CRJ200	ARC C-II
Embraer ERJ145	ARC C-II
Existing Potential Critical Aircraft - Air Carrier and Business/Nets and Turboprops	
DHC-8-100	ARC B-III
Beechcraft 1900	ARC B-II
Saab 340B	ARC B-II
Embraer EMB120 Brasilia	ARC B-II
Falcon 50	ARC B-II
Cessna Citation 560 Encore	ARC B-II
Cessna Citation 560 Excel	ARC B-II
Cessna Citation 550 Bravo	ARC B-II
Cessna Citation 525A CJ2	ARC B-II
Beechcraft King Air 200	ARC B-II
Falcon 20	ARC B-II
Cessna Citation 525 CJ1	ARC B-I
Swearingen Metro SA226-TC	ARC B-I

Source: (1) FAA Terminal Area Forecasts, January 2016



Section Overview

Part 1 | Introduction
Part 2 | Seasonal Use of the Airport
Part 3 | Peaking Tendencies
Part 4 | Annual Service Volume
Part 5 | Hourly Capacity

Image PRC

3 | Section 9 - Demand / Capacity Analysis

3.9 | Part 1 - Introduction

Demand is typically represented by the estimated peak activity that may be experienced at the airport

The process of comparing projected demand with the airport's theoretical capacity consists of calculating the monthly, daily, and hourly peak activity and comparing these values to the calculated capacity. The result is a measure of the airport facilities' capability to accommodate the projected demand through the planning period.

Demand is typically represented by the estimated peak activity that may be experienced at the airport. This value will be sensitive to the number of annual operations and also to the seasonal activity trends that the airport experiences.

3.9 | Part 2 - Seasonal Use of the Airport

Some level of seasonal fluctuation in aircraft operations may be expected at any airport. This fluctuation is most apparent in regions with severe weather patterns (winter or summer) and at non-towered general aviation airfields. The fluctuation is less pronounced at airports with a high percentage of commercial activity and with scheduled airline activity, and also at those facilities with a milder climate and/or a high percentage of training activity such as PRC.

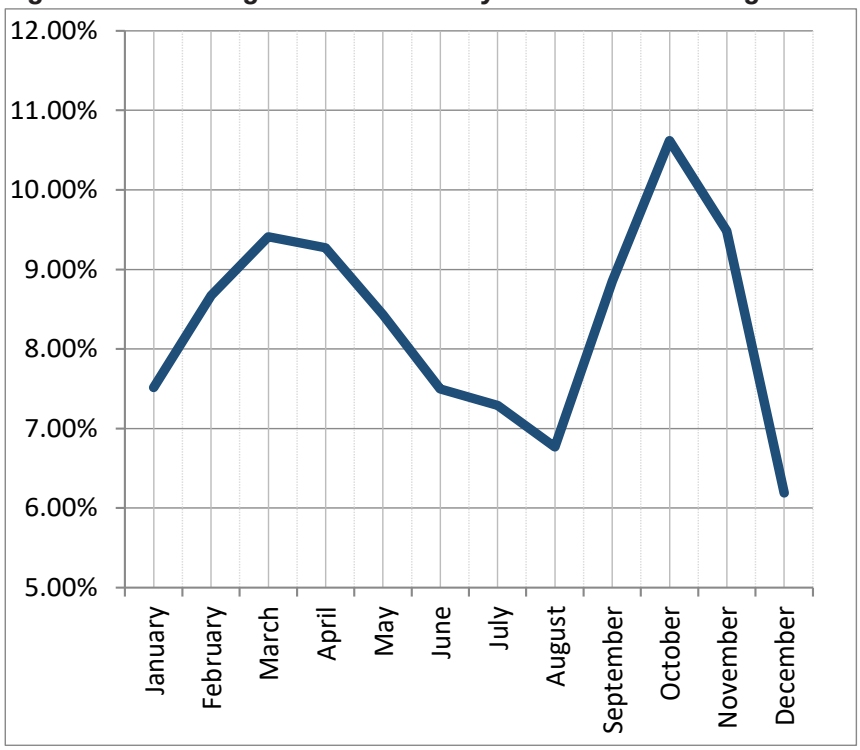
For the purposes of this study, the Prescott Regional Airport- Ernest A. Love Field Air Traffic Control Tower records of total monthly operations for the 1986 through 2016 period were used. An average of these twenty year records for each month was used to derive an average percentage of use for each month. The results of this analysis are illustrated in **Table 3-26** and **Figure 3-21**.

In order to model a reasonable approximation of the potential peak demand upon the airport's facilities, the peak monthly value of 10.62 percent for the month of October was used.

Table 3-26. Average Seasonal Use by Month

Month	20 Year Average Monthly Operations (1986-2016)
January	7.52%
February	8.67%
March	9.41%
April	9.27%
May	8.43%
June	7.50%
July	7.29%
August	6.77%
September	8.85%
October	10.62%
November	9.48%
December	6.19%

Figure 3-21. Average Seasonal Use by Month - 1986 through 2016



Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower data for 1986 through 2016

3.9 | Part 3 - Peaking Tendencies

Using the seasonal use information, a formula was derived which will calculate the average daily operations in a peak activity month, based on the highest percentage of the total annual operations in a given month, as determined by the curve in **Table 3-26**. The formula is as follows:

Where	T	=	Monthly percent of use (from curve in **Table 3-26**)
	M	=	Average monthly operations
	A	=	Total annual operations
	D	=	Average Daily Operations in a given month
	M	=	A (T ÷ 100)
	D	=	M / (365 ÷ 12 months)

An assumption is made that approximately 90% of total daily operations will occur between the hours of 7:00 AM and 7:00 PM (12 hours) at PRC, and that the maximum peak hourly occurrence may be 50% greater than the average of the hourly operations calculated for this time period. Therefore, the Estimated Peak Hourly Demand (P) in a given month was determined by compressing 90% of the Average Daily Operations (D) in a given month into the 12 hour peak use period, reducing that number to an hourly average for the peak use period, and increasing the result by 50%, as follows:

Where	D	=	Average Daily Operations in a given month.
	P	=	Peak Hourly Demand in a given month.
	P	=	1.5 (0.90D ÷ 12 hours)

The monthly, daily, and hourly demand was computed for the planning period. These monthly, daily, and hourly levels will be used to determine the need for additional airside and landside facilities through the planning period. The computed values are presented in **Table 3-27**.

Table 3-27. Peak Activity - Monthly, Daily, Hourly

Year	Total Annual Operations	% Use in Peak Month (Constant)	Peak Activity (Operations		
			Monthly (M)	Daily (D)	Hourly (P)
2016	265,559	10.62%	28,202	927	104
2017	267,280		28,385	933	105
2018	269,000		28,568	939	106
2019	270,721		28,751	945	106
2020	272,442		28,933	951	107
2021	274,163		29,116	957	108
2022	275,884		29,299	963	108
2023	278,465		29,573	972	109
2024	280,706		29,811	980	110
2025	282,427		29,994	986	111
2026	284,148		30,177	992	112
2027	285,869		30,359	998	112
2028	287,590		30,542	1,004	113
2029	289,311		30,725	1,010	114
2030	291,032		30,908	1,016	114
2031	293,613		31,182	1,025	115
2032	295,334		31,364	1,031	116
2033	297,055		31,547	1,037	117
2034	298,776		31,730	1,043	117
2035	300,497		31,913	1,049	118
2036	302,218		32,096	1,055	119

Source: Prescott Regional Airport - Ernest A. Love Field Air Traffic Control Tower data for 1986 through 2016

3.9 | Part 4 - Annual Service Volume

The methodology for computing the relationship between an airport's configuration and its theoretical capacity is contained in FAA Advisory Circular AC 150/5060-5, *Airport Capacity and Delay.*

According to the FAA[10], the Annual Service Volume (ASV), is a "calculated reasonable estimate" of an airport's total annual capacity, taking into account differences in runway utilization, weather conditions, and aircraft mix that might be encountered in a year's time. When compared to the existing or forecast operations of an airport, the ASV will give an indication of the adequacy of the facility in relationship to its activity level, in terms of capacity to accommodate projected operations.

For the purposes of this analysis, the following assumptions were made:

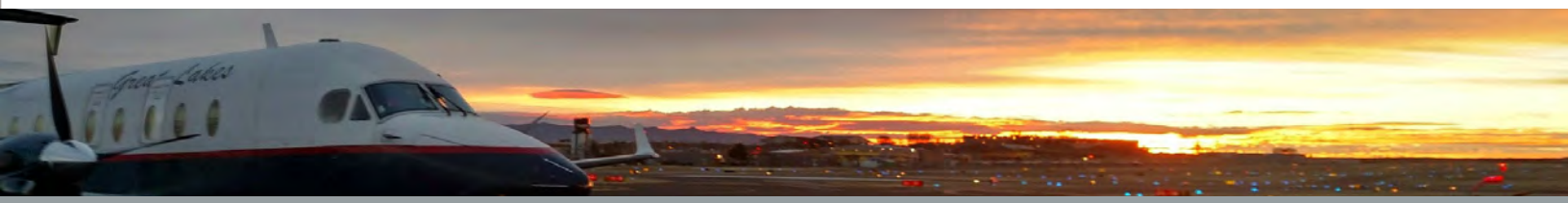
1. All operations will be by aircraft with takeoff weights less than 300,000 pounds;
2. The current three-runway configuration will remain in place;

The theoretical ASV for the PRC Airport with its present runway configuration is 275,000 total annual operations. The existing total annual operations are estimated at 266,030, well below the ASV. The forecasts developed in this study indicate that total annual activity may reach approximately 285,700 total operations in the year 2036, and that operations may reach or exceed the 275,000 ASV by 2030. Therefore, it is possible that operational capacity constraints may occur in the future in terms of the airport's physical capacity to accommodate the projected total annual traffic volume. However, a better measure of the demand/capacity relationship is the comparison of calculated hourly capacity versus projected hourly demand.

3.9 | Part 5 - Hourly Capacity

According to the FAA methodology[10], the airport's capacity in terms of operations per hour is estimated as 145 operations per hour in Visual Flight Rules (VFR) conditions, and 57 operations per hour in Instrument Flight Rules (IFR) conditions. The hourly demand estimates developed in this study indicate that the existing hourly peak does not exceed 104 operations, and that this activity may reach only 112 operations during a peak VFR hour during the twenty year planning period. This is well within the maximum hourly capacity of the airport in its present configuration. It is important to note that the calculated theoretical peak hourly demand would only occur during VFR weather conditions.

Actual activity should be monitored closely and a deeper study of airfield capacity constraints should be undertaken when and if total operations and/or hourly demand approach the estimated ASV or hourly capacity values.



Section Overview

Part 1 | General Aviation Forecasts

Part 2 | Air Carrier Forecasts

Part 3 | Summary of Forecasts

Image by PRC

3 | Section 10 - Summary of Aviation Demand Forecasts

3.10 | Part 1 - General Aviation Forecasts

FAA predicts that GA operations will increase through 2036, gaining a moderate 1.2% per year

The changes in the national General Aviation (GA) industry have affected activity at PRC. The decline in the number fixed wing piston aircraft in the national fleet is being mirrored in Prescott, evidenced by a steady decline in numbers of these aircraft (and, by extension, total based aircraft) over the past several years. At the same time, the trend in total GA operations at PRC increased.

The GA activity at PRC was certainly affected by the national economic downturn that began in 2007, and this complicated the process of finding reasonable correlation between airport activity indicators (based aircraft and operations) and the various economic indicators. The relationship between population, per capita income, and airport activity had been one that could be relied upon to provide reasonable predictive calculations in the past. However, it was found that no acceptable correlation exists in that relationship with the current data. As Arizona's population continued to increase at a relatively steady rate throughout the 2005-2014 period, Yavapai County's population did not follow suit. County population stopped growing in 2008, declined slightly in 2010, and then began a moderate recovery of growth through the present time. During the same period (2005-2014), Yavapai County's per capita income paralleled Arizona's, both declining from 2007 through 2009, then beginning a recovery and growing through the present time. Another formerly reliable relationship for projecting GA operations is the number of operations per based aircraft. However, as mentioned above, while the recorded

total number of aircraft based at PRC declined over the years, total GA operations at the airport actually increased.

Attempts to find acceptable correlation between other traditional indicators were similarly unsuccessful. Because of the lack of verifiable local correlating historical data, the GA forecasts in this study rely upon the growth factors developed by the FAA in its FAA Aerospace Forecasts Fiscal Years 2016-2036.[5]

The FAA study indicates that the long term outlook for GA growth in numbers of aircraft is favorable. The total number of GA aircraft in the national fleet is forecast by the FAA to increase at the rate of 0.2 percent a year through 2036. This will be led by jet aircraft and rotorcraft, which will grow at the rate of 2.5% per year. Fixed-wing piston aircraft numbers are projected to decrease at the-0.6% per year. The relatively new Light Sport category (created in 2005) is predicted to grow at the rate of 4.5% annually. Prior to 2005, existing aircraft that qualified as Light Sport were included in the general fixed-wing piston category.[5]

Similarly, the FAA study predicts that GA operations will also increase through 2036, gaining a moderate 1.2% per year. Fixed-wing piston aircraft operations will follow the decline in numbers of aircraft at the rate of-0.6% per year. Light Sport aircraft operations will increase at the rate of 5% per year. Jets operations will increase by 3.1% per year, and rotorcraft will experience a 2.5% increase annually. [5]

3.10 | Part 2 - Air Carrier Forecasts

The Prescott Regional Airport- Ernest A. Love Field appears to be at a crossroads. The airport has struggled for many years with less than adequate airline service. The current airline service is in existence primarily because of the Essential Air Service (EAS) federal subsidy program, and the airport is perilously close to losing eligibility to retain that aid. Current passenger enplanements have dropped below the FAA's minimum eligibility requirements, and PRC's proximity to the Phoenix Sky Harbor International Airport presents an attractive option for Yavapai County airline customers – most of which are willing to travel to Phoenix to catch a flight rather than fly out of PRC. If nothing changes within a short time, PRC may lose the EAS funding, in which case the current airline could discontinue their service.

The FAA's *Terminal Area Forecasts* paint a rather bleak picture of the potential air service volumes at PRC over the next twenty years. Their projections are based on a status quo scenario, reflecting a continuation of the minimum number of enplanements necessary to maintain EAS eligibility.

With this is mind, rather than presenting a series of projections based on historical data, the forecasts in this Master Plan are based on the City of Prescott taking

proactive and immediate action to attempt to improve the current airline service and to capture a larger share of the airline passenger market share. Two scenarios are presented in this study, and both are built on this premise. This Master Plan's forecasts should be considered only a road map that documents short and long term goals for the future. In order to achieve these goals, the City must design and implement a very aggressive and diverse action plan.

The two Air Carrier forecast models are the Growth/Maintenance Plan and the Full Market Capture Plan.

The Growth/Maintenance Plan model assumes implementation of a successful action plan that will result in gaining and maintaining a total of over 10,000 enplanements by the year 2021. This is an ambitious plan that would require an accumulative increase in enplanements on the average of 23.70% per year for five years. After the initial five years, enplanements would then grow at the projected Yavapai County rate of population growth, +0.66% per year. This would require a continued active effort on the part of the City to monitor and encourage air service.

With this scenario, it is assumed that air carrier operations would remain at the current level, with 30 weekly departures. Enplanements would grow and stabilize at 6.4 enplanements/operation over the first five years (by 2021), then would increase in accord with the increase in enplanements. Actual air carrier operations are, of course, dependent upon the type of aircraft that the airline(s) choose to put into service.

The Full Market Capture Plan is identical to the Growth/Maintenance Plan in that it also assumes implementation of a successful action plan that will result in gaining and maintaining a total of over 10,000 enplanements by the year 2021. However, this model also plans for a continued proactive effort to capture the entire potential passenger market that was identified by the *Yavapai County Airline Passenger Survey*. That market was identified as 38,000 annual enplanements in 2015 and is assumed to grow in accordance with the projected Yavapai County rate of population growth, +0.66% per year. After 2021, enplanements would grow over the next ten years (by 2031) to intercept the full market share of annual enplanements, about 41,900. After 2031, enplanements would increase with the projected Yavapai County rate of population growth of +0.66% per year, reaching about 43,000 enplaned passengers in 2036. With this scenario, air carrier operations would increase to meet the new demand, with new flights and larger aircraft being added to maintain at least a 50% average load factor. Of, course, the actual air carrier operations are dependent upon the type of aircraft that the airline(s) choose to place into service.

With implementation of either model, achieving 10,001 annual enplanements would make the airport eligible to receive $1 million in Entitlement grants instead of the current level of $150,000 in 2021. This annual Entitlement funding could then be used to assist in improvements to air service related airfield facilities, most importantly the construction and subsequent expansion of a new Terminal Building and air carrier operations area.

The recommended forecast model is the Full Market Capture Plan. This will provide for reasonable growth planning in the short term, with long range planning for a "best case" scenario of capturing a significant percentage of the available airline passenger market base in the future. This forecast is consistent with the prior decision[7] of the Prescott City Council to continue to develop PRC as a regional airline service airport, with a goal of achieving 10,000 annual passenger enplanements in the short term, and maximizing enplanements at 50,000 per year in the future.

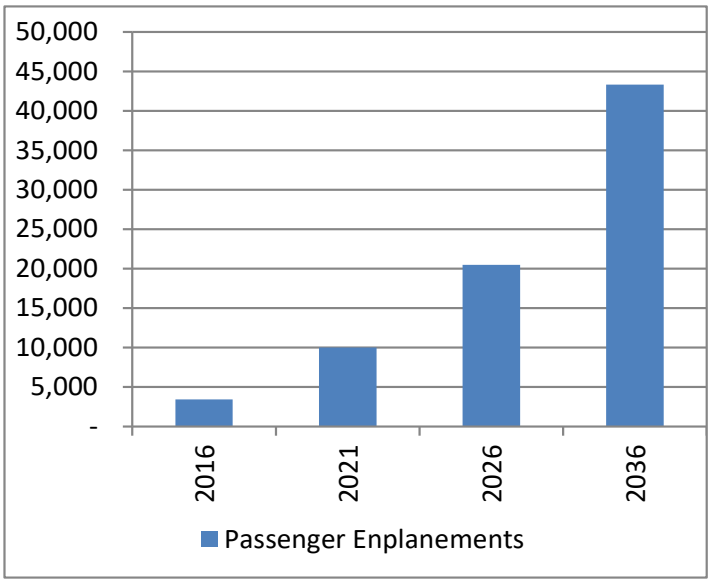
3.10 | Part 3 - Summary of Forecasts

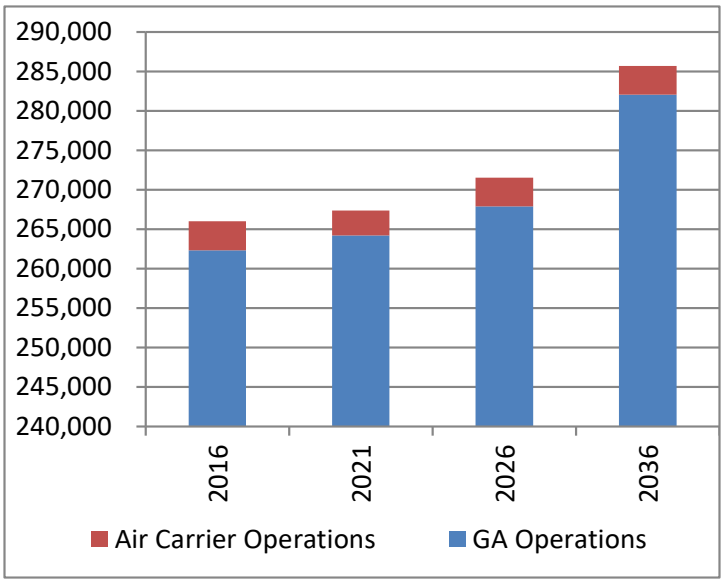
The forecasts of total General Aviation and Air Carrier operations and of projected numbers of based aircraft are summarized below in **Table 3-28**.

Table 3-28. Summary of Forecasts

Year	General Aviation									Air Carrier	
	Based Aircraft							Annual Operations			
	Single Engine Piston	Multi Engine Piston	Turbo Prop	Jet	Rotor Craft	Light Sport	Total	General Aviation	Air Carrier	Total	Annual Passenger Enplanements
2016	256	20	8	3	35	16	338	262,347	3,683	266,030	3,454
2021	249	20	9	4	40	20	340	264,232	3,120	267,352	10,004
2026	241	19	10	4	45	25	344	267,902	3,640	271,542	20,492
2036	227	18	13	5	57	39	359	282,060	3,640	285,700	43,343

Figure 3-22. Summary of Forecasts





Chapter References

[1] FAA Terminal Area Forecasts, retrieved December, 2016

[2] Arizona Department of Transportation, Arizona State Airports System Plan, 2008

[3] Airport Master Plan Update- Prescott Municipal Airport (Ernest A. Love Field), the Louis Berger Group, Inc., December, 2010

[4] U.S. Department of Transportation, retrieved August, 2016

[5] FAA Aerospace Forecasts Fiscal Years 2016-2036

[6] City of Prescott Ad Hoc Airport Area Steering Group Recommendations, December 2, 2014

[7] City of Prescott Council Resolution No. 4265-1474, A Resolution of the Mayor and Council of the City of Prescott, Yavapai County, Arizona, accepting and adopting the findings and recommendations of the Private Sector Ad Hoc Airport Area Steering Group pertaining to development of Prescott Regional Airport- Ernest A. Love Field and economic development of the surrounding airport area.

[8] Report to Congress: Evaluating the Formulation of the National Plan of Integrated Airport Systems (NPIAS), November, 2015

[9] Air Carrier Incentive Program Guidebook: A Reference for Airport Sponsors

[10] FAA Advisory Circular AC 150/5060-5, Airport Capacity and Delay

[11] FAA Advisory Circular AC 150/5325-4B, Runway Length Requirements for Airport Design, July 1, 2005

[12] Airport Layout Plan for Prescott Municipal Airport, as revised April 28, 2016.

Chapter Four | Facility Requirements

Section 1 - Introduction
Section 2 - Criteria for Determination of Facility Requirements Recommendation
Section 3 - FAA Design Standards & Non-Standard Conditions
Section 4 - Airfield and Airspace Capacity
Section 5 - Airside Facility Requirements
Section 6 - Landside Facility Requirements
Section 7 - Support Facilities
Section 8 - Land & Easement Acquisition
Section 9 - Facility Requirements Summary

Image by Woolpert

4 | Section 1 - Introduction

Facility needs are identified based upon their role in serving PRC's airfield or terminal area functions

This chapter identifies recommended facilities necessary to satisfy the 20-year forecast of aviation demand at Prescott Regional Airport - Ernest A. Love Field (PRC). It further identifies facilities needed to adhere to airfield design standards promulgated by the Federal Aviation Administration (FAA) and addresses the goals and objectives of PRC.

For purposes of this analysis, facility needs are identified based upon their role in serving PRC's airfield or terminal area functions. Airfield facility components include runways, taxiways, navigational aids, aircraft parking areas, and airfield marking, signage, and lighting. Terminal area facilities include hangars, the terminal building, airport access and automobile parking, fencing and security, and support facilities. These components serve as the foundation for the PRC's capacity and efficiency, and any deficiencies in the design or implementation of the components may compromise safety or create unnecessary congestion or delay in the air transportation system.

This chapter is structured to provide:

- An overview of the criteria utilized to develop PRC's facility requirement recommendations for the planning period
- An identification of existing non-standard FAA design conditions
- A review of the airspace and airfield capacity of PRC
- Recommendations for airside and landside improvements, support facilities, and land acquisition.

Potential options and preliminary costs for providing identified facilities will be evaluated in ***Chapter 5, Alternatives Development and Evaluation.***

Image by Woolpert

4 | Section 2 - Criteria for Determination of Facility Requirements Recommendation

Airports and their associated runways and taxiways are designed and constructed for the most demanding aircraft

The need for new or expanded facilities at PRC is based upon the following factors:

- Standards presented in FAA Advisory Circular 150/5300-13A, *Airport Design*
- Fundamental Airfield Development Criteria
- Inventory of Existing Facilities (Chapter 2)
- Forecasts of Aviation Demand for PRC (Chapter 3)
- Design Aircraft (Chapter 3)
- Goals and objectives of the City and PRC

Pursuant to FAA AC 150/5300-13A, *Airport Design*, airports and their associated runways and taxiways are designed and constructed for the most demanding airplane (critical design airplane) currently using or projected to use the facility on a regular basis. The FAA has established airport design criteria based on the airport reference code (ARC) designation, which provides minimum safety standards in accordance with the performance characteristics of the family of aircraft represented by the airport's critical or design aircraft. This particular aircraft, as determined with respect to approach speed and wingspan, is within a design category or family of airplanes that conduct at least 500 annual itinerant operations (combination of landings and takeoffs) per year at the airport. The types of approach aids, lighting, and navigational equipment required at an airport are determined primarily by the

level of annual activity, weather, terrain characteristics, and role of the airport in the national system of airports. Guidelines for fundamental airfield development are contained in FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*. Fundamental development is considered to be the basic configuration recommended for an airport in the national system and is affected by the type of activity the airport serves. It includes, but is not limited to: or, land acquisition, aircraft movement areas, landing and navigation aids, and aircraft parking areas.

Since PRC is a well-developed facility, many of the fundamental elements have previously been established. However, as PRC continues to grow it is important to consider the expansion or addition of fundamental development to support current and future demand. Development determined to be necessary based upon the analysis contained in this chapter will follow these standards. Fundamental development should be recommended in accordance with the standards and criteria contained in appropriate Advisory Circulars and Orders.

Documentation of existing and future design aircraft also influences facility requirement recommendations and needs. As discussed in ***Chapters 2*** and ***3***, PRC is currently presented as a Non-Primary Commercial Service airport with an ARC of B-II. As determined in ***Chapter 3***, the existing design aircraft for PRC is the Embraer EMB120 while the future design aircraft is to be the Embraer E170. Accordingly, recommended airfield components designed to support Runway 3R-21L as well as PRC's terminal facilities for this planning period are recommended to be designed to accommodate the following aircraft:

- Aircraft Approach Category (AAC) C - Approach speeds of 121 knots up to, but not including 141 knots
- Airplane Design Group (ADG) III - Wingspans of 79 feet up to, but not including 118 feet and tail height of 30 feet up to, but not including 45 feet.

It is recommended that PRC remain an ARC B-II airport until sufficient operations of C-III aircraft are achieved. It is recommended that Runway 3R-21L be planned and designed in accordance with C-III standards to remain consistent with existing facility conditions. It is also recommended that Runway 12-30 remain a B-II (Small) Runway through the planning period and that Runway 3R-21L remain a B-I (Small) Runway.

Image by Woolpert

4 | Section 3 - FAA Design Standards & Non-Standard Conditions

A key objective of airport planning is to identify non-standard conditions and present feasible recommendations

FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, provides design standards for airport geometrical layout, runway and taxiway/taxilane design, and associated elements. The guidance provided by AC 150/5300-13A references many other AC documents for specific applications and is complemented by Title 14 CFR Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace*. A key objective of any airport planning project should be to identify any non-standard conditions that exist at the facility and offer recommendations on actions to achieve full compliance with FAA standards. **Table 4-1** notes non-standard conditions for PRC.

Table 4-1. Non-Standard Conditions

No.	Non-Standard Condition*	Existing	Standard
1	Runway Visibility Zone (RVZ)	Buildings and Objects within RVZ	No buildings and objects within RVZ
2	Runway Approach Surfaces	Approach Surface Penetrations	No Penetrations
3	Runway 12 Runway Safety Area (RSA)	120' Wide x 200' Long (mitigated by declared distances)	120' Wide x 240' Long
4	Runway 3L RSA	120' Wide x 0' Long (mitigated by declared distances)	120' Wide x 240' Long
5	RW 21L Runway Object Free Area (ROFA) beyond Departure end of Runway	800' Wide x 600' Long	800' Wide x 1,000' Long
6	RW 3R-21L/TW C Centerline to Centerline Separation	Insufficient Separation (325'): existing separations (325') is sufficient for the design aircraft (B-II), but is not sufficient for the Runway Design Code (RDC) for Runway 3R-21L, which is C-III	400'
7	Runway 3L Runway Protection Zone (RPZ)	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
8	Runway 3R RPZ	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
9	Runway 21L RPZ	Lack of Complete Control of RPZ	Control of RPZ
10	Runway 12 RPZ	Lack of Complete Control of RPZ and Incompatible Objects within RPZ	Control of RPZ and no incompatible objects
11	Runway 30 RPZ	Incompatible Objects within RPZ	Remove incompatible objects
12	Runway 3R End Gradient	Centerline gradient of the last quarter of the Runway 3R end is 1.5%	Gradient may not exceed +/-0.8 percent in the first or last quarter or 2,500 feet, whichever is less

Source: Delta Airport Consultants, Inc.
*Note: Design Standards per FAA Advisory Circular 150/5300-13A

Image by Woolpert

Section Overview

Part 1 | Runway Capacity
Part 2 | Airspace Capacity
Part 3 | Part 77 Penetrations
Part 4 | Obstructions to Runway Design Surfaces

4 | Section 4 - Airfield and Airspace Capacity

Capacity is expressed by two principle terms: annual service volume and hourly capacities

The ability of an airport to accommodate existing and future aviation activity is primarily a function of the number of runways, the runway and taxiway configuration, and the mix of aircraft using the airport. The capacity of any runway is finite with respect to the number of hourly and annual operations it may ultimately accommodate. Moreover, capacity is expressed by two principle terms: annual service volume and hourly capacities under Visual Flight Rules (VFR) and Instrument Flight Rules (IFR).

These variables are used to provide a quantitative breakdown of the airport's Annual Service Volume (ASV) and hourly capabilities (VFR and IFR). The procedures used for this analysis are detailed in FAA AC 150/5060-5, *Airport Capacity and Delay and FAA Airport Design Program, Version 4.2D*.

Throughout the following sections, improvements will be recommended during a certain phase. Phase I is between 0 and 5 years from completion of the Master Plan. Phase II is between 6 and 10 years. Phase III is between 11 and 20 years. Anything beyond 20 years is considered ultimate development and is not currently needed.

4.4 | Part 1 - Runway Capacity

Existing Runway Capacity Analysis

The ASV was estimated for the existing runway configuration at PRC and supports existing and future capacity requirements. **Table 4-2** presents a comparison of existing demand versus existing capacity using the FAA Airport Design Program, Version 4.2D.

Table 4-2. Comparison of Existing Demand vs. Existing Capacity

Total Operations	Annual Service Volume	Total Operating Capacity
266,000	355,000	75%

Source: FAA Design Program Version 4.2D, Delta Airport Consultants, Inc.
Notes: Total Operations (266,030) rounded for calculations.

Future Runway Capacity Analysis

The future runway capacity was calculated using the same procedure as previously described for PRC. As presented in **Table 4-3**, forecasted demand versus future runway capacity is expected to increase to 80 percent of the ASV during the planning period.

Table 4-3. Forecasted Demand vs. Future Runway Capacity

Total Operations	Annual Service Volume	Total Operating Capacity
285,000	355,000	80%

Source: FAA Design Program Version 4.2D, Delta Airport Consultants, Inc.
Notes: Forecasted Operations (285,700) rounded for calculations.

Additional runway capacity improvements should be analyzed during the planning period. Capacity improvements can include the construction of high-speed exit taxiways or constructing a third parallel runway during Phase III.

4.4 | Part 2 - Airspace Capacity

As detailed in ***Chapter 1***, both Class D and Class E airspace surrounds Prescott Regional Airport- Ernest A. Love Field. Class D airspace is located between ground level and an altitude of 2,500 feet MSL when an airport has an active ATCT. Class E is a controlled area which includes airspace corridors identified as federal airways, or which accommodate jet traffic at low altitudes. When the ATCT at PRC is active the airspace is classified as Class D airspace, at all other times PRC is classified as Class E airspace. During conversations with the local FAA Air Traffic Manager in May of 2017, the Manager indicated that there are currently no airspace capacity

deficiencies or planned major changes that would affect the airspace around PRC. A minor procedure change will take place during the summer of 2017, as departure aircraft will be given a predetermined instrument departure route along a standard heading.

4.4 | Part 3 - Part 77 Penetrations

Existing Penetrations

A survey was completed to determine if there are penetrations to the Title 14 CFR Part 77 surface up to 100 feet above airport elevation. A penetration is any man-made or natural object that crosses through the Part 77 surface that are not considered hazardous to air navigation. **Table 4-4** provides a summary of the known penetrations to the surfaces for each runway. **It is recommended that in Phase I PRC submit an aeronautical study to the FAA for review to determine if any of the penetrations to the Part 77 surface are obstructions. If any of the penetrations are determined to be obstructions by the FAA, then PRC will need to determine how to mitigate the obstructions.**

A penetration is considered minor if it can be removed or mitigated by airport personnel, typically on airport property, while a major obstruction would require potential easement acquisitions and outside contractors to remove or mitigate.

Table 4-4. Known Runway Penetrations

Runway	Part 77 Approach Surface
3R	**Major**
21L	None
3L	**Minor**
21R	None
12	**Minor**
30	None

Source: FAA Design Program Version 4.2D, Delta Airport Consultants, Inc.
Notes: Forecasted Operations (285,700) rounded for calculations.

4.4 | Part 4 - Obstructions to Runway Design Surfaces

Existing Obstructions

A survey was completed to determine if there are obstructions to the Runway Departure Surface, Threshold Siting Surface, Vertical Guidance Surface, and PAPI obstacle clearance surface up to 100 feet above airport elevation. An obstruction is any man-made or natural object that crosses through any of the airfield surfaces that is determined to be hazardous for air navigation. **Table 4-5** provides a summary of the known obstructions to the surfaces for each runway. **It is recommended that obstructions to all Threshold Siting Surfaces and PAPI Obstacle Clearance Surfaces be removed in Phase I, where practicable. The Alternative Analysis chapter will provide additional information on how best to meet standards.**

An obstruction is considered minor if it can be removed or mitigated by Airport personnel, typically on Airport property, while a major obstruction would require potential easement acquisitions and outside contractors to remove or mitigate.

Table 4-5. Obstructions

Runway	Threshold Siting Surface	Runway Departure Surface	Vertical Guidance Surface	PAPI Obstacle Clearance Surface
3R	**Minor**	None	**Major**	**Major**
21L	None	**Major**	None	None
3L	**Minor**	-	-	None
21R	None	-	-	None
12	None	None	None	None
30	None	None	None	None

Source: Delta Airport Consultants, Inc.
Survey was completed by Quantum Spatial, October 2016

Obstruction Mitigation Related to Future Improvements

The Inner Approach Surface Drawings of the Airport Layout Plan (ALP) drawing set will identify and recommend a mitigation plan for the Preferred Alternative.

Image by Woolpert

Section Overview

Part 1 | Runway Requirements
Part 2 | Taxiway Requirements
Part 3 | Apron Requirements
Part 4 | Airfield Lighting Systems and Visual Approach Aids
Part 5 | Navigational Aids (NAVAIDS)
Part 6 | Instrument Approach Procedures
Part 7 | Weather Reporting Systems

4 | Section 5 - Airside Facility Requirements

Classification of the Airport is to be identified as ARC C-III for the ultimate term

Runway Analysis

This section evaluates the runway length, width, safety areas, and object free areas based on the existing and future aircraft expected to use PRC. The recommendations are based on FAA advisory circulars, specific manufacturers' aircraft performance data, and runway use limitations placed on fractional owner operations such as Federal Aviation Regulation (FAR) Part 91K.

4.5 | Part 1 - Runway Requirements

Runway Length Requirements

In ***Chapter 3, Forecasts of Aviation Demand***, it was recommended that the future classification of PRC be identified as ARC C-III for the ultimate demand, looking ahead to the probability of a significant change in the type of aircraft that will be utilized by the regional/commuter airlines. The future critical aircraft for design, including ultimate runway length requirements, was identified as the Embraer E170.

This section will present approximate runway takeoff length requirements for the design critical aircraft, as well as other aircraft that may use PRC, operating at maximum density altitude conditions on each of the runways as appropriate. Detailed recommendations for improvements to the runways will be presented later in this chapter, and alternatives for the implementation of the recommended major runway improvements will be presented and analyzed in ***Chapter 5, Alternatives Development and Evaluation.***

For runways 12-30 and 3L-21R, identification of the critical aircraft was aided by analysis of the FAA records of IFR flight plans that were initiated or terminated at PRC between September 1, 2013 and August 31, 2016 - three full years of records. The FAA flight plan records were merged with the actual aircraft types using proprietary methods. Although this data only reflects IFR activity and cannot be used to quantify the number of annual operations by aircraft type, it provides a fairly accurate picture of the relative percentage of use of the various larger aircraft that use PRC.

Density Altitude

An important factor that influences aircraft operations is temperature. The mean maximum temperature of the hottest month in Prescott is 90° Fahrenheit, which occurs in July. The relatively high altitude (5,045' MSL) along with the high summer temperatures experienced at PRC makes it necessary to consider the effects that high ambient temperatures have on aircraft performance.

Aircraft require longer takeoff runs at higher altitudes and at higher temperatures. Because of the effect of gravity, air is less dense at higher altitudes. At an altitude of 18,000 feet the density of the air is half that of the air at sea level. Lift and drag vary directly with the density of air: as the air density increases, lift and drag increase; as the air density decreases, lift and drag decrease. If an airplane is to maintain its lift, the velocity of the air over the wings must be increased. Therefore, an aircraft departing from an airport at a higher altitude will require a longer runway to attain flying speed.

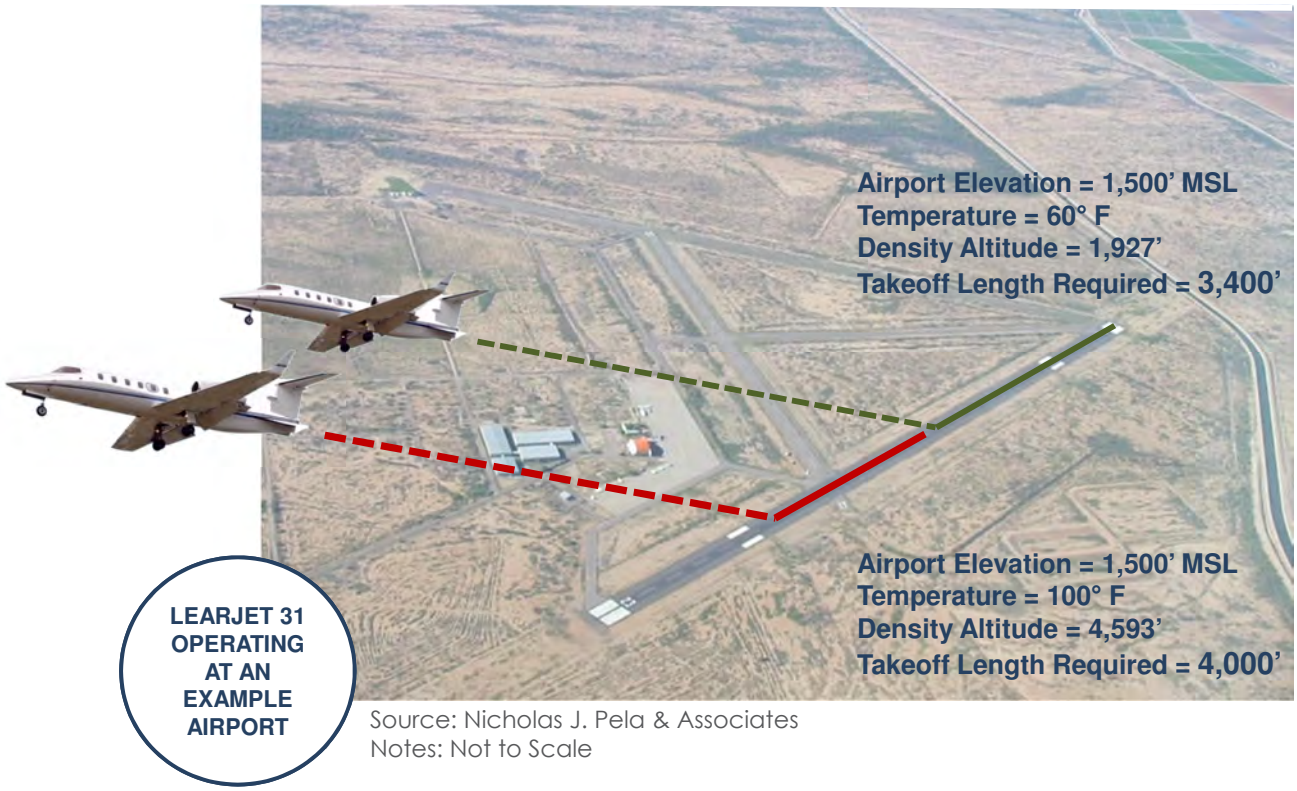
Another way to look at this is that on a hot summer day a departing airplane will behave as if it is at a much higher altitude. Because air expands when heated, warm air is less dense than cool air. When other conditions remain the same, an airplane will require a longer takeoff run on a hot day than on a cool day. This contributes to the loss of lift, but also affects engine performance. Internal combustion engines produce less power at higher altitudes because they are operating in less dense air. Propellers lose efficiency at high altitudes also, both because of engine power loss and because propellers are airfoils which suffer in the same manner as wings when operating in less dense air.

After liftoff, climb performance suffers in a similar fashion. A minimum safe rate of climb after takeoff is about 400-500 feet per minute. A heavy or lower powered aircraft on a hot summer day may not be able to attain this rate, or any rate of climb at all, after leaving ground effect. Any turns that are initiated after liftoff will further erode climb performance.

By definition, Density Altitude is the calculated altitude at which the aircraft would produce the same amount of lift and power, at standard temperature (59° F) and

pressure (29.92”). For example, an aircraft departing a Sea Level airport when the air temperature is 80° F would perform as if it were at an altitude of 1,500’ MSL at 59° F- a “Density Altitude” of 1,500’. See **Figure 4-1** for how density Altitude affects performance.

Figure 4-1. Density Altitude



Source: Nicholas J. Pela & Associates
Notes: Not to Scale

Methodology and References

The runway length calculations assume takeoff with no wind, dry pavement, a temperature of 90° F, and assumes an uphill departure on each of the runways. The runway lengths depicted are approximations of the takeoff requirements based on interpretation and interpolation of available aircraft planning guides and/or aircraft operations manuals.

Performance requirements will vary based on the actual aircraft variant that is in use since engines and other improvements can vary from aircraft to aircraft. Actual takeoff and landing length will also vary based on pilot technique, obstacle clearance procedures, and other factors. The values presented in this study should not be used for flight planning purposes.

The following aircraft planning guides and aircraft operations manuals were used for each of the aircraft included in the analysis:

- Diamond Aircraft Airplane Flight Manual DA 42 NG, February 18, 2009
- CRJ Series Regional Jet Model CL-600-2D15 and CL-600-2D24, Series 705/900 Airport Planning Manual, as revised December 17, 2015
- Embraer 175 Airport Planning Manual, as revised October 9, 2015
- Embraer 170 Airport Planning Manual, as revised October 9, 2015
- Canadair Regional Jet Model CL-600-2B19, Series 100/200/440 Airport Planning Manual, as revised January 10, 2016
- CRJ Series Regional Jet Model CL-600-2C10, Series 700 Airport Planning Manual, as revised December 17, 2015
- Embraer EMB145 Airport Planning Manual, as revised January 29, 2007
- Embraer EMB135 Airport Planning Manual, as revised January 28, 2007
- Cessna 525A Citation CJ2 Flight Planning Guide, June 2002
- Cessna 525 Citation CJ1 Flight Planning Guide, April, 2000
- Cessna 560 Citation Encore Flight Planning Guide, July, 2001
- Cessna 414A Aircraft Operations Manual, November 1, 1984
- Cessna 340A Aircraft Operations Manual, October, 1976
- Embraer EMB120 Brasilia Airport Planning Guide
- Beechcraft Super King Air 200 Aircraft Operations Manual, as revised March, 1979
- Diamond Aircraft SR20 Airplane Flight Manual, October, 2005
- Diamond Aircraft SR22 Airplane Flight Manual, October, 2005
- Swearingen Metro SA226-TC Aircraft Operations Manual, December 1, 1976

Runway 3R-21L

Existing Conditions

Runway 3R-21L is the primary runway at PRC. It serves Air Carrier and General Aviation (GA) aircraft including the current scheduled service aircraft, the Embraer Brasilia EMB120, as well as business jets and turboprops. The runway is also used by small single and multi-engine piston aircraft, and there is a high concentration of flight training activity by these types. Runway 3R-21L is 7,619' long with a 150' pavement width.

Based on the prior Airport Master Plan and the most recently approved updated Airport Layout Plan, both Runways 3R and 21L have a current Runway Design Code (RDC) of **C-III-2400**. Runway 3R has an Approach Reference Code (APRC) of **C-C-II-5000** (accommodates ARC C-III aircraft with an instrument approach to one mile visibility). Runway 21L has an APRC of **C-II-2400** (accommodates ARC C-III aircraft with an instrument approach to 1/2 mile visibility). Runway 3R has a 379' displaced threshold.

The APRC for runways are determined by two factors the separation distance between the runway and taxiway and the visibility minimums. The controlling factors for PRC are the runway and taxiway separation distances. Due to the current 325-foot separation of Runway 3R-21L and Taxiway C, the maximum APRC for Runway 3R-21L is C-II. Once Taxiway C is relocated to a standard separation of 400 feet the APRC for Runway 3L-21R will then become C-III for each of the runway ends.

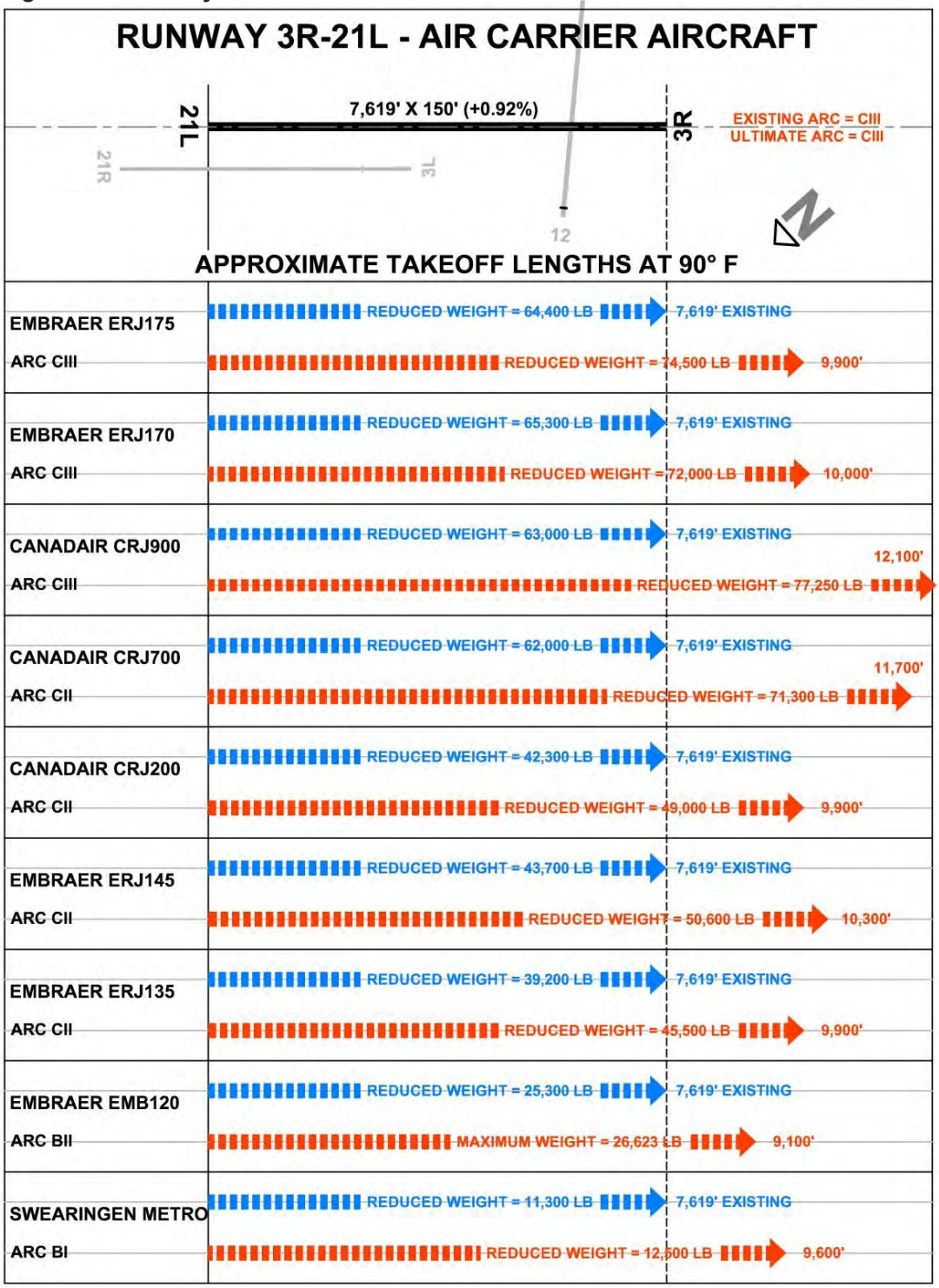
Figure 4-2 contains a list of various Air Carrier class aircraft that may use Runway 3R-21L at the present time and in the future. The tabulation includes approximate takeoff lengths required for each aircraft when operating at maximum takeoff weights as well as reduced takeoff weights (when required) that would allow them to depart within the currently available runway length. The runway length calculations assume no wind, dry pavement, a temperature of 90° F, and departure uphill on Runway 21L (+0.92% gradient). The runway length requirements depicted are approximations of takeoff requirements that are based on interpretation and interpolation of available aircraft planning guides and/or aircraft operations manuals. Performance requirements will vary based on the actual aircraft variant that is in use and on other factors.

The aircraft operated by the previous commercial service operator, Great Lakes Airlines, the ARC B-II Embraer Brasilia EMB120, was able to operate on Runway 3R-21L's available 7,619' length at reduced takeoff weights at the high density altitude conditions that were assumed in this study. The larger and faster ARC C-II and C-III Regional Jets that were considered can also utilize the existing runway, but at significantly reduced takeoff weights, resulting in passengers being removed from the flight, that may not be feasible for commercial operation.

Future Considerations

According to the planning level calculations performed in this study, a 9,100' long runway would be required for the most recent scheduled commercial service aircraft, the EMB120, to be able to operate at its maximum takeoff weight at the assumed maximum density altitude conditions. As is shown in **Figure 4-2**, this would also allow more commercially advantageous operations by many of the ARC C-II and C-III Regional Jets at reduced takeoff weights.

Figure 4-2. Runway 3R-21L - Air Carrier Aircraft



Source: Nicholas J. Pela & Associates

A 10,000 feet long runway would allow maximum density altitude departures by the selected ARC C-III design aircraft, the Embraer E170, at takeoff weights reduced by high altitude performance limits. This runway length would also accommodate the ARC C-III Embraer E170 as well as the ARC C-II CRJ200 and ERJ135, all operating with similar high altitude performance limits weight reductions.

With a runway length of 10,000 feet, the Embraer E170, operating at the warmest summer temperatures with all seats occupied, would be limited to servicing routes within a maximum of about 1,100 nautical miles (nm) of PRC. The proposed air service from PRC includes direct flights to Denver (500 nm) and Los Angeles (305 nm). The extension of the runway to 10,000 feet would allow future service to other major airline hubs such as Salt Lake City (368 nm), Dallas-Fort Worth (785 nm), Seattle-Tacoma (900 nm), and Houston (930 nm). As a point of reference, Minneapolis-St. Paul would define the direct route limit, at about 1,090 nm. To accommodate destinations east of the Mississippi River with full passenger loads, the E170 would require an additional runway extension.

Recommendations

A 9,100 foot long runway is required to accommodate the existing critical aircraft, while 10,000 foot long runway is required to accommodate the future critical aircraft. Due to the transition from turboprop aircraft to regional jet aircraft by the majority of regional commercial service providers, **it is recommended that Runway 3R-21L be extended to 10,000 feet to accommodate the future critical aircraft which is a regional jet.**

The prior Airport Master Plan identified this runway's existing and ultimate critical aircraft as the ARC C-II Bombardier CRJ700, but assigned a DPRC of C-III to PRC and to this runway. It is recommended that this designation be changed to designate the existing critical aircraft for Runway 3R-21L as the ARC B-II Embraer Brasilia EMB120 that is currently providing scheduled airline service. The ultimate critical aircraft has been identified as the ARC C-III Embraer E170 Regional Jet. For runway length determinations, this is best typified by the E170.

Although there is no scheduled airline service at PRC that utilizes ARC C-III aircraft at the present time, Runway 3R-21L complies with C-III design criteria with the exception of deficient separation between parallel Taxiway C. If the air service action plan that is recommended in ***Chapter 3, Forecasts of Aviation Demand*** is successfully implemented it is likely that the serving airline(s) will utilize C-III Regional Jets to serve the increase in passenger demand.

Other activity that affects the required design standards of the primary runway include the U.S. Forest Service (USFS) operations of large fire tanker aircraft that are based at PRC. Although not qualifying as the critical aircraft because they typically do not reach 500 annual operations, these aircraft play an important role

in protection of the area's natural resources, property, and lives. The USFS aircraft include ARC C-IV Lockheed C-130 and L382G tankers, ARC C-II Avro RJ85s and Lockheed P2Vs, ARC B-III BAE-146, and other large aircraft that meet or exceed the ARC C-III classification.

Other activity that affects the required design standards of the primary runway include the U.S. Forest Service operations of large fire tanker aircraft that are based at PRC. Although not qualifying as the critical aircraft because they typically do not reach 500 annual operations, these aircraft play an important role in protection of the area's natural resources, property, and lives. The USFS aircraft include ARC C-IV Lockheed C-130 and L382G tankers, as well as ARC C-III Avro RJ85's, Lockheed P2V's, and other large aircraft that meet or exceed the ARC C-III classification.

It is recommended that the current Runway 3R-21L Departure Reference Code (DPRC) and the Airport Reference Code be designated as **ARC B-II.** The ultimate Airport Reference Code and Runway 3R-21L DPRC should be upgraded to **ARC C-III** in the ultimate term timeframe. All improvements that will be used by the future critical aircraft should be constructed to conform to ARC C-III design standards.

Runway 3L-21R

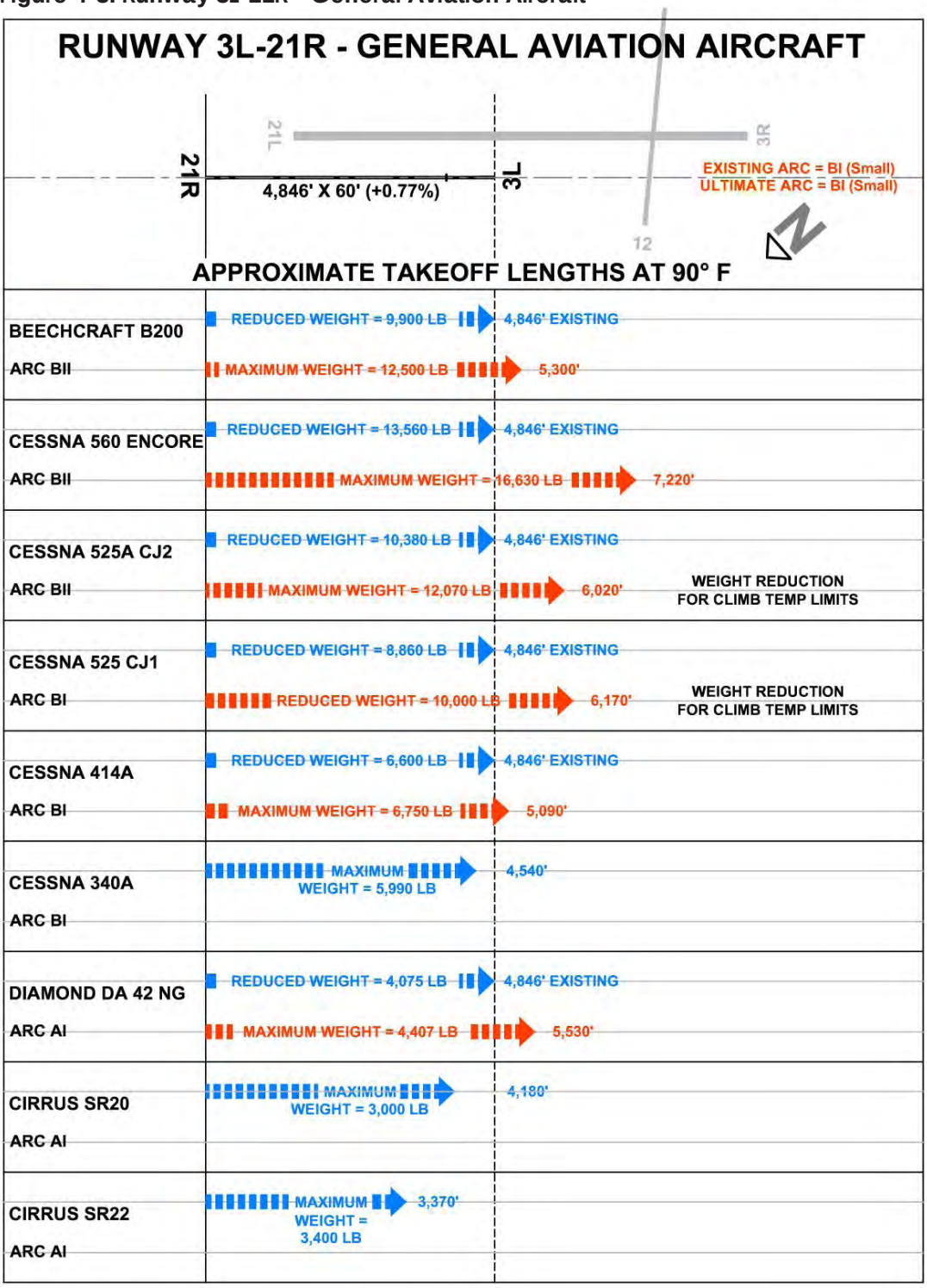
Existing Conditions

Runway 3L-21R is a parallel runway to the primary Runway 3R-21L. Runway centerline separation is 700 feet. This runway primarily serves general aviation aircraft, including single and multi-engine piston types, as well as business turboprops and jets. There is a high concentration of single and multi-engine flight training operations on this runway. It is 4,846 feet long with a 60 feet pavement width.

Both Runways 3L and 21R have a current Departure Reference Code (DPRC) of **B-I** (small) and an Approach Reference Code (APRC) of **B-I-VIS** (accommodating ARC B-I aircraft with only visual approaches available). Runway 3L has an 809 feet displaced threshold.

Figure 4-3 contains a list of various general aviation aircraft that may use Runway 3L-21R. The tabulation includes approximate takeoff lengths required for each aircraft when operating at maximum takeoff weights as well as reduced takeoff weights (when required) that would allow them to depart within the currently available runway length. The runway length calculations assume no wind, dry pavement, a temperature of 90° F, and departure uphill on Runway 21R (+0.77% gradient). The runway length requirements depicted are approximations of takeoff requirements that are based on interpretation and interpolation of available aircraft planning guides and/or aircraft operations manuals. Performance requirements will vary based on the actual aircraft variant that is in use, and on other factors.

Figure 4-3. Runway 3L-21R - General Aviation Aircraft



Source: Nicholas J. Pela & Associates

The smaller ARC A-I and B-I single and multi-engine piston aircraft that make up the majority of use of Runway 3L-21R are for the most part accommodated by the currently available runway length. Most of these aircraft are able to operate at their maximum takeoff weights on this runway. Exceptions include the Diamond DA 42 NG and the Cessna 414A. The larger turboprops and business jets require load reductions to be able to depart during the high density altitude conditions that were assumed in this study.

Future Considerations

The location of the existing Runway 3L end and its displaced threshold, along with existing non-standard taxiways and apron access points, are discussed in following sections of this chapter. The taxiways and apron access have been identified by the FAA as operational Hot Spots, and these are the subject of a Runway Incursion Mitigation (RIM) study that is being conducted as a part of this Master Plan. Alternative recommendations related to the threshold location and the Hot Spot mitigation are discussed in ***Chapter 5, Alternatives Development and Evaluation.***

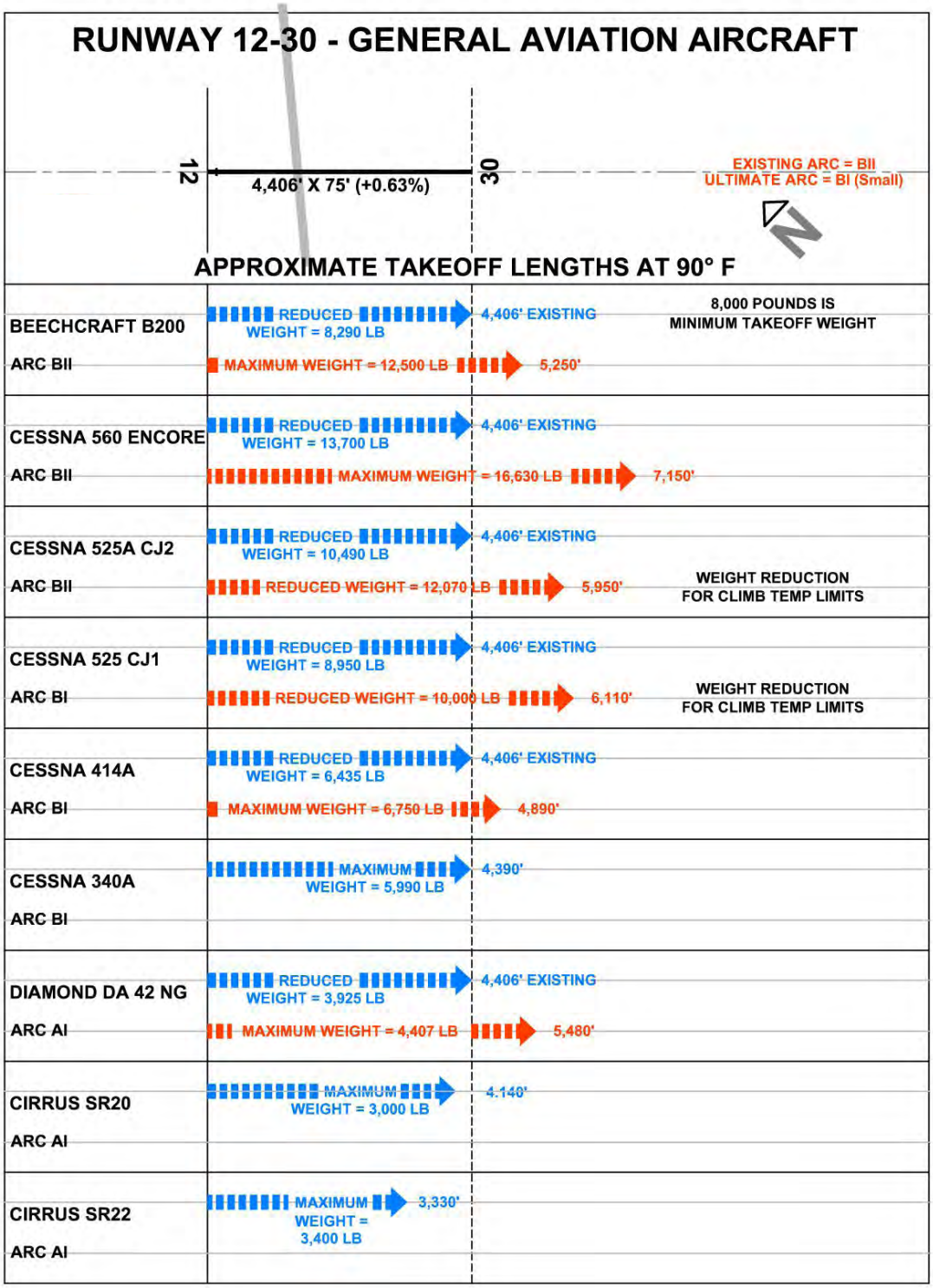
Although this runway is currently classified as ARC B-I (small), it is frequently used by larger/faster turboprops and business jets that exceed this classification. The runway length calculations in **Figure 4-4** show that an ultimate runway length of about 7,200 feet would accommodate a wide range of ARC B-II aircraft. However, this would also require upgrade of the runway and adjacent taxiway network to ARC B-II standards, widening the runway pavement to 75 feet, as well as pavement strengthening to accommodate the large aircraft (those over 12,500 pounds). Since this is a parallel runway whose functional role is to provide capacity relief to the primary runway, it should be assumed that the larger/faster aircraft will be assigned to the primary Runway 3R-21L and that Runway 3L-21R will be used to serve only small aircraft up to ARC B-I. An extension to an ultimate length of 6,200 feet would better accommodate the current and future use by small ARC B-I aircraft.

Recommendations

The prior Airport Master Plan identified this runway's existing critical aircraft as the ARC B-I Beechcraft King Air B100. The ultimate critical aircraft was identified as the ARC B-II Beechcraft King Air B400. Based on the current analysis, it is recommended that this runway's ultimate role should remain ARC B-I (small), and that the existing and ultimate critical aircraft be identified as the ARC B-I Cessna 525 CJ1 business jet.

In order to better accommodate present and future demand, it is recommended that the current 4,846 feet length be extended to 6,200 feet in Phase III, a 1,354 feet extension. Consideration of shifting the runway's location to the north should also be given to allow removal of the existing displaced threshold. It is recommended

Figure 4-4. Runway 12-30 - General Aviation Aircraft



Source: Nicholas J. Pela & Associates

that Runway 3L-21R's DPRC should remain **B-I** (small) and the APRC be upgraded to **B-I-5000** to accommodate future Instrument Approach Procedures.

Runway 12-30 (Ultimate Runway 13-31)

Existing Conditions

Runway 12-30 is the crosswind runway at PRC. It is 4,408 feet long with a 75 feet pavement width. The runway's current Airport Reference Code (ARC) is B-I (small). Under this designation, the runway is able to accommodate aircraft with wingspans less than 49 feet and with approach speeds less than 121 knots. It should be noted that, because of changes in magnetic declination, Runway 12-30 will be designated as Runway 13-31 in the future. This change will coincide with the next runway paving or marking project. This runway will continue to be referred to as "Runway 12-30" in this study.

Both Runway 12 and 30 have a current Departure Reference Code (DPRC) of **B-I** (s). Runway 12 has a current Approach Reference Code (APRC) of **B-I-5000** (accommodates ARC B-I aircraft with an instrument approach to one mile visibility), and it has a 150 feet displaced threshold. Runway 30 has a current APRC of **B-I (s)-VIS** (accommodates ARC B-I aircraft with only visual approaches available).

The APRC and DPRC for Runway 12-30 is determined by the runway and taxiway separation distances. Due to Taxiway E and Taxiway F not having a uniform separation distance for the length of Runway 12-30, each of the runway ends have different APRC. The DPRC for Runway 12-30 is only a B-I (s) while the standard 240 feet separation is not meet. Specifically, the Runway 30 end does not meet the minimum standard separation of 240 feet between the taxiways and Runway 12-30; therefore, maximum APRC for the Runway 30 end is B-I (s). Once Taxiway E and Taxiway F are relocated to a standard separation of 240 feet the APRC for Runway 30 end and the DPRC for both runway ends will then become B-II.

In Advisory Circular AC 150/5325-4B, *Runway Length Requirements for Airport Design,* the FAA suggests that a crosswind runway is necessary when the primary runway cannot achieve a minimum of 95% wind coverage for its functional role. According to the wind data analysis completed in 2010 (and included on the current Airport Layout Plan), PRC's primary Runway 3R-21L exceeds the 95% criterion for all Airport Reference Codes. Therefore, a crosswind runway is not necessary in accordance with the FAA's current guidelines. However, the amount of flight training activity coupled with periods of high wind conditions indicates that maintaining a crosswind runway is desirable.

Currently, Runway 12-30 is primarily used by general aviation aircraft including single and multi-engine piston types, business turboprops and jets, as well as use for single and multi-engine flight training operations. This runway was occasionally

used by the ARC B-II Air Carrier aircraft for landing when required by high wind conditions. The previously scheduled commercial Air Carrier aircraft serving PRC were the Embraer EMB120 and Beech 1900D twin turboprops. The current runway length is not adequate to accommodate the current fleet of regional jets in commercial use.

Figure 4-4 is a list of various general aviation aircraft that may use Runway 12-30 for departure. The tabulation includes approximate takeoff lengths required for each aircraft when operating at maximum takeoff weights as well as reduced takeoff weights (when required) that would allow them to depart within the currently available runway length. The runway length calculations assume no wind, dry pavement, a temperature of 90° F, and departure uphill on Runway 12 (+0.63% gradient). The runway length requirements depicted are approximations of takeoff requirements that are based on interpretation and interpolation of available aircraft planning guides and/or aircraft operations manuals. Performance requirements will vary based on the actual aircraft variant that is in use and other factors.

The smaller single and multi-engine piston aircraft that make up the majority of use of Runway 12-30 are easily accommodated by the currently available runway length. These aircraft are able to operate at their maximum takeoff weights on Runway 12-30. The larger turboprops and business jets require load reductions to be able to depart on Runway 12-30 during the high density altitude conditions that were assumed in this study.

Future Considerations

Due to the limited length and existing ARC B-II design standards, Runway 12-30 cannot accommodate regional jets as a landing crosswind runway and is not long enough to be used for departures.

As is evidenced in **Figure 4-4**, in order to fully function as a crosswind runway relief for future Air Carrier departure operations, Runway 12-30 would have to be extended considerably. In Advisory Circular AC150/5325-4B, the FAA suggests that the crosswind runway for scheduled Air Carrier service should equal "100% of primary runway length when built for the same individual design airplane or airplane design group that uses the primary runway" or "100% of the recommended runway length determined for the lower crosswind capable airplanes using the primary runway". Common practice is that the length of the crosswind runway be based on the takeoff/landing distance requirements of the primary runway's design aircraft at the acceptable crosswind component for the design aircraft's Approach Category (16 knots for Approach Category C).

Table 4-6 lists the estimated takeoff weight conditions that are required for the E170 to depart on Runway 12-30. These values are calculated assuming the 90° Fahrenheit maximum temperature and a 16 knot headwind component, and assuming a 72,000 pound takeoff weight.

Table 4-6. Approximate Takeoff RW Requirements - Runway 12-30 - Design Aircraft - Embraer E170

Landing Direction	Headwind Component	Runway Gradient	Landing Weight	Runway Length Required
RWY 12	16 knots	+0.63%	72,000 pounds	9,100'
RWY 30	16 knots	-0.63%	72,000 pounds	8,600'

Source: Nicholas J. Pela & Associates

This scenario would require approximately a 4,700 feet extension of Runway 12-30. Since Runway 12-30 is severely constrained by existing terrain and property limitations it is highly unlikely that this (or any extension) will be feasible in the future. In addition, if Runway 12-30 were to serve C-III aircraft it would have to be brought up to all ARC C-III design standards, including parallel taxiway width and separation standards and runway pavement width.

Because of existing noncompliance issues within the Runway 12-30 Runway Safety Areas (RSAs), the thresholds may require relocation in the future. If the runway cannot be shifted to maintain the existing length, improving the RSAs would require a reduction in pavement length. These issues are discussed in other relevant sections of this chapter, and alternatives to mitigate the RSA noncompliance are discussed in ***Chapter 5, Alternatives Development and Evaluation.***

The current and probable future use of Runway 12-30 will be primarily by small (12,500 pounds or less) ARC B-I aircraft, with limited use by larger General Aviation turboprops and smaller business jets.

Recommendations

If possible with respect to feasibility of construction of the needed RSA improvements, it is recommended that the current 4,408 feet length of Runway 12-30 be maintained, and that it be reclassified as a DPRC **B-I** (small) runway in the existing and ultimate timeframes.

The prior Airport Master Plan identified this runway's existing and ultimate critical aircraft as the ARC B-II Beechcraft King Air B400. Based on the current analysis, it is recommended that the existing and ultimate critical aircraft for Runway 12-30 be identified as the ARC B-I Cessna 525A CJ1 business jet.

Recommendations

It is recommended that prior to beginning the environmental assessment for the extension of Runway 3R-21L a Runway Extension Feasibility Study be considered to determine the required runway length and determine the location of the runway thresholds for Runway 3R-21L based on operations at that time.

Runway Width

Table 4-7 summarizes the Runway Design Code (RDC) and associated widths. Additionally, the table indicates that all the runway widths currently meet standards.

Table 4-7. Runway Design Code

Runway	RDC	Existing Width (ft)	Meets Standards
3R -21L	C-III-2400	150	Yes
3L-21R	B-I (Small) - VIS	60	Yes
12-30	B-I (Small) - 5000	75	Yes

Source: Delta Airport Consultants, Inc.

Runway Gradient

Runway longitudinal grades are set to promote positive drainage and to provide a smooth surface for aircraft to use. Per AC 13A, the maximum longitudinal grade for an approach category C runway is ±1.5 percent; however, the first and last quarter or 2,500 feet, whichever is less, may not exceed ±0.8 percent .

The first quarter of Runway 3R-2L from the Runway 3R end exceeds ±0.8 percent. The Runway 3R end's first quarter is approximately +1.36 percent. The Runway 21L end is within the allowable ±0.8 percent grade range. Overall Runway 3R-21L does not exceed ±1.5 percent per the AC 13A. There are three options to correct or mitigate the grade issue. Option one would be to cut out and lower the Runway 3R end gradient; however, that would affect Runway 12-30, Taxiway F, Taxiway E, the FBO ramp, the commercial terminal ramp area, and adjacent properties. Option two would be to raise the surface gradient on the remaining portion of the runway leading to the Runway 21L end; however, this would affect Taxiway C, Taxiway D, Runway 3L-21R, the USFS area, and add connecting ramp spaces. The third option is to request a modification to design standard from the FAA for this non-standard condition due to the potential expense to bring the condition up to current standard. **It is recommended that a modification to design standard be submitted to the FAA due to the considerable cost associated with bringing the condition to standard.**

Runway longitudinal grades for category B runways are a maximum of ±2.0 percent per AC 13A. Runway 3L-21R and Runway 12-30 both meet the longitudinal grade

requirements for a category B runway. **It is recommended that the runway surface gradient for Runway 3L-21R and Runway 12-30 be maintained throughout the planning period.**

Runway Safety Area (RSA)

An RSA is defined as a surface surrounding the runway which is suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. AC-13A designates a minimum RSA based on the airport reference code of the runway. **Table 4-8** summarizes the Runway Safety Area and future recommendations. **Figures 4-5** and **4-6** depict Runway 21R and Runway 30 RSA where areas do not meet current FAA standard.

Table 4-8. Runway Safety Area Recommendations

Runway	RDC	Required RSA Length Beyond Departure End (ft)	Actual RSA Length Beyond Departure End (ft)	Required RSA Width (ft)	Actual RSA Width (ft)
3R	C-III	1,000	1,000	500	500
21L	C-III	1,000	1,000	500	500
3L	B-I (Small)	240	240	120	120
21R	B-I (Small)	240	20*	120	120
12	B-I (Small)	240	240	120	120
30	B-I (Small)	240	200*	120	120

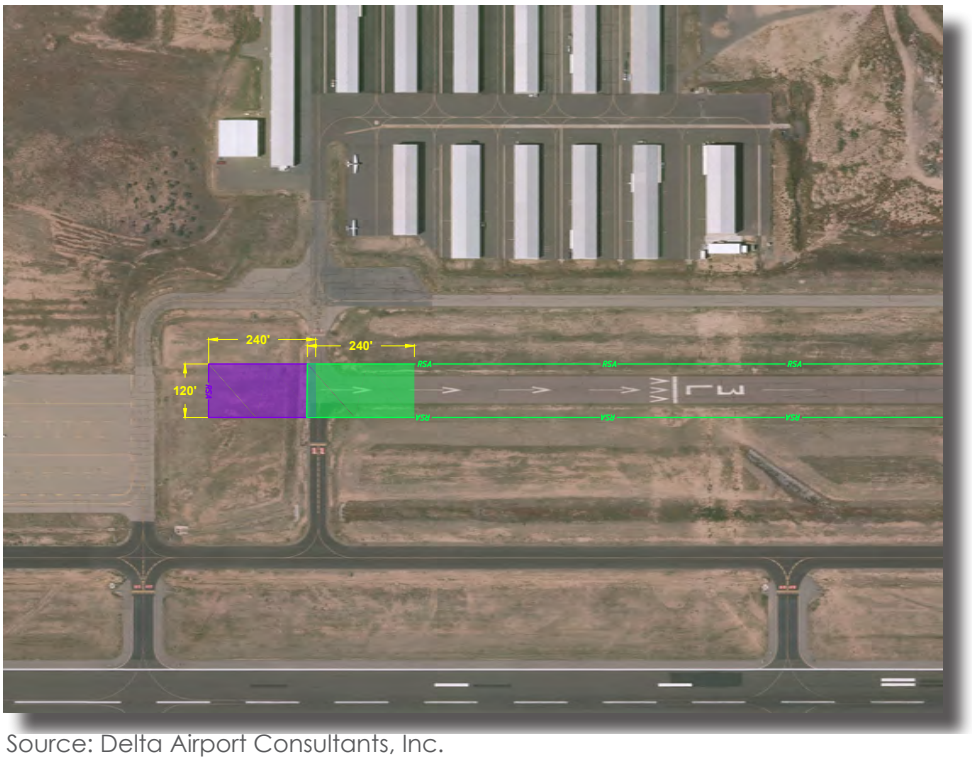
Notes: *Meet using declared distances.

It is recommended that the RSA for Runway 30 departure end be improved in Phase I to meet RSA standard. It is also recommended that the RSA off the departure end of Runway 21R be improved in Phase I to improve safety and the published declared distances. ***Chapter 5, Alternatives Development and Evaluation*** will provide additional information on meeting standards.

Figure 4-5. Runway 3L RSA

Standard RSA

RSA with Displaced Threshold



Source: Delta Airport Consultants, Inc.

Figure 4-6. Runway 12 RSA

Standard RSA

RSA with Displaced Threshold

Property Line

Source: Delta Airport Consultants, Inc.

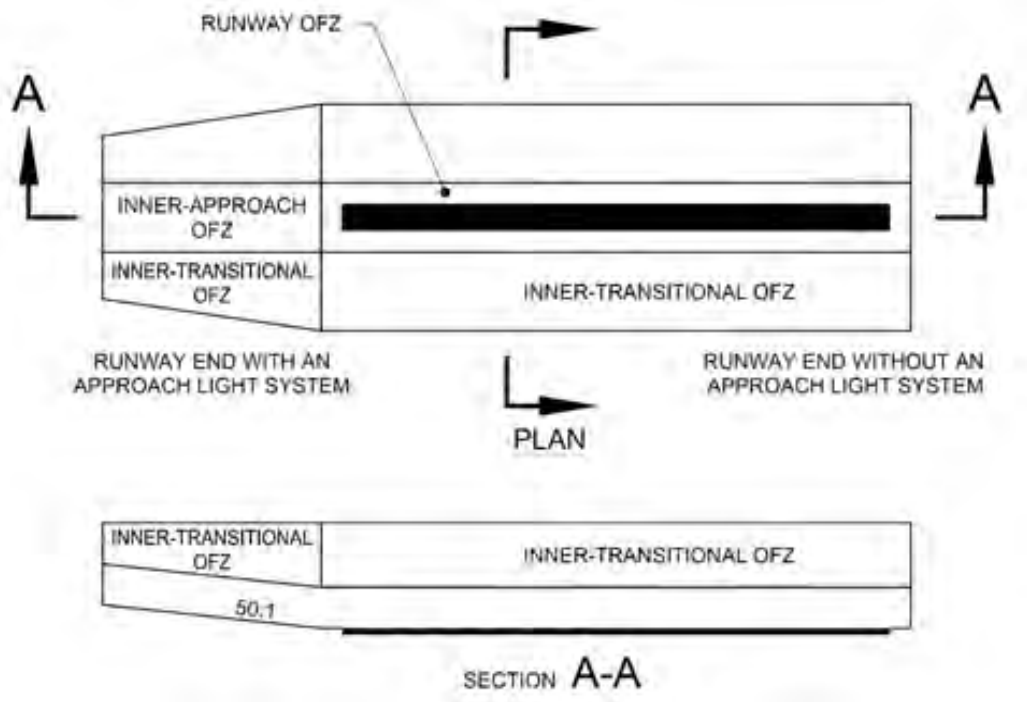
Runway Obstacle Free Zone (ROFZ)

Figure 4-7 illustrates the runway obstacle free zone (ROFZ) for PRC, which is the volume of airspace centered above the runway centerline and is required to be clear of all objects, except for frangible NAVAIDs. These NAVAIDs need to be located in the ROFZ because of their function in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches, where applicable.

The ROFZ is subdivided as follows:

- Runway OFZ - The airspace above the runway surface centered on the runway centerline. The elevation of the OFZ at any point is the same as the elevation of the nearest point on the runway centerline. The OFZ extends 200 feet beyond each runway end; however the width may vary depending on the runway classification. Runway 3R-21L has 400 feet width, while Runway 3L-21R and Runway 12-30 have 250 feet width.
- Inner-Approach OFZ - The volume of airspace centered on the approach area, and applies only to runways with an approach lighting system (ALS). This applies to Runway 3R-21L at PRC.
- Inner-Transitional OFZ – The volume of airspace along the sides of the runway OFZ and the inner-approach OFZ, and applies only to runways with approach visibility minimums lower than three-quarter statute miles. This applies to PRC.

Figure 4-7. Runway Obstacle Free Zone (ROFZ)



Source: FAA AC 150/5300-13A

The runways at PRC currently meet standards. It is recommended that the ROFZ for each runway be maintained throughout the planning period.

Runway Object Free Area (ROFA)

The runway object free area (ROFA) is a two dimensional surface centered on the runway centerline. It is provided to enhance the safety of aircraft operations by having the area free of objects except for those that need to be located within the ROFA for air navigation or aircraft ground maneuvering purposes and to taxi and hold aircraft in the ROFA. The ROFA clearing standard requires clearing the OFA of above ground objects protruding above the runway safety area edge elevation. **Table 4-9** summarizes the Runway, RDC, and Runway Object Free Area requirements.

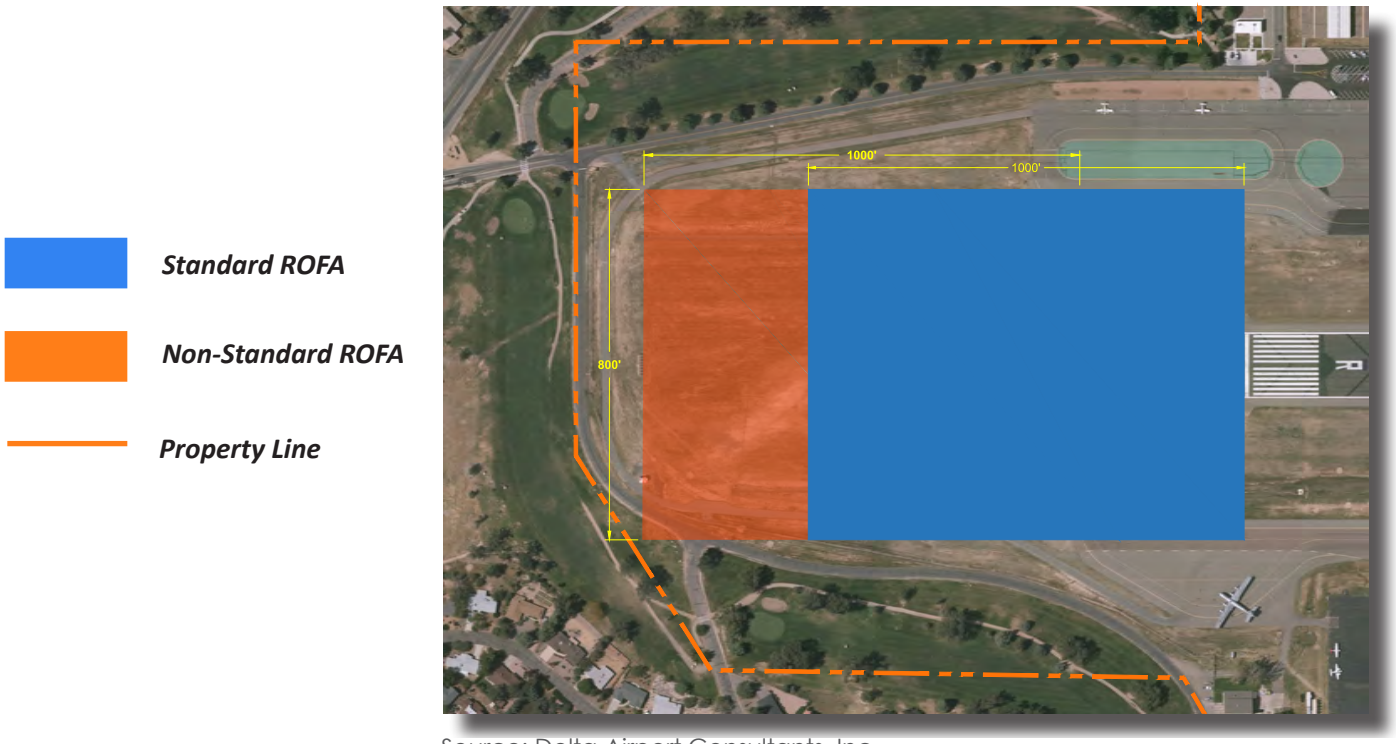
Table 4-9. Runway Object Free Area Summary

Runway	RDC	Required ROFA Length Beyond Departure End (ft)	Actual ROFA Length Beyond Departure End (ft)	Required ROFA Width (ft)	Actual ROFA Width (ft)
3R	C-III	1,000	1,000	800	800
21L	C-III	1,000	650[1]	800	800
3L	B-I (Small)	240	240	250	250
21R	B-I (Small)	240	240	250	250
12	B-I (Small)	240	240	250	250
30	B-I (Small)	240	240	250	250

Source: Delta Airport Consultants, Inc.
Notes: 1. Does not meet standards.

Runways 3L, 21R, 12, 30 and Runway 3R end currently meet the ROFA standards. It is recommended that the ROFAs for Runways 3L, 21R, 12, 30, and 3R end be maintained throughout the planning period. Runway 21L departure end does not meet the ROFA Standards due to the presence of a fence and public road within the ROFA. **Figure 4-8** depicts the non-standard area. **It is recommended that the ROFA for Runway 21L departure end be corrected in Phase I order to meet standards.** ***Chapter 5, Alternatives Development and Evaluation*** will provide additional information on meeting standards.

Figure 4-8. Runway 21 Departure End ROFA



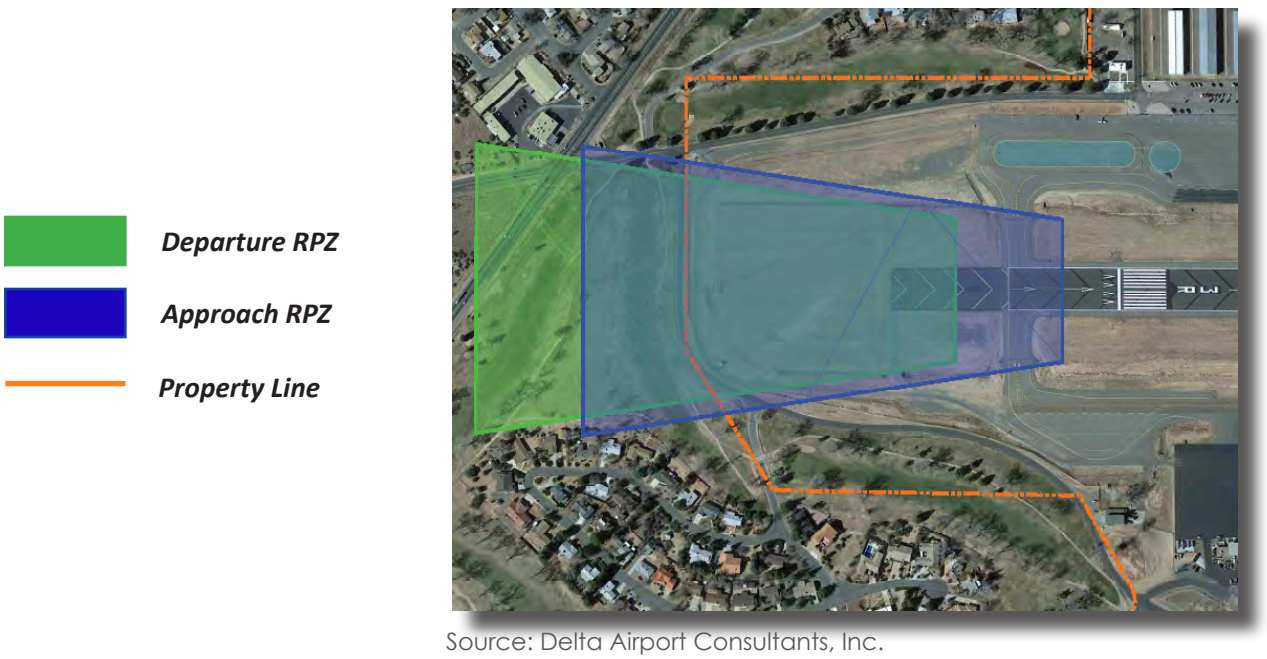
Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

Runway Protection Zones (RPZs)

Runway protection zones (RPZs) are trapezoidal in shape, centered on the extended runway centerline, and typically begin 200 feet beyond the end of the area usable for take-off and landing. The function of an RPZ is to enhance the protection of people and property on the ground, which is achieved through airport owner control over these land areas. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, indicates that an airport should control land as appropriate for airfield development, building area, runway protection zones, approach aids, and compatible land use in accordance with current FAA criteria.

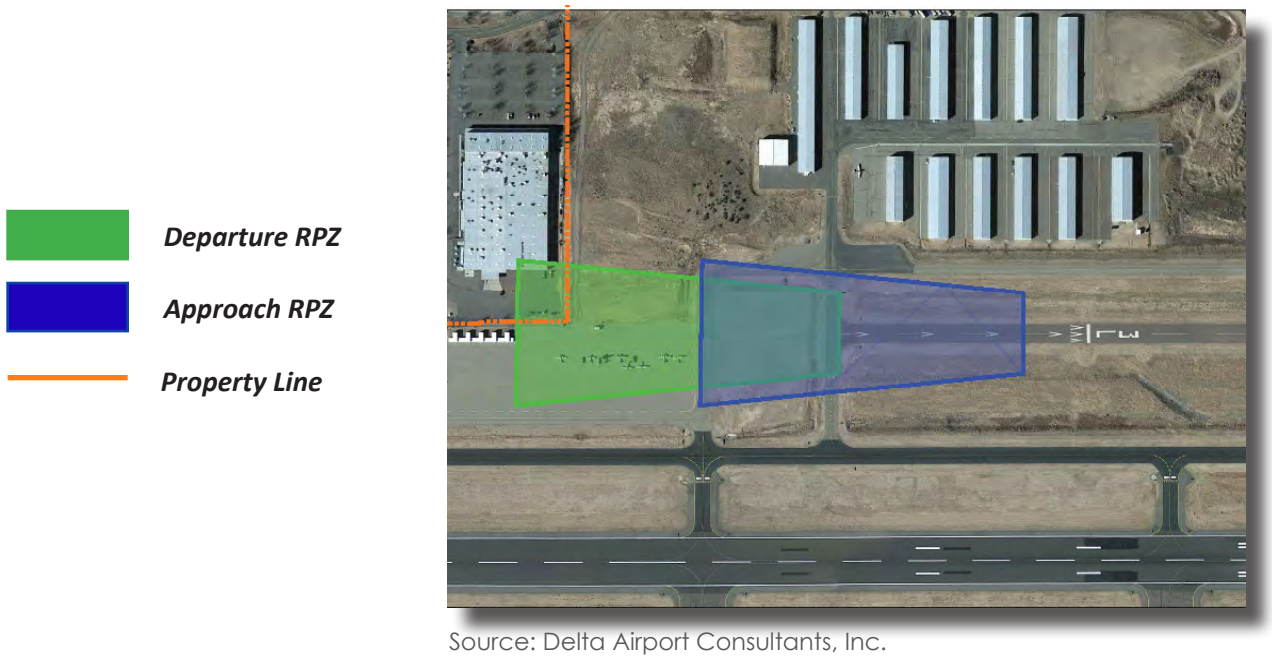
The FAA recommends the airport sponsor control the defined Runway Protection Zone (RPZ) area through fee simple acquisition or a controlling easement, (fee simple), to enhance protection of people and property on the ground. **Figures 4-9**, **4-10**, **4-11,** and **4-12** depict the RPZ for Runway 3R, 3L, 12, and 30 ends respectively.

Figure 4-9. Runway 3R RPZ



Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

Figure 4-10. Runway 3L RPZ



Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

Figure 4-11. Runway 12 RPZ

Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

Figure 4-12. Runway 30 RPZ

Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

The Runway 21R end RPZ is the only RPZ that PRC has full control over in addition to compatible land use. **The Runway 21R end RPZ is recommended to be maintained throughout the planning period. Table 4-10 summarizes the remaining RPZs and the existing condition and the recommendation. *Chapter 5, Alternatives Development and Evaluation*** will provide additional information on meeting standards.

Table 4-10. Runway Protection Zone Summary and Recommendations

Parcels	Runway	Existing	Recommendation	Uncontrolled Acreage
13	Runway 3R	Lack of Complete Control and Incompatible Objects	Acquire Easements/Shift Runway	16.72
1	Runway 3L	Lack of Complete Control and Incompatible Objects	Acquire Easements/Shift Runway	0.64
1	Runway 21L	Lack of Complete Control	Acquire Fee Simple	1.07
2	Runway 12	Lack of Complete Control and Incompatible Objects	Acquire easement	4.94
1	Runway 30	Lack of Complete Control and Incompatible Objects	Acquire easement	0.01

Source: Delta Airport Consultants, Inc.

Runway Pavement Condition

The recommendations provided in **Table 4-11** are based on the information contained in the 2013 Arizona Airports Pavement Management System (APMS) report and visual inspection. The Pavement Condition Index reported in the 2013 APMS report is based on data gathered before 2013. ADOT is currently updating the APMS.

Table 4-11. Runway Design Code

Runway	Last Major Rehabilitation (1)	Pavement Strength (2)	Recommended Overlay Phase
3R-21L	2003	63,000 lbs (S) 80,000 lbs (D) 100,000 lbs (DT)	I
3L-21R	2006	12,500 lbs (S)	III
12-30	2013	12,500 lbs (S)	III

Source: Delta Airport Consultants, Inc.
Notes: (1) Overlay or reconstruction
(2) Strengths from current ALP (2014)
(S) Single Wheel
(D) Dual Wheel
(DT) Dual Tandem Wheel

It is also recommended that each runway's pavement be maintained using routine maintenance practices throughout the planning period.

Table 4-12 provides a summary of existing design standard conditions of all three runways.

Table 4-12. Summary of Existing Design Standard Conditions at PRC Runways

Runway	RDC	Width	RSA	ROFA	ROFZ	RPZ Control
3R	C-III	150	1,000	1,000	Yes	No
21L	C-III	150	1,000	650[2]	Yes	No
3L	B-I (Small)	60	240	240	Yes	No
21R	B-I (Small)	60	20[1]	240	Yes	Yes
12	B-I (Small)	75	240	240	Yes	No
30	B-I (Small)	75	195[1]	240	Yes	No

Source: Delta Airport Consultants, Inc.
Notes: 1. Meets using declared distances.
2. Does not meet standards.

Runway Magnetic Declination

Table 4-13 provides a summary of the true (geographic) compass readings for each runway end and notes the magnetic declination required to adjust to the magnetic compass readings. **Based on this analysis, the designations for runways 3R-21L and 3L-21R remain unchanged from the 2010 PRC Airport Layout Plan; however, Runway 12-30 numerals will need to be adjusted to 13-31 based on the changes in magnetic declination during the next project involving this runway**. According to the National Geophysical Data Center the rate of change to the magnetic declination in this area is 0.06°W per year. At this rate, PRC's two parallel runway designations would remain the same for the next 45 years.

Table 4-13. Runway Magnetic Declination

	Runway 3L	Runway 21R
True Compass Reading	N41° 16' 12.0" E	S41° 16' 12.0" W
Magnetic Declination	10° 43' 58.8" W	10° 43' 58.8" W
Magnetic Compass Reading	N30° 32' 13.2" E	S30° 32' 13.2" W
Magnetic Azimuth	30° 32'	210° 32'
Runway Designation	3	21
Time Until Change Required	~45 Years	~45 Years
	Runway 3R	Runway 21L
True Compass Reading	N41° 16' 48.0" E	S41° 16' 48.0" W
Magnetic Declination	10° 43' 49.2" W	10° 43' 58.8" W
Magnetic Compass Reading	N30° 32' 13.2" E	S30° 32' 13.2" W
Magnetic Azimuth	30° 32'	210° 33'
Runway Designation	3	21
Time Until Change Required	~45 Years	~45 Years
	Runway 12	Runway 30
True Compass Reading	N136° 32' 24.0" E	S136° 32' 24.0" W
Magnetic Declination	10° 43' 58.8" W	10° 43' 58.8" W
Magnetic Compass Reading	N125° 48' 25.2" E	S125° 48' 25.2" W
Magnetic Azimuth	125° 48'	305° 48'
Runway Designation	13	31
Time Until Change Required	NOW	NOW

Source: Delta Airport Consultants, Inc., webdatasheetfaa.gov, www.ngdc.noaa.gov

Runway Visibility Zone (RVZ)

RVZ and line of sight standards provide pilots the ability to observe runway and taxiway surfaces for assurance that they are clear of aircraft, vehicles, wildlife, and other hazardous objects. Because PRC has intersecting runways, FAA longitudinal line of sight standards stipulate that any point five feet above runway centerline and in the RVZ must be mutually visible with any other point five feet above the centerline of the crossing runway and inside the runway visibility zone. The RVZ is defined as the area formed by imaginary lines connecting the runway visibility points. The PRC RVZ is depicted on **Figure 4-13**. Currently there are hangars, buildings, and parked aircraft located within the RVZ. Any extension or shift of either Runway 3R-21L or Runway 12-30 will move the RVZ, potentially increasing the number of objects located within the RVZ. **It is recommended that the visibility issues be mitigated during the planning period**. Mitigation options for the existing and future RVZs will be discussed in Chapter 5.

Figure 4-13. Existing Runway Visibility Zone

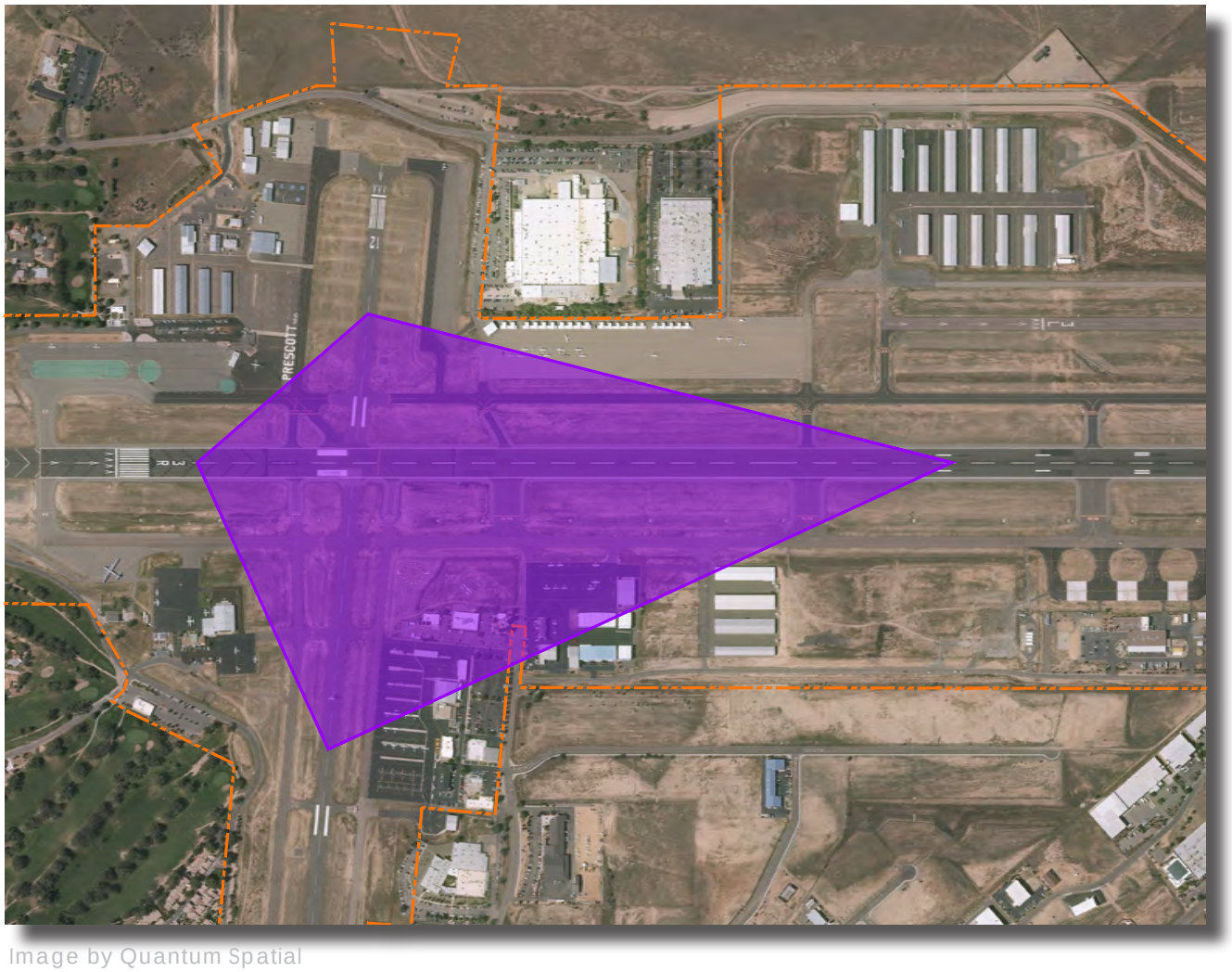


Image by Quantum Spatial

4.5 | Part 2 - Taxiway Requirements

An efficient runway/taxiway system will increase an airport's ability to handle arriving and departing aircraft

Taxiway and Taxilane Analysis

FAA Advisory Circular 150/5300-13A, *Airport Design,* presents design standards for taxiway and taxilane development. A taxiway is defined as a path established for the taxiing of aircraft from one part of the airfield to another. A taxilane is defined as the portion of the aircraft parking area designated for the access between taxiways and aircraft parking positions.

Additions or improvements to an airport taxiway system are typically undertaken to increase airport capacity, for operational efficiency, and to enhance safety. An efficient runway/taxiway system will increase an airport's ability to handle arriving and departing aircraft, as well as expedite ground movements between the runway and terminal areas.

Taxiways

Taxiway A currently meets the pavement width and runway separation standards for a B-I (Small) runway. **It is recommended that Taxiway A be maintained and taxiway fillet geometry be upgraded to meet current standards during the next pavement rehabilitation project.**

Taxiway C's current runway/taxiway separation distance of 325 feet does not meet the current standard of 400 feet for a C-III runway except for the newest portions near the ends of Runway 3R-21L. There are two options to address the non-standard separation. One option is to request a modification of design standards (MOS) from the FAA. The second option is to relocate the taxiway to the proper separation of 400 feet. **It is recommended that Taxiway C be relocated in Phase I to meet the standard separation for a C-III runway.** Several of the runway connector taxiways do not meet Taxiway Design Group (TDG) standards. **It is recommended that the runway/taxiway connectors associated with Taxiway C be designed and constructed to TDG 3 standards during the next Runway 3R-21L or Taxiway C rehabilitation project.**

Taxiway D currently meets the pavement width and runway separation standards for a C-III runway. Several of the runway connector taxiways do not meet TDG standards. **It is recommended that the runway/taxiway connectors associated with Taxiway D be designed and constructed to TDG 3 standards during the next Runway 3R-21L or Taxiway D rehabilitation project.**

Taxiway E currently meets the pavement width for TDG 2 standards and the runway separation standards for a B-I (small) runway. However, Taxiway E serves two runways with different classifications. Taxiway E east of Taxiway D serves only Runway 12-30, which is a B-I (small) runway, requiring a runway taxiway separation

of 150 feet. This section meets that standard as the current separation is 200 feet. The section of Taxiway E west of Taxiway D serves Runway 3R-21L and the commercial service terminal building. Since Runway 3R-21L is classified as a C-III runway, the section of Taxiway E that serves Runway 3R-21L also has to be C-III. Since the commercial service terminal building is also proposed to accommodate C-III aircraft in the future, the section of Taxiway E in front of the commercial service terminal building also has to be C-III. The section of Taxiway E west of the commercial service terminal building should be designed to B-II standards to allow access to hangar and apron space adjacent to the taxiway.

It is recommended that the section of Taxiway E east of Taxiway D be maintained at the current separation with taxiway geometry designed for TDG 2.

It is recommended that the section of Taxiway E west of Taxiway D, including in front of the future commercial service terminal building, be constructed 400 feet from the centerline of Runway 12-30 and the taxiway geometry designed for TDG 3.

It is recommended that the section of Taxiway E west of the commercial service terminal building be constructed 240 feet from the centerline of Runway 12-30 and the geometry designed for TDG 2.

Taxiway F currently meets the pavement width for TDG 2 standards and the runway separation standards for a B-I (small) runway. However, Taxiway F serves two runways with different classification. Taxiway F east of Taxiway D serves only Runway 12-30 and facilities that accommodate small aircraft, which is a B-I (small) runway, requiring a runway taxiway separation of 150 feet. This section meets that standard as the current separation is 200 feet. The section of Taxiway F between Taxiway D and Taxiway C serves Runway 3R-21L. Since Runway 3R-21L is classified as a C-III runway, the section of Taxiway F that serves Runway 3R-21L also has to be C-III. There is currently a missing section of Taxiway F between Runway 3R-21L and Taxiway C. The section of Taxiway F west of Taxiway C should be designed to B-II standards to allow access to hangar and apron space adjacent to the taxiway.

It is recommended that the section of Taxiway F east of Taxiway D be maintained at the current separation with taxiway geometry designed for TDG 2.

It is recommended that the existing section of Taxiway E between Taxiway D and Runway 3R-21L be reconstruction 400 feet from the centerline of Runway 12-30 and the taxiway geometry designed for TDG 3. It is also recommended that a new section of Taxiway F between Runway 3R-21L and Taxiway C be constructed 400 feet from the centerline of Runway 12-30 and the taxiway geometry designed for TDG 3.

It is recommended that the section of Taxiway F west of Taxiway C be constructed 240 feet from the centerline of Runway 12-30 and the geometry designed for TDG 2.

Taxiway H currently meets the pavement width for TDG 3 standards and taxiway separation standards for a Group-III taxiway. Several of the taxiway connectors do not meet TDG standards. **It is recommended that the taxiway/taxiway connectors be designed and constructed to TDG 3 standards during the next Taxiway H rehabilitation project.**

Taxiway B, while identified on the Airport Diagram, is not a true taxiway, but an apron taxilane and therefore not included in the this section.

AC-13A recommends that direct access to a runway from a parking apron be eliminated if possible to avoid runway incursions. Taxiways A1, B4, C2, E1, E2, F1, and F3 lead directly from an apron onto a runway. **During the next runway or taxiway rehabilitation project associated with each taxiway, it is recommended that these taxiways be removed or relocated to prevent direct access to a runway from an apron.** ***Chapter 5, Alternatives Development and Evaluation*** will provide additional information on meeting standards.

High-Speed Exit Taxiways

In order to meet future capacity needs of the Airport, it is recommended that several high-speed exit taxiways for Runway 3R-21L be constructed in Phase III.

Taxiway Safety Area (TSA)

The TSA, similar to RSA, must be graded and cleared of all objects except for objects needed by function to support the taxiway. The TSA is centered on the taxiway, and for existing ARC C-II aircraft, the TSA is 118 feet wide. The existing TSAs on Taxiway C, Taxiway D, and Taxiway H meet current standard. For existing ARC B-II aircraft, the TSA is 79 feet wide. The existing TSAs on Taxiway E and Taxiway F meeting current standard. For existing ARC B-I aircraft, the TSA is 49 feet wide. The existing TSA on Taxiway A meets the current standard. **It is recommended that the TSA be maintained throughout the planning period using routine maintenance practices.**

Taxiway Object Free Area (TOFA)

Similar to a runway, taxiways also have designated object free areas. The TOFA standards prohibit service vehicle roads, parked airplanes, and above ground objects, except for objects required to be located in the TOFA for air navigation or aircraft ground maneuvering purposes. The TOFA is centered on the taxiway, and for existing ARC C-III aircraft, the TOFA is 186 feet wide. The existing TOFAs on Taxiway C, Taxiway D, and Taxiway H meet the current standard. For existing ARC B-II aircraft, the TOFA is 131 feet wide. The existing TOFAs on Taxiway E and Taxiway F meet the current standard. For existing ARC B-I aircraft, the TOFA is 89 feet wide. The existing TOFA on Taxiway A meets the current standard. **It is recommended that the TOFAs be maintained throughout the planning period using routine maintenance practices.**

Taxilanes

PRC currently has several taxilanes on the airfield which are a combination of Group I and Group II. These taxilanes are located in and around the smaller hangars, T-hangars, and aircraft parking aprons. **Figure 4-14** depicts the taxilanes that do not currently meet standard separation with labels that correspond to information in **Table 4-14**. The table includes the group classification, Taxilane Object Free Area (TLOFA) standard separation distance, and existing separation. It is recommended that the taxilanes be reconfigured and upgraded where practicable to meet current taxilane width and TLOFA standard during the next rehabilitation project for each section.

Figure 4-14. Taxilanes with Non-Standard TLOFA

Source: Delta Airport Consultants, Inc.
Image by Quantum Spatial

Table 4-14. Taxilanes with Non-Standard TLOFA

Number	Group	TLOFA Standard Separation (Feet)	Existing Separation (Feet)
1	I	79	59
2	I	79	62
3	I	79	60
4	I	79	43-55
5	I	79	39
6	I	79	39
7	I	79	59
8	I	79	30 (half)
9	I	79	61
10	I	79	65
11	I	79	76
12	I	79	77

Source: Delta Airport Consultants, Inc.

Taxiway Designations

There are currently several connector taxiways leading from the parallel taxiways to apron or hangar areas. These taxiway connectors do not have an official designation or airfield signage. To avoid confusion and enhance safety, **it is recommended that all taxiway connectors leading from a parallel taxiway be given an official designation and appropriate airfield signage be installed during the next project associated with the adjacent taxiway.**

Runway Incursions

According to the FAA, PRC has three identified and validated runway incursion locations. The three locations are: Taxiway C2, Taxiway B4/Taxiway A, and Taxiway C4/D4. A Runway Incursion Mitigation (RIM) Study was completed to analyze and address these three locations and recommendations were provided for each location (see **Appendix E**). **It is recommended that recommendations to address these three runway incursion locations be completed in Phase I.**

Taxiway Pavement Condition

The recommendations provided in **Table 4-15** are based on the information contained in the 2013 Arizona Airports Pavement Management System (APMS) report and visual inspection. The Pavement Condition Index reported in the 2013 APMS report is based on data gathered before 2013.

Table 4-15. Taxiway Pavement Maintenance

Taxiway	Project Type	Project Phase
C and Connectors	Relocate & Rehabilitation	I
E West and Connectors	Relocate & Rehabilitation	I
D and Connectors	Rehabilitation	I
K	Rehabilitation	I
H and Connectors	Rehabilitation	II
B6	Rehabilitation	II
F and Connectors	Relocate & Rehabilitation	II
A and Connectors	Rehabilitation	III
USFS Connectors	Routine Maintenance	ALL
B3, B4, B5	Routine Maintenance	ALL

Source: Delta Airport Consultants, Inc.

There are five parallel taxiways that support the three runways at PRC. **Table 4-16** summarizes the aircraft design group (ADG) and the taxiway design group (TDG) of each taxiway and also summarizes the taxiway pavement widths, runway separation, and taxiway object free area (TOFA), all which meet current standard. Recommendations for each taxiway are made based on their associated design groups. All pavement widths and TOFAs meet current standards; however, three of the five parallel taxiways do not currently meet the recommended standard separation. **It is recommended that the standard separation be improved during Phase I.**

Table 4-16. Summary of Taxiway Design Standards

Taxiway	ADG	TDG	Pavement Width	Runway Separation	TOFA
A	B-I (Small)	1B	Yes	Yes	Yes
C	C-III	3	Yes	No	Yes
D	C-III	3	Yes	Yes	Yes
E	B-I (Small)	2	Yes	Yes	Yes
F	B-I (Small)	2	Yes	Yes	Yes
H	C-III	3	Yes	-	Yes

Source: Delta Airport Consultants, Inc.

4.5 | Part 3 - Apron Requirements

Commercial Service Terminal Apron Parking Requirements

The existing commercial service terminal apron has space to accommodate two small turbroprop or regional jet aircraft at a time. The apron routinely has two turboprop aircraft on the apron at the same time. The relocation of Taxiway C to meet runway separation standards would impact the primary on-loading and off-loading parking position. The current restricted area barrier between the commercial service apron and the GA apron will have to be relocated west reducing the size the GA apron.

A new commercial service terminal building is planned adjacent to the existing terminal building will need to provide at least two parking positions for commuter sized aircraft similar to the Embraer EMB 120 which currently utilizes PRC. Due to the limited apron space in this area, the aircraft will most likely be a power-in, push-out operation. The relocation of Taxiway E towards Runway 12-30 will allow the expansion of the new commercial service terminal apron permitting sufficient room to accommodate both the existing EMB 120 and future Embraer E170 sized aircraft safely and efficiently utilizing taxi-in/taxi-out operations.

Presently there is no need for additional apron for the commercial service terminal building. **It is recommended that the commercial service terminal apron parking area be maintained throughout the planning period. If Taxiway C is relocated prior to the completion of the new commercial service terminal building in Phase I, it is recommended that the apron be expanded west by relocating the Restricted Area barrier and reconfiguring the new space for a single EMB 120. When the new commercial service terminal building is constructed in Phase I, it is recommended that the existing apron pavement be rehabilitated and reconfigured to accommodate two regional jet aircraft.**

General Aviation Aircraft Apron Parking Requirements

General aviation aircraft parking requirements vary widely depending on the percentage of transient aircraft using the airport as well as the number of based aircraft owners who choose to tie down their aircraft on the ramp in lieu of leasing hangar space. PRC has several ramps that offer tie down locations for both transient and based aircraft.

Transient Aircraft

Transient aircraft parking requirements typically comprise the largest demand for apron space requirements. Transient aircraft are defined as those aircraft not based at the facility. For the purpose of this analysis, peak day transient operations from ***Chapter 3***, ***Forecast of Aviation Demand*** were used to determine apron space requirements.

During this Master Plan Update, reviews of PRC service records and interviews with PRC staff have determined that approximately 23 percent of all operations are transient operations. **Table 4-17** details the transient aircraft activity for the planning period.

Table 4-17. Transient Aircraft Activity for Planning Period

	Base 2016	Phase I 2021	Phase II 2026	Phase III 2036
Transient Ops/Busy Day	84	84	86	90
Transient Aircraft/Busy Day	42	42	43	45
Single Engine Piston	37	37	38	40
Multi-Piston	3	3	3	3
Turboprop	1	1	1	1
Jet	1	1	1	1

Source: Delta Airport Consultants, Inc.

Apron parking space allocations for the footprint of typical transient aircraft at PRC are estimated at 200 square yards (SY) for single engine piston and small multi-engine piston aircraft, 400 SY for large multi-engine (piston) and turbo-prop aircraft, and 600 SY for jet aircraft; these allocations do not include circulation space. After discussions with PRC staff, it is assumed that 50 percent of the daily transient aircraft will be on the apron simultaneously during a busy day. **Table 4-18** presents the apron parking area requirements for transient aircraft for the 20-year planning horizon.

Table 4-18. Apron Parking Area Requirements for Transient Aircraft

Aircraft	Base 2016 (SY)	Phase I 2021 (SY)	Phase II 2026 (SY)	Phase III 2036 (SY)
Single Engine	(37) 7,400	(37) 7,400	(38) 7,600	(40) 8,000
Multi-Engine Piston	(3) 1,500	(3) 1,500	(3) 1,500	(3) 1,500
Turboprop	(1) 500	(1) 500	(1) 500	(1) 500
Jet	(1) 600	(1) 600	(1) 600	(1) 600
Total Requirements	(42) 10,000	(42) 10,000	(43) 10,200	(45) 10,600
Existing Space (SY)	4,543	4,543	4,543	4,543
Deficiency (-)/Capacity (+)	**-5,457**	**-5,457**	**-5,657**	**-6,057**

Source: Delta Airport Consultants, Inc.

Based Aircraft Apron Requirements

Based aircraft, as opposed to transient aircraft are permanently stored at the airport. For those owners not requiring hangar storage, adequate space for parking and storage of these aircraft on the apron should be provided.

There are currently 25 based aircraft that park on the apron. The square yardage per based aircraft used for this analysis is the same as transient aircraft and does not include Group II circulation requirements. These requirements are presented in **Table 4-19.**

Table 4-19. Based Aircraft Apron Requirements Summary

	Base 2016 (SY)	Phase I 2021 (SY)	Phase II 2026 (SY)	Phase III 2036 (SY)
Single Engine (parked)	25	25	24	23
Tie Down Requirements (SY)	5,000	5,000	4,800	4,600
Existing Space (SY)	15,916	15,916	15,916	15,916
Deficiency (-)/Capacity (+)	**+10,916**	**+10,916**	**+11,116**	**+11,316**

Source: Delta Airport Consultants, Inc.

Total General Aviation Apron Parking Area Space Requirements

The preceding discussions have identified the total demand for apron parking area space for the planning period. Apron parking area size requirements have been established for both based and transient aircraft. **Tables 4-18** and **4-19** present the apron parking area requirements for transient and based aircraft respectively for the planning period. **The analysis indicates that the existing transient general aviation apron parking area space is inadequate for demand throughout the planning period; however, the based aircraft parking has ample space to meet the requirements through the planning period.**

The existing based aircraft apron is the North Apron. It is located parallel to Taxiway C between Runway 12 end and Runway 3L end. The North Apron has Group I circulation with the potential to store a Group II aircraft if needed. It is recommended that the circulation be improved during the planning period. The existing transient aprons are the South Apron adjacent to the terminal building and the Legend Aviation Ramp on the south side of the intersection of Runway 3R and 12-30. **Collectively the aprons do not have enough capacity to hold the transient aircraft for the planning period. It is recommended that the transient apron parking area be expanded to meet the requirement for the planning period. During each of the aprons has Group I circulation; however, it is recommended that standard separation and circulation be improved upon during the planning period.**

Apron Parking for Embry-Riddle Aeronautical University (ERAU)

As noted in Appendix D, Embry-Riddle Aeronautical University (ERAU) currently has 26 based fixed wing aircraft with forecasted growth. Based on ERAU's forecast and the existing apron space available, ERAU will need to find additional apron parking in the next few years to accommodate the new aircraft. **It is recommended that ERAU expand their aircraft parking apron in Phase II to accommodate the additional forecasted aircraft.**

Apron Parking for U.S. Forest Service

The U.S. Forest Service (USFS) utilizes three apron positions to load fire retardant material on large firefighting tanker aircraft and has apron space to accommodate three to five small single engine or twin engine support aircraft. During a busy fire season, the USFS can utilize fifteen to twenty aircraft at PRC. These aircraft are a mix of large fixed wing tankers, small fixed wing support aircraft, and rotorcraft. In many cases, taxiways and runways have been shut down to park these aircraft, impacting normal airport operations. **It is recommended that a dedicated apron be constructed in close proximity to the USFS Facility to accommodate a variety of firefighting aircraft.**

Helicopter Parking Requirements

PRC has several FBO Operators (Guidance Aviation, North-Aire, and Universal Helicopter) that offer helicopter rides and flight training. Each FBO Operator has a designated parking area for their helicopter operations. In addition to this, the West Ramp is used for additional helicopter parking as needed. The West Ramp is located adjacent to Taxiway F. **It is recommended that the designated helicopter areas be maintained throughout the planning period using routine maintenance practices.**

Apron Pavement

The recommendations provided in **Table 4-20** are based on the information contained in the 2013 Arizona Airports Pavement Management System (APMS) report and visual inspection. The Pavement Condition Index reported in the 2013 APMS report is based on data gathered before 2013.

Table 4-20. Apron Pavement Maintenance Plan

Apron	Project Type	Project Phase
West	Reconstruction	I
Embry-Riddle	Rehabilitation	I
Terminal	Rehabilitation	I
Rittaire	Rehabilitation	I
North	Rehabilitation	I
Guidance	Rehabilitation	II
Whiskey	Rehabilitation	II
Legend/Air Craftsman	Rehabilitation	III
Legend	Rehabilitation	III
U.S. Forest Service	Routine Maintenance Practices	ALL
South	Routine Maintenance Practices	ALL

Source: Delta Airport Consultants, Inc.

4.5 | Part 4 - Airfield Lighting Systems and Visual Approach Aids

Airport Beacon

PRC's rotating beacon is located on a tower on the north quadrant of the airfield next to the electrical vault and is in good condition. **It is recommended that the rotating beacon and tower be maintained during the planning period using routine maintenance practices.**

Wind Cone

The primary wind cone and associated concrete Segmented Circle was newly installed in 2016 during the PRC Electrical Improvements project. It is an LED lighted wind cone. The primary wind cone and segmented circle were reconfigured to meet the 2016 FAA standards. The Runway 30 Supplemental Wind Cone was also replaced in the 2016 PRC Electrical Improvements project. During the 2013 Runway Safety Area Improvements project the Runway 3R and Midfield (Taxiways D4 and D5) Supplemental Wind Cones were replaced with new LED lighted wind cones.

The remaining Supplemental Wind Cones, (RW 21L, RW 21R, RW 3L, and RW 12) are all older but currently in good condition. **It is recommended that the wind cones be maintained throughout the planning period through regular maintenance practices.**

Segmented Circle

PRC has a Segmented Circle around the primary wind cone. **It is recommended that the Segmented Circle be maintained during the planning period using routine maintenance practices.**

Precision Approach Path Indicators (PAPIs)

The Runway 3R, 21L, 12, and 30 PAPIs were all replaced during the 2016 PRC Electrical Improvements project. The Runway 3R and 21L PAPIs are 4-box incandescent, where the Runway 12-30 PAPIs are 2-box incandescent. PRC has a "shelved" project, (i.e. designed and waiting construction funding), for new 2-box PAPIs for Runway 3L-21R. **It is recommended that the Runway 3L and 21R PAPIs be installed in Phase I and the remaining PAPIs be maintained during the planning period using routine maintenance practices.**

Runway End Identifier Lights (REIL)

There are Runway End Identifier Lights (REILs) on Runway ends 3R, 12, and 30. PRC replaced the REILs on Runway 3R in 2015. The Runway 12 and 30 REILs were replaced during the 2016 PRC Electrical Improvements project. All the REILs are

currently in good condition. **It is recommended that REILs be added to Runways 3L and 21R in Phase I and that the existing REILs be maintained during the planning period using routine maintenance practices.**

Runway Lighting and Signage

The runway lighting system for Runway 3R-21L includes Medium Intensity Runway Lighting (MIRL) and runway threshold lights, both of which are in fair condition. There is airfield signage along the runway at each connecting taxiway meeting FAA requirements, also in fair condition. There is currently a Runway Lighting and Signage project that is "shelved", (i.e. designed in December 2016 and awaiting funding for construction), that includes all new LED MIRL and LED airfield signage, and new LED Distance Remaining Signs. **It is recommended that the Runway 3R-21L lighting, signage, and electrical infrastructure be replaced with new LED fixtures and infrastructure in Phase I.**

The runway lighting system for Runway 3L-21R includes Medium Intensity Runway Lighting (MIRL) and runway threshold lights, both of which are in fair condition. There is currently a Runway Lighting and Signage project that is "shelved", (i.e. designed in December 2016 and awaiting funding for construction), that includes all new LED MIRL and LED airfield signage, and new LED Distance Remaining Signs. **It is recommended that the Runway 3L-21R lighting, signage, and electrical infrastructure be replaced with new LED fixtures and infrastructure in Phase II.**

The runway lighting system for Runway 12-30 includes Medium Intensity Runway Lighting (MIRL) and runway end lights, both of which are in poor condition. **It is recommended that the Runway 12-30 lighting, signage, and electrical infrastructure be replaced with new LED fixtures and infrastructure in Phase I.**

Taxiway Lighting and Signage

Taxiways A, B, C, F, and H and associated taxiway connectors have incandescent MITLs and incandescent signs. The lighting system and components for Taxiways A, B, C, F, and H are in good condition. **It is recommended that the these taxiway lights and signs be replaced with LED fixtures in Phase III or during the next rehabilitation project associated with each taxiway.**

Taxiways D and E and associated taxiway connectors have LED MITLs and LED signs. The LED MITLs along Taxiways D and E were installed in 2012 and 2016 respectively and are in good condition. **It is recommended that these taxiway lights and signs be maintained throughout the planning period through regular maintenance practices.**

There are approximately 16 existing taxiway connectors between the parallel taxiways and aircraft parking aprons that are not currently lighted or signed. These taxiways include the seven that serve the U.S. Forest Service aprons. **It is**

recommended that these taxiway connectors be lighted and signed with LED MITLs and LED signs during the next rehabilitation project for the adjacent parallel taxiway.

Airfield Electrical Vault

The electrical vault has recently been relocated to a central location on the airfield. The vault upgrades included a new Airport Lighting and Control Monitoring System (ALCMS), a new back-up emergency generator, and new Constant Current Regulators (CCRs). **It is recommended that the new electrical vault and equipment be maintained during the planning period using routine regular maintenance practices.**

Runway 21L MALSR

The Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) system is owned and maintained by the FAA and is in good condition. **It is recommended that the MALSR be maintained throughout the planning period using routine maintenance practices.**

4.5 | Part 5 - Navigational Aids (NAVAIDs)

Navigational Aids (NAVAIDs) are a system of electronic and visual aids that assist pilots with navigating their aircraft in a safe and orderly manner during take-off, approach, and landings. The following are recommendations related to NAVAIDs at PRC.

Glide Slope

The Runway 21L glide slope equipment is owned and maintained by the FAA and is in good condition. The antenna and shelter are located between Runway 21L and Taxiway D within the runway object free area (ROFA). Current FAA guidance recommends, where practicable, that glide slope facilities be located outside the ROFA. Runway 3R-21L has parallel taxiways on both sides of the runway, limiting the options for locating the glide slope equipment outside the ROFA. **It is recommended that the glide slope equipment be maintained during the planning period using routine maintenance practices and that during any proposed improvements to Runway 3R-21L, a site analysis be conducted to locate the glide slope equipment outside the ROFA.**

Localizer

The Runway 21L localizer equipment is owned and maintained by the FAA and is in good condition. While the antenna and equipment shelter are both outside the runway safety area, the equipment shelter is within the runway object free area (ROFA). Current FAA guidance recommends, where practicable, that localizer facilities be located outside the ROFA. Due to existing conditions, there are limited

options for relocating the equipment shelter. If the declared distances for Runway 21L are adjusted to correct the non-standard ROFA, the localizer equipment shelter will no longer be in the ROFA. **It is recommended that the localizer equipment be maintained during the planning period using routine maintenance practices and that during any proposed improvements to Runway 3R-21L, a site analysis be conducted to locate the equipment shelter outside the ROFA.**

4.5 | Part 6 - Instrument Approach Procedures

PRC currently has four published instrument approaches as listed in **Table 4-21.** Existing instrument approach procedures can be enhanced by removing or mitigating existing obstructions, installing approach lighting systems, or installing a ground based navigational aid.

It is recommended that the existing procedures be maintained or enhanced during the planning period to reduce minimums. It is also recommended that RNAV approaches to Runways 3L, 21R, and 30 be investigated for development. Enhancement options will be discussed in Chapter 5.

Table 4-21. Published Instrument Approach Procedures

Approach	MSL	AGL	Visibility (miles)
21 L ILS	5,176	200	1/2
21L RNAV (GPS)	5,176	200	1/2
12 RNAV (GPS)	5,276	250	1
3R RNAV Y (GPS)	5,311	289	1
3R RNAV Z (GPS)	5,376	354	1 1/8
12 VOR	5,540	516	1

Source: Delta Airport Consultants, Inc., January 5, 2017, FAA Published Approach Procedures

4.5 | Part 7 - Weather Reporting Systems

Automated Surface Observing System (ASOS)

PRC has an Automated Surface Observing System (ASOS) system that is located on the east side at the intersection of Runway 3R-21L and Runway 12-30. The ASOS is in owned and maintained by the National Weather Service, and is in good condition. **It is recommended that the ASOS be maintained during the planning period using routine maintenance practices.**

Stand Alone Weather System (SAWS)

PRC has an SAWS system that is located next to the fuel farm. The system is owned and maintained by the FAA, and is in good condition. **It is recommended that the that the SAWS be maintained during the planning period using routine maintenance practices.**

The Prescott Regional Airport - Ernest A. Love Field decommissioned their Automated Weather Observing System (AWOS) in late 2016, early 2017. The equipment will be fully removed in 2017 by FAA Technical Operations.

Section Overview

Part 1 | Commercial Service Terminal Building
Part 2 | Hangars
Part 3 | FBO Buildings
Part 4 | Airport Access
Part 5 | Automobile Parking
Part 6 | Wayfinding

Image by Woolpert

4|Section 6 - Landside Facility Requirements

Landside facilities include airport buildings, fuel farms, passenger and general aviation terminal buildings, hangars, auto parking and fencing

Landside facilities include airport buildings, fuel farms, passenger and general aviation terminal buildings, hangars, automobile parking, and fencing. The landside facility requirements were developed from a review of ***Chapter 2, Existing Conditions*** and ***Chapter 3 Forecasts of Aviation Demands*** of this study, consistent with FAA and industry guidelines.

4.6 | Part 1 - Commercial Service Terminal Building

The current terminal building was originally constructed in 1947 and has been modified several times with the most recent renovation taking place in 2011. In 2015, the City of Prescott completed a Terminal Building Site Assessment (TBSA). The TBSA is included in **Appendix E**. The Assessment looked at a short term requirement to accommodate 10,000 enplaned passengers and a long term requirement of 50,000 enplaned passengers. These figures are very similar to the forecasted enplanements in ***Chapter 2***, which forecasted 10,000 passengers in the short term and 43,343 in the long term.

It is recommended that a new commercial service terminal building be constructed in Phase I to accommodate the short term demand as forecasted. It is also recommended that the Short Term Demand – Single Daily Peak Terminal Building area of approximately 9,500 square feet be used as a planned size for a new commercial service terminal building in Phase I. The final building facilities and space requirements will be determined during the design phase of the building.

It is recommended that an expansion of the terminal building be considered when forecasted enplanements reach the short term enplanements in Phase II and Phase III.

It is recommended that the existing commercial service terminal building be demolished to permit expansion of the new terminal building and provide adequate apron space for multiple regional jets. This will be necessary when airlines begin utilizing Group III aircraft.

4.6 | Part 2 - Hangars

Hangar space requirements include demand generated by based aircraft, normal fixed base operations, and corporate aircraft use. For the purposes of this Master Plan, aircraft and aircraft storage space for Embry Riddle Aeronautical University and Rittaire will not be included as a part of the hangar space requirements. Following discussions with PRC staff, the following assumptions were made to determine hangar space requirements for based aircraft at PRC:

- 90% of all single engine piston aircraft will require hangar space through the planning period
- 100% of all multi-engine, turboprop, and business jets will require hangar space
- 100% of all others (i.e., rotorcraft) will require hangar space

PRC currently has 185 units spread across 19 T-hangars with varying sizes, 54 units spread across seven executive hangars, and 17 conventional hangars; however, 11 of the conventional hangars and 48 units of the executive hangars are privately owned. Planning ratios for each type of aircraft were based on discussions with PRC management and are illustrated in **Table 4-22**.

Table 4-22. Aircraft Storage Breakdown

Aircraft Types	Conventional Hangars	T-Hangars
Single Engine	25%	65%
Multi-Engine Piston	25%	75%
Turboprop	100%	0%
Business Jet	100%	0%
Rotorcraft	100%	0%

Source: Delta Airport Consultants, Inc.
Note: The remaining 10% for single engine will be located on apron tie-downs.

The conventional hangar space standards that were used for each of the aircraft type to determine the required hangar space are shown in **Table 4-23.** These dimensions represent the optimum space required for aircraft parking within the hangar. They do not include additional spacing required for related hangar operations or aircraft circulation.

Table 4-23. Hangar Planning Criterion

Aircraft Types	Conventional Hangars (SF)
Single Engine	1,200
Multi-Engine Piston	1,400
Turboprop	2,400
Business Jet	3,600
Rotorcraft	1,200

Source: Delta Airport Consultants, Inc.

The total hangar requirements are highlighted in **Table 4-24**. The planning model used to for this analysis indicates that PRC does have adequate T-hangar, but does not have enough conventional hangar space for the planning period.

Table 4-24. Total Hangar Requirements

	Base 2016 (sy)	Phase I 2021 (sy)	Phase II 2026 (sy)	Phase III 2036 (sy)
T-Hangar (Units)				
T-Hangar Demand	163	158	154	147
Existing T-Hangar Units*	185	185	185	185
Deficiency (-)/Capacity (+)	**+22**	**+27**	**+31**	**+38**
Conventional Hangar Area (SF)				
Single Engine	75,600	73,200	70,800	67,200
Multi-Engine Piston	14,700	14,700	13,650	12,600
Multi-Engine Turboprop	18,000	21,600	21,600	28,800
Business Jet	14,400	19,200	19,200	24,000
Other (Rotorcraft, ultralights, gliders)	61,200	72,000	84,000	115,200
Total SF Required	108,300	127500	138450	180600
Existing Space (SF)	118,100	118,100	118,100	118,100
Deficiency (-)/Capacity (+)	**9,800**	**-9,400**	**-20,350**	**-62,500**

Source: Delta Airport Consultants, Inc.
*Includes shades

Since the forecast predicts a downward trend in single engine aircraft, and the T-hangars are not currently at capacity nor will reach capacity during the planning period, there is no demand for future T-hangar expansion. However, if the terminal automobile parking lot gets expanded during the planning period, then two T-hangars will need to be demolished for the expansion. **It is recommended that if the T-hangars get demolished, then two T-hangars will need to be built in their place during Phase II or Phase III to maintain capacity. As for the remaining T-hangars it is recommended that they be maintained throughout the planning period through regular maintenance practices.**

There are currently 19 T-hangars and 3 shade hangars each of which is in good or fair condition. **It is recommended that each of these be maintained with regular maintenance practices throughout the planning period.**

Due to the larger aircraft that are forecasted to utilize the airfield and the increased number of based multi-engine turboprop, jet, and rotorcraft throughout the planning period, the current hangar space is not sufficient to meet the demand. In the base year, there is enough square feet of hangar space to meet the demand; however, with each consecutive phase additional hangar space will be required. Additionally, several conventional hangars are privately owned and operated which can limit the amount of available space in existing hangars which can be used to store aircraft. Currently PRC does not have hangars large enough to accommodate medium to large business jets similar to the Challenger 300 or Gulfstream 550. **Therefore, it is recommended that additional public use large hangars be constructed to accommodate the larger aircraft during Phases I, II, and III.**

There are currently 54 conventional hangars each of which is in good or fair condition. **It is recommended that each of these be maintained with regular maintenance practices throughout the planning period.**

Fixed Based Operator (FBO) - Is an organization permitted by an airport to provide one or more aeronautical services on the airfield such as fueling, hangar rentals, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, and similar services.

4.6 | Part 3 - FBO Buildings

There is no designated general aviation terminal building, instead general aviation traffic is handled by the Fixed Base Operator (FBO), Legend Aviation. Based on discussions with the FBO Manager in June of 2017, the existing facility is adequate to meet their current needs. Based on forecasted traffic growth and the FBO's need for to accommodate expanded business services, additional space will be required within 10 years. **It is recommended that an expansion of the facility be completed in Phase II.**

4.6 | Part 4 - Airport Access

The main entrance to PRC is via AZ-89 and Mac Curdy Drive which runs directly into PRC's commercial service parking lot. There are several other access points via AZ-89: Clubhouse Drive connects to MacCurdy Drive, and leads to Legend FBO and Arizona Aircraftsman. Ruger Road connects to AZ-89, and leads to Guidance Aviation and Ruger Manufacturing. An additional access point is via AZ-89A, Larry Caldwell Road, which gives access to Embry Riddle, Rittaire, North-Aire, Prescott LLC hangar complex, U.S. Forest Service, and several other hangars.

The area of PRC south of Runway 12-30 does not have a direct roadway connection to the facilities north of the runway. Access between the two sides requires leaving airport property and using Highway A-89A, which is a limited access highway. This lack of direct roadway connection impacts businesses and the effectiveness of the City and PRC staff to respond to tenants and emergencies. **It is recommended that a study be conducted in Phase II to construct a public roadway on airport property around the end of Runway 30 connecting Clubhouse Drive and Wilkinson Drive. It is also recommended that a public roadway be constructed around the end of Runways 3L-21R and 3R-21L following the extension of Runway 3R-21L in Phase II.**

MacCurdy Drive is the primary entrance to PRC and provides access to the Commercial Terminal Building. ADOT is in the process of upgrading Route AZ-89, including the intersection with MacCurdy Drive. To be consistent with the Route AZ-89 improvements and provide a first class experience, **it is recommended that improvements be made to the main access road, MacCurdy Drive, in Phase II.**

4.6 | Part 5 - Automobile Parking

Existing public auto parking for PRC consists of 740 spaces located in several different areas. For planning purposes, the number of automobile parking spaces required for the different areas of PRC were calculated separately.

General Aviation related Automobile Parking

Parking for general aviation activities was divided into three areas for planning purposes. These areas are centered around the primary general aviation activities in each. Due to existing facilities and geographic location, these areas cannot share automobile parking spaces. The areas are; Southside, centered on Legend Aviation; Eastside, centered on the Rittaire complex; and Westside, centered on Guidance Aviation and Airport Administration.

The Southside Area is the primary transient aircraft arrival and departure area. As a result, the number of automobile parking spaces required for general aviation traffic is estimated as the sum of the peak hour pilots and passengers (2.5 pilots and passengers per peak hour operation), number of employees, and rental cars available. The results are shown in **Table 4-25**, which indicates the number of public automobile parking facilities is not sufficient for current and future demand.

Table 4-25. Southside (Legend Aviation) Automobile Parking Requirements

Location	Base 2016	Phase I 2021	Phase II 2026	Phase III 2036
Peak Hour Operations	24	24	24	25
Peak Hour Pilots and Passengers	60	60	60	63
Employees	25	25	25	25
Rental cars	6	6	6	6
Total Spaces Required	91	91	91	94
Existing Spaces	42	42	42	42
Deficiency (-)/Capacity (+)	-49	-49	-49	-52

Source: Delta Airport Consultants, Inc.

The Eastside Area is primarily focused on flight training, aircraft maintenance, and aircraft storage. The parking requirements for the flight training portion was calculated based on the number of training aircraft. One student was estimated per aircraft for automobile parking planning purposes. Employees of the business were also included. The results are shown in **Table 4-26**, which indicates the number of public automobile parking facilities is not sufficient for current and future demand.

Table 4-26. Eastside (Rittaire) Automobile Parking Requirements

Location	Base 2016	Phase I 2021	Phase II 2026	Phase III 2036
Students (15 Aircraft)	15	15	15	15
Employees	30	30	30	30
Total Spaces Required	45	45	45	45
Existing Spaces	42	42	42	42
Deficiency (-)/Capacity (+)	-3	-3	-3	-3

Source: Delta Airport Consultants, Inc.

The Westside Area is primarily focused on flight training, airport administration, and aircraft storage. The parking requirements for the flight training portion was calculated based on the number of training aircraft. One student was estimated per aircraft for automobile parking planning purposes. Guidance Aviation Staff and Airport Administration staff were also included. The results are shown in **Table 4-27,** which indicates the number of public automobile parking facilities is sufficient for current and future demand.

Table 4-27. Westside (Guidance/Admin) Automobile Parking Requirements

Location	Base 2016	Phase I 2021	Phase II 2026	Phase III 2036
Students (10 Aircraft)	10	10	10	10
Guidance Employees	15	15	15	15
Airport Employees	14	14	14	14
Total Spaces Required	39	39	39	39
Existing Spaces	128	128	128	128
Deficiency (-)/Capacity (+)	+89	+89	+89	+89

Source: Delta Airport Consultants, Inc.

It is recommended that the Southside Area automobile parking inventory be increased in Phase I to meet the existing and future demands of the area.

It is recommended that the Eastside Area automobile parking inventory be increased in Phase I to meet the existing and future demands of the area.

It is recommended that the Westside Area automobile parking be maintained throughout the planning period using routine maintenance practices.

Commercial Service Terminal Building Automobile Parking

The existing commercial service terminal building automobile parking lot consists of a long narrow lot with one-way traffic and a drop-off area in front of the terminal. The parking lot provides spaces for airline passengers, airline employees, TSA employees, rental cars, and the terminal café. Many factors were taken into account to determine the number of automobile parking lot spaces needed to accommodate the building traffic during the planning period. Those factors are:

2016 (Base Year)

- PRC was serviced by a 9 seat aircraft with two daily departures/arrivals.
- Load factor: 50%

2021

- PRC will be served by a 30 seat aircraft with two daily departures/arrivals.
- Load Factor: 50%

2026

- PRC will be served by a 30 seat aircraft with two daily departures/arrivals.
- Load Factor: 100%

2036

- PRC will be served by a 70 seat aircraft each with two daily departures/arrivals.
- Load Factor: 75%

The factors below are relevant for each year (2016, 2021, 2026, and 2036):

- For planning purposes it is assumed that PRC passengers are flying for business purposes, therefore only one person occupied a car.
- 75 percent of the PRC passengers were driving and parking while 25 percent were arriving or departing by other means.
- A 2011 study published by the Global Business Travel Association Foundation (GBTA) indicated that the average business trip lasts four days.

As presented in **Table 4-28**, the existing parking lot capacity is adequate for existing traffic. An expansion of the parking lot will be needed in Phases I, II, and III to meet the forecasted enplanements. The new proposed commercial service terminal building will be situated away from the existing terminal parking lot. **It is recommended that a new parking lot with drop-off lanes and circulation be constructed adjacent to the new commercial service terminal building in Phase I, and the parking lot be expanded in Phase II and Phase III.**

Table 4-28. Commercial Service Terminal Automobile Parking Requirements

Location	Base 2016	Phase I 2021	Phase II 2026	Phase III 2036
Required Spaces				
Passengers	27	90	180	318
Employees/Tenants	10	12	15	18
Café Patrons (50% of seating)	15	15	15	15
Rental Cars	6	12	18	24
Total Spaces Required	58	129	228	375
Existing Spaces	107	107	107	107
Deficiency (-)/Capacity (+)	**+49**	**-22**	**-121**	**-268**

Source: Delta Airport Consultants, Inc.

4.6 | Part 6 - Wayfinding

There is limited wayfinding associated with PRC from AZ-89 and AZ-89A to the different development areas of PRC. Due to the lack of a roadway connection between the east and west sides of PRC, navigating to and around PRC can be confusing. Currently there are only standard Department of Transportation (DOT) signs along the major roads surrounding PRC. In addition, the on airport signage is limited. A signage plan, completed in conjunction with Arizona Department of Transportation (ADOT), would benefit PRC and the community. **It is recommended that a wayfinding study and signage improvement project be completed in Phase II.**

Section Overview

Part 1 | Aviation Fuel Storage and Delivery Area
Part 2 | Aircraft Rescue & Firefighting (ARFF) Building
Part 3 | Maintenance Equipment and Storage
Part 4 | Snow Removal Equipment and Storage
Part 5 | Ground Support Equipment (GSE) Storage Building
Part 6 | Airport Administrative Building
Part 7 | Airport Security Program Requirements and Perimeter Fencing
Part 8 | Air Traffic Control Tower
Part 9 | Aircraft Wash Facility
Part 10 | Rental Car Service Facility
Part 11 | Airport Perimeter Road

Image by Woolpert

4 | Section 7 - Support Facilities

The sizing, location, and phasing of these facilities must provide flexibility to accommodate the dynamic aviation industry

Support facilities play a vital role in the operation of PRC. The sizing, location, and phasing of these facilities must provide flexibility to accommodate the dynamic aviation industry. Support facilities that will be discussed in this section include the following:

- Aviation Fuel Storage and Delivery Area
- Aircraft Rescue and Fire Fighting (ARFF) Building
- Maintenance Equipment and Storage
- Snow Removal Equipment (SRE) and Storage
- Ground Support Equipment (GSE) Storage Building
- Airport Administration Building
- Airport Security and Fencing
- Air Traffic Control Tower (ATCT)
- Aircraft Wash Facility
- Rental Car Service Facility
- Airport Perimeter Road

4.7 | Part 1 - Aviation Fuel Storage and Delivery Area

PRC leases four City-owned above ground storage tanks (ASTs) to Legend to maintain for their use, two of which store 20,000 gallons of Jet-A fuel each, and two which store 20,000 gallons of AVGAS each. The fuel facility is in good condition and maintains sufficient capacity to meet demand. In addition to the above ground storage tanks, there are two 6,000 gallon self-fuel storage tanks which are also in good condition. Legend owns and manages four fuel trucks, two dedicated towards AVGAS and two dedicated to Jet A, and Legend has indicated that the existing system is adequate to handle the needs of PRC. **It is recommended that the existing fuel farm, self -fuel tanks, and fuel trucks be maintained throughout the planning period using routine maintenance practices.**

There is a Legend-owned self-serve fuel facility for AVGAS located on the North Ramp that is currently within the departure RPZ for Runway 21R. **It is recommended that the facility be relocated outside the RPZ to a location that is compatible with adjacent facilities and that will not impact future development.**

North-Aire has a privately owned and operated AVGAS fuel facility located on the Rittaire Ramp that is utilized by their own aircraft. It was recently installed and is in good condition. **It is recommended that this system be maintained throughout the planning period using routine maintenance practices.**

4.7 | Part 2 - Aircraft Rescue & Firefighting (ARFF) Building

The current 3,600 square foot fire station constructed in 1972, is a joint use facility between the City of Prescott Fire Department (PFD) and PRC. The building's garage has four bays that accommodate two structural vehicles (PFD), one aircraft rescue and firefighting (ARFF) vehicle (PRC), personnel gear, supplies, accessories, and miscellaneous equipment. The building cannot accommodate the existing two ARFF vehicles and support equipment. The facility meets the current response time required by 14 CFR Part 139; however, if Runway 3R-21L or 3L-21R are extended, the response time will not be met. **It is recommended that a new dedicated ARFF Facility be constructed in Phase II to accommodate the existing ARFF vehicles and support equipment and that meets the requirements of AC 150/5210-15A, *Aircraft Rescue and Firefighting Station Building Design for Index A Certificated Airports,* and can accommodate the existing fleet of ARFF vehicles. It is also recommended that this facility be co-located with similar use facilities like the Snow Removal Equipment (SRE) building**. The Alternative Development and Evaluation chapter will provide additional information on meeting standards.

4.7 | Part 3 - Maintenance Equipment and Storage

The PRC maintenance equipment is currently stored in a single T-hangar unit or outside. This solution lacks the capacity to accommodate the 13 vehicle fleet of maintenance equipment. This creates a situation whereby equipment is stored in areas exposed to the weather elements. **It is recommended that a Maintenance Equipment Storage Building be constructed in Phase II to accommodate the existing fleet of maintenance equipment and that it be located so future facility development is not impacted.** This facility could be a stand-alone facility or could be part of the snow removal equipment storage facility and be expandable.

Out of the 13 pieces of equipment identified in ***Chapter 2***, four of them are in poor condition. **It is also recommended that the Volvo Heavy Truck/Dump, Caterpillar 426B Backhoe, John Deere 6320, and Chevrolet Aerial Lift Truck be replaced during the planning period.**

4.7 | Part 4 - Snow Removal Equipment and Storage

The PRC snow removal equipment (SRE) is stored in a unit of a T-hangar building. This solution lacks the capacity to accommodate the necessary fleet included in PRC's approved FAA Snow Removal Plan required by *Title 14 CFR Part 139*. This creates a situation whereby vehicles and equipment are stored in areas exposed to the weather elements. A new facility should be sized in accordance with FAA Advisory Circular AC 150/5220-18A, *Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials*. The facility should include parking bays for SRE vehicles, storage for attachments and materials, maintenance area, office space, break room/training, and lockers/restrooms. **It is also recommended that an SRE Storage Building be constructed in Phase II to accommodate the existing fleet of snow removal equipment and that it be located so future facility development is not impacted.**

The three pieces of snow removal equipment are in good or fair condition. **It is recommended that these pieces of equipment be maintained throughout the planning period.**

4.7 | Part 5 - Ground Support Equipment (GSE) Storage Building

PRC currently does not have covered storage for the Airport's ground support equipment fleet. Most of the equipment is stored in the open air near the terminal building. The equipment includes: luggage carts, tugs, auxiliary power units, and mobile stairways. The life span and reliability of the equipment is significantly reduced by continued exposure to weather elements. **It is recommended that**

a dedicated ground support equipment (GSE) storage building be constructed within a reasonable distance from the Commercial Service Terminal building in Phase III.

4.7 | Part 6 - Airport Administrative Building

PRC has a dedicated administrative building which PRC staff utilizes. The building was constructed in 1973, and has been renovated several times, and is in good condition. **It is recommended that the administrative building be maintained with regular maintenance practices throughout the planning period.**

4.7 | Part 7 - Airport Security Program Requirements and Perimeter Fencing

As discussed in ***Chapter 2, Existing Conditions***, most of PRC's perimeter fence consists of 6-foot chain link with 3-strand barbed wire fencing. There are a few sections around the airport property where the standard 6-foot chain link with 3-strand barbed wire fencing does not exist as the property is leased out and maintained by others. In general, all the existing 6-foot chain link with 3-strand barbed wire fencing around the perimeter of PRC is in good condition. The only item to note is that there are multiple locations where wildlife are continually entering by digging under the chain link fencing. PRC received a grant to complete a design phase for security upgrades, and will be soliciting $2 million for a construction phase grant in Phase I.

There are a total of 43 vehicular gates and 26 pedestrian gates that access PRC property. There are 17 general-use powered access gates that are operated and maintained by PRC tenants. There are ten airport operated access gates that are power operated. All power-operated gates are accessed by key pads.

Access Gates

The existing access gates are generally in good condition with a few that continually have gate motor failures. PRC has taken measures to upgrade the security around the airport property including new gates, gate motors, lighting, and CCTV security cameras.

Security Fencing

The existing chain-link security fence around the airport property is well maintained by airport operations. As previously mentioned, there are a few locations around the perimeter where wildlife burrow under the fence line. As soon as these areas are discovered by airport operations, the areas are re-graded, sometimes receiving larger rocks or aggregate to help deter the wildlife.

There are a few locations around PRC in areas leased by others where the perimeter fencing does not meet the FAA or TSA security regulations or requirements.

Recommendations

It is recommended that the following improvements be completed in Phase I:

- The installation of CCTV cameras at the vehicular access gates operated by PRC.
- New light poles at each vehicular access gate operated by PRC for increased visibility at night time.
- New access control equipment for visual control and management, housed in a secure office, located on airport property.
- New fiber optic communication system and software for tracking events at gate locations.
- New airfield security signage to provide additional security along the fence line and at each vehicular and pedestrian access gate.
- Modifying existing grades and fencing to enhance the security and wildlife deterrence, including the installation of buried chain like fencing or the installation of a concrete (slurry) ribbon curb.
- Construction of new FAA and TSA standard security fencing at the existing locations along the perimeter of PRC where it is currently deficient.
- Install new gates and motors with compatible vehicular loop detection systems where the existing equipment has reached its useful life and is in need of replacement.

4.7 | Part 8 - Air Traffic Control Tower

According to the air traffic control manager, the existing Air Traffic Control Tower (ATCT) currently has line-of-site issues to three runway ends. Future improvements to Runway 3R-21L and 3L-21R will only compound those issues. **It is recommended that a new Air Traffic Control Tower be constructed in Phase II to mitigate these issues. *Chapter 5, Alternatives Development and Evaluation* will provide additional information.**

4.7 | Part 9 - Aircraft Wash Facility

The stormwater pollution prevention plan (SWPPP) completed in 2012, and updated in 2014, provided many recommendations for stormwater improvements around PRC. One recommendation was to construct a dedicated aircraft wash facility with concrete sump and oil/water separator. **It is recommended that at least one dedicated aircraft wash facility large enough to accommodate turboprop sized aircraft be constructed in Phase III.**

4.7 | Part 10 - Rental Car Service Facility

PRC has seen an increase in the use of rental cars. Preparing the vehicles for the next user after each use requires several steps and several separate facilities. PRC would like to consolidate the facilities needed to prepare rental cars for use, including washing facilities, fuel facilities, and minor maintenance facilities, into a central location which should be convenient to the terminal area, but not impact future development. **It is recommended that a dedicated rental car service facility be constructed in Phase III for use by multiple rental car agencies.**

4.7 | Part 11 - Airport Perimeter Road

Due to terrain and the size of the perimeter, PRC is not currently served with a complete property perimeter access road to allow for perimeter/wildlife inspections and access for emergency response vehicles, as required by *Title 14 CFR Part 139.* PRC staff and tenants have to utilize active taxiways to reach certain areas of the airfield increasing the risk of incursions. AC 150/5300-13A recommends that "no part of the RSA or RPZ is more than 330 feet from either an all-weather road or a paved operational surface". PRC has a partial perimeter road, but it is not all-weather and it impassable at times due to precipitation. Sections are both inside and outside the security fence, preventing quick access for emergency service and ARFF vehicles. **It is recommended that an Airport Perimeter Road be constructed in phases, coinciding with the construction of needed safety area, taxiway, and runway improvements that are in the vicinity of a proposed perimeter road location.**

Image by Woolpert

4 | Section 8 - Land & Easement Acquisition

PRC currently consists of approximately 760 acres

PRC currently consists of approximately 760 acres. Additional land and easement purchases depend on many factors. Portions of the airport's runway protection zones (RPZs) are not controlled by the airport. In order to meet current FAA Standards for control of the RPZs, **it is recommended these areas be purchased in fee simple or a controlling easement be acquired over them.** There is limited space on existing property for large scale aviation related development. Due to existing development and geographical constraints, the only reasonable location for additional development would be to the north of the U.S. Forest Service (USFS) facility. **It is recommended that land north of the USFS facility be purchased in fee simple for future development. It is also recommended that additional land be purchased in fee simple to the east and north for Runway 3R-21L for future runway extensions.** ***Chapter 5, Alternatives Development and Evaluation*** will provide additional information on the locations and extent of the fee simple and easement acquisitions following the selection of the Preferred Alternative.

Image by Woolpert

4 | Section 9 - Facility Requirement Summary

Necessary facility requirements for the continued development of PRC is predicated on the existing and forecasted aviation demand

This chapter presents the necessary facility requirements for the continued development of PRC as predicated based on the existing and forecasted aviation demand developed in ***Chapter 3***, Standards presented in FAA Advisory Circular 150/5300-13A, *Airport Design*, determination of the existing and future design aircraft for PRC, and the goals and objectives of the City of Prescott. These requirements are needed to satisfy the short and long range aviation needs of the City of Prescott and surrounding area. Recommendations contained herein are intended to optimize the operational efficiency, effectiveness, flexibility, and safety of PRC throughout the planning period. ***Chapter Five, Alternatives Development and Evaluation***, will discuss and illustrate the optimum size and timing of the facility development that is most appropriate to accommodate the facility requirements. Prior to construction, projects will require an environmental evaluation per the National Environmental Policy Act (NEPA) regulations. Initial phasing for each recommended project is presented in **Table 4-29**.

Table 4-29. Proposed Facility Requirements

Project Description	Phase I (0-5 yrs)	Phase II (6-10 yrs)	Phase III (11-20 yrs)
Rehabilitate Runway 3R-21L Pavement	•		
Rehabilitate Runway 3R-2L Lighting	•		
Construct Shade Hangars	•		
Rehabilitate West Ramp	•		
New Commercial Service Terminal Building/Parking/Ramp	•		
Relocate Taxiway C/RIM Projects	•		
Rehabilitate North Ramp	•		
Improve Runway 12-30 Runway Safety Area	•		
Rehabilitate Runway 12-30 Lighting	•		
Expand FBO Parking Lot	•		
Expand FBO Ramp	•		
Upgrade Perimeter Fence & Security System	•		
Construct Corporate Hangar Site & Hangar	•		
Construct ARFF/SRE/MX Facility	•		
Acquire Land (Runway 3R-21L Extension)	•		
Extend Runway 3R-21L (EA, Design, Construction)	•		
Construct T-Hangar Taxilanes	•		
Construct T-Hangar	•		
Rehabilitate South Ramp and Perimeter Road	•		
Rehabilitate Runway 3L-21R PAPIs	•		
Rehabilitate Runway 3L-21R Lighting & Signage	•		
Rehabilitate Taxiways D & K	•		
Relocate Taxiway F		•	
Purchase Snow Removal Equipment		•	
Purchase Maintenace Equipment		•	
Rehabilitate MacCurdy Drive		•	
Construct New Air Traffic Control Tower		•	
Expand Commerical Service Terminal Parking Lot		•	
Construct Corporate Hangar Site & Hangar		•	
Conduct Airport Wayfinding Study & Improvements		•	
Update Airport Property Map		•	
Clubhouse Drive Extension Study		•	
Rehabilitate Runway 12-30 Pavement			•
Rehabilitate Taxiway A			•

Project Description	Phase I (0-5 yrs)	Phase II (6-10 yrs)	Phase III (11-20 yrs)
Environmental Assessment - Extend Runway 3L-21R			•
Acquire Land (Runway 3L-21R Extension)			•
Construct Runway 3L-21R Extension			•
Rehabilitate Runway 3L-21R Pavement			•
Construct Corporate Hangar & Site			•
Construct T-Hangar Taxilanes			•
Construct T-Hangar			•
Construct Rental Car Service Facility			•
Construct Aircraft Wash Facility			•
Construct Ground Support Equipment Building			•
Construct High-Speed Exit Taxiways			•
Expand FBO Building			•
Construct Commercial Service Terminal Building Expansion			•
Construct Commerical Terminal Parking Lot Expansion			•

Source: Delta Airport Consultants, Inc.

Chapter Five | Alternatives Development and Evaluation

Section 1 - Alternatives Analysis
Section 2 - Methodology and Evaluation Criteria
Section 3 - Runway Alternatives
Section 4 - Taxiway Alternatives
Section 5 - Air Traffic Control Tower Alternatives
Section 6 - GA Development Alternatives
Section 7 - Summary of Recommended Alternatives
Section 8 - Preferred Alternative

Image by Delta Airport Consultants, Inc.

5 | Section 1 - Alternatives Analysis

Alternatives presented in this chapter offer feasible development options to address infrastructure needs that were identified through the review of existing facilities and their ability to meet projections of future aviation demand in Chapter 4. Each alternative presented in this chapter takes into consideration the long-term needs of Prescott Regional Airport- Ernest A. Love Field (PRC) while also addressing development actions necessary to meet immediate and short-term demands. The goal of this analysis was to focus on the advantages and disadvantages of each development option considering economic, operational, and environmental factors in an effort to identify a Preferred Alternative for each facility need.

Each alternative was evaluated against the other proposed development options to satisfy each facility need. Tangible and intangible implementation factors as well as the ability of each alternative to meet the long-term goals and objectives of PRC were also considered as a part of this evaluation. The alternative that most effectively addressed the needed infrastructure improvements with consideration of these factors, was selected as the Preferred Alternative. Also, alternatives presented in this chapter are conceptual in nature and are subject to further refinement through financial, environmental, and engineering considerations.

Image by Delta Airport Consultants, Inc.

5 | Section 2 - Methodology and Evaluation Criteria

In order to evaluate the alternatives for each facility need, a set of evaluation criteria was established to review the advantages and disadvantages of the proposed development options. Merits and deficiencies were then compared and ranked with other alternatives based on quantitative or qualitative factors. This methodology centered on the following factors that were used to evaluate alternatives presented in this chapter:

- *Operational Factors* - Alternatives were evaluated for their ability to accommodate projected aviation demand throughout the planning period that included aircraft operations, enplanements, vehicle traffic, based aircraft, air cargo activity, fuel sales, and the demand for hangar/ramp space. This evaluation criteria focused on the advantages and disadvantages to address operational factors such as aircraft delay, airfield circulation, and convenience to airport users.
- *Economic Factors* - Quantitative economic factors such as construction life cycle cost were considered in comparing the cost-effectiveness of the available development options. It should be noted that this economic evaluation did not focus only on the cost to design and construct each alternative, but also operational and maintenance expenses associated with day-to-day operations.
- *Environmental Factors* - This criteria focused on those environmental resources that could potentially be impacted by the proposed development

such as noise, air quality, water quality, scenic oversight, land use impacts, and socioeconomic impacts. A comparison of the number and types of environmental resource categories impacted by the available development options was factored into the section of the recommended alternative.

- *Implementation Feasibility* – Often there are several factors both tangible and intangible that affect the ability to implement an infrastructure improvement project at an airport. Consideration of this factor focused on a qualitative analysis of an alternative to help support or negate the feasibility of implementing the proposed action. Such factors that were considered in this analysis included logic, common sense, and the probability of unknown contingencies.

Each section of this chapter addresses a need that was identified through the analysis of facility requirements and is organized so that the evaluation of all development options follows a structure that is based on the previously described evaluation criteria.

Section Overview

Part 1 | Runway 3R-21L

Part 2 | Runway 3L-21R

Part 3 | Runway 12-30

Part 4 | Runway Visibility Zone

Image by Delta Airport Consultants, Inc.

5 | Section 3 - Runway Alternatives

5.3 | Part 1 - Runway 3R-21L

As noted in Chapter 4, Runway 3R-21L is in need of a runway extension in order to accommodate the existing critical aircraft using the facility. The Airplane Design Group (ADG) for Runway 3R-21L is anticipated to remain Group III throughout the 20-year planning period.

Based upon the need for a longer primary runway, as determined in the Facility Requirements Chapter, three alternatives were developed to offer feasible solution to improve Runway 3R-21L. The following describes each proposed development as well as evaluates advantages and disadvantages bases on operational, economic, environmental, and implementation factors.

Alternative 1: Extend Runway 3R-21L

Alternative 1 proposes a runway extension of 2,381 feet for a total runway length of 10,000 feet. An illustration of this layout can be seen in **Figure 5-1**. The extensions of Taxiway C and Taxiway D are also proposed to tie the taxiways to the new end of Runway 21L. In order to complete the extension, PRC would need to acquire approximately 44 acres through fee simple or easement acquisition to provide full or partial control over the Runway Protection Zone (RPZ). Both the approach RPZ and departure RPZ will not change with this alternative.

Operational Factors

Extending the runway would allow the existing and future commercial service aircraft that utilize PRC to take off with the max takeoff weight which would allow for more passengers on each aircraft. The increased length would also benefit the general aviation aircraft that are currently weight restricted and possibly the U.S. Forest Service firefighting aircraft that utilize PRC.

Economic Factors

From a construction standpoint, the cost of Alternative 1 is the least expensive option to achieve a runway length of 10,000 feet. The increased length could improve the number of aircraft that utilize PRC by increasing the number of passengers and cargo that are carried to and from PRC. The fuel sales could also increase since those aircraft can now purchase a greater amount of fuel since the aircraft will not be as weight restricted.

Environmental Factors

There are some potential environmental impacts associated with this alternative. A trail was identified to be located along an abandoned portion of the old Santa Fe, Prescott Regional Airport- Ernest A. Love Field, and Phoenix (SFP&P) Railroad. The trail runs north/south off the Runway 21L end. Due to the location of the trail, there could potentially be some significant historical, architectural, archaeological, and cultural resources impacts for a runway extension. In 2010, a site assessment was completed indicating that future development in the area would need to take into account the impacts of the trail and coordinate with the proper agency for the potential impacts. Additionally, a total of approximately 44 acres would need to be acquired to control land uses within the relocated RPZ at the 21L Runway end. The noise contours would potentially expand on the 21L Runway end due to the extension. Additional environmental impacts would need to be analyzed closer to the time of the project.

Implementation Factors

Several issues need to be considered before implementing the extension of Runway 3R-21L. Declared distances will still be required and the removal of off-airport surface penetrations will not be accomplished quickly or inexpensively with this alternative.

Since the extension would take place off the end of Runway 21L, the Runway could remain operational during construction with a displaced threshold; however, the ILS approach and MALSR will be out of service during the duration of the project. The temporary displaced threshold could further reduce the operating weights and passenger loads of the commercial aircraft during certain times of the year.

The extension of the runway would also compound the visibility issues noted by the FAA Air Traffic Control Tower (ATCT). Additional measures would need to be implemented to mitigate the visibility issues, or a new ATCT would need to be constructed to eliminate these issues.

The extension of the runway could also impact the response time of the airport's Aircraft Rescue and Firefighting (ARFF) services due to the location of the existing ARFF Facility. The current response time is at the maximum permitted to meet Part 139 standards and a runway extension would most likely cause the response time to exceed that maximum. A new ARFF facility would most likely need to be constructed to allow the services to meet the required response time.

The current runway configuration results in an impact to the runway visibility zone (RVZ). Extending the runway would only increase the impacts to the RVZ. Part 4 of Section 5.3 discuss the RVZ in greater detail.

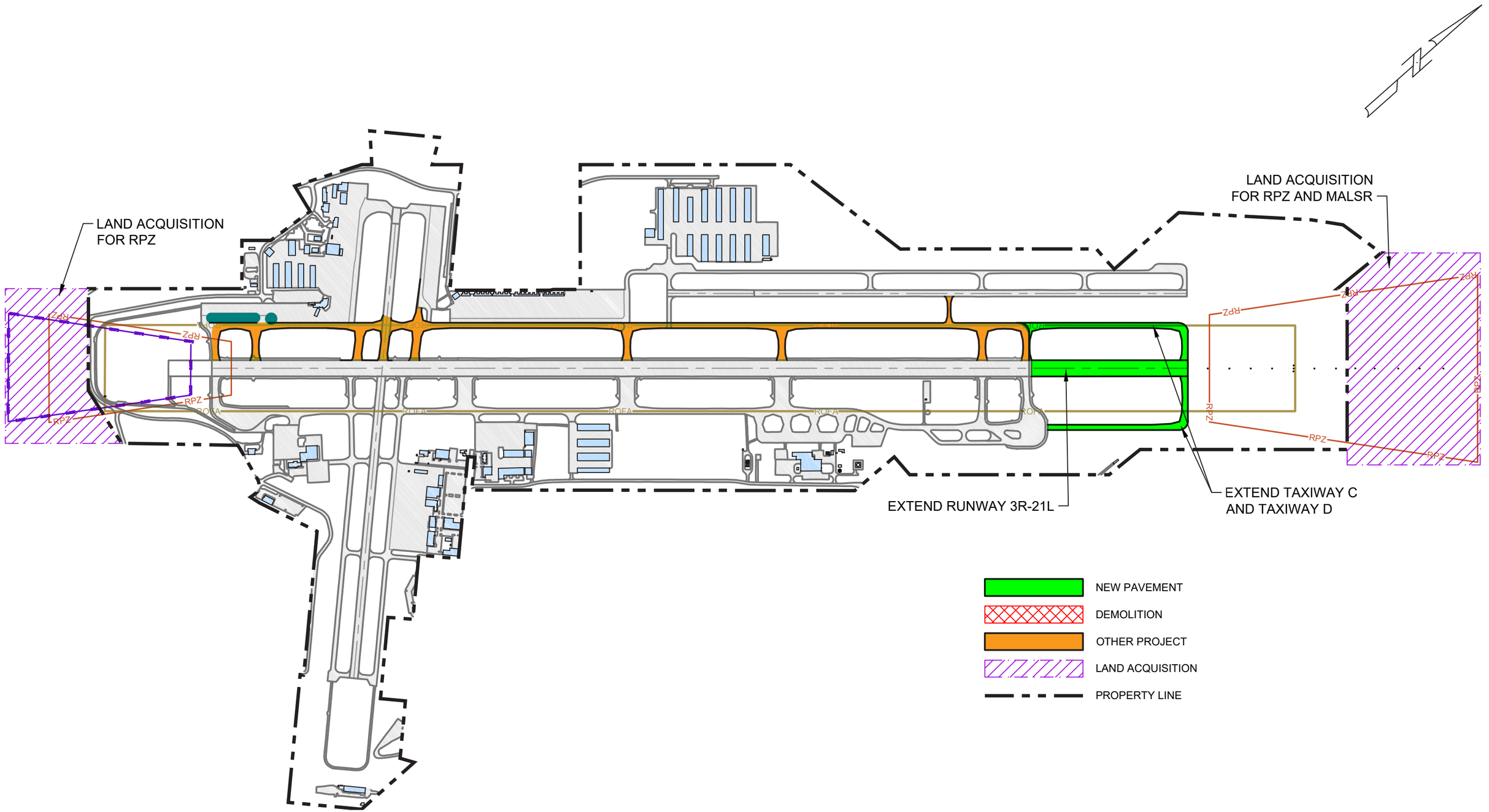


Figure 5-1. Alternative 1: Extend Runway 3R-21L
Source: Delta Airport Consultants, Inc.

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Alternative 2: Extend Runway 3R-21L and Remove Displaced Threshold

Alternative 2 proposes a runway shift and extension of 2,760 feet for a total runway length of 10,000 feet. The Runway 3R end would shift 379 feet to the north to remove the displaced threshold for no loss in usable runway length. Additionally, an extension of Taxiway C and Taxiway D will be proposed to tie the taxiways into the new Runway 21L end and new connectors. In order to complete the extension, the airport would need to acquire approximately 56 acres through fee simple or easement acquisition to provide full or partial control over the RPZ. The removal of the displaced threshold will shift the departure RPZ so that is overlaps the location of the approach RPZ. An illustration of Runway 3R-21L extension and shift can be seen in **Figure 5-2**.

Operational Impacts

Shifting and extending the runway would allow the displaced threshold to be removed. This would allow aircraft to use the full 10,000 feet of runway length for take-off and landing, and allow the aircraft to utilize the max take-off weight allowed by the aircraft once the project is completed. The increased length would also benefit the general aviation aircraft that are currently weight restricted and possibly the U.S. Forest Service firefighting aircraft that utilize PRC.

The removal of the Runway 3R displaced threshold would also help to mitigate existing penetrations of the Part 77 imaginary surfaces.

The current runway configuration results in an impact to the runway visibility zone (RVZ). Extending the runway would only increase the impacts to the RVZ. Part 4 of Section 5.3 discuss the RVZ in greater detail.

Economic Factors

The cost of Alternative 2 from a construction standpoint is the second most expensive option to achieve a runway length of 10,000 feet. The increased length could improve the number of aircraft that utilize PRC by increasing the number of passengers and cargo that are carried to and from PRC. The fuel sales could also increase since those aircraft can now purchase a greater amount of fuel since the aircraft will not be as weight restricted.

Environmental Factors

There are some potential environmental impacts for this alternative. A trail was identified to be located along an abandoned portion of the old Santa Fe, Prescott Regional Airport - Ernest A. Love Field, and Phoenix (SFP&P) Railroad. The trail runs north/south off the Runway 21L end. Due to the location of the trail, there could potentially be some significant historical, architectural, archaeological, and cultural resources impacts for a runway extension. In 2010, a site assessment was

completed indicating that future development in the area would need to take into account the impacts of the trail and coordinate with the proper agency for the potential impacts. Additionally, a total of approximately 56 acres would need to be acquired to control land uses within the relocated RPZ at the 21L Runway end. The noise contours would potentially shift with the runway and expand on the 21L Runway end due to the extension. Additional environmental impacts would need to be analyzed closer to the time of the project.

Implementations Factors

Several issues need to be considered before implementing the extension of Runway 3R-21L. Declared distances will no longer be required with the removal of the displaced threshold; however, the removal of off-airport surface penetrations will still not be accomplished quickly or inexpensively with this alternative.

During construction within the existing RSA, the Runway 21L end would be temporarily displaced and the ILS approach and MALSR would be out of service. During the removal of pavement to complete the shift, a portion of Runway 3R would need to be temporarily displaced.

The removal of the displaced threshold to Runway 3R would require the removal of the aircraft hold apron for Runway 3R. Due to the proximity to adjacent development, construction of a new hold apron would be difficult as this area is currently leased by the FBO. A bypass taxiway to Runway 3R would provide an alternate means for providing additional access to the runway during heavy operational periods.

The extension of the runway would also compound the visibility issues noted by the FAA Air Traffic Control Tower (ATCT). Additional measures would need to be implemented to mitigate the visibility issues or a new ATCT would need to be constructed to eliminate these issues.

The extension of the runway could also impact the response time of the airport's ARFF services due to the location of the existing ARFF Facility. The current response time is at the maximum permitted to meet Part 139 standards and a runway extension would most likely cause the response time to exceed that maximum. A new ARFF facility would most likely need to be constructed to allow the services to meet the required response time.

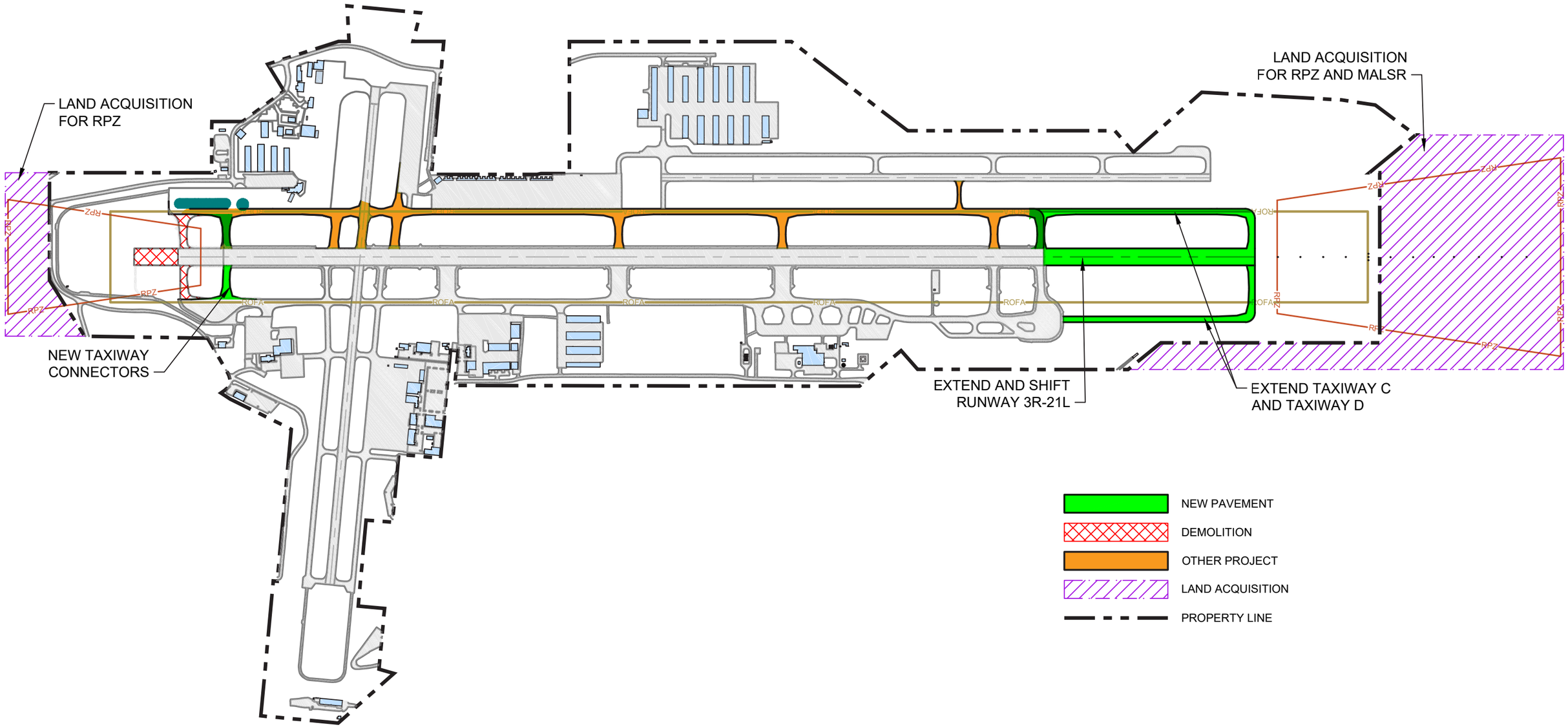

Figure 5-2. Alternative 2: Extend Runway 3R-21L
Source: Delta Airport Consultants, Inc.

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Alternative 3: Extend and Shift Runway 3R-21L

Alternative 3 proposes relocating the end of Runway 3R-21L 940 feet and removing the displaced threshold. The relocation and removal of the displaced threshold would allow the Runway 3R runway protection zone (RPZ) to be completely within airport property. In order to achieve the 10,000 foot runway length, an extension of 3,700 feet to the north would be required. In order to complete the shift and extension, approximately 115 acres will need to be acquired through fee simple or easement acquisition to have full or partial control over the Runway 21L RPZ. The extensions of Taxiway C and Taxiway D are also proposed to tie the taxiways to the new end of Runway 21L. Additionally, to ensure the runway is in compliance with AC 150/5300-13A, *Airport Design*, a small portion of Clubhouse Drive will need to be relocated outside the Runway 3R RPZ. An illustration of Runway 3R-21L extension and shift can been see in **Figure 5-3**.

Operational Factors

Alternative 3 would bring Runway 3R-21L completely into compliance with FAA AC 150/5300-13A, *Airport Design,* with regard to runway safety area, runway object free area, runway obstacle free zone, and runway protection zone. The increased length would also benefit the general aviation aircraft that are currently weight restricted and possibly the U.S. Forest Service firefighting aircraft that utilize PRC. This option would allow for both runway end RPZs to be fully controlled by PRC, and would remove the road that is currently running through the existing RPZ. Alternative 3 removes the need for a displaced threshold by allowing the extra length to be added onto the 21L end of the runway.

Shifting the Runway 3R threshold has the potential to reduce the number of penetrations and obstructions to the airport approach surfaces to Runway 3R and Part 77 imaginary surfaces. This could provide for lower minimums and safer operations.

The removal of the displaced threshold to Runway 3R would require the removal of the aircraft hold apron for Runway 3R. Due to the proximity to adjacent development, construction of a new hold apron would be difficult. A bypass taxiway to Runway 3R would provide an alternate means for providing additional access to the runway during heavy operational periods.

Economic Factors

The cost of Alternative 3 from a construction standpoint is the most expensive option to achieve a runway length of 10,000 feet. Due to the shifting on the runway, an additional 3,700 feet of runway will need to be added to the Runway

21L end making this the longest extension option. This alternative will also require the greatest amount of land acquisition. Additionally, a portion of Clubhouse Drive is proposed to be relocated to be outside the RPZ. This is the only option where Clubhouse Drive will need to be relocated. The increased length could improve the number of aircraft that utilize PRC by increasing the number of passengers and cargo that are carried to and from PRC. The fuel sales could also increase since those aircraft can now purchase a greater amount of fuel since the aircraft will not be as weight restricted.

Environmental Factors

There are some potential environmental impacts for this alternative. A trail was identified to be located along an abandoned portion of the old Santa Fe, Prescott Regional Airport - Ernest A. Love Field, and Phoenix (SFP&P) Railroad. The trail runs north/south off the Runway 21L end. Due to the location of the trail, there could potentially be some significant historical, architectural, archaeological, and cultural resources impacts for a runway extension. In 2010, a site assessment was completed on the area with the trail indicating that future development in the area would need to take into account the impacts of the trail and coordinate with the proper agency for the potential impacts. Additionally, a total of approximately 115 acres would need to be acquired to control land uses within the relocated RPZ at the 21L Runway end. The noise contours would potentially shift with the runway and expand on the 21L Runway end due to the extension. On the Runway 3R end there are some other potential environmental impacts. Due to Clubhouse Drive being relocated outside of the Runway 3R End RPZ, the road will shift over to the golf course. The Antelope Hills Golf Course is a Section 4(f) resource. The extent of impacts to the golf course will need to be further evaluated pending a final design of the location of the road. Additional environmental impacts would need to be analyzed closer to the time of the project.

Implementation Factors

Several issues need to be considered before implementing the extension of Runway 3R-21L. Declared distances will no longer be required with the removal of the displaced threshold and the removal of surface penetrations will be easier to and less expensive with this alternative. The runway shift may also affect the instrument approach procedures for both new runway ends.

During the extension portion of the project that is within the Runway 21L RSA, Runway 21L would have a temporary displaced threshold. Additionally, the ILS approach and MALSR will be out of service during the extension portion of the project. Runway 3R will have a temporary displaced threshold during the pavement removal portion of the project in order to shift the runway.

The extension of the runway would also compound the visibility issues noted by the FAA Air Traffic Control Tower (ATCT). Additional measures would need to be implemented to mitigate the visibility issues or a new ATCT would need to be constructed to eliminate these issues.

The extension of the runway could also impact the response time of the airport's ARFF services due to the location of the existing ARFF Facility. The current response time is at the maximum permitted to meet Part 139 standards and a runway extension would most likely cause the response time to exceed that maximum. A new ARFF facility would most likely need to be constructed to allow the services to meet the required response time.

The current runway configuration results in an impact to the runway visibility zone (RVZ). Extending the runway would only increase the impacts to the RVZ. Part 4 of Section 5.3 discuss the RVZ in greater detail.

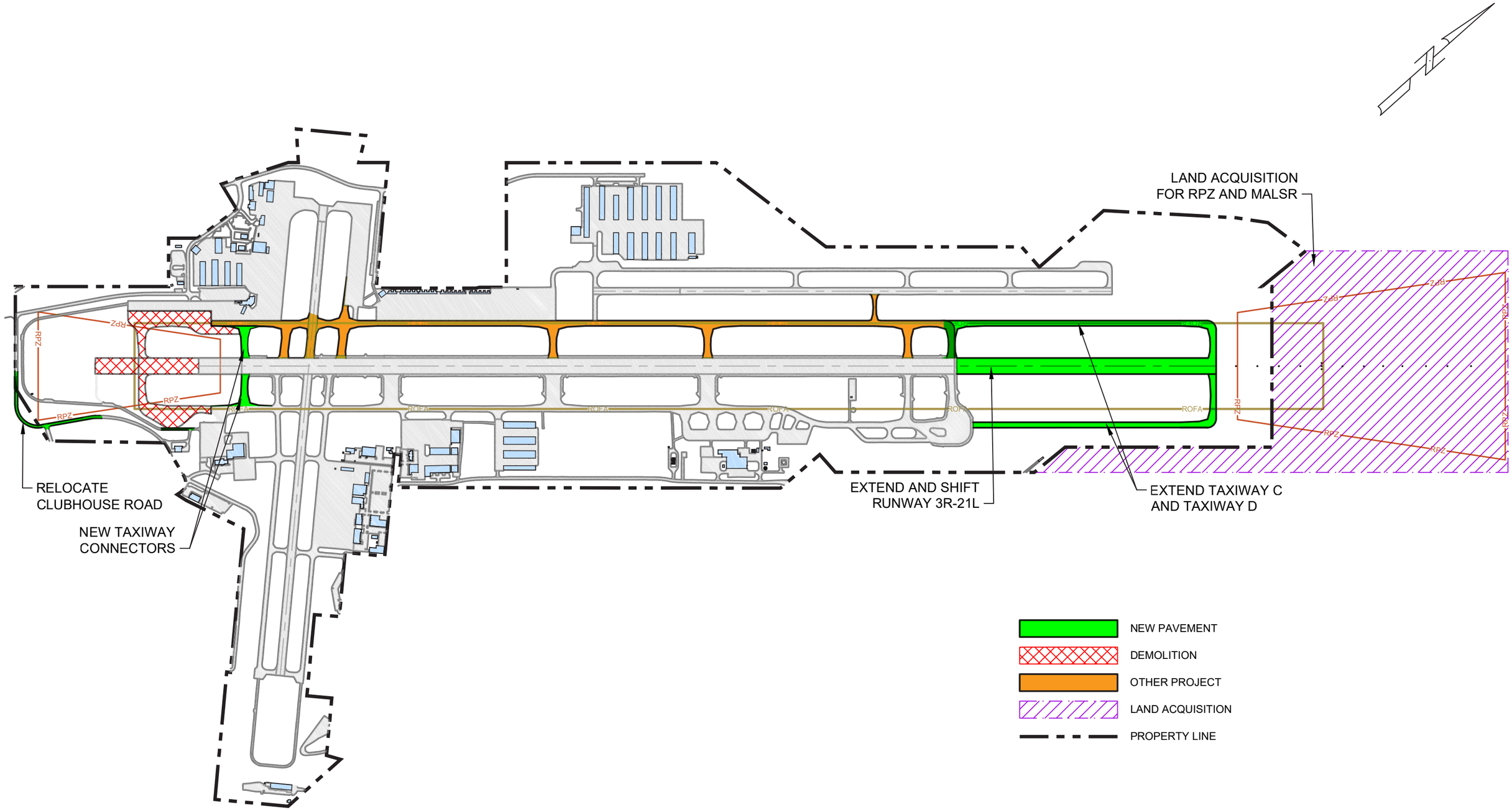

Figure 5-3. Alternative 3: Extend and Shift Runway 3R -21L
Source: Delta Airport Consultants, Inc.

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5.3 | Part 2 - Runway 3L-21R

Chapter 4 discussed the need to extend Runway 3L-21R to accommodate larger aircraft that currently use the facility such as the Diamond DA 42 NG and the Cessna 414A. These aircraft cannot currently use their max take-off weight during certain weather conditions. A runway extension would allow for these and other similar aircraft using the facility to utilize their maximum take-off weight. The Airplane Design Group (ADG) for Runway 3L-21R is anticipated to remain Group I throughout the 20-year planning period.

Based upon the need of a longer runway through the review of the facility requirements, two alternatives were developed to offer feasible solution to extend Runway 3L-21R. The following describes each proposed development as well as evaluates advantages and disadvantages based on operational, economic, environmental, and implementation factors.

Alternative 1: Extend Runway 3L-21R

Alternative 1 proposes a runway extension of 1,594 feet to provide a total Runway length of 6,200 feet. Included in the runway extension length is 240 feet of pavement that replaces 240 feet of pavement that will be removed from the Runway 3L displaced threshold as proposed in the Runway Incursion Mitigation (RIM) Study. The pavement removal to mitigate the existing taxiway and apron area within the RPZ for Runway 3L. The extension of the parallel taxiway, Taxiway A, would be completed to provide access to the new Runway 21R threshold. The extension would require land acquisition of approximately 18 acres through fee simple or easement acquisition to have full or partial control over the Runway 21R end RPZ. The runway extension can be seen in **Figure 5-4**.

Operational Impacts

Extending the runway would allow for a total length of 6,200 feet; however, the existing displaced threshold would remain as well as published declared distances. The increased length of the parallel runway would allow the aircraft that currently can only use the primary runway to utilize this runway therefore relieving congestion on the primary runway. The increased length will also permit the airport to maintain a greater number of aircraft operations should the primary runway be unusable due to construction or an emergency.

Economic Factors

The cost of Alternative 1 from a construction standpoint is the least expensive alternative to achieve a runway length of 6,200 feet. During times when the primary runway is not operational, the airport will not lose out on as many missed operations and revenue since the longer parallel runway can accept larger aircraft.

Environmental Factors

There are some potential environmental impacts for this alternative. A trail was identified to be located along an abandoned portion of the old Santa Fe, Prescott Regional Airport - Ernest A. Love Field, and Phoenix (SFP&P) Railroad. The trail runs north/south off the Runway 21L end. Due to the location of the trail, there could potentially be some significant historical, architectural, archaeological, and cultural resources impacts for a runway extension. In 2010, a site assessment was completed indicating that future development in the area would need to take into account the impacts of the trail and coordinate with the proper agency for the potential impacts. Additionally, a total of approximately 18 acres would need to be acquired to control land uses within the relocated RPZ at the 21R Runway end. The noise contours would potentially extend with runway and expand on the 21R Runway end due to the extension. Additional environmental impacts would need to be analyzed closer to the time of the project.

Implementations Factors

The implementation of this alternative would require the Runway 21R end to be temporarily displaced while completing the portion of the runway extension that is within the existing RSA. Due to the fact that Runway 3L-21R is primarily used for training activities, the temporary displaced threshold could have a moderate impact on the training activities for smaller aircraft. Larger training and transient aircraft would be required to utilize Runway 3R-21L causing capacity issues during times of increased training operations.

During construction, the Runway 21R end would need to be temporarily displaced while working in the existing runway safety area. During certain operations, the displaced threshold would limit the available take-off weight of the aircraft using Runway 3L-21R.

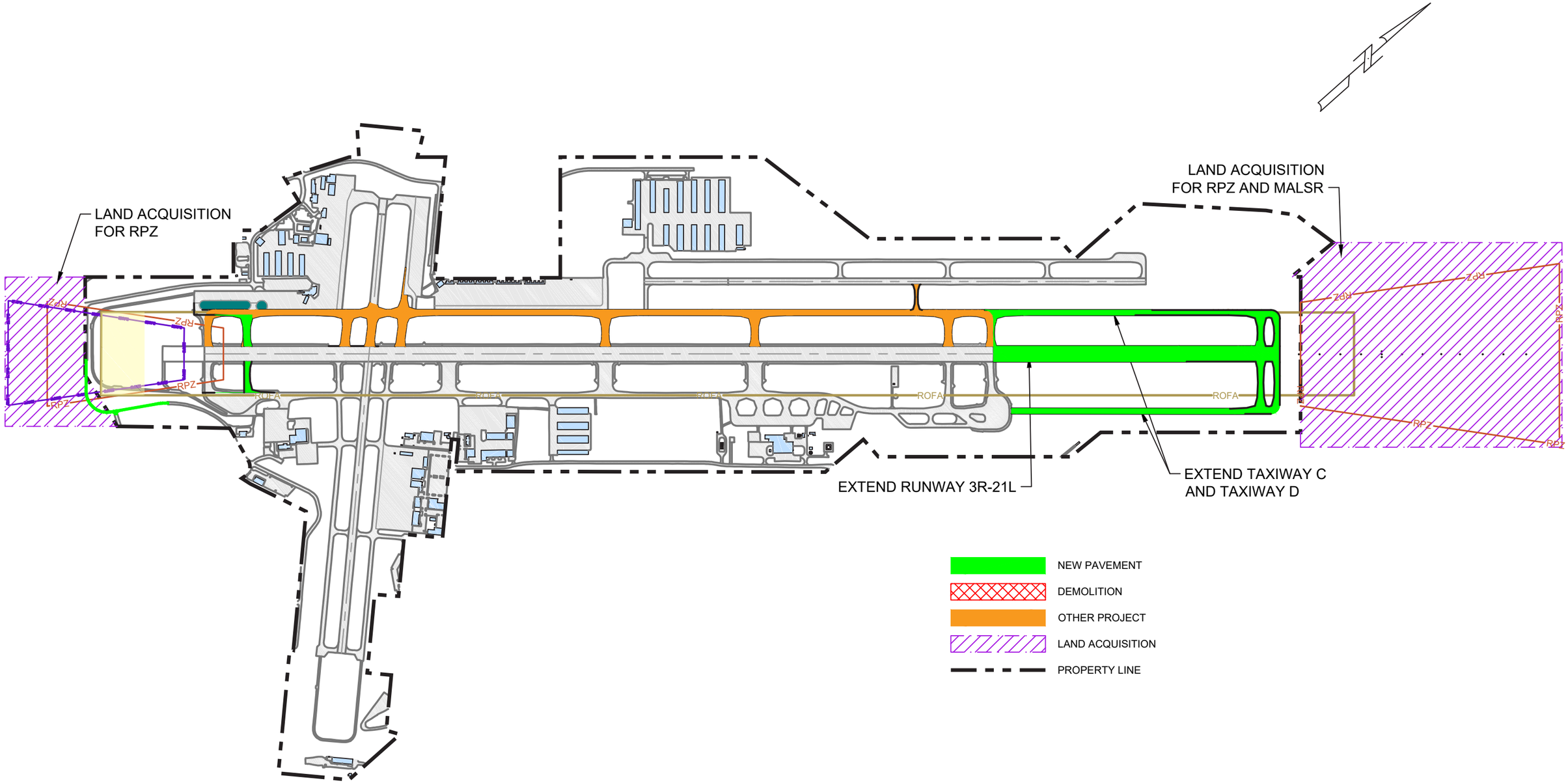

Figure 5-4. Alternative 1: Extend Runway 3L-21R
Source: Delta Airport Consultants, Inc.

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Alternative 2: Extend and Shift Runway 3L-21R

Alternate 2 proposes removing the existing displaced threshold on Runway 3L and extending the runway to the north for a total length of 6,200 feet. Removing the 809 foot displaced threshold would require an extension of 2,163 feet to achieve the desired 6,200 foot runway length. Removing the existing would allow Taxiway B4 and the North Apron to be completely out of the RPZ for Runway 3L. The extension of the parallel taxiway, Taxiway A, would be completed to provide access to the new Runway 21R threshold. The shift and extension would require an acquisition of approximately 24 acres through fee simple or easement acquisition to have full or partial control over the Runway 21R end RPZ. The alternative provides for full control of the RPZs. An illustration of Runway 3L-21R extension and shift can been see in **Figure 5-5**.

Operational Impacts

Shifting and extending the runway would allow the displaced threshold to be removed. This would allow aircraft to use the full 6,200 feet of runway length for take-off and landing and eliminate the need for declared distances. This could allow larger aircraft to utilize Runway 3L-21R. The removal of the Runway 3L displaced threshold would also help to mitigate penetrations to the Part 77 imaginary surfaces. The increased length of the parallel runway would allow aircraft that currently can only use the primary runway to utilize this runway therefore relieving congestion on the primary runway. The increased length will also permit the airport to maintain a greater number of aircraft operations should the primary runway be unusable due to construction or an emergency.

Economic Factors

The cost of Alternative 2 from a construction standpoint is the more expensive option to achieve a runway length of 6,200 feet. During times when the primary runway is not operational, the airport will not lose out on as many missed operations and revenue since the longer parallel runway can accept larger aircraft.

Environmental Factors

There are some potential environmental impacts for this alternative. A trail was identified to be located along an abandoned portion of the old Santa Fe, Prescott Regional Airport - Ernest A. Love Field, and Phoenix (SFP&P) Railroad. The trail runs north/south off the Runway 21L end. Due to the location of the trail, there could potentially be some significant historical, architectural, archaeological, and cultural resources impacts for a runway extension. In 2010, a site assessment was completed indicating that future development in the area would need to take into account the impacts of the trail and coordinate with the proper agency for the potential impacts. Additionally, a total of approximately 24 acres would need to be acquired to control land uses within the relocated RPZ at the 21R Runway end.

The noise contours would potentially shift with runway and expand on the 21R Runway end due to the extension. Additional environmental impacts would need to be analyzed closer to the time of the project.

Implementations Factors

The implementation of this alternative would require the Runway 21L end to be temporarily displaced while completing the portion of the runway extension that is within the existing RSA. The Runway 3L end would also need to be temporarily displaced while pavement is being removed to remove the existing displaced threshold. Due to the fact that Runway 3L-21R is primarily used for training activities, the temporary displaced threshold would have a moderate impact on the training activities for smaller aircraft. Larger training and transient aircraft would be required to utilize Runway 3R-21L causing capacity issues during times of increased training operations.

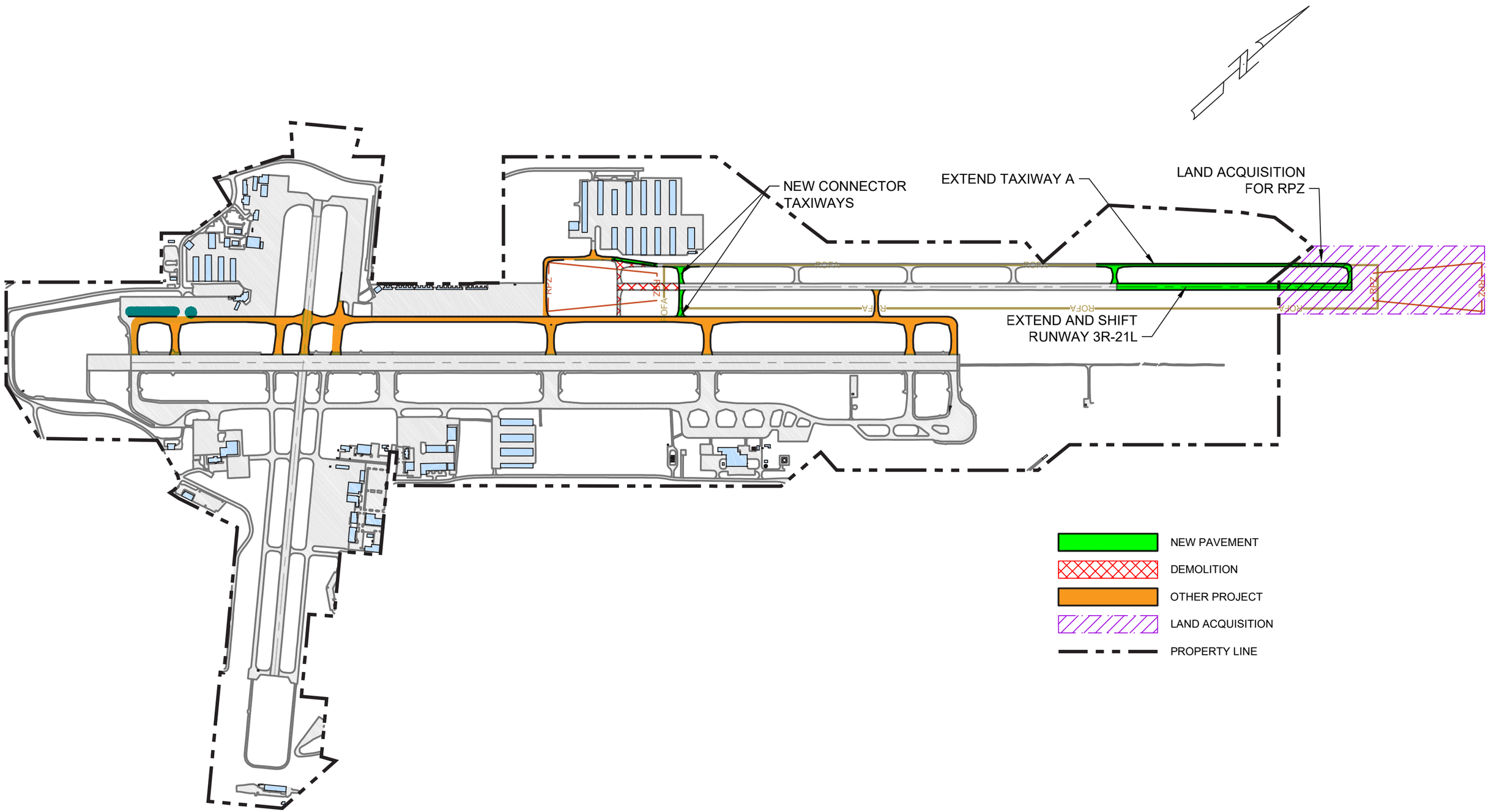

Figure 5-5. Alternative 2: Extend and Shift Runway 3L-21R
Source: Delta Airport Consultants, Inc.

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5.3 | Part 3 - Runway 12-30

In Chapter 4, it was recommended that Runway 12-30 runway safety area be improved to meet current standards. It was also recommended that the current runway length of 4,408 feet be maintained. The Airplane Design Group (ADG) for Runway 12-30 is anticipated to remain Group I throughout the 20-year planning period.

The current runway configuration results in the need to use declared distances to provide a compliant runway safety area and the need for a separate approach runway protection zone (RPZ) and departure runway protection zone. Based upon the need to improve the runway safety area, two alternatives were developed to offer a feasible solution to improve the Runway 12-30 Safety Area. The following describes each proposed development as well as evaluating advantages and disadvantages based on operational, economic, environmental, and implementation factors.

Alternative 1: Shift Runway 12-30

Alternate 1 proposes shifting Runway 12-30 40 feet to the east and removing the displaced threshold on Runway 12. The runway length will remain 4,408 feet long and will not require any of the declared distances that currently exist. The extension of the runway to the east would require Taxiway E and Taxiway F to be extend to accommodate the new runway ends. The shift would require land acquisition of approximately two acres through fee simple or easement acquisition to have full or partial control over the Runway 30 end RPZ. An additional six acres may be needed to provide full or partial control of the runway 12 RPZ. The Runway 12-30 shift can be seen in **Figure 5-6**.

Operational Impacts

Shifting the runway would allow the displaced threshold to be removed while still maintaining the same overall runway length. This would bring more of the Runway 12 end RPZ under the airport control.

Economic Factors

The cost of Alternative 1 from a construction standpoint is the more expensive alternative to correct the non-standard safety area.

Environmental Factors

No significant impacts to the surrounding environment would occur with implementation of this alternative. A total of approximately two acres would need to be acquired to control land uses within the relocated RPZ at the Runway 30 end. The noise contours would potentially shift with runway shift. Additional environmental impacts would need to be analyzed prior to beginning the time of the project.

Implementations Factors

Shifting the runway to correct the non-standard safety area and remove declared distances while maintaining the current runway length would benefit certain users of the airport. The additional cost of the extension and the impacts from shifting the RPZ off airport property and over a public road and golf course may decrease the likelihood of this alternative being implemented by the funding agencies.

During construction the Runway 12 end would need to be displaced temporarily to remove pavement and relocate the connector taxiway from Taxiway E and Taxiway F and Runway 30 end would need to be displaced while adding the extra runway length onto the Runway 30 end and tying in the next Taxiway E and Taxiway F connectors.

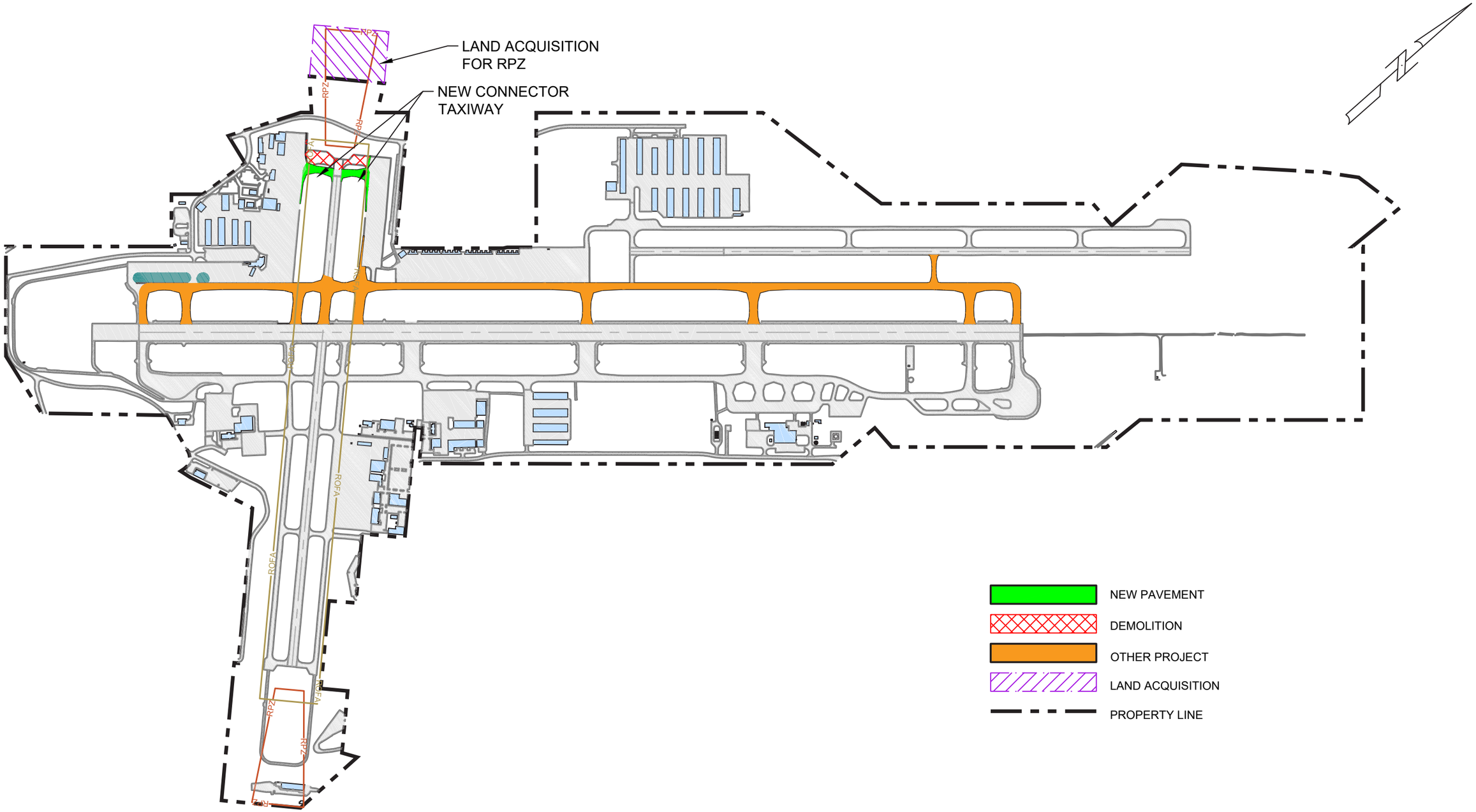

Figure 5-6. Alternative 1: Shift Runway 12-30
Source: Delta Airport Consultants, Inc.

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Alternative 2: Shorten Runway 12-30

Alternative 2 proposes Runway 12-30 be shortened by 40 feet on the Runway 12 end to remove the displaced threshold. This would shorten the runway length from 4,408 feet to 4,368 feet. Since this runway is the crosswind runway and not a primary runway it is only used under certain weather condition. The shortening of Runway 12-30 can be seen in **Figure 5-7**.

Operational Impacts

Shortening the runway would allow the displaced threshold to be removed. This would bring more of the Runway 12 end RPZ under the airport control. Shortening Runway 12 end would allow the runway safety area to meet current standards and eliminate the existing published declared distances.

Economic Factors

The cost of Alternative 2 from a construction standpoint is the least expensive option to improve the Runway 12-30 runway safety area.

Environmental Factors

No significant impacts to the surrounding environment would occur with implementation of this alternative. The noise contours would potentially shift closer to the Runway 12 end with the loss of the 40 feet. Additional environmental impacts would need to be analyzed prior to beginning the project.

Implementations Factors

Correcting a non-standard safety area and removing the need for declared distances at minimal cost would be a relatively straight forward project for the funding agencies. Reducing the length of the runway, while minimal, could impact certain users of the airport that require the crosswind forcing them to use other facilities. During construction, the Runway 12 end would need to be displaced temporarily to remove pavement and relocate the connector taxiway from Taxiways E and Taxiway F.

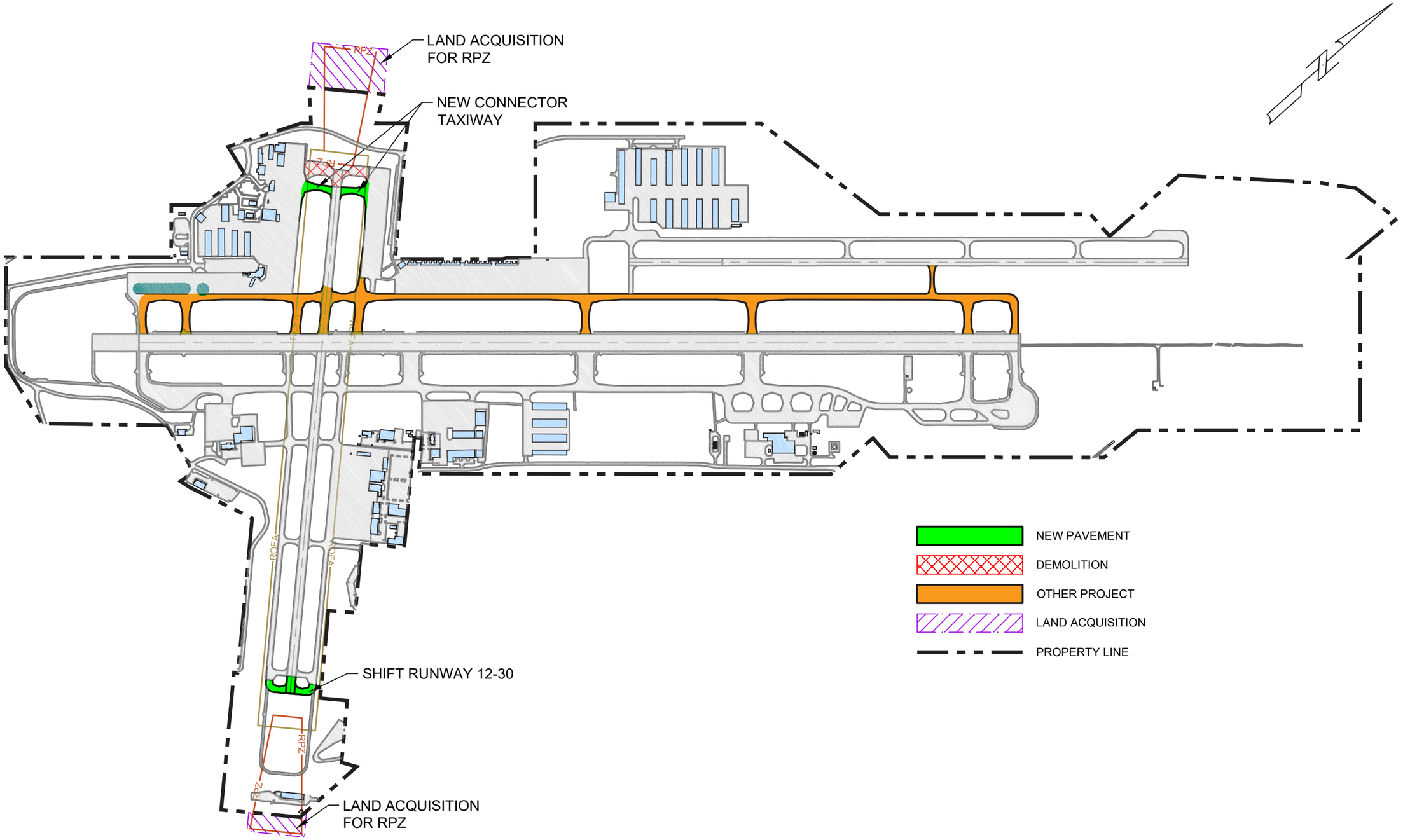

Figure 5-7. Alternative 2: Shorten Runway 12-30
Source: Delta Airport Consultants, Inc.

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5.3 | Part 4 - Runway Visibility Zone

As noted in Chapter 4 there are multiple obstacles within the Runway Visibility Zone (RVZ) that create visibility issues. Four alternatives have been evaluated to determine the most beneficial alternative to PRC.

Alternative 1: Clear RVZ

Alternative 1 for mitigating the impacts to the RVZ is to relocate all the buildings within the limits of the RVZ. This would require removing or relocating multiple Embry Riddle Aeronautical University's (ERAU) buildings, several of the buildings located on the Rittaire Ramp, the FAA office building, the FAA Tech Ops building, and the Air Traffic Control Tower. Additionally, ERAU would lose a portion of their ramp space that is located with the limits of the RVZ, limiting the number of aircraft that could park in the area. The Rittaire Ramp would need to be reconfigured as well for the loss of several parking spaces that are currently within the RVZ limits. **Figure 5-8** depicts the buildings and the parking area that would need to be relocated or removed to satisfy this alternative.

Operational Factors

There would be little to no operational impacts to the airfield if the ramp space and tower are replaced/relocated prior to the demolition of the existing facilities. This alternative would improve the visibility and therefore the safety of aircraft using PRC.

Economic Factors

The cost of Alternative 1 RVZ from a construction standpoint is the most expensive option. This would require relocating multiple buildings, the air traffic control tower, and aircraft parking for two different ramps. All of the buildings that would need to be relocated are privately owned, except the FAA Tech Ops building which is owned by PRC and is a large source of revenue for PRC. The existing lease agreements would most likely need to be renegotiated, which could result in loss of revenue to the airport. A significant investment by the City would most likely be needed to accomplish the relocations, as many of the facilities are not eligible for FAA funding.

Environmental Factors

Environmental factors for this alternative would have to be determined at a later time once new locations had been chosen for the replacement buildings and facilities. The demolition of existing buildings would also have to be evaluated prior to demolition.

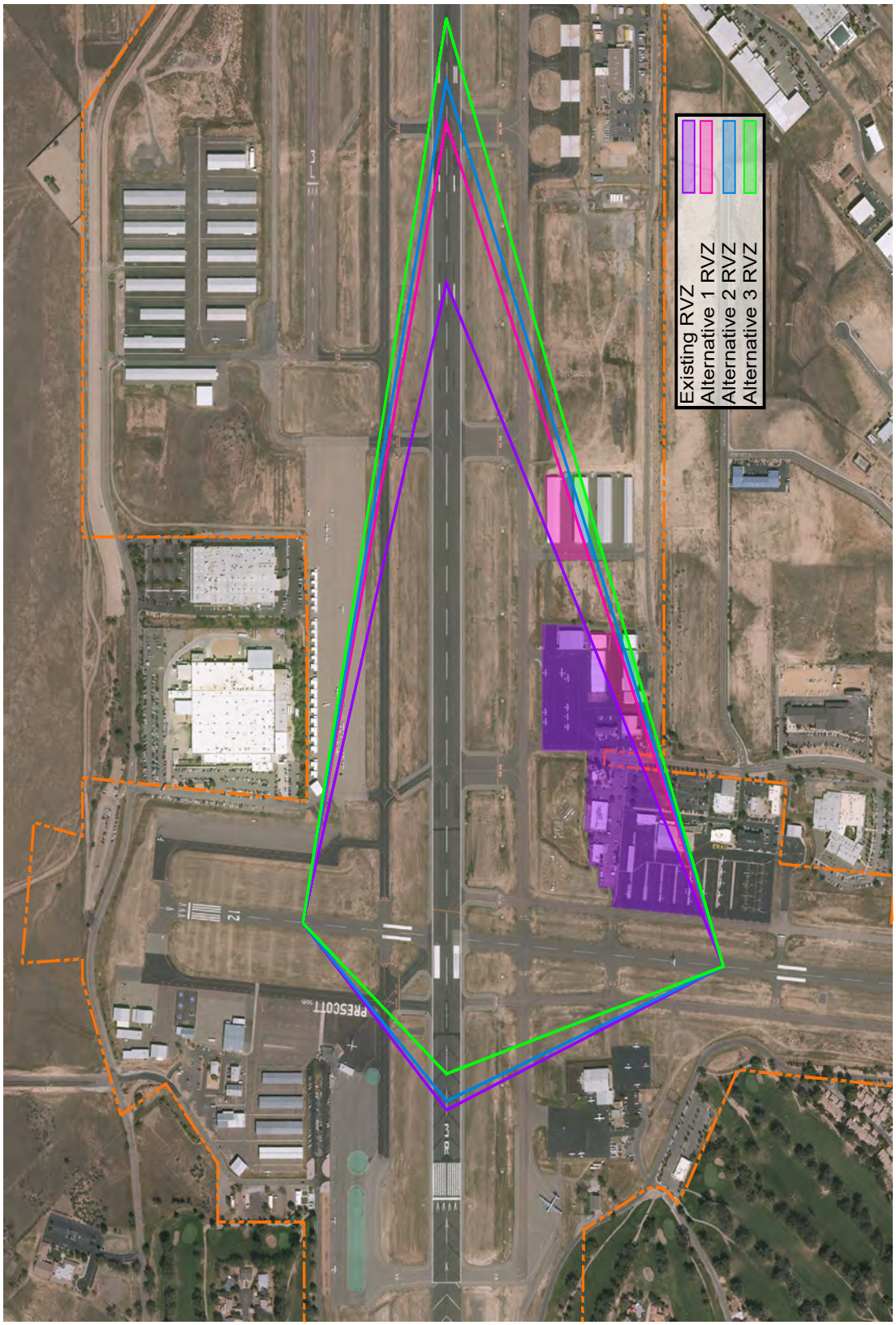

Figure 5-8. Alternative 1: Runway Visibility Zone
Source: Delta Airport Consultants, Inc., Image by Google

Implementation Factors

The implementation of this alternative would significant coordination and many years to complete. Multiple tenants within the RVZ have invested a significant amount of money into their facilities. A phased approach will be needed to accommodate relocations of the tenants to minimize impacts to operations. The tenants and public would most likely oppose this option due to the costs and the disruption associated with this alternative.

Alternative 2: Close Runway 12-30 at Night

Alternative 2 for mitigating the impacts to the RVZ is to close Runway 12-30 while the tower is not in operation.

Operational Factors

Closing Runway 12-30 while the Air Traffic Control Tower (ATCT) is closed would mean the runway is closed from the hours of 10:00 pm until 6:00 am local time. Because there is limited night traffic at PRC, closing the runway at night will result in a minimal impact to current operations.

Economic Factors

This alternative would not cost PRC any money to accomplish, and PRC has few aircraft operations at night; therefore, this alternative would have a limited economic impact.

Environmental Factors

No significant impacts to the surrounding environment would occur with implementation of this alternative.

Implementation Factors

The airport would need to submit documentation to update the Chart Supplement as well as revise the NOTAM notifying when Runway 12-30 is closed. Coordination with the FAA and air traffic control tower would be required prior to implementing an operational change such as this.

Alternative 3: Receive a Modification of Design Standards (MOS)

Alternative 3 would be to receive a modification to design standard (MOS) from the FAA to permit the existing buildings to remain with the RVZ.

Operational Factors

There would be no change to airport operations, however, a visibility issue would remain for traffic using 12-30 and 3R-21L when the tower is not in operation.

Economic Factors

There are several existing lease areas within the RVZ. Even if an MOS is granted by the FAA, the FAA would most likely not permit any new infrastructure that would impact the RVZ. The lease agreements may need to be renegotiated, which could result in loss of revenue to the airport. The City may also need to consider what the acceptable level of risk is by keeping the runway open with known visibility issues.

Environmental Factors

There are no environmental factors for this alternative.

Implementation Factors

PRC would need to submit request for modification to design standards to the FAA for the existing facilities within the RVZ to remain. No additional infrastructure that would impact the RVZ would be permitted. This needs to be considered since several lease areas exist within the RVZ. The FAA is not an advocate of issuing new MOS if there are options to correct the non-standard condition and that could make this alternative an unlikely alternative.

Any extension of Runway 3R-21L would increase the impacts by shifting the limits of the RVZ and encompassing a greater area that includes additional apron space and buildings. This needs to be taken into consideration when determining which alternative will best meet the needs of the airport.

Alternative 4: Close Runway 12-30

Alternative 4 for mitigating the impacts to the RVZ is to completely shut down Runway 12-30. The removal of the crosswind runway would eliminate the RVZ and all the non-standard conditions associated with it.

Operational Factors

Permanently closing the crosswind runway would remove the safety issues associated with the RVZ as well as reduce opportunities for runway incursions. However, the loss of the crosswind runway will have an negative impact on both training operations and regular flight operations for small aircraft during certain wind conditions.

Economic Factors

Closing the cross-wind runway would have some significant cost associated with the pavement removal and demolition of items associated with the runway that would no longer be needed. This alternative has the potential for some negative and positive economic impacts to the airport in the future. Shutting down Runway 12-30 would reduce the capacity of the airfield. However, removing Runway 12-30 would leave large amounts of space for development of hangars and ramp space to increase the revenue generating areas of PRC.

Environmental Factors

No significant impacts to the surrounding environment would occur with implementation of this alternative. Noise contours would need to be evaluated for the shutdown of Runway 12-30 and the added impacts to the other runways due to the shifting of traffic.

Implementation Factors

The loss of the crosswind runway would significantly impact the training operations of the many flight schools located at the airport. Both the flight schools and the many based single-engine and light sport aircraft would most likely oppose any alternative that would remove a runway that provides a significant safety and training factor to airport operations.

Section Overview

Part 1 | Taxiway E

Part 2 | Taxiway F

Image by Delta Airport Consultants, Inc.

5|Section 4 - Taxiway Alternatives

5.4 | Part 1 - Taxiway E

Chapter Four discusses the separation distance of Taxiway E and Runway 12-30. Currently there is not a uniform separation distance between the taxiway and runway. Additionally, a portion of the Taxiway E south of Runway 3R-21L does not meet the minimum standard separation distance of 240 feet between the taxiway and runway centerlines. For this facility two alternatives have been developed to mitigate the standard separation distance.

Alternative 1: Relocate to Standard Separation Distance

Alternative 1 proposes a completed reconfiguration of Taxiway E creating a uniform standard separation distance of 240 feet spanning the full length of the taxiway. **Figure 5-9** illustrates this alternative.

Operational Factors

There are several operational factors associated with this alternative. Several portions of Taxiway E would need to be closed during construction; thus, Taxiway F would need to be heavily utilized for traffic while Taxiway E is being construction. This would bring Taxiway E up to current separation standard allowing for safe operations of larger aircraft that need standard separation distance for wingtip clearance to utilize Runway 12-30 more often.

Economic Factors

From a construction stand point this alternative will be the most expensive alternative due to the fact the full taxiway length would be relocated.

Environmental Factors

There are no anticipated environmental factors for this alternative; however, a more in-depth evaluation would need to be completed due to the fact the taxiway would be relocated closer to the off-property housing development.

Implementation Factors

There are few implementation factors for this alternative. One factor is the impact the relocated taxiway would have on the adjacent housing development which the relocated taxiway will be closer to. By relocating Taxiway E to the standard separation west of Runway 3R-21L, this allows for the commercial ramp space, whiskey ramp, and guidance ramp to be expanded.

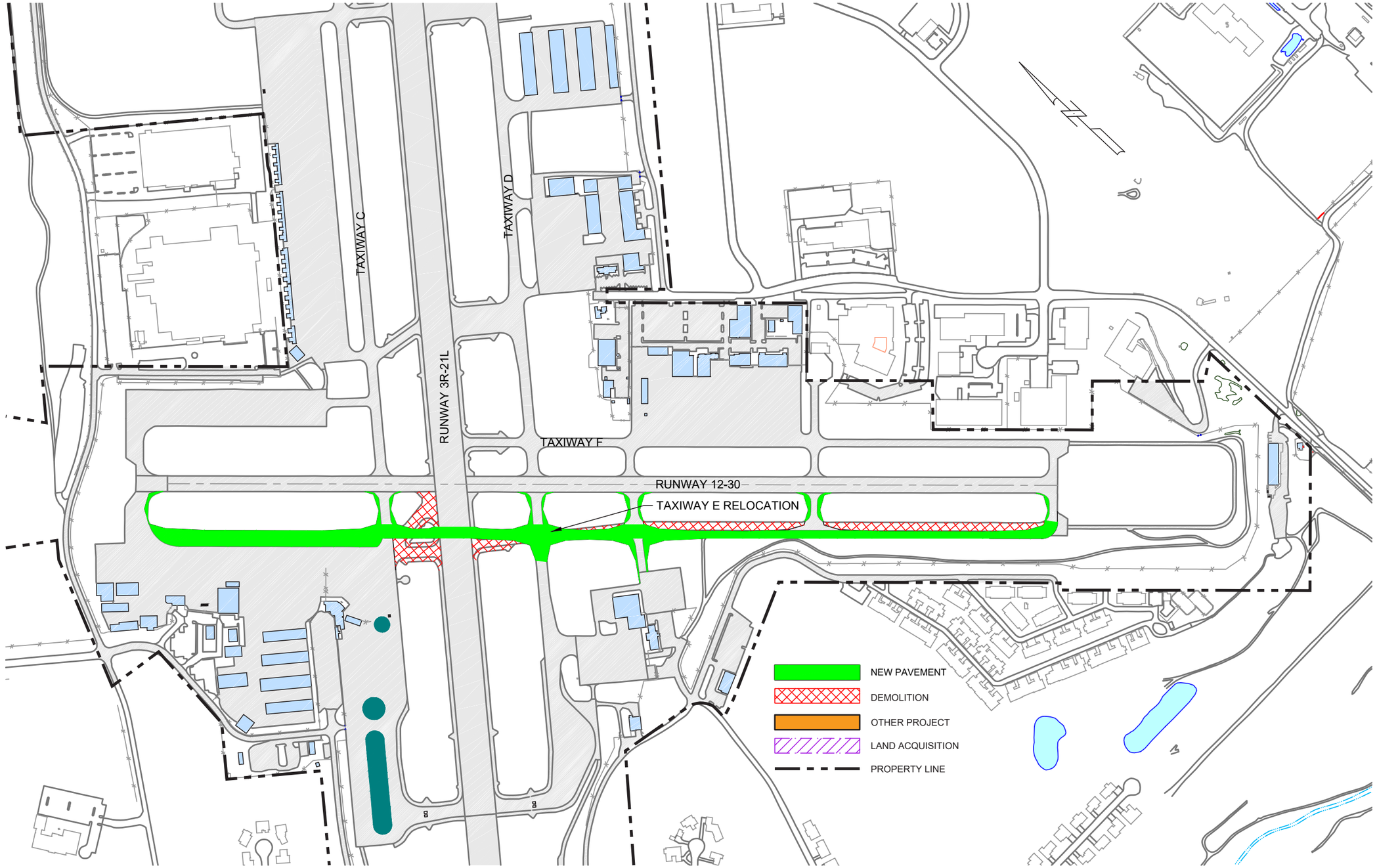

Figure 5-9. Alternative 1: Relocate to Standard Separation Distance
Source: Delta Airport Consultants, Inc.

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Alternative 2: Partial Relocation and MOS

Alternative 2 proposed Taxiway E have a partial relocation. Taxiway E west of Taxiway E3 would be relocated to a standard separation of 240 feet between the Runway 12-30 centerline and Taxiway E centerline. The remaining portion of Taxiway E east of Taxiway E3 would remain in place with a Modification to Design Standards (MOS) for the portion that does not meet the standard 240 foot separation distance. **Figure 5-10** illustrates this alternative.

Operational Factors

There are several operational factors associated with this alternative. Several portions of Taxiway E would need to be closed during construction; thus, Taxiway F would need to be heavily utilized for traffic while Taxiway E is being construction. This would bring a portion of Taxiway E up to current separation standard allowing for safe operations of larger aircraft that need standard separation distance for wingtip clearance to utilize Runway 12-30 more often.

Economic Factors

From a construction stand point this alternative is the least expensive option, due to the fact that only a portion of the taxiway is being relocated the cost would be significantly less.

Environmental Factors

There are no anticipated environmental factors for this alternative.

Implementation Factors

There are few implementation factors for this alternative. Relocating Taxiway E to the standard separation west of Runway 3R-21L allows for the commercial ramp space, whiskey ramp, and guidance ramp to be expanded. By not relocating the taxiway east of Taxiway E3, there will be no impact to the adjacent housing development. The FAA is not an advocate of issuing new MOS if there are options to correct the non-standard condition and that could make this a less likely alternative.

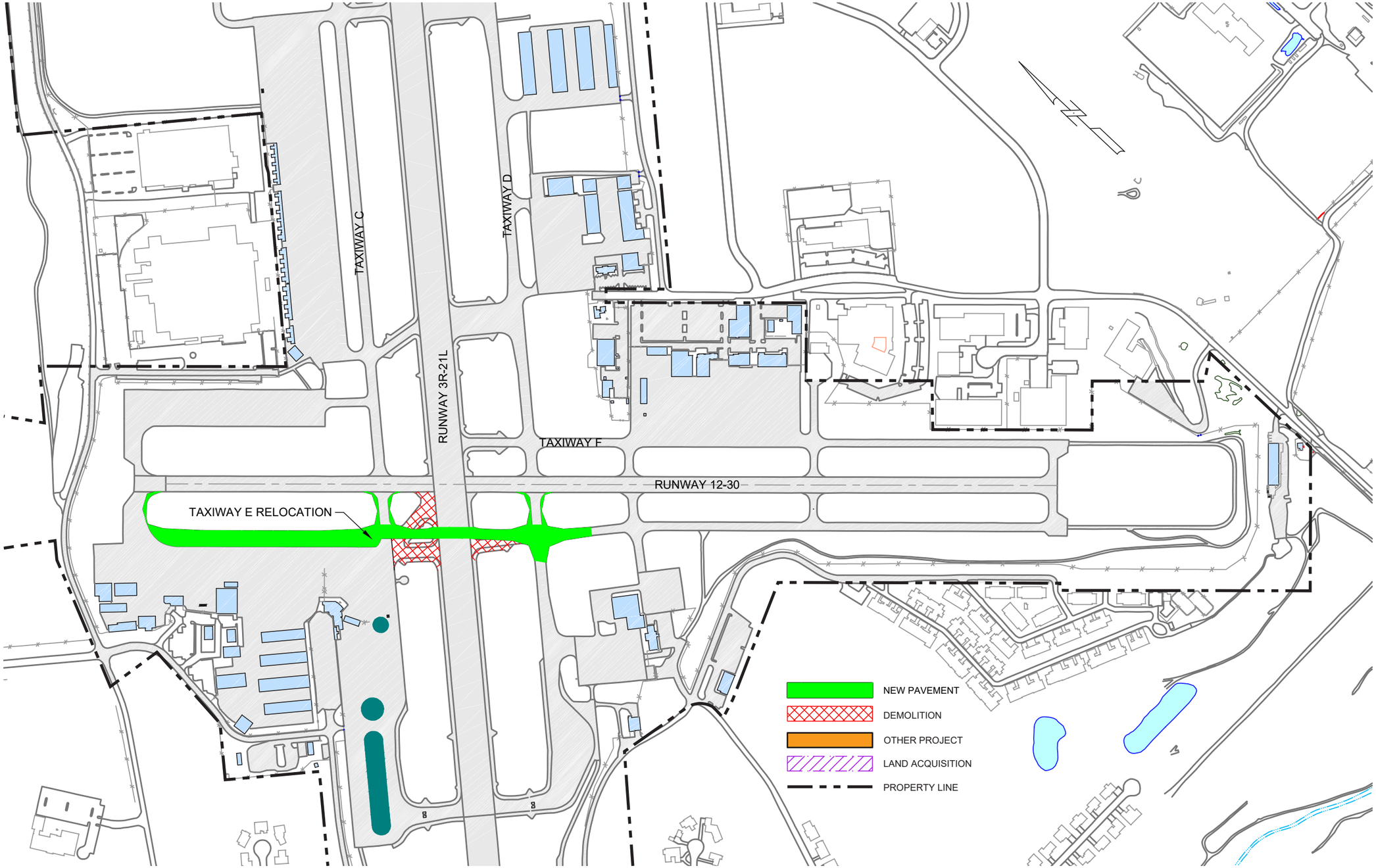

Figure 5-10. Alternative 2: Partial Relocation and MOS
Source: Delta Airport Consultants, Inc.

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5.4 | Part 2 - Taxiway F

Chapter 4 discussed several items regarding improvements to Taxiway F. Currently portions of Taxiway F do not meet or they exceed the standard separation distance to Runway 12-30. The minimum separation to meet standard for Runway 12-30 and a parallel taxiway is 240 feet. Taxiway F also does not provide a full-length parallel to Runway 12-30 on the north side of the runway. A portion of the taxiway between the West ramp and Runway 3R-21L is missing. These items are addressed in each of the three alternatives evaluated to improve Taxiway F.

Alternative 1: Relocation to Standard Separation

Alternative 1 for Taxiway F would be to relocate the portion of Taxiway F south-east of Runway 3R-21L to a standard Runway Design Code B-II separation distance of 240 feet from the Runway 12-30 centerline. In order to relocate the taxiway to the standard separation, a portion of the Embry-Riddle Aeronautical University (ERAU) tie-down ramp would be impacted, adjacent property purchased, and existing non-aeronautical buildings demolished. The purchase of the land and demolishing of the buildings is required to provide the proper taxiway object free area and perimeter fencing within airport property. **Figure 5-11** depicts what the relocated Taxiway F would look like in the new configuration as well as the location of the ramp space and the buildings that would be impacted for the relocation to occur. Additionally, this alternative would include connecting the missing portion of Taxiway F between the West Ramp and Runway 3R-21L.

Operational Factors

The operational factors for this alternative include portions of the existing Taxiway F being closed during portions of construction; thus, relying significantly on Taxiway E for aircraft movement during the construction of Taxiway F. This would bring Taxiway F up to current separation standards allowing for safe operations of larger aircraft that need the standard separation for wingtip clearance to utilize Runway 12-30 more often. This alternative would also require the construction of new ramp space for ERAU either east of the existing ramp or in another location on the airport. The purchase of the adjacent property would allow the construction of a perimeter road for use by airfield maintenance, emergency services, and fuel tenders without the need to utilize Taxiway F and reduce the chance of vehicle incursions.

Economic Factors

Alternative 1 from a construction standpoint is the most expensive alternative. This alternative would require a portion of ERAU to lose a portion of their ramp space; thus, limiting the number of based aircraft that can be parked on the ramp. Reducing the number of based aircraft could have an impact on their flight school. In order to mitigate the loss of ERAU ramp space, additional ramp would have to be constructed adding cost to the overall project. The cost of the adjacent land purchase and building demolition would have a significant impact on the overall cost of the alternative.

Environmental Factors

There are no anticipated impacts to the environment associated with the work on existing airport property. A more in-depth analysis of potential environmental impacts resulting from the acquisition and demolition of the adjacent property and buildings will be needed prior to beginning this alternative.

Implementation Factors

There are many factors to the implementation of this alternative. Coordination with ERAU to replace lost ramp space and negotiate the lease for the facility will have to take place early in the process. Any new ramp space would need to be completed prior to the taxiway relocation in order to accommodate the displaced parking positions. The purchase of the adjacent land could be a very time-consuming process. There is also a great possibility that the FAA will not participate in the acquisition. Without FAA funding, the cost to the City would be significant resulting in a delay to the project or other projects in order to accumulate enough funding for the land purchase and building demolition. In order to complete this Alternative in a reasonable time frame, it is recommended that it be completed in stages beginning on the Runway 12 end and working east, with the section requiring the land acquisition being completed last.

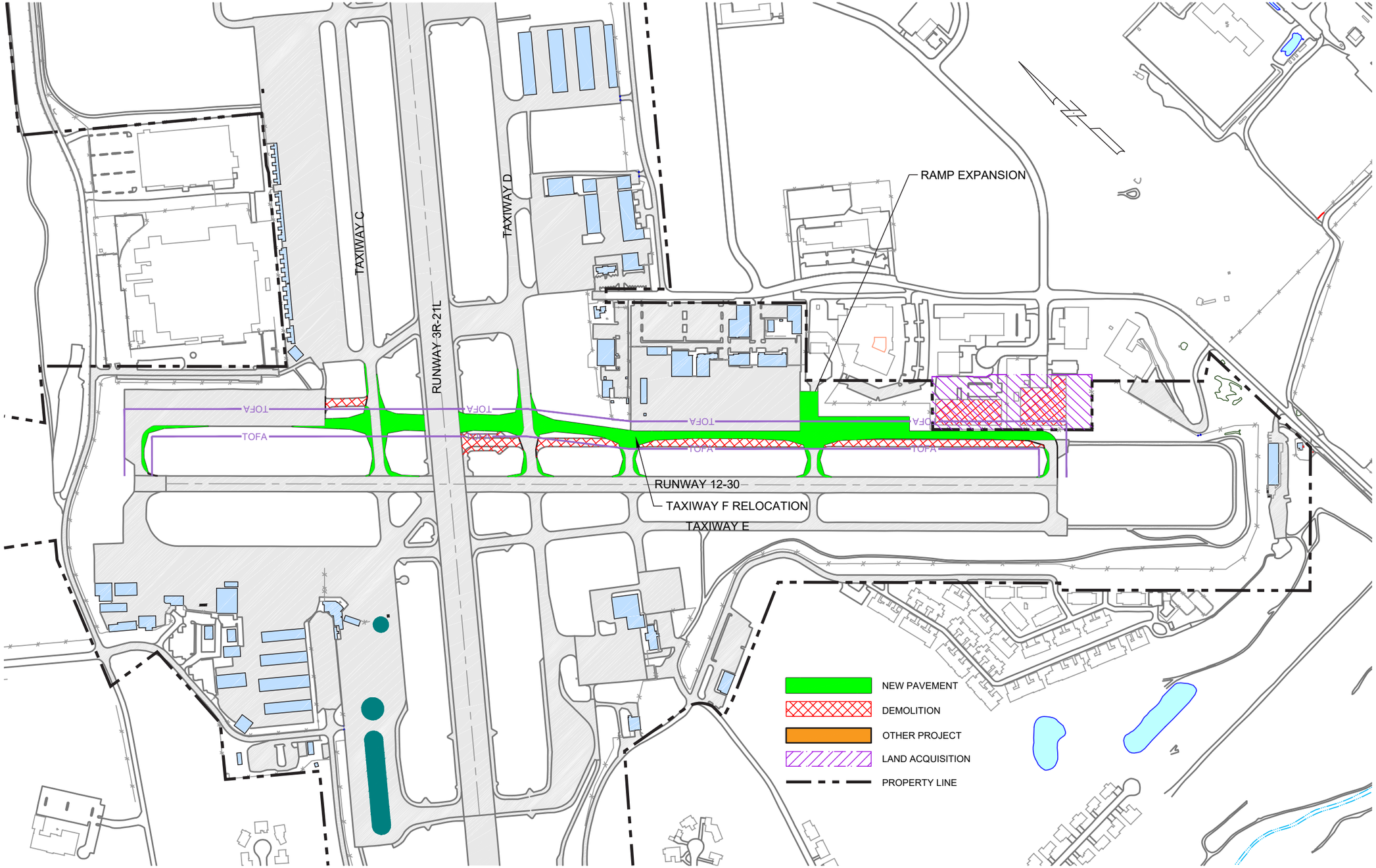

Figure 5-11. Alternative 1: Relocation to Standard Separation
Source: Delta Airport Consultants, Inc.

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Alternative 2: Relocation to Standard Separation and MOS

Alternative 2 for Taxiway F is to complete a combination of relocating the taxiway 240 feet from the Runway 12-30 centerline to taxiway centerline where feasible, and submit a modification of design standard (MOS) to the FAA where it is not feasible to relocate. The alternative would include connecting the missing portion of Taxiway F between Taxiway C and Runway 3R-21L and straighten out the northwest portion of Taxiway F to remove the existing turn and create a full parallel taxiway. Where it is not feasible to relocate the taxiway an MOS would need to be submitted to the FAA. By Submitting an (MOS) this would allow the current Taxiway F to remain in place. **Figure 5-12** depicts the new layout of the taxiway if portions of the taxiway were to be relocated to standard.

Operational Factors

The operational impacts to this alternative include connecting Taxiway F to create a full parallel taxiway to service Runway 12-30. Portions of the taxiway would need to be closed during construction temporarily which would require alternative taxi routes for aircraft. Runway 3R-21L would also require temporary closures to accommodate tying in the taxiway to the runway.

Economic Factors

Alternative 2 from a construction standpoint is the second most expensive alternative to improve Taxiway F. A further analysis of the exact portions of the taxiway that would need to be relocated to maximize the benefits of this project would need analyses as well. Neither ERAU nor Universal would be relocated in this alternative allowing for their revenue impact on the airport to remain.

Environmental Factors

No significant impacts to the surrounding environment are anticipated with implementation of this alternative.

Implementation Factors

There are several factors to the implementation of this Alternative. Coordination with ERAU to replace lost ramp space and negotiate the lease for the facility will have to take place early in the process. Any new ramp space would need to be completed prior to the taxiway relocation in order to accommodate the displaced parking positions. In order to complete this Alternative in a reasonable time frame, it is recommended that it be completed in stages beginning on the Runway 12 end and working east, with the section adjacent to ERAU being completed last. PRC would also need to submit a request for modification to design standards to the FAA for approval for the portion of Taxiway F that does not meet or exceed standard separation distance. The FAA is not an advocate of issuing new Modification of Standards (MOS) if there are options to correct the non-standard condition and that could make this a less likely alternative.

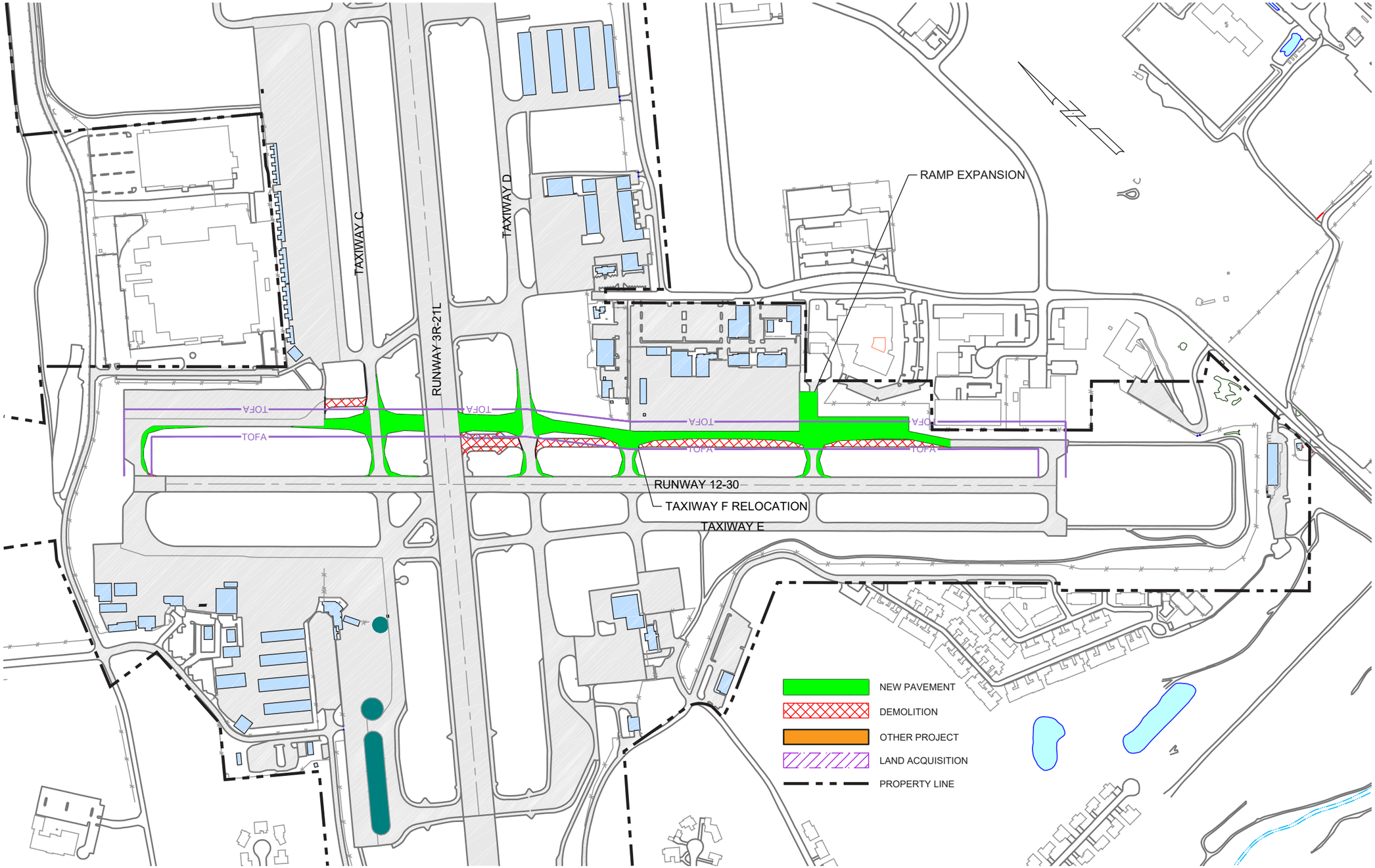

Figure 5-12. Alternative 2: Relocation to Standard Separation and MOS
Source: Delta Airport Consultants, Image by Google

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Alternative 3: MOS

Alternative 3 for Taxiway F would be to submit a modification to design standard (MOS) to the FAA. Submitting an MOS would allow the current Taxiway F to remain in place. The MOS would be for the portion of the taxiways that is south east of Runway 3R-21L which only has a current separation distance of 200 feet from Runway 12-30. The portion of Taxiway F from Taxiway D to the West Ramp would be constructed to standard. **Figure 5-13** illustrates this alternative.

Operational Factors

Temporary closures of Runway 3R-21L, Taxiway D, and Taxiway C would be required to accommodate construction of Taxiway F within the safety areas.

Economic Factors

This alternative is the least expensive of the Taxiway F alternatives.

Environmental Factors

There are no environmental factors anticipated for this alternative.

Implementation Factors

PRC would need to submit a request for MOS to the FAA for approval for the portion of Taxiway F that does not meet or exceed standard separation distance. The FAA is not an advocate of issuing new MOS if there are options to correct the non-standard condition and that could make this alternative an unlikely alternative.

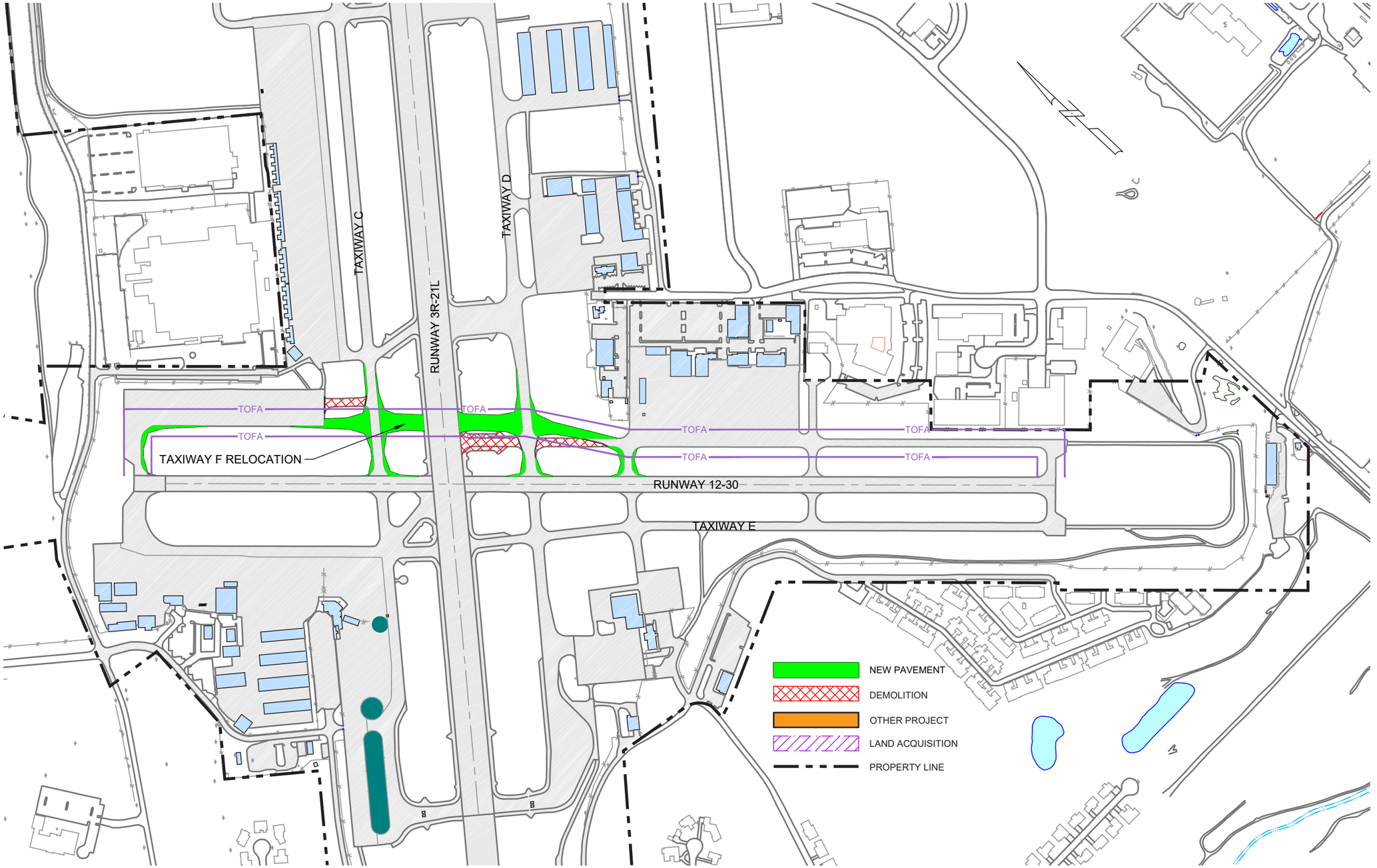

Figure 5-13. Alternative 3: MOS
Source: Delta Airport Consultants, Image by Google

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Section Overview

Part 1 | ATCT Alternatives

Image by Delta Airport Consultants, Inc.

5 | Section 5 - Air Traffic Control Tower Alternatives

As discussed in Chapter 4, the Air Traffic Control Tower (ATCT) has noted that there is a significant line of site issue to the ends of Runways 21L and 21R. If Runway 3R-21L or Runway 3L-21R were to get expanded to support the existing traffic, then it would add additional visibility issues to the runway ends creating even more of a visibility problem on the airport. Although the site for a new ATCT will ultimately be the decision of the FAA based upon extensive analysis of line-of-sight issues, object discrimination, and operational cohesiveness with airport operations, and FAR Part 77 surfaces, a preliminary site should be identified as a part of the master plan process to protect an area from other planned development. Three alternatives for an ATCT site location have been developed to help choose a new location to mitigate the visibility issues. **Figure 5-14** depicts the three potential locations for the new ATCT. Further evaluation of the necessary ATCT height necessary at each site that would provide an unobstructed view of the airfield will be necessary as part of a more comprehensive tower site evaluation study.

5.5 | Part 1 - ATCT

Alternative 1: Off-Airport East Side

Alternative 1 proposes to relocate the new ATCT on property adjacent to the airport. A preliminary site located between Melville Road and Cirrus Road has been identified. This site would need to be evaluated to find the optimal location for the ATCT.

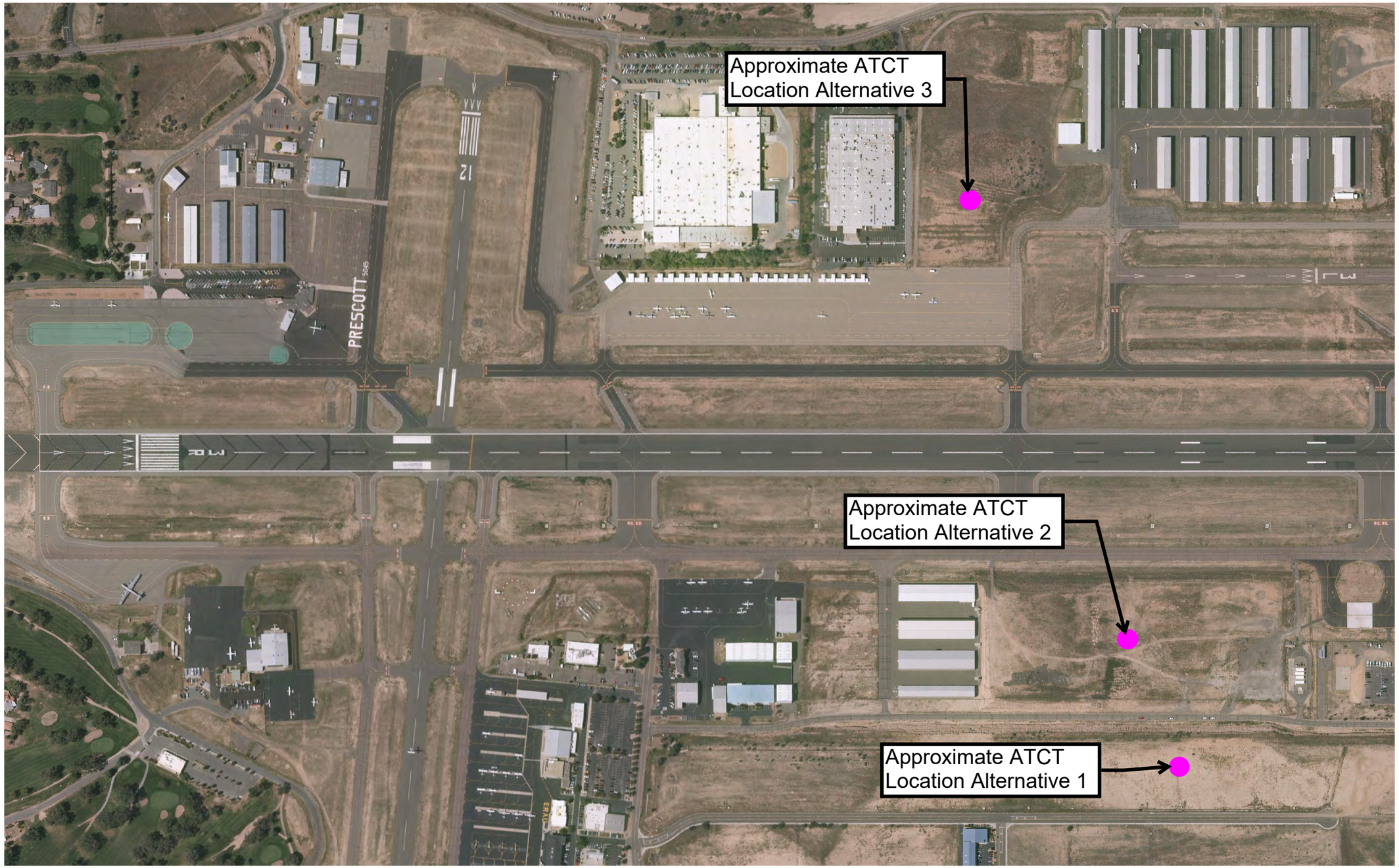

Figure 5-14. Air Traffic Control Tower Alternatives
Source: Delta Airport Consultants, Image by Google

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Operational Factors

This site location would be very close to a midfield site location, which is desired as a part of the site selection process by the FAA.

Economic Factors

This alternative could be the more expensive option depending on the cost of the proposed property acquisition. The construction cost will depend the height of the tower. The height will be determined by shadow study, taking into account potential buildings and other facilities that could obstruct the tower's view. If the tower is above a certain height, an elevator would be required, significantly increasing the cost of construction.

Environmental Factors

Environmental factors would have to be evaluated in depth to determine if there are any impacts at the proposed location. The location has been previously disturbed and no environmental impacts are anticipated.

Implementation Factors

Acquiring the necessary property at a reasonable price could be a challenge. The FAA Airports and Air Traffic divisions will require significant input and coordination on the site, cost, and funding of the project. Due to the surrounding terrain and the buildings adjacent to Taxiway F, the height of the tower could be significant in order to avoid blind spots.

Alternative 2: On-Airport East Side

Alternative 2 proposed to locate ATCT on airport property in between the Rittaire development and the U.S. Forest Service area. This location would relocate the tower to a more central portion of the airfield allowing for better visibility of the existing runway ends as well as future runway ends for future extensions.

Operational Factors

The site proposed for Alternative 2 will be closer to a midfield location that is often preferred by air traffic control in order to have a clear view of the airfield. This location will also offer a clearer view of Runway 3L-21R.

Economic Factors

This alternative could have a significant construction cost depending on the height of the tower. A disadvantage for this site economically is that it would reduce potential development space for revenue generating activities such as hangars and ramp development.

Environmental Factors

There are no anticipated significant impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine if there are any potential impacts.

Implementation Factors

This site alternative for the new ATCT could significantly impact PRC's ability to develop additional aeronautical space near the proposed site. However, this site could also be used to develop other airport facilities that could benefit from the close proximity of the tower. Due to the surrounding terrain and the buildings adjacent to Taxiway F, the height of the tower could be significant in order to avoid blind spots.

Alternative 3

Alternative 3 proposes that the new ATCT be located near the Bottleneck hangars. With this location, the tower would be relocated to a more central portion of Runway 3R-21L to help mitigate the visibility issues on that runway.

Operational Factors

The site proposed for Alternative 3 will be closer to a midfield location that is often preferred by air traffic control in order to have a clear view of the airfield. This location will also offer a clearer view of Runway 3L-21R. Due to the adjacent off-airport buildings, and the adjacent T-hangars, the height of the tower could be significant to reduce visibility issues. The height of the tower could become a factor in the approach to Runway 3L.

Economic Factors

This alternative would have a significant construction cost depending on the height of the tower. The cost should be comparable to the Alternative 2 location. The disadvantage for this site economically is that it would reduce potential development space for revenue generating activities such as hangar development.

Environmental Factors

There are no anticipated impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine if there are any potential impacts.

Implementation Factors

This site alternative for the new ATCT could significantly impact PRC's ability to develop additional aeronautical space near the proposed site.

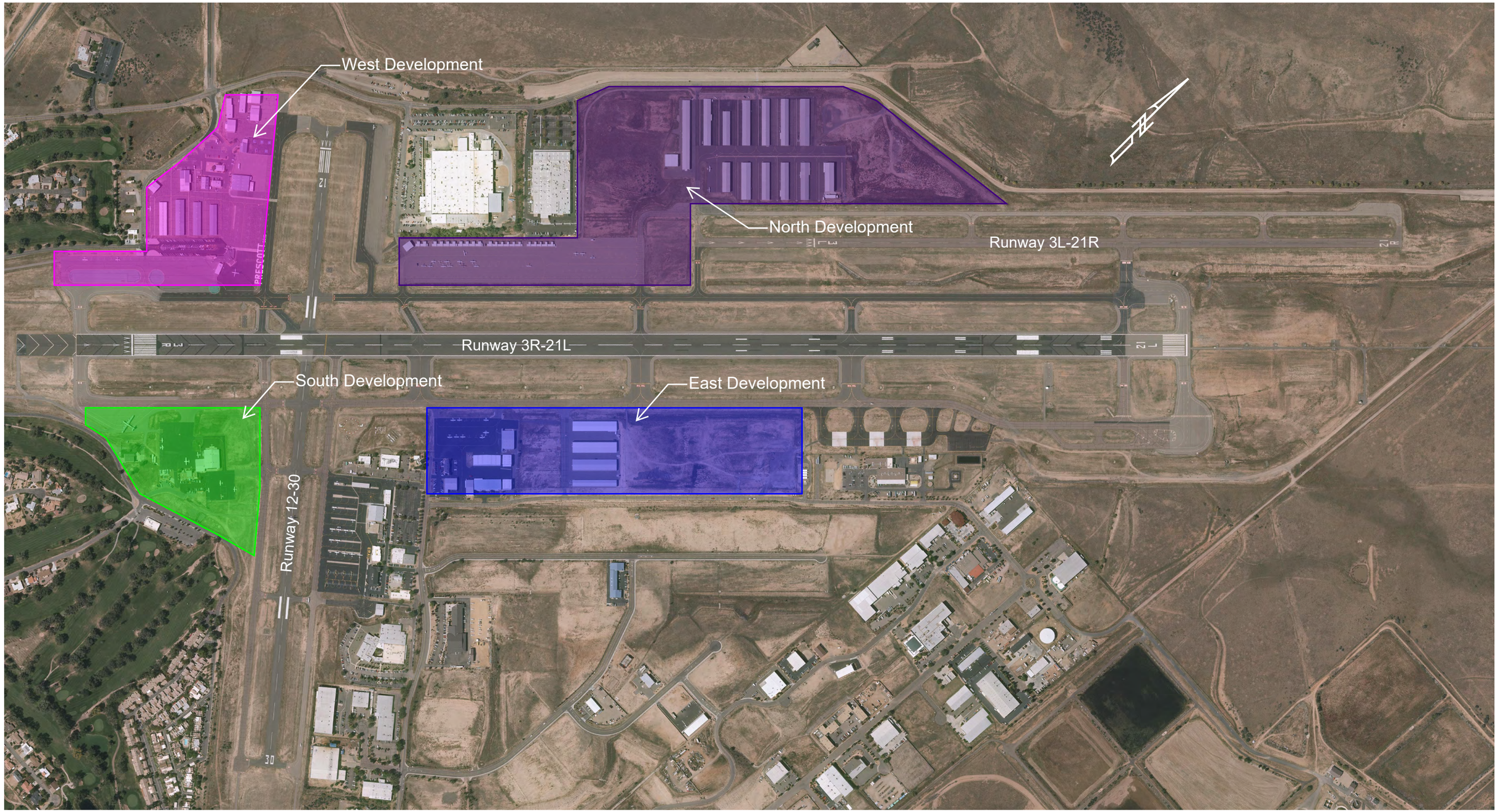

Figure 5-15. GA Development
Source: Delta Airport Consultants, Image by Google

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5|Section 6 - GA Development Alternatives

Activity forecast prepared for PRC Master Plan indicate that the general aviation (GA) operations will increase by two percent over the next 20 years. While the increase in GA traffic is not significant, PRC has limited remaining conventional hangars as determined in Chapter 4. The GA fleet mix is proposed to migrate to larger aircraft over the planning period; thus, the need for additional hangar space to support the growth and change in fleet. PRC has limited on airport space for development due to their existing development; however, their existing development is not sufficient to support the planning period. The airport has been divided into a northern, eastern, western, and southern development areas. See **Figure 5-15** for locations of these area. Each development area has two alternatives evaluating different layout configurations. Each layout will show the full extent of the potential development in each area.

The western area of the airport was not evaluated. This area has limited development space and is the location of the commercial service terminal building. Alternatives for the commercial service terminal building and the impacts to the western area were evaluated and discussed in the Terminal Building Site Assessment (TBSA). The TBSA can be found in **Appendix F**.

5.6 | Part 1 - North Development

Two common facility requirements in the north development area include relocating the self-pump fuel off the North Ramp where it is currently located. By relocating the self-fuel tank, additional ramp space opens up to allow for additional tie downs to be installed on the ramp. This also allows the aircraft using the pump to pull out of the way of potential taxiing aircraft. The other commonality is a wash rack. The location of the wash rack is different for each development.

Alternative 1

Alternative 1 looks into mixed use of additional T-hangar development as well as conventional hangar development of varying sizes. The additional T-hangar development is added to the north side of the existing T-hangar development in the Bottleneck hangar area. An additional access taxiway from Taxiway A is also added to the hangar area due to the increased number of hangars. On the south side of the existing Bottleneck hangars, conventional hangars have been shown for development. There are a mixed used of small and large conventional hangars to provide flexibility to the Airport and potential tenants. Sufficient ramp space is provided as well to allow for the movement of the aircraft. **Figure 5-16** illustrates this development alternative.

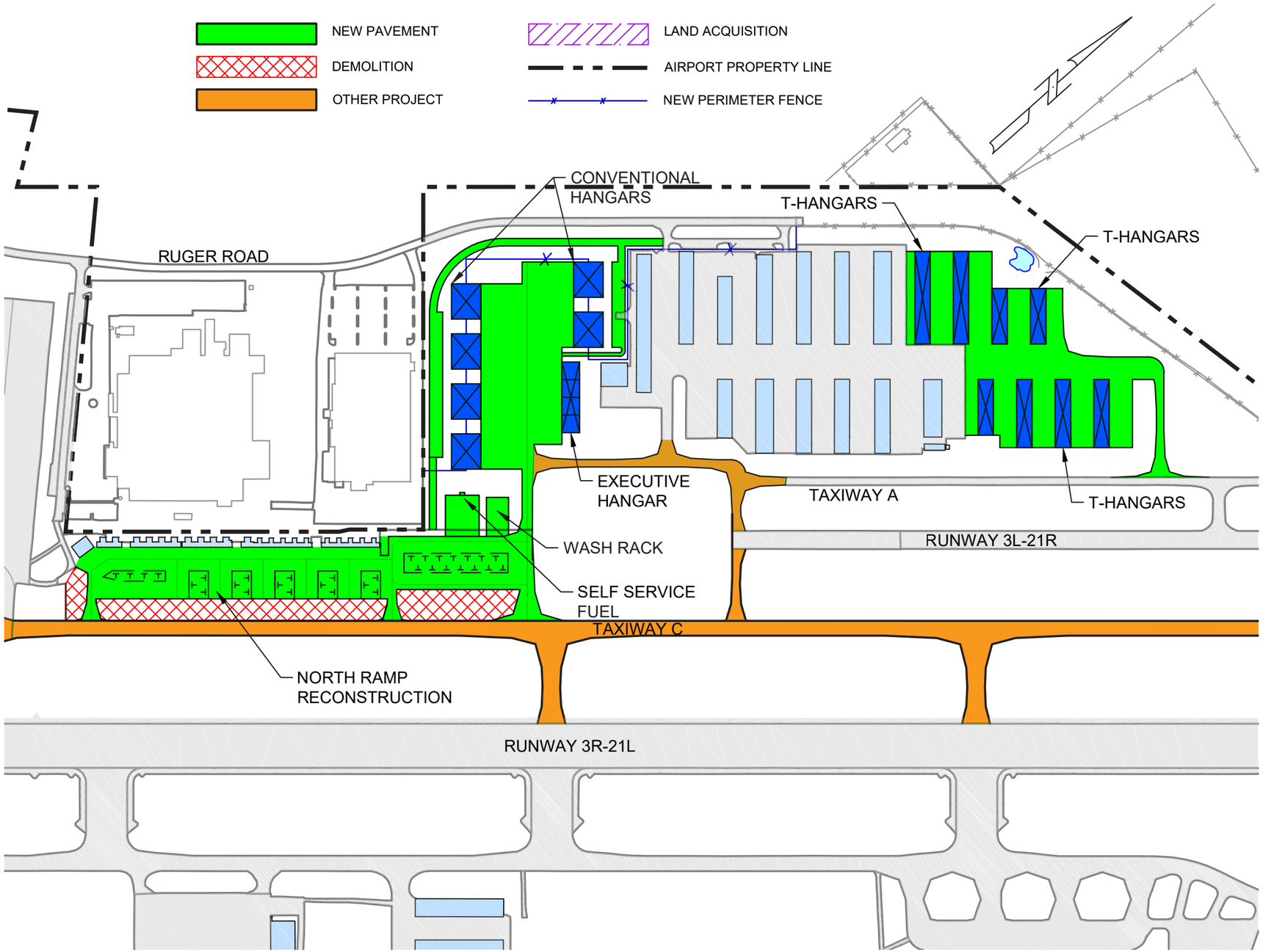

Figure 5-16. Alternative 1: North Development
Source: Delta Airport Consultants, Inc.

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Operational Factors

There are no operational factors for this development other than the potential for additional larger aircraft to become based at PRC. The development can be completed in stages and is laid out to show the full extent of potential development in the area. The additional connector taxiway will provide an alternate access to the T-hangar area helping alleviate congestion caused by the increased number of aircraft in the area.

Economic Factors

During the construction phase, there would be significant construction cost for this development up front; however, this development has the potential to bring in lots of revenue to the airport through rental space of the hangars. Due to the fact this development includes larger hangars, which the airport does not currently have; this allows for larger jets to become based at the airport. These users will not only rent hangar space, but buy fuel as well. This option would give PRC more available space for larger aircraft to be stored as well as additional T-hangar space if need to store based or overnight aircraft.

Environmental Factors

There are no anticipated impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine the environmental impacts for this development. A significant amount of earthwork would have to be moved to allow the full build-out of the area.

Implementation Factors

The T-hangar portion of this alternative allows for maximum use of the development space available while the corporate hangar area provides flexibility on hangar size and style. The single access taxiway to the corporate hangars could be a point of congestion. The location of the T-hangars and the conventional hangars provides for a safe separation of larger business aircraft operations and smaller aircraft operations. The orientation of several of the conventional hangars face north. This can result in wet and icy conditions due to the lack of direct sun during the colder months of the year. This could decrease the desirability of the sites for private investment.

Alternative 2

Alternative 2 shows small executive hangar development on the north side of the existing Bottleneck hangar development. The hangars consist of three to five executive hangars attached to each other for maximum development on the space. An additional access to the hangar area from Taxiway A is added to help with traffic flow. For this development, the wash rack is shown on this side of the development. On the south side of the Bottleneck hangars, conventional hangars

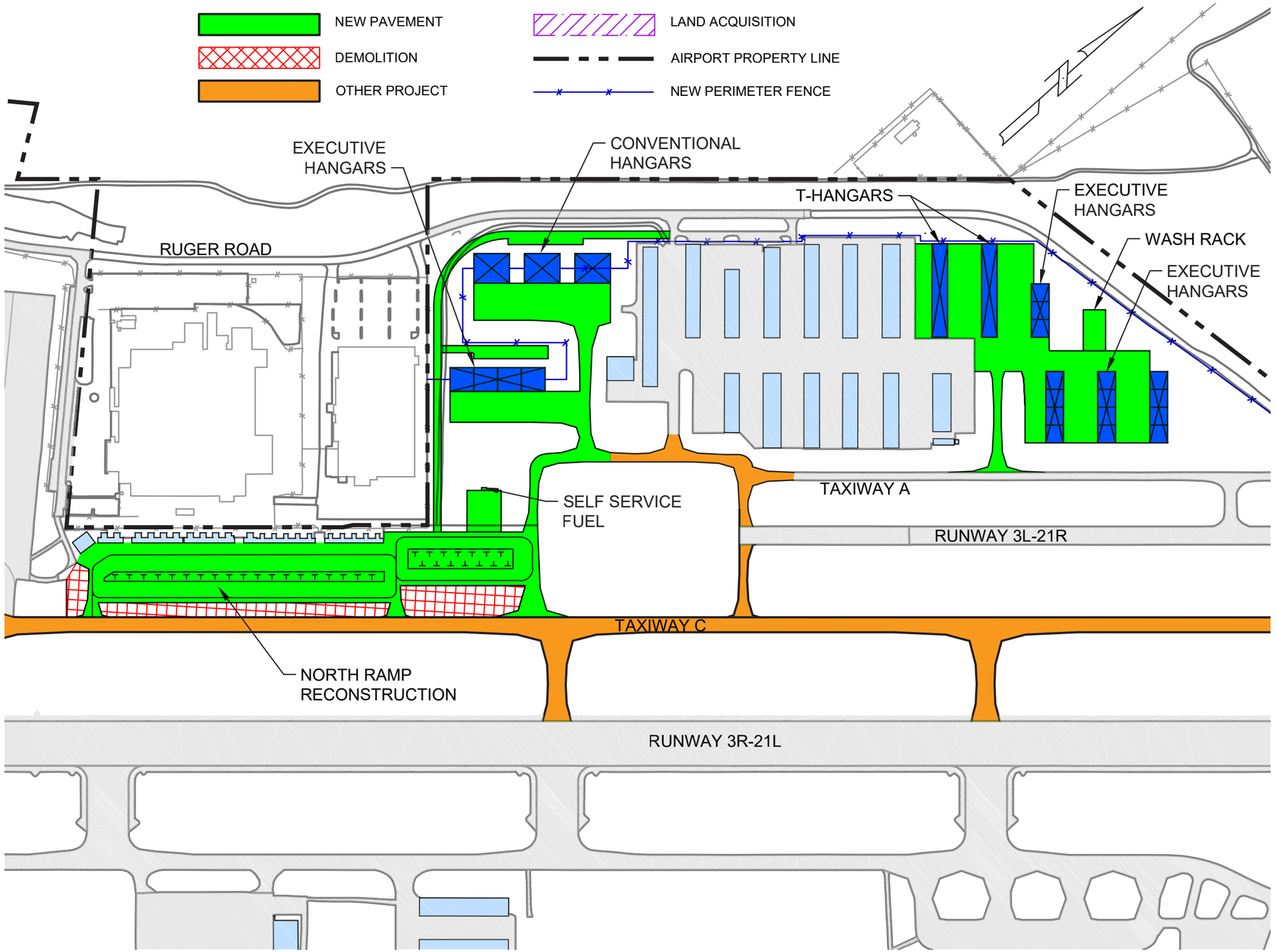

Figure 5-17. Alternative 2: North Development
Source: Delta Airport Consultants, Inc.

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are shown in varying sizes. **Figure 5-17** illustrate this development option.

Operational Factors

There are no operational factors for this development other than the potential for additional larger aircraft to become based at PRC. This development option offers PRC varying sizes of hangar space for their rental needs. The development can be completed in stages and is laid out to show the full extent of potential development in the area. The additional connector taxiway will provide an alternate access to the T-hangar area helping alleviate congestion caused by the increased number of aircraft in the area.

Economic Factors

During the construction phase, there would be significant construction cost for this development up front; however, this development has the potential to bring in lots of revenue to the airport through rental space of the hangars. This development offers PRC flexibility due to the varying sizes of proposed hangar space to accommodate smaller to larger aircraft depending on the need.

Environmental Factors

There are no anticipated impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine the environmental impacts for this development. A significant amount of earthwork would have to be moved to allow the full build-out of the area.

Implementation Factors

The T-hangar portion of this alternative has less number of T-hangar units, but does provide a greater number of executive size hangars for larger aircraft. The conventional hangar area provides sites for large group hangars under a single lease area. The single access taxiway to the corporate hangars could be a point of congestion. The location of the T-hangars and the conventional hangars provides for a safe separation of larger business aircraft operations and smaller aircraft operations. This alternative eliminates north facing hangars, reducing the risk of cold weather conditions affect the area in front of the hangars. This could increase the desirability of the sites for private investment.

5.6 | Part 2 - East Development

One common facility requirement in this development space is the construction of a new facility to house the ARFF equipment and snow removal (SRE)/ maintenance equipment (MXE) for the airport. Different layouts are shown for these facilities based on spacing availability.

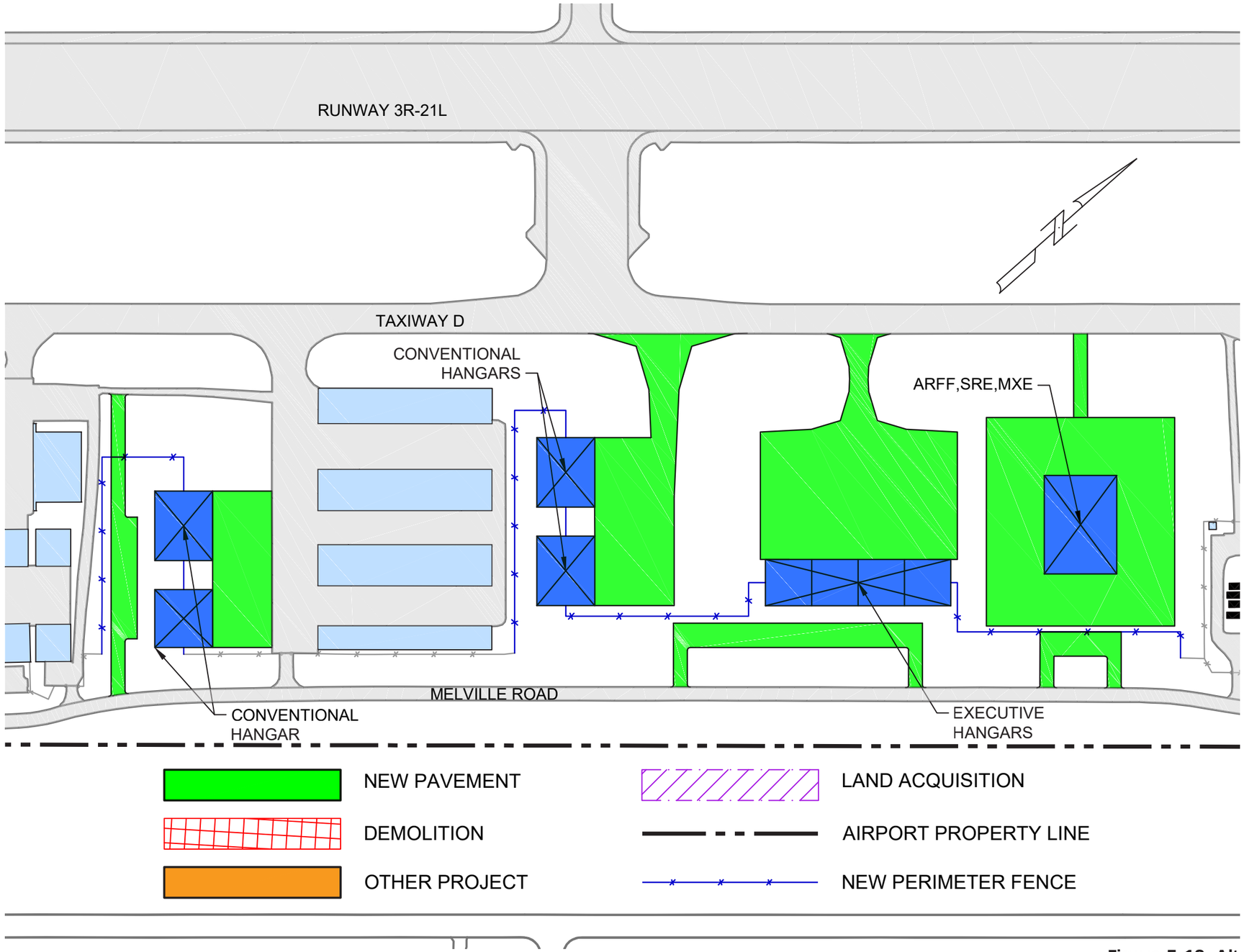

Figure 5-18. Alternative 1: East Development
Source: Delta Airport Consultants, Inc.

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Alternative 1

Alternative 1 looks into what a large hangar development would look like in the open areas on the east side of the airfield. A condensed layout for ARFF, SRE, and MXE have been included as well to help maximum the space of the area. A new Fixed Base Operator (FBO) site or flight training facility is also provided. **Figure 5-18** illustrates what this type of development could potentially look like with sufficient space for safety requirements and parking to support the facility.

Operational Factors

There are no operational factors for this development other than the potential for additional larger aircraft to become based at PRC. The development can be completed in stages and is laid out to show the full extent of potential development in the area. The location of the new consolidated ARFF/SRE/MXE facility will provide better response times for emergencies.

Economic Factors

During the construction phase, there would be significant construction cost for this development up front; however, this development has the potential to bring in lots of revenue to the airport through rental space of the hangars. Due to the fact, this development includes larger hangars which the airport does not currently have, this allows for larger jets to become based at the airport. These users will not only rent hangar space, but buy fuel as well. This option would give PRC more available space for larger aircraft to be stored.

Environmental Factors

There are no anticipated impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine the environmental impacts for this development. A significant amount of earthwork would have to be moved to allow the full build-out of the area.

Implementation Factors

The orientation of some of the hangars proposed in this alternative face north which is undesirable during the winter months since the front of these buildings will have limited exposure to the sunlight from the south. Unfortunately, any development in some of the available spaces is limited to northern facing hangars due to existing conditions. This could potentially factor into whether potential tenants are willing to lease the hangars or hangar sites.

Alternative 2

Alternative 2 looks into what a smaller hangar development would look like in the open areas on the east side of the airfield. Since a smaller hangar size was used in this development, it allowed for the development of a short parallel taxiway to

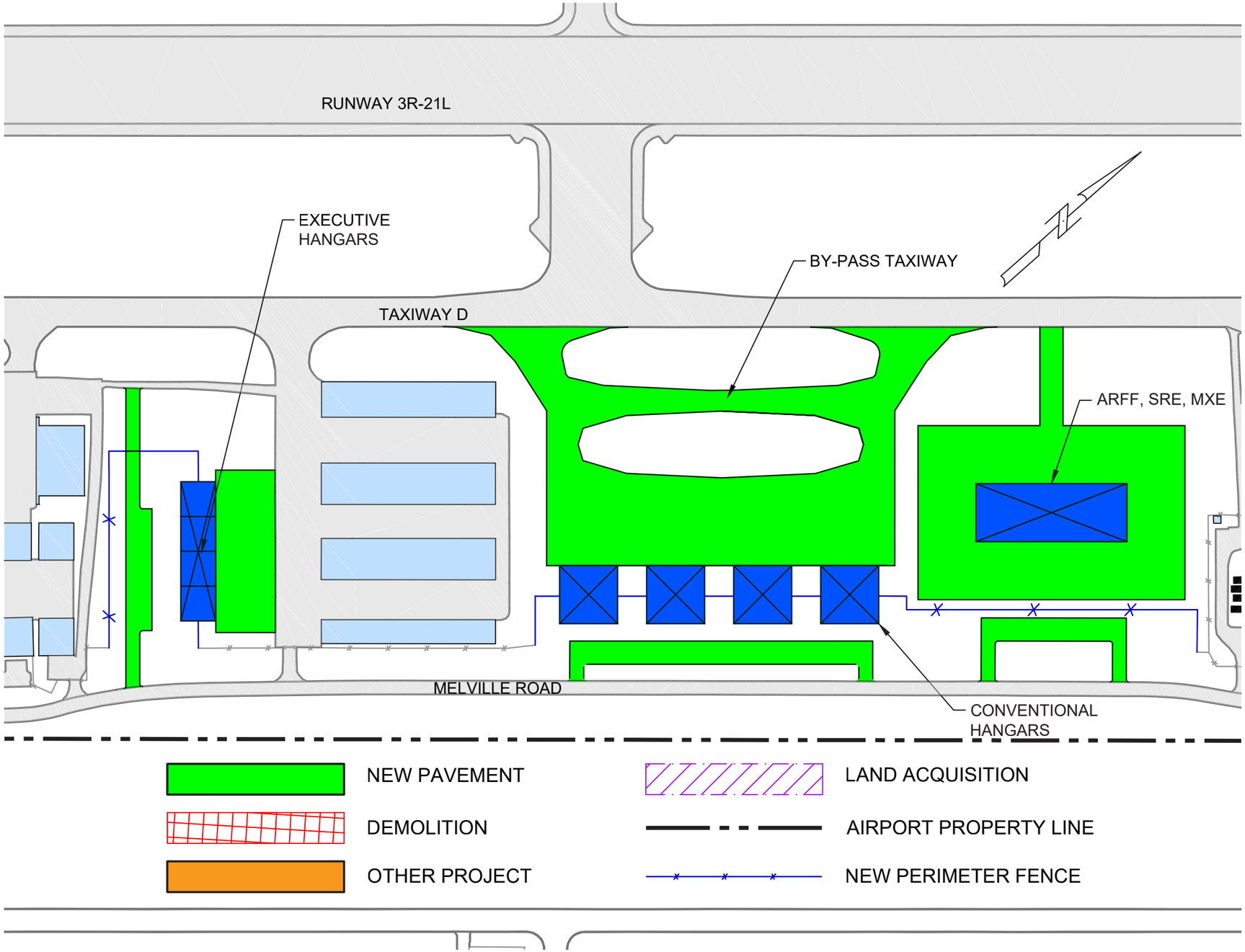

Figure 5-19. Alternative 2: East Development
Source: Delta Airport Consultants, Inc.

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Taxiway D to help with traffic flow on Taxiway D. This would allow a place for aircraft to pull over if two aircraft happened to be going opposite direction on Taxiway D at the same time. A less compact layout of the ARFF, SRE, MXE are shown as an option for this development. **Figure 5-19** illustrates what this type of development could potentially look like with sufficient space for safety requirements and parking to support the facilities.

Operational Factors

One of the biggest operational factors for this development plan is the partial parallel taxiway to help with by-pass traffic on Taxiway D near the center of the airfield. This could help with safety issues on the airfield. The development can be completed in stages and is laid out to show the full extent of potential development in the area.

Economic Factors

During the construction phase, there would be significant cost for this development up front; however, this development has the potential to bring in lots of revenue to the airport through rental space of the hangars. The smaller size of hangar space will allow for more hangars to be constructed in the limited space available.

Environmental Factors

There are no anticipated impacts to the surrounding environment that would occur with implementation of this alternative; however, a more in-depth analysis would need to be completed to determine the environmental impacts for this development. A significant amount of earthwork would have to be moved to allow the full build-out of the area.

Implementation Factors

The orientation of some of the hangars proposed in this alternative face north which is undesirable during the winter months since the front of these buildings will have limited exposure to the sunlight from the south. Unfortunately, any development in some of the available spaces is limited to northern facing hangars due to existing conditions. This could potentially factor into whether people are willing to lease the hangars.

5.6 | Part 3 - South Development

The south area development is the development of the existing FBO ramp. The common functionality to the facility is maximizing ramp space to allow for additional aircraft on the ramp and space for maneuvering around the ramp. Hangars are also a common facility proposed. Two layouts have been developed for this facility.

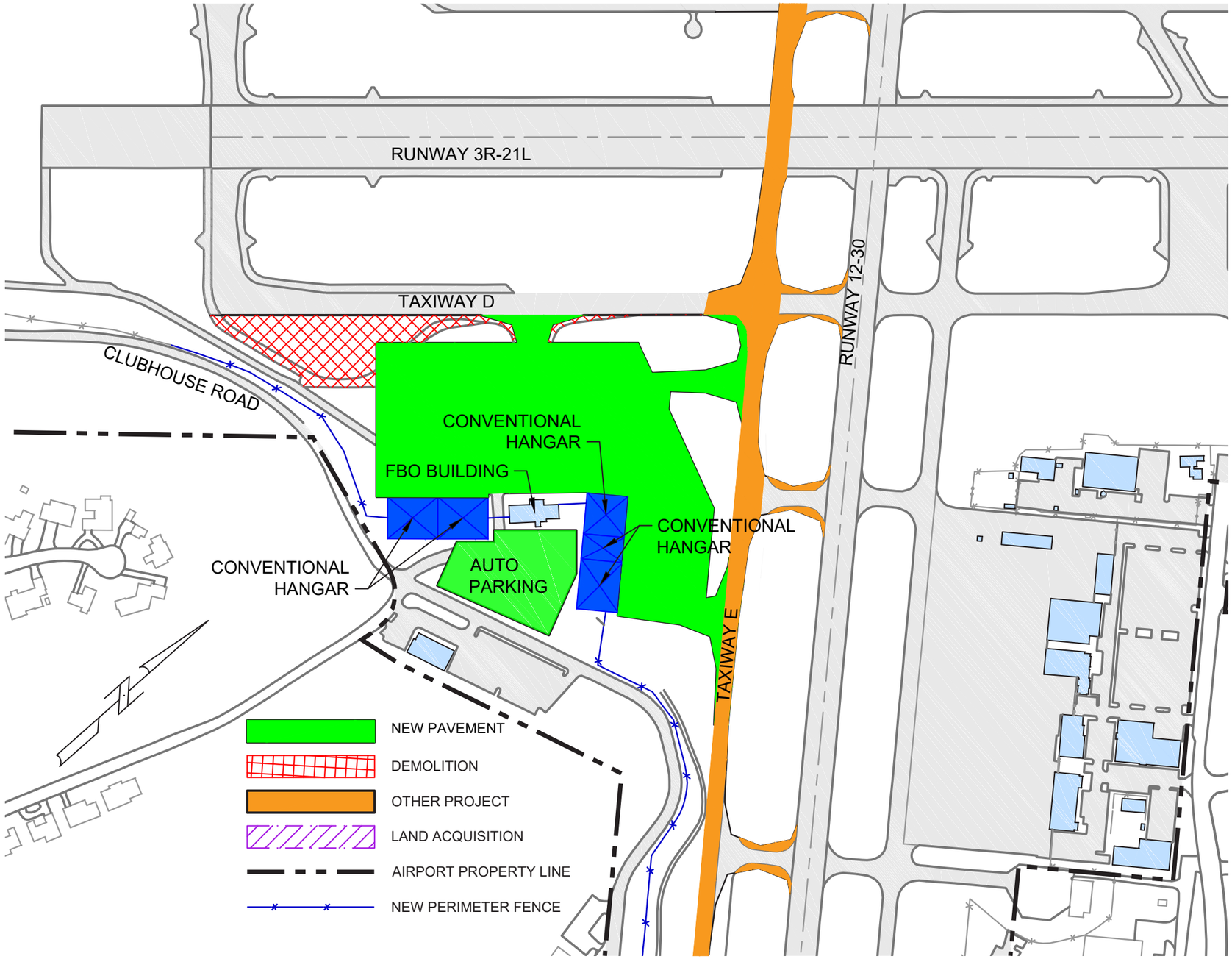

Figure 5-20. Alternative 1: South Development
Source: Delta Airport Consultants, Inc.

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Alternative 1

Alternative 1 allows for three access points to the ramp from the taxiway system to help with traffic flow to and off the ramp space. This alternative maximizes the ramp space; however, it does impact the existing hold apron on Taxiway D. This layout provides five hangars for overnight aircraft storage or maintenance operations. The hangars allow flexibility to store different size aircraft as well as the potential to use a hangar for aircraft maintenance purposes. **Figure 5-20** illustrates the development alternative.

Operational Factors

This alternative provides additional ramp space and conventional hangars. The layout provides better traffic follow on and off the ramp with the addition of an access point for ease of use for aircraft. The hangars biggest impact is the loss of Taxiway D hold apron; however, a by-pass taxiway can be added to perform the same function.

Economic Factors

This alternative could have a significant amount of upfront construction cost; however, PRC would have the potential to make money form additional lease space from the expanded ramp and from fuel sales to the new aircraft hangered at the airport. The City would also gain from revenue from personal property taxes on the new aircraft based in the new hangars.

Environmental Factors

There are no anticipated impacts to the surrounding environment with implementation of this alternative. The demolition of the existing hangar and workshop would require a detailed environmental review due to their age and function.

Implementation Factors

Some of the hangar doors would be northern facing during the winter which creates a problem due to the limited sunlight.

Alternative 2

Alternative 2 allows for only two access points from the taxiway system for traffic flow on and off the ramp. This layout of the ramp space tries to maximize the ramp space while limiting the impacts to existing pavement such as the hold apron on Taxiway D. This layout also provides six hangars for overnight storage or a maintenance operation. **Figure 5-21** illustrates the development alternative.

Operational Factors

This alternative provides additional ramp and hangar space for itinerant use.

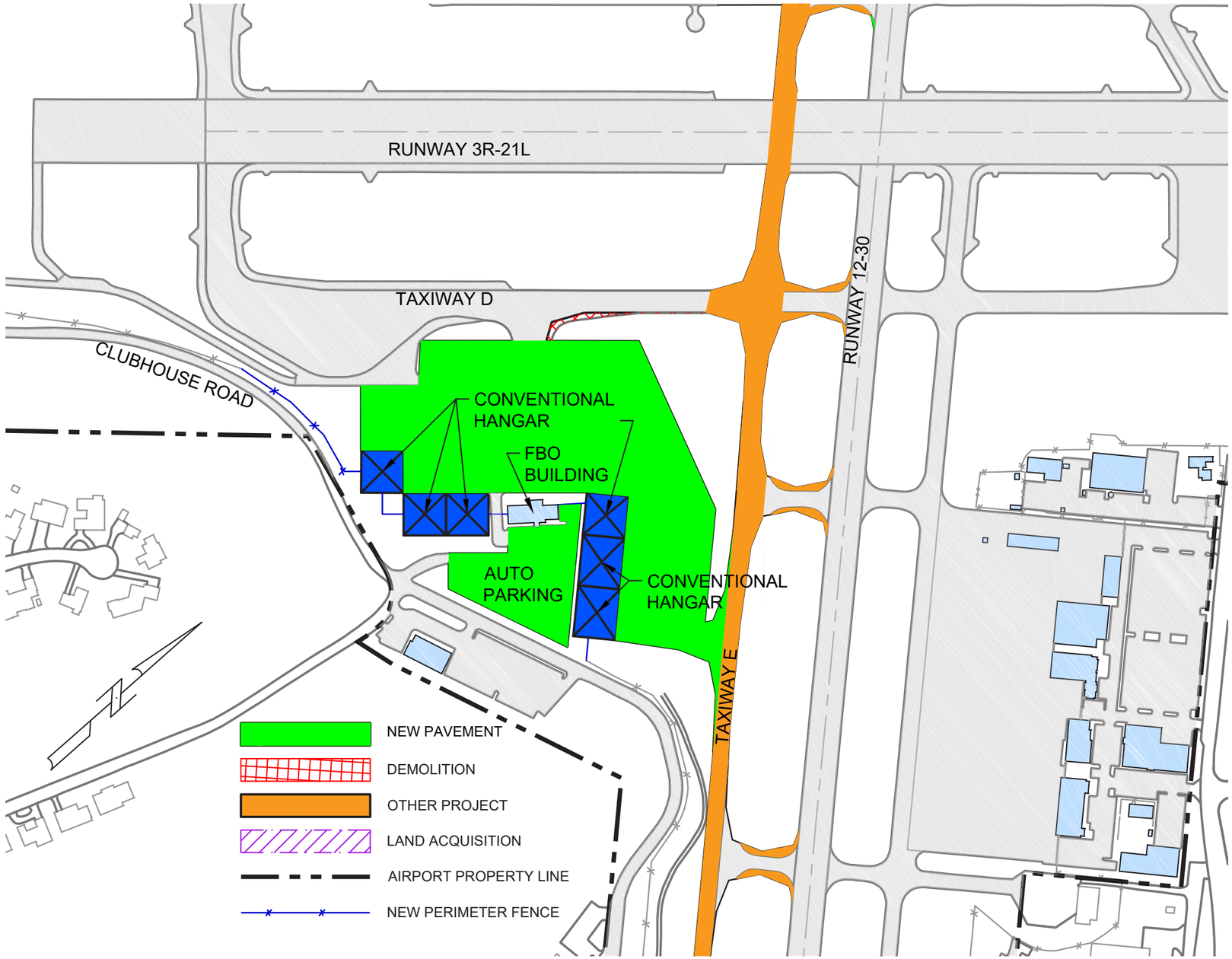

Figure 5-21. Alternative 2: South Development
Source: Delta Airport Consultants, Inc.

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Economic Factors

This alternative could have a significant amount of upfront construction cost; however, PRC would have the potential to make money form additional lease space from the expanded ramp and from fuel sales to the new aircraft hangered at the airport. The City would also gain from revenue from personal property taxes on the new aircraft based in the new hangars. Alternative 2 could have a larger financial impact due the greater number of hangars, resulting in a greater number of based aircraft.

Environmental Factors

There are no anticipated impacts to the surrounding environment with implementation of this alternative. The demolition of the existing hangar and workshop would require a detailed environmental review due to their age and function.

Implementation Factors

Some of the hangar doors would be northern facing during the winter which creates a problem due to the limited sunlight.

5.6 | Part 4 - Clubhouse Drive

Currently PRC does not have a public road that circulates around the airfield for easy access to all sides of the airfield. They have direct access to the commercial terminal area; however, they have a completely different access road to the side of the airport where Embry-Riddle Aeronautical University (ERAU), the FAA, the U.S. Forest Service, and other aviation businesses are located. If Clubhouse Drive were extended to circulate around the airfield, it would allow for one central access point to the airfield. Clubhouse Drive would run parallel to Taxiway E, then tie into Wilkinson Drive past the Runway 30 end. Adding Clubhouse Drive will allow PRC to add an internal service road separate from Taxiway E. Two alternatives have been proposed for extending Clubhouse Drive.

Alternative 1

Alternative 1 proposes a tie in location into Larry Caldwell Road in front of the golf course and golf course maintenance building on airport property. **Figure 5-22** illustrates the proposed road location for this alternative.

Operational Factors

An operational impact to the airport for this alternative is that the road will be proposed to be within the Runway 30 end RPZ. Having the road be within the RPZ is not compatible with the intent of an RPZ; however, this option would allow the road to remain on airport property. The other operation factor is that a service road could be constructed separate from Taxiway E. By separating the service road

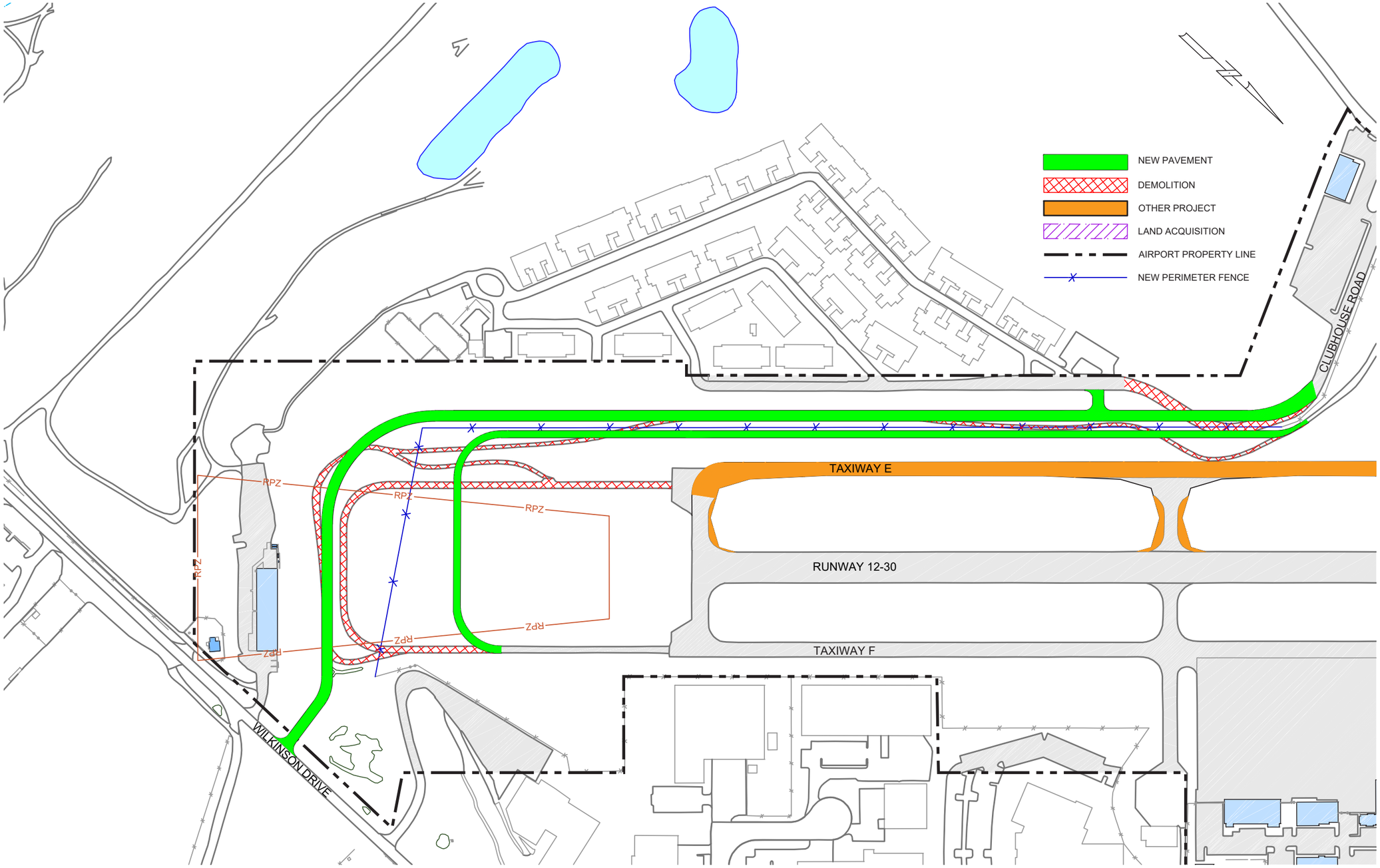

Figure 5-22. Alternative 1: Clubhouse Drive
Source: Delta Airport Consultants, Inc.

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from the taxiway, potential incursions can be mitigated. There would also be some impacts to the housing development access.

Economic Factors

This alternative is the less expensive option of the two alternatives since the road would not interfere with the golf course. This road could be economically beneficial to the airport due to the increases ease of travel to the East side development. This could help to increase traffic flow around the airport as well as airport visibility to the public.

Environmental Factors

There are no anticipated environmental impacts; however; the impacts for this alternative would need to be evaluated in more depth due to the proposed road location running beside a neighborhood housing development.

Implementation Factors

This alternative has one main implementation factor which is coordinating with the housing development due to the addition of a public road adjacent to several of the houses. Construction of a new public road through an existing RPZ would be heavily scrutinized by the FAA as this does not follow current FAA guidance on RPZs.

Alternative 2

Alternative 2 proposes a tie in location into Wilkinson Drive across the golf course. This alternative would require land acquisition and the golf course to reconfigure some of their greenways to accommodate the new road location. **Figure 5-23** illustrates the proposed road location for this alternative.

Operational Factors

The only operation factor is that a service road could be constructed separate from Taxiway E. By separating the service road from the taxiway, potential incursions can be mitigated.

Economic Factors

This alternative is the more expensive option of the two alternatives since the proposed road tie in would cross over some of the existing greenways of the golf course. This would require the airport to buy/transfer additional land from the golf course to complete this alternative. However, this road could be economically beneficial to the airport due to the increased ease of travel to the East side development. This could help to increase traffic flow around the airport as well as airport visibility to the public.

Environmental Factors

There are some anticipated environmental impacts for this alternative due to Antelope Hills Golf Course. The new location of Clubhouse Drive would tie into Wilkinson Drive by cutting across some of the existing green ways on the eastern portion of the golf course. Antelope Hills Golf Course is a Section 4(f) resource since it is a publicly owned recreation facility. The full impacts to the golf course will need to be determined pending a final design of the Clubhouse Drive location. Additional impacts would need to be evaluated due to the proposed road location running beside a neighborhood housing development.

Implementation Factors

This alternative has several implementation factors such as purchasing a portion of the golf course and coordinating with the housing development due to the additional public road adjacent to several houses. This road alternative would be outside the RPZ for Runway 30, meeting current FAA guidance.

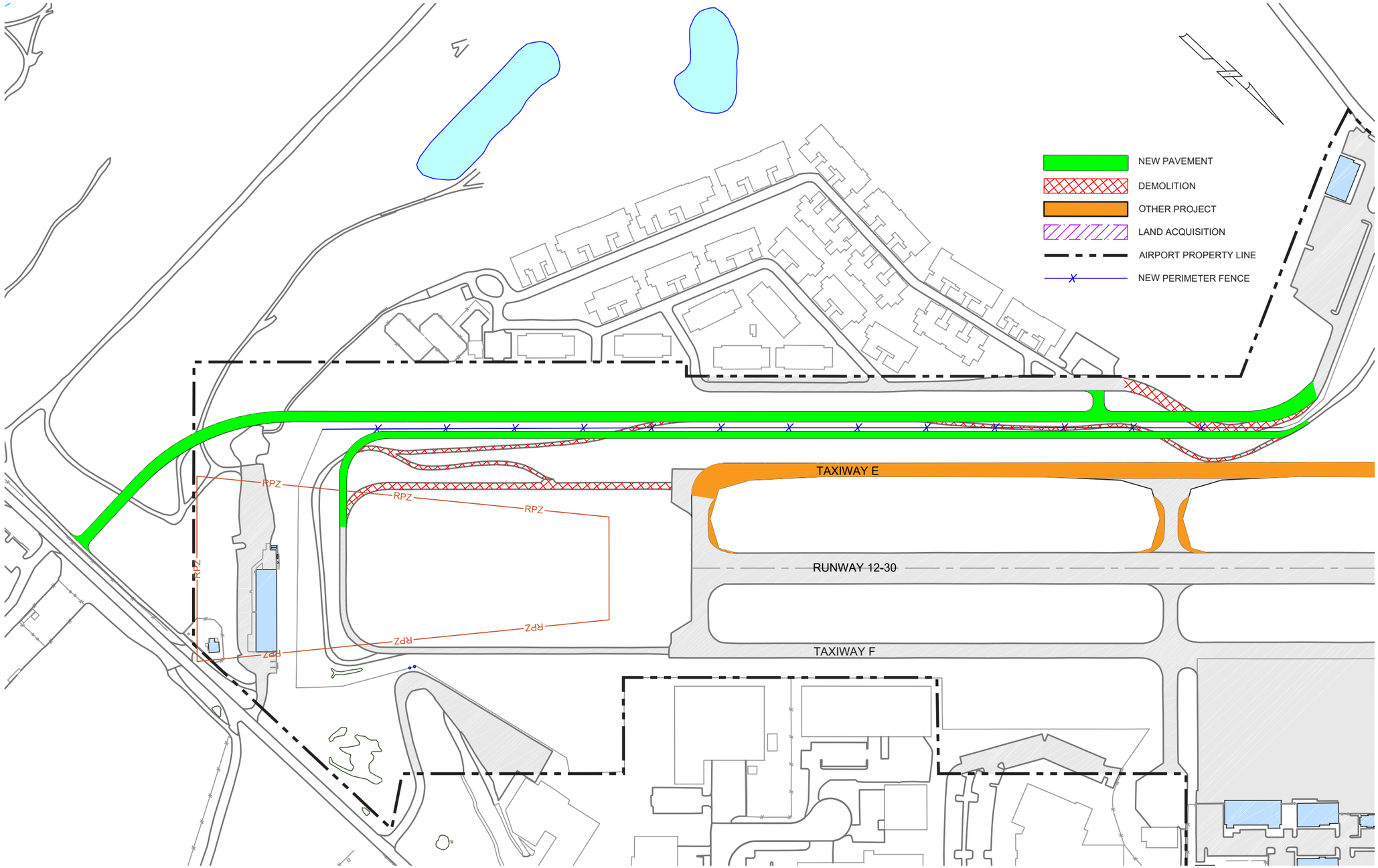

Figure 5-23. Alternative 2: Clubhouse Drive
Source: Delta Airport Consultants, Inc.

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Image by Delta Airport Consultants, Inc.

5 | Section 7 - Preferred Alternative

Following presentations to City Staff and the City Council, the City selected preferred alternatives for each of the elements presented. The preferred alternatives are summarized below and are depicted on **Figure 5-24**.

Runway 3R-21L

Alternate 2 is the preferred Alternate for Runway 3R-21L. This Alternate includes shifting the Runway 3R end by 379 feet and extending the Runway 21 end by 2,760 feet for a total length of 10,000 feet. Shifting the Runway 379 feet allows for the removal of the displaced threshold on Runway 3R. This Alternative also corrects the Runway 3R end non-standard condition within the runway object free area (ROFA). The ROFA is shifted; therefore, the incompatible object is removed from the object free area**.**

Runway 3L-21R

Alternative 2 is the Preferred Alternative for Runway 3L-21R. This Alternative includes shifting the Runway 3L end by 800 feet and extend the Runway 21R end by 1,594 feet for a total runway length of 6,200. By shifting the runway 800 feet, it allows for the displaced threshold to be removed on the Runway 3L end. This alternative also corrects the Runway 3L end runway protection zone (RPZ) non-standard condition by bringing the RPZ within limits of the airport property line. This also shifts the RPZ to eliminate the incompatible objects within the current RPZ.

Runway 12-30

Alternative 2 is the Preferred Alternative for Runway 12-30. This Alternative includes shortening the Runway 12 end by 40 feet. By shortening the runway, it allows for the displaced threshold to be removed. The new total runway length will be 4,368 feet. This alternative also corrects the runway safety area (RSA) grading by shifting the RSA forward to an area where standard grades can be met.

RVZ

Alternative 2 is the Preferred Alternative for the Runway Visibility Zone (RVZ). This Alternative includes closing Runway 12-30 at night while the tower is closed between the hours of 10:00 pm until 6:00 am local time. This alternative eliminates the RVZ visibility issues with the least amount of impacts to the airport.

Taxiway E

A revised alternative layout was preferred to accommodate the different size aircraft that utilize the different portions of the taxiway. The portion east of Taxiway D will be designed to accommodate Group I aircraft. The portion between Taxiway D and the new commercial terminal apron will be designed to accommodate Group III aircraft. West of the terminal apron will be designed for Group II. While a consistent runway-taxiway separation would be preferable, existing space constraints limit that from happening.

Taxiway F

A revised alternative layout was preferred to accommodate the different size aircraft that utilize the different portions of the taxiway. The portion east of Taxiway D will be designed to accommodate Group I aircraft. The portion between Taxiway D and Taxiway C will be designed to accommodate Group III aircraft. The portion west of Taxiway C will be designed for Group II aircraft. While a consistent runway-taxiway separation would be preferable, existing space constraints limit that from happening.

Air Traffic Control Tower

Alternative 1 is the Preferred Alternative for the Air Traffic Control Tower. This Alternative shifts the tower to a more central location along Runway 3R-21L providing better visibility for the entire airfield.

North Development

The Preferred Alternative for the north development is a combination of the two proposed alternatives. The facilities chosen include four T-hangars, 17 executive hangars, eight corporate hangars, and a reconfigured ramp area to meet standard separation and provide circulation. This alternative adds a second access point for the Bottleneck hangers creating better aircraft circulation through the area.

East Development

The Preferred Alternative for the east development is a combination of the two proposed alternatives. The facilities chosen include two corporate hangers with access from Taxiway K, adding an ARFF, Snow Removal Equipment, and Maintenance Building complex with ample parking outside the facility, a by-pass taxiway for Taxiway D with access to ramp space, and four executive hangars.

South Development

Alternative 1 is the preferred Alternative for the South Development. This Alternative includes expanding the ramp, adding corporate hangars, and expanding the automobile parking area to support the new facilities. This alternative adds an additional access point from the taxiway system to help with circulation on the ramp.

Clubhouse Drive

The Preferred Alternative for Clubhouse Drive is to complete a study to determine if constructing a road to tie Clubhouse Drive to Wilkinson Drive is necessary to help with airport vehicle circulation around the airfield. City staff recommended that the road extension be removed from the planning period and not be shown on the ALP.

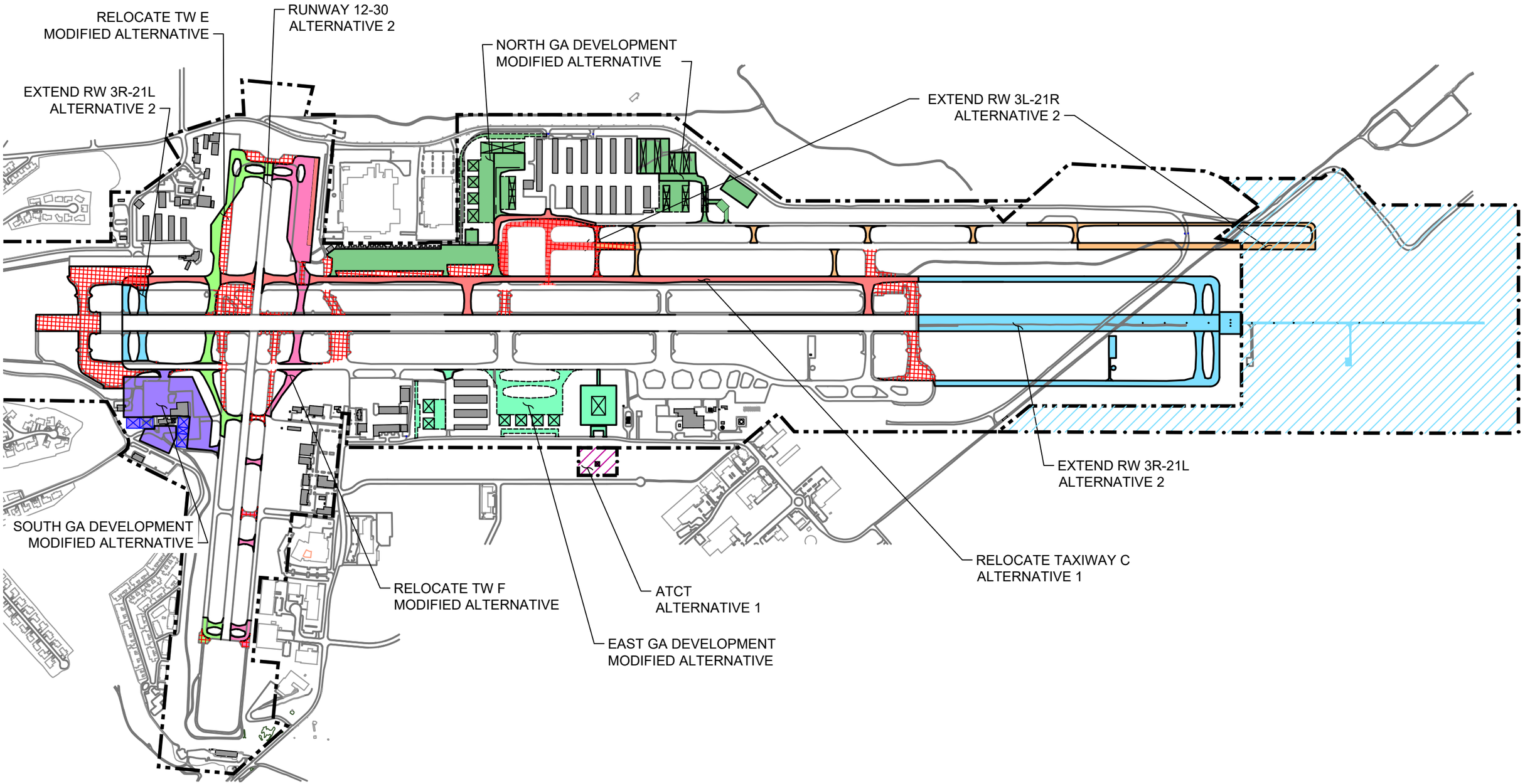

Figure 5-24. Preferred Alternatives
Source: Delta Airport Consultants

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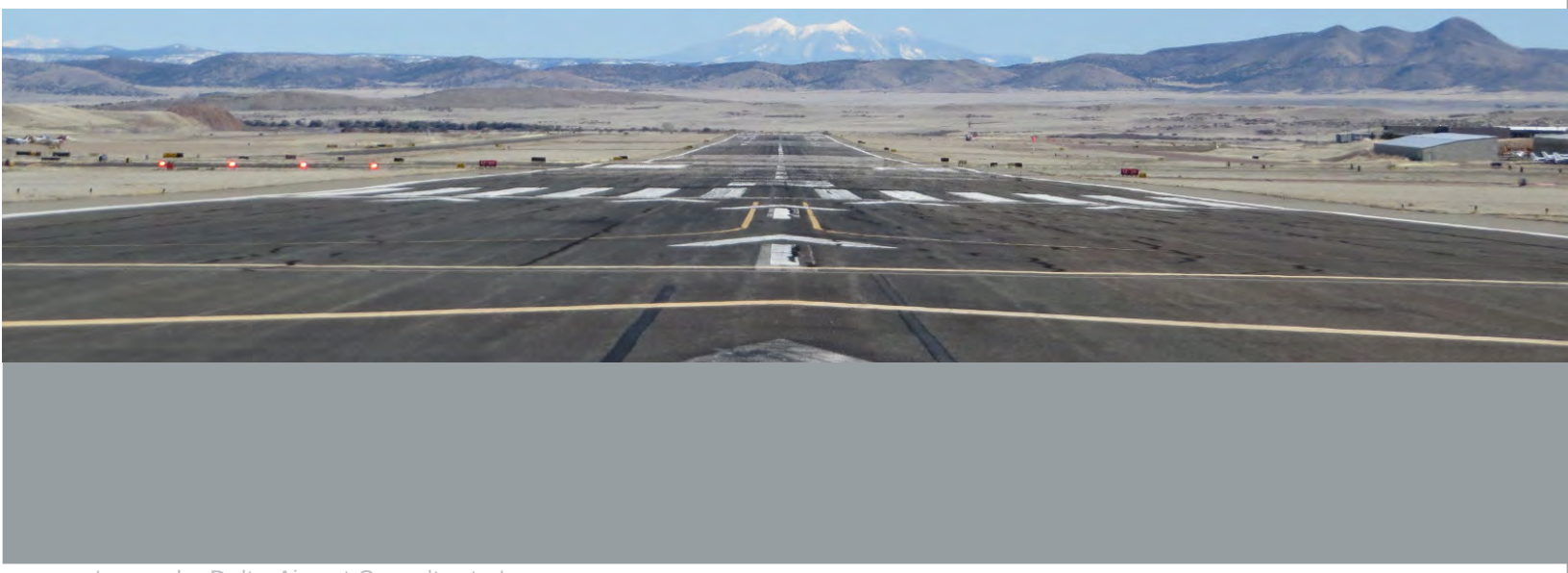


Image by Delta Airport Consultants, Inc.

5 | Section 8 - Noise

Future noise contours for the preferred alternatives were generated to evaluate the potential aircraft noise effect for the future conditions at PRC. The future conditions include Runway 3R-21L extension to 10,000 feet and Runway 3L-21R extension to 6,200 feet. The data was based on the future forecast from Chapter 3. Additional information on the methodology is included in Appendix G. This analysis was conducted using the following data inputs: future runway layout and use; number of future aircraft operations; future aircraft fleet mix; and flight tracks and profiles.

Figure 5-25 depicts the future noise contours for PRC. The contours for DNL 75 remain within the airport property line. The 70 DNL would remain mostly on airport property with the exception being the Runway 21 end. The 70 DNL would shift slightly off property; however, there are no noise sensitive land uses on that end of the runway. Additionally, the Master Plan proposes buying that land off the end of the runway prior to the runway extension in order to have full control of the land within the future RPZ. The 65 DNL has two areas that fall outside of airport property, which are the Runway 21L end and Runway 30 end off to the southwest. The Runway 30 end does overlap with a noise sensitive land use. Currently there is a housing development which connects to a golf course to the southwest of the airport running along the edge of the property line. The 65 DNL overlaps with a few of the houses in the development.

Due to the land use incompatibilities between "noise sensitive" and airport land uses, the FAA encourages localities to take actions to reduce and prevent

incompatible land uses around airports. According to FAA Order 1050.1F Desk Reference, common measures related to noise and noise-compatible land use include:

- Acquisition of land or land interest, including air rights, easements, and development rights, to ensure the use of property for purposes compatible with noise exposure;
- Sound insulation of residences and other noise sensitive structures; and
- Construction of noise barriers or acoustic shielding to mitigate ground-level noise.

It is recommended that the off-airport areas impacted by the 65 DNL be mitigated by coordinating with the FAA Air Traffic Control Tower (ATCT) and the flight schools regarding operations and flight patterns.

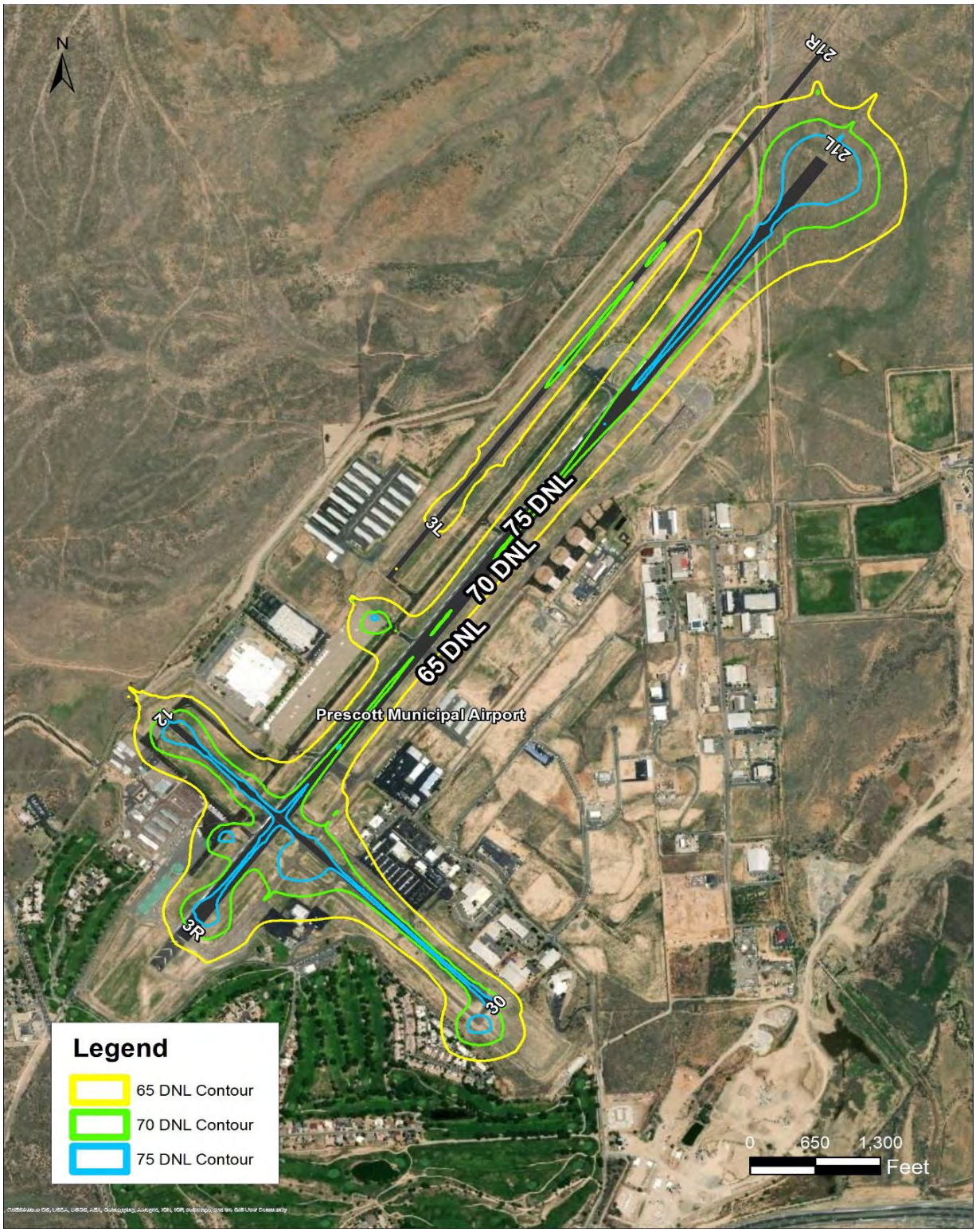


Figure 5-25. Proposed Noise
Source: KB Environmental Sciences, Inc., Image by Google

Chapter Six | Funding Feasibility and Implementation Plan

Section 1 - Introduction
Section 2 - Funding Sources
Section 3 - Airport Capital Improvement Program (ACIP)
Section 4 - ACIP Summary
Section 5 - Financial Analysis
Section 6 - Conclusions

Image by Delta Airport Consultants, Inc.

6 | Section 1 - Introduction

This chapter describes the recommended Prescott Regional Airport - Ernest A. Love Field (PRC) Capital Improvement Program (CIP) for the planning horizon. It identifies probable construction costs, in constant 2017 dollars, and establishes a preliminary funding scenario for each recommended project. Projects are presented in three development phases: Phase I (0-5 years), Phase II (6-10 years), and Phase III (11-20 years).

Cost estimates and a financial plan (Airport Development Program) will be prepared with the purpose of assisting PRC with achieving their local share requirements.

The budget data provided herein represents an order of magnitude estimate of the total project cost, including construction and additional expenses such as engineering, administration, surveying, and testing. These are preliminary estimates for planning purposes; it should be noted that more detailed cost estimates must be developed prior to the implementation of a project in order to ensure that sufficient funding is available to complete the identified scope of work. To this end, project cost estimates should be periodically reviewed and updated to reflect annual inflation and other changing conditions.

Projects are depicted on the Airport Layout Plan (ALP) drawing. The recommended phasing plan should be evaluated periodically and adjusted accordingly to reflect changes in demand, local priorities, economic conditions, and/or availability of funding.

Section Overview

Part 1 | Federal Aviation Administration (FAA) Funds
Part 2 | Arizona Department of Transportation-Aeronautics Division (ADOT) Funds
Part 3 | Local Funds
Part 4 | Other Capital Funds
Part 5 | Passenger Facility Charges
Part 6 | Customer Facility Charge

Image by Delta Airport Consultants, Inc.

6 | Section 2 - Funding Sources

It is anticipated that four primary sources of funding will be utilized to implement the Prescott Regional Airport- Ernest A. Love Field CIP. These sources include the Federal Aviation Administration (FAA), Arizona Department of Transportation (ADOT), local funding, public private partnership, and private investment. Each governmental source may have specific eligibility criteria and application guidelines that require diligent planning and administration to ensure that sufficient funds are received to implement this program.

6.2 | Part 1 - Federal Aviation Administration (FAA) Funds

The principal source of federal funding for airport capital development is through the Airport Improvement Program (AIP). This program was initially authorized in 1992 and has been periodically re-authorized since that date. In February 2012, FAA Reauthorization Legislation was signed into law as the FAA Modernization and Reform Act of 2012. This act provides grant funds specifically for general aviation airports listed in the latest published National Plan of Integrated Airports (NPIAS), generally publicly owned airports that have documented airfield development needs.

The funding for the Airport Improvement Program (AIP) Trust Fund occurs through a flight segment tax and airline ticket tax, a tax on cargo waybills, an international departure fee, and a per gallon tax on general aviation fuel and jet fuel.

FAA Order 5100.38, Airport Improvement Program (AIP) Handbook, as amended, defines project eligibility. In general, airfield improvements and airfield safety and security equipment, airport ground access, public use areas of the terminal, land acquisition for eligible airport facilities, runway protection zones, and certain noise mitigation purposes are eligible. Airport master planning is also eligible. Eligible projects at PRC receive 95 percent funding participation from the FAA. For economically depressed areas, which Prescott is classified as, the funding split is ninety-five percent federal funds, two and a half percent state funds, and two and a half percent local funds.

In order for the development to be eligible, the airport must currently be included as an approved airport in the NPIAS and the eligible projects must be included in the airport's FAA-approved Airport Layout Plan (ALP). The entitlement may be used in the fiscal year it becomes available and the next two fiscal years. An airport may choose to delay using their entitlement the first or second year and use the accrued money in the third year to fund a larger project. The fund availability expires if not under grant for a project three years after accrual.

AIP "discretionary" funds are also made available to the airport for high priority capacity, safety, and security projects. As a Non-Hub Primary facility, the airport is also able to access additional discretionary funds that are offered by the FAA.

6.2 | Part 2 - Arizona Department of Transportation - Aeronautics Division (ADOT) Funds

Funding for airport improvement by Arizona is administered by Arizona Department of Transportation (ADOT). Similar to the Federal Aviation Trust Fund, ADOT funds are derived primarily from user fees (i.e. aircraft fuel taxes and state sales tax on aircraft).

Similar to the FAA Airport Capital Improvement Program, ADOT has development a Capital Improvement Program to plan out each airport's five year Capital Improvement Program to parallel the FAA's program. Once an airport sponsor has received a federal grant they will need to apply for a state grant in the Federal/ State/Local (FSL) Airport Development Grants Program. For PRC, this FSL grant will cover two and a half percent of the total project cost. The funding breakdown is then ninety-five percent federal funds, two and a half percent state funds, and two and a half percent local funds.

The State also has a program for State/Local (SL) Airport Development Grants. This provides for a State match of 90 to 95 percent for eligible projects which are prioritized based on project category, type of project, and measure of aviation activity.

ADOT also has a pavement maintenance program called the Airport Pavement Management System (APMS). This program provides maintenance improvements to extend the useful life of airfield pavements identified by ADOT. Only one APMS project per airport is issued each year.

The State has an Airport Loan program that provides interest-bearing loans for airport development projects designed to generate direct revenue to the airport. This program is suspended indefinitely.

6.2 | Part 3 - Local Funds

Airports have the ability to fund capital projects from surplus revenues generated at the airport, funds generated through the issuance of airport bonds, and public infrastructure or development funds provided by, or to, the local government operator of the airport, in this case, the City of Prescott.

6.2 | Part 4 - Other Capital Funds

The balance of funding to be provided for implementation of the airport's CIP could be private investment for projects, assumed to be provided by airport tenants or third party investors, revenue bonds, or bank financing. These privately funded projects are typically reserved for non-eligible items including revenue-producing space and facility developments for parking, concession space, car rental, and private tenant hangars. They can also be used to supplement large capital improvement projects like a terminal building or a runway extension.

6.2 | Part 5 - Passenger Facility Charges

Another source of funding for PRC could be the Passenger Facility Charge (PFC) program authorized by the Aviation Safety and Capacity Expansion Act of 1990 and Part 158 of the Federal Aviation Regulations, the Passenger Facility Charge Program (14 CFR, Part 158).

PFCs allow an airport to collect a fee from each enplaned passenger to aid in the implementation of its CIP. Currently, federal regulations allow an airport to collect a PFC fee up to $4.50 per enplaned passenger. PFCs are used to finance all or portions of capital improvements that are identified by the airport sponsor and approved by the FAA. To be eligible for PFC funding, a project must preserve or enhance safety, security, or capacity of the national air transportation system; reduce or mitigate airport noise from an airport; or provide opportunities for enhanced competition between or among air carriers. This funding mechanism helps an airport raise local funds for improvement projects that can be used in conjunction with other federal and state resources.

PRC does not currently collect PFCs, but is eligible to participate in the program.

6.3 | Part 6 - Customer Facility Charge

Another potential source of funding for PRC is establishment of a customer facility charge (CFC). A CFC is a user fee imposed by an airport operator on each rental car user. These fees are collected by the rental car companies and are generally used for capital and financing costs associated with rental-car related projects. The CFC can be used for both capital costs and operating expenses associated with rental-cars. Unlike the PFC, CFC is regulated at the state level instead of the federal level and the rates established by each individual airport operator.

Section Overview

Part 1 | Phase I Development

Part 2 | Phase II Development

Part 3 | Phase III Development

Image by Delta Airport Consultants, Inc.

6 | Section 3 - Airport Capital Improvement Program (ACIP)

This section identifies the projects and associated timeline required for the continued improvement and operation of PRC during the 20-year planning period. The projects are listed by phase (time period), estimated cost, funding service, and estimated AIP eligibility. Estimated costs include design and engineering fees and a project contingency and are intended only to identify "order of magnitude of costs" for planning purposes. Changes in airport operations or demand, implementation priorities, funding availability, or economic conditions may alter the need or timing of the proposed development.

The cost estimates presented in this section are intended to provide a basis development of the ACIP. The ACIP is a need-based five year plan of funding for airport planning and development projects. Projects are ranked nationally in priority to accomplish the following objectives:

- Preserve existing airport infrastructure
- Mitigate noise and other environmental effects
- Achieve compliance with design standards
- Increase airport system capacity

The FAA uses a numerical system as one tool for prioritizing airport development projects. The values generated by the National Priority System (NPS) equation categorize the projects in accordance with agency goals and objectives. The NPS generates values between 0 and 100, with 100 generally being most consistent

with agency goals. Additional information on ACIP development is available in FAA order 5100.39A, Airport Capital Improvement Plan.

The current estimated cost of each phase and the total cost of the program are listed in **Table 6-1**:

Table 6-1. Current Estimated Costs of each phase

Phase	Cost
Phase I	$112,100,000
Phase II	$28,100,000
Phase III	$39,200,000
Total	

Source: Delta Airport Consultants, Inc.

6.3 | Part 1 - Phase I Development

Phase I includes the construction of facilities and expansion to the airfield recommended in Chapter 4, Facility Requirements, including standards projects, RIM projects, a terminal building, and the extension of Runway 3R-21L. The following projects are included in Phase I:

- Rehabilitate Runway 3R-21L Pavement
- Rehabilitate Runway 3R-21L Lighting
- Construct Shade Hangars
- Rehabilitate West Ramp
- New Commercial Service Terminal Building/Parking/Ramp
- Relocate Taxiway C/RIM Projects
- Rehabilitate North Ramp
- Improve Runway 12-30 Runway Safety Area
- Expand FBO Automobile Parking Lot*
- Expand FBO Ramp*
- Upgrade Perimeter Fence and Security System
- Construct Corporate Hangar Site and Hangar*
- Construct ARFF/SRE/MX Facility
- Acquire Land (Runway 3R-21L Extension)
- Extend Runway 3R-21L (EA, Design, Construction)
- Construct T-Hangar Taxilanes
- Construct T-Hangar*
- Rehabilitate South Ramp and Perimeter Road

* Private Investment

Table 6-2. Airport Capital Improvement Plan Phase I

Phase	Project Description	Total Project Cost	FAA Funding	ADOT Funding	Local Funding	Other
I	Rehabilitate Runway 3R-21L Pavement	$5,200,000	$4,940,000	$130,000	$130,000	$0
I	Rehabilitate Runway 3R-2L Lighting	$1,600,000	$1,520,000	$40,000	$40,000	$0
I	Construct Shade Hangars	$800,000	$0	$0	$800,000	$0
I	Rehabilitate West Ramp	$700,000	$575,000	$100,000	$25,000	$0
I	New Commercial Service Terminal Building/Parking/Ramp	$17,000,000	$12,500,000	$1,000,000	$3,500,000	$0
I	Relocate Taxiway C/RIM Projects	$14,900,000	$14,100,000	$400,000	$400,000	$0
I	Rehabilitate North Ramp	$1,600,000	$1,350,000	$200,000	$50,000	$0
I	Improve Runway 12-30 Runway Safety Area	$600,000	$570,000	$15,000	$15,000	$0
I	Rehabilitate Runway 12-30 Lighting	$900,000	$855,000	$22,500	$22,500	$0
I	Expand FBO Automobile Parking Lot	$400,000	$0	$0	$0	$400,000
I	Expand FBO Ramp	$3,500,000	$0	$0	$0	$3,500,000
I	Upgrade Perimeter Fence and Security System	$1,800,000	$1,710,000	$45,000	$45,000	$0
I	Construct Corporate Hangar Site and Hangar	$5,000,000	$0	$0	$0	$5,000,000
I	Construct ARFF/SRE/MX Facility	$9,100,000	$7,900,000	$900,000	$300,000	$0
I	Acquire Land (Runway 3R-21L Extension)	$2,000,000	$1,900,000	$50,000	$50,000	$0
I	Extend Runway 3R-21L (EA, Design, Construction)	$40,400,000	$38,200,000	$1,000,000	$1,200,000	$0
I	Construct T-Hangar Taxilanes	$1,600,000	$1,520,000	$40,000	$40,000	$0
I	Construct T-Hangar	$1,000,000	$0	$0	$0	$1,000,000
I	Rehabilitate South Ramp and Perimeter Road	$1,000,000	$0	$900,000	$100,000	$0
I	Rehabilitate Runway 3L-21R PAPIs	$200,000	$190,000	$5,000	$5,000	$0
I	Rehabilitate Runway 3l-21R Lighting and Signage	$1,000,000	$950,000	$25,000	$25,000	$0
I	Rehabilitate Taxiways D and K	$1,800,000	$1,500,000	$200,000	$100,000	$0
	Phase I Total:	**$112,100,000**	**$90,280,000**	**$5,072,500**	**$6,847,500**	**$9,900,000**

Source: Delta Airport Consultants, Inc.

- Rehabilitate Runway 3L-21R PAPIs
- Rehabilitate Runway 3L-21R Lighting and Signage
- Rehabilitate Taxiways D and K

The total estimated cost for Phase I development is over $112,100,000. Phase I development estimates, completed with potential funding sources, are presented in **Table 6-2**.

6.3 | Part 2 - Phase II Development

Phase II includes the construction of facilities and expansion to the airfield recommended in Chapter 4, Facility Requirements, including a new Air Traffic Control Tower (ATCT), and rehabilitation projects. The following projects are included in Phase II:

- Relocate Taxiway F
- Purchase Snow Removal Equipment (SRE)
- Purchase Maintenance Equipment (MXE)
- Rehabilitate MacCurdy Drive
- Construct New Air Traffic Control Tower
- Expand Commercial Service Terminal Parking Lot
- Construct Corporate Hangar Site and Hangar*
- Conduct Airport Wayfinding Study and Improvements
- Update Airport Property Map
- Clubhouse Drive Extension Study

The total estimated cost for Phase II development is over $28,100,000. Phase II development estimates, completed with potential funding sources, are presented in **Table 6-3**.

6.3 | Part 3 - Phase III Development

Phase III includes the construction of facilities and expansion to the airfield recommended in Chapter 4, Facility Requirements, including a runway extension and capacity projects. The following projects are included in Phase III:

- Rehabilitate Runway 12-30 Pavement
- Rehabilitate Taxiway A
- Environmental Assessment- Extend Runway 3L-21R
- Acquire Land (Runway 3L-21R Extension)

* Private Investment

Table 6-3. Airport Capital Improvement Plan Phase II

Phase	Project Description	Total Project Cost	FAA Funding	ADOT Funding	Local Funding	Other
II	Relocate Taxiway F	$3,100,000	$2,945,000	$77,500	$77,500	$0
II	Purchase Snow Removal Equipment	$250,000	$237,500	$6,250	$6,250	$0
II	Purchase Maintenace Equipment	$250,000	$237,500	$6,250	$6,250	$0
II	Rehabilitate MacCurdy Drive	$300,000	$285,000	$7,500	$7,500	$0
II	Construct New Air Traffic Control Tower	$19,000,000	$18,050,000	$475,000	$475,000	$0
II	Expand Commerical Service Terminal Parking Lot	$900,000	$855,000	$22,500	$22,500	$0
II	Construct Corporate Hangar Site and Hangar	$3,600,000	$0	$0	$0	$3,600,000
II	Conduct Airport Wayfinding Study and Improvements	$300,000	$285,000	$7,500	$7,500	$0
II	Update Airport Property Map	$300,000	$285,000	$7,500	$7,500	$0
II	Clubhouse Drive Extension Study	$100,000	$0	$0	$100,000	$0
	Phase II Total:	**$28,100,000**	**$23,180,000**	**$610,000**	**$710,000**	**$3,600,000**

Source: Delta Airport Consultants, Inc.

- Construct Runway 3L-21R Extension
- Rehabilitate Runway 3L-21R Pavement
- Construct Corporate Hangar and Site*
- Construct T-Hangar Taxilanes
- Construct T-Hangar*
- Construct Rental Car Service Facility
- Construct Aircraft Wash Facility
- Construct Ground Support Equipment (GSE) Building
- Construct High-Speed Exit Taxiways
- Expand FBO Building*
- Expand Commercial Service Terminal Building Expansion
- Construct Commercial Terminal Parking Lot Expansion

The total estimated cost for Phase III development is over $39,200,000. Phase III development estimates, completed with potential funding sources, are presented in **Table 6-4**.

* Private Investment

Table 6-4. Airport Capital Improvement Plan Phase III

Phase	Project Description	Total Project Cost	FAA Funding	ADOT Funding	Local Funding	Other
III	Rehabilitate Runway 12-30 Pavement	$1,200,000	$1,140,000	$30,000	$30,000	$0
III	Rehabilitate Taxiway A	$500,000	$475,000	$12,500	$12,500	$0
III	Environmental Assessment - Extend Runway 3L-21R	$500,000	$475,000	$12,500	$12,500	$0
III	Acquire Land (Runway 3L-21R Extension)	$300,000	$285,000	$7,500	$7,500	$0
III	Construct Runway 3L-21R Extension	$18,000,000	$17,100,000	$450,000	$450,000	$0
III	Rehabilitate Runway 3L-21R Pavement	$900,000	$855,000	$22,500	$22,500	$0
III	Construct Corporate Hangar and Site	$3,300,000	$0	$0	$0	$3,300,000
III	Construct T-Hangar Taxilanes	$1,600,000	$1,520,000	$40,000	$40,000	$0
III	Construct T-Hangar	$1,000,000	$0	$0	$0	$1,000,000
III	Construct Rental Car Service Facility	$400,000	$0	$200,000	$200,000	$0
III	Construct Aircraft Wash Facility	$400,000	$380,000	$10,000	$10,000	$0
III	Construct Ground Support Equipment Building	$300,000	$0	$150,000	$150,000	$0
III	Construct High-Speed Exit Taxiways	$4,000,000	$3,800,000	$100,000	$100,000	$0
III	Expand FBO Building	$1,500,000	$0	$0	$0	$1,500,000
III	Construct Commercial Service Terminal Building Expansion	$5,000,000	$4,750,000	$125,000	$125,000	$0
III	Construct Commerical Terminal Parking Lot Expansion	$300,000	$285,000	$7,500	$7,500	$0
	Phase III Total:	**$39,200,000**	**$31,065,000**	**$1,167,500**	**$1,167,500**	**$5,800,000**

Source: Delta Airport Consultants, Inc.

Image by Delta Airport Consultants, Inc.

6 | Section 4 - ACIP Summary

The ACIP depicts approximately $179,400,000 in future airport improvements required to accommodate the existing and future aviation demand for the 20-year planning period. The estimated funding sources for the program are included in **Table 6-5**. Private investments or other funding can be negotiated if needed to offset local funds.

Table 6-5. Funding Services

Funding Source	Contribution
FAA	$144,525,000
ADOT	$6,850,000
Local	$8,725,000
Private Investment	$19,300,000
Total	**$179,400,000**

Source: Delta Airport Consultants, Inc.

Section Overview

Part 1 | Airport Financial Structure

Part 2 | Historic and Projected Airport Revenue

Part 3 | Historic and Projected Airport Operating Expenses

Part 4 | Historic and Projected Net Incomes

Image by Delta Airport Consultants, Inc.

6 | Section 5 - Financial Analysis

This analysis evaluates the recent financial performance of PRC in order to assess ongoing financial self-sufficiency of this facility and achieve the proposed short-term CIP. It presents an overview of the airport's financial structure; describes historical trends for revenues, expenditures, and net income; and offers a forecast of revenues, expenditures and operating results for the PRC fiscal years 2016-2020.

6.5 | Part 1 - Airport Financial Structure

The airport is owned and operated by the City of Prescott (City). The City's primary revenue sources include ground rentals, facilities rentals, fuel sales, and hangar and tie-down rent. In addition, the City administers all federal and state grant funding programs including the FAA AIP and ADOT. The City also provides overall project management for the airport capital improvement program.

The City, and therefore PRC, operates on an accrual basis for financial reporting based on a July 1 to June 30 fiscal year. Accordingly, all information contained in this analysis is presented in terms of PRC's fiscal year detail as opposed to a calendar year basis.

The City has established six broad functional areas for purposes of tracking airport revenues. In addition, the City has 30 functional areas to track expenditures. Each month, airport management reviews a summary of monthly expenditures and revenues as well as a comparative analysis of business activity against the same period in the previous fiscal year. A detailed quarterly analysis is completed by

airport staff. In addition, a 12-month running total of revenues and expenditures are reviewed to allow management the opportunity to examine general trends to forecast current year outcomes.

Typical operating expenses include, but are not limited to: insurance premiums, administrative expenses of the City related to PRC, fire/rescue services, utilities, maintenance, snow removal, operations, engineering/architectural fees, legal services, airport consultants, and accounting fees and expenses.

6.5 | Part 2 - Historic and Projected Airport Revenue

Table 6-6 depicts PRC's historical revenues from FY2015 through FY2018. This information is limited due to changes in how the Airport and City categorized and tracked revenue. The major sources of revenue for PRC during this period were lease/license agreements which include but are not limited to ground rentals and facilities rentals.

Table 6-6. Historical Airport Revenue

Funding Source	2015	2016	2017	2018	CAGR
Lease/License Agreements	$639,658	$706,546	$726,877	$735,395	3.55%
Fuel Flowage and Fee	$87,433	$83,697	$94,984	$103,641	4.34%
Landing Fees and Airport Services	$21,796	$26,744	$25,451	$23,538	1.94%
Hangar, Parking and Tie Downs	$670,196	$656,811	$706,057	$701,768	1.16%
Miscellaneous/Admin	$32,189	$55,141	$31,019	$34,604	1.83%
Total	**$ 1,451,272**	**$ 1,528,939**	**$ 1,584,388**	**$ 1,598,946**	**2.45%**

Source: Prescott Regional Airport

Estimates of PRC's future revenues were developed based on a study by the BMO Financial Group of Toronto in the Summer of 2017. The study indicated that the Arizona's economy would expand 2.6 percent in 2017 and 2.8 percent in 2018. The national average was forecasted to be 2.2 percent. **Table 6-7** presents projected revenues for the period from FY2019 through FY2022 using the more conservative current year 2.6 percent growth rate. Assuming profit margins for all revenues are held constant, the airport could expect an annualized growth rate on the order of just over two and a half percent between fiscal years FY2019 and FY2022.

One focus area the City could pursue to generate additional revenue for capital projects is the application of a passenger facility charge (PFC) to all passenger enplanements. As identified in **Table 6-7**, the addition of PFCs could provide an increase of approximately 5.5%. The establishment of a Customer Facility Charge (CFC) could help with costs associated with rental-car related projects.

The strong growth in airline landed weight is expected to continue. It is assumed that this trend will level off as full market share is achieved, which is anticipated within 5 years. The level of airline activity will continue to contribute to all aspects of revenue for the airport. While the revenue generated from the airline service will grow, it is still a small part of the overall airport revenue. The City will need to continue to diversify the airport's revenue base in order to meet annual operating expenses and be able to support development activities.

Table 6-7. Projected Airport Revenue

Funding Source	2019	2020	2021	2022	CAGR
Lease/License Agreements	$881,633	$908,082	$935,324	$963,384	2.24%
Fuel Flowage and Fee	$130,812	$134,736	$138,778	$142,942	2.24%
Landing Fees and Airport Services	$110,411	$113,723	$117,135	$120,649	2.24%
Hangar, Parking and Tie Downs	$695,787	$716,661	$738,160	$760,305	2.24%
Miscellaneous/Admin	$21,566	$22,213	$22,879	$23,566	2.24%
PFC's*	$ -	$ -	$112,500	$115,875	1.49%
Total	**$1,840,209**	**$1,895,415**	**$2,064,776**	**$2,126,721**	**3.68%**

Source: Prescott Regional Airport
*Based on 25,000 enplanements at $4.50 PFC

6.5 | Part 3 - Historic and Projected Operating Expenses

PRC's historical operating expenses for FY2015 through FY2018 are presented in **Table 6-8**. Salaries and Benefits have been replaced by Other Services and Charges as the largest expense. Internal Charges make up the next largest percent of all airport expenditures during this period. Other Services and Charges are projected to have a significant decrease due to internal changes within the City concerning payment for Aircraft Rescue and Firefighting (ARFF) services.

Table 6-8. Historic Operating Expenses

Funding Source	2015	2016	2017	2018	CAGR
Salaries and Benefits	$644,690	$613,975	$675,288	$620,225	-0.96%
Operating Supplies	$83,098	$122,880	$141,463	$116,229	8.75%
Internal Charges	$193,221	$318,624	$181,481	$238,186	5.37%
Other Services and Charges	$489,579	$582,115	$708,857	$750,436	11.27%
Total	**$ 1,410,588**	**$ 1,637,594**	**$ 1,707,089**	**$ 1,725,076**	**5.16%**

Source: Prescott Regional Airport

It is expected that operating expenses will increase by a 2.39 percent annualized growth rate (**Table 6-9**). Employee Benefits will mirror changes in salaries and the categories of Internal Charges, Maintenance and Repair, and Utilities are expected to continue to trend in a manner consistent with historical results.

The City continues to confront significant uncertainty related to future costs associated with providing employee healthcare and defined benefit retirement plans. These factors, coupled with the cost impact of the extensive regulatory environment in which it operates, dictates that the City has little to no latitude in making significant changes to its cost structure. Beyond personnel costs, the City does utilize best management practices to contain costs through use of preventative maintenance programs on equipment and systems, and thoroughly reviews the justification for line item expenditures in its budget development and implementation processes.

Table 6-9. Projected Operating Expenses

Funding Source	2019	2020	2021	2022	CAGR
Salaries and Benefits	$704,362	$726,902	$750,162	$774,168	2.39%
Operating Supplies	$116,350	$120,073	$123,916	$127,881	2.39%
Internal Charges	$233,931	$241,417	$249,142	$257,115	2.39%
Other Services and Charges	$471,016	$486,089	$501,643	$517,96	2.39%
Total	**$ 1,525,659**	**$ 1,574,480**	**$ 1,624,863**	**$ 1,676,859**	**2.39%**

Source: Prescott Regional Airport

18

6.5 | Part 3 - Historic and Projected Operating Expenses

PRC's historical operating expenses for FY2015 through FY2018 are presented in **Table 6-8.** Salaries remain the largest expense. Internal charges for City services make up the next largest component of expenses. Internal charges, which are set by the City Accounting System, include ARFF, advertising, utilities, training, other professional services, etc. Utilities and operating supplies make up the next largest percent of all airport expenditures during this period. Operating Expenses increased from FY2015 to FY2016.

6.5 | Part 4 - Historic and Projected Net Income

Table 6-10 depicts historical operating results for the City from its operation of PRC for the period FY2015-18. These figures do not include Capital project costs.

Table 6-10. Historic Net Income

	2015	2016	2017	2018	CAGR
Revenues	$ 1,451,272	$ 1,528,939	$ 1,584,388	$ 1,598,946	2.45%
Expenses	$ 1,410,588	$ 1,637,594	$ 1,707,089	$ 1,725,076	5.16%
Total	**$ 40,684**	**$ (108,655)**	$ (122,701)	$ (126,130)	

Source: Delta Airport Consultants, Inc.

PRC's projected cash flow from operating activities are presented in **Table 6-11** for the period FY2019 through FY2022. Given the revenue and expenditure assumptions and trends discussed in this chapter, it is projected for the airport to be in a surplus position during this period. The surplus should be sufficient for PRC to fund all but the major capital improvement projects without needed additional funds from the City of Prescott General Fund.

Table 6-12 includes the anticipated local costs associated with future capital improvement projects that will be utilized to upgrade the airport equipment and facilities. As shown in **Table 6-12** there are insufficient funds available for capital projects utilizing airport generated revenue. The major capital improvement projects that will most likely need to utilize the General Fund are the terminal building, runway extension, and hangars. The increase in passenger enplanements and increased service will continue to increase the airport revenue. The new terminal building and associated facilities will also increase revenues even as operating and maintenance costs of the new building increase.

Table 6-11. Projected Net Income

	2019	2020	2021	2022	CAGR
Revenues	$ 1,840,209	$ 1,895,415	$ 2,064,776	$ 2,126,721	3.68%
Expenses	$ 1,525,659	$ 1,574,480	$ 1,624,863	$ 1,676,859	2.39%
Total	**$ 314,550**	**$ 320,935**	**$ 439,913**	**$ 449,862**	**9.36%**

Source: Delta Airport Consultants, Inc.

Table 6-12. Projected Net Income (Capital Project Needs)

	2019	2020	2021	2022	CAGR
Revenues	$ 1,840,209	$ 1,895,415	$ 2,064,776	$ 2,126,721	3.68%
Expenses	$ 1,525,659	$ 1,574,480	$ 1,624,863	$ 1,676,859	2.39%
Capital Project Needs (Local Portion Only)	$64,039	$3,700,000	$550,000	$150,000	
Total	**$250,511**	**- $3,379,065**	**- $110,087**	**$299,862**	

Source: Delta Airport Consultants, Inc.

Even with an increase in revenue generated from increasing commercial service operations, the City should continue to develop and promote the general aviation strengths of the airport. The City should look at ways to increase availability of space for the construction of corporate aircraft and general aviation storage hangars. Through such an initiative, the City could realize additional rent from use of airport property and increase fuel sales. In addition, increased transient aircraft activity in the PRC market could further boost aircraft fuel sales beyond projected levels. Regardless of such trends, it is important that the City continue to monitor its costs of goods sold for all general aviation services to ensure that profit margin targets are achieved in an ongoing fashion.

Image by Delta Airport Consultants, Inc.

6 | Section 6 - Conclusions

Based on the foregoing analysis, including the underlying assumptions under which it was made, the short-term CIP recommended for PRC is expected to be both feasible and implementable. Moreover, the City is capable of sustaining its operations during the next five years without placing extended or undue financial burdens on its tenants and users. The following factors and key indicators substantiate this assessment:

- Growth in rents and general aviation activity has been consistent over the past five years
- Containment of expenditures over the past five years and a commitment to evaluate opportunities for future savings.
- Best management practices are used by airport management including:
  - Five year capital planning for vehicles/equipment/buildings, grounds repairs, and maintenance projects
  - Use of preventative maintenance practices for airport facilities and grounds
  - Implementation of strategies aimed at diversifying the airport's revenue base to include an increased emphasis on developing corporate and GA hangars to support location of additional based aircraft at PRC
  - An aggressive recruitment program and air service retention

As the City and airport staff commence work on implementing the recommended capital improvement program highlighted in this analysis, it should seek to further capitalize on the positive benefits they provide. In the end, it is imperative that the airport strive to continue to provide an economical and sustainable platform for airlines and other key tenants to operate and prosper in order to fulfill the airport's mission.

It is recommended that the City undertake the following initiatives, which could help the economic and financial standing of PRC:

Airport Strategic Plan

An Airport Strategic Plan serves as a guide for airport management and informs regional leaders and airport stakeholders about the future strategic direction of the airport. Not many airports have formal Strategic Plans. However, they can be useful to help airport, local government, and business leaders be 'on the same page' and ensure the airport is an effective community asset. Objectives and specific action plans generally flow from strategic goals. Examples of some strategic goals can include:

- Secure high-quality aviation services
- Strengthen relationships with the community
- Provide exceptional customer service
- Strengthen the financial health of the airport
- Be the best community asset we can be
- Be a desired partner and a model airport
- Embody the regional brand

Airport Marketing Plan

The purpose of an Airport Marketing Plan is to provide direction for promoting the Airport to key markets and stakeholders and, thus, advance the Airport as a strong competitor for aviation services. The Marketing Plan will support the airport's mission, vision, and strategic goals. When implemented, the Marketing Plan will help:

- Strengthen the airport's image and better integrate its role within the region
- Support the economic activities of the local governments it serves
- Improve and enhance financial growth of the airport
- Stimulate private and public interest and investment in the airport
- Sustain and protect the airport and its facilities

Airport Business Plan

The purpose of an Airport Business Plan is to provide direction for operating, maintaining, and improving the airport. The Business Plan supports the airport's mission, vision, and strategic goals. When implemented, the Business Plan will help:

- Effectively operate, maintain, and improve the airport
- Strengthen the airport's ability to serve current and future users
- Improve and enhance the economic activities of the locality and region the airport serves
- Stimulate private and public interest and investment in the airport
- Sustain and protect the airport and its facilities

Airport Rates and Charges Analysis

A Rates and Charges Analysis provides a benchmark against regional competitors and can help an airport determine whether they could benefit from a change in rates or rate structure(s). In developing the scope, it is important to identify the airport's goals for the project, in addition to the current rate environment and relevant policies and procedures. The analysis would identify and explore relationships with key stakeholders (including FBOs), primary sources of revenue, key agreements, and peer airports, with an effort to understand the context of the information. In addition to benchmarking, financial analysis, and modeling of rates and related revenues, the final report may provide recommendations on policies and procedures

Appendix A | Existing Condition Noise Analysis

Image by Delta Airport Consultants, Inc.

MEMORANDUM

Date: May 11, 2017

To: Douglas Sander, P.E., Delta Airport Consultants

From: Clint Morrow, KB Environmental Sciences

Subject: Prescott Municipal Airport – Existing Conditions Noise Contours

1. Introduction

The purpose of this memorandum is to document the airport noise analysis conducted by KB Environmental Sciences in support of the Master Plan for Prescott Municipal Airport. Prescott Municipal is a general aviation airport located approximately eight miles northeast of the central business district of Prescott in Yavapai County, Arizona. This analysis included a baseline (existing conditions) year of 2016.

2. Methodology

Aircraft noise analysis was performed using the Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT) version 2c Service Pack 2 (SP2). The AEDT was developed by the FAA using methods and calculations from the SAE International Aerospace Information Report (AIR) 1845, *Procedure for the Calculation of Airplane Noise in the Vicinity of Airports*. The noise analysis was conducted in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures.*

The AEDT produces aircraft noise contours that delineate areas of equal day-night average sound level (DNL). The AEDT works by defining a network of grid points at ground level around an airport. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation, along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g. DNL 65, 70 and 75 dB). Using the results of the grid point analysis, noise contours of equal noise exposure can then be plotted.

The DNL is a 24-hour time-weighted sound level that is expressed in A-weighted decibels and is abbreviated as dB(A) or dB. The FAA, and other federal agencies, use DNL as the primary measure of noise impact because: it correlates well with the results of attitudinal surveys regarding noise; it increases with the duration of noise events; and, it accounts for an increased sensitivity to noise at night by increasing each noise event that occurs during nighttime hours (i.e., 10:00 pm to 7:00 am) by 10 dB.

3. Noise Modeling

Airport and aircraft operational data were collected as necessary to populate the AEDT model, including: aircraft fleet mix; number of day and night operations; flight tracks; runway utilization; track utilization; and, runway and helipad locations/dimensions.

The Master Plan aircraft operations were used to develop the aircraft fleet mix for 2016, in conjunction with more detailed aircraft type data available from the list of based aircraft and the FAA Traffic Flow Management System Counts (TFMSC), as shown in **Table 1.** The annual average day of operations was computed; then, these operations were assigned to the appropriate runways and flight tracks. Flight tracks were provided by the airport for arrival, departure, local (touch and go), and helicopters. Approximately 0.3% of all operations were modeled as nighttime operations (i.e., 10:00 pm to 7:00 am).

Table 1. Operations and Fleet Mix for 2016 (Annual Average Day)

Airframe	Departure	Arrival	Touch and Go	Total
Fixed Wing				
Cirrus SR20	7.61	7.61	14.08	29.29
Bombardier Challenger 600	0.38	0.38	0.00	0.76
Bombardier Learjet 35A/36A	0.64	0.64	0.00	1.29
Cessna 172 Skyhawk	62.89	62.89	131.61	257.38
Cessna 182 *(substituted with CNA172)*	6.28	6.28	11.62	24.18
Cessna 206	1.50	1.50	2.78	5.79
Cessna 208 Caravan	0.38	0.38	0.00	0.77
Cessna 441 Conquest II	0.91	0.91	0.00	1.82
Cessna 500 Citation I	2.56	2.56	0.00	5.13
Cessna 525 CitationJet	0.13	0.13	0.00	0.26
Cessna 550 Citation II	0.77	0.77	0.00	1.55
Cessna 560 Citation V	0.28	0.28	0.00	0.57
Cessna 560 Citation XLS	0.33	0.33	0.00	0.65
Cessna 650 Citation III	0.09	0.09	0.00	0.17
Cessna 680 Citation Sovereign	0.17	0.17	0.00	0.35
Cessna 750 Citation X	0.56	0.56	0.00	1.11
Cessna Citation 510	1.21	1.21	0.00	2.42
DeHavilland DHC-6-200 Twin Otter	5.95	5.95	2.21	14.11
EADS Socata TB-9 Tampico	2.63	2.63	4.42	9.69
Eclipse 500	0.17	0.17	0.00	0.35
Embraer EMB120 Brasilia	0.14	0.14	0.00	0.28

Airframe	Departure	Arrival	Touch and Go	Total
Gulfstream G550	0.13	0.13	0.00	0.26
Gulfstream IV-SP	0.13	0.13	0.00	0.26
Israel IAI-1125 Astra	0.33	0.33	0.00	0.65
McDonnell Douglas A-4 Skyhawk	0.25	0.25	0.00	0.49
Mitsubishi MU-300 Diamond	0.09	0.09	0.00	0.17
Piper PA-24 Comanche	7.16	7.16	13.26	27.59
Piper PA-28 Cherokee Series	8.23	8.23	0.00	16.45
Piper PA-30 Twin Comanche	0.49	0.49	0.00	0.98
Raytheon Beech Baron 58	11.88	11.88	22.89	46.64
Rotary Wing				
Robinson R44 Raven	37.21	37.21	0.00	74.43
Sikorsky CH-53 Sea Stallion	0.05	0.05	0.00	0.11

Prepared by: KB Environmental Sciences
Sources: PRC Master Plan; Based Aircraft List; FAA TFMSC

The average runway use provided by the airport for is shown in **Table 2.** Of note, runway use for helicopters also included several helipads and landing/takeoff locations on the airfield that are not runway ends. The helipads and corresponding flight tracks were modeled based on input from the airport and air traffic controllers.

Table 2. Annual Average Runway Use for 2016

	Arrival						
	Runway						
	03R	**21L**	**03L**	**21R**	**12**	**30**	**Total**
Jet/Turboprop	20	80	0	0	0	0	100
Piston prop	10	30	0	20	25	15	100
Helicopter	10	50	0	0	25	15	100
	Departure						
	Runway						
	03R	**21L**	**03L**	**21R**	**12**	**30**	**Total**
Jet/Turboprop	20	80	0	0	0	0	100
Piston prop	10	40	10	0	25	15	100
Helicopter	10	50	0	0	25	15	100
	Local						
	Runway						
	03R	**21L**	**03L**	**21R**	**12**	**30**	**Total**

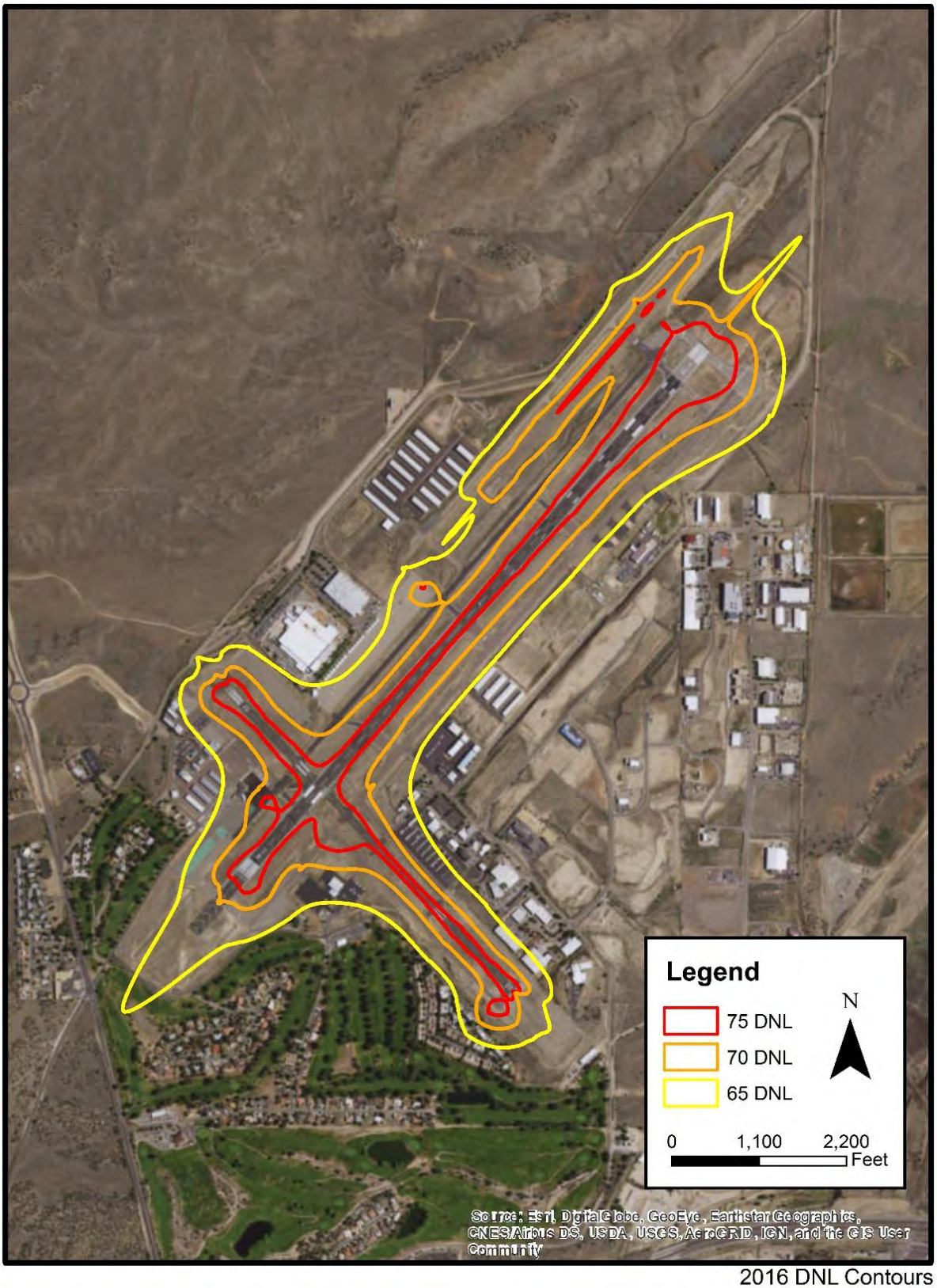
Jet/Turboprop	20	80	0	0	0	0	100
Piston prop	10	40	10	10	20	10	100
Helicopter	10	10	10	60	5	5	100

Prepared by: KB Environmental Sciences
Source: PRC Airport and ATC

4. Conclusion

As shown in the noise contour map on the following page, the DNL 65 dB contour extends from runway-end 30 and the adjacent helicopter landing/takeoff area into a residential neighborhood to the southwest of the runway end. The FAA defines a significant noise impact as a level of DNL 65 dB or greater in a noise-sensitive area (e.g., residential).

This memorandum summarizes the noise analysis for a baseline (existing conditions) year of 2016. The analysis of future forecast conditions and the proposed build alternative(s) will be conducted once the build alternative(s) are provided by the Master Plan team.



2016 DNL Contours
Prescott Municipal Airport
DRAFT for deliberative purposes only

Appendix B | General Aviation User Survey Results

Image by Delta Airport Consultants, Inc.

General Aviation User Survey

Introduction

As part of the inventory phase of this Master Plan, a user survey (the *Prescott Municipal Airport General Aviation User Survey*) was distributed to be used as a tool to gain insight into the current activity, opinions, concerns, and preferences of the existing owners of aircraft that are based at PRC. While such efforts may not yield definitive quantitative direction with regard to aviation demand, they may be useful in gathering real time subjective information.

Survey Distribution

The survey was made available to known owners of aircraft that use the PRC Airport from October 28 through November 30, 2016 (34 days), and during that time it was advertised on the City and Airport web sites. An email distribution to known users, the Prescott Airport Users Group, and local stakeholders and City leaders was also undertaken during this time.

There are currently 338 powered aircraft based at PRC. There were a total of 67 responses to the survey during the survey period, representing only about 20% of the total based aircraft population.

Validation of Responses

The primary intent of the survey was to quantify and characterize the use of the PRC Airport by the current based aircraft. All but one of the survey respondents owns an aircraft that is based at PRC. The 66 responses by owners of based aircraft were used in the data analysis.

Results of the Survey

The results of the *Prescott Municipal Airport General Aviation User Survey* are summarized as follows:

Question 1 - "Aircraft registration number?"

This question was used to verify that the aircraft is an aircraft that is based at Prescott Municipal Airport.

Question 2 - "Type of Aircraft?"

1. The breakdown of aircraft by type included in the responses is as follows. The first percentage represents the number of aircraft included in the survey responses. The second percentage is the percentage of total aircraft that are currently based at PRC.

- Single Engine Piston.....89.4% 75.7%
- Multi Engine Piston.....3.0% 5.9%
- Turboprop.....1.5% 2.4%
- Jet.....3.0% 0.9%
- Rotorcraft.....--- 10.4%
- Light Sport.....3.0% 4.7%

Question 3 - "Make and Model of Aircraft?"

This question was used simply to verify the response to Question 2.

Question 4 - "This aircraft is based at... (Provide airport ID – Example: KPRC)"

This question was used to validate that the respondent's aircraft was based at PRC. As was noted above, all but one of the 67 validated respondents owns an aircraft that is based at PRC.

Question 5 - "Provide the aircraft owner's Zip Code. (Example: 86301)"

This question was used to validate that the aircraft is owned by a local service area resident.

Question 6 - "Provide the total number of Annual Operations (Takeoffs PLUS Landings) for each type of operation that this aircraft performed at Prescott Municipal Airport during calendar year 2015."

The breakdown of reported annual operations by percentage for each type of operations is as follows:

- Business Related.....13.7%
- Training.....7.8%
- Air Charter.....---
- Sport Aviation.....9.9%
- Pleasure/Personal Transportation.....63.0%
- Other.....5.7%

The respondents reported that they performed an average of 93 operations with their based aircraft during 2015.

Question 7 - "Provide the percentage of Total Annual Operations that this aircraft performs in the following weather conditions at Prescott Municipal Airport. (Enter a whole number representing a percentage.)"

The respondents indicated that they operate in Visual Flight Rules (VFR) conditions an average of 94.8% of the time, and in Instrument Flight Rules (IFR) conditions the remaining 5.2% of the time.

Question 8 - "Provide the percentage of Total Annual Operations that this aircraft performs during the following times of day at Prescott Municipal Airport. (Enter a whole number representing a percentage.)"

The respondents indicated that they operate during daylight hours (sunrise to sunset) an average of 93.6% of the time. Night flying (sunset to sunrise) accounts for the remainder of 6.4%.

Question 9 - "Will this aircraft's activity increase or decrease during calendar year 2016? (Provide a percentage.)"

On the average, the respondents believed that their activity would increase by 13.7% in 2016 over their 2015 estimates.

Question 10 - "In what type of facility is your aircraft stored? (Select one)"

The respondents were asked to select from a list of the available aircraft storage facilities, and also to verify that their aircraft was in fact stored (based) at PRC. The choices included the following. The percentage of respondents whose aircraft are stored in each type of facility is listed.

- Open Tiedown.....4.5%
- Shaded Tiedown..... 3.0%
- Tee Hangar..... 34.8%
- Conventional Hangar.....54.5%
- Port-a-Port Hangar..... 3.0%

Question 11 - "Please rate the adequacy of your aircraft storage space – Hangar or Tiedown. (Select one)"

The results of this question are as follows:

- My storage space is adequate.....83.3%
- My storage space needs improvement.....12.1%
- My storage space is completely inadequate....4.5%

Question 12 - "In your opinion, what are the three most important improvements that should be made to the Prescott Municipal Airport?"

The responses to this open ended question have been grouped into 16 general categories. The following is a list of responses by category that had a 2% or more response rate. The "Other" category include a wide variety of comments, ranging from some that did not pertain to the future planning of the airport to one that recommended a professional marketing plan for the airport.

- Improvements are needed to pavement.....18%
- Construct / relocate the Terminal Building.....9%
- Lower the fuel prices.....8%
- Increase runway length to accommodate air carriers.....6%
- Improve the airline service..... 5%
- More hangars / hangar space needed.....5%
- Better / more timely maintenance is needed.....4%
- Provide airport-wide wireless internet service.....4%
- Provide better roadway access to the airport.....3%
- Provide improved taxiway access.....3%
- Safety of rotorcraft operations should be studied.....3%
- Protect the airport from incompatible adjacent land uses..... 2%
- Airport Standards and safety considerations.....2%
- Provide security improvements..... 2%
- Provide additional self-service fueling.....2%
- Other (responses less than 2% of total).....25%

Question 13 - "What are the three most important improvements that could be made to the aircraft storage facilities at the Airport? (Hangars, tiedowns)"

The responses to this open ended question have been grouped into 14 general categories. The following is a list of responses by category.

- Improvements are needed to lighting and electrical.....23%
- Better / more timely maintenance is needed.....12%
- Reduce the hangar rent.....9%
- More tiedowns and/or covered tiedowns are needed.....8%
- Provide more hangars.....8%
- Improve / provide hangar insulation.....6%
- Provide wireless internet service at hangars.....6%
- No improvements are needed.....6%
- Pavement needs rehabilitation.....5%
- Provide hangar heating and air conditioning.....3%
- Provide larger hangars.....1%
- Construct wash rack(s) near the hangars.....1%
- Other comments.....14%

Question 14- "Please provide any additional information that you believe may be helpful in the preparation of the Airport Master Plan."

There were 23 comments provided in this section of the survey. They are all included below with minimal editing:

1. *"There seems to be a division between the "flying side" of the airport and the "industry side". If more support is to be gained for the airport as a whole, the industry component needs to be included in that mindset."*

2. *"[Consider] regionalization during the next 5 years....too many beneficiaries with no skin in the game. KPRC is very unlikely to become a transportation hub....the future economic benefit will be light industry, education, training, tourism destination all largely due to the greatest 4 season climate in the known universe. [Provide a] bullet-proof noise easement and monitoring for inevitable residential development in the surrounding area."*

3. *"Some ramps need to be [named or] renamed to more logically align with adjacent taxiways / facilities. Examples: (1) South Ramp is not associated with South Shades / South Hangars. (2) Ramp fronting South Shades has no name (3) Geographic marker 1W is located on ramp with no name; West Ramp (which might logically be associated with spot 1W) is on other side of runway from spot 1W. "*

4. *"As a GA user, Air carrier facilities are not directly on my list. If they provide meaningful revenue to the airport and the city, I'm all for it, as well as the service to the community. Those facilities should be currently adequate and expandable with an eye to the future. It should be reasonable attractive and simple. Cost should be a major concern during design and construction. I strongly support longer runways even though I have no need for them myself. The USFS does need them and I want [them to be] happy and close. The Tanker base has already saved Prescott once. I love my airport and I'm happy with it. Still, to keep our airport it must grow and improve to meet the needs of all aviation users and the needs of the community. "*

5. *"Unless the availability of covered tie downs increases, or the availability of and decrease in cost of hangar space we will be moving our plane to our property once my training is complete. (We live on a dirt air strip.)"*

6. *"Consider placing the new terminal building on the northeast side of the airport."*

7. *"Personally I think the airport functions very well just the way it is but I know little about the requirements for the terminal. The items I mentioned [in my previous responses] are VERY minor but are about the only things that I notice. Paving 21R would be nice as taxiway Charlie looks more like a runway from the air than does the runway and the rotating beacon is nearly indiscernible against the backlighting from many different directions until very close in."*

8. *"Construction of a modern terminal and control tower [is needed]."*

9. *"[Convene] open meeting to include airport users, airport-area businesses & residents, and quad-city parties."*

10. *"Prescott could be the center for tourism in Northern Arizona. We have some of the top aviation schools in the USA and we do not utilize the students that graduate from these Colleges. We need to make a concerted effort to entice aviation related business to our market area. These businesses provide a much higher income level and could help keep young people in the area. "*

11. *"Keep residential building as far from the airport as possible, especially on the runway extensions."*

12. *"Convince the fire extinguisher company to lower [their] "service fee" from $48 to something more reasonable…"*

13. *"Be prepared for more opposition to air operations now that city has allowed construction off the end of [Runway] 21."*

14. *"Make the airport more inviting to the public, particularly inviting more kids to the airport. More community outreach. An annual open house/fly-in event/ airshow would help. Improve the "curb appeal" to the entrance. Renew the economic impact study. Demonstrate to the public the economic benefits of the airport. Emphasize the significance of the US Forest Service's Aerial Firefighting operation to the community and their need for improved runway length."*

15. *"Allow co-ops for aircraft refueling or install an ethanol-free mogas fuel pump."*

16. *"General aviation facilities are adequate. Urgently needed are new commercial terminal improvements."*

17. *"Create area and facilities for GA Destination. This may be in conjunction with a new terminal or separate but needs to be considered at the same time."*

18. *"All and All, KPRC is a darn good airport. We are lucky to have [airport management staff] that care. Thank you!"*

19. *"Location on new terminal. This subject has been batted around since I was manager. it belongs [on the northeast side of the airfield,] not where currently proposed. Why take paid in full hangars out of service to accommodate the new terminal? The airport needs [the] revenue. Also taxes paid on hangar rents should go into the Airport enterprise not the general fund...new city manager, maybe he can help this."*

20. *"A separate Helicopter training area on the layout for the intensive helicopter traffic."*

21. *"Stop the residential [development] being planned under the traffic area."*

22. *"Minimal delays, please! I'm getting old waiting for roads and new terminal!!"*

23. *"I like this airport, the controllers etc. It is a large training environment. Specifically the mismatch in speeds with the helicopters and faster fixed wing aircraft does increase take-off delays. I don't know if this can be improved or not."*

Appendix C | Yavapai County Airline Passenger Survey Results

Image by Delta Airport Consultants, Inc.

Yavapai County Airline Passenger Survey

Passenger Survey Distribution

A seven question survey, the Yavapai County Airline Passenger Survey, was distributed to Yavapai County residents in order to gain insight into the current travel habits of the airport's service area. The survey was open to response from October 28 through November 30, 2016 (34 days), and during that time it was advertised widely on social media (including Facebook, Instagram, and others) as well as via regional internet news channels and the City and Airport web sites. An email distribution campaign was also undertaken during this time.

During the 34 day run, the social media reached 17,267 people who have Yavapai County zip codes, who are 18 years of age or older, and who use social media.

There were a total of 1,181 responses to the survey. 993 of these responses were the result of the social media advertising. This represents 84% of the total responses received during the advertising period.

Validation of Responses

The intent of the survey was to quantify the airline travel habits of the potential passengers who reside within the Yavapai County service area. Seventeen responses were received from respondents who reside outside of Yavapai County, and these were not considered in the data analysis. Two other responses were disqualified because they contained obviously skewed responses (such as claiming over 1,000 flights during the one year survey period).

There are a total of 1,162 validated responses that were used in the data analysis.

Based on the survey responses, these validated respondents represent people who …

1. Are residents of Yavapai County;
2. Are people who do use airline service;
3. Are people who are interested in seeing improvements to the airline services available to them.

It is important not to assume that these responses represent the opinions and/or actions of all residents of the County. It is, however, a valid assumption that the information gathered from the validated respondents is a useful snapshot of the habits of the service area population who currently use airline service, and that these habits will continue into the near future barring any significant change in the available airline services in the region.

Results of the Survey

The results of the Yavapai County Airline Passenger Survey are summarized as follows:

Question 1 - "What is your Zip Code?"

The 44 zip codes within the County were well represented within the data. This response was used as a validation tool to ensure that the respondents are residents of the County (or at least that they claimed to be).

Question 2 - "Please list the number of times you used the following airports when taking an airline flight during the 2015 time period."

1. 8,721 total trips were reported by the 1,162 validated respondents for 2015.

2. The reported distribution among the airports used is as follows:

- Phoenix Sky Harbor International Airport..... 79.5%
- Prescott Municipal Airport.....9.0%
- Phoenix-Mesa Gateway Airport.....5.9%
- Other Airports (not identified)..... 4.1%
- Flagstaff – Pulliam Field.....1.0%
- Grand Canyon National Park Airport..... 0.5%
- Kingman Airport.....0.1%

Analysis- These results suggest that…

1. Prescott Municipal Airport is currently only capturing about 9% of its potential market share of Yavapai County passengers. Based on the FAA's records, there were 3,420 passenger enplanements at Prescott Municipal Airport in 2015. If these enplanements represent 9% of the total potential market share, then the maximum potential annual enplanements at PRC may total approximately 38,000.

2. About 91% of the time, Yavapai County residents who travel by air are doing so from airports other than Prescott Municipal Airport. This represents nearly 34,600 annual enplaned 2015 passengers.

3. Over 30,200 annual passenger enplanements originating in Yavapai County are leaking to Phoenix Sky Harbor International Airport.

4. Nearly 12% of the time, Yavapai County residents who travel by air and do not go to Phoenix to board their flights are doing so from airports other than Prescott Municipal Airport. This represents nearly 4,600 enplaned passengers annually.

5. If PRC could capture only all enplanements originating at airports other than Phoenix Sky Harbor International (20.5% of the total), the total annual enplanements at PRC could be increased to about 7,800.

6. By capturing an additional 7.5% of the passengers who are now willing to go to Phoenix to catch their flights, the annual enplanements at Prescott would exceed 10,000. This is an important threshold. PRC now receives an annual entitlement grant of $150,000 because its enplanements are below 10,000. The annual entitlement will increase to $1,000,000 when enplanements reach 10,000.

Question 3 - "If/when you used airports other than Prescott Municipal Airport, what is your method of travel to and from the airport?"

1. Less than 1% of the respondents said that they only fly from Prescott Municipal Airport.

2. Nearly 41% of respondents who fly from other airports use a commercial shuttle service or another form of public transportation to get to their departure flight's airport.

3. 58% of respondents who fly from other airports drive a private automobile *to* get to their departure flight's airport. About 41% pay to park at the departure airport. About 17% park for free at a friend or relative's house.

Analysis - These results suggest that for the great majority of the potential passenger population the additional time, cost and inconvenience for ground transportation to another airport is believed to be worth it when compared to using the present services at Prescott Municipal Airport.

Question 4 - "During calendar year 2015, what was the percentage of your travel that was related to Business versus Pleasure?"

1. 21% of the Yavapai County passenger market flies primarily for business (greater than 50%).

2. 79% of the Yavapai County passenger market flies primarily for pleasure (greater than 50%).

3. 63% of the passenger population flies 100% for pleasure. This accounts for 40% of reported ticketed flights. These passengers flew an average of 5 times per year.

4. 5% of the passenger population flies 100% for business. This accounts for about 7% of reported ticketed flights. These passengers flew significantly more than the pleasure-only fliers, at an average of 11 times per year.

5. 32% of the passenger population utilizes airline service for a mixture of business and pleasure travel. This accounts for about 53% of reported ticketed flights. As would be expected, these passengers had the highest frequency of use, at an average of 12 times per year.

6. The average frequency of flight during 2015 was 7 flights per year per respondent. Note that this value may only be applied to people who do travel via airlines and not to the entire population of the Airport's service area.

Question 5 - "Do you believe that you will travel via the airlines more or less during calendar year 2016?"

1. The respondents indicated that they would fly an average of 20% more in calendar year 2016 than they did in 2015.

Analysis - This response was expected to have a high degree of reliability since this survey was conducted during the month of November, 2016. The respondents had already completed travel for the first ten months of the year and most probably knew what their travel plans were for the last two months of the year.

The response data suggests that the annual enplanements at Prescott Municipal Airport may be expected to increase to as much as 20% higher in the current year (2016), increasing from 3,420 to about 4,100 enplanements. However, the 2016 estimated passenger enplanements are below this number. The estimated total 2016 enplanements were about 3,454, an increase of only about 1% over the 2015 activity. The reported 20% average increase may be overly optimistic. However, the optimism reflected by the survey responses does indicate a potential for some increase in short term demand by people who may be willing to use the airline services available at Prescott Municipal Airport if improvements are made.

Question 6 - "In your opinion, what are the three most important improvements related to airline service that should be made at the Prescott Municipal Airport?"

1. The respondents' opinions are broken down as follows. Note that each respondent was asked to select three options. The percentage shown below represents the percentage of time the respondents selected each of the options.

- Provide flights to more destinations..... 92.9%
- Offer less expensive airline tickets.....70.5%
- Provide more daily flights.....66.1%
- Provide service by larger/jet aircraft.....49.2%
- Improve the Airport Passenger Terminal.....12.9%
- Other – Provide better reliability of service.....2.8%
- Other..... 6.5%

NOTE: Shortly after the close of this survey, a change was made in the airline service at Prescott Municipal Airport. The Airport has been served by a single carrier, Great Lakes Airlines, for many years. Great Lakes Airlines currently provides direct services to Los Angeles, CA (LAX) and Denver, CO (DEN). Round trip flights to LAX occur four times a day, and flights to DEN occur twice a week. Until December, 2016 (two weeks after this survey was conducted), Great Lakes had used Beechcraft B1900 aircraft, a 19 seat twin turboprop, for all flights. They have recently added the Embraer EMB120 Brasilia, a 30 seat twin turbo-prop, for two of the daily flights to LAX and the twice weekly flight to DEN. The B1900's continue to serve two of the daily flights to LAX.

Analysis - These results suggest that…

1. Most of the resistance to use of airline service at Prescott Municipal Airport as directed toward the level and quality of the service currently being provided by Great Lakes Airlines. The vast majority of the respondents want more flights, more destinations, service by larger/jet aircraft, and better reliability of service.

2. As noted above, Great Lakes has recently added a larger, more up to date turboprop to provide service to some of the existing routes. This may mitigate some of the resistance to fly from Prescott in the aging and smaller Beechcraft B1900 fleet that has been the only option in the past.

3. Only about 13% of the respondents consider that improving the Airport Passenger Terminal is an important improvement related to airline service. However, it is highly likely that when airline service is improved in terms of reliability, cost, equipment, and frequency, the improvement of the Terminal Building would become a very important factor to an increased number of enplaning passengers.

Question 7 - "Please provide any additional information that you believe may be helpful in the preparation of the Airport Master Plan."

Analysis - 344 of the 1,162 validated responses provided additional comments and information. Most of these responses simply emphasized or restated the responses to Question 6. Many of these were directed toward the reliability of the current airline service. Many offered suggestions for a wide variety of additional connections from Prescott , or offered suggestions for a new airline that could provide service (such as Spirit, Horizon, or Allegiant). Some of the other comments that offered information and opinions not already covered in the other survey questions are paraphrased below. Most of these reflect multiple comments that expressed essentially the same idea.

- The airport needs to be advertised to get the word out about what is available. Better media coverage is needed. I did not know that airline service was offered at Prescott.
- The airport should be developed and improved so that it will attract business growth, create new jobs, and increase tourism in the area. The City of Prescott is growing. The airport should grow to keep pace with the City's growth.
- The airport needs improved and more secure automobile parking.
- Route flights and limit operations to avoid the densely populated residential areas. Noise is an issue. Existing noise impacts are high. Airport expansion will increase noise.

- Protect the land around the airport from encroachment by incompatible uses like residential development.
- Extend the runways and improve the existing infrastructure so larger aircraft can use the airport.
- Do not expand the airport. Keep Prescott's small town atmosphere and clean air.
- Encourage private aviation, including business and training activity.
- Consider the environmental impacts of the operation of the airport. Explore sustainable alternatives.
- Do not increase taxes to fund the airport improvements. The airport should be self-sufficient.
- Offer discounted usage fees to attract another airline.
- Make Prescott Municipal Airport a regional facility. Prescott Valley now has a larger population than Prescott.
- When possible, I drive to my destinations rather than fly out of Prescott or drive to Phoenix to catch a flight.

Appendix D | Embry-Riddle Aeronautical University: Current and Projected Activity

Image by Delta Airport Consultants, Inc.

Embry-Riddle Aeronautical University: Current and Projected Activity

Source Information

The following estimates of Embry-Riddle Aeronautical University's (ERAU) current and projected activity was received from Dr. Robin Sobotta, Ph.D. This information was received on July 25, 2017. Dr. Sobotta is the Chair of the Department of Business at ERAU's Prescott Campus.

Based Fixed Wing Aircraft

Currently Owned Fixed Wing Aircraft at PRC

Below is the current list of ERAU-owned fixed wing aircraft based at PRC.

ERAU Fixed Wing Aircraft Based at PRC

Aircraft Type	Number
Cessna 172	18
Cessna 182	1
Cessna 150	2
Bellanca Decathlon	1
Cirrus DA-42 NG (twin)	4

Source: Embry-Riddle Aeronautical University

Projected Increase in Aircraft to be Based at PRC

Below is the projected increase in ERAU fixed wing aircraft that are planned to be based at PRC.

According to ERAU, the Prescott Campus expects to increase its fleet by 1 or 2 aircraft per year for the next five years (2018-2022). For every 4 single engine aircraft to be added, ERAU will be adding one twin. Therefore, as a maximum, Based Aircraft may increase as follows.

ERAU Fixed Wing Aircraft Based at PRC

Aircraft Type	2017	2018	2019	2020	2021	2022
Single Engine	23	25	27	28	30	32
Twin Engine	4	4	4	5	5	5
Totals	27	29	31	33	35	37

Projection by Nicholas J Pela & Associates based on ERAU information

Campus Enrollments and Aircraft Operations

The following is a summary of ERAU's Prescott Campus student enrollments for the past five years, based upon the annual ERAU Fall census date (September of each year).

ERAU Prescott Campus Enrollment 2012-2016

	2012	2013	2014	2015	2016	2022
Total Undergraduate En-roll-ments	1,678	1,813	1,984	2,205	2,377	32
Total Aeronautical Science Degree (AS) Enrollments	366	387	414	432	448	5
Totals	27	29	31	33	35	37

Source: Embry-Riddle Aeronautical University

Each AS student flies an average of 2 to 3 times per week.

The AS degree enrollment numbers above list one degree that focuses on flight. However, aside from the AS Majors' numbers above, there are several other students on campus who have declared a flight minor or concentrations, but have a different (non-flight) major (like business, unmanned aircraft systems, global security, etc). These were not reflected in the AS numbers in the table. For example, in the past year, there were ten graduating business students who

had declared a flight concentration or minor during their time at ERAU. These ten recent graduates had an average of 2-3 flight events per week for three years.

Based on this information, the following estimate of ERAU training operations can be approximated. Note that this conservative estimate does not attempt to quantify touch and go operations. Each flight "event" is assumed to include one departure and one landing.

ERAU Prescott Campus – Approximate Training Operations 2012-2016					
	2012	**2013**	**2014**	**2015**	**2016**
Total Aeronautical Science Degree (AS) Enrollments	366	387	414	432	448
Additional Flight Concentration Students	0	0	10	10	10
TOTAL Students engaged in Flight Training	**366**	**387**	**424**	**442**	**458**
Estimated Annual Training Operations	95,060	101,620	110,240	114,920	119,080

Projection by Nicholas J Pela & Associates based on ERAU information

The following is a projection of the increase in short term flight training operations that may occur based on the above estimate of historical activity. This anticipated significant level of growth should be monitored by the airport on a regular basis.

ERAU Prescott Campus – Approximate Training Operations 2017-2021					
	2017	**2018**	**2019**	**2020**	**2021**
TOTAL Students engaged in Flight Training	484	512	542	573	606
Estimated Annual Training Operations	125,950	133,200	140,950	149,000	157,600

Projection by Nicholas J Pela & Associates based on ERAU information

Appendix E | Runway Incursion Mitigation (RIM) Study

Image by Delta Airport Consultants, Inc.

Prescott Municipal Airport
Airport Master Plan

Runway Incursion Mitigation (RIM) Analysis – Phase 1

Final Report

April 2017

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Table of Contents

I. Introduction 1
A. FAA RIM Program 1
B. Master Plan RIM Approach 2

II. References 3
A. Runway Incursion History Data & Hot Spot Data 3
1. National Runway Safety Plan 2015-2017 3
2. FAA Current Inventory of Locations (December 23, 2016) 3
3. FAA Airport Diagram – PRC (January 5, 2017) 3
4. FAA Aviation Safety Information Analysis and Sharing 6
5. Prescott Regional Airport – FAA Operational Assessment Report (June 2011) 6
B. FAA Design Guidance 6
1. FAA Advisory Circular 150/5300-13A, Airport Design (February 26, 2014) 6
2. FAA Runway Incursion Mitigation (RIM) Program Website 7
C. Reference Data 7
1. Airport Master Plan Update (December, 2010) 7
2. FAA Airport Master Record (Form 5010-1, 01/19/2017) 7
D. Stakeholder Input 7
1. PRC Operations/ATC Staff Workshop 7
2. Interview with ATC 7
3. Prescott Municipal Airport – Airfield Safety Packet 7

III. Inventory 8
A. Operations 8
B. Airfield Geometry 11
C. Hot Spots 14
1. **Hot Spot 2**: Runway 3R-21L / Taxiway C2 / Taxiway E Intersection 14
2. **Hot Spot 3**: Runway 3L Approach End 15
3. **Hot Spot 4**: Taxiway C4 and D4 15

IV. Risk Factors 17
A. Hot Spot 2 17
1. Description of Location 17
2. FAA RIM Best Practices Violated 17
3. Additional Location Concerns 17
4. Resultant Incursions 18
B. Hot Spot 3 18
1. Description of Location 18
2. FAA RIM Best Practices Violated 19
3. Additional Location Concerns 19
4. Resultant Incursions 19
C. Hot Spot 4 20
1. Description of Location 20
2. FAA RIM Best Practices Violated 20
3. Additional Location Concerns 20
4. Resultant Incursions 21

V. Alternatives 22
A. Hot Spot 2 22
B. Hot Spot 3 22
C. Hot Spot 4 24

VI. Recommendations 25
A. Hot Spot 2 25

B. Hot Spot 3 25
C. Hot Spot 4 26
VII. Implementation Plan 30
A. Hot Spot 2 30
B. Hot Spot 3 30
C. Hot Spot 4 30
D. Priority Ranking 31
VIII. Total Project Budget Estimates 31

List of Figures

Figure 1: Airport Diagram 5

List of Exhibits

Exhibit 1: PRC Apron Locations 13
Exhibit 2: Existing FAA Identified Hot Spots and RIM Projects 16
Exhibit 3: PRC Hotspot 2 (Taxiway C2) 27
Exhibit 4: PRC Hotspot 3 (3L Approach End) 28
Exhibit 5: PRC Hotspot 4 (Taxiway C4 & D4) 29

List of Tables

Table 1: PRC Historical Aircraft Operations 9
Table 2: PRC Based Aircraft 9
Table 3: 2016 Based Aircraft 10
Table 4: PRC Fleet Mix (2011) 10
Table 5: PRC Flight Training 10
Table 6: PRC Geometric Values 12
Table 7: PRC Design Aircraft 12
Table 8: Hot Spot 2 Report Data 18
Table 9: Hot Spot 3 Report Data 20
Table 10: Hot Spot 4 Report Data 21

Appendices

Appendix A – RIM Current Inventory of Locations (as of 12/23/2016)
Appendix B – PRC Incursion History Reports
Appendix C – Prescott Regional Airport – FAA Operational Assessment Report (June 2011)
Appendix D – FAA Airport Master Record (Form 5010-1)
Appendix E – Interview with ATC
Appendix F – PRC Airport Layout Plan
Appendix G – Hot Spot Total Project Cost Estimates
Appendix H – PRC Ops/ATC Staff Workshop Meeting Minutes

I. Introduction

A. FAA RIM Program

The FAA is constantly seeking to improve safety at U.S. airports through standards, policies, procedures, training, and inspections that all address various aspects of the airport environment with an eye to maximizing the safety of aircraft movements on the airfield. Occasionally, the FAA develops and implements programs targeted to specific safety concerns throughout the system of airports in the National Airspace System (NAS). Once such program was the recently-completed Runway Safety Area (RSA) Improvement Program that sought to eliminate (to the extent practical) non-standard RSA's at all commercial-service airports.

Another priority program is the Runway Incursion Mitigation (RIM) program. The FAA has defined a Runway Incursion as: "*any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft*". Given the higher potential of consequences of runway incursions, improving runway safety by eliminating runway incursions has always been one of the FAA's highest priorities. With the successful completion of the long-running (2000-2015) RSA Improvement Program, in 2015 the FAA initiated the Runway Incursion Mitigation program as their next high-priority focus area addressing airfield surface movement safety, with a focus on airfield geometry and specifically runway/taxiway intersections.

Following more than six years (2007 through 2013) of collection and analysis of national runway incursion data, the FAA developed a preliminary inventory of locations at airports where risk factors such as unclear taxiway markings, airport signage, and more complex issues with airfield geometry might contribute to runway incursions. The areas are typically referred to as Hot Spot locations. All these Hot Spot locations are shown on **Figure 1 – Airport Diagram**.

The FAA then further evaluates these identified risk (or Hot Spot) locations and determines if the Hot Spot belongs on the FAA's inventory list of RIM locations. The FAA's initial RIM inventory list was made available in July of 2015, with the most recent *FAA RIM Current Inventory of Locations* issued in December 2016 (see **Appendix A**). As a measure of severity, RIM locations on the list were based on either a) three or more peak annual incursions occurring in a given year, or b) more than seven cumulative incursions having occurred during the data period.

Prescott Municipal Airport is one of only five airports throughout Arizona included on this preliminary inventory list, with three identified Hot Spot locations, defined as "*a location on an airfield movement area with a history or potential risk of collision or Runway Incursion, and where heightened attention by pilots and drivers is necessary*", and 26 total reported incursions.

There are four Hot Spot locations, but only three of those four locations made the 2016 *FAA RIM Current Inventory of Locations* after further evaluation. They are identified as follows:

- Hot Spot 2 – Taxiway C2
- Hot Spot 3 – Runway 3L End and Taxiways A1 and B4
- Hot Spot 4 – Runway 3R-21L intersection with Taxiways C4 and D4

(Hot Spot 1 was the risk location that didn't make it on the RIM Inventory List)

The FAA's comprehensive multi-year Runway Incursion Mitigation program is designed to identify, prioritize, and develop strategies to assist airport sponsors in mitigating risk at problematic locations. Publication of the inventory list was only the first step in that process. After initiation of the RIM program, the FAA immediately began working with airport sponsors to fund design and construction projects at the highest priority locations, and included a number of projects in their FY 16 Airport Improvement Program (AIP) grant program. For those airports on the RIM inventory list, but not immediately funded; the FAA encouraged sponsors to develop mitigation strategies and identify potential construction projects that could compete, at a fairly high priority, for AIP funding in the following grant cycles. Finally, the FAA has funded a number of standalone Runway Incursion Mitigation studies, or has encouraged sponsors to include a specific airport-wide RIM analysis component concurrently with new Airport Master Plan Update projects – the genesis of this RIM component in the Prescott Airport Master Plan.

The process for developing a comprehensive RIM analysis is to take a holistic look at the entire airfield and its operations. The analysis must include the following:

- An assessment of specific Hot Spots as designated by the FAA.
- An evaluation of other problem areas based on incursion history.
- An evaluation of existing airfield geometry, signage, and marking to identify locations or features that deviate from FAA best design practices and could lead to increased risk of incursions.

Furthermore, the analysis extends beyond existing airfield geometry and includes an assessment and recommendations for improvements as necessary to airfield signage, lighting, and marking; along with an educational/training component related to improved operational awareness for airfield drivers, pilots, and Air Traffic Control Tower (ATCT) staff. Finally, the evaluation must be forward-thinking, with a component running concurrently with the Master Plan development, with alternatives reviewed and tested against RIM mitigation best practices with the goal of eliminating potential future problems before they become Hot Spots.

B. Master Plan RIM Approach

The RIM analysis within the Prescott Municipal Airport Master Plan is being conducted with a two-phase approach. Phase I (this report) is being completed on a faster track than the full Master Plan and will encompass only the three PRC Hot Spots specifically identified in the current FAA RIM inventory of locations, (see **Appendix A**). The approach addresses each Hot Spot location, identifies the magnitude and severity of risk, presents alternatives to mitigate the risk, recommends feasible alternates, and

presents preliminary cost estimates for the recommended solutions that can be implemented somewhat independently of the full Master Plan development and as quickly as funding may become available.

Phase II of the RIM analysis will be addressed during the full Master Plan Update and will focus on the previously discussed holistic, airfield wide approach to runway incursion mitigation, evaluating both existing and proposed airfield geometry, marking, lighting, signage, and operational awareness issues. A Phase II report will be provided in the Master Plan for that assessment.

II. References

The RIM study utilizes various sources to analyze and make recommendations for improvements to the designated FAA Hot Spots. References used generally include 1) Runway Incursion History Data & Hot Spot data, 2) FAA design guidance, 3) Reference data for facilities and operations, and 4) Stakeholder Input. The following sections (A.1 – A.5) provide a list of references used for the RIM study.

A. Runway Incursion History Data & Hot Spot Data

1. National Runway Safety Plan 2015-2017

This publication is a 3-year plan generated by the FAA with the goal of making aviation safer and smarter. Previous plans have outlined the approach to reduce the number of serious runway events, which has led to improvements in safety through education, mitigation strategies, etc. The new approach for the 2015-2017 plan is a proactive, risk-based system to achieve runway safety by identifying factors that combine to create risk. The report provided an understanding of runway safety metrics and how incursions are classified and reported.

2. FAA Current Inventory of Locations (December 23, 2016)

The FAA has analyzed data collected from FY2008 - FY2015 to develop an inventory of locations at airports where potential runway incursions can occur due to risks factors. The airport locations are identified when three or more peak annual runway incursions have occurred in a given year or more than seven runway incursions cumulative have occurred during the data collection period. The *RIM Current Inventory of Locations* can be found in **Appendix A**.

The inventory is the primary data source for designation of the Hot Spots on the airport evaluated in the Phase I study. PRC is one of five airports in the State of Arizona, and one of the few in the country, to be identified in the first round of potential RIM project prioritization. The program has identified three (3) locations on Prescott Municipal Airport that contribute to runway incursions. These are identified as Hotspot 2, Hotspot 3, and Hotspot 4. Hotspot 1, located at Taxiway F1, is still under FAA evaluation and not yet listed on the FAA's RIM *Inventory of Locations*. Hotspot 1 will therefore be evaluated during the Phase II RIM portion of the Master Plan Update.

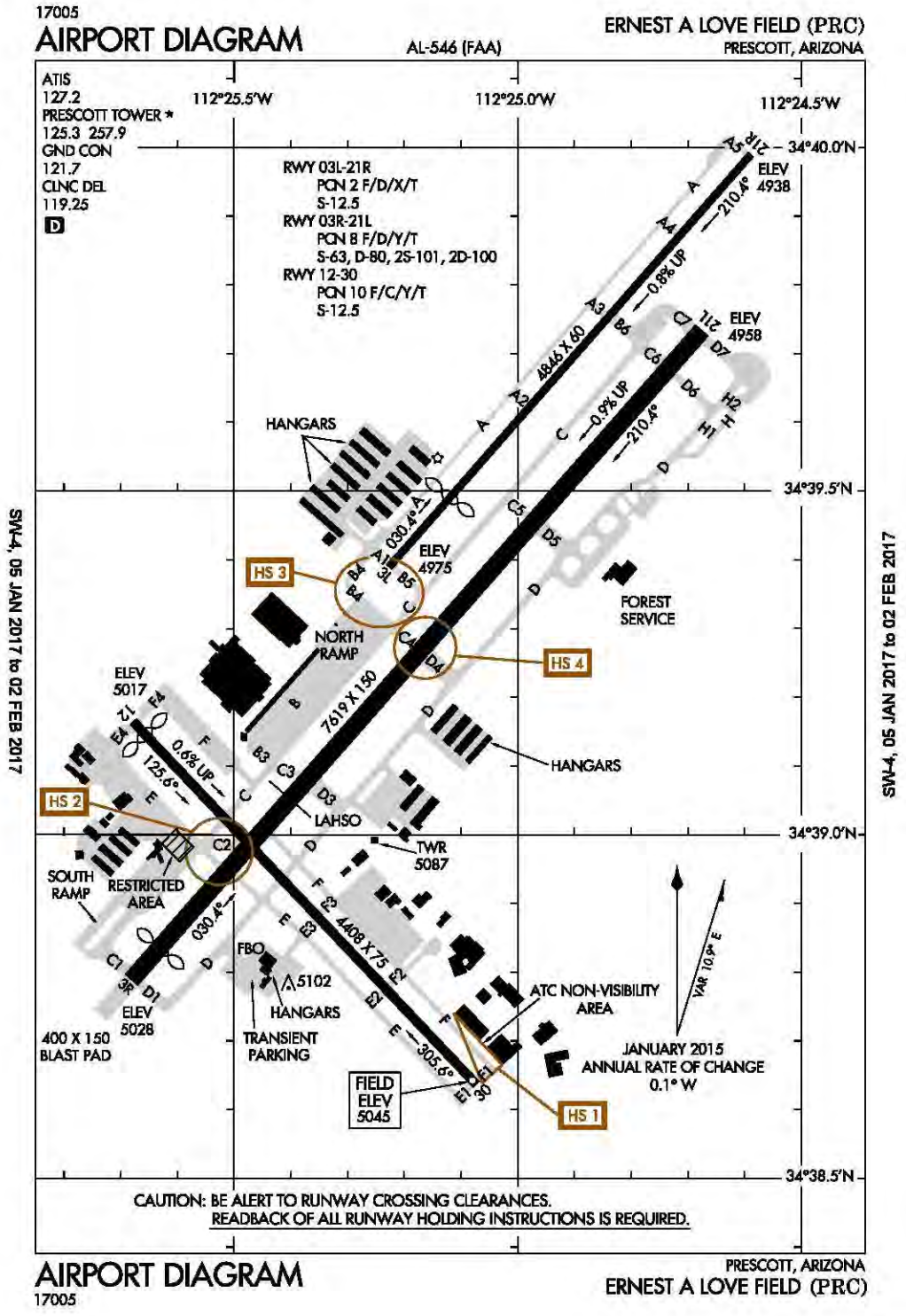
3. FAA Airport Diagram – PRC (January 5, 2017)

Airport diagrams are designed to assist in ground traffic movement at locations with complex runway and taxiway configurations. Additionally, the airport diagram identifies Hot Spots. Hot Spots are locations on

airport movement area with history of potential risk of runway incursions. The currently published PRC Airport Diagram (**Figure 1**) shows the locations of all Hot Spots, three of which were identified as runway incursion locations. As mentioned previously, Hot Spot 1 will be analyzed during the RIM Phase II portion of the Master Plan Update.

- Hot Spot 1: Taxiway F1 (not on the FAA Inventory List, will be analyzed in Phase 2)
- Hot Spot 2: Runway 3R-21L / Taxiway C2 / Taxiway E Intersection
- Hot Spot 3: Runway 3L Approach End
- Hot Spot 4: Taxiway C4 and D4

Figure 1: Airport Diagram



4. FAA Aviation Safety Information Analysis and Sharing

The FAA *Aviation Safety Information Analysis and Sharing* website enables users to perform queries across multiple databases and search safety data. The database contains records from 2005 onward. The FAA Runway Safety Office – Runway Incursions (RWS) database yielded detailed reports of runway incursion events. All reports relevant to this RIM analysis sourced from this website can be found in **Appendix B**.

5. Prescott Regional Airport – FAA Operational Assessment Report (June 2011)

The FAA *Operational Assessment Report* establishes a baseline of existing conditions on the airport and potential phased airfield changes. The Report focuses on Air Traffic Control capabilities, limitations, and hazards. The Report contains a list of Hot Spots found throughout the airfield. This Report is likely the determining factor used by the FAA in choosing the specific Hot Spot locations that need to be addressed. The Prescott Regional Airport – FAA *Operational Assessment Report* (June 2011) can be found in **Appendix C**.

B. FAA Design Guidance

1. FAA Advisory Circular 150/5300-13A, Airport Design (February 26, 2014)

FAA Advisory Circular (AC) 150/5300-13A *Airport Design* contains the FAA standards and recommendations for the geometric layout and engineering design of airfield facilities including (but not limited to) runways, taxiways, and aprons. The airport design standards in this AC are intended to maintain safety and efficiency of vehicles, pedestrians, and aircraft on active airfields.

In the September 2012 revision to this AC, the FAA implemented standards to mitigate runway incursions. These standards focus on improvements to geometry in the runway/taxiway interface and include recommendations to:

- Mitigate complex intersections by applying the "Three-Node" concept, which aims to reducing the number of directional choices presented to the pilot approaching an intersection to no more than three (through, left, and right).
- Reduce the width of taxiways (wide expanses of pavement), particularly connector taxiways at the runway intersection, to bring signage closer to the pilot.
- Limit or eliminate entrance taxiways that are not at right angles to the runway.
- Eliminate taxiways that provide direct access from an apron to the runway.
- Avoid taxiways that connect to the "high energy segments" of the runway. The first two thirds of a runway are known as a high energy segment, indicating that aircraft landing in the first two thirds may not be able to stop; and departing aircraft may not be airborne yet, should a runway incursion occur. Crossing at the runway threshold, and in the first and last third of the runway is safest.

The alternatives provided in this RIM study were developed with reference to the guidance of this AC to generate acceptable geometric layouts at the current FAA Hot Spots.

2. FAA Runway Incursion Mitigation (RIM) Program Website

The FAA provides a website that presents the current inventory of Hot Spot locations. This website also contains information on the history and the goals of the program.

C. Reference Data

1. Airport Master Plan Update (December, 2010)

Prescott Municipal Airport's 2010 *Airport Master Plan Update* is the latest, most comprehensive study performed on the airport's airfield geometry. It also established an understanding of the future direction of the airport, as seen and predicted during its development in 2010. This 2010 *Master Plan Update* was used to develop an inventory and an assessment of operations for the RIM Phase 1 report. Newer information on based aircraft, enplanements, and recent operations history from the current Master Plan Update inventory phase was used to update and supplement data from the 2010 Master Plan.

2. FAA Airport Master Record (Form 5010-1, 01/19/2017)

Form 5010-1 *Airport Master Record* contains aeronautical data describing the physical and operational characteristics of civil public-use airports. The based aircraft and operations data is used to populate inventory and operational information. The FAA *Airport Master Record* (Form 5010-1) can be found in **Appendix D**.

D. Stakeholder Input

1. PRC Operations/ATC Staff Workshop

A RIM Phase I workshop meeting took place on Thursday, October 27th 2016 with PRC operations and ATC staff. The existing airfield operations were evaluated in conjunction with the current FAA identified Hot Spots. As a team, recommendations to improve the Hot Spots were determined to be further evaluated. Minutes to this meeting are provided in **Appendix H**.

2. Interview with ATC

Delta Airport Consultants held a meeting on September 20, 2016 with Paul Winski (FAA ATCT Manager), and Noel Kingston (Union Representative). The focus of the meeting was airport operations and safety and efficiency of the airport. The meeting minutes can be found in **Appendix E**.

3. Prescott Municipal Airport – Airfield Safety Packet

An Airfield Safety Packet was developed by PRC Operations staff as an overview of operations and special circumstances that exist on the airfield. It provides runway incursion history, locations not compliant with FAA Airport Design Standards, situational risk to operations, and Hotspot areas. The packet was utilized in developing the risk associated with the Hot Spots.

III. Inventory

PRC is a mixed-use airport with three runways, servicing both commercial and general aviation needs for areas including the City of Prescott, the Towns of Prescott Valley and Chino Valley, and the surrounding Yavapai County. PRC is owned by the City of Prescott, classified as a Part 139 Class I Certified public use airport, and is one of the busiest airports in Arizona and the country in terms of general aviation operations. Significant components to PRC's operations and airfield facility demands include the following:

- Flight Training – Embry Riddle Aeronautical University and several other flight schools contribute a significant percentage of total operations
- Commercial Service/Air Taxi – Great Lakes Airlines provides commercial service (and/or Air Taxi Service) to a number of locations
- Firefighting Air Service – The United States Forest Service's (USFS) Prescott Air Tanker Base is a critical asset in the USFS's regional wildfire suppression system.

The following sections provide an inventory overview of airfield operations, geometry, and the location of FAA Hot Spots.

A. Operations

The airport operations are categorized into two groups by the FAA: local and itinerant. Local operations are performed by aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and the operations to or from the airport and a designated practice area within a 20−mile radius of the Air Traffic Control Tower (ATCT). Local operations are subdivided into the following categories:

- Civilian
- Military

Itinerant operations are operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area. Itinerant operations are subdivided into the following categories:

- Air Carrier/Air Taxi: scheduled and non-scheduled passenger service
- General Aviation: personal, recreational, and business
- Military

Total annual airport operations are provided below in **Table 1**:

Table 1: PRC Historical Aircraft Operations

Year	Total Operations	Year	Total Operations	Year	Total Operations
1986	176,307	1997	353,299	2008	274,324
1987	209,058	1998	349,915	2009	241,489
1988	247,700	1999	336,674	2010	232,198
1989	268,039	2000	320,037	2011	242,758
1990	289,829	2001	325,491	2012	252,382
1991	262,237	2002	338,990	2013	261,583
1992	295,049	2003	320,228	2014	276,664
1993	140,716	2004	272,855	2015	272,535
1994	320,410	2005	237,990	2016	254,342
1995	346,684	2006	236,317		
1996	347,273	2007	229,379		

Source: PRC ATCT Record (January 2017)

The operations stated herein are historical and obtained from FAA Terminal Area Forecast (TAF), 2010 Master Plan, and PRC ATCT Record (January 2017). The three sources are not all consistent with each other, however these numbers are consistent with the draft 2017 Master Plan currently in progress.

An additional correlation to operation demands is based aircraft found at PRC. Based aircraft are non-transient aircraft that remain at the airport's hangars or tie-downs and influence facility requirements ranging from runways to fueling. Total Based aircraft at PRC and the 2016 Based aircraft are represented in **Table 2** and **Table 3**.

Table 2: PRC Based Aircraft

Year	Based Aircraft	Year	Based Aircraft	Year	Based Aircraft
1996	258	2003	347	2010	335
1997	290	2004	335	2011	324
1998	290	2005	349	2012	316
1999	312	2006	340	2013	327
2000	312	2007	331	2014	295
2001	312	2008	319	2015	314
2002	335	2009	242	2016	304

Source: FAA Terminal Area Forecast (TAF), 5010 Form, and data collected in January 2017

Table 3: 2016 Based Aircraft

Aircraft Type	Number
Single Engine	242
Multi Engine	20
Turbo Prop	3
Jet	2
Rotor Craft	33
Other (ultralights, etc.)	4
Total	304

The latest PRC Fleet Mix by aircraft type is provided in **Table 4**:

Table 4: PRC Fleet Mix (2011)

Aircraft Type	ARC	Max. Take-off Weight (lbs.)	Landing Gear Configuration	Annual Ave Day 2007	Total Ops YEAR 2007	Forcasted Operations (%)	Projected Ops YEAR 2012	Projected Ops YEAR 2017	Projected Ops YEAR 2027
Propellor									
Cessna Skyhawk SP 172	A-1	2,550	Single-Wheel	144	52,560	23%	52,829	57,696	68,788
Turbo-Props									
Piper Archer	B-1	2,550	Single-Wheel	144	52,560	24%	55,126	60,204	71,778
Piper Arrow	B-I	2,750	Single-Wheel	144	52,560	24%	55,126	60,204	71,778
Piper Seminole	B-I	3,800	Single-Wheel	62	22,630	12%	27,563	30,102	35,889
Beechcraft 1900	B-II	16,600	Single-Wheel	15	5,475	5.5%	12,633	13,797	16,449
C-130J Super Hercules	C-IV	164,000	Nose-Dual Gear Main-Dual Gear SingleTandem	3	1,095	0.5%	1,148	1,254	1,495
P3A Orion	C-III	142,000	Dual-Wheel	3	1,095	0.5%	1,148	1,254	1,495
Jets									
CRJ-700	C-III	34,019	Dual-Wheel	-	-	11%	25,266	27,594	32,898

Source: Developed by Dibble Engineering for the Runway 3R-21L RSA Project in 2011

PRC has predominately been used for training operations. **Table 5** provides a list of current flight training schools:

Table 5: PRC Flight Training

School	Number of Students	Number of Aircraft & Helicopters
Embry-Riddle Aeronautical University	500	28
Guidance Helicopters, Inc.	15-20	5
North-Aire Aviation, LLC.	125	14
Universal Helicopters Inc.	100	21

Source: Data collected by PRC Operations in January 2017

PRC is home to a United States Forest Service (USFS) facility located on the northeast portion of the airfield. The USFS operates large aircraft tankers during the fire season such as the P2V Neptune, BAe 146-300, and C-130.

Operations at PRC peaked in 1995 with 346,684 total operations. Since then the operations have slowly declined, hitting a low in 2007 with 229,379 total operations. However, since this low number of operations, activity has steadily been on the increase with the most recent operations in 2016 at 254,342. This level of activity suggests a recovery to the 1990s levels. The increase in activity makes the mitigation of potential safety issues imperative.

B. Airfield Geometry

PRC is comprised of three runways which are supported by five taxiway systems, as shown on the *Airport Diagram* on Page 4. The Runway/Taxiway system is comprised of the following:

1. The Primary Runway, 3R-21L, is serviced by parallel Taxiways Charlie and Delta.
2. The Secondary Runway, 3L-21R, is serviced by parallel Taxiways Charlie and Alpha.
3. The Crosswind Runway, 12-30, is serviced by parallel Taxiways Echo and Foxtrot.

The airport also has seven aprons for maneuvering, parking, and servicing aircraft. The majority of the ramp space is clustered on each side of Runway 12, northwest of Runway 3R-21L, as shown on **Exhibit 1**:

1. The South Apron Ramp at the southwest side of the airfield, adjacent to the Terminal
2. The Commercial Terminal Ramp adjacent to the existing Terminal
3. The Whiskey Ramp northeast of the existing Terminal
4. The West Ramp northeast of Runway 12
5. The North Ramp closer to midfield northwest of Runway 3R-21L
6. The Embry Riddle Ramp southeast of Runway 12-30.
7. The Legend Aviation Ramp southwest of Runway 12-30
8. The Rittaire Ramp southeast of Taxiway D3
9. The Guidance Ramp west of Taxiway E3
10. The US Forestry Service Ramp south of Taxiway D5

The airport also has a number of hangar complexes, predominantly located at the northwest side of the airfield. The three-runway airfield configuration, and the locations of the parking ramps and hangar facilities, results in a fairly complex aircraft surface movement picture, further complicating mitigation of potential runway incursions. Each of these facilities are further identified in the existing Airport Layout Plan (ALP) found in **Appendix F**. A summary of key airport features is found in **Tables 6** and **7**:

Table 6: PRC Geometric Values

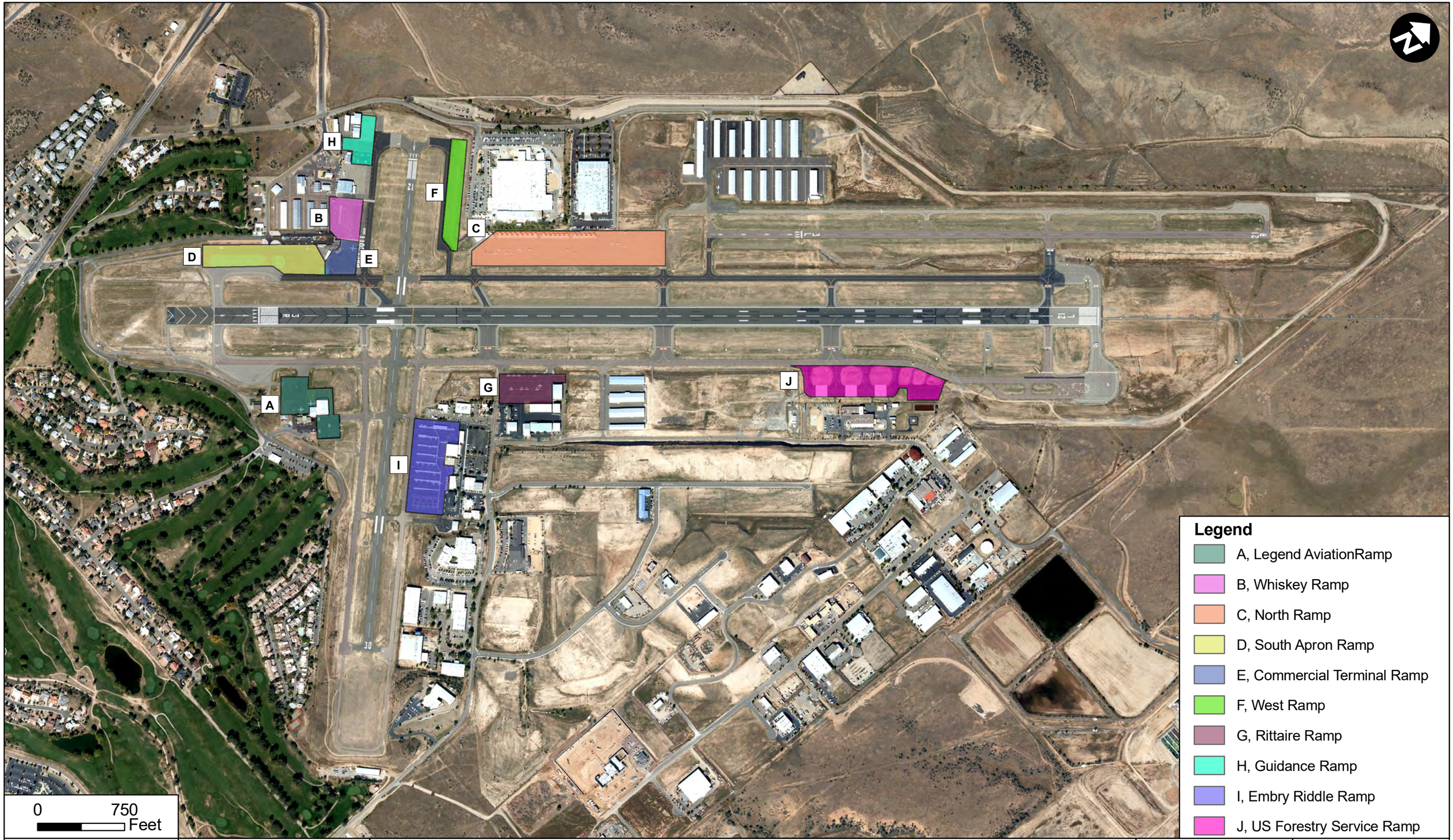
RUNWAY DATA	3L	21R	3R	21L	12	30
Airport Reference Code	B-I	B-I	C-III	C-III	B-II	B-II
Runway Length	4846'	4846'	7619'	7619'	4408'	4408'
Runway Width	60'	60'	150'	150'	75'	75'
Taxiway Width	25' / 50'		50'		40'	
Material	Asphalt		Asphalt		Asphalt	
Strength	12,500 lbs (S)		63,000 (S) 80,000 (D) 100,000 (DT)		12,500 lbs (S)	
Lighting	MIRL		MIRL		MIRL	
Marking	Visual		Non-Precision	Precision	Non-Precision	Visual
Visual-Aids	PAPI-2		PAPI-4 REIL	ILS PAPI-4	VORTEC PAPI-2 REIL	PAPI-2 REIL
Runway Safety Area (RSA) Width	120'	120'	500'	500'	150'	150'
RSA Length Beyond Runway End	240'	240'	1000'	1000'	300'	300'
Runway Obsticle Free Zone (ROFZ) Width	250'	250'	400'	400'	250'	250'
ROFZ Length Beyond Runway End	200'	200'	200'	200'	200'	200'
Runway Object Free Area (ROFA) Width	400'	400'	1000'	600'	500'	500'
ROFA Length Beyond Runway End	240'	240'	800'	800'	300'	300'
Taxiway Safety Area (TSA) Width	49'	49'	118'	118'	79'	79'
Taxiway Object Free Area (TOFA)	89'	89'	186'	186'	131'	131'
Approach Slope	20:1	20:1	34:1	50:1	34:1	20:1

Source: ALP Update (2013)

Table 7: PRC Design Aircraft

RUNWAY DATA	3L	21R	3R	21L	12	30
CRITICAL DESIGN AIRCRAFT (CDA)	BEECH B100	BEECH B100	CRJ 700	CRJ 700	BEECH B400	BEECH B400
CDA WINGSPAN	45.9'	45.9'	76.3'	76.3'	43.5'	43.5'
CDA LENGTH	39.9'	39.9'	106.7'	106.7'	48.5'	48.5'
CDA TAIL HEIGHT	15.5'	15.5'	24.4'	24.4'	13.9'	13.9'
CDA MAXIMUM CERTIFIED TAKOFF WEIGHT (LBS)	11,795	11,795	72,750	72,750	16,100	16,100
CDA APPROACH SPEED (KNOTS)	111	111	134.4	134.4	117	117

Source: ALP Update (2013)



CITY OF PRESCOTT ARIZONA Everybody's Hometown

DELTA AIRPORT CONSULTANTS, INC.

PRESCOTT MUNICIPAL AIRPORT
Exhibit 1: PRC Apron Locations

nicholas j pela & associates airport consultants

Dibble Engineering

C. Hot Spots

Hot Spots are defined by the FAA as: "*location on an airfield movement area with a history or potential risk of collision or Runway Incursion, and where heightened attention by pilots and drivers is necessary*". Identifying Hot Spots is essential for airports to strategize and mitigate risk at these locations. The 2011 *PRC Operational Assessment Report* identified a total of 11 Hot Spots throughout the airfield. The FAA *Airport Diagram,* on Page 4, lists four main Hot Spots; of which Hot Spots 2, 3, and 4 were identified in the 2015 FAA *RIM Current Inventory of Locations.*

This RIM Analysis Phase 1 report will evaluate Hot Spots 2, 3, and 4 as shown on the Airport Diagram.

Hot Spot 1 is based on insufficient visibility of Taxiway F1 from the Air Traffic Control Tower. This Hot Spot is also shown on the Airport Diagram, along with seven other Hot Spots that are listed in the PRC Operational Assessment Report. These remaining seven areas of concern will be addressed in the RIM Analysis Phase 2 component of the Master Plan Update.

The locations and descriptions of Hot Spots 2, 3, and 4 follow:

***Hot Spot 2**: Runway 3R-21L / Taxiway C2 / Taxiway E Intersection*

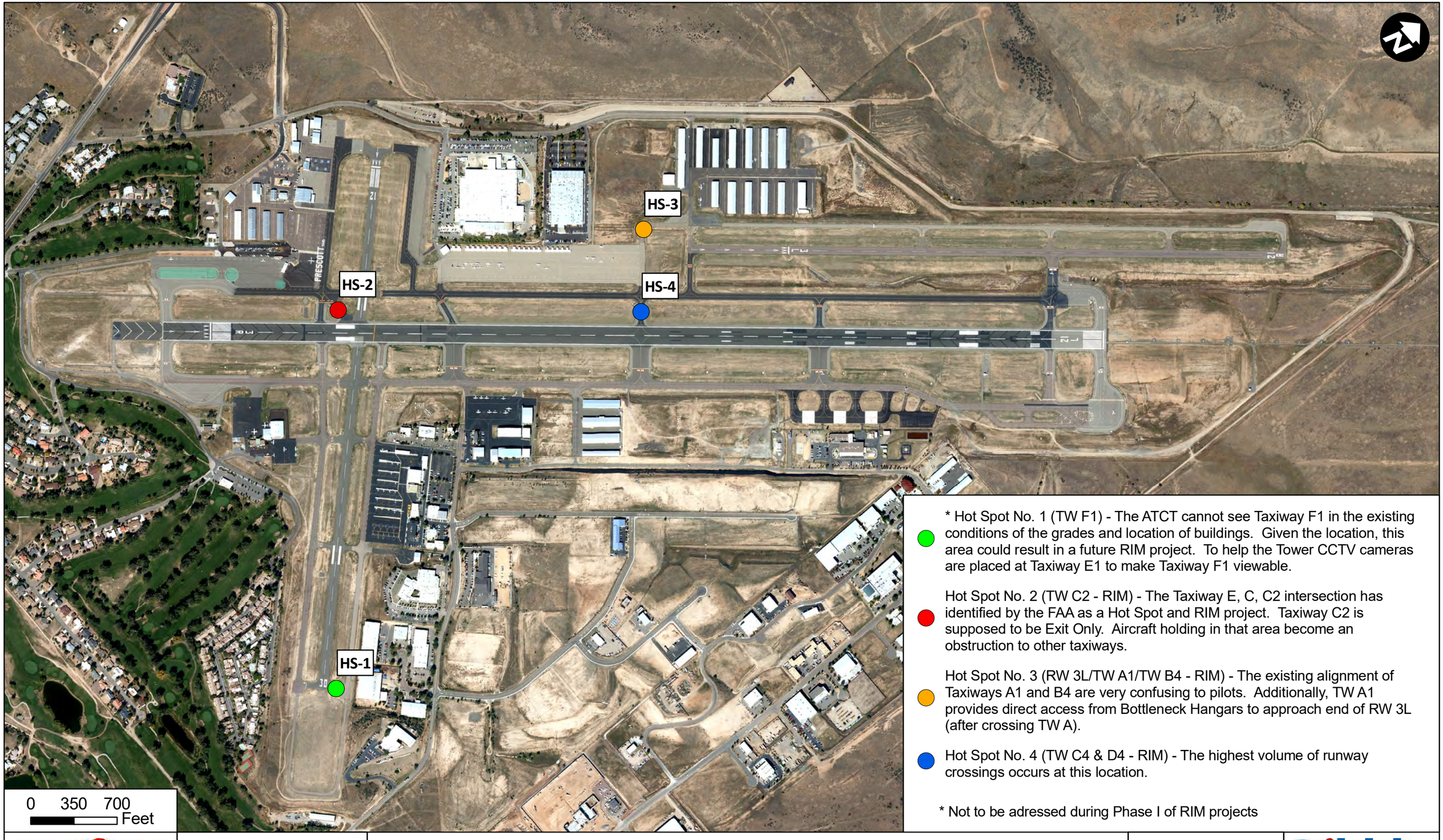
Hot Spot 2 is a complex intersection that involves Taxiway C2, an angled taxiway located between Runway 12-30, Runway 3R-21L, and Taxiway E. The primary use is by the airport's air carrier/air taxi, Great Lakes Airlines, by traffic arriving on Runway 21L and exiting the runway to approach the terminal area. It is also used by general aviation aircraft exiting Runway 21L and accessing either Taxiway C to the South Ramp, or Taxiway E to the South Hangar complex.

***Hot Spot 3**: Runway 3L Approach End*

Hot Spot 3 is another complex intersection. Aircraft exiting the Bottleneck Hangars area arrive at the four-way intersection of Taxiways A, A1, and B4. If they proceed straight ahead, they have direct access to Runway 3L-21R. Aircraft exiting Taxiway C at Taxiway B5 in an attempt to reach the Bottleneck Hangars will have to cross the end of Runway 3L-21R. Taxiway B4 is in the approach to Runway 3L and can be confusing due to the existing turn and geometry.

***Hot Spot 4**: Taxiway C4 and D4*

Hot Spot 4 is located at the midfield crossing of Runway 3R-21L and Taxiways C4 and D4. This intersection is located within the middle third of the runway, part of the 'high energy' portion of the runway. According to current FAA design standards, (FAA AC 150/5300-13 Chapter 4, Section b(5)(d), pages 116-117), crossing taxiways within this area should be offset such that they will not allow taxiing straight across the runway.



* Hot Spot No. 1 (TW F1) - The ATCT cannot see Taxiway F1 in the existing conditions of the grades and location of buildings. Given the location, this area could result in a future RIM project. To help the Tower CCTV cameras are placed at Taxiway E1 to make Taxiway F1 viewable.

Hot Spot No. 2 (TW C2 - RIM) - The Taxiway E, C, C2 intersection has identified by the FAA as a Hot Spot and RIM project. Taxiway C2 is supposed to be Exit Only. Aircraft holding in that area become an obstruction to other taxiways.

Hot Spot No. 3 (RW 3L/TW A1/TW B4 - RIM) - The existing alignment of Taxiways A1 and B4 are very confusing to pilots. Additionally, TW A1 provides direct access from Bottleneck Hangars to approach end of RW 3L (after crossing TW A).

Hot Spot No. 4 (TW C4 & D4 - RIM) - The highest volume of runway crossings occurs at this location.

* Not to be adressed during Phase I of RIM projects

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Exhibit 2: Existing FAA Identified Hot Spots and RIM Projects

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IV. Risk Factors

Each Hot Spot location has unique risks associated with it, resulting in different degrees of frequency, severity, and type of runway incursions. Understanding and analyzing the previously identified source reports for root causes is essential in providing effective solutions.

A. Hot Spot 2

1. Description of Location

The FAA has identified Hot Spot 2 as a complex intersection (Taxiways E, C, and C2), with confusing signing and markings all within very close proximity to each other. The existing layout has led to eight incursions as indicated by the *RIM Current Inventory of Locations (as of 12/23/2016)*.

2. FAA RIM Best Practices Violated

Several design practices are violated at Hot Spot 2:

- The intersection of Taxiway C2 with Taxiway C does not follow the "maximum three-node intersection" concept. When approaching Taxiway C on Taxiway E, a pilot is faced with four directional choices (right on Taxiway C, straight on Taxiway E, diagonal left on Taxiway C2, left on Taxiway C) when ideally FAA calls for no more than three. This geometry leads to complicated lighting, signage, and marking; resulting in increased pilot confusion.
- The combined intersection of Taxiway E and Taxiway C2 adjacent to Taxiway C results in a "wide expanse of pavement" approaching a runway, adding complexity and resulting in pilots confusing Taxiway C2 and Taxiway E from the Taxiway C side.
- Taxiway C2 intersects with the intersection of two runways, the primary and the cross-wind runways. Although the "3-node" concept is focused primarily on taxiway intersections, this geometry is technically a 4-node intersection, and this along with the close proximity of Taxiway E, Taxiway C2, and Runway 12-30 at this location results in complex lighting, signage, and marking and increased pilot confusion.
- FAA AC 150/5300-13A 407.c. (page 140) states: "Taxiways must never coincide with the intersection of two runways. Taxiway configurations with multiple taxiway and runway intersections in a single area create large expanses of pavement making it difficult to provide proper signage, marking, and lighting. These expansive pavement areas are numerous markings for taxiway (yellow) and runway (white) centerline and edge markings lead to pilot disorientation."

3. Additional Location Concerns

Aircraft holding at current taxiway holding positions on the connector taxiways between Taxiway C and Runway 3R-21L interfere with aircraft using parallel Taxiway C due to the non-standard distance between the taxiway and runway. Additionally, Taxiway C2 is one way traffic (exiting the runway), a non-standard configuration; and finally aircraft exiting on Taxiway C2 and attempting to turn eastbound onto Taxiway E (a non-standard movement) cannot turn onto Taxiway E without crossing the hold bars at Taxiway E.

4. Resultant Incursions

During the search for Hot Spot 2 reports, incidents were found from 2009 to 2015. As these FAA Report Numbers change (by the FAA), please reference **Appendix B**.

A majority of the incident types were pilot deviations with two being vehicle/pedestrian deviations. The most severe rating found was type C, an incident characterized by ample time and/or distance to avoid a collision. Report 11728 identified the Hot Spot as a "complex intersection". Report 16866 reported the mistaken use of Taxiway C2 to cross Runway 30 on Runway 3R when instructed to use Taxiway E and D. This report exemplifies the following violations of the intersection:

- The intersection does not follow a three-node concept.
- Pilots mistake the use of Taxiway C2 at the intersection for Taxiway E.
- The distance to the intersection of two runways is too close.

The key risk gathered from the reports is confusion at Hot Spot 2 due to complex marking and signage, as well as violation of the three-node concept. **Table 8** reports the severity, frequency, and incident type for Hot Spot 2.

Table 8: Hot Spot 2 Report Data

Fiscal Year	Severity				Incident Type					Total Incidents
	A	B	C	D	OE	OD	PD	V/PD	OTH	
2005										**0**
2006										**0**
2007										**0**
2008										**0**
2009			2				1	1		**2**
2010										**0**
2011										**0**
2012			3				2	1		**3**
2013			1	1			2			**2**
2014										**0**
2015			1				1			**1**
Total	**0**	**0**	**7**	**1**	**0**	**0**	**6**	**2**	**0**	**8**

Source: FAA Aviation Safety Information Analysis and Sharing

B. Hot Spot 3

1. Description of Location

The FAA has identified this location as a complex intersection (Bottleneck Ramp Access Taxilane, Taxiway A, Taxiway B4, Taxiway A1, and Taxiway B5). There is direct access to the Runway 3L End via Bottleneck Ramp Access Taxilane and Taxiway A1. Existing Taxiway B4 appears to be an End-Around Taxiway (EAT), that does not meet all FAA criteria including distance from runway end and potential impact to a 40:1

runway departure surface. Taxiways B4, A1, and B5 all fall within the Runway 21R Departure Runway Protection Zone (RPZ) (40:1 surface) and the Runway 3L Approach RPZ (20:1 surface).

This location has been described as very confusing to pilots, particularly when transiting to and from the Bottleneck Hangars from Taxiways B4, A, A1 and B5. This confusion has led to the highest occurrence of runway incursions amongst the three Hot Spots with 13 reports found on the FAA Aviation Safety Information Analysis and Sharing database.

2. FAA RIM Best Practices Violated

The key violation of Hot Spot 3 is that Taxiway A1 provides direct access from the Bottleneck Hangars to Runway 3L-21R, which is highly discouraged by the FAA. Such configurations lead to confusion when pilots typically expect to encounter a parallel taxiway but instead enter a runway.

3. Additional Location Concerns

The area has multiple additional safety risks:

- The location is not clearly visible from the ATCT without binoculars. Controllers have difficulty determining if an aircraft is on Taxiway A1 because of flat line of sight and the sloping terrain. Vigilance is needed when taxiing aircraft out of the Bottleneck Ramp to ensure aircraft turn onto Taxiway A or B4. These turns are often missed and lead to an incursion with Runway 3L-21R.
- Similar incursions occur when aircraft southbound on Taxiway C confuse Taxiway B5 with Taxiway B4, enter Taxiway B5 and cross the approach end of Runway 3L.
- Portions of the Yavapai County Community College Facility, a fuel storage tank, and an existing aircraft parking apron are all within the existing Runway RPZ of Runway 3L-21R.

4. Resultant Incursions

Hot Spot 3 had incursions occur between the years 2005 and 2015. Though the *RIM Current Inventory of Locations (as of 12/15/2015)* indicates 11 runway incursions, a search through the FAA Aviation Safety Information Analysis and Sharing website has generated 13. Similar to Hot Spot 2, the majority of incidents were pilot deviation with three being vehicle/pedestrian deviation. The average severity rating for incidents is D, which meets the definition of a runway incursion but with no immediate safety consequences. The common tone amongst the reports is the mistaken use of Taxiway A1 which leads to a crossing of Runway 3L-21R. Incursion Report 15294 documents an incident of a pilot mistaking Taxiway A1 for B4 coming out of the Bottleneck Hangars, leading to a crossing of Runway 3L-21R. A similar incident was found in Incursion Report 11854 where a pilot failed to turn onto Taxiway A from the Bottleneck Hangars and proceeded straight to cross the departure end of Runway 21R.

All Incursion reports can be found in **Appendix B**.

Table 9 shows the severity, frequency, and incident type for Hot Spot 3.

Table 9: Hot Spot 3 Report Data

Fiscal Year	Severity				Incident Type					Total Incidents
	A	B	C	D	OE	OD	PD	V/PD	OTH	
2005				1			1			**1**
2006										**0**
2007										**0**
2008			1				1			**1**
2009			1	3			3	1		**4**
2010										**0**
2011				1				1		**1**
2012				1			1			**1**
2013			1	1			2			**2**
2014			1	1			1	1		**2**
2015				1			1			**1**
Total	**0**	**0**	**4**	**9**	**0**	**0**	**10**	**3**	**0**	**13**

Source: FAA Aviation Safety Information Analysis and Sharing

C. Hot Spot 4

1. Description of Location

Due to the airfield layout, the location of Hot Spot 4 where connector Taxiways D4 and C4 cross Runway 3R-21L is a main point of access across the airport. It is in the middle third of Runway 3R-21L and considered a "high-energy intersection". The cumulative runway incursions as indicated by the *RIM Current Inventory of Locations (as of 12/23/2016)* is seven.

2. FAA RIM Best Practices Violated

Two violations are notable at Hot Spot 4:

- The connector crossing location is in the middle third of runway 3R-21L, considered a "high-energy intersection" where a pilot on the runway has the least opportunity to maneuver to avoid a collision.
- The other violation is the "wide expanse of pavement" found at Taxiway D4. The wide pavement results in signage far from a pilot's eye, and reduces the conspicuity of other visual cues. Under these conditions signs can potentially be missed and visibility is a critical risk at runway entrance points.

3. Additional Location Concerns

In addition to the signage and marking concerns at Taxiway D4, the extra-wide connector presents another challenge. Due to the high volume of two-way traffic on Taxiway D, ATC staff often direct smaller aircraft off of Taxiway D and onto Taxiway D4, holding them in the area between the hold bars and Taxiway D while aircraft pass by. This non-standard movement results in the use of Taxiway D4 as essentially a bypass taxiway, with the potential risk that aircraft holding short of the Runway may unintentionally cross

the hold bar and pass into the Runway 3R-21L Runway Safety Area, increasing the risks of incursions at the location.

4. Resultant Incursions

The *FAA Aviation Safety Information Analysis and Sharing* database provided reports of incursions from 2008 to 2014 and the incident type for all was pilot deviation. Though the *RIM Current Inventory of Locations (as of 12/15/2015)* indicates seven runway incursions, a search through the FAA Aviation Safety Information Analysis and Sharing website has generated eight. The average severity of the incursions was level C, an incident characterized by ample time and/or distance to avoid a collision. The issue gathered from the reports is pilot error or miscommunication. An example is Report 15138, which describes an aircraft sitting in the Runway 21L Runway Safety Area while another aircraft was cleared for a touch and go. Both aircraft did not respond to local control and a close proximity incident occurred. Another example is Report 7951 in which a pilot's read back of the instructions were correct. However, after read back the pilot proceeded to cross the hold line at Taxiway C4 for Runway 21L without clearance. Mistakes are often the result of an accumulation of a series of relatively minor events or distractions. Taxiing into an area that is an extra wide connector and does not present a familiar sight picture, with standard visual cues, can be distracting and confusing. The accumulation of the need for rapid communication with the ATCT, high traffic volume, an unfamiliar environment, and possibly fatigue, can elevate the level of risk. **Table 10** provides data on the severity, frequency, and incident type for Hot Spot 4.

Table 10: Hot Spot 4 Report Data

Fiscal Year	Severity				Incident					Total Incidents
	A	B	C	D	OE	OD	PD	V/PD	OTH	
2005										**0**
2006										**0**
2007										**0**
2008			1				1			**1**
2009			2	2			4			**4**
2010			1				1			**1**
2011										**0**
2012			1				1			**1**
2013										**0**
2014			1				1			**1**
2015										**0**
Total	**0**	**0**	**6**	**2**	**0**	**0**	**8**	**0**	**0**	**8**

Source: FAA Aviation Safety Information Analysis and Sharing

V. Alternatives

The goal of this analysis is to recommend realistic, operational, and feasible solutions that will mitigate the potential for runway incursions and that will coincide with the ultimate needs and direction of the airport. The following narrative will present some of the alternative approaches to attain this goal. The alternatives and subsequent recommendations will be in line with the Master Plan process. The recommended options, see **Section VI**, will also consider mitigation to runway incursion potential, construction cost, overall constructability, and existing operations and operational requirements.

A. Hot Spot 2 – Taxiway C2

One solution for Hot Spot 2 is to relocate the angled exit Taxiway C2 to a point south of Taxiway E. This will remove the potential for aircraft to cross the hold bars at Taxiway E while maintaining an angled exit for Runway 3R-21L and allowing commercial-service aircraft to pass Runway 12-30. This option eliminates the complex intersection but increases runway occupancy time, requires a double-back turn onto Taxiway C, and increases volume on Taxiway C.

An alternative solution is to completely remove Taxiway C2 which eliminates the complex intersection, while improving Taxiway E at the Runway 3R-21L location to allow its use as an air carrier/air taxi intersection exit. Currently, Taxiway E meets Taxiway Design Group (TDG) II standards. To allow air carrier as well as other aircraft to exit Runway 3R-21L in the same general location as before, the exit radius and fillet to Taxiway E will need to be modified to meet TDG III standards. This alternate will alleviate the potential for confusion at this location and maintain the exit location without significantly increasing Runway 3R-21L or Taxiway C occupancy time.

The alternative provided in **Exhibit 3** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, and overall constructability, and existing operations and operational requirements.

B. Hot Spot 3 – Runway 3L Approach End

An understanding of existing operational criteria is critical to the evaluation and development of Hot Spot 3 Alternatives. There are a significant number of operations by local aircraft (from the Bottleneck Hangars) and flight schools that utilize Taxiway B4 to bypass Runway 3L-21R without crossing it directly. Additionally, all local aircraft from the Bottleneck Hangars that want maintenance services use Taxiway B4 for the same reason. From the FAA ATCT and PRC Operations perspective, it is important that Taxiway B4 remain, in one way or another. It should also be known that when the FAA ATCT closes, so does Runway 3L-21R. Additionally, the lighting circuit for Runway 3L-21R is disconnected during the closure, rendering the runway completely non-operational beyond ATCT hours. In other words, Runway 3L-21R is only open and operational under FAA ATCT supervision and control.

Please reference **Exhibit 4** for the following discussion of alternatives at the Runway 3L End.

To mitigate risk at this location, one option is to eliminate the existing 811 feet of displaced threshold prior to the Runway 3L threshold, with Taxiways A1 and B5 relocated to the existing Runway 3L threshold.

This will eliminate the direct access between the Bottleneck Hangars and Runway 3L End, and create additional distance between Taxiway B4 and B5 to reduce confusion between the two taxiways, (that confusion exists today and is a causal factor to the runway incursions at this location). This would shift the existing Runway 21R Departure RPZ a distance of 200 lineal feet from the actual runway threshold, which would allow for an efficient realignment of Taxiway B4 to be outside the RPZ. A final step to this alternate could be to shift Taxiway B4 out of the Runway 21R Departure RPZ; which would also offset Taxiway B4 from Taxiway C4. The significant negative of this solution is that the runway length available for 3L departures and 21R arrivals would be reduced, a major detriment to the current airfield capacity requirements based on FAA ATCT staff input.

Another option is to shift Runway 3L-21R to the north until all obstructions, including Taxiways B4, A1, and B5 from both the Runway 3L Approach RPZ and the Runway 21R Departure RPZ are cleared. This alternate would require significant time and money for additional planning, further obstruction analysis, environmental, land acquisition, engineering, and construction, and require a new evaluation that no additional obstructions to the Runway 3L Departure RPZ and the Runway 21R Approach RPZ occur. The significant negative to this option is the amount of time it would take to complete and the total cost.

Another option that was considered is simply eliminating the section of taxilane between the Bottleneck Hangar Entrance and Taxiway A1, realign Taxiway B4 around the Runway 3L Approach RPZ, and include a new taxilane exiting the Bottleneck Hangars to the north and tying into Taxiway A further north at a location visible to the FAA ATCT. This would reduce the operations at the south Bottleneck Hangar entrance/exit and eliminate the direct apron access to Runway 3L End.

A section of Taxiway A and all of Taxiway B4 would still be within the boundary of Runway 21R Departure RPZ, however, as previously discussed the operations would be controlled by the FAA ATCT. The major setback to this alternative is that the south entrance/exit to the Bottleneck Hangars would become much more complicated with additional turns required, existing grades would make it nearly impossible for the FAA ATCT to see all sections of Taxiways A and B4, and the future development already in progress in this area would suffer a major impact.

Another option for consideration is shifting Taxiways A1 and B5 to the north approximately 240 feet, eliminating the direct access from the Bottleneck Hangars to Runway End 3L and removing Taxiways A1 and B5 from the Runway 21R Departure Surface. Additionally, Taxiways A and B4 would be realigned around the Runway 3L Approach RPZ. A portion of Taxiway B4 would still fall within the Runway 21R Departure RPZ, however the aircraft operations can be controlled by the FAA ATCT so that those taxiways are not used by aircraft while the RPZ is under operation. As mentioned before, Runway 3L-21R is closed when the FAA ATCT is closed and no aircraft can utilize Runway 3L-21R without FAA ATCT supervision.

It should be noted that if Runway 3L-21R is shortened, there is a reduction in runway capacity and aircraft will need to have the ability to exit faster. The inclusion of a north entrance/exit to the Bottleneck Hangars will allow aircraft to exit Taxiway A2 and enter the Bottleneck from the north. As mentioned before, this would also reduce the number of operations at the south Bottleneck Entrance where the incursions occur.

The alternative provided in **Exhibit 4** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, and overall constructability, and existing operations and operational requirements.

C. Hot Spot 4 – Taxiways D, D4, and C4

An understanding of existing operational criteria is critical to the evaluation and development of Hot Spot 4 Alternatives. Taxiways C4 and D4 is the main Runway 3R-21L exit location for the majority of all transient, flight school, and local traffic. The major factor for this is not only because they are mid-field taxiways, but Taxiway D4 occasionally serves as a temporary holding area for traffic along Taxiway D; meaning, Taxiway D is a one-way taxiway between Taxiways F and D5 and aircraft are sometimes required to temporarily hold on Taxiway D4 so that oncoming aircraft traffic can pass along Taxiway D.

Please reference **Exhibit 5** for the following discussion of alternatives at Taxiways D, D4, and C4.

One solution is to eliminate Taxiway C4. This would remove the direct access from the North Ramp to Runway 3R-21L, and route aircraft needing to cross the runway to a lower-energy segment (Taxiway C3, C5, D3, or D5) located at the outer thirds of Runway 3R-21L. However, it would also increase traffic volumes on portions of both Taxiways D and C, as well as increase Runway 3R-21L occupancy time and reduce capacity on Taxiways D, C, and Runway 3R-21L.

Another option discussed with PRC Operations and FAA ATCT was the elimination of Taxiway D4. Again, the Taxiway C4/D4 route is the most operated by of all transient, flight school, and local traffic and would increase the operational problem of the one-way traffic issues along Taxiway D between Taxiways F and D5. This option does not correct the direct access from the North Ramp to Runway 3R-21L.

Another alternative would be to relocate Taxiway C4 either to the north or south of its current position. This eliminates the direct alignment from the North Ramp to Runway 3R-21L.

In consideration of all the options, the FAA ATCT stated that they need more capacity on Taxiway D, as it currently operates as a one-way taxiway between Taxiways F and D5. With the inclusion of a new parallel taxiway or a holding apron adjacent to Taxiway D, along the east side and in the vicinity of Taxiway D4 would allow for increased safety of operations exiting Runway 3R-21L and on Taxiways D and D4, reduced potential of runway incursions at TW D4, and increased capacity and operations on Runway 3R-21L and Taxiways D and D4. Additionally, if the parallel taxiway or run-up area could be included, Runway 3R-21L crossings could happen outside the middle third (or high energy) section of the runway. Taxiway D is currently considered a C-III taxiway, (mainly due to the USFS operations), and the new parallel taxiway or holding apron would be designed for Group-I aircraft mainly to accommodate the Embry-Riddle Aeronautical University flight school operations as well as the smaller local, transient, or other flight school traffic.

The alternative provided in **Exhibit 5** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, and overall constructability, and existing operations and operational requirements.

VI. Recommendations

A. Hot Spot 2 – Taxiway C2

Hot Spot 2 is the Taxiways C, C2, and E area at the intersection of Runways 3R-21L and 12-30. Taxiway C2 provides access to the terminal from Runway 3R-21L for Great Lakes Airlines as well as an exit from Runway 21L for general aviation, and is in a close, very confusing proximity (visually) with the adjacent Taxiways C and E when approaching the area from the Terminal Apron.

It is recommended to completely demolish Taxiway C2 to eliminate the risks and visual confusions associated with this Hot Spot. Taxiway E will be increased from a Taxiway Design Group (TDG) II to a TDG III to accommodate the existing and future anticipated operations exiting Runway 3R-21L. This recommended alternative provides mitigation of the confusion caused by the complex intersection discussed herein, while still accommodating the current and future operational needs.

The recommended alternate, **Exhibit 3,** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, overall constructability, and existing operations and operational requirements.

B. Hot Spot 3 – Runway 3L Approach End

The operational requirements for Hot Spot 3 are providing access to and from the Bottleneck Hangars. This area has multiple risks associated with it, the most serious one being direct access from the Bottleneck Hangars to Runway 3L-21R. Direct access from an apron or hangar area to a runway is strongly discouraged by the FAA. All the previously discussed alternatives provide potential solutions to the Hot Spot.

The ultimate recommendation is to relocate, (shift to the north) Runway 3L-21R. This alternative will be further discussed in the RIM Phase II study as well as in the Master Plan. As this alternative will require significant time and money for additional planning, environmental, land acquisition, engineering, and construction; this report recommends a more interim recommendation.

The near-future recommendation for Hot Spot 3 is relocating Taxiway A1 and B5 to the north approximately 240 feet and shortening the displaced Runway 3L End pavement, removing the direct access from the Bottleneck Hangars to the Runway 3L End, including the existing holding aprons on Taxiway A at the Bottleneck Hangar entrance. Realignment of Taxiway A and B4 is necessary to remove them from Runway 3L Approach RPZ. Taxiways A1 and B5 will still be in Runway 3L Approach RPZ and Taxiway B4 will still be in Runway 21R RPZ, however, the aircraft operations can be controlled by the FAA ATCT so that neither RPZ will be impacted by active aircraft while the respective RPZ (or runway takeoff/landing) is in use. Additionally, proper FAA-standard pavement marking, signage and lighting

systems can be installed for increased control and awareness of the required operational controls necessary to maintain safe RPZ's. As stated previously, Runway 3L-21R is closed and the lighting circuit is disconnected when the FAA ATCT is closed. No operations can occur on Runway 3L-22R outside of FAA ATCT supervision.

The recommended alternate, **Exhibit 4,** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, and overall constructability, and existing operations and operational requirements.

C. Hot Spot 4 – Taxiways D, D4 and C4

The location of Hot Spot 4 is in a "high-energy", middle-third segment of Runway 3R-21L and is a main access point to cross to the opposite side of the airfield by the majority of the traffic schools, transient aircraft, and local aircraft. According to current FAA design standards, (FAA AC 150/5300-13 Chapter 4, Section b(5)(d), pages 116-117), crossing taxiways within this area should be offset such that they will not allow taxiing straight across the runway. Additionally, Taxiway D is a one-way taxiway between Taxiways F and D5. Taxiway D4 is occasionally used as a temporary holding area to allow opposite direction traffic to cross. Taxiways B4 and C4 also provide direct access to Runway 3R-21L from the North Ramp.

The recommended solution for this location is to relocate Taxiway C4 to the south, removing the direct access between the North Ramp and Runway 3R-21L. It is also recommended to include a new run-up area along the east side of Taxiway D, just north of Taxiway D4. The new run-up area would allow for operations to bypass one another at the location of Taxiway D4, and airfield crossings could be relocated to Taxiways D3 or D5, (outside the middle third or high energy section of Runway 3R-21L). Taxiway D is considered a C-III taxiway, and the new holding apron would be designed for Group-I aircraft.

The recommended alternate, **Exhibit 5,** is a combination of the alternatives discussed herein that best resolves the existing issues when considering runway incursion potential, construction cost, and overall constructability, and existing operations and operational requirements.

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Exhibit 3: Hot Spot 2
PRC TW C2 RIM

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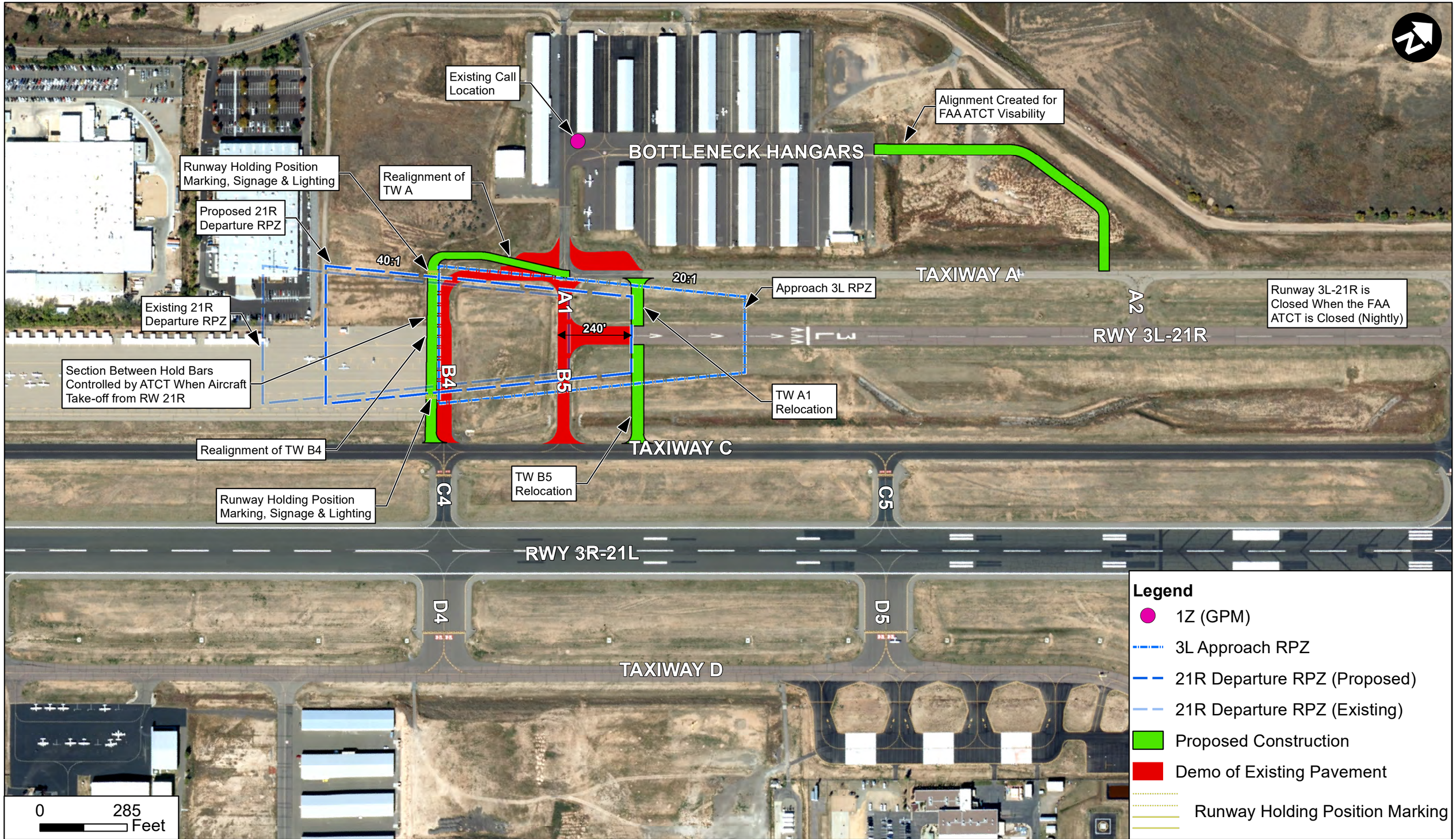

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Exhibit 4: Hot Spot 3
PRC RW 3L Approach End (TW A1 & B4) RIM

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Exhibit 5: Hot Spot 4
PRC RW 3R-21L Intersection with TW C4 & D4 RIM

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Dibble Engineering

VII. Implementation Plan

The implementation of the recommended solutions will be coordinated with the Air Traffic Control Tower (ATCT) and Federal, State, and Local agencies. It is likely that funding will be sought from Federal, State and Local agencies, although not necessarily all for each given project. All necessary processes will be carried out in accordance with the current FAA AC's and the governing federal, state and location regulations, design, and construction standards. The standard federal and local safety requirements will be in place during the construction of each project. The airport and ATCT will all coordinate during the planning, design, and construction phases of these projects.

A. Hot Spot 2

Performing the work necessary to correct Hot Spot 2 will require the closure of both Runway 3R-21L and Runway 12-30 while the work is being performed within the Runway Safety Areas (RSA). Impact and closure time to runways will be minimized by dividing the construction into multiple phases. Phase I will include the demolition of Taxiway C2 inside the Runway 12-30 RSA. This will require the closure of both Runway 3R-21L and 12-30. After all work within the Runway 12-30 RSA is completed, the runway can be reopened.

Phase II will continue the demolition work within the 3R-21L RSA and include the Taxiway E fillet widening. After all RSA work is complete, Phase III will complete the demolition of Taxiway C2 outside both runway safety areas. Barricades will be setup strategically along Taxiway C and E to prevent aircraft entering the construction environment during all phases.

Since it is not practical to temporarily close both runways simultaneously, it is likely this project will be constructed at night.

B. Hot Spot 3

Hot Spot 3 will take a multiple phase approach beginning with Phase I, which will include the removal and relocation of Taxiways A1 and B5, and a section of the displaced threshold pavement of Runway 3L. Closure of Runway 3L-21R will be needed for Phase I, but can remain open for Phase II.

Phase II will complete the removal and realignment of the Taxiway A and B4. The existing aprons on Taxiway A at the entrance to the Bottleneck Hangars will be removed in this phase as well. Barricades will be setup along Taxiways A and C as well as parallel to Taxiway B4 along the apron.

C. Hot Spot 4

Two phases will be used to complete recommendations at Hot Spot 4. During Phase I, Runway 3R-21L will be closed for the relocation of Taxiway C4 within the RSA.

Once Phase I is completed, Runway 3R-21L can be reopened for Phase II to carry out the completion of relocating Taxiway C4 (area outside the RSA). To finish the recommendations, Phase III will complete the construction of the new run-up area adjacent to Taxiway D, just north of Taxiway D4. Taxiway D will be

closed between Taxiways D3 and D5 while construction occurs within the Taxiway D safety area. Barricades will be setup along Taxiways C, D, C4, D3, D4, and D5 at various times in strategic locations dependent on phase.

D. Priority Ranking

Ranking of the Hot Spots is developed utilizing report data found on the FAA *Aviation Safety Information Analysis and Sharing* website. The key criteria for ranking is severity and the frequency of high risk incidents at the locations for the time period data was collected, from 2005 to 2015. The most dangerous location is considered a top priority to be addressed. Following the criteria guideline and using **Table 8**, **Table 9**, and **Table 10** the priority is as follows:

1. **Hotspot 2:** the complex intersection (Taxiway E/Taxiway C/Taxiway C2) with confusing signing and markings has a total of 7 incidents with a severity ranking of C.
2. **Hotspot 4:** the high-energy location of Taxiways D4 and C4 crossing Runway 3R-21L has a total of 6 incidents with a severity ranking of C.
3. **Hotspot 3:** the complex intersection (Bottleneck Ramp Taxilane/Taxiway A/Taxiway B4/Taxiway A1/Taxiway B5) and confusion to pilots has a total of 4 incidents with a severity ranking of C.

VIII. Total Project Budget Estimates

The opinion of probable construction costs for each mitigation location were developed utilizing costs for similar airfield projects. The overall estimated costs and approximate quantities are located in **Appendix G**. The total project estimate for each Hot Spot is provided below. The total project cost estimate encompassed everything that is anticipated for the project, including design, construction, construction administration and observation, and Airport administrative costs. A contingency amount is also included to reflect design uncertainty and inflation over time as the projects are not anticipated to be constructed in the immediate future.

- Hot Spot 2: $395,500
- Hot Spot 3: $1,588,000
- Hot Spot 4: $1,611,000

Appendix A:

RIM Current Inventory of Locations (as of 12/23/2016)

RUNWAY INCURSION MITIGATION (RIM) PROGRAM
PRELIMINARY INVENTORY OF AIRPORT LOCATIONS

The FAA has developed this preliminary inventory of airport locations where runway incursions (RI) have occurred, and is now working with airports on mitigation strategies. The data collected from FY 2008 - CY 2015 indicates airport locations where three or more peak annual runway incursions have occurred in a given calender year or more than eight runway incursions cumulative have occurred during this period. This information is subject to change as the FAA works with the airport sponsors. As projects proceed and additional data is collected on RIs, the FAA will update this inventory as necessary.

NOTE: A list of the runway incursions at each airport and their severity rating of A, B, C, or D may be found in the National Runway Safety Report, and the FAA Aviation Safety and Information Analysis and Sharing website.

AirportName	Location	Location Identifier	Region	NPIAS Hub Classification	AssetCat	Part139	Cumulative RI (Pilot & Vehicle/Pedestrian Deviations)	Peak CY Annual RI (Pilot & Vehicle/Pedestrian Deviations)
Abraham Lincoln Capital Airport, Springfield, IL	Runway 13-31/18-36/4-22 Intersections	SPI-HS1	AGL	Non Hub Primary	NA	Y	7	3
Addison Airport, Dallas, TX	Approach End entrance of Runway 15	ADS-HS1	ASW	Reliever	National	N	21	5
Addison Airport, Dallas, TX	Runway 15-33 / Taxiway G Intersection	ADS-HS4	ASW	Reliever	National	N	11	9
Addison Airport, Dallas, TX	Runway 15-33 / Taxiway C Intersection	ADS-HS8	ASW	Reliever	National	N	6	2
Albuquerque International Sunport, NM	Approach Ends of Runway 8 and 12	ABQ-HS1	ASW	Medium	NA	Y	9	2
Battle Creek International, Kalamazoo, MI	Runway 17 / Taxiway C Intersection	AZO-02	AGL	Non Hub Primary	NA	Y	5	3
Bowman Field, Louisville, KY	Runway 6-24 / Taxiway J Intersection	LOU-01	ASO	Reliever	Regional	N	5	3
Brackett Field, La Verne, CA	Runway 8L-26R / Taxiway E Intersection	POC-02	AWP	Reliever	Regional	N	7	2
Buchanan Field, Concord, CA	Runway 32R / Taxiway B Intersection	CCR-03	AWP	Reliever	National	Y	8	4
Camarillo Airport, CA	Runway 26 Approach End	CMA-01	AWP	Reliever	National	N	12	4
Centennial Airport, Denver, CO	RWY 17L-35R / Taxiway B8 Intersection	APA-19	ANM	Reliever	National	N	9	4
Centennial Airport, Denver, CO	Runway 35R	APA-07	ANM	Reliever	National	N	3	3
Centennial Airport, Denver, CO	Runway 17L Approach End	APA-HS1	ANM	Reliever	National	N	13	3
Centennial Airport, Denver, CO	Runway 10 Approach End	APA-HS3	ANM	Reliever	National	N	12	4
Charles M. Schulz Sonoma County Airport, CA	Taxiway A / Approach Path of Runway 20	STS-08	AWP	Non-Hub Primary	N/A	Y	4	4
Charlotte/Douglas International, NC	Runway 5 - 23 / Taxiway D Intersection	CLT-06	ASO	Large	NA	Y	5	4
Chicago Midway International, Chicago, IL	Runway 31C / Taxiway E1, E2, E3 Intersection	MDW-03	AGL	Large	NA	Y	4	3
Chicago O'Hare International Airport, IL	Taxiway T / Runway 15-33 / Approach Path Runway 9R	ORD-HS6	AGL	Large	N/A	Y	7	6
Chino Airport, CA	Runway 8L-26R / Taxiway K Intersection	CNO-24	AWP	Reliever	National	N	6	4
Chino Airport, CA	Taxiway P between Runway 26R Approach End and 26L	CNO-05	AWP	Reliever	National	N	3	3
Chino Airport, CA	Runway 26L	CNO-19	AWP	Reliever	National	N	5	3
Corpus Cristi International, TX	Runway 31 / Taxiway A Intersection	CRP-HS1	ASW	Non Hub Primary	NA	Y	15	6
Crystal Airport, Minneapolis, MN	Taxiway E4 between Runway 14R and 14L	MIC-HS6	AGL	Reliever	Regional	N	13	4
Dallas Love Field, TX	Runway 13R Approach End	DAL-14	ASW	Medium	NA	Y	19	6
Dallas Love Field, TX	Runway 13L - 31R / Taxiway B5 Intersection	DAL-33	ASW	Medium	NA	Y	9	3
Dallas Love Field, TX	Runway 13L Approach / Taxiway A Intersection	DAL-HS1	ASW	Medium	NA	Y	17	12
David Wayne Hooks Memorial Airport, Houston, TX	Runway 17R-35L / Taxiway E Intersection	DWH-HS3	ASW	Reliever	Regional	N	14	7
David Wayne Hooks Memorial Airport, Houston, TX	Runway 17R Approach End	DWH-HS1	ASW	Reliever	Regional	N	9	3
David Wayne Hooks Memorial Airport, Houston, TX	Runway 17L Approach End / Taxiway E, D Intersection	DWH-HS2	ASW	Reliever	Regional	N	14	7
Daytona Beach International, FL	Runway 7L - 25R / Taxiway P5 Intersection	DAB-02	ASO	Non Hub Primary	NA	Y	6	3
DeKalb-Peachtree Airport, Atlanta, GA	Runway 16-34 / 3L-21R / 3R-21L / Taxiway C / B Intersection	PDK-11	ASO	Reliever	National	N	8	3
DeKalb-Peachtree Airport, Atlanta, GA	Runway 21R / Taxiway G Intersection	PDK-HS1	ASO	Reliever	National	N	11	4
DeKalb-Peachtree Airport, Atlanta, GA	Runway 3L / Taxiway A Intersection	PDK-HS3	ASO	Reliever	National	N	8	4
Des Moines International, IA	Intersection of Runway 13-31 / Runway 5-23	DSM-HS1	ACE	Small	NA	Y	9	2
Ernest A. Love Field, Prescott, AZ	Runway 3R-21L / Taxiway C2 / E Intersection	PRC-HS2	AWP	Non Primary Commercial	Regional	Y	8	3
Ernest A. Love Field, Prescott, AZ	Runway 3L Approach End	PRC-HS3	AWP	Non Primary Commercial	Regional	Y	11	4
Ernest A. Love Field, Prescott, AZ	Runway 3R-21L / Taxiway C4-D4 Intersection	PRC-HS4	AWP	Non Primary Commercial	Regional	Y	7	4
Executive Airport, Orlando, FL	Runway 7 / Taxiway E4 Intersection	ORL-01	ASO	Reliever	National	N	7	3
Fairbanks International, AK	Runway 20L Approach End/Runway 2 ski strip	FAI-11	AAL	Small	NA	Y	5	3
Flying Cloud Airport, Minneapolis, MN	Runway 28L Approach End	FCM-HS10	AGL	Reliever	National	N	7	2
Fort Lauderdale Executive Airport, FL	Runway 26 / Taxiway C Intersection	FXE-08	ASO	Reliever	National	N	4	3
Fort Lauderdale Executive Airport, FL	Runway 9 Approach End	FXE-HS1	ASO	Reliever	National	N	12	3
Fort Lauderdale Executive Airport, FL	Runway 13-31 / Taxiway A Intersection	FXE-HS3	ASO	Reliever	National	N	10	5
Frederick Municipal Airport, MD	Runway 12-30 / Taxiway A Intersection	FDK-HS3	AEA	Reliever	Regional	N	5	4
Fresno Yosemite International Airport, CA	Runway 29R Approach End	FAT-21	AWP	Small	N/A	Y	7	3
Fulton CO Airport-Brown Field, Atlanta, GA	Runway 8-26 / Taxiway K Intersection	FTY-04	ASO	Reliever	National	N	4	4
General Edward Lawrence Logan Intl, Boston, MA	Runway 15L / Runway 22R Intersection	BOS-HS1	ANE	Large	NA	Y	7	2
General Edward Lawrence Logan Intl, Boston, MA	Runway 4L Approach End / Taxiway E, K Intersections	BOS-HS3	ANE	Large	NA	Y	16	4
General Edward Lawrence Logan Intl, Boston, MA	Runway 4R / 14 - 32 Intersection	BOS-HS4	ANE	Large	NA	Y	9	3
Hartsfield-Jackson Atlanta International, GA	Runway 9L - 27R / Taxiway D Intersection, south side.	ATL-18	ASO	Large	NA	Y	5	3
Hartsfield-Jackson Atlanta International, GA	Runway 8L - 26R / Taxiway C, D, B Intersections	ATL-HS1	ASO	Large	NA	Y	12	4
Hartsfield-Jackson Atlanta International, GA	Runway 8R - 26L / Taxiway C,D Intersections	ATL-HS2	ASO	Large	NA	Y	22	5
Hayward Executive Airport, Alameda County, CA	Runway 28L / Taxiway A1 Intersection	HWD-03	AWP	Reliever	National	N	17	13

AirportName	Location	Location Identifier	Region	NPIAS Hub Classification	AssetCat	Part139	Cumulative RI (Pilot & Vehicle/Pedestrian Deviations)	Peak CY Annual RI (Pilot & Vehicle/Pedestrian Deviations)
Honolulu International Airport, HI	Runway 8L-26R / Taxiway E / Taxiway B	HNL-HS3	AWP	Large	N/A	Y	9	3
Honolulu International Airport, HI	Taxiway D between Runway 22L - 4R and 22R - 4L	HNL-02	AWP	Large	NA	Y	8	4
Honolulu International Airport, HI	Runway 4L and 4R Approach Ends	HNL-HS1	AWP	Large	NA	Y	14	5
Honolulu International Airport, HI	Runway 8L Approach / Taxiways A, V, T, RB and M Intersection	HNL-HS4	AWP	Large	NA	Y	10	2
Idaho Falls Regional Airport, ID	Runway 20 / Runway 17 Approach Ends	IDA-HS4	ANM	Non-Hub Primary	N/A	Y	11	5
John Wayne Airport-Orange CO, Santa Ana, CA	Taxiway L between Runway 20L and 20R Approach Ends	SNA-03	AWP	Medium	NA	Y	5	3
John Wayne Airport-Orange CO, Santa Ana, CA	Taxiway L entrance to Runway 19L	SNA-HS1	AWP	Medium	NA	Y	7	3
John Wayne Airport-Orange CO, Santa Ana, CA	Taxiway H between Runway 2L-20R and Runway 22 Approach	SNA-HS2	AWP	Medium	NA	Y	7	4
Juneau International, AK	Runway 8-26 / Taxiway D Intersection	JNU-01	AAL	Non Hub Primary	NA	Y	5	3
Kendall-Tamiami Executive Airport, Miami, FL	Runway 9L / Taxiway A Intersection	TMB-04	ASO	Reliever	National	N	7	3
Kendall-Tamiami Executive Airport, Miami, FL	Runway 31 / Taxiway E, H Intersection	TMB-HS1	ASO	Reliever	National	N	8	2
Kissimmee Gateway Airport, Orlando, FL	Runway 15-33 / Taxiway B Intersection	ISM-02	ASO	Reliever	Regional	N	3	3
Livermore Muni, CA	Runway 25R / Taxiway B Intersection	LVK-HS1	AWP	Reliever	Regional	N	22	6
Livermore Muni, CA	Runway 25L / Taxiway C Intersection	LVK-HS2	AWP	Reliever	Regional	N	10	4
Lone Star Executive, Houston, TX	Runway 14 Approach End	CXO-02	ASW	Reliever	National	N	5	4
Long Beach/Daugherty Field, CA	Taxiway J-D / Runway 7R-25L / Runway 12-30 Intersection	LGB-HS3	AWP	Small	NA	Y	9	3
Long Beach/Daugherty Field, CA	Runway 34R Approach / Taxiways D and F Intersection	LGB-HS5	AWP	Small	NA	Y	7	4
Los Angeles International Airport, CA	Runway 6R-24L / Taxiway AA Intersection	LAX-HS1	AWP	Large	N/A	Y	12	4
Los Angeles International Airport, CA	Runway 7L-25R / 7R-25L / Taxiway F Intersection	LAX-HS4	AWP	Large	N/A	Y	18	3
Louis Armstrong New Orleans International, LA	Runway 10-28 / Taxiway F Intersection	MSY-HS1	ASW	Medium	NA	Y	5	3
Manchester Airport, NH	Runway 17 / Taxiway H Intersection	MHT-HS1	ANE	Small	NA	Y	15	10
Manchester Airport, NH	Runway 35 / Taxiway U / Taxiway P Intersection	MHT-HS2	ANE	Small	NA	Y	6	2
McCarran International, Las Vegas, NV	Runway 7L / 1L Intersection	LAS-HS4	AWP	Large	NA	Y	9	3
McClellan-Palomar Airport, Carlsbad, CA	Runway 24 Approach End	CRQ-03	AWP	Non Hub Primary	NA	Y	7	2
Melbourne International, FL	Runway 5 / Taxiway V Intersection	MLB-02	ASO	Non Hub Primary	NA	Y	6	3
Memphis International, TN	Runway 27 / Taxiway V2 Intersection	MEM-01	ASO	Medium	NA	Y	3	3
Merrill Field, Anchorage, AK	Runway 7-25 / Taxiway C Intersection	MRI-13	AAL	Non Hub Primary	NA	N	8	4
Merrill Field, Anchorage, AK	Runway 25 / Taxiway K Intersection	MRI-25	AAL	Non Hub Primary	NA	N	8	3
Merrill Field, Anchorage, AK	Runway 5-23 / Taxiway G Intersection	MRI-26	AAL	Non Hub Primary	NA	N	7	3
Miami International Airport, FL	Runway 8L-26R / 12-30 / Taxiway N / M / M1 / Q1 / Q / P Intersection	MIA-HS5	ASO	Large	N/A	Y	9	3
Miami International Airport, FL	Runway 8R-26L / Taxiway M5 Intersection	MIA-02	ASO	Large	NA	Y	4	3
Miami International Airport, FL	Runway 30 / Taxiway T Intersection	MIA-38	ASO	Large	NA	Y	4	3
Miami International Airport, FL	Runway 9-27 / Runway T5 Intersection	MIA-HS4	ASO	Large	NA	Y	9	4
Midland International, TX	Runway 10 / Taxiway A Intersection	MAF-HS2	ASW	Small	NA	Y	9	6
Monroe Regional, LA	Taxiway A between Runway 14 / 18	MLU-HS1	ASW	Non Hub Primary	NA	Y	5	4
Montgomery Field, San Diego, CA	Runway 28L / Taxiway B Intersection	MYF-06	AWP	Reliever	Regional	N	6	4
Norman Y. Mineta San Jose International, CA	Runway 30R	SJC-28	AWP	Medium	NA	Y	3	2
Norman Y. Mineta San Jose International, CA	Runway 30L	SJC-29	AWP	Medium	NA	Y	5	3
North Las Vegas Airport, NV	Taxiway F / G at Runway 7 Approach End	VGT-HS1	AWP	Small	N/A	Y	42	12
North Las Vegas Airport, NV	Runway 12R/ Taxiway G	VGT-HS2	AWP	Non Hub Primary	National	Y	18	7
Orlando Sanford International, Orlando, FL	Runway 9R-27L / Runway 18-36 Intersection	SFB-05	ASO	Small	NA	Y	7	3
Orlando Sanford International, Orlando, FL	Runway 9R / Runway R Intersection	SFB-HS2	ASO	Small	NA	Y	9	3
Palm Beach International, West Palm Beach, FL	Runway 10R / Taxiway S intsersection	PBI-02	ASO	Medium	NA	Y	3	3
Palm Beach International, West Palm Beach, FL	Runway 10L / Taxiway L Intersection	PBI-HS1	ASO	Medium	NA	Y	9	5
Palm Springs International, CA	Runway 31R / Taxiway B Intersection	PSP-HS3	AWP	Small	NA	Y	7	3
Palo Alto Airport of Santa Clara CO, CA	Runway 31 / Taxiway A Intersection	PAO-01	AWP	Reliever	Regional	N	17	5
Philadelphia International Airport, PA	Runway 9L-27R / Taxiway D Intersection	PHL-01	AEA	Large	NA	Y	6	2
Philadelphia International Airport, PA	Runway 8 / Taxiway D Intersection	PHL-HS1	AEA	Large	NA	Y	6	2
Phoenix Deer Valley Airport, AZ	Runway 7R-25L / Taxiway B9 Intersection	DVT-HS2	AWP	Reliever	National	N	24	5
Phoenix Deer Valley Airport, AZ	Taxiway B5 between Taxiway B and Runway 7R-25L	DVT-HS1	AWP	Reliever	National	N	8	2
Phoenix Sky Harbor International, AZ	Runway 25R	PHX-02	AWP	Large	NA	Y	5	2
Phoenix Sky Harbor International, AZ	Taxiway F between G5 and G8	PHX-HS2	AWP	Large	NA	Y	3	3
Phoenix-Mesa Gateway Airport, Phoenix, AZ	Runway 12C	IWA-04	AWP	Small	NA	Y	5	2
Phoenix-Mesa Gateway Airport, Phoenix, AZ	Taxiway V / Taxiway B / Runway 12R Intersection	IWA-HS1	AWP	Small	NA	Y	9	3
Portland-Hillsboro Airport, OR	Taxiway A8 between Taxiway A and Runway 31L-13R	HIO-01	ANM	Reliever	National	N	7	3
Pueblo Memorial Airport, CO	Runway 8R-26L / Taxiway A2, Runway 17-35 / Taxiway A	PUB-15	ANM	Non Hub Primary	NA	Y	4	3
Quad City International, Moline, IL	Runway 13-31 / 9-27 / 5-23 Intersection	MLI-HS2	AGL	Small	NA	Y	11	7
Reid-Hillview of Santa Clara CO Airport, San Jose, CA	Taxiway E between Runway 13L and 13R	RHV-01	AWP	Reliever	Regional	N	8	4
Reid-Hillview of Santa Clara CO Airport, San Jose, CA	Runway 31R Approach / Taxiway A Intersection	RHV-HS2	AWP	Reliever	Regional	N	7	3
Reno Tahoe International Airport, NV	Runway 34R-16L / Taxiway J Intersection (east of runway)	RNO-11	AWP	Small	N/A	Y	5	5
Reno Tahoe International Airport, NV	Runway 34L Approach End	RNO-18	AWP	Small	N/A	Y	6	5

AirportName	Location	Location Identifier	Region	NPIAS Hub Classification	AssetCat	Part139	Cumulative RI (Pilot & Vehicle/Pedestrian Deviations)	Peak CY Annual RI (Pilot & Vehicle/Pedestrian Deviations)
Rocky Mountain Metro, Denver, CO	Runway 29R	BJC-02	ANM	Reliever	National	Y	6	2
Ronald Reagan Washington National Airport, Wash, DC	Runway 19 Approach End	DCA-04	AEA	Large	NA	Y	7	3
Salt Lake City International, UT	Runway 34R-16L / 14-32 / Taxiway Q Intersection	SLC-HS2	ANM	Large	N/A	Y	10	3
Salt Lake City International, UT	Runway 35L / Taxiway K1 Intersection	SLC-HS1	ANM	Large	NA	Y	8	3
San Antonio International, TX	Runway 12R / Taxiway K Intersection	SAT-HS3	ASW	Medium	NA	Y	11	6
San Antonio International, TX	Runway 4-22 / 12R-30L Intersection	SAT-HS1	ASW	Medium	NA	Y	14	6
San Francisco International, CA	Taxiway T between Runway 10L-28R / Runway 10R-28L	SFO-HS3	AWP	Large	NA	Y	11	4
Santa Barbara Muni, CA	Runway 15L / 15R Approach End	SBA-HS2	AWP	Small	NA	Y	8	3
Santa Monica Muni, CA	Runway 21 Approach End	SMO-02	AWP	Reliever	Regional	N	10	4
Sarasota/Bradenton International, FL	Runway 14 / 22 Intersection	SRQ-HS1	ASO	Small	NA	Y	16	7
Scholes International at Galveston Airport, TX	Runway 18 / Taxiway E Intersection	GLS-04	ASW	Reliever	Regional	N	4	3
Seattle-Tacoma International, WA	Runway 16L / Taxiway C Intersection	SEA-02	ANM	Large	NA	Y	4	3
Seattle-Tacoma International, WA	Runway 16L-34R / Taxiway Q Intersection	SEA-HS1	ANM	Large	NA	Y	7	2
Seattle-Tacoma International, WA	Taxiway F between Runway 34C-16C and Runway 34R-16L	SEA-HS2	ANM	Large	NA	Y	6	4
Teterboro Airport, NJ	Taxiway B between Runway 19 and 24	TEB-HS1	AEA	Reliever	National	Y	6	3
Tucson International, AZ	Runway 29R	TUS-03	AWP	Medium	NA	Y	6	3
Tucson International, AZ	Taxiway D between Runway 11L and 11R	TUS-HS2	AWP	Medium	NA	Y	24	8
Tulsa International, OK	Runway 8-26 / Taxiway K Intersection	TUL-HS1	ASW	Small	NA	Y	3	3
Van Nuys Airport, CA	Runway 16R / Taxiway F	VNY-13	AWP	Reliever	National	N	3	3
Van Nuys Airport, CA	Taxiway C and Approach Runway 16L	VNY-02	AWP	Reliever	National	N	7	3
Waco Regional, TX	Approach Ends of Runway 1 and 32	ACT-HS1	ASW	Non Hub Primary	NA	Y	1	1
William P Hobby Airport, Houston, TX	Runway 17 Taxiway E entrance	HOU-01	ASW	Medium	NA	Y	4	3
William P Hobby Airport, Houston, TX	Runway 12R/ Taxiway E entrance	HOU-HS2	ASW	Medium	NA	Y	9	4

Appendix B:

PRC Incursion History Reports

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7230
FAA Event Type	VPD
Event LCL Date	12-FEB-09
Event LCL Time	1036
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	VEH
Weather Condition	10 SM BKN042 19012G15KT

ANALYSIS DESCRIPTION

THE DRIVER OF A PICKUP TRUCK REQUESTED TO PROCEED FROM THE RAMP ON SOUTHWEST SIDE OF AIRPORT TO ANOTHER RAMP ON SOUTHEAST SIDE WITH A TUG TOWING AN AIRCRAFT IN TRAIL. INITIAL INSTRUCTION WAS GIVEN FOR DRIVER TO PROCEED VIA TAXIWAY ECHO, HOLD SHORT OF CHARLIE. SUBSEQUENTLY THE VEHICLE OPERATOR WITH TUG IN TRAIL WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L AT ECHO. THE PICKUP TRUCK OPERATOR READ BACK THE HOLD SHORT CORRECTLY. SUBSEQUENTLY THE PICKUP TRUCK WAS OBSERVED CROSSING THE HOLD SHORT LINE AT ECHO FOR 21L WITHOUT CLEARANCE AND CONFLICTING WITH A PIPER PA28A OVER LANDING THRESHOLD FOR 21L. THE VEHICLE OPERATOR WAS INSTRUCTED TO STOP AND THE PA28A LANDED NORMALLY THEN EXITED 21L AT TAXIWAY C5. HORIZONTAL DISTANCE FROM ECHO TO C5 IS 4,000 FEET, THE CLOSEST PROXIMITY REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7575
FAA Event Type	PD
Event LCL Date	06-JUN-09
Event LCL Time	1057
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C182
Aircraft 2 Type	C182
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR 20018G24KT

ANALYSIS DESCRIPTION

A CESSNA C182 WAS TAXIED FROM THE NORTH RAMP TO AZ AIR VIA TAXIWAY B3, CHARLIE AND TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY ECHO. THE C182 READ BACK THE INSTRUCTIONS TO INCLUDE HOLD SHORT. THE C182 THEN TURNED LEFT ONTO TAXIWAY C2 INSTEAD, WHICH IS PRIOR TO ECHO, AND GC INSTRUCTED THE PILOT TO HOLD STOP. THE C182 STOPPED BUT WITH NOSE OF AIRCRAFT OVER THE HOLD SHORT LINE THUS CONFLICTING WITH A CESSNA C182 ON DEPARTURE FROM A TOUCH AND GO SAME RUNWAY. THE DEPARTING C182 WAS ABEAM C4 INTERSECTION WHEN THE TAXIING C182 STOPPED OVER THE HOLD LINES AT C2. THE C182 ROTATED BETWEEN C4 AND C3. DISTANCE FROM C4 TO C2 IS APPROXIMATELY 2,200 FEET, THE CLOSEST HORIZONTAL PROXIMITY. HOLD LINE TO RUNWAY EDGE LINE DISTANCE IS 250 FEET.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11477
FAA Event Type	PD
Event LCL Date	07-JUL-12
Event LCL Time	0331
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	P28A
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	33008G16KT 10SM SCT120 34/00

ANALYSIS DESCRIPTION

PA28 REQUESTED TO TAXI FROM SOUTH RAMP PARKING TO FUEL. PA28 WAS INSTRUCTED TO TAXI VIA TAXIWAYS CHARLIE AND BRAVO 4, CROSS RUNWAY 30. WHILE ON TAXIWAY CHARLIE, PA 28 TURNED RIGHT ONTO TAXIWAY ECHO AND CROSSED THE HOLD SHORT BARS FOR RUNWAY 3R/21L. THE HOLD SHORT BARS ARE ESSENTIALLY AT THE EDGE OF TAXIWAY CHARLIE, SO AS SOON AS AN AIRCRAFT TURNS ONTO TAXIWAY ECHO, IT CROSSES THE HOLD SHORT BARS. GROUND CONTROL (GC) ADVISED PA28 TO HOLD POSITION AND ADVISED LOCAL CONTROL 1 (LC1) OF THE INCURSION. LC1 SENT TWO AIRCRAFT AROUND ON LESS THAN ONE MILE FINAL, R44 AND C172. NO LOSS OF SEPARATION. PA28 WAS SUBSEQUENTLY TAXIED ACROSS RUNWAY 21L AT TAXIWAYS ECHO AND DELTA 4.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11703
FAA Event Type	VPD
Event LCL Date	31-AUG-12
Event LCL Time	1634
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	N/A
Aircraft 2 Type	C172
Aircraft 1 FAR	VEH
Aircraft 2 FAR	91
Weather Condition	21010KT 10SM SCT055 BKN090 28/12 A3010

ANALYSIS DESCRIPTION

AIRPORT VEHICLE CALLED FROM THE TERMINAL TO GO TO LEGEND. GROUND CONTROL (GC) INSTRUCTED VEHICLE TO PROCEED ON TAXIWAY CHARLIE, CROSS RUNWAY 30 AND HOLD SHORT OF TAXIWAY CHARLIE 3. VEHICLE PAUSED AND ASKED FOR PROGRESSIVE. GC THEN REPEATED THE INSTRUCTIONS BUT DID NOT FINISH AND TOLD VEHICLE TO JUST HOLD POSITION. VEHICLE READ BACK WAS UNINTELLIGIBLE AND VEHICLE DID NOT MOVE. A FEW SECONDS LATER, VEHICLE STARTED ACROSS TAXIWAY CHARLIE ONTO TAXIWAY CHARLIE 2 AND CROSSED THE HOLD SHORT LINE FOR RUNWAY 30, AT WHICH TIME GC TOLD VEHICLE TO STOP, HOLD POSITION. VEHICLE STOPPED JUST PAST THE HOLD SHORT LINE BUT WELL CLEAR OF THE RUNWAY. C172 WAS ON TAKEOFF ROLL PASSING TAXIWAY CHARLIE 5.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11728
FAA Event Type	PD
Event LCL Date	08-SEP-12
Event LCL Time	1618
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	C177
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	04006KT 10SM SCT060 SCT100 30/08

ANALYSIS DESCRIPTION

C177 WAS ISSUED TAXI INSTRUCTIONS FROM THE SOUTH HANGERS TO RUNWAY 3R VIA TAXIWAY ECHO BY GROUND CONTROL (GC) FOR A PLANNED INTERSECTION DEPARTURE FROM TAXIWAY ECHO. TAXIWAY CONSTRUCTION AND CLOSURES PREVENTED FULL LENGTH DEPARTURES ON RUNWAY 3R. A HOLD SHORT OF RUNWAY 3R WAS ISSUED. READ BACK WAS CORRECT. C177 CONTINUED EAST ON TAXIWAY ECHO AND CROSSED THE RUNWAY 3R HOLD BARS WITHOUT AUTHORIZATION STOPPING SHORT OF THE RUNWAY EDGE LINE. ON TAXIWAY ECHO ON THE OPPOSITE (EAST) SIDE OF RUNWAY 3R, A C172 THAT HAD BEEN CLEARED FOR TAKEOFF, BUT YET TO COMMENCE DEPARTURE ROLL, WAS JUST CROSSING THE RUNWAY 3R HOLD BARS. THE LOCAL CONTROLLER (LC) CANCELLED THE TAKEOFF CLEARANCE OF THE C172 AFTER BEING ALERTED TO THE C177 THAT HAD ENTERED THE PROTECTED AREA OF RUNWAY 3R ON TAXIWAY ECHO FROM THE OPPOSITE (WEST) SIDE. AFTER INSTRUCTING THE C172 TO EXECUTE A 180 DEGREE TO FULLY EXIT THE RUNWAY, THE C177 WAS CLEARED FOR TAKEOFF. THIS EVENT OCCURRED IN HOT SPOT 2 AN IDENTIFIED COMPLEX INTERSECTION. THERE WERE NO OTHER CONFLICTS REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12847
FAA Event Type	PD
Event LCL Date	21-JUN-13
Event LCL Time	0915
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C175
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	12007KT 10SM CLR 26/M04 A3006

ANALYSIS DESCRIPTION

C175 REQUESTING REPOSITION FROM THE WEST TO THE EAST SIDE OF THE AIRPORT WAS INSTRUCTED TO TAXI TO RUNWAY 21L VIA TAXIWAYS ECHO, CHARLIE, CROSS RUNWAY 30. READ BACK WAS CORRECT. C175 WAS OBSERVED ON TAXIWAY ECHO SOUTHEAST BOUND CROSSING THE RUNWAY 21L HOLD BARS. GROUND CONTROL (GC) INSTRUCTED THE C175 TO HOLD POSITION AND THE AIRCRAFT STOPPED SHORT OF THE RUNWAY 21L EDGE LINE. N559ER/C172 ON ONE AND ONE-HALF MILE FINAL RUNWAY 21L WAS ISSUED GO AROUND INSTRUCTIONS. GC COORDINATED WITH LOCAL CONTROL (LC) AND INSTRUCTED THE C175 TO EXIT THE RUNWAY SAFETY AREA (RSA). THIS EVENT OCCURRED AT HOT SPOT 2.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13551
FAA Event Type	PD
Event LCL Date	18-NOV-13
Event LCL Time	1020
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C210
Aircraft 2 Type	R44 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM FEW050 08/01 A3024

ANALYSIS DESCRIPTION

GROUND CONTROL (GC) INSTRUCTED C210 TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY ECHO. READ BACK WAS CORRECT. C210 THEN CROSSED THE HOLD LINE WITHOUT A CLEARANCE. R44 WAS ON SHORT FINAL AND INSTRUCTED TO LAND ON THE NUMBERS ONLY. THIS EVENT OCCURRED AT HOT SPOT 2.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16866
FAA Event Type	PD
Event LCL Date	11-NOV-15
Event LCL Time	1418
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	C172
Aircraft 2 Type	P28A
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	33007KT 10SM CLR 11/M08 A3023

ANALYSIS DESCRIPTION

A/C 1/C172 WAS INSTRUCTED TO TAXI VIA TAXIWAYS ECHO AND DELTA, CROSS RUNWAY 3R, HOLD SHORT OF RUNWAY 30. READ BACK WAS CORRECT. A/C 1 PROCEEDED SOUTHEAST ON TAXIWAY ECHO THEN TURNED ONTO TAXIWAY CHARLIE 2 (HOT SPOT 2) AND CROSSED RUNWAY 30 ON RUNWAY 3R. A/C 2/P28A HAD LANDED RUNWAY 30 AND WAS TAXIING NEAR TAXIWAY F3 TOWARDS RUNWAY 3R WHEN A/C1 CROSSED THE INTERSECTION. CLOSEST PROXIMITY APPROXIMATELY 750 FEET.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	3084
FAA Event Type	PD
Event LCL Date	11-MAR-05
Event LCL Time	1404
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	BE36
Aircraft 2 Type	SR22
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	N/A

ANALYSIS DESCRIPTION

ATCT INSTRUCTED A BEECH BE36 TO TAXI TO THE BOTTLENECK AREA VIA TAXIWAY B4. THE BE36 TAXIED VIA TAXIWAY A1 CROSSING THE DEPARTURE END OF RUNWAY 21R WITHOUT CLEARANCE AND CONFLICTING WITH A CIRRUS SR22 ON DEPARTURE ROLL RUNWAY 21R. CLOSET HORIZONTAL SEPARATION REPORTED WAS 2,700 FEET, THE DISTANCE AS THE BE36 WAS EXITING THE RUNWAY VIA TAXIWAY A1.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	6674
FAA Event Type	PD
Event LCL Date	14-AUG-08
Event LCL Time	0836
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	P28R
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	N/A

ANALYSIS DESCRIPTION

A VANS RV9 (HXB EXPERIMENTAL) WAS INSTRUCTED TO TAXI VIA B4, C4, AND TO HOLD SHORT OF RUNWAY 21L AT C4. THE RV9 PILOT READ BACK INSTRUCTIONS CORRECTLY THE SECOND TIME AS REQUESTED BY GROUND CONTROL (GC). THE RV9 TAXIED VIA A1 AND CROSSED RUNWAY 21R (DEPARTURE END) WITHOUT CLEARANCE AND CONFLICTED WITH A PIPER PA28R BASE LEG TO FINAL SAME RUNWAY. THE PA28R WAS LESS THAN A MILE FINAL WHEN ISSUED A GO AROUND BETWEEN ONE QUARTER AND ONE HALF MILE BASE LEG TO AVOID LOSS OF SEPARATION. DISTANCE FROM APPROACH END OF RUNWAY 21R TO A1 IS MORE THAN 4,000 FEET.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7366
FAA Event Type	PD
Event LCL Date	30-MAR-09
Event LCL Time	0850
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	M20P
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	10 SM CLR 35010KT

ANALYSIS DESCRIPTION

A MOONEY M20P, TAXIING FROM BOTTLENECK RAMP NEAR TAXIWAY ALPHA TO RUNWAY 30, WAS INSTRUCTED TO PROCEED VIA TAXIWAY B4, C4, TO HOLD SHORT OF RUNWAY 21L. THE M20P PILOT READ BACK THE HOLD SHORT FOR 21L BUT REST OF TRANSMISSION WAS GARBLED. THE M20P TAXIED VIA A1 INSTEAD OF CONTINUING ON B4 AND CROSSED THE APPROACH END OF RUNWAY 3L WITHOUT CLEARANCE. NO CONFLICTS REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7945
FAA Event Type	PD
Event LCL Date	22-SEP-09
Event LCL Time	1141
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	C182
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	10 SM CLR 02010G18KT

ANALYSIS DESCRIPTION

A CESSNA C182 WAS INSTRUCTED TO TAXI FROM BOTTLENECK RAMP TO RUNWAY 3L VIA TAXIWAY A1. THE PILOT READ BACK TAXI INSTRUCTIONS THEN ASKED GROUND CONTROL (GC) TO REPEAT THEM. GC REPLIED USING CALL SIGN AND THAT THEY WOULD BE DEPARTING RUNWAY 3L, THE RUNWAY DIRECTLY IN FRONT OF THEM AND TO HOLD SHORT OF RUNWAY 3L AT A1. THE C182 PILOT READ BACK THE INSTRUCTIONS WITHOUT CALL SIGN. GC REQUESTED THE C182 TO READ BACK THE HOLD SHORT WITH CALL SIGN, WHICH PILOT DID CORRECTLY. THE C182 THEN CROSSED RUNWAY 3L AT A1 WITHOUT CLEARANCE AND WAS INSTRUCTED TO HOLD POSITION DUE TO TRAFFIC ON TAXIWAY CHARLIE. NO CONFLICTS REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	8041
FAA Event Type	VPD
Event LCL Date	21-OCT-09
Event LCL Time	1450
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	N/A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	VEH
Weather Condition	10 SM CLR 330O9KT

ANALYSIS DESCRIPTION

A TRUCK (FORD EXPLORER) WAS INSTRUCTED TO PROCEED TO THE BOTTLENECK RAMP VIA TAXIWAY B4. THE TRUCK PROCEEDED VIA A1 AND ENTERED DEPARTURE END OF RUNWAY 21R WITHOUT CLEARANCE. NO CONFLICTS REPORTED. THE DRIVER WAS LOOKING FOR FOD AND BELIEVED THEY WERE ON B4 RATHER THAN A1 AND WAS NOT AWARE OF THAT UNTIL CROSSING THE RUNWAY.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	8106
FAA Event Type	PD
Event LCL Date	17-NOV-09
Event LCL Time	1421
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	C152
Aircraft 2 Type	C152
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR VRB03KT

ANALYSIS DESCRIPTION

A CESSNA C152 WAS INSTRUCTED TO TAXI TO RUNWAY 21R VIA TAXIWAY ALPHA. THE PILOT ACKNOWLEDGED THE INSTRUCTIONS BUT TAXIED STRAIGHT AHEAD ONTO TAXIWAY A1 AND CROSSED THE HOLD LINES FOR RUNWAY 21R AT DEPARTURE END. GROUND CONTROL (GC) OBSERVED THE C152 CROSS THE HOLD LINES AND INSTRUCTED THE PILOT TO STOP BUT THE C152 CONTINUED UNTIL HE HAD ENTERED THE RUNWAY BEFORE STOPPING. GC INSTRUCTED THE C152 TO CONTINUE TO THE OTHER SIDE OF THE RUNWAY SINCE IT WOULD BE MORE EXPEDITIOUS TO CLEAR. AS THE C152 WAS EXITING THE RUNWAY A DEPARTING C152 WAS ROTATING ON RUNWAY 21R. CLOSEST PROXIMITY REPORTED WAS 1,800 FEET, THE ROTATION POINT OF THE DEPARTING C152 AS THE TAXIING C152 EXITED AT DEPARTURE END. THE AIRBORNE C152 DID NOT OVERFLY THE TAXIING C152.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	10057
FAA Event Type	VPD
Event LCL Date	16-JUL-11
Event LCL Time	1018
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	R22 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	VEH
Weather Condition	10 SM CLR 10006KT

ANALYSIS DESCRIPTION

AN AIRPORT TENANT FUEL VEHICLE REQUESTED TO PROCEED FROM THE BOTTLENECK HANGARS TO RIDDLE RAMP. GROUND (GC) INSTRUCTED THE VEHICLE OPERATOR TO PROCEED VIA TAXIWAY BRAVO 4 AND HOLD SHORT OF CHARLIE. DRIVER READ BACK “PROCEED VIA CHARLIE, HOLD SHORT OF DELTA”. GC INSTRUCTED THE DRIVER TO HOLD SHORT OF CHARLIE WHICH WAS READ BACK. THE VEHICLE PROCEEDED ONTO ALPHA 1 AND CROSSED THE DEPARTURE END OF RUNWAY 21R WITHOUT CLEARANCE AND HELD SHORT OF CHARLIE ON ALPHA 1. LOCAL 1 (LC1) ISSUED A GO AROUND TO A ROBINSON R22 (HELICOPTER) ON A RIGHT BASE TO RUNWAY 21R. THE R22 WAS ISSUED A GO AROUND AT ONE (1) MILE FINAL. NO LOSS OF SEPARATION REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11854
FAA Event Type	PD
Event LCL Date	14-OCT-12
Event LCL Time	0815
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	33005KT 10SM CLR 11/04 A3031

ANALYSIS DESCRIPTION

PA28 CALLED GROUND CONTROL (GC) AT THE HANGAR AREA ON THE WEST SIDE OF THE AIRPORT (BOTTLENECK TERM USED BY PILOT) FOR TAXI INSTRUCTIONS TO THE SOUTH. GC ISSUED THE PA28 RUNWAY 21R VIA TAXIWAY ALPHA. READ BACK WAS CORRECT. WHEN THE PA28 REACHED TAXIWAY ALPHA A LEFT TURN WAS NOT MADE AND PA28 CONTINUED STRAIGHT AHEAD CROSSING THE DEPARTURE END OF RUNWAY 21R. GC OBSERVED THE PA28 NEARING THE EAST SIDE OF RUNWAY 21R AND AMENDED THE TAXI INSTRUCTIONS TO RUNWAY 21R VIA TAXIWAYS ALPHA 1, CHARLIE, BRAVO 4 AND ALPHA. THIS EVENT OCCURRED AT HOT SPOT 3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12552
FAA Event Type	PD
Event LCL Date	19-APR-13
Event LCL Time	1141
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	HXA (EXP)
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 17/M17 A302

ANALYSIS DESCRIPTION

EXP REQUESTING TRAFFIC PATTERN WORK WAS ISSUED TAXI INSTRUCTIONS FROM THE NORTH HANGERS ADJACENT TAXIWAY BRAVO 4 TO RUNWAY 21R VIA PARALLEL TAXIWAY ALPHA. GROUND CONTROL (GC) TWICE ATTEMPTED TO SOLICIT A PILOT READ BACK OF RUNWAY ASSIGNMENT AND TAXI ROUTE AFTER THIS INFORMATION WAS NOT READ BACK. EXP PILOT STATED HE WAS UNFAMILIAR WITH THE AIRPORT. GC PROVIDED PROGRESSIVE TAXI AND INSTRUCTED THE EXP TO TURN LEFT ON TAXIWAY ALPHA HOWEVER THE AIRCRAFT RESPONDED WITH "ROGER" AND CONTINUED STRAIGHT AHEAD TOWARDS RUNWAY 21R ON TAXIWAY ALPHA 1. EXP WAS INSTRUCTED TWICE TO STOP HOWEVER THE AIRCRAFT CROSSED THE RUNWAY 21R HOLD BAR ON TAXIWAY ALPHA 1 WITHOUT AUTHORIZATION, STOPPING PRIOR TO THE RUNWAY EDGE LINE. TAXIWAY ALPHA 1 CROSSES RUNWAY 21R AT THE DEPARTURE END. C172 HAD JUST COMPLETED A TOUCH-AND-GO ON RUNWAY 21R AND WAS AT THE DEPARTURE END AIRBORNE WHEN THE EXP CROSSED THE RUNWAY 21R HOLD BAR ON TAXIWAY ALPHA 1. THERE WAS NO OVERFLIGHT. THIS EVENT OCCURRED AT HOT SPOT 3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13206
FAA Event Type	PD
Event LCL Date	02-SEP-13
Event LCL Time	1124
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	VRB04KT 10SM SCT050TCU 27/16 A3020

ANALYSIS DESCRIPTION

HXB WAS TAXIED TO RUNWAY 3L VIA TAXIWAY ALPHA FROM THE BOTTLENECK HANGARS. HXB TURNED ON TO TAXIWAY ALPHA 1 AND CROSSED RUNWAY 3L WITHOUT A CLEARANCE. NO CONFLICTS.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13908
FAA Event Type	VPD
Event LCL Date	22-FEB-14
Event LCL Time	1610
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	N/A
Aircraft 2 Type	PA32
Aircraft 1 FAR	VEH
Aircraft 2 FAR	91
Weather Condition	22007KT 10SM CLR 17/M11 A2996

ANALYSIS DESCRIPTION

AIRPORT VEHICLE WAS HOLDING SHORT OF RUNWAY 21R ON TAXIWAY ALPHA 1 AND REQUESTED ACCESS TO RUNWAY 21R. LOCAL CONTROL (LC) ACKNOWLEDGED THE VEHICLE'S REQUEST BY STATING "ROGER" BUT GAVE NO INSTRUCTION TO CROSS THE RUNWAY. VEHICLE REPLIED THEY WERE PROCEEDING ONTO RUNWAY 21R AND CROSSED THE HOLD LINE. LC ATTEMPTED TO STOP THE VEHICLE WITHOUT SUCCESS AND INSTRUCTED THE VEHICLE TO CROSS RUNWAY 21R. LC INSTRUCTED PA32 ON A HALF MILE FINAL TO GO AROUND. THIS EVENT OCCURRED AT HOT SPOT 3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15294
FAA Event Type	PD
Event LCL Date	11-DEC-14
Event LCL Time	1513
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	VRB03KT 10SM CLR 03/01 A3014

ANALYSIS DESCRIPTION

PA28 REQUESTED RELOCATION FROM THE WEST SIDE OF THE AIRPORT TO THE EAST SIDE. GROUND CONTROL (GC) INSTRUCTED THE PILOT TO TAXI VIA TAXIWAY BRAVO 4 HOLD SHORT OF RUNWAY 21L AT CHARLIE 4. READ BACK WAS CORRECT. PA28 THEN TAXIED ONTO TAXIWAY ALPHA 1 AND CROSSED THE HOLD BARS FOR RUNWAY 21R. NO CONFLICTS. THIS EVENT OCCURRED AT HOT SPOT 3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16093
FAA Event Type	PD
Event LCL Date	07-JUN-15
Event LCL Time	0708
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	RV9
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 14/M01 A3007

ANALYSIS DESCRIPTION

RV9 WAS INSTRUCTED TO TAXI TO RUNWAY 3L VIA TAXIWAY ALPHA 1. READ BACK WAS CORRECT. RV9 CROSSED RUNWAY 3L ON TAXIWAY ALPHA 1. NO CONFLICTS. THIS EVENT OCCURRED AT HOT SPOT 3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	17708
FAA Event Type	PD
Event LCL Date	18-MAY-16
Event LCL Time	0841
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	B190
Aircraft 2 Type	
Aircraft 1 FAR	135
Aircraft 2 FAR	N/A
Weather Condition	VRB05KT 10SM 16/05 A3008

ANALYSIS DESCRIPTION

A/C 1/B190 WAS INSTRUCTED TO TAXI TO RUNWAY 21L VIA CHARLIE AND HOLD SHORT OF RUNWAY 12. THE PILOT READ BACK WAS CORRECT. THE B190 CROSSED THE RUNWAY 12 HOLD BARS. NO CONFLICTS. HOT SPOT #3.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	6909
FAA Event Type	PD
Event LCL Date	21-OCT-08
Event LCL Time	0840
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C182
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR CALM

ANALYSIS DESCRIPTION

A CESSNA C182 WAS INSTRUCTED TO HOLD SHORT RUNWAY 21L VIA TAXIWAY C4. THE C182 PILOT READ BACK THE HOLD SHORT BUT ROLLED PAST THE HOLD BARS AS A CESSNA C172 WAS DEPARTING RUNWAY 21L FULL LENGTH. THE C182 DID NOT ENTER THE RUNWAY. CLOSEST HORIZONTAL PROXIMITY WAS 265 FEET AS THE C172 WAS ROTATING PRIOR TO C4 AND PAST C4 AT APPROXIMATELY 30 FEET VERTICAL.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7624
FAA Event Type	PD
Event LCL Date	23-JUN-09
Event LCL Time	0746
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	HXC (EXP)
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	10 SM CLR CALM

ANALYSIS DESCRIPTION

A HARMON ROCKET II (HXC EXPERIMENTAL) WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY C4. THE PILOT READ BACK “HOLD SHORT 21L, CHARLIE 4” BUT DID NOT USE CALL SIGN. TRAINING WAS IN PROGRESS ON GROUND CONTROL (GC) POSITION AND CONTROLLER ADVISED PILOT THEY NEEDED TO READ BACK CALL SIGN WITH THE HOLD SHORT AND RECEIVED NO REPLY. GC AGAIN TOLD THE PILOT TO HOLD SHORT AND STILL NO REPLY. THE AIRCRAFT WAS NOT STOPPING AND THE PILOT WAS TOLD A THIRD TIME TO HOLD. PILOT RESPONDED BUT STOPPED WITH ITS TAIL WHEEL OVER THE HOLD LINE. NO CONFLICTS REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7951
FAA Event Type	PD
Event LCL Date	24-SEP-09
Event LCL Time	0912
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	S1B2
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR CALM

ANALYSIS DESCRIPTION

A ARCTIC S1B2,WHILE TAXIING ON TAXIWAY CHARLIE, WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L ON TAXIWAY C4. THE S1B2 PILOT READ BACK THE INSTRUCTIONS TO INCLUDED HOLD SHORT. SUBSEQUENTLY THE S1B2 CROSSED THE HOLD LINE ON C4 FOR RUNWAY 21L WITHOUT CLEARANCE AND WAS INSTRUCTED TO STOP. A CESSNA C172, LESS THAN A MILE FINAL SAME RUNWAY, WAS ISSUED A GO AROUND AT THREE QUARTER (.75) MILE FINAL. THE S1B2 STOPPED PRIOR TO RUNWAY EDGE LINE.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	7963
FAA Event Type	PD
Event LCL Date	26-SEP-09
Event LCL Time	1203
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	BL8
Aircraft 2 Type	P28A
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR 06006KT

ANALYSIS DESCRIPTION

A BELLANCA BL8 WAS HOLDING SHORT OF TAXIWAY C4 ON CHARLIE WHEN GROUND CONTROL (GC) INSTRUCTED THE PILOT TO HOLD SHORT OF RUNWAY 21L AT C4. THE BL8 PILOT READ BACK THE INSTRUCTIONS CORRECTLY. THE BL8 THEN CROSSED THE HOLD LINE ON C4 WITHOUT CLEARANCE AND CONFLICTED WITH A PIPER PA28A ON DEPARTURE SAME RUNWAY. THE PA28A WAS ROTATING NEAR C5 AND GC INSTRUCTED THE BL8 TO HOLD POSITION. THE BL8 DID NOT ENTER THE RUNWAY. CLOSEST HORIZONTAL PROXIMITY REPORTED WAS 100 FEET, POSITION OF BL8 AS THE PA28A PASSED C4.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	8097
FAA Event Type	PD
Event LCL Date	14-NOV-09
Event LCL Time	0812
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	N/A
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	10 SM SCT055 19005KT

ANALYSIS DESCRIPTION

A VANS RV8 (HXB EXPERIMENTAL) WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L ON TAXIWAY C4. THE PILOT READ BACK THE HOLD SHORT INSTRUCTIONS THEN PROCEEDED TO CROSS THE HOLD LINES WITHOUT CLEARANCE. GROUND CONTROL (GC) INSTRUCTED THE RV8 TO HOLD POSITION WHICH THE PILOT DID SLIGHTLY PAST THE HOLD LINES ON C4. NO CONFLICTS REPORTED.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	9124
FAA Event Type	PD
Event LCL Date	23-SEP-10
Event LCL Time	1107
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C185
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	10 SM CLR 34004KT

ANALYSIS DESCRIPTION

A CESSNA C185 WAS ISSUED RUNWAY 21L FOR DEPARTURE WITH A PORTION OF TAXIWAY CHARLIE CLOSED. THE C185 WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L ON TAXIWAY CHARLIE 4. THE PILOT READ BACK THE INSTRUCTIONS CORRECTLY. SUBSEQUENTLY THE C185 CROSSED THE HOLD LINE OF CHARLIE 4 AND STOPPED BETWEEN THE HOLD LINE AND RUNWAY THUS CONFLICTING WITH A C172 ON LANDING ROLLOUT SAME RUNWAY. DISTANCE FROM HOLD LINE TO RUNWAY EDGE IS APPROXIMATELY 175 FEET.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11816
FAA Event Type	PD
Event LCL Date	02-OCT-12
Event LCL Time	1303
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	C208
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	23011G21KT 10SM CLR 30/M03 A3012

ANALYSIS DESCRIPTION

C208 REQUESTED TAXI CLEARANCE FROM LEGENDS (TRANSIENT PARKING AREA AT SOUTH END OF AIRPORT) FOR A DEPARTURE TO THE EAST. GROUND CONTROL (GC) INSTRUCTED THE C208 TO TAXI TO RUNWAY 21L VIA TAXIWAY DELTA AND TO CROSS RUNWAY 30. READ BACK WAS CORRECT. AFTER CROSSING RUNWAY 30 THE C208 REQUESTED TO DEPART FROM INTERSECTION TAXIWAY DELTA 4. GC AMENDED THE ROUTE VIA TAXIWAYS DELTA, DELTA 4. READ BACK WAS CORRECT. SHORTLY THEREAFTER THE C208 BROADCASTED ON GC FREQUENCY THAT HE WAS READY FOR TAKE-OFF. GC DID NOT ACKNOWLEDGE THE TRANSMISSION BECAUSE OF INTER-FACILITY COORDINATION WITH LOCAL CONTROL (LC). C208 MADE NO OTHER TRANSMISSIONS ON GC AS THE AIRCRAFT ROLLED ACROSS THE HOLD SHORT LINE ON TAXIWAY DELTA 4. LOCAL CONTROL 1 (LC 1) CANCELLED THE TAKEOFF CLEARANCE FOR TRAFFIC A C172 COMMENCING A DEPARTURE FOLLOWING A TOUCH AND GO LANDING. C208 STOPPED WITH ONE HALF OF THE AIRCRAFT ACROSS THE HOLD LINE. C172 STOPPED ON RUNWAY 21L AND WAS INSTRUCTED BY LC 1 TO REMAIN ON THE RUNWAY. LC 1 THEN CLEARED THE C208 FOR TAKE-OFF ON RUNWAY 21L FROM TAXIWAY DELTA 4 AS THE C172 HELD POSITION ON THE RUNWAY IN THE VICINITY OF TAXIWAY DELTA 5. THE DISTANCE BETWEEN TAXIWAYS DELTA 4 AND DELTA 5 REPORTED BY THE FACILITY IS 1,450 FEET. THIS EVENT OCCURRED AT HOT SPOT 5.

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15138
FAA Event Type	PD
Event LCL Date	08-NOV-14
Event LCL Time	0947
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C172
Aircraft 2 Type	P28A
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	31004KT 10SM CLR 16/M06 A3032

ANALYSIS DESCRIPTION

PA28 LANDED RUNWAY 21L AND EXITED AT TAXIWAY DELTA 4. WITH AN UNOBSTRUCTED TAXI ROUTE THE PA28 STOPPED PRIOR TO CROSSING THE HOLD LINE. LOCAL CONTROL (LC) AND GROUND CONTROL UNSUCCESSFULLY ATTEMPTED TO CONTACT PA28 AND GET THE AIRCRAFT TO CLEAR THE RUNWAY SAFETY AREA. C172 WAS CLEARED FOR A TOUCH AND GO RUNWAY 21L. LC TWICE INSTRUCTED C172 TO GO AROUND, WITHOUT ACKNOWLEDGEMENT. C172 EXECUTED A TOUCH AND GO WITH PA28 STILL IN THE RUNWAY SAFETY AREA. CLOSEST PROXIMITY WAS 700 FEET. THIS EVENT OCCURRED AT HOT SPOT 4.

Appendix C:

Prescott Regional Airport – FAA Operational Assessment Report (June 2011)

Prescott Regional Airport/Ernest A. Love Field (PRC)
Operational Assessment Report

Federal Aviation Administration

June 2011

Preliminary Safety Analysis of Existing PRC Conditions and Potential Airfield Changes

Signature Page

_____ _____

Name Date
Title, Organization (xxx-x)

Executive Summary

A workgroup conducted an operational assessment of Prescott Regional Airport/Ernest A. Love Field (PRC) at the Airport Facilities Tower Integration Laboratory (AFTIL) in Atlantic City, NJ on June 7- 9, 2011. The purpose of the assessment was to:

- Establish a baseline of existing PRC conditions, focusing on Air Traffic Control (ATC) capabilities, limitations, and hazards.
- Discuss and explore options for a series of potential phased airfield changes, which are in part driven by design requirements in AC 150/5300-13, Airport Design Change 15, and Order 5300.1F, Modifications to Agency Airport Design, Construction, and Equipment Standards.
- Determine the impact the changes would have on the baseline and on the airport as each phase is implemented.

Based on the PRC operational assessment, the workgroup concluded that controller visibility of most airport surface areas is not adequate from the existing ATCT. Existing controls allow the airport to operate at an acceptable level of risk under current conditions. However, if airfield changes are made, beyond RSA Compliance construction (Phase 1), that result in worse surface area visibility from the ATCT, the existing controls would not be adequate to maintain an acceptable level of risk.

During a three-day meeting, workgroup participants approached the operational assessment using a Preliminary Safety Analysis process. The workgroup:

- Listed observations, issues, concerns, and characteristics based on existing PRC conditions, and on future conditions as potential airfield changes are implemented. This exercise was enhanced by access to the AFTIL, which allowed workgroup participants to view, analyze and discuss the simulated effects of the changes on the airport.
- Performed preliminary Safety Risk Management (SRM) based on partial airfield changes, with analysis conducted by workgroup participants who represented PRC and some FAA organizations. Actual SRM is based on a final proposed change and conducted by a panel comprised of all stakeholders and representatives affected by the change.

The workgroup identified the following ATC visibility issues, which are exacerbated by these potential airfield changes: a Runway 3R/21L shift (Phase 1), a Runway 3R/21L extension (Phase 2) and taxiway reconfiguration that includes constructing high-speed taxiways.

- Limited controller visibility of runways and taxiways.
  - Line-of-sight from the Airport Traffic Control Tower (ATCT) to runways and taxiways, exacerbated by runway shift, runway extensions, taxiway changes, and new buildings.
  - Runway threshold distance from ATCT, exacerbated by runway extensions.
  - Terrain and obstacles impact controller view, improved by removal of earth mounds and trees, but exacerbated by proposed future locations of buildings.
  - Runway sloping away from the ATCT impacts controller visibility of runway thresholds, exacerbated by runway extensions.
  - Level sight lines and low angle-of-view from the ATCT impact controller view of runways and taxiways, exacerbated by runway and taxiway changes.
  - Almost constant controller use of binoculars to view runways, thresholds and taxiways, exacerbated by runway extensions and taxiway changes.

- Impacted controller visibility of airborne aircraft.
  - Terrain blocks controller view of aircraft on approach and departure.
  - Clutter and aircraft flying without lights illuminated impact controller view of aircraft.
  - Hills and buildings obstruct continuous controller view of airborne aircraft.
  - Parallax impacts controller view of aircraft on approach and departure.
  - Almost constant controller use of binoculars to view aircraft on approach and departure.

- Intermittent controller visibility of aircraft on airport surface.
  - Buildings, high grass, hills, and gullies obstruct continuous controller visibility of aircraft on airport surface.
  - Level sight lines and low angle-of-view from the ATCT impact controller view of aircraft on runways and taxiways, including during opposite direction operations, exacerbated by runway and taxiway changes.
  - Runway/taxiway pavement color is similar to its surroundings, which impacts controller ability to discern whether aircraft is on pavement or in the adjacent grass and is exacerbated by runway and taxiway changes.
  - Almost constant controller use of binoculars to view aircraft on the airport surface, exacerbated by the runway shift and extension along with taxiway changes.

During the preliminary SRM, the workgroup analyzed the potential Phase 1 change. The change, which was 30% complete, is a 401-foot shift of Runway 3R/21L and a 150-foot shift of Runway 12/30, along with associated Runway Safety Area (RSA), taxiway, shoulder, and signage modifications. The workgroup identified five hazards associated with construction:

- PRC-2011-01 Increased opportunity for Foreign Object Debris (FOD).
- PRC-2011-02 Loss of Controller Situational Awareness.
- PRC-2011-03 Loss of Pilot Situational Awareness.
- PRC-2011-04 Loss of Vehicle Operator Situational Awareness.
- PRCI-2011-05 Increased Wildlife Activity.

The workgroup found Hazard 01 to have medium risk and Hazards 02 – 05 to have low risk. If the SRM had not been preliminary, these risk levels would result in the change being introduced into the National Airspace System (NAS) with an acceptable level of risk as defined in the ATO Safety Management System (SMS) Manual, Version 2.1.

TABLE of CONTENTS

Signature Page **2**
Executive Summary **3**
List of Figures **5**
Introduction **6**
Workgroup 6
Exclusions 7
PRC Overview **8**
Runway Information 13
Existing Conditions **15**
All Runways (3R/21L, 3L/21R, 12/30) 15
Runways 21L/R 16
Runway 12 17
Runways 3L/R 18
Runway 30 19
Mitigations 20
Hot Spots 20
Ground Control Hazards 21
Potential Airfield Changes **23**
Phase 1: Shift Runway 3R/21L (401 Feet) 23
Phase 2: Extend Runway 3R/21L 23
Preliminary SRM of Potential Phase 1 Change **25**
Acronyms **32**

List of Figures

Figure 1: Workgroup Participants, Observers, and Facilitation 6
Figure 2: Percentage of PRC Runway Use 8
Figure 3: PRC Diagram 9
Figure 4: PRC Airport Master Record 10
Figure 5: Hazard List with Risk Level 25
Figure 6: Current/Initial Risk Summary 26
Figure 7: Preliminary Hazard Analysis Matrix 27

Introduction

This report documents a PRC operational assessment conducted by a workgroup at the AFTIL on June 7 – 9, 2011. Workgroup participants established a baseline of existing conditions, focusing on ATC capabilities, limitations, and hazards; explored options for phased airfield changes; and determined the impact of those changes on the existing conditions baseline and on the airport after each phase is implemented.

Workgroup

The Operational Assessment workgroup consisted of representatives from PRC ATC, PRC management, Operations Support group (OSG), Planning & Requirements (P&R), and Runway Safety. Table 4 lists workgroup participants and observers along with the Western Service Center (WSC) Quality Control Group (QCG) representatives who facilitated the workgroup meeting.

Name	Position/Organization	Phone	E-mail
Paul Winski	Air Traffic Manager, PRC	(928) 445-2160, ext. 161	paul.winski@faa.com
Glenn Higa	Controller, PRC	(928) 445-2160	glenn.y.higa@faa.gov
Mary Catherine Tennant	Airport Management Analyst, PRC	(928) 777-1152	mc.tennant@prescott-az.gov
Larry Crowley	WSA P&R	(425) 203-4676	larry.crowley@faa.gov
Pam Sheeler	WSC OSG	(425) 203-4527	pamela.b.sheeler@faa.gov
John O'Leary	Runway Safety ATC Specialist, Western Pacific Region	(310) 725-6684	john.ctr.o'leary@faa.gov

Observers

Name	Position/Organization	Phone	E-mail
John Pallante	Subject Matter Expert, AFTIL	(609) 485-8452	john.ctr.pallante@faa.gov
Joe Sims	Control Tower Siting Specialist, AFTIL	(609) 485-8448	joe.ctr.sims@faa.gov
Ron Mace	Simulation Specialist, AFTIL	(609) 485-4433	ronald.ctr.mace@faa.gov

Facilitation

Name	Organization	Phone	E-mail
Mike Tarrant	WSC QCG – NISC III	(425) 203-4366	mike.ctr.tarrant@faa.gov
Steve Szehner	WSC QCG – NISC III	(425) 203-4347	stephen.ctr.szehner@faa.gov

Figure 1: Workgroup Participants, Observers, and Facilitation

Exclusions

- The proposed Crash Fire Rescue building was not evaluated due to conflicting information on building height and dimensions.
- The hangars adjacent to Taxiway Foxtrot, between Foxtrot 1 and Foxtrot 2, were not evaluated due to insufficient information on dimensions, coordinates, and heights.
- The SRM process was used to evaluate items of concern. Not every item of concern could be fully evaluated due to a lack of specific information.

PRC Overview

PRC is a commercial service-non-primary, public-use airport operated by the City of Prescott, AZ. Located about 100 miles north of Phoenix, PRC handles General Aviation (GA) fixed wing and helicopter flights along with scheduled commercial service by Great Lakes Airlines. GA operations include flight school, charter, rental, emergency medical, air cargo, and U.S. Forest Service operations. Most PRC traffic is Embry-Riddle Aeronautical University, Guidance Helicopters, and North-Aire training flights.

PRC has an FAA ATCT, which operates daily from 6 a.m. to 10 p.m. local time. Daily aircraft operations average about 650.

PRC has three runways: 3R/21L, 3L/21R, and 12/30. Taxiways D and C are the primary taxiways, running parallel along both sides of Runway 21L/3R. Taxiway A runs parallel to Runway 21R/3L. Taxiways E and F are on both sides of Runway 30/12.

Figure 2 shows the percentage of use for each runway. Figure 3 is the PRC diagram. Figure 4 is the PRC airport master record.

Runway	Percentage of Use
21L/R	70
12	10
3L/R	10
30	10

Figure 2: Percentage of PRC Runway Use

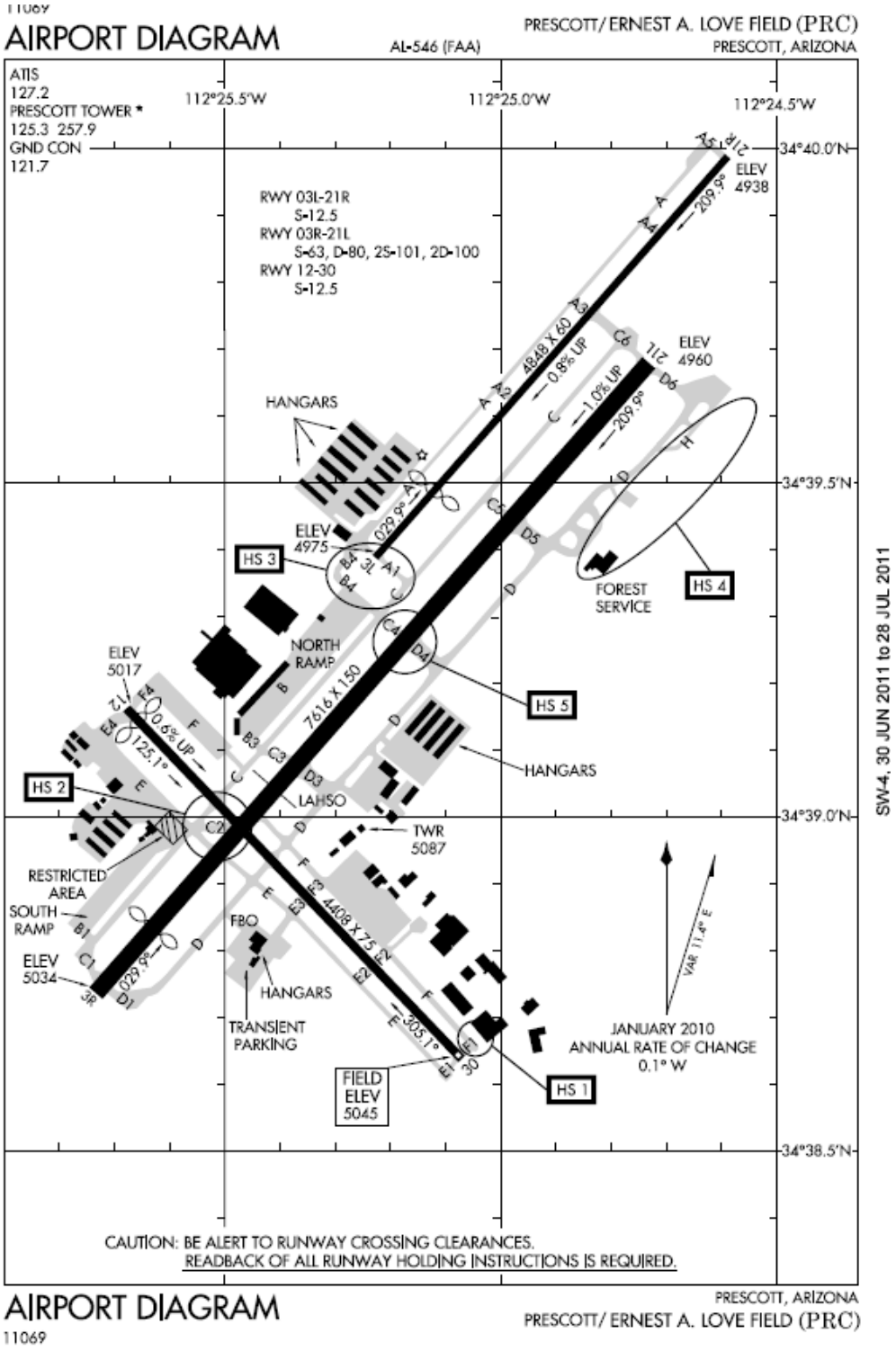


Figure 3: PRC Diagram

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 07/01/2011
AFD EFF 06/30/2011
Form Approved OMB 2120-0015

> 1 ASSOC CITY: PRESCOTT
> 2 AIRPORT NAME: ERNEST A. LOVE FIELD
3 CBD TO AIRPORT (NM): 07 N
4 STATE: AZ
6 REGION/ADO: AWP/LAX
LOC ID: PRC
5 COUNTY: YAVAPAI AZ
7 SECT AERO CHT: PHOENIX
FAA SITE NR: 00763.*A

GENERAL

10 OWNERSHIP: PU
> 11 OWNER: CITY OF PRESCOTT
> 12 ADDRESS: 201 SOUTH CORTEZ STREET
PRESCOTT, AZ 86301
> 13 PHONE NR: 928-777-1114
> 14 MANAGER: BENJAMIN D VARDIMAN
> 15 ADDRESS: 6546 CRYSTAL LANE
PRESCOTT, AZ 86301
> 16 PHONE NR: 928-777-1114
> 17 ATTENDANCE SCHEDULE:
ALL ALL 0600-2200

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 34-39-16.0000N ESTIMATED
20 ARPT LONG: 112-25-10.6000W
21 ARPT ELEV: 5045 SURVEYED
22 ACREAGE: 760
> 23 RIGHT TRAFFIC: 21R, 03R, 21L
> 24 NON-COMM LANDING: NO
25 NPIAS/FED AGREEMENTS: NGY3
> 26 FAR 139 INDEX: I A S 08/2008

SERVICES

> 70 FUEL: 100LL A
> 71 AIRFRAME RPRS: MAJOR
> 72 PWR PLANT RPRS: MAJOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
AFRT, AVNCS, CARGO, CHTR, INSTR, RNTL, SALES

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: DUSK-DAWN
> 82 UNICOM: 122.950
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: YES
86 FSS: PRESCOTT
87 FSS ON ARPT: NO
88 FSS PHONE NR:
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	208
91 MULTI ENG:	25
92 JET:	2
TOTAL:	235
93 HELICOPTERS:	3
94 GLIDERS:	1
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	1,288
102 AIR TAXI:	4,129
103 G A LOCAL:	160,391
104 G A ITNRNT:	74,312
105 MILITARY:	323
TOTAL:	240,443
OPERATIONS FOR 12 MONTHS ENDING	03/31/2010

RUNWAY DATA

	03L/21R	03R/21L	12/30	
> 30 RUNWAY IDENT:				
> 31 LENGTH:	4,848	7,616	4,408	
> 32 WIDTH:	60	150	75	
> 33 SURF TYPE-COND:	ASPH-G	ASPH-G	ASPH-G	
> 34 SURF TREATMENT:		PFC		
35 GROSS WT: SW	12.5	63.0	12.5	
36 (IN THSDS) DW		80.0		
37 DTW		100.0		
38 DDTW				
> 39 PCN:				

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:	MED	MED	MED	
> 42 RWY MARK TYPE-COND:	- / -	NPI - G / PIR - G	NPI - F / BSC - F	- / -
> 43 VGSI:	P2L / P2L	P4L / P4L	P2L / P2L	/
44 THR CROSSING HGT:	40 / 40	45 / 45	48 / 40	/
45 VISUAL GLIDE ANGLE:	3.00 / 3.00	4.00 / 3.00	3.00 / 3.00	/
> 46 CNTRLN-TDZ:	- / -	N - N / N - N	N - N / N - N	- / -
> 47 RVR-RVV:	- / -	- N / - N	- N / - N	- / -
> 48 REIL:	/	Y / Y	Y / Y	/
> 49 APCH LIGHTS:	/	/ MALSR	/	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY:	/	B(V) / PIR	A(V) / A(V)	/
> 51 DISPLACED THR:	811 /	788 /	150 /	/
> 52 CTLG OBSTN:	/	ROAD /	/	/
> 53 OBSTN MARKED/LGTD:	/	/	/	/
> 54 HGT ABOVE RWY END:	/	26 /	/	/
> 55 DIST FROM RWY END:	/	720 /	/	/
> 56 CNTRLN OFFSET:	/	0B /	/	/
57 OBSTN CLNC SLOPE:	/	20:1 / 50:1	50:1 / 50:1	/
58 CLOSE-IN OBSTN:	N / N	N / N	N / N	/

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):	/	/	/	/
> 61 TAKE OFF DIST AVBL (TODA):	/	/	/	/
> 62 ACLT STOP DIST AVBL (ASDA):	/	/	/	/
> 63 LNDG DIST AVBL (LDA):	/	/	/	/

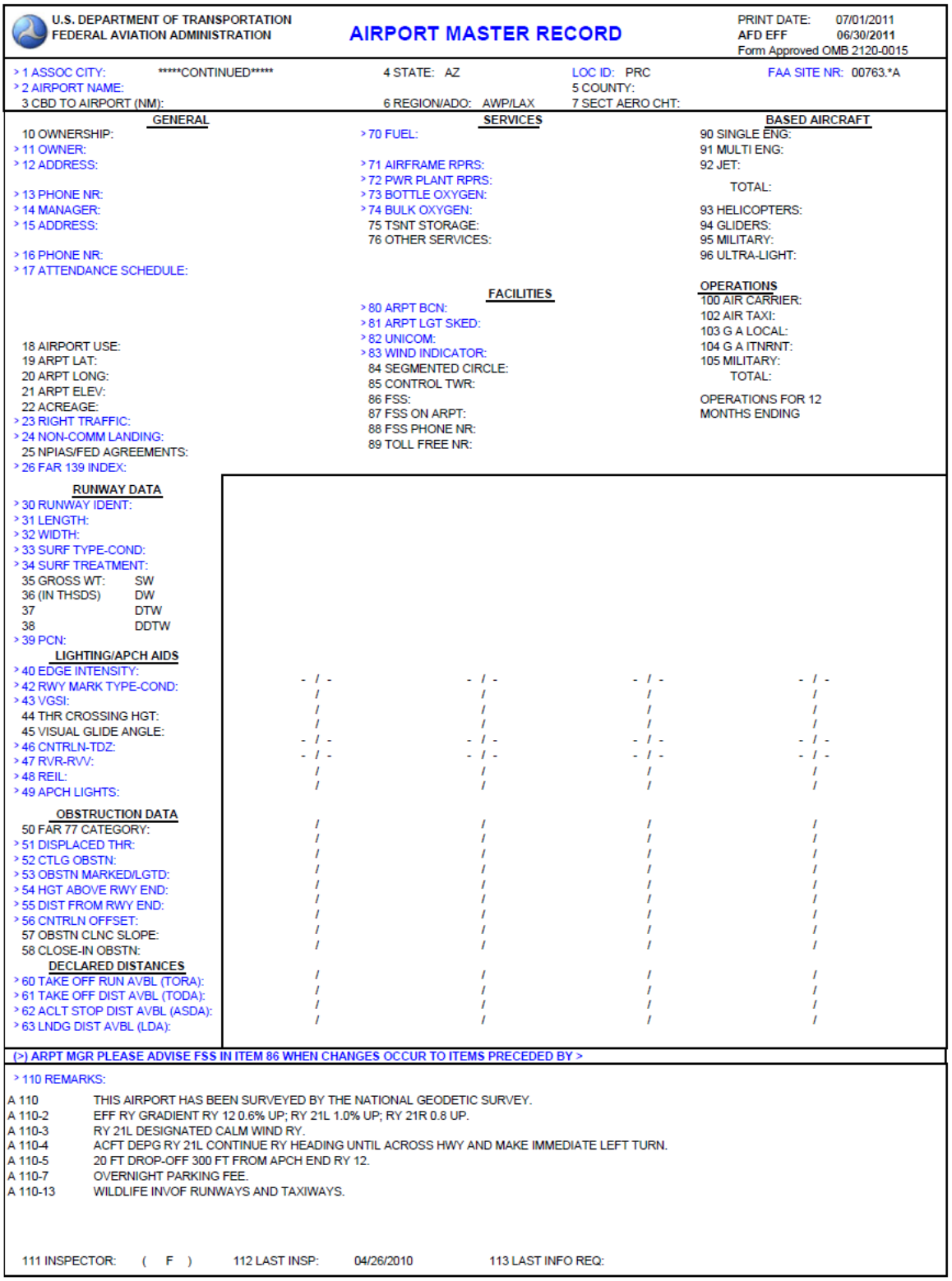
(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS:

A 014 OPERATIONS - PHONE 928-777-1150.
A 030 RWY 03L/21R RY 03L/21R CLSD 2200-0600.
A 048 RWY 21L REIL OTS INDEFLY.
A 057 RWY 03R APCH RATIO 50:1 TO DSPLCD THR.
A 070 FUEL AVBL 0700-2100 CALL 928-443-9333; AFT HRS AVBL PER ADVANCE REQUEST. SELF SERVICE FUEL RSTRD TO ACFT WITH WINGSPAN 50 FT OR LESS.
A 081 AFTER 2200 ACTV'T MIRL RY 03R/21L - CTAF. ACTV'T MIRL RY 12/30 FREQ 128.75.
A 086 CTC PRESCOTT RADIO FOR AIRPORT ADVISORY SERVICE ON 125.3 WHEN TOWER IS CLSD.

111 INSPECTOR: (F) 112 LAST INSP: 04/26/2010 113 LAST INFO REQ:

Figure 4: PRC Airport Master Record



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 07/01/2011
AFD EFF 06/30/2011
Form Approved OMB 2120-0015

> 1 ASSOC CITY: *****CONTINUED*****
> 2 AIRPORT NAME:
3 CBD TO AIRPORT (NM):
4 STATE: AZ
6 REGION/ADO: AWP/LAX
LOC ID: PRC
5 COUNTY:
7 SECT AERO CHT:
FAA SITE NR: 00763.*A

GENERAL

10 OWNERSHIP:
> 11 OWNER:
> 12 ADDRESS:
> 13 PHONE NR:
> 14 MANAGER:
> 15 ADDRESS:
> 16 PHONE NR:
> 17 ATTENDANCE SCHEDULE:
18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING:
25 NPIAS/FED AGREEMENTS:
> 26 FAR 139 INDEX:

SERVICES

> 70 FUEL:
> 71 AIRFRAME RPRS:
> 72 PWR PLANT RPRS:
> 73 BOTTLE OXYGEN:
> 74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

> 80 ARPT BCN:
> 81 ARPT LGT SKED:
> 82 UNICOM:
> 83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:
88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:
TOTAL:
93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
102 AIR TAXI:
103 G A LOCAL:
104 G A ITNRNT:
105 MILITARY:
TOTAL:
OPERATIONS FOR 12 MONTHS ENDING

RUNWAY DATA

> 30 RUNWAY IDENT:
> 31 LENGTH:
> 32 WIDTH:
> 33 SURF TYPE-COND:
> 34 SURF TREATMENT:
35 GROSS WT: SW
36 (IN THSDS) DW
37 DTW
38 DDTW
> 39 PCN:

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:
> 42 RWY MARK TYPE-COND:
> 43 VGSI:
44 THR CROSSING HGT:
45 VISUAL GLIDE ANGLE:
> 46 CNTRLN-TDZ:
> 47 RVR-RVV:
> 48 REIL:
> 49 APCH LIGHTS:

OBSTRUCTION DATA

50 FAR 77 CATEGORY:
> 51 DISPLACED THR:
> 52 CTLG OBSTN:
> 53 OBSTN MARKED/LGTD:
> 54 HGT ABOVE RWY END:
> 55 DIST FROM RWY END:
> 56 CNTRLN OFFSET:
57 OBSTN CLNC SLOPE:
58 CLOSE-IN OBSTN:

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):
> 61 TAKE OFF DIST AVBL (TODA):
> 62 ACLT STOP DIST AVBL (ASDA):
> 63 LNDG DIST AVBL (LDA):

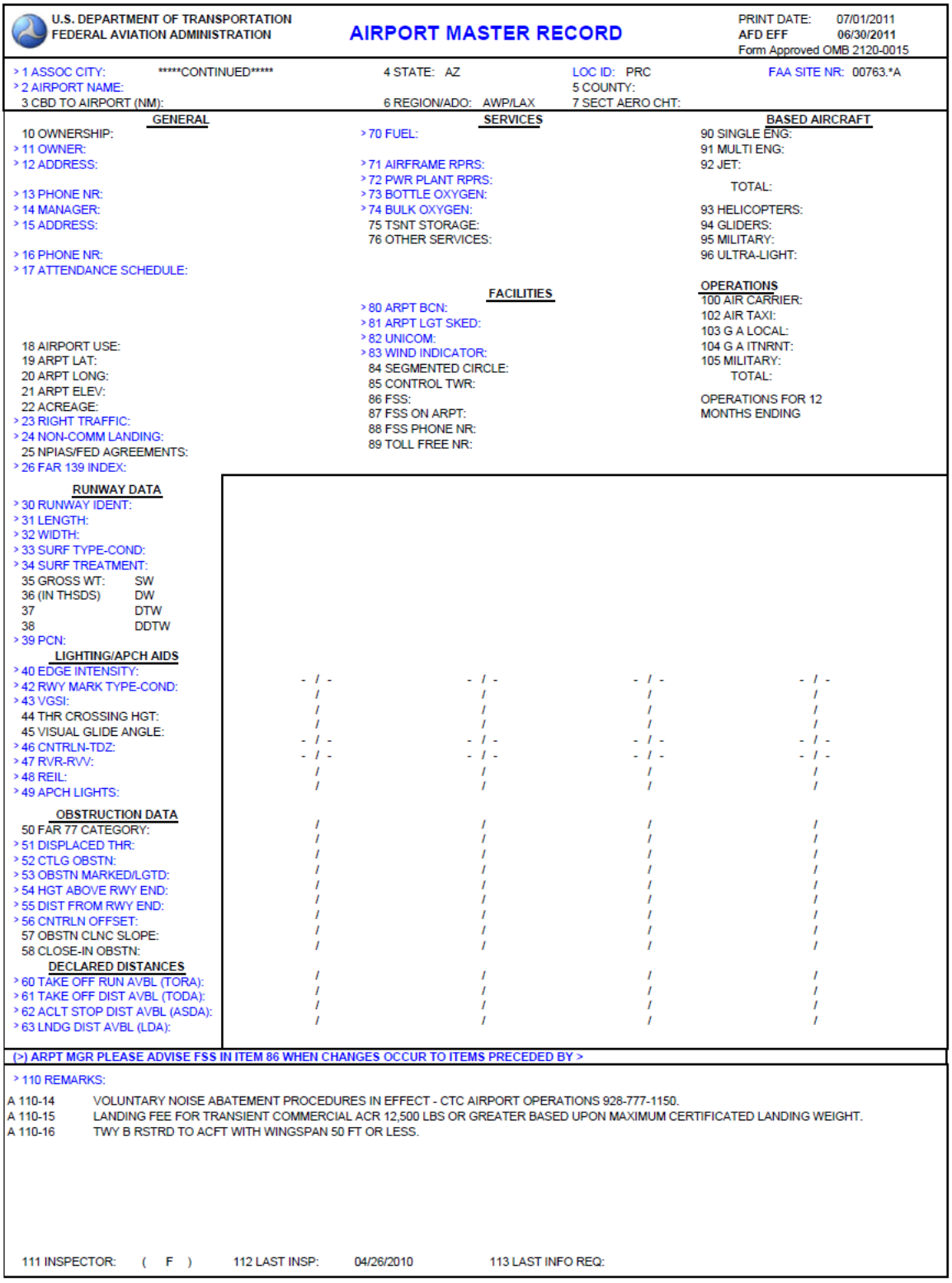
(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS:

A 110 THIS AIRPORT HAS BEEN SURVEYED BY THE NATIONAL GEODETIC SURVEY.
A 110-2 EFF RY GRADIENT RY 12 0.6% UP; RY 21L 1.0% UP; RY 21R 0.8 UP.
A 110-3 RY 21L DESIGNATED CALM WIND RY.
A 110-4 ACFT DEPG RY 21L CONTINUE RY HEADING UNTIL ACROSS HWY AND MAKE IMMEDIATE LEFT TURN.
A 110-5 20 FT DROP-OFF 300 FT FROM APCH END RY 12.
A 110-7 OVERNIGHT PARKING FEE.
A 110-13 WILDLIFE INVOF RUNWAYS AND TAXIWAYS.

111 INSPECTOR: (F) 112 LAST INSP: 04/26/2010 113 LAST INFO REQ:

Figure 4: PRC Airport Master Record (Continued)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 07/01/2011
AFD EFF 06/30/2011
Form Approved OMB 2120-0015

> 1 ASSOC CITY: *****CONTINUED*****
> 2 AIRPORT NAME:
3 CBD TO AIRPORT (NM):
4 STATE: AZ
6 REGION/ADO: AWP/LAX
LOC ID: PRC
5 COUNTY:
7 SECT AERO CHT:
FAA SITE NR: 00763.*A

GENERAL

10 OWNERSHIP:
> 11 OWNER:
> 12 ADDRESS:
> 13 PHONE NR:
> 14 MANAGER:
> 15 ADDRESS:
> 16 PHONE NR:
> 17 ATTENDANCE SCHEDULE:
18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING:
25 NPIAS/FED AGREEMENTS:
> 26 FAR 139 INDEX:

SERVICES

> 70 FUEL:
> 71 AIRFRAME RPRS:
> 72 PWR PLANT RPRS:
> 73 BOTTLE OXYGEN:
> 74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

> 80 ARPT BCN:
> 81 ARPT LGT SKED:
> 82 UNICOM:
> 83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:
88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:
TOTAL:
93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
102 AIR TAXI:
103 G A LOCAL:
104 G A ITNRNT:
105 MILITARY:
TOTAL:
OPERATIONS FOR 12 MONTHS ENDING

RUNWAY DATA

> 30 RUNWAY IDENT:
> 31 LENGTH:
> 32 WIDTH:
> 33 SURF TYPE-COND:
> 34 SURF TREATMENT:
35 GROSS WT: SW
36 (IN THSDS) DW
37 DTW
38 DDTW
> 39 PCN:

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:
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> 43 VGSI:
44 THR CROSSING HGT:
45 VISUAL GLIDE ANGLE:
> 46 CNTRLN-TDZ:
> 47 RVR-RVV:
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> 51 DISPLACED THR:
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> 55 DIST FROM RWY END:
> 56 CNTRLN OFFSET:
57 OBSTN CLNC SLOPE:
58 CLOSE-IN OBSTN:

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):
> 61 TAKE OFF DIST AVBL (TODA):
> 62 ACLT STOP DIST AVBL (ASDA):
> 63 LNDG DIST AVBL (LDA):

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS:

A 110-14 VOLUNTARY NOISE ABATEMENT PROCEDURES IN EFFECT - CTC AIRPORT OPERATIONS 928-777-1150.
A 110-15 LANDING FEE FOR TRANSIENT COMMERCIAL ACR 12,500 LBS OR GREATER BASED UPON MAXIMUM CERTIFICATED LANDING WEIGHT.
A 110-16 TWY B RSTRD TO ACFT WITH WINGSPAN 50 FT OR LESS.

111 INSPECTOR: (F) 112 LAST INSP: 04/26/2010 113 LAST INFO REQ:

Figure 4: PRC Airport Master Record (Continued)

Runway Information

Runway 3R/21L

Dimensions:	7616 x 150 ft. / 2321 x 46 m
Surface:	Asphalt/porous friction courses, in good condition
Weight bearing capacity:	Single wheel: 63.0 Double wheel: 80.0 Double tandem: 100.0
Runway edge lights:	Medium intensity

	RUNWAY 3R	RUNWAY 21L
Latitude:	34-38.737180N	34-39.680435N
Longitude:	112-25.734000W	112-24.731918W
Elevation:	5033.7 ft.	4960.1 ft.
Gradient:	1.0% UP	1.0%
Traffic pattern:	Right	Right when tower closed; left during tower operating hours
Runway heading:	028 magnetic, 041 true	208 magnetic, 221 true
Displaced threshold:	788 ft.	no
Markings:	Nonprecision, in good condition	Precision, in good condition
Visual slope indicator:	4-light PAPI on left (4.00 degrees glide path)	4-light PAPI on left (3.00 degrees glide path)
Approach lights:		MALSR: 1,400 foot medium intensity approach lighting system with runway alignment indicator lights
Runway end identifier lights:	Yes	Yes REIL OTS INDEFLY.
Touchdown point:	Yes, no lights	Yes, no lights
Instrument approach:		ILS/DME
Obstructions:	26 ft. road, 720 ft. from runway, 20:1 slope to clear APCH RATIO 50:1 TO DSPLCD THR.	None

Runway 3L/21R

Dimensions:	4848 x 60 ft. / 1478 x 18 m
Surface:	Asphalt, in good condition
Weight bearing capacity:	Single wheel: 12.5
Runway edge lights:	Medium intensity
Operational restrictions:	RY 03L/21R CLSD 2200-0600.

	RUNWAY 3L	RUNWAY 21R
Latitude:	34-39.389433N	34-39.989760N
Longitude:	112-25.226922W	112-24.588935W
Elevation:	4974.9 ft.	4937.6 ft.
Gradient:	0.8% UP	
Traffic pattern:	Left	Right
Runway heading:	028 magnetic, 041 true	208 magnetic, 221 true
Displaced threshold:	811 ft.	No
Visual slope indicator:	2-light PAPI on left (3.00 degrees glide path)	2-light PAPI on left (3.00 degrees glide path)
Touchdown point:	Yes, no lights	Yes, no lights

Runway 12/30

Dimensions:	4408 x 75 ft. / 1344 x 23 m
Surface:	Asphalt, in good condition
Weight bearing capacity:	Single wheel: 12.5
Runway edge lights:	Medium intensity

	RUNWAY 12	RUNWAY 30
Latitude:	34-39.164300N	34-38.637047N
Longitude:	112-25.677967W	112-25.073278W
Elevation:	5017.1 ft.	5044.9 ft.
Gradient:	0.6% UP	0.9%
Traffic pattern:	Left	Left
Runway heading:	124 magnetic, 137 true	304 magnetic, 317 true
Displaced threshold:	150 ft.	No
Markings:	Nonprecision, in fair condition	Basic, in fair condition
Visual slope indicator:	2-light PAPI on left (3.00 degrees glide path)	2-light PAPI on left (3.00 degrees glide path)
Runway end identifier lights:	Yes	Yes
Touchdown point:	Yes, no lights	Yes, no lights

Existing Conditions

All Runways (3R/21L, 3L/21R, 12/30)

- Dead spots in radio coverage. Ground Control and Local Control must switch back and forth between main and standby radios to communicate with aircraft on the airport surface.

- External lighting at night. Affects controllers' ability to discriminate between aircraft lights and other lights. With the shallow angle-of-sight from the ATCT, aircraft lights are difficult to distinguish from the surrounding airport lights.

- Limited radar coverage. PRC does not have an Airport Surveillance Radar (ASR) system; its surveillance sources are two Long Range Radars (LRR) about 50 nautical miles from the airport. Due to curvature of the earth, terrain, and the 12-second LRR update, the radar presentation to controllers is sub-standard and not useful for aircraft in the local traffic pattern. This situation may lead to a compromise of controller situational awareness because:
  - Aircraft in the local pattern are not tagged; otherwise, Conflict Alerts (CA) are nearly non-stop and become a distraction.
  - CAs for itinerant arrivals and departures are highly inaccurate. CA often activates after targets have passed.
  - Low Altitude Alerts (LAA) are generated more often than they should be due to the 12-second update rate.
  - Aircraft near the airport go into "coast" on approximately 1-2 mile final. When in coast track, LAA and CA capabilities are degraded.

- Lack of Runway 21R visibility. Local Control devotes extra attention on Runway 21R arrivals and departures due to the runway's distance from the ATCT and the downward slope toward the approach end of the runway. Controllers must use binoculars to determine if aircraft are on or off the runway.

- Lack of Taxiway Alpha visibility. Local Control devotes extra attention on helicopter arrivals and departures on Taxiway Alpha due to the taxiway's distance from the ATCT and lower elevation compared to Runway 21L. Controllers must use binoculars to determine if aircraft are on or off the taxiway.

- Hindered STARS capabilities. Standard Terminal Automation Replacement System (STARS) capabilities are not fully realized because of poor radar coverage and lack of an ASR.

- Runway crossings increase Ground Control – Local Control coordination. PRC has an inordinate number of runway crossings, which are handled by Ground Control because of necessity. This requires increased coordination between Local Control and Ground Control.

- IFR departures conflicting with practice holding aircraft increase controller workload. Aircraft practice holding at the Very High Frequency Omnidirectional Range Colocated Tactical Air (VORTAC) unit occurs at altitudes of 12,000 feet MSL and below. Aircraft on Instrument Flight Rules (IFR) departures proceed to the VORTAC and conflict with aircraft practicing holding. This

results in Local Control issuing an increased number of radar traffic advisories and safety alerts, creating extra work for controllers.

- Runway/taxiway FOD increases Ground – Local Control workload. Foreign object debris (FOD) such as tumbleweeds and blowing dust continually impact runways and taxiways. This results in increased work for Ground and Local Control.

- Lack of helicopter operations area increases Ground – Local Control workload. Fixed-wing and helicopter traffic are mixed because there is not a segregated area for helicopter operations. This creates an increased workload for Local and Ground controllers. Taxiways are used for helicopter takeoffs/landings to reduce the mixing of aircraft types. This means taxiways are often not available for taxiing aircraft, increasing Ground Control's workload.

Runways 21L/R

- Parallax increases controller workload. When aircraft are on final approach to Runway 21L or 21R, parallax causes an increase in controller workload. Controllers fixate on the aircraft and have difficulty determining with which runway an aircraft is aligned. The ends of Runways 21L and 21R are offset by about 1900 feet, which exacerbates the parallax issue.

- Controllers lose sight of aircraft on final approach. Aircraft on base turn to final approach disappear from controllers' sight because of blending into terrain, especially when landing on Runway 21R.

- Controllers work multiple, complex traffic patterns. When traffic volume is high, two local controllers work three traffic patterns: Runway 21L, Runway 21R, and helicopters in an abbreviated pattern on Taxiway Alpha.

- Inability to view accurate aircraft position on runway increases controller workload. Controllers experience difficulty in determining aircraft position in relation to runway pavement, especially on Runway 21R. A Closed Circuit Television (CCTV) camera at the Alpha 5 run-up area aids controllers, but also causes an increase in workload through extra focus on the touchdown zone and almost constant use of binoculars. Extra focus on the touchdown zone diverts controller attention from other traffic pattern areas and issuing safety alerts/traffic advisories, and reduces time available for complete scanning.

- Aircraft practicing approaches increase ATCT controller workload. ATCT controllers must handle aircraft practicing approaches because PRC does not have an approach control. The aircraft often practice to inactive runways and descend and/or climb through pattern traffic, causing traffic complexity and increasing controller workload.

- Helicopter departure complexity increases controller coordination requirements. Helicopters depart Runway 12 at Taxiway Echo 2 eastbound and depart numbers of Runway 12 westbound. Both departures require coordination, adding complexity to the workload for Ground and Local Control.

- Helicopter arrival complexity increases Local and Ground Control coordination requirements. Helicopters land on Foxtrot 4 from the west, Foxtrot from the east, and Taxiway Delta from the northeast. These arrivals departures require increased coordination between Local and Ground controllers.

- Distance from the ATCT to Runway 21R impacts controller visibility of landing threshold. About 7000 feet separates the ATCT and Runway 21R landing threshold. When combined with the downward runway slope, the threshold pavement is not visible from the tower with the naked eye. Controllers must use binoculars to see if aircraft are on the runway.

- Multiple traffic patterns for VOR approaches increase local controller workload. Handling VOR approaches to Runway 12 while operating three patterns for Runways 21L/21R and Taxiway Alpha increase workload on Local controllers.

- Controllers and pilots have difficulty seeing Runway 3L/21R. The light color of Runway 3L/21R pavement is similar to its surroundings. As a result, controllers can barely see the runway from the ATCT and airborne pilots often mistake Runway 3R/21L for Runway 3L/21R.

- ATC conducts Land and Hold Short Operations (LAHSO) on Runway 21L.

Runway 12

- Reduced airport capacity because of single runway operation.

- Helicopters use a traffic pattern north of the ATCT on the Runway 21L numbers that parallels the Runway 12 traffic pattern. This distracts local controllers from scanning Runway 12 and its final approach because the controllers must watch traffic patterns that are both behind and in front of them. A maximum of two helicopters can be in the pattern simultaneously.

- Helicopter arrival and departure routes are between Runway 12 and the Runway 21L numbers.

- Right closed traffic on Runway 12 is used for a mix of fixed-wing and helicopter operations, while left traffic is used in the helicopter pattern to the Runway 21L numbers.

- When two local controllers are operating, the Local Control 1 position controls Runway 12 and the north helicopter pattern while the Local Control 2 position meters inbound traffic and issues safety alerts and traffic advisories to outbound aircraft, much like an approach controller. This reduces the Local Control 1 position's workload.

- Large aircraft use Runway 3R/21L for arrivals and departures.

- Upwind or departure leg on Runway 12 is restricted because of terrain. Crosswind turns are often earlier than normal or departures must immediately offset to the left.

- Practice approaches (e.g., ILS, RNAV, and GPS) to Runway 21L conflict with Runway 12 traffic and helicopter traffic north of the ATCT.

- IFR departures must turn right, direct to the Drake (DRK) VORTAC. This turn conflicts with the Runway 12 final approach course and aircraft practicing holding at DRK.

- According to an LOA with helicopter flight schools, helicopters depart Taxiway Foxtrot parallel to Runway 12 southeast bound or depart Taxiway Charlie paralleling Runway 12 southeast bound. This requires coordination between Ground Control and Local Control.

- According to an LOA with helicopter flight schools, helicopter arrivals land on Taxiways Charlie 4 or Delta 4. This requires coordination between Ground Control and Local Control.

Runways 3L/R

- Controllers experience parallax on final approach for both runways. Parallax is exacerbated by the offset of runway ends.

- Offset thresholds cause aircraft to confuse one runway for another runway.

- Aircraft on final approach blend in with surrounding terrain, causing controllers to lose sight of aircraft on both base leg and final approach.

- Runway 3L is narrow and the pavement is the same color as taxiways. This causes pilot confusion when identifying the runway and the taxiways.

- Runway 3L and 3R thresholds are offset by about 3,800 feet. This causes pilots to align themselves with Runway 3R rather than Runway 3L.

- Taxiway Alpha is used for helicopter operations when traffic volume is high. This causes an increase in controller workload. As Local Control position 2 works two patterns along with itinerant departures and arrivals, Ground Control loses the use of Taxiway Alpha.

- Helicopters use Runway 30 and Runway 12 numbers for departure. This requires coordination between Ground Control and Local Control.

- Arriving helicopters use Taxiway Foxtrot from the southeast (F2) and northwest (F4) and Runway 12 and Runway 30 numbers. This requires coordination between Ground Control and Local Control.

- There is no “normal” IFR approach straight-in to Runway 3R. There is only an RNAV RNP that no pilots can fly. As a result, all IFR arrivals must circle.

- ILS Runway 21L practice approaches are the opposite direction of Runway 3L/R departures. This causes an increase in safety alerts and traffic advisories.

- There is no LAHSO for this runway configuration.

Runway 30

- Reduced airport capacity because of single runway operation.
- Terrain and buildings obscure the final approach course.
- Terrain restricts the downwind leg length.
- Taxiway Foxtrot 1 and the run-up area are not visible from the ATCT.
- Controllers cannot see aircraft eastbound on about the last 600 feet of Taxiway Foxtrot.
- Helicopters operate in a traffic pattern north of the ATCT on the Runway 21L numbers.
- There are no IFR approaches to Runway 30; IFR inbound flights must circle.
- Helicopters depart and arrive on routes between Runway 30 and the Runway 21L numbers. This requires coordination between Ground Control and Local Control.
- Helicopters land on the Runway 3R numbers and on Delta near D4. This requires coordination between Ground Control and Local Control.
- Left traffic to Runway 30 and right traffic to the north helicopter traffic pattern.
- When two local controllers are operating, the Local Control 1 position controls Runway 30 and the north helicopter pattern while the Local Control 2 position meters inbound traffic and issues safety alerts and traffic advisories to outbound aircraft, much like an approach controller. This reduces the Local Control 1 position's workload.
- Large aircraft use Runway 3R/21L for arrivals and departures.
- Downwind or base leg on Runway 30 is restricted because of terrain. Base turns are often earlier than normal and arrivals sometimes must climb on the downwind leg because of terrain. Others come in high, which may result in a go-around.
- Practice approaches (e.g., ILS, RNAV, and GPS) to Runway 21L conflict with Runway 30 traffic and helicopter traffic north of the ATCT.
- IFR departures climb direct to the DRK VORTAC. This conflicts with aircraft practicing holding at DRK.
- VOR practice approaches to Runway 12 are the opposite direction than departures.

Mitigations

- To ensure a safe operational environment, PRC has developed mitigation that allows ATC to operate the airport at an acceptable level of risk to the NAS. Additional workload or hazards added to an already stressed environment will likely increase the risk to the NAS to an unacceptable level.
- Wigwags lights are installed at critical intersections to prevent aircraft and/or vehicles from straying onto runways.
- CCTV cameras at Foxtrot 1 and Alpha 5 increase air traffic controller situational awareness.
- Front Line Managers (FLM) and Controllers-In-Charge (CIC) act as local assists in addition to providing general supervision.
- Ground Control assists Local Control (e.g., spotting aircraft in the pattern and checking for landing gear).
- Memory aids such as strobe lights, colored lights, flashing computer pages, and placards are used extensively.
- Enhanced taxiway markings have been implemented.
- Hotspots have been identified and published.
- Letters to Airmen (NOTAM) have been published.
- User briefings are ongoing.
- Enhanced driver training is employed.
- ATC participates in pilot forums.

Hot Spots

- The Bottleneck Ramp, where the ramp joins Taxiway Alpha, Alpha 1, and Bravo 4. This area of concern is not clearly visible from the ATCT without binoculars. Controllers have difficulty determining if an aircraft is on Taxiway Alpha 1 because of the flat line-of-sight from the ATCT and sloping terrain. They must be extra vigilant when taxiing aircraft out of the Bottleneck Ramp hangars. Controllers must ensure that aircraft turn on Taxiway Alpha or Bravo 4 rather than continuing straight to Runway 3L/21R on Alpha 1.
- Taxiway Charlie 2 at Runway 12 and Taxiway Echo at Runway 3R/21L. This intersection has confusing markings due to its complexity. Taxiway Charlie 2 is one way, and aircraft cannot turn onto Taxiway Echo from Taxiway Charlie 2 without crossing the hold bars at Taxiway Echo.

- Taxiway Hotel is not visible from the ATCT because of terrain.
- Taxiway Foxtrot 1, the Runway 30 run-up area, and about 600 feet of Taxiway Foxtrot. These areas are not visible from the ATCT because of terrain and buildings.
- Taxiway Charlie 6 at the intersection of Runway 3L/21R hold bars. This area is not visible from the ATCT; controllers cannot see if an aircraft crosses the hold bars for Runway 3L/21R.
- Taxiway Alpha 5 at Runway 3L/21R. The hold bars are not visible from the ATCT; controllers cannot see if an aircraft crosses the hold bars for Runway 3L/21R.
- Taxiway Alpha 4 at Runway 3L/21R. Hold bars are not visible from the ATCT; controllers cannot see if an aircraft crosses the hold bars for Runway 3L/21R.
- Hover pads northeast of the temporary earth mound between the ATCT and Forest Service ramp are not fully visible from the ATCT.
- Monarch Ramp entrance and exit. These areas are not visible from the ATCT because of buildings.
- A small segment of the eastern edge of Taxiway Delta. The area is not visible from the ATCT because of a building.
- Taxiways Charlie 4 and Delta 4. These areas have a high number of runway crossings.

Ground Control Hazards

- The Ground Control position works ground traffic and issues clearances. In addition to Ground Control, the position works Flight Data (FD) and Clearance Delivery (CD) combined (the ATCT does not have CD radios). This causes too much heads-down time for an already complex Ground Control position.
- High concentration of student pilots operating on airport surfaces. Issues include Ground Control repeating clearances and instructions, and avoiding runway incursions by instructing student pilots to “stop.”
- Abundance of vehicular traffic crossing runways. PRC has minimal perimeter roads; therefore, vehicle operators must drive across runways to fuel aircraft. They must cross Runway 12/30 to get from the Fixed Base Operator (FBO) or terminal to the self-serve fueling station, North and West Ramps, or Bottleneck Area.
- Single taxiways. Taxiways are singular where parallel to runways; Ground Control must reroute opposite direction traffic around each other.

- High number of active runway crossings.

  Running parallel to Runway 3R/21L on the west side is Runway 3L/21R. Embry-Riddle full stop arrivals must cross Runway 3R/21L to enter their parking area. Other aircraft regularly cross Runway 3R/21L to travel to a maintenance facility, FBO, and/or self-serve fuel station.

  United States Forest Service (USFS) firefighting tankers are based at PRC. Historically these tankers exceeded the weight limitation of Taxiway Delta 1 and crossed Runway 3R/21L to take off on Runway 3R. Tanker pilots prefer Runway 3R due to additional takeoff length of runway, runway slope, and obstacles off the departure end of Runway 21L. These aircraft receive priority handling. The weight limitation was lifted during the summer of 2011 and the runway crossings have been eliminated.

  PRC data show that 60 or more active runway crossings occur each weekday during the busy time of year, which is Labor Day through Memorial Day.

Potential Airfield Changes

Phase 1: Shift Runway 3R/21L (401 Feet)

- Taxiway Hotel is visible from the ATCT due to removal of an earth mound.
- Hover pads to the northeast of the earth mound may or may not be visible after most of the mound is removed.
- Tankers do not need to cross the active runway for departure.
- Ground Control is not always combined with CD.
- Airport communication dead spots are eliminated.

Phase 2: Extend Runway 3R/21L

- Parallax slightly improves on Runway 21L/R final approaches.
- Additional communication dead spots may develop; the remote transmitter/receiver site is engineered for existing runway lengths.
- High number of active runway crossings does not involve Taxiways Charlie 4 and Delta 4; they change to another location.
- Opposite direction taxi time increases.
- Aircraft on high speed taxiway with illuminated landing lights in previous Taxiway D4 location may blind controllers with bright light after exiting runway.
- Fewer perpendicular taxiways reduce the number of runway crossing locations.
- Controllers have difficulty determining if an aircraft is on Runway 21L or Runway 21R, or if an aircraft has left the runway and is in the grass.
- Aircraft blending into terrain on final approach and base leg for Runways 21L and 21R is exacerbated.
- Controllers have difficulty seeing the helicopter traffic pattern on the Runway 21L numbers because of ATCT proximity; the pattern may need to be relocated or eliminated.
- Helicopter traffic pattern to Taxiway Alpha is eliminated and needs to be relocated because of the reduced distance between the Taxiway Alpha and Runway 3L/21R centerlines.

- Controller inability to determine if an aircraft is on the runway side or taxiway side of the hold short lines at A6/B7/C7/D7 and beyond is exacerbated.
- Controllers must use binoculars to view Runway 21L and Runway 21R thresholds because of the distance from the ATCT to the thresholds, increasing workload.
- Reduced time available for controller scanning is exacerbated.
- Distance from the ATCT to the Runway 21R threshold is about 8700 feet.
- Controller inability to see the Runway 21R northeast end pavement is exacerbated.
- Opposing base legs with non-offset finals increase traffic calls, safety alerts, and CAs.
- Local controllers cannot view the Runway 21R run-up area using CCTV; the new run up area location is beyond the CCTV's maximum transmission distance.
- Aircraft overflying the airport at 6500 feet are moved northeast to avoid departure and pattern aircraft at airport midpoint.
- Conflictions between Runway 21R departures and VOR practice approaches are increased.
- PRC - helicopter flight school Letters of Agreement (LOA) are revised.
- Controllers have difficulty determining when an aircraft exits Runway 3R or Runway 3L and goes into the grass, especially when exiting Runway 3L.
- Binocular use increases for Local Control positions 1 and 2, Ground Control, Local Assist and FLM/CIC, increasing workload.
- FLM/CIC acting as local assist, instead of providing safety oversight, increases.
- LAHSO group changes.
- Ground Control assisting Local Control in spotting aircraft increases, detracting from Ground Control's ability to scan movement areas.

Preliminary SRM of Potential Phase 1 Change

The workgroup applied the SRM process as a preliminary measure to assess a potential Phase 1 airfield change, a shift of Runway 3R/21L. This change, which is 30% complete, would add 401 feet to the northeast end of the runway, remove 401 feet from the southeast end of the runway, relocate runway thresholds, and include RSA, taxiway, shoulder, and signage modifications. Although part of the Phase 1 change, the 150-foot shift of Runway 12/30 was not included in the SRM process. The workgroup agreed that the change did not introduce additional risk to the NAS.

Based on the potential Phase 1 change, workgroup participants developed a Preliminary Hazard List (PHL) and identified the following assumptions:

1. PRC will comply with airport ACs and FAR Part 139.
2. Air traffic procedures will be developed and training accomplished.
3. NOTAMs will be issued.
4. User group briefings will be conducted.
5. Affected ATC facilities will be notified.
6. Remote Transmitter/Receiver (RTR) work will be completed and commissioned before Phase 2 begins.
7. LAHSO will be lost during construction and recertified after construction.

Using the PHL as a foundation for completing the Preliminary Hazard Analysis (PHA) matrix, participants analyzed each hazard to determine causes, system states, existing controls, possible effects, severity, likelihood, current/initial risk, recommended safety requirements, and predicted residual risk.

The workgroup identified five hazards, which are listed with their risk levels in Figure 5. Figure 6 is a current/initial risk summary. Figure 7 is the PHA matrix, which details workgroup findings.

Hazard Number	Hazard	Current/ Initial Risk	Predicted Residual Risk
PRC-2011-01	Increased opportunities for FOD	4A □ Medium	4A □ Medium
PRC-2011-02	Loss of controller situational awareness	4C □ Low	4C □ Low
PRC-2011-03	Loss of pilot situational awareness	4C □ Low	4C □ Low
PRC-2011-04	Loss of vehicle operator situational awareness	5C □ Low	5C □ Low
PRC-2011-05	Increased wildlife activity	5B □ Low	5B □ Low

Figure 5: Hazard List with Risk Level

Figure 6: Current/Initial Risk Summary

* Not acceptable with single point or common cause failure

Risk Matrix

High Risk
Medium Risk
Low Risk

0X Current/Initial Risk

Hazard Number	Hazard Description	Cause	System State	Existing Controls	Possible Effect	Severity / Rationale	Likelihood/ Rationale	Current/ Initial Risk	Recommended Safety Requirements	Predicted Residual Risk
PRC-2011-01	Increased opportunities for FOD	Construction activity on and around operational surfaces Strong winds Increased construction activity	During construction activity Wet/dry conditions Strong winds	AC 150/5070-6 AC 150/5200-18 AC 150/5200-28 AC 150/5210-20 AC 150/5210-5 AC 150/5300-13 AC 150/5340-1 AC 150/5340-18 AC 150/5345-46 AC 150/5370-2 AC 150/5210-24 JO 7110.65 JO 7210.3 FAR Part 39 ATIS, AIM Controller, contractor, and driver training Access control training FAA driver training-Tech Ops Pilot training Pilot intervention ATC intervention ATC scanning Airfield ops monitoring Operational supervision Daily briefings, notes ATC SOPs	Aircraft damage Restricted pilot/controller visibility (e.g., blowing dust) Increased workload (e.g., loss of taxiway)	4-Minor Based on PRC FOD history	A-Frequent Based on past construction projects	4A □ Medium	None	4A □ Medium

Figure 7: Preliminary Hazard Analysis Matrix

Hazard Number	Hazard Description	Cause	System State	Existing Controls	Possible Effect	Severity / Rationale	Likelihood/ Rationale	Current/ Initial Risk	Recommended Safety Requirements	Predicted Residual Risk
PRC-2011-01 (Continued)				Vehicle marking/lighting Physical barriers User group outreach ATC/pilot runway best practices						
PRC-2011-02	Loss of controller situational awareness	Distractions Large number of student pilots (flight training) Increased construction activity Loss of visual cues Increased workload Additional coordination Changing taxi routes NOTAM confusion Miscommunication Controller complacency with existing environment Changing visual environment	6 a.m. – 10 p.m. (ATCT hours of operation) Day/night/ VMC/IMC during construction	AC 150/5200-18 AC 150/5210-20 AC 150/5370-2 JO 7110.65 JO 7210.3 FAR Part 139 ARSR CA/MSAW STARS Controller training Contractor and driver training Pilot intervention Controller intervention ATC scanning Airfield ops monitoring Operational supervision Radio, frequency monitoring Daily briefings, notes ATC SOPs Vehicle marking/lighting Physical barriers	OE OD	4 □ Minor Based on historical data from past construction projects	C □ Remote Based on historical data from past construction projects	4C □ Low	None	4C □ Low

Figure 7: Preliminary Hazard Analysis Matrix (Continued)

Hazard Number	Hazard Description	Cause	System State	Existing Controls	Possible Effect	Severity / Rationale	Likelihood/ Rationale	Current/ Initial Risk	Recommended Safety Requirements	Predicted Residual Risk
PRC-2011-03	Loss of pilot situational awareness	Non-proficient pilots Increased construction activity Loss of visual cues Changing taxi routes NOTAM confusion Miscommunication Pilot complacency with existing environment Changing visual environment	Day/night/ VMC/IMC during construction	AC 150/5300-13 AC 150/5340-1 AC 150/5340-18 AC 150/5345-46 AC 150/5370-2 FAR Part 139 ATIS, AIM Pilot training Pilot intervention Controller intervention ATC scanning Airfield ops monitoring Operational supervision Additional flight deck comm. Radio, frequency monitoring CRM Daily briefings, notes ATC SOPs LOAs Vehicle marking/lighting Physical barriers Flying publications User group outreach ATC/pilot runway safety best practices AFD	PD	4 □ Minor Based on historical data from past construction projects	C □ Remote Based on historical data from past construction projects	4C □ Low	None	4C □ Low

Figure 7: Preliminary Hazard Analysis Matrix (Continued)

Hazard Number	Hazard Description	Cause	System State	Existing Controls	Possible Effect	Severity / Rationale	Likelihood/ Rationale	Current/ Initial Risk	Recommended Safety Requirements	Predicted Residual Risk
PRC-2011-04	Loss of vehicle operator situational awareness	Lack of familiarity Increased construction activity Loss of visual cues Additional coordination Changing access and haul routes Miscommunication Vehicle operator complacency with existing environment Changing visual environment	Day/night/ VMC/IMC during construction	AC 150/5200-18 AC 150/5200-28 AC 150/5200-31 AC 150/5210-20 AC 150/5210-5 AC 150/5300-13 AC 150/5340-1 AC 150/5340-18 AC 150/5345-46 AC 150/5370-2 AC 150/5210-24 JO 7110.65 FAR Part 139 ATIS Controller, contractor training, and driver training FAA driver training – Tech Ops Access control training Controller intervention ATC scanning Airfield operations monitoring Operational supervision Radio, frequency monitoring Daily briefings, notes	Incident VPD	5 □ Minimal Based on historical data from past construction projects	C □ Remote Based on historical data from past construction projects	5C □ Low	None	5C □ Low

Figure 7: Preliminary Hazard Analysis Matrix (Continued)

Hazard Number	Hazard Description	Cause	System State	Existing Controls	Possible Effect	Severity / Rationale	Likelihood/ Rationale	Current/ Initial Risk	Recommended Safety Requirements	Predicted Residual Risk
PRC-2011-04 (Continued)				Vehicle marking/lighting Physical barriers User group outreach						
PRC-2011-05	Increased wildlife activity	Increased construction activity Loss of visual cues New vehicle operators (unfamiliarity) Changing taxi routes Increased runway crossings Increased vehicle activities Haul route use	24/7	AC 150/5200-18 AC 150/5200-28 AC 150/5210-24 JO 7110.65 Controller, contractor, and driver training Controller/pilot intervention ATC scanning Airfield operations monitoring Operational supervision Daily briefings, note AFD 10-foot deer fence	Disruption of service	5 □ Minimal Based on historical data	B □ Probable Based on historical data	5B □ Low	None	5B □ Low

Figure 7: Preliminary Hazard Analysis Matrix (Continued)

Acronyms

Acronym	Definition
AC	Advisory Circular
AFD	Airport/Facility Directory
AFTIL	Airport Facilities Tower Integration Laboratory
AIM	Aeronautical Information Manual
ARSR	Air Route Surveillance Radar
ASR	Airport Surveillance Radar
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information System
ATO	Air Traffic Organization
CA	Conflict Alert
CCTV	Closed Circuit Television
CD	Clearance Delivery
CIC	Controller-In-Charge
DRK	Drake VORTAC
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FBO	Fixed Base Operator
FD	Flight Data
FLM	Front Line Manager
FOD	Foreign Object Debris
GA	General Aviation
GPS	Global Positioning System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMS	Instrument Meteorological Conditions
JO	Joint Order
LAA	Low Altitude Alert
LAHSO	Land and Hold Short Operations
LOA	Letter of Agreement
LRR	Long Range Radar
MALSR	Medium Intensity Approach Lighting w/Runway Alignment Indicator Lights
MSAW	Minimum Safe Altitude Warning
NAS	National Airspace System
NATCA	National Air Traffic Controllers Organization
NISC	National Integration Support Contract
NOTAM	Notice to Airmen
OE	Operational Error
OD	Operational Deviation
OSG	Operations Support Group
PAPI	Precision Approach Path Indicator
PHA	Preliminary Hazard Analysis
PHL	Preliminary Hazard List

PRC	Prescott Regional Airport/Ernest A. Love Field
P&R	Planning and Requirements
QCG	Quality Control Group
RNAV	Area Navigation
RSA	Runway Safety Area
RTR	Remote Transmitter/Receiver
SMS	Safety Management System
SOP	Standard Operating Procedure
SRM	Safety Risk Management
SRMD	Safety Risk Management Document
STARS	Standard Terminal Automation Replacement System
USFS	United States Forest Service
VMC	Visual Meteorological Conditions
VORTAC	Very High Frequency Omnidirectional Range Colocated Tactical Air
WSC	Western Service Area

Appendix D:

FAA Airport Master Record (Form 5010-1)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 1/19/2017
AFD EFF 01/05/2017
FORM APPROVED OMB 2120-0015

> 1 ASSOC CITY: PRESCOTT | 4 STATE: AZ | LOC ID: PRC | FAA SITE NR: 00763.*A
> 2 AIRPORT NAME: ERNEST A LOVE FIELD | 5 COUNTY: YAVAPAI AZ
3 CBD TO AIRPORT (NM): 07 N | 6 REGION/ADO: AWP/PHX | 7 SECT AERO CHT: PHOENIX

GENERAL

10 OWNERSHIP: PUBLIC
> 11 OWNER: CITY OF PRESCOTT
> 12 ADDRESS: 201 SOUTH CORTEZ STREET
PRESCOTT, AZ 86301
> 13 PHONE NR: 928-777-1114
> 14 MANAGER: JOHN COX
> 15 ADDRESS: 6546 CRYSTAL LANE
PRESCOTT, AZ 86301
> 16 PHONE NR: 928-777-1114
> 17 ATTENDANCE SCHEDULE:

ALL	ALL	0600-2200

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 34-39-17.4000N ESTIMATED
20 ARPT LONG: 112-25-09.2000W
21 ARPT ELEV: 5044.9 SURVEYED
22 ACREAGE: 760
> 23 RIGHT TRAFFIC: 03L, 21R, 03R, 21L
> 24 NON-COMM LANDING: NO

25 NPIAS/FED AGREEMENTS: NGY3
> 26 FAR 139 INDEX: I A S 08/2008

SERVICES

> 70 FUEL: 100LL A

> 71 AIRFRAME RPRS: MAJOR
> 72 PWR PLANT RPRS: MAJOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
AFRT, AVNCS, CARGO, CHTR, INSTR, RNTL, SALES

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED : SEE RMK
BCN LGT SKED: SS-SR
> 82 UNICOM: 122.950
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: YES
86 FSS: PRESCOTT
87 FSS ON ARPT: NO

88 FSS PHONE NR: 928-583-6154
89 TOLL FREE NR: 1-800-WX-BRIEF

BASED AIRCRAFT

90 SINGLE ENG:	183
91 MULTI ENG:	16
92 JET:	2
TOTAL:	201
93 HELICOPTERS:	4
94 GLIDERS:	1
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	10
102 AIR TAXI:	3,586
103 G A LOCAL:	188,897
104 G A ITNRNT:	79,539
105 MILITARY:	503
TOTAL:	272,535
OPERATIONS FOR 12 MONTHS ENDING:	12/31/2015

RUNWAY DATA

	03L/21R	03R/21L	12/30	
> 30 RUNWAY INDENT:				
> 31 LENGTH:	4,846	7,619	4,408	
> 32 WIDTH:	60	150	75	
> 33 SURF TYPE-COND:	ASPH-G	ASPH-G	ASPH-G	
> 34 SURF TREATMENT:		PFC		
35 GROSS WT: S	12.5	63.0	12.5	
36 (IN THSDS) D		80.0		
37 2D		100.0		
38 2D/2D2				
> 39 PCN:	2 /F/D/X/T	8 /F/D/Y/T	10 /F/C/Y/T	

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:	MED	MED	MED	
> 42 RWY MARK TYPE-COND:	- / -	NPI - G / PIR - G	NPI - F / BSC - F	- / -
> 43 VGSI:	P2L / P2L	P4L / P4L	P2L / P2L	/
44 THR COSSING HGT.:	40 / 40	45 / 52	48 / 40	/
45 VISUAL GLIDE ANGLE:	3.00 / 3.00	4.10 / 3.00	4.24 / 3.60	/
> 46 CNTRLN-TDZ:	- / -	N - N / N - N	N - N / N - N	- / -
> 47 RVR-RVV:	- / -	- N / - N	- N / - N	- / -
> 48 REIL:	/	Y / N	Y / Y	/
> 49 APCH LIGHTS:	/	/ MALSR	/	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY	A(V) / A(V)	C / PIR	A(NP) / A(V)	/
> 51 DISPLACED THR:	811 /	379 /	150 /	/
> 52 CTLG OBSTN:	/	ROAD /	/	/
> 53 OBSTN MARKED/LGTD:	/	/	/	/
> 54 HGT ABOVE RWY END:	/	26 /	/	/
> 55 DIST FROM RWY END:	/	720 /	/	/
> 56 CNTRLN OFFSET:	/	0B /	/	/
57 OBSTN CLNC SLOPE:	/	20:1 / 50:1	50:1 / 50:1	/
58 CLOSE-IN OBSTN:	N / N	N / N	N / N	/

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):	4,846 / 4,846	7,619 / 7,619	4,408 / 4,408	/
> 61 TAKE OFF DIST AVBL (TODA):	4,846 / 4,846	7,619 / 7,619	4,408 / 4,408	/
> 62 ACLT STOP DIST AVBL (ASDA):	4,846 / 4,608	7,619 / 7,619	4,408 / 4,258	/
> 63 LNDG DIST AVBL (LDA):	4,037 / 4,608	7,240 / 7,619	4,258 / 4,308	/

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS

A 014 OPERATIONS - PHONE 928-777-1150.
A 030 RWY 03L/21R RY 03L/21R CLSD 2200-0600.
A 057 RWY 03R APCH RATIO 50:1 TO DSPLCD THR.
A 070 FUEL AVBL 0700-2100 CALL 928-443-9333; AFT HRS AVBL PER ADVANCE REQUEST. SELF SERVICE FUEL RSTRD TO ACFT WITH WINGSPAN 50 FT OR LESS.
A 081 AFTER 2200 - ACTVT MALSR RY 21L; REIL RY 03R; PAPI RY 03R/21L - CTAF. ACTVT REIL RY 12/30; PAPI RY12/30; MIRL RY 12/30 FREQ 128.75.
A 110-002 EFF RY GRADIENT RY 12 0.6% UP; RY 21L 1.0% UP; RY 21R 0.8 UP.
A 110-003 RY 21L DESIGNATED CALM WIND RY.
A 110-004 ACFT DEPG RY 21L CONTINUE RY HEADING UNTIL ACROSS HWY AND MAKE IMMEDIATE LEFT TURN.
A 110-005 20 FT DROP-OFF 300 FT FROM APCH END RY 12.
A 110-007 OVERNIGHT PARKING FEE.
A 110-013 WILDLIFE INVOF RUNWAYS AND TAXIWAYS.
A 110-014 VOLUNTARY NOISE ABATEMENT PROCEDURES IN EFFECT - CTC AIRPORT OPERATIONS 928-777-1150.
A 110-015 LANDING FEE FOR TRANSIENT COMMERCIAL ACR 12,500 LBS OR GREATER BASED UPON MAXIMUM CERTIFICATED LANDING WEIGHT.

111 INSPECTOR: (F) | 112 LAST INSP: 05/11/2016 | 113 LAST INFO REQ:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 1/19/2017
AFD EFF 01/05/2017
FORM APPROVED OMB 2120-0015

> 1 ASSOC CITY: ***CONTINUED*** 4 STATE: AZ LOC ID: PRC FAA SITE NR: 00763.*A
> 2 AIRPORT NAME: 5 COUNTY:
3 CBD TO AIRPORT (NM): 6 REGION/ADO: AWP/PHX 7 SECT AERO CHT:

GENERAL

10 OWNERSHIP:
> 11 OWNER:
> 12 ADDRESS:

> 13 PHONE NR:
> 14 MANAGER:
> 15 ADDRESS:

> 16 PHONE NR:
> 17 ATTENDANCE SCHEDULE:

18 AIRPORT USE:
19 ARPT LAT:
20 ARPT LONG:
21 ARPT ELEV:
22 ACREAGE:
> 23 RIGHT TRAFFIC:
> 24 NON-COMM LANDING:

25 NPIAS/FED AGREEMENTS:
> 26 FAR 139 INDEX:

SERVICES

> 70 FUEL:

> 71 AIRFRAME RPRS:
> 72 PWR PLANT RPRS:
> 73 BOTTLE OXYGEN:
> 74 BULK OXYGEN:
75 TSNT STORAGE:
76 OTHER SERVICES:

FACILITIES

> 80 ARPT BCN:
> 81 ARPT LGT SKED :
BCN LGT SKED:
> 82 UNICOM:
> 83 WIND INDICATOR:
84 SEGMENTED CIRCLE:
85 CONTROL TWR:
86 FSS:
87 FSS ON ARPT:

88 FSS PHONE NR:
89 TOLL FREE NR:

BASED AIRCRAFT

90 SINGLE ENG:
91 MULTI ENG:
92 JET:
TOTAL:

93 HELICOPTERS:
94 GLIDERS:
95 MILITARY:
96 ULTRA-LIGHT:

OPERATIONS

100 AIR CARRIER:
102 AIR TAXI:
103 G A LOCAL:
104 G A ITNRNT:
105 MILITARY:
TOTAL:

OPERATIONS FOR
12 MONTHS
ENDING:

RUNWAY DATA

> 30 RUNWAY INDENT:				
> 31 LENGTH:				
> 32 WIDTH:				
> 33 SURF TYPE-COND:				
> 34 SURF TREATMENT:				
35 GROSS WT:	S			
36 (IN THSDS)	D			
37	2D			
38	2D/2D2			
> 39 PCN:				

LIGHTING/APCH AIDS

> 40 EDGE INTENSITY:				
> 42 RWY MARK TYPE-COND:	- / -	- / -	- / -	- / -
> 43 VGSI:	/	/	/	/
44 THR COSSING HGT.:	/	/	/	/
45 VISUAL GLIDE ANGLE:	/	/	/	/
> 46 CNTRLN-TDZ:	- / -	- / -	- / -	- / -
> 47 RVR-RVV:	- / -	- / -	- / -	- / -
> 48 REIL:	/	/	/	/
> 49 APCH LIGHTS:	/	/	/	/

OBSTRUCTION DATA

50 FAR 77 CATEGORY	/	/	/	/
> 51 DISPLACED THR:	/	/	/	/
> 52 CTLG OBSTN:	/	/	/	/
> 53 OBSTN MARKED/LGTD:	/	/	/	/
> 54 HGT ABOVE RWY END:	/	/	/	/
> 55 DIST FROM RWY END:	/	/	/	/
> 56 CNTRLN OFFSET:	/	/	/	/
57 OBSTN CLNC SLOPE:	/	/	/	/
58 CLOSE-IN OBSTN:	/	/	/	/

DECLARED DISTANCES

> 60 TAKE OFF RUN AVBL (TORA):	/	/	/	/
> 61 TAKE OFF DIST AVBL (TODA):	/	/	/	/
> 62 ACLT STOP DIST AVBL (ASDA):	/	/	/	/
> 63 LNDG DIST AVBL (LDA):	/	/	/	/

(>) ARPT MGR PLEASE ADVISE FSS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >

> 110 REMARKS

A 110-016 TWY B RSTRD TO ACFT WITH WINGSPAN 45 FT OR LESS.
A 110-017 WINCH TOW IN USE UP TO 2500 FT AGL APPROX 6NM EAST AT GOODWIN MEMORIAL GLIDERPORT.
A 110-019 RWY 30 PAPI UNUSABLE BEYOND 3 NM.
A 110-020 FIELD CONDITIONS (FICON) NOT MONITORED 2200-0500 LOCAL.

111 INSPECTOR: (F) 112 LAST INSP: 05/11/2016 113 LAST INFO REQ:

Appendix E:

Interview with ATC

Prescott #16083
Field Notes 9/20/2016
Subject: Interview with Paul Winski (FAA ATCT Manager) and Noel Kingston (union rep).
By: Rusty Chapman

Discussion focused on airport operations, safety and efficiency of the airport. Below are comments they made:

- ATCT top three priorities for the airport would be : New/higher tower, more pavement , and ASR for radar coverage
- The existing tower is inadequate due to lack of visibility to many areas, especially end of Runway 30 and the far ends of 21L and 21R. We need a new tower and the location on top of hill on south side of Runway 3R-21L would be acceptable.
- Several operational concerns were reviewed at the FAA Tech Center in 2011. Attached is copy of that report.
- Portion of TW F on south end cannot be seen. This is known as Hotspot #1 but needs to be renamed as a 'non-visible' area. The two buildings built on high ground adjacent to airport property worsened the situation.
- Aircraft queue on Taxiway F going to Runway 30. We cannot see them until their nose is near the hold line. We have to use binoculars.
- Fuel trucks coming from the FBO confront these taxiing aircraft on Taxiway F head on and it is very difficult to manage both. Fuel trucks often have to wait a long time to proceed to the Embry Riddle ramp.
- Runway 30 has no instrument approach due to terrain.
- Closure of Runway 12-30 at night would probably be okay as it does not receive much traffic after the ATCT is closed.
- Helicopters need another landing area to help with capacity. Paul introduced an idea to establish a helicopter landing area just south of Runway 30. Copy is attached.
- Shifting the short parallel runway to the northeast to remove the displaced threshold would be good, but new tower and site would be needed for visibility of 21R.
- Hotspot 2 needs to be improved by removing Taxiway C2; however, C2 is used by landing aircraft and there needs to be an alternative.
- USFS tanker aircraft need more runway. Some days they used all of the main runway. USFS tankers are operated by a private contract.

- Hotspot #3 is near the end of Runway 3L. It needs to be improved by relocating Taxiways A1 and B5.

- There is no real solution to Hotspot #4. It is mainly a busy area of the airport (Taxiways C4/D4) that is managed by ATCT.

- Taxiways D and H east of the USFS (near Runway 21L) are sometimes confusing and pilots taxi down Taxiway H rather than stay on Taxiway D as they approach Runway 21L.

- Jets landing on Runway 21L going to the FBO sometimes avoid exiting onto Taxiway E because of the narrow taxiway and it is over a 90 degree turn. The pilots often just go all the way down to the Runway 3R threshold and exit on Taxiway D1.

- It is recognized that Taxiway E's runway/taxiway separation is not standard for large aircraft. However, placing operational restrictions on Taxiway E during large aircraft operations on Runway 12-30 would hurt capacity. Taxiway E is important and used a great deal.

- Northaire has to cross runways to get fuel.

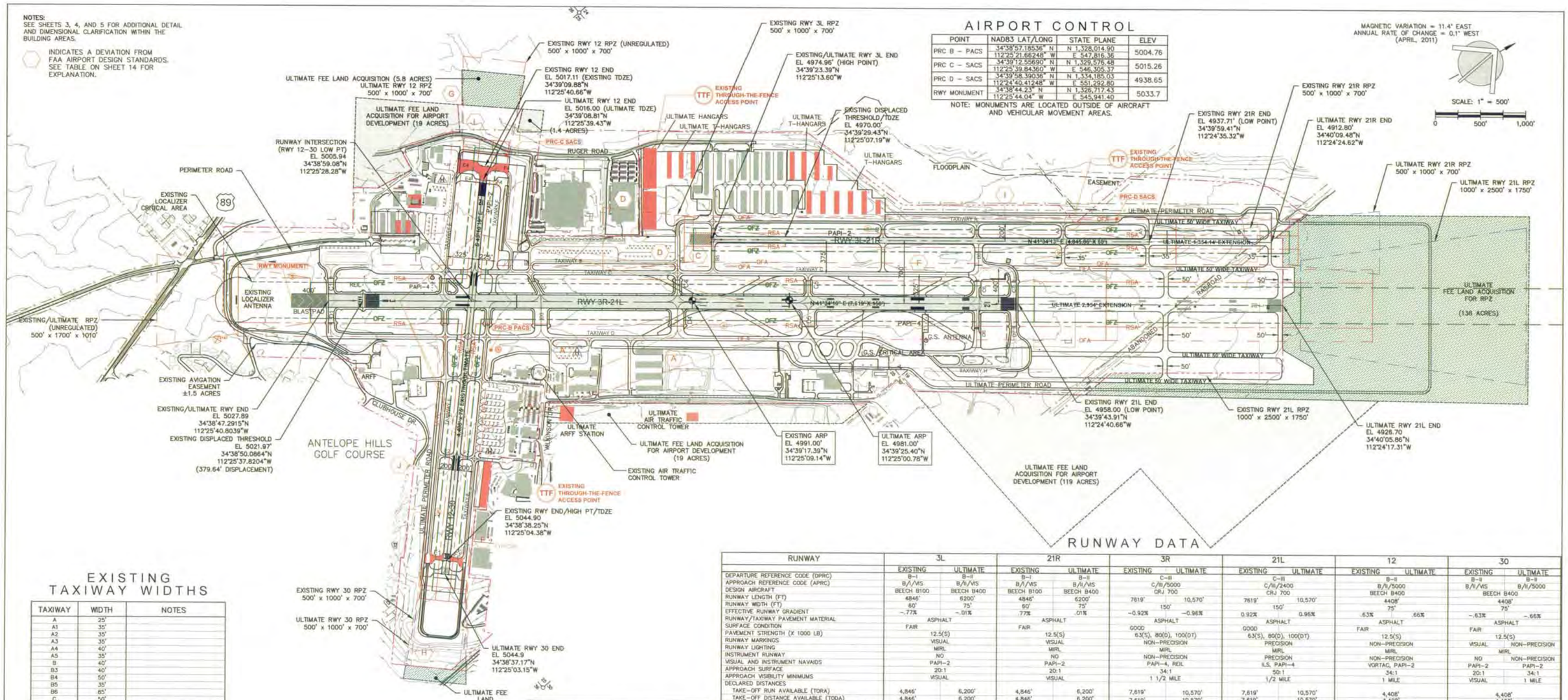
- Traffic in the 1990's was greater than today. It was 340K operations.

Appendix F:

PRC Airport Layout Plan

NOTES:
SEE SHEETS 3, 4, AND 5 FOR ADDITIONAL DETAIL AND DIMENSIONAL CLARIFICATION WITHIN THE BUILDING AREAS.

INDICATES A DEVIATION FROM FAA AIRPORT DESIGN STANDARDS. SEE TABLE ON SHEET 14 FOR EXPLANATION.



AIRPORT CONTROL

POINT	NAD83 LAT/LONG	STATE PLANE	ELEV
PRC B – PACS	34°38'57.18536" N 112°25'21.66248" W	N 1,328,014.90 E 547,816.36	5004.76
PRC C – SACS	34°39'12.55690" N 112°25'39.84360" W	N 1,329,576.48 E 546,305.37	5015.26
PRC D – SACS	34°39'58.39036" N 112°24'40.41248" W	N 1,334,185.03 E 551,292.80	4938.65
RWY MONUMENT	34°38'44.23" N 112°25'44.04" W	N 1,326,717.43 E 545,941.40	5033.7

NOTE: MONUMENTS ARE LOCATED OUTSIDE OF AIRCRAFT AND VEHICULAR MOVEMENT AREAS.

EXISTING TAXIWAY WIDTHS

TAXIWAY	WIDTH	NOTES
A	25'	
A1	35'	
A2	35'	
A3	35'	
A4	40'	
A5	35'	
B	40'	
B3	40'	
B4	50'	
B5	35'	
B6	85'	
C	50'	
C1	70'	AT HOLD LINE – WIDTH VARIES
C2	50'	
C3	40'	
C4	50'	
C5	50'	
C6	50'	
C7	60'	AT HOLD LINE – WIDTH VARIES
D	50'	
D1	60'	
D3	140'	
D4	140'	
D5	140'	
D6	50'	
D7	60'	AT HOLD LINE – WIDTH VARIES
E	50'	WEST OF RUNWAY 3R–21L
E	40'	EAST OF RUNWAY 3R–21L
E1	40'	
E2	35'	
E3	40'	
E4	40'	
F	40'	
F1	40'	
F2	35'	
F3	40'	
F4	35'	
H	35'	

NOTES

ALL EXISTING TAXIWAYS ARE ASPHALT PAVED.

WIDTHS OF ULTIMATE TAXIWAYS ARE SHOWN IN THE PLAN VIEW.

Funding Acknowledgement

The preparation of this document was financed in part through a grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended by the Airport and Airway Safety and Expansion Act of 1987. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally in accordance with appropriate public laws.

SPONSOR APPROVAL

BY: John E Lee

11-7-2014
DATE

FAA APPROVAL

RUNWAY DATA

RUNWAY	3L		21R		3R		21L		12		30	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE
DEPARTURE REFERENCE CODE (DPRC)	B-I	B-II	B-I	B-II	C-III		C-III		B-II		B-II	B-II
APPROACH REFERENCE CODE (APRC)	B/I/VIS	B/II/VIS	B/I/VIS	B/II/VIS	C/III/5000		C/III/2400		B/II/5000		B/II/5000	B/II/5000
DESIGN AIRCRAFT	BEECH B100	BEECH B400	BEECH B100	BEECH B400	CRJ 700		CRJ 700		BEECH B400		BEECH B400	
RUNWAY LENGTH (FT)	4846'	6200'	4846'	6200'	7619'	10,570'	7619'	10,570'	4408'		4408'	
RUNWAY WIDTH (FT)	60'	75'	60'	75'	150'		150'		75'		75'	
EFFECTIVE RUNWAY GRADIENT	-.77%	-.01%	.77%	.01%	-0.92%	-0.96%	0.92%	0.96%	.63%	.66%	-.63%	-.66%
RUNWAY/TAXIWAY PAVEMENT MATERIAL	ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT	
SURFACE CONDITION	FAIR		FAIR		GOOD		GOOD		FAIR		FAIR	
PAVEMENT STRENGTH (X 1000 LB)	12.5(S)		12.5(S)		63(S), 80(D), 100(DT)		63(S), 80(D), 100(DT)		12.5(S)		12.5(S)	
RUNWAY MARKINGS	VISUAL		VISUAL		NON-PRECISION		PRECISION		NON-PRECISION		VISUAL	NON-PRECISION
RUNWAY LIGHTING	MIRL		MIRL		MIRL		MIRL		MIRL		MIRL	
INSTRUMENT RUNWAY	NO		NO		NON-PRECISION		PRECISION		NON-PRECISION		NO	NON-PRECISION
VISUAL AND INSTRUMENT NAVAIDS	PAPI-2		PAPI-2		PAPI-4, REIL		ILS, PAPI-4		VORTAC, PAPI-2		PAPI-2	PAPI-2
APPROACH SURFACE	20:1		20:1		34:1		50:1		34:1		20:1	34:1
APPROACH VISIBILITY MINIMUMS	VISUAL		VISUAL		1 1/2 MILE		1/2 MILE		1 MILE		VISUAL	1 MILE
DECLARED DISTANCES												
TAKE-OFF RUN AVAILABLE (TORA)	4,846'	6,200'	4,846'	6,200'	7,619'	10,570'	7,619'	10,570'	4,408'		4,408'	
TAKE-OFF DISTANCE AVAILABLE (TODA)	4,846'	6,200'	4,846'	6,200'	7,619'	10,570'	7,619'	10,570'	4,408'		4,408'	
ACCELERATED STOP DISTANCE AVAILABLE (ASDA)	4,846'	6,200'	4,846'	6,200'	7,619'	10,570'	7,619'	10,570'	4,408'		4,408'	
LANDING DISTANCE AVAILABLE (LDA)	4,037'	5,389'	4,846'	6,200'	7,240'	10,194'	7,616'	10,570'	4,258'	4,408'	4,408'	
HIGHEST POINT ON RUNWAY CENTERLINE (MSL)	4974.96		4974.96		5027.89		5027.89		5044.90		5044.90	
LOWEST POINT ON RUNWAY CENTERLINE (MSL)	4937.71	4912.80	4937.71	4912.80	4958.00	4926.70	4958.00	4926.70	5005.94		5005.94	
RUNWAY TOUCHDOWN ZONE ELEVATION (MSL)	4969.70		4960.81	4950.38	5022.49		4985.53	4958.42	5017.11	5016.00	5044.90	
RUNWAY END ELEVATION (MSL)	4974.96		4937.71	4912.80	5027.89		4958.00	4926.7	5017.11	5016.00	5044.90	
RUNWAY END COORDINATES (NAD 83)												
LATITUDE	34°39'23.39"		34°39'59.41"	34°40'09.48"	34°38'47.29"		34°39'43.91"	34°40'05.86"	34°39'09.88"	34°39'08.81"	34°38'38.25"	34°38'37.17"
LONGITUDE	112°25'13.60"		112°24'35.32"	112°24'24.62"	112°25'40.80"		112°24'40.66"	112°24'17.31"	112°25'40.66"	112°25'39.43"	112°25'04.38"	112°25'03.15"
RUNWAY SAFETY AREA (RSA)												
LENGTH BEYOND RUNWAY END	240'	300'	240'	300'	1000'		1000'		300'	300'	300'	300'
WIDTH	120'	150'	120'	150'	500'		500'		150'	150'	150'	150'
RUNWAY OBJECT FREE AREA (ROFA)												
LENGTH BEYOND RUNWAY END	240'	300'	240'	300'	800'		800'		300'		300'	
WIDTH	400'	500'	400'	500'	1000'		600'		500'		500'	
OBSTACLE FREE ZONE (OFZ)												
LENGTH BEYOND RUNWAY END	200'		200'		200'		200'		200'		200'	
WIDTH	250'		250'		400'		400'		250'		250'	
APPROACH RUNWAY PROTECTION ZONE (RPZ)												
DISTANCE BEYOND THRESHOLD	200'	200'	200'	200'	200'		200'		200'		200'	
LENGTH	1,000'	1,000'	1,000'	1,000'	1,700'		2,500'		1,000'		1,000'	
INNER/OUTER WIDTH	500'/700'	500'/700'	500'/700'	500'/700'	500'/1010'		1000'/1750'		500'/700'		500'/700'	
DEPARTURE RUNWAY PROTECTION ZONE (RPZ)												
DISTANCE BEYOND TORA	200'		NOT APPLICABLE		200'		NOT APPLICABLE		200'	NOT APPLICABLE	NOT APPLICABLE	
LENGTH	1,000'				1,700'				1,000'			
STD. SEPARATION – RWY CL TO PARALLEL TWY CL	225'	240'	225'	240'	400'		400'		240'		240'	
STD. SEPARATION – TWY CL TO FIXED/MOVEABLE OB.	44.5'	65.5'	44.5'	65.5'	93'		93'		65.5'		65.5'	
TWY OBJECT FREE AREA WIDTH	89'	131'	89'	131'	186'		186'		131'		131'	
TWY SAFETY AREA WIDTH	49'	79'	49'	79'	118'		118'		79'		79'	
TWY WINGTIP CLEARANCE	20'	26'	20'	26'	34'		34'		26'		26'	
LINE OF SIGHT REQUIREMENT MET	NO		NO		NO		NO		NO		NO	
HOLDLINE TO RWY CENTERLINE DISTANCE	125'	250'	125'	250'	260'		260'		125'		125'	
RUNWAY CENTERLINE TO AIRCRAFT PARKING DISTANCE	200'	250'	200'	250'	500'	500'	500'	500'	250'	250'	250'	250'
RWY CENTERLINE TO PARALLEL RWY CENTERLINE	700'*	700'*	700'*	700'*	700'*	700'*	700'*	700'*	N/A	N/A	N/A	N/A
	* SIMULTANEOUS VFR OPERATIONS		* SIMULTANEOUS VFR OPERATIONS		* SIMULTANEOUS VFR OPERATIONS		* SIMULTANEOUS VFR OPERATIONS					

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REVISION DESCRIPTION	DATE
1 SEE REVISION NOTE ON SHEET 1	08-15-13
2 REVISED PER FAA COMMENTS DATED 10-15-14	10-27-14

AIRPORT LAYOUT DRAWING

ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT

Design: NJP
Drawn: CJP/NJP
Checked: NJP
Date: 10-27-2014

Sheet No. 2 of 16

Appendix G:

Hot Spot Total Project Cost Estimates

PRC HOT SPOT 2 (TW C2 RIM)
COST ESTIMATE

LINE No.	DESCRIPTION	APPROX. QTY.	UNIT	UNIT PRICE	AMOUNT
	CIVIL				
1	Contractor's Quality Control	1	LS	$3,500.00	$3,500.00
2	Mobilization	1	LS	$7,000.00	$7,000.00
3	Sawcut AC Pavement (Full Depth)	1,000	LF	$2.00	$2,000.00
4	Remove AC Pavement (Full Depth)	2,400	SY	$3.00	$7,200.00
5	Obliterate Pavement Marking	600	LF	$3.00	$1,800.00
6	Unclassified Excavation	700	CY	$12.00	$8,400.00
7	Over-Excavation and Replacement of Unsuitable Materials, Backfill and Compaction (Contingent Item)	25	CY	$56.00	$1,400.00
8	Subgrade Preparation	200	SY	$5.00	$1,000.00
9	Crushed Aggregate Base Course (8-Inch Depth)	200	SY	$12.00	$2,400.00
10	Cement-Treated Base (6-Inch Depth)	200	SY	$15.00	$3,000.00
11	Asphalt Concrete Pavement	45	TON	$120.00	$5,400.00
12	Pavement Marking (White)	400	SF	$2.00	$800.00
13	Underground Utility Allowance	1	ALLOW	$12,000.00	$12,000.00
14	Location of Underground Utilities	1	ALLOW	$5,000.00	$5,000.00
15	Airfield Safety and Security	1	LS	$50,000.00	$50,000.00
16	Seeding	2,400	SY	$1.50	$3,600.00
17	SWPPP	1	LS	$8,000.00	$8,000.00
				Civil Subtotal	$122,500.00
	ELECTRICAL				
18	Electrical	1	EA	$48,000.00	$48,000.00
				Electrical Subtotal	$48,000.00
				CONSTRUCTION SUBTOTAL	***$170,500.00***
				Contigency	$50,000.00
				CONSTRUCTION TOTAL	**$220,500.00**
				Construction Management Fee	$75,000.00
				Admin Fee	$30,000.00
				Design Fee	$70,000.00
				PROJECT TOTAL	**$395,500.00**

PRC HOT SPOT 3 (RW 3L Approach End RIM)
COST ESTIMATE

LINE No.	DESCRIPTION	APPROX. QTY.	UNIT	UNIT PRICE	AMOUNT
	CIVIL				
1	Contractor's Quality Control	1	LS	$19,000.00	$19,000.00
2	Mobilization	1	LS	$38,000.00	$38,000.00
3	Sawcut AC Pavement (Full Depth)	1,300	LF	$2.00	$2,600.00
4	Remove AC Pavement (Full Depth)	9,800	SY	$2.50	$24,500.00
5	Obliterate Pavement Marking	700	LF	$1.00	$700.00
6	Unclassified Excavation	3,000	CY	$15.00	$45,000.00
7	Over-Excavation and Replacement of Unsuitable Materials, Backfill and Compaction (Contingent Item)	350	CY	$55.00	$19,250.00
8	Subgrade Preparation	9,800	SY	$5.00	$49,000.00
9	Crushed Aggregate Base Course (8-Inch Depth)	9,800	SY	$12.00	$117,600.00
10	Cement-Treated Base (6-Inch Depth)	9,800	SY	$15.00	$147,000.00
11	Asphalt Concrete Pavement	2,250	TON	$85.00	$191,250.00
12	Pavement Marking (Yellow)	1,000	SF	$2.00	$2,000.00
13	Underground Utility Allowance	1	ALLOW	$12,000.00	$12,000.00
14	Location of Underground Utilities	1	ALLOW	$5,000.00	$5,000.00
15	Airfield Safety and Security	1	LS	$50,000.00	$50,000.00
16	Seeding	2,100	SY	$1.00	$2,100.00
17	SWPPP	1	LS	$8,000.00	$8,000.00
				Civil Subtotal	$733,000.00
	ELECTRICAL				
18	Electrical	1	EA	$220,000.00	$220,000.00
				Electrical Subtotal	$220,000.00

CONSTRUCTION SUBTOTAL	***$953,000.00***
Contigency	$235,000.00
CONSTRUCTION TOTAL	**$1,188,000.00**
Construction Management Fee	$140,000.00
Airport Admin Fee	$120,000.00
Design Fee	$140,000.00
PROJECT TOTAL	**$1,588,000.00**

PRC HOT SPOT 4 (TW C4 & D4 RIM)
COST ESTIMATE

LINE No.	DESCRIPTION	APPROX. QTY.	UNIT	UNIT PRICE	AMOUNT
CIVIL					
1	Contractor's Quality Control	1	LS	$20,000.00	$20,000.00
2	Mobilization	1	LS	$40,000.00	$40,000.00
3	Sawcut AC Pavement (Full Depth)	1,500	LF	$2.00	$3,000.00
4	Remove AC Pavement (Full Depth)	5,100	SY	$2.50	$12,750.00
5	Obliterate Pavement Marking	900	LF	$1.50	$1,350.00
6	Unclassified Excavation	3,600	CY	$15.00	$54,000.00
7	Over-Excavation and Replacement of Unsuitable Materials, Backfill and Compaction (Contingent Item)	1,000	CY	$55.00	$55,000.00
8	Subgrade Preparation	12,000	SY	$5.00	$60,000.00
9	Crushed Aggregate Base Course (8-Inch Depth)	12,000	SY	$8.00	$96,000.00
10	Cement-Treated Base (6-Inch Depth)	12,000	SY	$8.00	$96,000.00
11	Asphalt Concrete Pavement	2,700	TON	$85.00	$229,500.00
12	Pavement Marking (Yellow)	3,000	SF	$2.00	$6,000.00
13	Underground Utility Allowance	1	ALLOW	$8,000.00	$8,000.00
14	Location of Underground Utilities	1	ALLOW	$12,000.00	$12,000.00
15	Airfield Safety and Security	1	LS	$50,000.00	$50,000.00
16	Seeding	3,600	SY	$1.25	$4,500.00
17	SWPPP	1	LS	$8,000.00	$8,000.00
				Civil Subtotal	$756,100.00
ELECTRICAL					
18	Electrical	1	EA	$225,000.00	$225,000.00
				Electrical Subtotal	$225,000.00
				CONSTRUCTION SUBTOTAL	***$981,100.00***
				Contigency	$230,000.00
				CONSTRUCTION TOTAL	**$1,211,100.00**
				Construction Management Fee	$140,000.00
				Airport Admin Fee	$120,000.00
				Design Fee	$140,000.00
				PROJECT TOTAL	**$1,611,100.00**

Appendix H:

PRC Ops/ATC Staff Workshop Meeting Minutes

RIM STUDY KICKOFF Meeting Minutes

AIRPORT MASTER PLAN
PRESCOTT MUNICIPAL AIRPORT
PRESCOTT, AZ

DELTA PROJECT NO. 16083
October 27, 2016

Attendees:
Jessie Baker, PRC Airport
John Cox, PRC Airport
Kurt Dalton, PRC Airport
Mike Robbin, FAA PRC ATCT
Paul Winski, FAA PRC ATCT
Clint Martin, FAA PRC ATCT
Mark Koehler, NATCA PRC ATCT
Kyler Erhard, FAA PHX ADO
Ken Snyder, Dibble Engineering
Jared Bass, Dibble Engineering
Nick Pela, Nicholas J. Pela & Associates
Doug Sander, Delta Airport Consultants

Doug Sander began the meeting by having everyone introduce themselves. He then discussed the meeting was to kickoff of the first Phase of the Runway Incursion Mitigation (RIM) Study being completed as part of the Airport Master Plan for Prescott Municipal Airport. The Phase One Rim Study would cover the three incursion areas identified by the FAA; and Phase Two would be a comprehensive RIM study of the entire Airport. One of the primary purposes of the kickoff meeting was to receive input and feedback from the Air Traffic Control Tower personnel on the issues and recommendations in the study.

The first discussion item was the review of the three runway incursion areas identified by the FAA. The three areas include:

- Runway 3R-21L/Taxiway C2/E Intersection (Hot Spot 2)
- Runway 3L Approach End (Hotspot 3)
- Runway 3R-21L/Taxiway C4-D4 Intersection (Hot Spot 4)

The group reviewed these areas and the particular reasons they are labeled Hot Spots and were identified by the FAA. This discussion led to a brief review of the 2016 FAA Runway Safety Action Plan and the 2011 FAA Operations Assessment Report, which detailed some of the reasons behind the runway incursion issues at PRC. Kurt Dalton provided additional information on the number and type of incursions based on the current incursion analysis he is conducting at Embry-Riddle Aeronautical University.

The group began detailed discussions on the individual areas that were going to include in the Phase One Study.

Runway 3R-21L/Taxiway C2/E Intersection
Jared Bass reviewed how the geometric configuration of the intersection did not meet current FAA design standards in AC 150/5300-13A. According to the AC, intersections should only have four nodes, or three options for taxiing aircraft. The current configuration in this area has five nodes. The proposed initial solution to the issue was the removal of Taxiway, C2 thereby eliminating a node. This would reduce

confusion for aircraft taxiing north on Taxiway C and east on Taxiway E. The ATCT personnel indicated that Taxiway C2 is an important runway exit taxiway that helps increase runway capacity by allowing aircraft to exit the runway at a higher speed. A mitigating option discussed was to both close/remove the current C2 connector, and replace it with a new angled exit taxiway farther to the west to accommodate aircraft exiting the runway and seeking access to the Terminal area. This proposal was seen as less desirable due longer runway occupancy time, and the need for traffic to have to taxi back on the parallel TW C to get to the terminal area. Another proposal presented was that after the removal of Taxiway C2, the runway/taxiway fillet between Runway 3R-21L and Taxiway E could be enlarged to allow higher speed exits. Everyone agreed this was a good approach and should be evaluated further in the study.

Runway 3L Approach End

Jared Bass reviewed how the geometric configuration of the intersection did not meet current FAA design standards in AC 150/5300-13A and how the configuration was causing issues. The staff from the ATCT indicated that the real issue was the direct access from the Bottleneck Hangars to the end of Runway 3L. They also noted that Taxiway B5 was often confused with Taxiway B4 by pilots, resulting in aircraft turning off of Taxiway C and across the end of Runway 3L. An option was proposed to increase the separation between Taxiway B5 and Taxiway B4 by relocating Taxiway B4 outside the approach RPZ to Runway 3L.

A suggestion to eliminate the direct access to the end of Runway 3L was to remove the displaced threshold to Runway 3L and relocate Taxiways A1 and B5 to the new runway end. The ATCT personnel indicated that the existing length of Runway 3L-21R was already inadequate for a number of training aircraft and reducing the length would significantly reduce the operation capability of the Airport. The Airport staff were also against any reduction of runway pavement.

A proposal was presented to relocate Taxiways A1 and B5 to the displaced threshold. The runway length would remain the same and a “turnaround” or “hammerhead” be constructed to allow aircraft to turnaround at the end of the pavement should they need to the full length. Everyone agreed this was a good approach and should be evaluated further in the study.

Kyler Erhard (FAA) also made a comment that all the items discussed herein should be designed and constructed as a single project given the size (cost), location, and nature of impact to airfield operations, (i.e. best bang for the buck to get all areas taken care of at the same time).

Runway 3R-21L/Taxiway C4-D4 Intersection

Jared Bass reviewed how the geometric configuration of the intersection did not meet current FAA design standards in AC 150/5300-13A. The AC discourages taxiways crossing runways in the middle third of a runway. The AC also discourages wide expanses of pavement as exhibited by Taxiway D4. The initial solution is to relocate either Taxiway C4 or Taxiway D4 and reduce the width of Taxiway D4. The personnel from the ATCT indicated that the D4-C4 crossing is heavily utilized to get from one side of the airfield to the other and eliminating the crossing would increase taxiway times and congestion on the taxiways. They

also indicated that the width of Taxiway D4 allows them to use it as a bypass hold area when there is significant traffic on Taxiway D.

It was suggested that a dual parallel taxiway to Taxiway D or a bypass area be constructed that meets FAA design standards, provide a safe holding or bypass area, and help to reduce congestion on Taxiway D if Taxiway C is relocated. Everyone agreed that idea of a bypass or parallel taxiway for Taxiway D was a good idea and should be evaluated further. While the ATCT staff understood the reasons for eliminating the Taxiway D4-C4 crossing, they were not in favor of it and requested additional evaluation of alternatives in the study.

The meeting was concluded by discussing the timeline for the Study. The team anticipated getting the Phase One Study to the Airport Staff in January for review and comment. After Airport Staff had time to review, the Study would be submitted to the ATCT Staff for their review and comment. After incorporating all comments, the Phase One RIM Study would be submitted to the Phoenix ADO for review.

Prescott Municipal Airport
Airport Master Plan

Runway Incursion Mitigation (RIM) Analysis – Phase 2

Final Report

October 2018

Prepared For:

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Table of Contents

I. Introduction 1

II. Overview of RIM Analysis - Phase 1 Findings 1

III. Hot Spot History and Runway Incursion History 2

A. Hot Spot 1 2
B. Runway Incursion History 2
C. FAA Runway Safety Office – Runway Incursions (RWS) database 3
D. FAA Runway Incursion Mitigation (RIM) Data Management Tool 4
E. On-site Evaluation 5

IV. Recommendations 10

A. Airfield Geometry 19
B. Operational 19
C. Wayfinding 20
D. Modifications to Standards 20
E. Total Project Budget Estimates 21

V. Summary of Recommendations 21

VI. Bibliography 22

List of Figures

Figure 1 9
Figure 2 10
Figure 3 11
Figure 4 12
Figure 5 13
Figure 6 14
Figure 7 15
Figure 8 16
Figure 9 17
Figure 10 18

List of Tables

Table 1-1 Summary of ATCT Runway Incursions 4

Appendices

Appendix A – PRC incursion history (2002 to 2017)

I. Introduction

The Runway Incursion Mitigation (RIM) Analysis - Phase 2 focuses on the portions of the airfield not included in the RIM Analysis – Phase 1 report. The Phase 1 report encompassed only three of the PRC Hot Spots identified in the current Federal Aviation Administration (FAA) RIM inventory of locations. The RIM Analysis – Phase 2 discusses a more holistic, airfield-wide approach to reducing runway incursions; evaluating both existing and proposed airfield geometry, pavement markings, airfield lighting, wayfinding, and operational awareness concerns.

Development strategies, phasing, priorities, and preliminary costs for implementing the recommendations will also be included in this report. Coordination with airport officials and FAA will be an important aspect of creating an effective implementation plan for the remaining runway incursion locations and the other recommended airfield improvements.

FAA Advisory Circular (AC) 150/5300-13A *Airport Design,* contains design standards and recommendations for the geometric layout and engineering design of airfield facilities including (but not limited to) runways, taxiways, and aprons. The design standards are intended to maintain safety and efficiency of vehicles, pedestrians, and aircraft on active airfields. If a situation is identified whereby the current FAA design standards cannot be met to achieve the desired runway incursion mitigation, then a Modification to Standards may be appropriate to resolve a particular condition. Any recommended Modification to Standards would be prepared in accordance with U.S DOT, FAA Order 5300.1F *Modification to Agency Airport Design, Construction and Equipment Standards*.

The findings from both the RIM Analysis - Phase 1 and 2 reports will be incorporated into the on-going Airport Master Plan Update, more specifically the Airport Layout Plan (ALP) as applicable, for inclusion into the phased development of the Airport over the 20 year planning period.

II. Overview of RIM Analysis - Phase 1 Findings

Prescott Municipal Airport is one of five airports in the State of Arizona, and one of the few in the country, to be identified in the first round of potential RIM project prioritization. The program identified four hotspot locations on the Airport that appear in FAA's National Runway Safety Plan 2015-2017. Hot Spot 1 was deferred to this report, and the remaining three locations evaluated in RIM Analysis - Phase 1 are identified as Hot Spot 2, Hot Spot 3, and Hot Spot 4.

The RIM Analysis – Phase 1 report evaluated the three hot spots by inventorying the operational conditions, and airfield geometry, developing alternatives, preparing recommendations, and creating an implementation plan.

The three hot spots were evaluated and recommendations were made for improving the airfield geometry. An implementation plan including priority ranking was also prepared along with estimated costs. The RIM Analysis – Phase 1 report recommended that the priority for correcting the hot spots should be the following: Hot Spot 2, 4, and finally 3 with estimated costs being $395,500, $1,588,000, and $1,611,000 respectively. Mitigation of Hot Spot 2 is included in a project that is currently being designed.

III. Hot Spot History and Runway Incursion History

The following summary of the hot spots along with a review of the runway incursion history provides the basis for recommending additional airfield improvements. The range of possible airfield improvements could include modification to the airfield geometry, operational improvements, and additional wayfinding. If current FAA design standards cannot be met, then a Modification to Standards may be appropriate to resolve a particular condition. Any recommended Modification to Standards request will include adequate justification, potential costs, and an implementation plan.

The following sources were used to analyze the runway incursion history at the Airport:

- Prescott Municipal Airport Operational Assessment Report;
- FAA Runway Safety Office – Runway Incursions (RWS) database;
- FAA Runway Incursion Mitigation (RIM) Data Management Tool; and
- On-site field visit and discussion with airport management.

A. Hot Spot 1

As mentioned in the RIM Analysis - Phase 1 report, only the hotspots included in the FAA's RIM program with a severity rating of A, B, C, or D were included in the National Runway Safety Report. As discussed above, Hot Spot 1 was not included in the RIM Analysis – Phase 1 report because it did not appear in the National Runway Safety Report. The Airport Diagram also identifies Hop Spot 1.

Hot Spot 1: Runway 30/Taxiway F1 intersection

Taxiway F1 is a 90 degree connector taxiway from Taxiway F to the Runway 30 end. Runway 12-30 is a cross-wind runway and is primarily used by single engine aircraft. Aircraft either depart the Runway 12-30 via Taxiway F1, or use the taxiway while holding for authorization to enter the runway prior to take-off. The cause for the hot spot designation is the inability of the Air Traffic Control Tower (ATCT) to make visual contact with an aircraft while on Taxiway F1 and Taxiway F intersection. The existing pavement geometry meets current FAA design standards.

B. Runway Incursion History

Prescott Municipal Airport Operational Assessment Report

The Prescott Municipal Airport Operational Assessment Report documents an operational assessment that was conducted by a workgroup at the Airport Facilities Tower Integration Laboratory (AFTIL) on June 7-9, 2011. Workgroup participants established a baseline of existing conditions, focusing on ATC capabilities, limitations, and hazards. The workgroup also explored options for phase airfield changes and determined the impact of those changes against the established baseline conditions and on the Airport after each phase is implemented. The Prescott Municipal Airport Operational Assessment Report

identified a total of 11 hot spot locations on the airfield. The remaining locations not addressed in the RIM Analysis – Phase 1 report are:

- Portions of Taxiway H are not visible from the ATCT because of terrain.
- Taxiway C6 at the intersection of Runway 3L/21R hold bars
- Taxiway A5 at Runway 3L/21R. The hold bars are not visible from the ATCT; controllers cannot see if an aircraft crosses the hold bars for Runway 3L/21R.
- Taxiway A4 at Runway 3L/21R. Hold bars are not visible from the ATCT; controllers cannot see if an aircraft crosses the hold bars for Runway 3L/21R.
- Hover pads northeast of the temporary earth mound between the ATCT and Forest Service ramp are not fully visible from the ATCT. **Note: the temporary earth mound has subsequently been removed, therefore this hot spot is mitigated.**
- Monarch Ramp entrance and exit. These areas are not visible from the ATCT because of existing buildings.
- A small segment of the eastern edge of Taxiway D. The area is not visible from the ATCT because of an existing building.
- Taxiway C4 and D4 have a high number of runway crossings.

C. FAA Runway Safety Office – Runway Incursions (RWS) database

The FAA Aviation Safety Information Analysis and Sharing (ASIAS) System contains several databases. The FAA Runway Safety Office – Runway Incursions (RWS) database contains 145 reports of runway incursion for PRC as of August 15, 2017. Reports are available from October 2, 2001 to May 2, 2017. For the purpose of the Runway Incursion Mitigation (RIM) Analysis – Phase 2, reports for the last five years (2002 to 2017) were reviewed for potential airfield improvements.

According to the ASIAS database, as of July 3, 2017 there were 71 runway incursion at the Airport logged over a five year period from August 31, 2012 to May 2, 2017. The runway incursion data reviewed was for all aircraft types (fixed wing and rotor) that operated at the Airport during this timeframe.

Runway incursions were caused by a number of different factors during the analyzed timeframe. A summary of runway incursions are depicted in **Table 1-1** which reveals that the majority of runway incursions are a result of pilots not following the directions given by the air traffic controllers in areas on the airfield that may or may not be designated by FAA as a hotspot.

This analysis (RIM Analysis - Phase 2) will determine if improvements such as pavement geometry modifications, operational changes, or additional wayfinding can be implemented to reduce the potential for incursions and improve a pilot's ability to comply with air traffic controller's instructions.

It is recommended that the other two types of runway incursions depicted in **Table 1-1**; pilot not communicating with the Control Tower, and pilot or pedestrian maneuvering without clearance or authorization from the Control Tower, be addressed with additional pilot education on FAA regulations regarding how to safely operate at a controlled airport.

Table 1-1 Summary of ATCT Runway Incursions

Types of Runway Incursions	Number of Reported Runway Incursions
Runway Incursions related to Hot Spots 1, 2, 3, and 4	20
Runway Incursions related to pilot not following the Control Towers directions	36
Runway Incursions related to pilot not communicating with the Control Tower	4
Runway Incursions related to pilot or pedestrian maneuvering without clearance or authorization from the Control Tower	11
Total	**71**

Source: FAA Aviation Safety Information Analysis and Sharing (ASIAS) database, retrieved August 21, 2017

In general, the runway incursions depicted in **Table 1-1** are not concentrated in one area on the airfield. Based on a review of the incursion data, there are several incursion reports associated with Taxiway C3. The taxiway is an acute angle exit taxiway from Runway 3R-21L and also provides direct access to the runway from the North Apron via Taxiway B3.

The remaining reports did not reveal a pattern of incursions at any one particular area on the airfield. Several reports were related to pilots inadvertently crossing the hold bars on Taxiway C connectors requiring the ATCT to take additional action of requesting an approaching aircraft to make a go around maneuver. With the separation of Taxiway C and Runway 3R-21L not meeting FAA design standards, pilots cannot maneuver their aircraft to be 90 degrees to the runway without crossing the hold bars on each of the taxiway connectors.

D. FAA Runway Incursion Mitigation (RIM) Data Management Tool

The FAA Runway Incursion Mitigation (RIM) Data Management Tool was also reviewed for the latest information about runway incursions at the Airport. This tool contains Point Inventory data for the following:

- RIM Location;
- RIM Location Mitigated;
- Hot Spots;
- Incursions; and
- Hotspots Polygon.

The tool also has a module to track the progress of each RIM mitigation project. To date, RIM Hot Spot locations 2, 3, or 4 have not been mitigated, although Mitigation of Hot Spot 2 is included in a project that is currently being designed.

The FAA's RIM Data Management Tool includes runway incursion data ranging from 2008 to 2016. For this time period, there are 29 incursions at the Airport.

The majority of the runway incursions are located at, or adjacent to the documented hot spots. Several runway incursions are located along Taxiway Delta and Delta connector taxiways. Taxiway Charlie and Taxiway Foxtrot also have runway incursions associated with those taxiways and connectors. In many instances the runway incursions were a result of the pilot not following the Controllers instructions. As a result, the aircraft maneuvered into an area that it was not authorized to be in, causing an incursion.

E. On-site Evaluation

On-site field visits were conducted with airport personnel to review the airfield for potential problematic areas related to pavement geometry, markings, airfield operations, and wayfinding. These field visits, along with discussions with the airport management resulted in identifying several areas on the airfield that could be improved or enhanced to help minimize the potential for future incursions and operational errors by pilots. In general, the improvements consist of additional pavement markings, edge lighting, wayfinding, airfield signage, and in some areas removal of existing pavement that is not used to reduce pilot confusion.

The following summarizes the areas on the airfield that are recommended to be improved to reduce potential incursions. An overview of each area is shown on **Figure 1** with more detailed views of each area depicted on **Figures 2 through 10**. It is important to note that the recommended modifications shown on the figures are schematic-level recommendations only and do not constitute final design.

Figure 2 depicts the following areas:

Area 1 – this area is part of the Hot Spot 3. It is recommended that until this area can be modified, that additional signage be consider to alert vehicle traffic of the restrictions for accessing the airfield. Additional taxiway edge stripes will help delineate the boundary of where aircraft can travel.

Area 2 – represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Area 3 – taxiway edge lighting are missing at the intersection of Taxiway C and C-5. It is recommended that lights be installed in accordance with the latest FAA guidance to avoid pilot confusion during nighttime operations.

Figure 3 depicts the following areas:

Area 4 - taxiway edge lights are missing at the intersection of Taxiway A and A-2. It is recommended that lights be installed in accordance with the latest FAA guidance to avoid pilot confusion during nighttime operations.

Area 5 – when Runway 21L was extended a new partial parallel taxiway was also constructed at a greater separation than the rest of Taxiway C. To meet FAA design

standards, the new partial parallel taxiway created a jog in the taxiway. With the new geometry, a portion of excess pavement exists that is not large enough to be used as an aircraft holding apron. Therefore, it is recommended that the excess portion of the pavement be striped and reflectors installed to prevent aircraft from inadvertently using the pavement as a hold apron.

Figure 4 depicts the following area:

Area 6 – the existing aircraft holding apron on Taxiway A at the Runway 21R threshold does not meet current FAA design standards. Therefore, it is recommended that the hold apron be striped and reflectors installed to prevent aircraft from inadvertently using the pavement as a hold apron. In addition, the existing edge lights should be decommissioned to prevent pilot confusion during nighttime operations.

Figure 5 depicts the following area:

Area 7 – Taxiway H and the associated connector taxiways should be re-marked to direct aircraft to a holding location that meets current FAA design standards. In addition, the existing edge lights and signs should be decommissioned to prevent pilot confusion during nighttime operations.

Figure 6 depicts the following areas:

Area 8 – the connector taxiway exiting Embry Riddle apron does not meet current FAA design standards for taxiway safety area. The existing culvert needs to be lengthened and the turf area needs to be properly graded adjacent to the connector taxiway to meet standards. A new taxiway centerline stipe should also be added to help guide pilots.

Area 9 - a directional sign should be installed along Taxiway D to inform pilots leaving the hangar area of the taxiway they are about to enter. This improvement could benefit (non-local) pilots who may be unfamiliar with the airfield geometry.

Area 10 – a directional sign should be installed along Taxiway D to inform pilots leaving the T- hangar area of the taxiway they are about to enter. This improvement could benefit (non-local) pilots who may be unfamiliar with the airfield geometry.

Area 11 - a STOP sign and painted stop bar should be installed on the access road as a reminder to vehicle operators on the airfield. Additionally, the first 50 feet of two existing gravel service roads leading to active airfield pavement should be paved to reduce the potential for generation of FOD.

Area 12 – a STOP sign should be installed on the access road adjacent to the painted stop bar as a reminder to vehicle operators on the airfield. Additionally, the first 50 feet of existing gravel service road leading to active airfield pavement should be paved to reduce the potential for generation of FOD.

Area 13 - represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Figure 7 depicts the following areas:

Area 14 – removal of Taxiway connectors E3 and F3 would eliminate the direct access from the Embry Riddle apron and Legend Aviation apron. Aircraft departing Legend Aviation would use Taxiway E to Taxiway D to Taxiway F if they needed access to the Embry Riddle apron.

Area 15 - represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Area 16 – a new connector taxiway is recommended to allow aircraft landing on Runway 30 access to the Embry Riddle apron. The location of the connector taxiway should at the approximate mid-point of the apron and be centrally located between parked aircraft. Based on conversations with Embry Riddle, all aircraft depart the apron from the second and third most northerly apron taxi lanes. A new directional sign is recommended along Taxiway F to advise pilot accordingly. It is also recommended that edge lights be installed along Taxiway F across from the Embry Riddle apron.

Area 17 - represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Figure 8 depicts the following area:

Area 18 – extra pavement that is occasionally used by aircraft for holding or run-ups is located at the intersections of Taxiways F & E at the Runway 30 threshold. The pavement geometry does not meet current FAA design standards. Therefore, it is recommended that the pavement be marked to prevent aircraft from inadvertently using the pavement. Also, reflectors should be installed to delineate the edge of usable pavement and the existing taxiway edge lights should be de-commissioned.

Figure 9 depicts the following areas:

Area 19 - a STOP sign and painted stop bar should be installed on the access road as a reminder to vehicle operators on the airfield.

Area 20 – a STOP sign and painted stop bar should be installed on the access road as a reminder to vehicle operators on the airfield.

Area 21 – taxiway edge lights should be installed along Taxiway D across from the connector taxiway to Legend Aviation. Additionally, a directional sign should be installed along Taxiway D to inform pilots leaving Legend Aviation of the taxiway they are about to enter.

Area 22 - represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Figure 10 depicts the following areas:

Area 23 - a STOP sign and painted stop bar should be installed on the access road as a reminder to vehicle operators on the airfield.

Area 24 – a directional sign should be installed along Taxiway C to inform pilots leaving the Terminal Apron of the taxiway they are about to enter. This improvement could benefit (non-local) pilots who may be unfamiliar with the airfield geometry.

Area 25 - a directional sign should be installed along Taxiway E to inform pilots leaving the Hangar Apron of the taxiway they are about to enter. This improvement could benefit (non-local) pilots who may be unfamiliar with the airfield geometry.

Area 26 - represents an existing vehicle gate with direct access to an active taxiway. This type of access can cause vehicles to inadvertently enter the movement area without clearance from the ATC. Consideration should be given to relocating the gate to avoid direct access.

Area 27 – a taxiway end sign should be installed to delineate the Taxiway F terminates at the intersection with Taxiway C. Additional taxiway edges lights should be installed in accordance with the latest FAA guidance at the intersection of Taxiways F & C to avoid pilot confusion during nighttime operations.

Area 28 – removal of Taxiway connectors C3 and D3 would eliminate the direct access from the Embry Riddle apron to the North Apron. It is recommended that the two taxiway connectors remain until such time that Taxiway F is relocated and is a complete parallel taxiway. With a full parallel Taxiway F, connectors C3 and D3 will not be needed.

Legend

- Design Standards
- Airfield Improvements
- Runway Incursion Mitigation (RIM)
- Design Standards & Runway Incursion Mitigation (RIM)

Source:

PRESCOTT MUNICIPAL AIRPORT
ERNEST A. LOVE FIELD
RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

CITY OF PRESCOTT ARIZONA
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1 in = 700 feet

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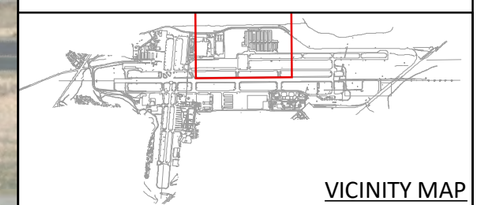
FIGURE 1

FILE: J:\2016\11016072.01 PRC Master Plan\Planning Notebook\0700 - RIM\RIM Phase II\GIS\Exhibits\Airport Issues - Overall.mxd DATE: 1/8/2018 TIME: 3:21:49 PM

Legend

- Design Standards
- Airfield Improvements
- TW Edge Light Unit
- TW Edge Pavement Marking
- Pavement Closure



VICINITY MAP

PRESCOTT MUNICIPAL AIRPORT
ERNEST A. LOVE FIELD
RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

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N

1 in = 250 feet

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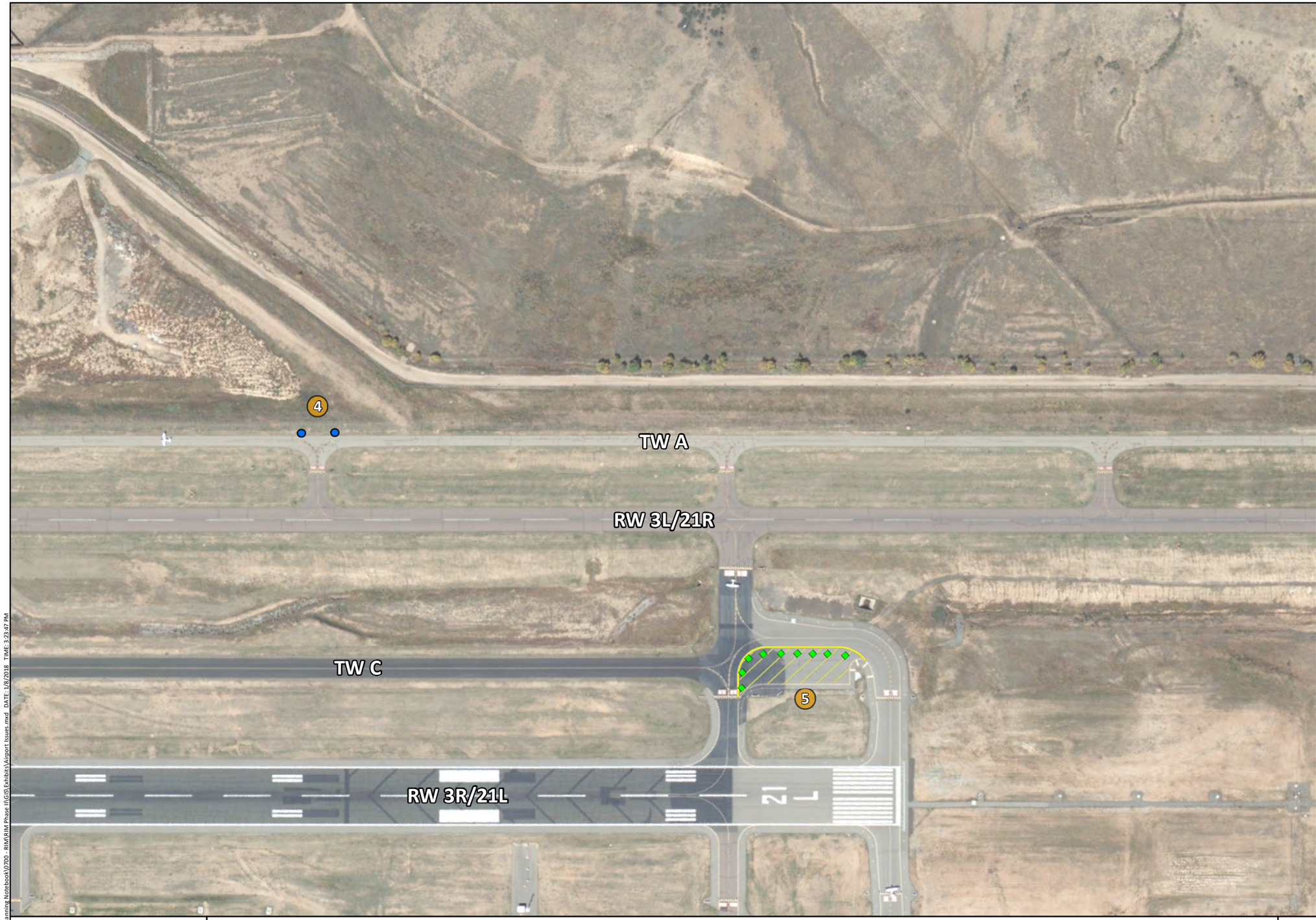
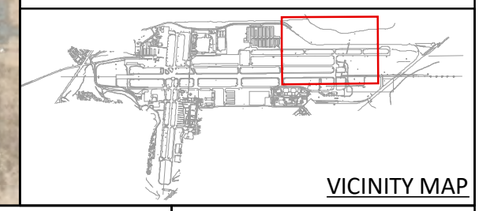
FIGURE 2

FILE: J:\2016\1016072.01 PRC Master Plan\Planning Notebook\0700 - RIM\ARIM Phase II\GIS\Exhibits\Airport Issues.mxd DATE: 1/8/2018 TIME: 3:23:37 PM



Legend

- Design Standards
- TW Edge Light Unit
- TW Edge Reflector
- TW Edge Pavement Marking
- Pavement Closure



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RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

1 in = 250 feet

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FIGURE 3

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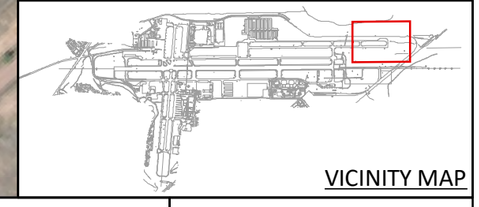
Legend

- Design Standards
- Decommision Exist TW Edge Light
- TW Edge Reflector
- TW Edge Pavement Marking
- Pavement Closure



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1 in = 150 feet

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FIGURE 4

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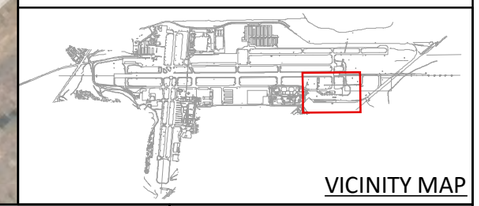
Legend

- Design Standards
- T/W CENTERLINE STRIPE
- HOLDING POSITION MARKING
- NON-MOVEMENT / MOVEMENT
- T/W EDGE PAVEMENT MARKING



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RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

N

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FIGURE 5

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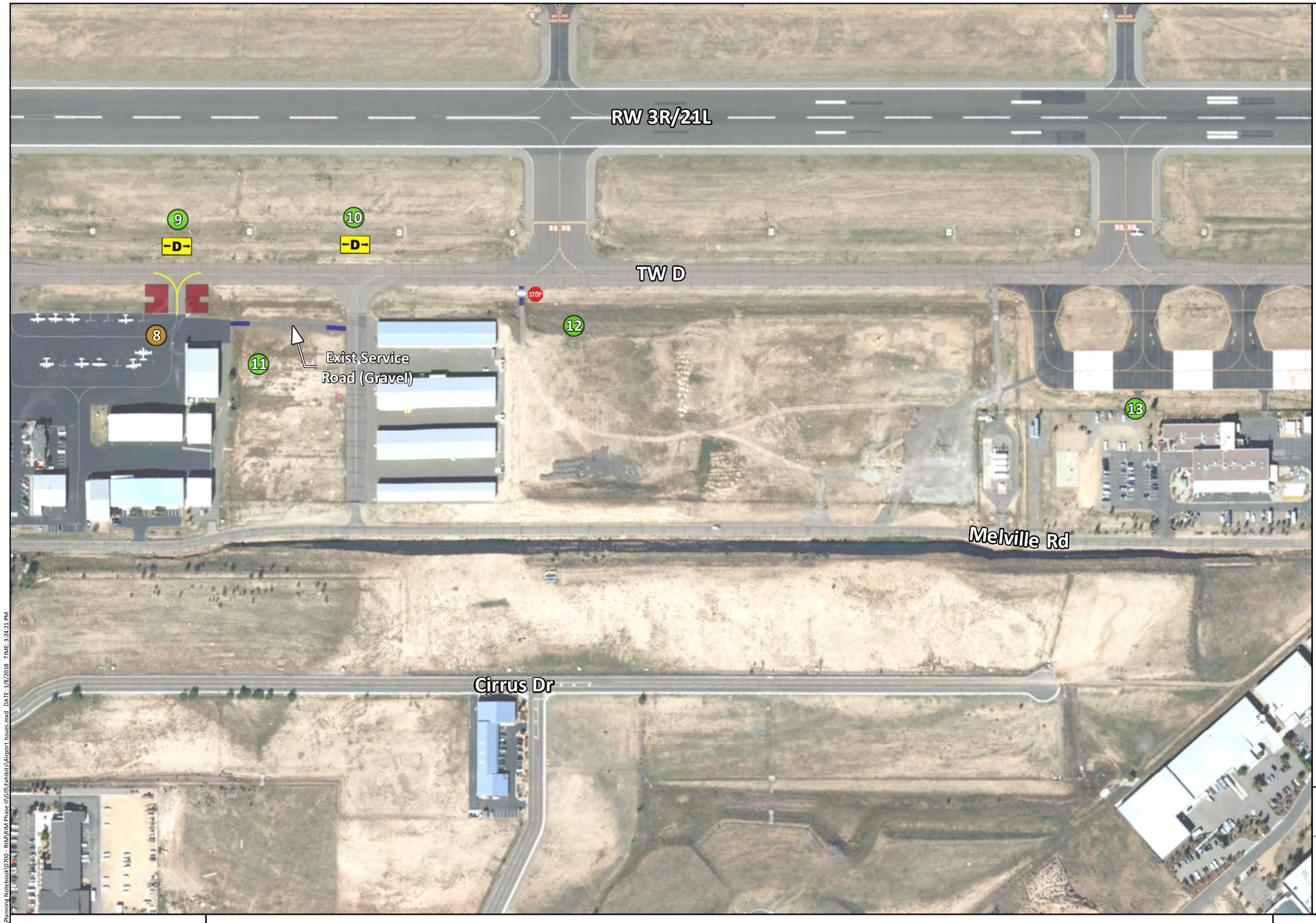
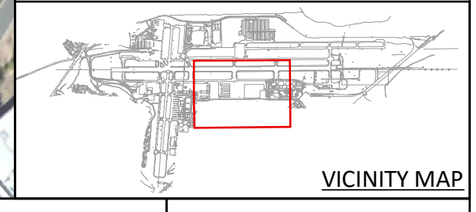


Legend

- Design Standards
- Airfield Improvements
- TW D Sign
- TW Centerline Stripe
- Stop Bar
- Correct TSA grading to meet design standards
- Pave first 50' of Service Road to reduce FOD
- Stop Sign



VICINITY MAP

PRESCOTT MUNICIPAL AIRPORT
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FIGURE 6

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Legend

- Airfield Improvements
- Runway Incursion Mitigation (RIM)
- Design Standards & Runway Incursion Mitigation (RIM)
- TW Edge Light Unit
- TW F Sign
- Aircraft Movement
- TW Centerline Stripe
- New TW Connectors
- Painted Island
- Remove TW Connectors

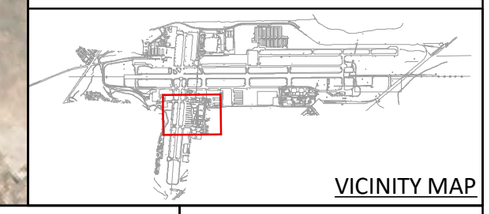

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FIGURE 7

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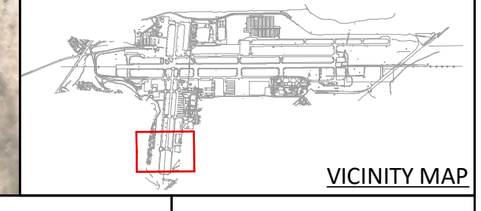
Legend

- Design Standards
- Decommision Exist TW Edge Light
- TW Edge Reflector
- TW Edge Pavement Marking
- Pavement Closure



VICINITY MAP

CITY OF PRESCOTT ARIZONA
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RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

N

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FIGURE 8

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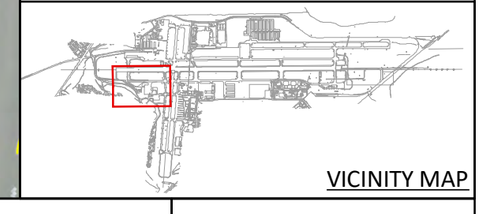
Legend

- Airfield Improvements
- TW D Sign
- TW Edge Light Unit
- TW Centerline Stripe
- Stop Bar
- Remove TW Connectors
- Stop Sign



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RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

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FIGURE 9

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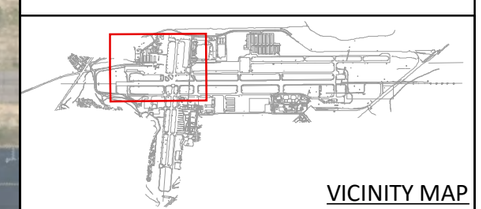
Legend

- Airfield Improvements
- Runway Incursion Mitigation (RIM)
- TW C Sign
- TW D Sign
- TW E Sign
- TW Edge Light Unit
- TW Centerline Stripe
- Stop Bar
- Remove TW Connectors
- Stop Sign



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RUNWAY INCURSION MITIGATION (RIM) ANALYSIS - PHASE 2

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FIGURE 10

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IV. Recommendations

Based on reviewing the runway incursion history at the Airport, as presented in Section III, together with the on-site field visits and discussions with airport management, the following is a summary of the recommendations to further enhance safety and help reduce future runway incursions on the airfield.

A. Airfield Geometry

The recommended airfield geometry modifications will be incorporated into the Airport Master Plan recommended development alternatives and are not intended to be stand-alone projects. The phased implementation plan developed as part of the Airport Master Plan will consider the timing of the recommended airfield geometry modifications presented in this study. The airfield geometry recommendations are depicted on **Figures 1-10**:

- Removal of taxiway connectors E3 and F3 to eliminate the direct access from the Embry Riddle apron and Legend Aviation apron.

- Removal of taxiway connectors C3 and D3 to eliminate the direct access from the Embry Riddle apron to the North Apron.

- Additional taxiway connector added from Runway 12-30 to Taxiway F. The location of the connector taxiway should at the approximate mid-point of the Embry-Riddle apron and be centrally located between parked aircraft.

- Improve the safety area for the connector taxiway exiting Embry Riddle apron to meet current FAA design standards.

- Pavement markings – airfield pavement markings should be added and generally include additional taxiway edge markings to delineate the boundary of the pavement and prevent aircraft from entering areas that would potentially cause an incursion.

- Non-movement area boundary markings are present in limited areas on the airfield. The Airport should consider adding the remaining non-movement area boundary areas to provide further guidance to pilots, both local and non-local.

B. Operational

Operational improvements to help reduce runway incursions should be addressed with additional pilot education such as additional training and information on FAA regulations regarding how to safely operate at a controlled airport, and pilot briefings on situational awareness at problematic areas on the airfield.

C. Wayfinding

To enhance the manner in which pilots, tenants, and airport personnel maneuver around the airfield, the current geometry was analyzed to help mitigate future runway incursions. The following recommendations should be considered and implemented as part of a planned construction project, or as a separate project. The following wayfinding recommendations are depicted on **Figures 1-10**.

- Signage for aircraft – additional signage is recommended in limited areas on the airfield. The signage will help inform both non-local and local pilots of pertinent airfield information and increase awareness.

- Signage and pavement markings for vehicles – vehicle stop signs and stop bars adjacent to existing airport services roads should be added to prevent vehicles from inadvertently entering the airfield. Also, signs to alert vehicles of areas that are not designated for vehicle traffic should be added were noted.

- Airfield lighting – additional taxiway edge lighting should be added at certain taxiway intersections and along an apron edge to help guide pilots during nighttime operations. Existing light spacing is inconsistent in some areas or completely missing. In addition, retro-reflective markers should be added in some areas to delineate the boundary between usable and unusable taxiway pavement.

- Aerial lighting – no additional aerial lighting is needed to assist with vehicle or aircraft wayfinding on the airfield.

- To reduce inadvertent vehicle access to movement areas do not install any future direct access gates around the perimeter of the airfield.

D. Modifications to Standards

According to FAA AC 150/5300-13A, *Airport Design*, a Modification to Standards is any approved nonconformance to FAA standards, other than dimensional standards for Runway Safety Areas (RSA); applicable to an airport design, construction, or equipment procurement project that is necessary to accommodate an unusual local condition for a specific project on a case by case basis while maintaining an acceptable level of safety.

Based on the findings of this report, a request to modify current FAA design standards is not necessary.

E. Total Project Budget Estimates

To implement the proposed airfield improvements as described herein, it is recommended that they be incorporated into future airfield improvement projects, as applicable. Several of the proposed airfield improvements could be implemented with airport resources.

The estimated costs (2018 dollars) for the proposed modifications are:

• Airfield Geometry	$2,198,734
• Wayfinding	$ 253,372
Total	**$2,452,106**

V. Summary of Recommendations

The implementation of the recommended solutions will be coordinated with the ATCT, federal, state, and local agencies. As recommended in the RIM Analysis – Phase 1 Report, it is likely that funding will be sought from federal, state and local agencies, although not necessarily for every recommended solution. The recommended solutions should be implemented in accordance with the latest applicable FAA Advisory Circulars and design standards. To implement the recommended airfield improvements, it is estimated to costs approximately $2,452,106. No Modifications to Standards are recommended.

VI. Bibliography

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Appendix A

PRC incursion history (2002 to 2017)

FAA Aviation Safety Information Analysis and Sharing (ASIAS)

FAA Runway Safety Office - Runway Incursions (RWS) Batch Brief

Back to Search Results

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16093
FAA Event Type	PD
Event LCL Date	07-JUN-15
Event LCL Time	0708
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	RV9
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 14/M01 A3007

ANALYSIS DESCRIPTION

RV9 WAS INSTRUCTED TO TAXI TO RUNWAY 3L VIA TAXIWAY ALPHA 1. READ BACK WAS CORRECT. RV9 CROSSED RUNWAY 3L ON TAXIWAY ALPHA 1. NO CONFLICTS. THIS EVENT OCCURRED AT HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16258
FAA Event Type	OI
Event LCL Date	08-JUL-15
Event LCL Time	0953
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	T34P
Aircraft 2 Type	C182
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	21007KT 10SM BKN095 27/10 A3006

ANALYSIS DESCRIPTION

T34P WAS TAXIING TO RUNWAY 21L AND HAD CROSSED RUNWAY 21R AT TAXIWAY BRAVO 6, AS INSTRUCTED BY GROUND CONTROL (GC). T34P WAS THEN INSTRUCTED TO TAXI TO RUNWAY 21L VIA TAXIWAY CHARLIE. T34P QUESTIONED THE INSTRUCTIONS AND GC CONFIRMED RUNWAY 21R VIA TAXIWAY CHARLIE. THERE WAS NO READ BACK. T34P TAXIED VIA TAXIWAY CHARLIE 6 AND CROSSED THE RUNWAY 21L HOLD LINE. C182 WAS ON A THREE QUARTER MILE FINAL TO RUNWAY 21L AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16298
FAA Event Type	PD
Event LCL Date	14-JUL-15
Event LCL Time	0941
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	DA42
Aircraft 2 Type	C182
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 27/11 A3013

ANALYSIS DESCRIPTION

DA42 CALLED READY FOR DEPARTURE RUNWAY 12 AND INSTRUCTED TO HOLD SHORT. READ BACK WAS CORRECT. LOCAL CONTROL (LC) INSTRUCTED C172, MAKING A LOW APPROACH, TO FLY STRAIGHT OUT. DA42 MADE NO TRANSMISSIONS BUT TAXIED ONTO RUNWAY 12. CAP238/C182 WAS ON A QUARTER MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	20340
FAA Event Type	PD
Event LCL Date	02-MAY-17
Event LCL Time	0921
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C140
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	31003KT 10SM CLR 19/M03 A3008

ANALYSIS DESCRIPTION

A/C 1/C140 WAS AT THE BOTTLENECK HANGARS AND WAS INSTRUCTED TO TAXI TO RUNWAY 21L VIA TAXIWAYS BRAVO 4 AND CHARLIE. READ BACK WAS CORRECT. C140 ENTERED TAXIWAY ALPHA 1 AND CROSSED THE RUNWAY 21R HOLD LINE. NO CONFLICTS. HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	17767
FAA Event Type	PD
Event LCL Date	02-APR-16
Event LCL Time	0817

Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	RV4
Aircraft 2 Type	PA30
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	16004KT 10SM CLR 07/M08 A3032

ANALYSIS DESCRIPTION

A/C 1/RV4 LANDED RUNWAY 21L AND EXITED AT TAXIWAY CHARLIE 5. RV4 TURNED LEFT ON TAXIWAY CHARLIE AND PROCEEDED SOUTH WITHOUT CONTACTING GROUND CONTROL (GC). N7988Y/PA30 WAS NORTH ON TAXIWAY BRAVO AND HAD TO HOLD THEIR POSITION. N7654B/P28R WAS ON TAXIWAY BRAVO 4, WITH INSTRUCTIONS TO FOLLOW PA30. P28R WAS REQUIRED TO DO A 180 TO OPEN AN EXIT POINT FOR RV4.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16568
FAA Event Type	PD
Event LCL Date	29-AUG-15
Event LCL Time	1240
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	ERCO
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	27006KT 10SM -TSRA SCT090 BKN110 27/11 A3021

ANALYSIS DESCRIPTION

ERCO WAS CLEARED TO LAND RUNWAY 21L. READ BACK WAS CORRECT. ANOTHER AIRCRAFT REQUESTED DEPARTURE FROM RUNWAY 21L. LOCAL CONTROL REQUESTED ERCO TO LAND RUNWAY 21R. ERCO ACCEPTED AND WAS CLEARED TO LAND RUNWAY 21R. READ BACK WAS CORRECT. ERCO LANDED ON TAXIWAY CHARLIE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19351
FAA Event Type	PD
Event LCL Date	01-DEC-16
Event LCL Time	1018
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	P28A
Aircraft 2 Type	C172
Aircraft 1 FAR	91

Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 01/M06 A3001

ANALYSIS DESCRIPTION

A/C 1/P28A TAXIED WRONG ROUTE AND CROSSED HOLD BARS RUNWAY 21R AT TAXIWAY CHARLIE 3. - PA28 REQUESTED TO TAXI FROM THE BOTTLENECK HANGARS TO THE OTHER SIDE OF THE AIRPORT. GROUND CONTROL INSTRUCTED P28A TO TAXI VIA TAXIWAYS BRAVO 4, CHARLIE, HOLD SHORT OF RUNWAY 21L AT CHARLIE 3. READ BACK WAS CORRECT. P28A TAXIED STRAIGHT OUT OF THE HANGARS AND TAXIED ACROSS HOLD BARS FOR RUNWAY 21R ON TAXIWAY ALPHA 1. A/C 2/C172 WAS ON A QUARTER MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18052
FAA Event Type	PD
Event LCL Date	18-MAY-16
Event LCL Time	0841
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	B190
Aircraft 2 Type	
Aircraft 1 FAR	135
Aircraft 2 FAR	N/A
Weather Condition	VRB05KT 10SM 16/05 A3008

ANALYSIS DESCRIPTION

A/C 1/B190 WAS INSTRUCTED TO TAXI TO RUNWAY 21L VIA CHARLIE AND HOLD SHORT OF RUNWAY 12. THE PILOT READ BACK WAS CORRECT. THE B190 CROSSED THE RUNWAY 12 HOLD BARS. NO CONFLICTS. HOT SPOT #3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	17898
FAA Event Type	PD
Event LCL Date	24-APR-16
Event LCL Time	0940
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C172
Aircraft 2 Type	TRIN
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 16/M07 A3000

ANALYSIS DESCRIPTION

A/C 1/C172 (STUDENT PILOT) CALLED READY FOR DEPARTURE RUNWAY 21 AT TAXIWAY DELTA 7. LOCAL CONTROL (LC) ASKED IF C172 COULD DEPART WITHOUT DELAY. C172 ASKED TO REPEAT AND LC INSTRUCTED C172 TO HOLD SHORT. C172 READ BACK THE HOLD SHORT INSTRUCTIONS CORRECTLY.

C172 THEN TAXIED INTO POSITION ON THE RUNWAY. A/C 2/TB20 WAS ON FINAL AND INQUIRED ABOUT THE AIRCRAFT ON THE RUNWAY. TB20 WAS SENT AROUND FROM A ONE MILE FINAL.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18171
FAA Event Type	PD
Event LCL Date	08-JUN-16
Event LCL Time	0803
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	05003KT 10SM CLR 26/01 A3010

ANALYSIS DESCRIPTION

A/C 1/HXB WAS CLEARED FOR A TOUCH AND GO RUNWAY 21R. READ BACK WAS CORRECT. HXB DID A TOUCH AND GO ON TAXIWAY CHARLIE. NO CONFLICTS. NO AIRCRAFT NOR VEHICLES ON THE TAXIWAY.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19393
FAA Event Type	PD
Event LCL Date	07-DEC-16
Event LCL Time	1120
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	C182
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	00000KT 10SM FEW015 07/03 A3008

ANALYSIS DESCRIPTION

A/C 1/C182 REQUESTED TO PROCEED FROM THE NORTH SIDE OF THE AIRPORT TO THE SOUTH SIDE. GROUND CONTROL (GC) INSTRUCTED C182 TO TAXI VIA TAXIWAYS BRAVO 3 AND CHARLIE 3, HOLD SHORT OF RUNWAY 3R. READ BACK WAS CORRECT. C182 CROSSED THE RUNWAY 3R HOLD LINE ON TAXIWAY CHARLIE 3. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19594

FAA Event Type	PD
Event LCL Date	10-JAN-17
Event LCL Time	1420
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	R44 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	20010G17KT 10SM SCT120 12/M03 A3005

ANALYSIS DESCRIPTION

A/C 1/R44 WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L AT CHARLIE 3. READ BACK WAS CORRECT. A/C 1 CROSSED THE RUNWAY 21L HOLD LINE AT CHARLIE 3. A/C 2/R44 HAD BEEN CLEARED FOR A TOUCH AND GO RUNWAY 21L. A/C 2 WAS INSTRUCTED TO MAKE A FULL STOP ON THE NUMBERS TO PREVENT A LOSS OF SEPARATION AND THEN DEPARTED AFTER R44 EXITED THE RUNWAY.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	20071
FAA Event Type	PD
Event LCL Date	26-MAR-17
Event LCL Time	0959
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	00000KT 10SM CLR 11/M01 A3006

ANALYSIS DESCRIPTION

A/C 1/HXB WAS INSTRUCTED TO TAXI TO RUNWAY 3R VIA TAXIWAYS BRAVO 4 AND CHARLIE; CROSS RUNWAY 12 ON CHARLIE. READ BACK WAS CORRECT. HXB TURNED LEFT ON RUNWAY 12 FROM TAXIWAY CHARLIE STOPPING JUST PRIOR TO RUNWAY 3R EDGE LINE IN THE RSA. SHORT DISTANCE FROM THE RUNWAY 12 TAXIWAY CHARLIE INTERSECTION. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19984
FAA Event Type	PD
Event LCL Date	13-MAR-17
Event LCL Time	1045
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	C172

Aircraft 2 Type	C182
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 17/M03 A3025

ANALYSIS DESCRIPTION

A/C 1/C172 WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY DELTA 7. READ BACK WAS CORRECT. C172 THEN TAXIED ACROSS THE RUNWAY 21L HOLD LINE. A/C 2/C182 WAS ON A HALF MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	17705
FAA Event Type	OTH
Event LCL Date	25-MAR-16
Event LCL Time	0958
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C172
Aircraft 2 Type	
Aircraft 1 FAR	
Aircraft 2 FAR	
Weather Condition	N/A

ANALYSIS DESCRIPTION

A/C 1/C172 LANDED RUNWAY 3R. DURING ROLLOUT C172 VEERED LEFT AND EXITED THE RUNWAY 75 FEET NORTHEAST OF RUNWAY 12. C172 STOPPED 100 FEET OFF THE EDGE OF RUNWAY 3R, SHORT OF TAXIWAY CHARLIE 3. NO DAMAGE TO C172 OR TO AIRPORT PROPERTY, NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18977
FAA Event Type	PD
Event LCL Date	05-OCT-16
Event LCL Time	1512
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	B407 (HELO)
Aircraft 2 Type	DA42
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	22016G21KT 10SM CLR 22/M01 A2997

ANALYSIS DESCRIPTION

A/C 1/B407 LANDED RUNWAY 21R. LOCAL CONTROL INSTRUCTED B407 TO TURN LEFT ON TAXIWAY BRAVO 5 AND CONTACT GROUND CONTROL (GC). READ BACK WAS CORRECT. B407 CROSSED RUNWAY 21L WITHOUT AUTHORIZATION. A/C 2/DA42, DEPARTURE AIRCRAFT ON RUNWAY 21L. INSTRUCTOR IN A/C2 COULD NOT CONFIRM WHETHER OR NOT THE HELICOPTER CROSSED WHILE HE WAS IN POSITION

OR STARTING HIS TAKEOFF ROLL BUT CONFIRMED THAT THERE WAS NO NEED TO TAKE ACTION TO AVOID. UNABLE TO DETERMINE IF THERE WAS AN ACTUAL CONFLICT BY DEFINITION. SEE RIATL NOTES.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18967
FAA Event Type	PD
Event LCL Date	03-OCT-16
Event LCL Time	1425
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	23013KT 10SM CLR 19/M16 A2995

ANALYSIS DESCRIPTION

A/C 1/R44 REQUESTED TO TAXI FROM THE AREA OF THE NORTH HANGARS TO THE GUIDANCE RAMP. GROUND CONTROL INSTRUCTED R44 TO TAXI VIA TAXIWAYS BRAVO 4, CHARLIE, ECHO, CROSS RUNWAY 30 ON CHARLIE. READ BACK WAS CORRECT. R44 TAXIED VIA TAXIWAY ALPHA 1, ACROSS RUNWAY 3L, TO TAXIWAY BRAVO 5. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16960
FAA Event Type	PD
Event LCL Date	11-NOV-15
Event LCL Time	1418
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	30
Aircraft 1 Type	C172
Aircraft 2 Type	P28A
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	33007KT 10SM CLR 11/M08 A3023

ANALYSIS DESCRIPTION

A/C 1/C172 WAS INSTRUCTED TO TAXI VIA TAXIWAYS ECHO AND DELTA, CROSS RUNWAY 3R, HOLD SHORT OF RUNWAY 30. READ BACK WAS CORRECT. A/C 1 PROCEEDED SOUTHEAST ON TAXIWAY ECHO THEN TURNED ONTO TAXIWAY CHARLIE 2 (HOT SPOT 2) AND CROSSED RUNWAY 30 ON RUNWAY 3R. A/C 2/P28A HAD LANDED RUNWAY 30 AND WAS TAXIING NEAR TAXIWAY F3 TOWARDS RUNWAY 3R WHEN A/C1 CROSSED THE INTERSECTION. CLOSEST PROXIMITY APPROXIMATELY 750 FEET.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	16851
FAA Event Type	PD
Event LCL Date	23-OCT-15
Event LCL Time	1056
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	30
Aircraft 1 Type	BE36
Aircraft 2 Type	B190
Aircraft 1 FAR	91
Aircraft 2 FAR	121
Weather Condition	34010KT 10SM FEW050 17/06 A3013

ANALYSIS DESCRIPTION

A/C 1/BE35 WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 3R ON TAXIWAY BRAVO 3. READ BACK WAS CORRECT. BE35 CROSSED THE RUNWAY 3R HOLD LINE AND WAS INSTRUCTED TO STOP. A/C 2/B190 ON A HALF MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19744
FAA Event Type	PD
Event LCL Date	04-FEB-17
Event LCL Time	1453
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	PA27
Aircraft 2 Type	
Aircraft 1 FAR	91
Aircraft 2 FAR	N/A
Weather Condition	METAR NOT PROVIDED

ANALYSIS DESCRIPTION

A/C 1/PA23 WAS CLEARED TO LAND RUNWAY 21L. READ BACK WAS CORRECT. PA23 LANDED RUNWAY 21R. NO CONFLICTS

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	17569
FAA Event Type	PD
Event LCL Date	02-MAR-16
Event LCL Time	1210
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C206

Aircraft 2 Type	R22 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	28009KT 9SM CLR 21/M07 A3017

ANALYSIS DESCRIPTION

A/C 1/C206 WAS INSTRUCTED TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY CHARLIE 3. C206 READ THE INSTRUCTIONS BACK WITHOUT CALL SIGN. GC ATTEMPTED TO GET A COMPLETE READ BACK OF THE INSTRUCTIONS. AS A/C 1 WAS READING BACK THE HOLD SHORT INSTRUCTIONS THE SECOND TIME, THE AIRCRAFT CROSSED THE RUNWAY 21L HOLD LINE ON TAXIWAY CHARLIE 3. A/C 1 CROSSED THE HOLD SHORT LINE AND STOPPED PRIOR TO CROSSING THE RUNWAY EDGE LINE. A/C 2/R22 WAS DEPARTING RUNWAY 21L IN THE VICINITY OF TAXIWAY CHARLIE 5 WAS INSTRUCTED TO OFFSET TO THE LEFT.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18596
FAA Event Type	PD
Event LCL Date	06-AUG-16
Event LCL Time	0603
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	NA
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	C120
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	18003KT 10SM CLR 16/14 A3013

ANALYSIS DESCRIPTION

A/C 1/R44 WAS INSTRUCTED TO TAXI TO RUNWAY 30 VIA TAXIWAYS FOXTROT AND FOXTROT 2. READ BACK WAS CORRECT. R44 CROSSED THE RUNWAY 30 HOLD LINE ON TAXIWAY FOXTROT 2. R44 WAS INSTRUCTED TO MAKE A 180 OFF THE RUNWAY. A/C 2/C120 WAS ON A HALF MILE FINAL AND LANDED NORMALLY. NOTE: THE PILOT OF THE R44 STATED TO ATCT THAT THEY THOUGHT SINCE RUNWAYS 21L/21R WERE ACTIVE IT WAS NOT A REQUIREMENT TO STOP AT THE HOLD BARS FOR RUNWAY 30.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18280
FAA Event Type	PD
Event LCL Date	24-JUN-16
Event LCL Time	0821
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	15005KT 10SM CLR 27/04 A3017

ANALYSIS DESCRIPTION

A/C 1/R44 WAS INSTRUCTED TO TAXI TO RUNWAY 21L AT TAXIWAY ECHO, VIA TAXIWAY ECHO. READ BACK WAS CORRECT. R44 CROSSED THE RUNWAY 21L HOLD LINE ON TAXIWAY ECHO. A/C 2/C172 WAS ON A ONE MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	18152
FAA Event Type	PD
Event LCL Date	04-JUN-16
Event LCL Time	1525
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	H600 (HELO)
Aircraft 2 Type	C172
Aircraft 1 FAR	MIL
Aircraft 2 FAR	91
Weather Condition	31009G15KT 290V350 10SM CLR 36/M13 A3012

ANALYSIS DESCRIPTION

A/C 1/H60 WAS INSTRUCTED TO TAXI TO RUNWAY 30 AT TAXIWAY DELTA. READ BACK WAS CORRECT. H60 TAXIED ONTO RUNWAY 30 AT TAXIWAY DELTA WITHOUT AUTHORIZATION. A/C 2/C172 WAS ON A ONE MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	19202
FAA Event Type	PD
Event LCL Date	08-NOV-16
Event LCL Time	0822
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	R22 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	19005KT 10SM CLR 07/02 A3038

ANALYSIS DESCRIPTION

A/C 1/HXB REQUESTED TO RELOCATE FROM THE BOTTLENECK HANGERS TO THE SOUTHEAST SIDE OF THE AIRPORT. GROUND CONTROL INSTRUCTED HXB TO TAXI VIA TAXIWAYS BRAVO 4 AND CHARLIE 4, HOLD SHORT OF RUNWAY 21L. READ BACK WAS CORRECT. HXB CROSSED RUNWAY 21R ON TAXIWAY ALPHA 1. A/C 2/R22 WAS ON A QUARTER MILE BASE TO RUNWAY 21R AND LANDED NORMALLY.

END REPORT

U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW

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FAA Aviation Safety Information Analysis and Sharing (ASIAS)

FAA Runway Safety Office - Runway Incursions (RWS) Batch Brief

Back to Search Results

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15024
FAA Event Type	PD
Event LCL Date	18-OCT-14
Event LCL Time	1041
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	E300
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	11005KT 10SM SCT120 22/02 A3007

ANALYSIS DESCRIPTION

E300 WAS TAXIING TO RUNWAY 21L VIA TAXIWAY DELTA AND REQUESTED TO DEPART FROM TAXIWAY DELTA 3. GROUND CONTROL (GC) ADVISED E300 TAXIWAY DELTA 3 WAS APPROVED, HOLD SHORT OF RUNWAY 21L. E300 READ BACK CLEARED FOR TAKEOFF RUNWAY 21L AND TAXIED ACROSS THE HOLD LINE, STOPPING 20 FEET SHORT OF THE RUNWAY EDGE. GC ATTEMPTED TO STOP E300 BUT THERE WAS NO RESPONSE. C172 WAS ON LANDING ROLLOUT ON RUNWAY 21L, PASSING TAXIWAY DELTA 5. CLOSEST PROXIMITY IS ESTIMATED AT 2200 FEET.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15114
FAA Event Type	PD
Event LCL Date	03-NOV-14
Event LCL Time	1420
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L

Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	33007KT 280V010 10SM SCT065 13/M06 A3009

ANALYSIS DESCRIPTION

HXB WAS CLEARED TO LAND RUNWAY 3L. READ BACK WAS CORRECT. HXB ATTEMPTED TO LAND ON TAXIWAY CHARLIE. LOCAL CONTROL SENT HXB AROUND IN THE FLARE. NO CONFLICTS ON TAXIWAY CHARLIE AT THE TIME.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13897
FAA Event Type	PD
Event LCL Date	20-FEB-14
Event LCL Time	2353
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	35007KT 10SM CLR 06/M14 A3021

ANALYSIS DESCRIPTION

R44 CONTACTED LOCAL CONTROL (LC) READY TO DEPARTURE FROM THE GUIDANCE RAMP. LC INSTRUCTED R44 TO TAXI TO THE NUMBERS ON RUNWAY 12 AND HOLD. READ BACK WAS CORRECT. WHEN R44 REACHED RUNWAY 12, R44 DEPARTED WITHOUT ANY FURTHER COMMUNICATIONS. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	14444
FAA Event Type	PD
Event LCL Date	18-JUN-14
Event LCL Time	1242
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ

Event Lndg/Tkoff Surface	RWY 21
Aircraft 1 Type	C172
Aircraft 2 Type	R22 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	19017G25KT 10SM CLR 26/M04 A3003

ANALYSIS DESCRIPTION

GROUND CONTROL (GC) INSTRUCTED C172 TO TAXI TO RUNWAY 21 VIA TAXIWAY FOXTROT, HOLD SHORT OF TAXIWAY DELTA. READ BACK WAS CORRECT. B206 WAS HOVER TAXIING SOUTH ON TAXIWAY DELTA, FOLLOWED BY R22, HOVER TAXIING SOUTH ON TAXIWAY DELTA TOWARDS RUNWAY 12. C172 TURNED NORTH ON TAXIWAY DELTA WITHOUT A CLEARANCE. R22 WAS REQUIRED TO OFFSET INTO THE RAMP AREA TO ALLOW C172 TO PASS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13908
FAA Event Type	VPD
Event LCL Date	22-FEB-14
Event LCL Time	1610
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	N/A
Aircraft 2 Type	PA32
Aircraft 1 FAR	VEH
Aircraft 2 FAR	91
Weather Condition	22007KT 10SM CLR 17/M11 A2996

ANALYSIS DESCRIPTION

AIRPORT VEHICLE WAS HOLDING SHORT OF RUNWAY 21R ON TAXIWAY ALPHA 1 AND REQUESTED ACCESS TO RUNWAY 21R. LOCAL CONTROL (LC) ACKNOWLEDGED THE VEHICLE'S REQUEST BY STATING "ROGER" BUT GAVE NO INSTRUCTION TO CROSS THE RUNWAY. VEHICLE REPLIED THEY WERE PROCEEDING ONTO RUNWAY 21R AND CROSSED THE HOLD LINE. LC ATTEMPTED TO STOP THE VEHICLE WITHOUT SUCCESS AND INSTRUCTED THE VEHICLE TO CROSS RUNWAY 21R. LC INSTRUCTED PA32 ON A HALF MILE FINAL TO GO AROUND. THIS EVENT OCCURRED AT HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13917
FAA Event Type	PD

Event LCL Date	24-FEB-14
Event LCL Time	0647
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	BE36
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	19003KT 10SM CLR M01/M09 A3012

ANALYSIS DESCRIPTION

A36 CONTACTED GROUND CONTROL (GC) AFTER ENTERING THE MOVEMENT AREA WITHOUT OBTAINING A CLEARANCE. ON TAXIWAY CHARLIE THE PILOT ADVISED GC HE WAS TAXIING TO RUNWAY 21L FOR DEPARTURE WITH THE CURRENT ATIS. A36 WAS NOT AWARE THE TOWER WAS OPEN. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15661
FAA Event Type	PD
Event LCL Date	14-MAR-15
Event LCL Time	1406
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	19004KT 10SM CLR 04/M04 A3012

ANALYSIS DESCRIPTION

R44 WAS INSTRUCTED TO TAXI TO RUNWAY 30 AT TAXIWAY ECHO 4. READ BACK WAS CORRECT. R44 TAXIED ONTO RUNWAY 30 WITHOUT AUTHORIZATION. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15014

FAA Event Type	PD
Event LCL Date	17-OCT-14
Event LCL Time	1728
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	BE95
Aircraft 2 Type	DA40
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	17004KT 10SM CLR 19/M01 A3008

ANALYSIS DESCRIPTION

BE95 HAD CROSSED RUNWAY 21L AND WAS INSTRUCTED TO HOLD SHORT OF TAXIWAY DELTA. READ BACK WAS CORRECT. BE95 ENTERED TAXIWAY DELTA AND TURNED SOUTH. DA40 WAS NORTH ON TAXIWAY DELTA AND WAS FORCED TO TURN INTO THE NON-MOVEMENT AREA SO BE95 COULD PASS SOUTHBOUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	14142
FAA Event Type	PD
Event LCL Date	21-APR-14
Event LCL Time	1225
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	RV7
Aircraft 2 Type	R22 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	VRB03KT 10SM SCT090 24/M01 A3021

ANALYSIS DESCRIPTION

RV7 WAS AT THE NORTHWEST HANGERS. GROUND CONTROL (GC) INSTRUCTED RV7 TO TAXI TO RUNWAY 21L VIA TAXIWAYS BRAVO 4 AND CHARLIE. READ BACK WAS CORRECT. RV7 PROCEEDED ONTO TAXIWAY ALPHA 1 AND JUST ACROSS THE RUNWAY21L HOLD LINE. R22 WAS ON A ONE-EIGHTH FINAL AND SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	14145
FAA Event Type	VPD
Event LCL Date	22-APR-14
Event LCL Time	0724
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	N/A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	PED
Weather Condition	19010KT 10SM CLR 19/M02 A3003

ANALYSIS DESCRIPTION

EMBRY RIDDLE PERSONNEL/PEDESTRIANS HAD PREVIOUSLY COORDINATED TO BE IN THE SAFETY AREA FOR RUNWAY 21R. A PEDESTRIAN CALLED ATC VIA CELL PHONE AND RECEIVED PERMISSION TO CROSS TAXIWAY ALPHA NEAR TAXIWAY ALPHA 4. WHEN THE OPERATION WAS COMPLETED, A GROUP OF FIVE PEOPLE WALKED WEST ACROSS TAXIWAY ALPHA WITHOUT APPROVAL. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15797
FAA Event Type	PD
Event LCL Date	09-APR-15
Event LCL Time	1356
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	R44 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	16009G16KT 10SM CLR 18/M13 A3000

ANALYSIS DESCRIPTION

FIRST R44 WAS INSTRUCTED TO TAXI TO RUNWAY 12 AT TAXIWAY FOXTROT 2. READ BACK WAS CORRECT. R44 CROSSED THE RUNWAY 12 HOLD LINE. SECOND R44 WAS CLEARED FOR THE OPTION RUNWAY 12 AND WAS OVER THE NUMBERS. LOCAL CONTROL INSTRUCTED SECOND R44 TO MAKE A FULL STOP.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15684
FAA Event Type	PD
Event LCL Date	18-MAR-15
Event LCL Time	1435
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	BE35
Aircraft 2 Type	R22 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	21011KT 10SM OVC075 17/M01 A3006

ANALYSIS DESCRIPTION

BE35 DEPARTED RUNWAY 21L WITHOUT A CLEARANCE. R22 WAS ON A HALF MILE FINAL AND WENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15629
FAA Event Type	PD
Event LCL Date	08-MAR-15
Event LCL Time	0830
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	AA5
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	19004KT 10SM CLR 04/M04 A3012

ANALYSIS DESCRIPTION

AA5 LANDED WITHOUT AUTHORIZATION ON RUNWAY 21R. AIRPORT VEHICLE SAW THE AIRCRAFT ON FINAL WHILE CONDUCTING AN INSPECTION ON RUNWAY 21R AND EXITED BEFORE THE AIRCRAFT LANDED. VEHICLE ESCORTED AA5 TO PARKING. AA5 REPORTED HAVING A RADIO FAILURE AND HAD FOLLOWED STANDARD NORDO PROCEDURES PRIOR TO LANDING. AA5 HAD OBSERVED VEHICLE ON RUNWAY 21R AND WAS PREPARED TO GO AROUND IF IT DID NOT EXIT. NO LIGHT GUN SIGNAL OR CLEARANCE IN THE BLIND BY ATC WAS GIVEN.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15998
FAA Event Type	PD
Event LCL Date	19-MAY-15
Event LCL Time	1305
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	RV8
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	20008KT 10SM SCT080 20/M05 A3005

ANALYSIS DESCRIPTION

RV8 REQUESTED TO TAXI FROM FBO NEAR THE INTERSECTION OF TAXIWAYS ECHO AND DELTA, TO THE HANGARS ON THE OTHER SIDE OF THE FIELD. GROUND CONTROL (GC) INITIALLY ISSUED A ROUTE VIA TAXIWAYS ECHO AND DELTA, CROSS RUNWAY 30. THE INSTRUCTIONS WERE AMENDED TO TAXI VIA TAXIWAY ECHO, HOLD SHORT OF RUNWAY 21L ON TAXIWAY ECHO. READ BACK WAS CORRECT. RV8 EXITED THE RAMP ON TAXIWAY ECHO 3, CROSSED TAXIWAY ECHO, AND TURNED ONTO RUNWAY 30. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15573
FAA Event Type	PD
Event LCL Date	18-FEB-15
Event LCL Time	1555
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	C182
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	03009KT 10SM CLR 21/M14 A3017

ANALYSIS DESCRIPTION

C182 WAS TOLD TO ENTER LEFT DOWNWIND FOR RUNWAY 3L. READ BACK WAS CORRECT. C182 WAS CLEARED TO LAND RUNWAY 3L. READ BACK WAS CORRECT. C182 LANDED RUNWAY 3R. ATC TRAINING WAS IN PROGRESS. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	14217
FAA Event Type	PD
Event LCL Date	05-MAY-14
Event LCL Time	0650
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 13/M06 A3008

ANALYSIS DESCRIPTION

GROUND CONTROL INSTRUCTED R44 TO TAXI TO RUNWAY 21L AT TAXIWAY DELTA 3. READ BACK WAS CORRECT. R44 HOVER TAXIED ACROSS THE RUNWAY 21L HOLD LINE AND ONTO THE RUNWAY AT TAXIWAY DELTA 3 WITHOUT A CLEARANCE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15294
FAA Event Type	PD
Event LCL Date	11-DEC-14
Event LCL Time	1513
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	VRB03KT 10SM CLR 03/01 A3014

ANALYSIS DESCRIPTION

PA28 REQUESTED RELOCATION FROM THE WEST SIDE OF THE AIRPORT TO THE EAST SIDE. GROUND CONTROL (GC) INSTRUCTED THE PILOT TO TAXI VIA TAXIWAY BRAVO 4 HOLD SHORT OF RUNWAY 21L AT CHARLIE 4. READ BACK WAS CORRECT. PA28 THEN TAXIED ONTO TAXIWAY ALPHA 1 AND CROSSED THE HOLD BARS FOR RUNWAY 21R. NO CONFLICTS. THIS EVENT OCCURRED AT HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15743
FAA Event Type	PD
Event LCL Date	29-MAR-15
Event LCL Time	1311
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	27009KT 10SM CLR 24/M11 A3022

ANALYSIS DESCRIPTION

R44 WAS CLEARED TO LAND TAXIWAY ECHO VIA THE GUIDANCE EAST ARRIVAL. THIS PROCEDURE REQUIRES R44S TO LAND ON TAXIWAY ECHO AND HOLD SHORT OF TAXIWAY ECHO 2. R44 CONTINUED PAST TAXIWAY ECHO 2 AND HELD SHORT OF TAXIWAY DELTA. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15138
FAA Event Type	PD
Event LCL Date	08-NOV-14
Event LCL Time	0947
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C172
Aircraft 2 Type	P28A
Aircraft 1 FAR	91
Aircraft 2 FAR	91

Weather Condition	31004KT 10SM CLR 16/M06 A3032

ANALYSIS DESCRIPTION

PA28 LANDED RUNWAY 21L AND EXITED AT TAXIWAY DELTA 4. WITH AN UNOBSTRUCTED TAXI ROUTE THE PA28 STOPPED PRIOR TO CROSSING THE HOLD LINE. LOCAL CONTROL (LC) AND GROUND CONTROL UNSUCCESSFULLY ATTEMPTED TO CONTACT PA28 AND GET THE AIRCRAFT TO CLEAR THE RUNWAY SAFETY AREA. C172 WAS CLEARED FOR A TOUCH AND GO RUNWAY 21L. LC TWICE INSTRUCTED C172 TO GO AROUND, WITHOUT ACKNOWLEDGEMENT. C172 EXECUTED A TOUCH AND GO WITH PA28 STILL IN THE RUNWAY SAFETY AREA. CLOSEST PROXIMITY WAS 700 FEET. THIS EVENT OCCURRED AT HOT SPOT 4.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15600
FAA Event Type	PD
Event LCL Date	27-FEB-15
Event LCL Time	1115
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	R44 (HELO)
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	VRB04KT 10SM OVC085 06/M03 A2981

ANALYSIS DESCRIPTION

R44 WAS INSTRUCTED TO PROCEED TO THE NUMBERS OF RUNWAY 12. READ BACK WAS CORRECT. R44 DEPARTED WITHOUT AUTHORIZATION. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13900
FAA Event Type	PD
Event LCL Date	21-FEB-14
Event LCL Time	1553
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L

Aircraft 1 Type	C182
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	25004KT 10SM CLR 17/M14 A2999

ANALYSIS DESCRIPTION

C182 WAS INSTRUCTED BY GROUND CONTROL (GC) TO TAXI TO RUNWAY 21L VIA TAXIWAY CHARLIE, CROSS RUNWAY 12. C182 DID NOT READ BACK THE INSTRUCTIONS CORRECTLY AND GC INSTRUCTED C182 TO TAXI STRAIGHT AHEAD ON TAXIWAY CHARLIE. C182 ENTERED TAXIWAY ECHO AND CROSSED RUNWAY 21L WITHOUT A CLEARANCE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15290
FAA Event Type	PD
Event LCL Date	10-DEC-14
Event LCL Time	1513
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	C172
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	34010KT 10SM CLR 17/04 A3009

ANALYSIS DESCRIPTION

C172 WAS INSTRUCTED BY LOCAL CONTROL TO ENTER THE LEFT BASE FOR RUNWAY 3R. READ BACK WAS CORRECT. C172 LANDED RUNWAY 3R WITHOUT A CLEARANCE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15305
FAA Event Type	PD
Event LCL Date	15-DEC-14
Event LCL Time	1000
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC

Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	
Aircraft 2 FAR	91
Weather Condition	33003KT 10SM CLR 04/M02 A3015

ANALYSIS DESCRIPTION

PA28 EXITED RUNWAY 12 AT TAXIWAY ECHO 2 AND WAS INSTRUCTED TO CONTACT GROUND CONTROL (GC). PA28 MADE AN UNREADABLE TRANSMISSION THEN PROCEEDED NORTHWEST ON TAXIWAY ECHO WITHOUT CONTACTING GC. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15510
FAA Event Type	PD
Event LCL Date	06-FEB-15
Event LCL Time	1510
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C172
Aircraft 2 Type	BL8
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	20011KT 10SM CLR 21/M10 A3022

ANALYSIS DESCRIPTION

C172 LANDED RUNWAY 21L AND EXITED AT TAXIWAY DELTA 5. C172 EXIT WAS UNIMPEDED, BUT THE C172 STOPPED INSIDE THE HOLD BARS. BL8 WAS WITHIN A ONE MILE FINAL AND WAS SENT AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	15504
FAA Event Type	PD
Event LCL Date	05-FEB-15
Event LCL Time	1205
Event State	AZ
RI Category Rank	C

Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	H60 (HELO)
Aircraft 2 Type	C182
Aircraft 1 FAR	MIL
Aircraft 2 FAR	91
Weather Condition	VRB03KT 10SM CLR 17/M05 A3029

ANALYSIS DESCRIPTION

H60 LANDED RUNWAY 21L AND EXITED AT TAXIWAY ECHO. H60 STOPPED ON THE RUNWAY SIDE OF THE HOLD LINE WAITING FOR AN R44 TO CLEAR THE AREA. LOCAL CONTROL (LC) CLEARED C182 FOR TAKEOFF ON RUNWAY 21L FROM TAXIWAY CHARLIE 7 WITH H60 STILL INSIDE THE HOLD LINE. WHEN LC REALIZED H60 WAS NOT CLEAR OF THE RUNWAY THE TAKEOFF CLEARANCE FOR C182 WAS CANCELLED. C182 ABORTED TAKEOFF BETWEEN TAXIWAYS CHARLIE 6 AND CHARLIE 5. CLOSEST PROXIMITY WAS 5,000 FEET. ATC TRAINING WAS IN PROGRESS.

END REPORT

U.S. Department of Transportation
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Washington, DC 20591
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FAA Aviation Safety Information Analysis and Sharing (ASIAS)

FAA Runway Safety Office - Runway Incursions (RWS) Batch Brief

Back to Search Results

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11703
FAA Event Type	VPD
Event LCL Date	31-AUG-12
Event LCL Time	1634
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	N/A
Aircraft 2 Type	C172
Aircraft 1 FAR	VEH
Aircraft 2 FAR	91
Weather Condition	21010KT 10SM SCT055 BKN090 28/12 A3010

ANALYSIS DESCRIPTION

AIRPORT VEHICLE CALLED FROM THE TERMINAL TO GO TO LEGEND. GROUND CONTROL (GC) INSTRUCTED VEHICLE TO PROCEED ON TAXIWAY CHARLIE, CROSS RUNWAY 30 AND HOLD SHORT OF TAXIWAY CHARLIE 3. VEHICLE PAUSED AND ASKED FOR PROGRESSIVE. GC THEN REPEATED THE INSTRUCTIONS BUT DID NOT FINISH AND TOLD VEHICLE TO JUST HOLD POSITION. VEHICLE READ BACK WAS UNINTELLIGIBLE AND VEHICLE DID NOT MOVE. A FEW SECONDS LATER, VEHICLE STARTED ACROSS TAXIWAY CHARLIE ONTO TAXIWAY CHARLIE 2 AND CROSSED THE HOLD SHORT LINE FOR RUNWAY 30, AT WHICH TIME GC TOLD VEHICLE TO STOP, HOLD POSITION. VEHICLE STOPPED JUST PAST THE HOLD SHORT LINE BUT WELL CLEAR OF THE RUNWAY. C172 WAS ON TAKEOFF ROLL PASSING TAXIWAY CHARLIE 5.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11258
FAA Event Type	VPD
Event LCL Date	20-MAY-12
Event LCL Time	1309
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC

Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	N
Aircraft 1 Type	N/A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	PED
Weather Condition	VRB03KT 10SM CLR 29/M09 A3012

ANALYSIS DESCRIPTION

THREE PEDESTRIANS CROSSED TAXIWAY ECHO MIDWAY BETWEEN TAXIWAYS ECHO 4 AND CHARLIE FROM THE TERMINAL AREA TO THE FIRE FIGHTING STAGING AREA. THE SECTION OF RUNWAY 12/30 WEST OF TAXIWAY CHARLIE WAS CLOSED FOR FIREFIGHTING OPERATION STAGING. AIRPORT OPERATIONS WERE ADVISED SO THEY COULD BRIEF THE INDIVIDUALS ASSOCIATED WITH THE FIRE FIGHTING OPERATIONS THAT THEY CANNOT CROSS THE TAXIWAY WITHOUT PERMISSION.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11773
FAA Event Type	PD
Event LCL Date	22-SEP-12
Event LCL Time	1342
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	M200
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	04505KT 10SM SCT 82/34 2999

ANALYSIS DESCRIPTION

M20E ROLLED PAST THE HOLD SHORT LINE OF RUNWAY 21L AND STOPPED AT LEAST 150 FEET PRIOR TO THE EDGE OF THE RUNWAY. IDAHO11/BE20 ON A ONE MILE FINAL APPROACH AND AT APPROXIMATELY 400 FEET AGL, WAS INSTRUCTED TO GO-AROUND.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13096
FAA Event Type	PD
Event LCL Date	10-AUG-13

Event LCL Time	1614
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 12
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	15011KT 10SM SCT100 30/M03

ANALYSIS DESCRIPTION

PA28 TAXIED AND DEPARTED RUNWAY 12 WITHOUT COMMUNICATION WITH THE CONTROL TOWER. LOCAL CONTROL ATTEMPTED TO CONTACT THE PA28 SEVERAL TIMES AND COMMUNICATION WAS ESTABLISHED AFTER DEPARTURE. THE PILOT MENTIONED HE WAS UNABLE TO CONTACT GROUND CONTROL SO HE THOUGHT THE AIRPORT WAS CLOSED. THERE WAS NO LOSS OF STANDARD SEPARATION.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11477
FAA Event Type	PD
Event LCL Date	07-JUL-12
Event LCL Time	0331
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	P28A
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	33008G16KT 10SM SCT120 34/00

ANALYSIS DESCRIPTION

PA28 REQUESTED TO TAXI FROM SOUTH RAMP PARKING TO FUEL. PA28 WAS INSTRUCTED TO TAXI VIA TAXIWAYS CHARLIE AND BRAVO 4, CROSS RUNWAY 30. WHILE ON TAXIWAY CHARLIE, PA 28 TURNED RIGHT ONTO TAXIWAY ECHO AND CROSSED THE HOLD SHORT BARS FOR RUNWAY 3R/21L. THE HOLD SHORT BARS ARE ESSENTIALLY AT THE EDGE OF TAXIWAY CHARLIE, SO AS SOON AS AN AIRCRAFT TURNS ONTO TAXIWAY ECHO, IT CROSSES THE HOLD SHORT BARS. GROUND CONTROL (GC) ADVISED PA28 TO HOLD POSITION AND ADVISED LOCAL CONTROL 1 (LC1) OF THE INCURSION. LC1 SENT TWO AIRCRAFT AROUND ON LESS THAN ONE MILE FINAL, R44 AND C172. NO LOSS OF SEPARATION. PA28 WAS SUBSEQUENTLY TAXIED ACROSS RUNWAY 21L AT TAXIWAYS ECHO AND DELTA 4.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11728
FAA Event Type	PD
Event LCL Date	08-SEP-12
Event LCL Time	1618
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	C177
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	04006KT 10SM SCT060 SCT100 30/08

ANALYSIS DESCRIPTION

C177 WAS ISSUED TAXI INSTRUCTIONS FROM THE SOUTH HANGERS TO RUNWAY 3R VIA TAXIWAY ECHO BY GROUND CONTROL (GC) FOR A PLANNED INTERSECTION DEPARTURE FROM TAXIWAY ECHO. TAXIWAY CONSTRUCTION AND CLOSURES PREVENTED FULL LENGTH DEPARTURES ON RUNWAY 3R. A HOLD SHORT OF RUNWAY 3R WAS ISSUED. READ BACK WAS CORRECT. C177 CONTINUED EAST ON TAXIWAY ECHO AND CROSSED THE RUNWAY 3R HOLD BARS WITHOUT AUTHORIZATION STOPPING SHORT OF THE RUNWAY EDGE LINE. ON TAXIWAY ECHO ON THE OPPOSITE (EAST) SIDE OF RUNWAY 3R, A C172 THAT HAD BEEN CLEARED FOR TAKEOFF, BUT YET TO COMMENCE DEPARTURE ROLL, WAS JUST CROSSING THE RUNWAY 3R HOLD BARS. THE LOCAL CONTROLLER (LC) CANCELLED THE TAKEOFF CLEARANCE OF THE C172 AFTER BEING ALERTED TO THE C177 THAT HAD ENTERED THE PROTECTED AREA OF RUNWAY 3R ON TAXIWAY ECHO FROM THE OPPOSITE (WEST) SIDE. AFTER INSTRUCTING THE C172 TO EXECUTE A 180 DEGREE TO FULLY EXIT THE RUNWAY, THE C177 WAS CLEARED FOR TAKEOFF. THIS EVENT OCCURRED IN HOT SPOT 2 AN IDENTIFIED COMPLEX INTERSECTION. THERE WERE NO OTHER CONFLICTS REPORTED.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13206
FAA Event Type	PD
Event LCL Date	02-SEP-13
Event LCL Time	1124
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3L
Aircraft 1 Type	HXB (EXP)
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	VRB04KT 10SM SCT050TCU 27/16 A3020

ANALYSIS DESCRIPTION

HXB WAS TAXIED TO RUNWAY 3L VIA TAXIWAY ALPHA FROM THE BOTTLENECK HANGARS. HXB TURNED ON TO TAXIWAY ALPHA 1 AND CROSSED RUNWAY 3L WITHOUT A CLEARANCE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11090
FAA Event Type	PD
Event LCL Date	07-APR-12
Event LCL Time	0934
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	PA18
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 12/M15

ANALYSIS DESCRIPTION

PA18 WAS GIVEN TAXI INSTRUCTIONS TO RUNWAY 21L VIA TAXIWAY ECHO, CHARLIE, CROSS RUNWAY 30. READ BACK CORRECT. AN AIRCRAFT TAXIING AHEAD OF PA18 STOPPED ON THE TAXIWAY WITH A POSSIBLE FLAT TIRE. THE GROUND CONTROL (GC) TOLD PA18 TO HOLD SHORT OF TAXIWAY CHARLIE 3 BECAUSE TAXIWAY CHARLIE WAS BLOCKED AHEAD BY THE AIRCRAFT WITH A POSSIBLE FLAT TIRE. GC THEN TOLD PA18 TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY CHARLIE 3. PA18 READ BACK HOLDING SHORT OF C3 AT 21L. AS PA18 STARTED TO TAXI, HE ASKED GC IF HE WANTED HIM TO GO OVER TO THE RUNWAY OR SIT WHERE HE WAS AT. GC TOLD PA18 TO HOLD SHORT OF RUNWAY 21L ON TAXIWAY CHARLIE 3. PA18 RESPONDED "GOTCH 96P". GC TOLD PA18 TO READ BACK HOLD SHORT INSTRUCTIONS. PA18 READ BACK HOLD SHORT OF C3 AT RUNWAY 21L. AT 1634Z, GC OBSERVED PA18 CROSSING RUNWAY 21L HOLD SHORT LINE AS THE AIRCRAFT WAS READING BACK THE HOLD SHORT INSTRUCTIONS. GC TOLD PA18 TO HOLD POSITION AND PA18 STOPPED APPROXIMATELY 50 FEET PRIOR TO THE RUNWAY 21L EDGE LINE. (C172), LOCAL CALL SIGN "RIDDLE 48", WAS ON DEPARTURE ROLL RUNWAY 21L AND LIFTING OFF OF THE RUNWAY PASSING TAXIWAY CHARLIE 5.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12903
FAA Event Type	VPD
Event LCL Date	01-JUL-13
Event LCL Time	1155

Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	N/A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	PED
Weather Condition	00000KT 10SM CLR 34/07 A3014

ANALYSIS DESCRIPTION

DUE TO INTENSE FIREFIGHTING ACTIVITIES IN THE AREA, SEVERAL MOVEMENT AREAS ON THE NORTHWEST SIDE OF PRC WERE CLOSED. THESE AREAS WERE OCCUPIED BY FIRE FIGHTERS AND THEIR EQUIPMENT. INCLUDED IN THE CLOSED AREAS WERE RUNWAY 12/30 AND TAXIWAY FOXTROT. PEDESTRIAN WAS OBSERVED BY ATC COMING FROM RUNWAY 12/30. PEDESTRIAN CROSSED TAXIWAY ECHO AND PROCEEDED TO THE TERMINAL. AN AIRPORT OPERATIONS VEHICLE INTERCEPTED THE PEDESTRIAN AT THE TERMINAL. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13139
FAA Event Type	VPD
Event LCL Date	22-AUG-13
Event LCL Time	1050
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	N/A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	VEH
Weather Condition	30003KT 10SM OVC100 23/12 A3023

ANALYSIS DESCRIPTION

GROUND CONTROL OBSERVED A VEHICLE MOVING FROM THE BOTTLENECK RAMP TO THE NORTH RAMP VIA TAXIWAY BRAVO 4 WITHOUT A CLEARANCE. AIRPORT OPERATIONS WERE DISPATCHED AND INTERCEPTED THE VEHICLE. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS

Event Id	12847
FAA Event Type	PD
Event LCL Date	21-JUN-13
Event LCL Time	0915
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	C175
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	12007KT 10SM CLR 26/M04 A3006

ANALYSIS DESCRIPTION

C175 REQUESTING REPOSITION FROM THE WEST TO THE EAST SIDE OF THE AIRPORT WAS INSTRUCTED TO TAXI TO RUNWAY 21L VIA TAXIWAYS ECHO, CHARLIE, CROSS RUNWAY 30. READ BACK WAS CORRECT. C175 WAS OBSERVED ON TAXIWAY ECHO SOUTHEAST BOUND CROSSING THE RUNWAY 21L HOLD BARS. GROUND CONTROL (GC) INSTRUCTED THE C175 TO HOLD POSITION AND THE AIRCRAFT STOPPED SHORT OF THE RUNWAY 21L EDGE LINE. N559ER/C172 ON ONE AND ONE-HALF MILE FINAL RUNWAY 21L WAS ISSUED GO AROUND INSTRUCTIONS. GC COORDINATED WITH LOCAL CONTROL (LC) AND INSTRUCTED THE C175 TO EXIT THE RUNWAY SAFETY AREA (RSA). THIS EVENT OCCURRED AT HOT SPOT 2.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11881
FAA Event Type	OI
Event LCL Date	19-OCT-12
Event LCL Time	0857
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	R22 (HELO)
Aircraft 2 Type	TB20
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 15/M07 A3018

ANALYSIS DESCRIPTION

R22 (HELICOPTER) WAND COMMUNICATING WITH LOCAL CONTROL ONE (LC 1). DURING A SUCCEEDING ARRIVAL LC 1 CLEARED THE R22 FOR AN OPTION APPROACH TO RUNWAY 3R. SHORTLY AFTER THE CLEARANCE WAS ISSUED TO THE R22, GROUND CONTROL (GC) CALLED LC 1 VIA THE FACILITY INTERCOM SYSTEM REQUESTING TO CROSS RUNWAY 3R AT TAXIWAY ECHO (TRAFFIC WAITING TO CROSS WAS TB20). LC 1 APPROVED THE CROSSING REQUEST,

FORGETTING THE R22 WAS CLEARED FOR THE OPTION AND PAST THE RUNWAY 3R THRESHOLD. THE R22 QUERIED LC 1 ABOUT THE AIRCRAFT ON THE RUNWAY AND LC 1 ADVISED THE PILOT HIS CLEARANCE WAS TO LAND ON THE NUMBERS, WHICH THE PILOT STATED HIS "CLEARANCE WAS FOR THE OPTION". R22 DELAYED ON THE RUNWAY AND DEPARTED BEHIND AND AFTER THE TB20 PAST IN FRONT FROM LEFT TO RIGHT. CLOSEST PROXIMITY BETWEEN THE R22 AND THE TB20 IS ESTIMATED BY THE FACILITY AT 200 FEET.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11816
FAA Event Type	PD
Event LCL Date	02-OCT-12
Event LCL Time	1303
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	C208
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	23011G21KT 10SM CLR 30/M03 A3012

ANALYSIS DESCRIPTION

C208 REQUESTED TAXI CLEARANCE FROM LEGENDS (TRANSIENT PARKING AREA AT SOUTH END OF AIRPORT) FOR A DEPARTURE TO THE EAST. GROUND CONTROL (GC) INSTRUCTED THE C208 TO TAXI TO RUNWAY 21L VIA TAXIWAY DELTA AND TO CROSS RUNWAY 30. READ BACK WAS CORRECT. AFTER CROSSING RUNWAY 30 THE C208 REQUESTED TO DEPART FROM INTERSECTION TAXIWAY DELTA 4. GC AMENDED THE ROUTE VIA TAXIWAYS DELTA, DELTA 4. READ BACK WAS CORRECT. SHORTLY THEREAFTER THE C208 BROADCASTED ON GC FREQUENCY THAT HE WAS READY FOR TAKE-OFF. GC DID NOT ACKNOWLEDGE THE TRANSMISSION BECAUSE OF INTER-FACILITY COORDINATION WITH LOCAL CONTROL (LC). C208 MADE NO OTHER TRANSMISSIONS ON GC AS THE AIRCRAFT ROLLED ACROSS THE HOLD SHORT LINE ON TAXIWAY DELTA 4. LOCAL CONTROL 1 (LC 1) CANCELLED THE TAKEOFF CLEARANCE FOR TRAFFIC A C172 COMMENCING A DEPARTURE FOLLOWING A TOUCH AND GO LANDING. C208 STOPPED WITH ONE HALF OF THE AIRCRAFT ACROSS THE HOLD LINE. C172 STOPPED ON RUNWAY 21L AND WAS INSTRUCTED BY LC 1 TO REMAIN ON THE RUNWAY. LC 1 THEN CLEARED THE C208 FOR TAKE-OFF ON RUNWAY 21L FROM TAXIWAY DELTA 4 AS THE C172 HELD POSITION ON THE RUNWAY IN THE VICINITY OF TAXIWAY DELTA 5. THE DISTANCE BETWEEN TAXIWAYS DELTA 4 AND DELTA 5 REPORTED BY THE FACILITY IS 1,450 FEET. THIS EVENT OCCURRED AT HOT SPOT 5.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12010
FAA Event Type	PD
Event LCL Date	25-NOV-12

Event LCL Time	0715
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	BE35
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	20003KT 10SM CLR 01/M06 A3009

ANALYSIS DESCRIPTION

BE35 WAS TAXIED TO RUNWAY 21L VIA TAXIWAYS BRAVO 4 AND CHARLIE AND AT INTERSECTION TAXIWAY CHARLIE 5 WAS ADVISED TO CONTACT TOWER/LOCAL CONTROL (LC). LC WAS ISSUING LANDING CLEARANCE TO ANOTHER AIRCRAFT ON PARALLEL RUNWAY 21R AND AFTER SCANNING OBSERVED THE BE35 TAXI ONTO RUNWAY 21L AT INTERSECTION TAXIWAY CHARLIE 5 WITHOUT AUTHORIZATION AND START TAKEOFF ROLL. TAKEOFF CLEARANCE WAS THEN ISSUED TO THE BE35 AS THE AIRCRAFT CONTINUED FORWARD DEPARTURE ROLL. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11854
FAA Event Type	PD
Event LCL Date	14-OCT-12
Event LCL Time	0815
Event State	AZ
RI Category Rank	D
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	P28A
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	33005KT 10SM CLR 11/04 A3031

ANALYSIS DESCRIPTION

PA28 CALLED GROUND CONTROL (GC) AT THE HANGAR AREA ON THE WEST SIDE OF THE AIRPORT (BOTTLENECK TERM USED BY PILOT) FOR TAXI INSTRUCTIONS TO THE SOUTH. GC ISSUED THE PA28 RUNWAY 21R VIA TAXIWAY ALPHA. READ BACK WAS CORRECT. WHEN THE PA28 REACHED TAXIWAY ALPHA A LEFT TURN WAS NOT MADE AND PA28 CONTINUED STRAIGHT AHEAD CROSSING THE DEPARTURE END OF RUNWAY 21R. GC OBSERVED THE PA28 NEARING THE EAST SIDE OF RUNWAY 21R AND AMENDED THE TAXI INSTRUCTIONS TO RUNWAY 21R VIA TAXIWAYS ALPHA 1, CHARLIE, BRAVO 4 AND ALPHA. THIS EVENT OCCURRED AT HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	11869
FAA Event Type	OI
Event LCL Date	17-OCT-12
Event LCL Time	1420
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 30
Aircraft 1 Type	P28A
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	32005KT 10SM CLR 26/M01 A3006

ANALYSIS DESCRIPTION

FRONT LINE MANAGER (FLM) REQUESTED APPROVAL WITH LOCAL CONTROL 1 (LC 1) TO CROSS RUNWAY 30 AT TAXIWAY DELTA (NOT ON LANDLINE). LC 1 STATED CROSS AT TAXIWAY DELTA. GROUND CONTROL (GC) TOLD PA28 TO CROSS RUNWAY 30 AT TAXIWAY DELTA. FLM OBSERVED C172 ENTERING RUNWAY 30 AT THE APPROACH END AND ASKED LC 1 IF HE WAS DEPARTING. FLM TOLD GC TO HOLD PA28. GC TOLD PA28 TO STOP. LC 1 CANCELLED TAKEOFF CLEARANCE FOR C172. PA28 CROSSED THE HOLD LINE AND STOPPED A FEW FEET SHORT OF THE RUNWAY 30 EDGE. C172 STOPPED HIS DEPARTURE ROLL 1730 FEET FROM TAXIWAY DELTA. CLOSEST PROXIMITY WAS APPROXIMATELY 1730 FEET.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12022
FAA Event Type	PD
Event LCL Date	27-NOV-12
Event LCL Time	1230
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C210
Aircraft 2 Type	CL30
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	03004KT 10SM CLR 15/M07 A3031

ANALYSIS DESCRIPTION

C210 CALLED GROUND CONTROL (GC) AFTER LANDING ON RUNWAY 21L. GC INSTRUCTED THE C210 TO CONTINUE TAXI FORWARD PAST THE HOLD SHORT LINE. FOLLOWING THAT INSTRUCTION, GC ASKED THE PILOT WHERE HE WANTED TO PARK. C210 STATED TRANSIENT PARKING AND GC ISSUED TAXI INSTRUCTIONS TO FBO VIA TAXIWAY DELTA AND TO CROSS RUNWAY 12. FBO IS LOCATED NEAR TRANSIENT PARKING IN THE SOUTH PORTION OF THE AIRPORT. READ BACK WAS CORRECT. C210 FAILED TO TURN INTO TRANSIENT PARKING AND CONTINUED VIA TAXIWAYS DELTA AND DELTA ONE WHEN LOCAL CONTROL ONE (LC 1) NOTICED THE AIRCRAFT ENCROACHING ON RUNWAY 21L AT THE DEPARTURE END. LC 1 WITHHELD A TAKEOFF CLEARANCE FOR CL30 WAITING IN POSITION AT THE APPROACH END OF RUNWAY 21L UNTIL THE C210 WAS CLEAR OF THE RUNWAY. GC INSTRUCTED THE C210 TO CONTINUE TAXIING PAST THE HOLD LINE AT TAXIWAY CHARLIE ONE.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	12337
FAA Event Type	OI
Event LCL Date	26-FEB-13
Event LCL Time	1148
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 3R
Aircraft 1 Type	M20P
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	02017G25KT 10SM CLR 07/M16 A3006

ANALYSIS DESCRIPTION

M20 WAS ISSUED TAXI INSTRUCTIONS FROM PARKING AT THE BASE OF THE CONTROL TOWER TO RUNWAY 3R VIA TAXIWAY DELTA, CROSS RUNWAY 12. M20 READ BACK THE RUNWAY ASSIGNMENT AND ROUTING, BUT ALSO INCORRECTLY READ BACK "CROSS RUNWAY 3". GROUND CONTROL (GC) REITERATED THE TAXI CLEARANCE INCLUDING CLEARANCE TO CROSS RUNWAY 12, BUT DID NOT ENSURE A COMPLETE AND CORRECT PILOT READ BACK OF THE INTENDED ROUTING AND CROSSING. LACKING A CORRECTED TAXI CLEARANCE THE M20 STARTED FORWARD TAXI AND CROSSED THE RUNWAY 3R HOLD BARS ON TAXIWAY DELTA 3, ENTERING THE RUNWAY SAFETY AREA (RSA). GC ISSUED INSTRUCTIONS TO "STOP" AND THE M20 STOPPED SHORT OF THE RUNWAY 3R EDGE LINE BY AN ESTIMATED DISTANCE OF 30 FEET. TO ENSURE SEPARATION LOCAL CONTROL (LC) ISSUED GO-AROUND INSTRUCTIONS TO C172 ON ONE-QUARTER (1/4) MILE FINAL APPROACH TO RUNWAY 3R AFTER BEING ALERTED BY THE CONTROLLER IN CHARGE (CIC) TO THE M20 THAT HAD ENTERED THE PROTECTED AREA OF RUNWAY 3R. THE DISTANCE FROM THE APPROACH END OF RUNWAY 3R TO TAXIWAY DELTA 3 IS APPROXIMATELY 1900 FEET.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS

Event Id	12552
FAA Event Type	PD
Event LCL Date	19-APR-13
Event LCL Time	1141
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21R
Aircraft 1 Type	HXA (EXP)
Aircraft 2 Type	C172
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM CLR 17/M17 A302

ANALYSIS DESCRIPTION

EXP REQUESTING TRAFFIC PATTERN WORK WAS ISSUED TAXI INSTRUCTIONS FROM THE NORTH HANGERS ADJACENT TAXIWAY BRAVO 4 TO RUNWAY 21R VIA PARALLEL TAXIWAY ALPHA. GROUND CONTROL (GC) TWICE ATTEMPTED TO SOLICIT A PILOT READ BACK OF RUNWAY ASSIGNMENT AND TAXI ROUTE AFTER THIS INFORMATION WAS NOT READ BACK. EXP PILOT STATED HE WAS UNFAMILIAR WITH THE AIRPORT. GC PROVIDED PROGRESSIVE TAXI AND INSTRUCTED THE EXP TO TURN LEFT ON TAXIWAY ALPHA HOWEVER THE AIRCRAFT RESPONDED WITH "ROGER" AND CONTINUED STRAIGHT AHEAD TOWARDS RUNWAY 21R ON TAXIWAY ALPHA 1. EXP WAS INSTRUCTED TWICE TO STOP HOWEVER THE AIRCRAFT CROSSED THE RUNWAY 21R HOLD BAR ON TAXIWAY ALPHA 1 WITHOUT AUTHORIZATION, STOPPING PRIOR TO THE RUNWAY EDGE LINE. TAXIWAY ALPHA 1 CROSSES RUNWAY 21R AT THE DEPARTURE END. C172 HAD JUST COMPLETED A TOUCH-AND-GO ON RUNWAY 21R AND WAS AT THE DEPARTURE END AIRBORNE WHEN THE EXP CROSSED THE RUNWAY 21R HOLD BAR ON TAXIWAY ALPHA 1. THERE WAS NO OVERFLIGHT. THIS EVENT OCCURRED AT HOT SPOT 3.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13551
FAA Event Type	PD
Event LCL Date	18-NOV-13
Event LCL Time	1020
Event State	AZ
RI Category Rank	C
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	RWY 21L
Aircraft 1 Type	C210
Aircraft 2 Type	R44 (HELO)
Aircraft 1 FAR	91
Aircraft 2 FAR	91
Weather Condition	00000KT 10SM FEW050 08/01 A3024

ANALYSIS DESCRIPTION

GROUND CONTROL (GC) INSTRUCTED C210 TO HOLD SHORT OF RUNWAY 21L AT TAXIWAY ECHO. READ BACK WAS CORRECT. C210 THEN CROSSED THE HOLD LINE WITHOUT A CLEARANCE. R44 WAS ON SHORT FINAL AND INSTRUCTED TO LAND ON THE NUMBERS ONLY. THIS EVENT OCCURRED AT HOT SPOT 2.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13626
FAA Event Type	PD
Event LCL Date	07-DEC-13
Event LCL Time	1715
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	SR22
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	13006KT 10SM CLR 03/M12 A3004

ANALYSIS DESCRIPTION

GROUND CONTROL (GC) OBSERVED AN UNIDENTIFIED AIRCRAFT ON TAXIWAY ECHO, HOLDING SHORT OF TAXIWAY CHARLIE. GC ATTEMPTED TO ESTABLISH COMMUNICATION WITH THE AIRCRAFT AND AN SR22 RESPONDED THEY WERE THE AIRCRAFT, AND REQUESTING PROGRESSIVE TAXI TO THE SELF-SERVE FUEL. NO CONFLICTS.

END REPORT

GENERAL INFORMATION

Data Source	RUNWWAY SAFETY OFFICE - RUNWAY INCURSIONS
Event Id	13605
FAA Event Type	PD
Event LCL Date	01-DEC-13
Event LCL Time	0711
Event State	AZ
RI Category Rank	N/A
Airport Id	PRC
Event Location	ERNEST A. LOVE FIELD, PRESCOTT, AZ
Event Lndg/Tkoff Surface	
Aircraft 1 Type	RV7
Aircraft 2 Type	N/A
Aircraft 1 FAR	N/A
Aircraft 2 FAR	91
Weather Condition	28006KT 10SM CLR 00/M02 A3031

ANALYSIS DESCRIPTION

RV7 ANNOUNCED HIS INTENTIONS ON LOCAL CONTROL (LC) FREQUENCY TO TAXI TO RUNWAY 21L FROM THE NORTH RAMP. LC INSTRUCTED THE RV7 TO HOLD POSITION AND CONTACT GROUND CONTROL (GC). RV7 DID NOT REPLY AND CONTINUED TO TAXI ON TAXIWAY BRAVO 4 AND TAXIWAY CHARLIE WITHOUT A CLEARANCE. SEVERAL ATTEMPTS BY THE GC AND LC TO GET THE AIRCRAFT TO STOP WERE UNSUCCESSFUL. RV7 CALLED LC FOR TAKEOFF INSTRUCTIONS. NO CONFLICTS.

END REPORT

U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591
1-866-TELL-FAA (1-866-835-5322)

Readers & Viewers

Web Policies

- Web Policies & Notices
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Government Sites

- DOT.gov
- USA.gov
- Plainlanguage.gov
- Recovery.gov
- Regulations.gov
- Data.gov

release 1.0

Appendix F | Terminal Building Site Assessment

Image by Delta Airport Consultants, Inc.

Ernest A. Love Field /
Prescott Municipal Airport

TERMINAL BUILDING SITE ASSESSMENT

FINAL REPORT

October 27, 2015

nicholas j pela & associates

airport consultants

Dibble Engineering

Nicholas J. Pela & Associates
Airport Consultants

October 27, 2015

Mr. John Cox, Airport Manager
Ernest A. Love Field / Prescott Municipal Airport
6546 Crystal Lane
Prescott, Arizona 86301

RE: Terminal Building Site Assessment

John:

Transmitted herewith is the Terminal Building Site Assessment final report, as adopted by the City Council on October 27, 2015.

It has been a pleasure working with you on this important phase of the Airport's terminal building development program.

Thank you for the opportunity to continue to be of service.

Sincerely,

NICHOLAS J. PELA & ASSOCIATES

Nicholas J. Pela, Senior Consultant

Attachment: Ernest A. Love Field / Prescott Municipal Airport
Terminal Building Site Assessment, Final Report

2930 East Northern Avenue, Bldg A-100 - Phoenix, Arizona 85028
(602) 349-9967 nicholas.pela@nicholaspela.com

TABLE OF CONTENTS

1 Introduction

Scope of Work 1-1

Prior Terminal Building Planning 1-1

Parameters Established for this Assessment 1-2

FIGURE 1-1: Location Map – Two Alternative Sites

2 Concept Development

Introduction 2-1

General Terminal Building Design Concepts 2-1

Development of the Air Carrier Terminal Building Envelope 2-2

Airside Development Envelope 2-11

Landside Development Envelope 2-11

General Aviation Space Requirements 2-12

FIGURE 2-1: Linear Terminal Building Design Concept

FIGURE 2-2: Pier Terminal Building Design Concept

FIGURE 2-3: Satellite Terminal Building Design Concept

FIGURE 2-4: Taxi and Turning Radii – CRJ-700

FIGURE 2-5: Taxi In / Push Back Gate Concept (Perpendicular)

FIGURE 2-6: Taxi In / Push Back Gate Concept (Angled)

FIGURE 2-7: Taxi In / Taxi Out Gate Design Concept

FIGURE 2-8: Example: Terminal Building Space Required for Single Peaking versus Split Peaking

3 Feasibility of Development

Introduction 3-1

Site Specific Development Layouts – Ultimate Term 3-2

Site Specific Development Layouts – Short Term 3-5

Identification of Site Constraints 3-5

Offsite Roadway Access Alternatives 3-6

Offsite Roadway Estimated Development Costs.....3-10

Offsite Roadways – Estimated Travel Time 3-10

Land Acquisition Requirements 3-13

Construction Phasing and Scheduling 3-13

Operational Considerations.....3-14

Estimated Development Cost.....3-15

Environmental Considerations 3-18

Coordination with Other Planned Improvements 3-20

Impacts to Adjacent Land Uses 3-21

Transportation Safety Administration (TSA) Requirements 3-22

FIGURE 3-1: West Site Conceptual Floor Plan – Maximum Build-out

FIGURE 3-2: West Site Conceptual Floor Plan – Split Peak Scenario

FIGURE 3-3: West Site Concept Layout – Maximum Build-out

FIGURE 3-4: West Site Alternative Layout – Maximum Build-out

FIGURE 3-5: East Site Conceptual Floor Plan – Maximum Build-out

FIGURE 3-6: East Site Conceptual Floor Plan – Split Peak Scenario

FIGURE 3-7: East Site Concept Layout – Maximum Build-out

FIGURE 3-8: East Site Concept Layout – Alternative Maximum Build-out

FIGURE 3-9: Terminal Access Exhibit – Alternative W1
FIGURE 3-10: Terminal Access Exhibit – Alternative E1
FIGURE 3-11: Terminal Access Exhibit – Alternative E2
FIGURE 3-12: Terminal Access Exhibit – Alternative E3
FIGURE 3-13: Terminal Access Exhibit – Alternative E4
FIGURE 3-14: Travel Time Analysis
FIGURE 3-15: West Site Utilities Plan
FIGURE 3-16: East Site Utilities Plan
FIGURE 3-17: West Site Construction Cost Estimate (Onsite)
FIGURE 3-18: East Site Construction Cost Estimate (Onsite)
FIGURE 3-19: West Site Concept Layout – Initial Phase
FIGURE 3-20: East Site Concept Layout – Initial Phase

4 Comparative Analysis

Introduction 4-1
Evaluation of Options for "Non-Cost" Criteria 4-1
Evaluation of Options for Cost Related Criteria 4-4
Evaluation Matrix 4-5

5 Meetings

Meetings and Public Involvement 5-1

Appendix A – Bibliography

Appendix B – Meetings

Project Kickoff and Stakeholder Meeting Notes – January 9, 2015
Supervisory Briefing Meeting Notes – March 5, 2015
City Council Resolution adopting this Assessment – October 27, 2015

1 Introduction

Scope of Work

The City of Prescott commissioned their on-call airport engineering and planning consultant team of Nicholas J. Pela & Associates and Dibble Engineering for the preparation of this Terminal Building Siting Assessment for future development of a new Terminal Building at Ernest A. Love Field / Prescott Municipal Airport (PRC).

The intent of this assessment is to provide information to the City Council to facilitate their decision-making process regarding the relative merits of two alternative actions which had been previously identified by the City. These alternative actions are as follows:

1. Construction of the new Terminal Building at, or in proximity to, the present terminal site (the "West Site"). The 2010 Airport Master Plan[1] for PRC (prepared by the Louis Berger Group, Inc.) recommends that the new terminal area development occur on this site. The most current approved Airport Layout Plan[5] also shows the terminal development at this site.

2. Construction of the new Terminal Building at a new site that has been identified by the City, located southeast of Taxiway D, and south of the existing Legend Aviation Fuel Farm (the "East Site"). This site was identified as an alternative for terminal area development in the 2010 Airport Master Plan[1], but was not recommended.

The locations of these two alternative sites are depicted on **Figure 1-1**, at the end of this section.

This assessment will provide a source of baseline information regarding the current and projected demand that will form the basis for concept development of the new Terminal Building and related facilities. The assessment will also provide a general comparative analysis of economic, constructability, and operational factors for each of the two alternatives. The assessment will be a preliminary overview that will assist in the City Council deliberations, and will serve as an initial basis for facilities refinement concept studies that may be undertaken as the Terminal Building development process moves forward over the next several years.

Prior Terminal Building Planning

The 2010 Airport Master Plan[1] for PRC (prepared by the Louis Berger Group, Inc.) included projections of air carrier activity for the 2007 through 2027 planning period. These projections included forecasts of the number of annual airline passenger enplanements, as well as hourly peaking tendencies for airline passenger activity. The Master Plan identified the future air carrier design aircraft as the Bombardier CRJ-700, a regional-service jet aircraft with 65 passenger seats. Projections of potential terminal building space requirements were also included in the Master Plan through the 2007-2027 planning period.

The Master Plan also included recommendations for the new Terminal Area Apron. These recommendations were based on Taxi In / Taxi Out operations, and a design fleet consisting of Bombardier Q400's and CRJ-200's (although the ultimate critical design aircraft had been identified as a CRJ-700).

Projections for passenger vehicle parking for the Terminal Area were also presented in the Master Plan.

The Master Plan's projections are summarized for reference purposes in **Table 1a**. These projections will be compared with this assessment's independent estimates in **Section 2 – Concept Development**.

Table 1a
2010 Airport Master Plan Summary of Terminal Building Projections[1]

Forecast	2007-2012	2013-2017	2018-2027
Annual Passenger Enplanements	7,262	12,459	36,673
Peak Hour Enplanements	86	130	153
Peak Hour Passengers	172	260	306
Total Terminal Building Area	18,370 SF	26,565 SF	33,550 SF
Number of Gate Positions	3	3	3
Terminal Apron Dimensions	362' x 223'	418' x 223'	430' x 223'
Terminal Apron Area	80,726 SF	93,214 SF	95,890 SF
Total Number of Vehicle Parking Spaces	126	178	245
Total Vehicle Parking Area	50,400 SF	71,200 SF	98,000 SF

Parameters Established for this Assessment

The City of Prescott's ad hoc Airport Area Steering Committee[2] developed a set of Findings and Recommendations for the development of the Airport Area, with specific findings and recommended actions for the improvement of the PRC Airport itself. These Airport Recommendations include the following general goals and action items:

" **Goal**: Develop PRC as a Commercial Airport exceeding 10,000 annual enplanements (qualifying for greater FAA funds) while planning for 50,000 annual enplanements long-term (15 to 20 years)

Action 1a – Lengthen Runway 3R-21L, structurally strengthen the runway and taxiways, and realign Taxiway "Charlie" to accommodate larger aircraft (commercial passenger, cargo, and others such as U.S. Forest Service), and construct other facilities required for Airport safety and security ($45 million including $3 million local)

Action 1b - Replace the existing Airport Terminal ($5 million including $2 million, plus the cost of street access, which is site dependent) at a location to be determined by a detailed site assessment ($41,000 local)

Action 2 - Achieve long-term tenancy for the U.S. Forest Service at PRC as the aerial firefighting base of choice for Northern Arizona **"**

The Airport Area Steering Committee's Findings and Recommendations were adopted by the City Council by Resolution on December 2, 2014[8].

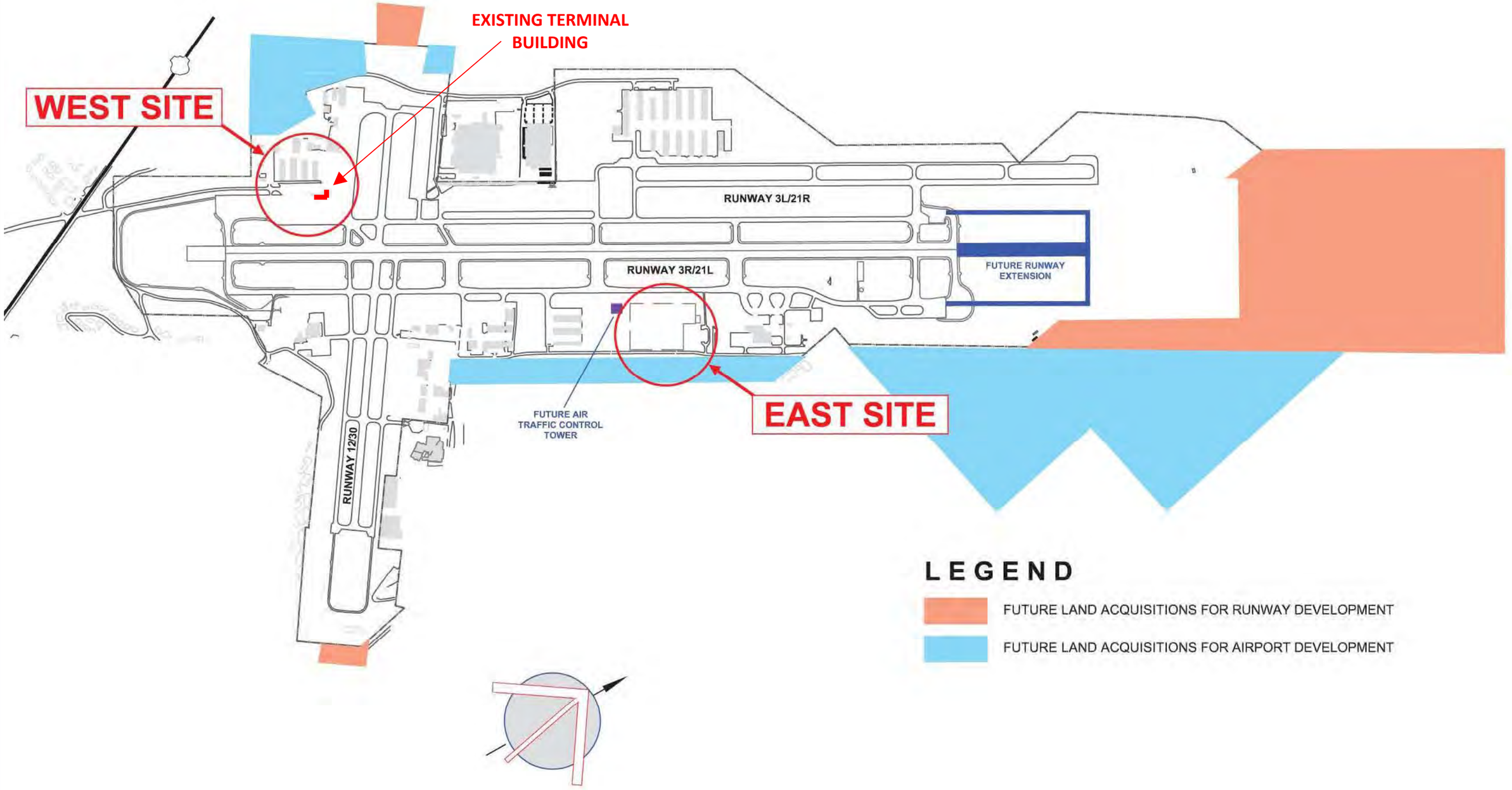
The preparation of this Terminal Building Site Assessment is the first step in the implementation of Action 1b.

The design parameters for this assessment are based on the Committee's stated goal of accommodating 10,000 annual enplanements in the Short Term, and 50,000 annual enplanements in the Long Term. In this assessment, the Short and Long Terms have not been defined by specific planning years. The Short Term activity level is seen as an achievable goal that could occur within the next few years, with the assumption that development of a more functional Terminal Building might play a role in promoting additional airline flights. The Long Term activity level is seen as a reasonable projection of activity at perhaps a twenty year planning horizon.

It is important to note that the initial site layouts and building sizes that are presented in the following sections of this assessment are approximations of the most demanding scenario that could potentially occur at PRC. This type of estimate of the potential space requirements is based upon the FAA's methodology[3,4] that begins with an assumption that multiple flights could arrive and depart within a very small time frame within a single peak period during a typical day. The results of this process will give an indication of the ability of each of the sites to accommodate a "worst case" demand situation that may or may not actually occur.

The actual ultimate size of the new Terminal Building, its layout, the number of passenger gate positions, and the number of automobile parking spaces required will be predicated by actual future demand. In order to provide a point of reference for this, alternate building layouts that are based on less demanding peaking scenarios are also presented in this assessment.

FIGURE 1-1



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

LOCATION MAP – TWO ALTERNATIVE SITES

nicholas j pela & associates
airport planners

2 Concept Development

Introduction

This section focuses on development of a concept Terminal Area envelope – a "portable model" of the proposed initial and ultimate Terminal Building, related facilities, automobile parking, and airside apron, gates, and aircraft movement areas. This conceptual envelope will be fitted to each of the two alternative sites in **Section 3 – Feasibility of Development**.

The calculations in this section are based on general baseline activity level projections as previously defined by the City of Prescott's ad hoc Airport Area Steering Group[2], and baseline design parameters established by the 2010 Airport Master Plan[1] (which are reflected on the latest approved Airport Layout Plan[5]).

General Terminal Building Design Concepts

There are four general types of airline terminal building concepts.[4] These are described as follows:

- The **Linear** terminal concept is common in small airports with low levels of air carrier activity. It is generally the most economical to construct because the concourse and secured holding rooms are integrated as part of a rectangular terminal building. This concept is illustrated in **Figure 2-1** at the end of this section.

- The **Pier** terminal concept is the most common type of layout, existing at medium to high activity airports. The design is the most flexible in terms of expansion and modification of gate positions. In this concept, the secure holding rooms and vendors can be integrated into the concourse. This concept is illustrated in **Figure 2-2** at the end of this section.

- The **Satellite** terminal concept is generally seen at major airports with very high levels of air carrier activity. It is possibly the most expensive to construct because of its inherent complexity. In this concept, the secured holding rooms and sometimes vendor areas are contained in the satellite at the end of the concourse walkway (which may also contain vendor areas). This concept is illustrated in **Figure 2-3** at the end of this section.

- The **Remote** terminal concept consists of a passenger terminal that relies upon a transportation system such as vans, buses, or trains to delivery passengers from a secured hold room to the aircraft, or to a secondary structure that contains only the secured holdrooms. This concept has inherent security, efficiency, and economic shortcomings, and is dismissed from consideration in this assessment.

Selection of the most appropriate design concept must consider the building space, apron space, and automobile parking and access space required, as well as the type of aircraft operations desired at the gates (Taxi In / Push Back or Taxi In / Taxi Out), and on specific site constraints. The

actual selected Terminal Building configuration may be a hybrid consisting of a combination of the Linear, Pier, or Satellite design concepts.

Development of the Air Carrier Terminal Building Envelope

A general conceptual size for the Short Term and Long Term expansion of the Terminal Building has been developed in this section. The gross Terminal Building size is based on calculation of approximate space requirements for the estimated Short Term passenger activity, and also considering future expansion to accommodate the reasonable maximum Long Term growth (as was identified by the Airport Area Steering Committee).

The following narrative describes the methodology used to calculate the building area for the anticipated air carrier Terminal Building. Space for general aviation activity has also been considered in the calculations, but is not considered to be a part of the airline terminal. This is addressed later in this section.

The baseline design parameters that were used to identify the space requirements for the air carrier terminal building are listed below in **Table 2a**.

Table 2a
Terminal Building Area Baseline Design Parameters

Parameter	Value	Source
Annual Enplanements Short Term (TAE)	10,000	ad hoc Airport Area Steering Committee[2]
Annual Enplanements Long Term (TAE)	50,000	ad hoc Airport Area Steering Committee[2]
General Aviation Operations Short Term (2012 value)	249,664	2010 Airport Master Plan[1]
General Aviation Operations Long Term (2027 projection)	325,084	2010 Airport Master Plan[1]
Critical Design Aircraft (Air Carrier Operations)	CRJ-700	2010 Airport Master Plan[1]
Existing and Ultimate Airport Reference Code	ARC C-III	Airport Layout Plan[5]
Existing and Ultimate Runway 3R-21L Reference Code	C/III/5000	Airport Layout Plan[5]

The air carrier terminal building space requirements for various uses were derived by application of sets of equations, using the baseline parameters from **Table 2a**, above, as the starting point. These baseline parameters were used to derive the variables that were used to calculate the space requirements. **Table 2b**, on the following page, lists these variables along with the sources of the methodology.

Table 2b
Derivation of Project Variables

Project Variable	Variable Name	Equation (referenced to source)
Peak Month Enplanements	PME	PME = 0.10 (Annual Enplanements) [1]
Average Day Peak Enplanements	ADPM	ADPM = (PME ÷ 31) [1]
Peak Hour Originating Passengers	PHO	PHO = ADPM*
Peak Hour Terminating Passengers	PHT	PHT = PHO**
Total Peak Hour Passengers	PHP	PHP = (PHO + PHT)**
Number of Design Aircraft Seats	DAS	DAS = 65 [9]
Design Aircraft Wingspan	WS	WS = 76.25' [9]
Taxilane Object Free Area Width	TOFA	(1.1 (WS)) + 10) [6]
Number of Airline Gates Required	AG	AG = 0.90 (PHP ÷ DAS)***
Peak Month GA Operations	PMGA	PMGA = 0.10 (Annual GA Operations) [1]
Average Day Peak GA Operations	ADGA	ADGA = (PMGA ÷ 31) [1]
Peak Hour GA Operations	PHGA	PHGA = 1.5 (0.900 (ADPM) ÷ 12)***

* For small non-hub airports the assumption is made that all flights may occur within a very short peak use time frame. Thus, all passengers may arrive for boarding or depart (deplane) from arriving flights within the same hour.

** A worst-case assumption is made that passenger arrivals at the airport will equal departures from the airport in the same peak time period.

*** Equation developed by Nicholas J. Pela & Associates

The equations presented above in **Table 2b** were applied to derive the Short Term and Long Term variables presented below in **Table 2c**:

Table 2c
Derivation of Project Variables

Project Variable	Short Term	Long Term
Annual Enplanements	10,000	50,000
Peak Month Enplanements	1,000	5,000
Peak Hour Originating Passengers	32	161
Peak Hour Terminating Passengers	32	161
Total Peak Hour Passengers	65	323
Taxilane Object Free Area Width	93.88'	93.88'
Number of Airline Gates Required (Maximum)	1	4
Peak Month GA Operations	24,966	32,508
Average Day Peak GA Operations	805	1,049
Peak Hour GA Operations	91	118

The project variables developed and presented above in **Table 2c** were applied to develop a set of equations to be used to determine Terminal Building space requirements. These results are shown in **Table 2d**, below.

Table 2d
Equations for Calculation of Terminal Building Space Requirements (Single Daily Peaking)

Space Requirement	**Equation** (referenced by source)
Number of Public Telephones	0.0621 (Peak Hour Passengers) ***
Airline Ticket Counter Length	0.205 (PHO) + 4' *
Inbound Baggage Claim Length	0.1775 (PHT) + 13' *
Rental Car Counter Length	0.20 (PHT) + 10' ***
Airline Gate Length	TOFA (AG) ***
Secured Departure Holdroom Area at Gates	(15 ÷ (PHO)) (AG) **
Secured Concession Area (Lease/Vendor)	5.6 (PHP) + 500 *
Secured Public Circulation Area (Concourse)	24 (PHP) ***
Secured Public Restroom Area	7.5 (½ PHP) ***
Security Office and Holding Area	5.12 (Peak Hour Originations) + 200 ***
Security Screening Area	3.1 (Peak Hour Originations) ***
Security Queue Area	12 (0.5 (PHO)) **
Airline Ticketing Queue / Circulation Area	4.125 (PHO) (Number of Airlines) *
Airport Management Offices	6.2 (Peak Hour Passengers) ***
Inbound Baggage Handling Area	15 (Baggage Claim Length) ***
Inbound Baggage Public Area	4 (PHT) + 400 *
Outbound Baggage Area at ATO	450 (Number of Airlines) **
Airline Ticketing Office (ATO) and Support	525 (Number of Airlines) **
Public Telephone Area	10 (Number of Public Telephones) ***
Rental Car Counter Queue Area	15 (0.5 (PHT)) ***
Rental Car Office Space	24 (Rental Car Counter Length) ***
Public Food and Beverage Area (Lease)	40 (PHO) **
Public Restroom Area	7.5 (½ PHP) ***
Public / Visitor Waiting and Lobby Area	15 (PHT) **
Public Circulation Area	0.24 (All Public Area) ***

* FAA Advisory Circular AC 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Locations, April 4, 1980

** FAA Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities, April 22, 1988

*** Indicates equations developed by Nicholas J. Pela & Associates, based on research of building codes and similar Terminal Building floor plans

Note that the **Table 2d** equations are used to derive the space requirements in a worst case scenario, where the airport experiences a single daily peaking hour, when multiple aircraft are arriving or departing within a very short period of time (a Single Peak scenario). This scenario requires a significantly greater amount of space to accommodate the passenger flow volume during the peak period than a scenario where flights are more evenly distributed throughout the day (a Split Peak scenario). Because of the nature of this assessment, the Single Peak scenario was appropriate in order to define the maximum anticipated extent of the improvements that might ever be required on the two development sites. The actual Terminal Building, apron, and automobile parking space required may be less than these maximum values, and will ultimately be based upon the actual airline activity. In order to illustrate this, an example of a Split Peak scenario using 50,000 annual enplanements has also been prepared. The example assumes that the airport will experience two peak hours during a typical day which effectively halves the total passenger volume during the peak hour of activity when compared to the Single Peak, 50,000 enplanement scenario. The example Split Peak scenario is shown in **Table 2h**, on page 2-9.

NOTE: See **Figure 2-8** at the end of this section for a graphic depiction of the difference between the Single Peak and Split Peak scenarios.

The application of the equations in **Table 2d** for the Single Peak scenario resulted in the minimum building space requirements for the Short Term (10,000 annual enplanements) and Long Term (50,000 annual enplanements) planning periods. These results are shown in **Table 2e** and **2f**, on pages 2-6 and 2-7 respectively.

Table 2g (on page 2-8) reflects the long range projections of annual enplanements from the 2010 Airport Master Plan[1]. This is included for the sake of comparison. The 2010 Airport Master Plan had recommended a 33,550 square foot Terminal Building, based on projections of 36,673 total annual enplanements in the year 2027. By way of comparison, application of the Single Peak equations developed independently in this assessment result in a minimum Terminal Building size of approximately 34,000 square feet (using 36,673 annual enplanements), which suggests agreement with the Airport Master Plan's conclusions.

The Long Term level of 50,000 annual enplanements that was established by the Airport Area Steering Committee[2] is considered to be a reasonably conservative projection of the maximum activity that may be experienced at Prescott within the next 20 years. However, the methodology used in this assessment can be applied to any level of airline activity to determine the theoretical building size required. It is also possible to determine the maximum building capacity in terms of total annual enplanements that a Terminal Building can be expected to accommodate. This involves "backing in" to the available building space to determine maximum enplanements. **Table 2i**, on page 2-10, shows that the 47,000 square foot building that was calculated to accommodate the Single Peak / 50,000 annual enplanements scenario may be expected to accommodate up to 96,000 total annual passenger enplanements with four gates using the Split Peak scenario.

Table 2e

NON-HUB AIRLINE TERMINAL BUILDING SPACE REQUIREMENTS
Short Term Demand - Single Daily Peak
ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT
Prescott, Arizona

Facility Space Requirements:	**Gates**	=	**1**	**Annual Enplanements=**	**10,000**

Number of Public Telephones	2.00	=	2	Each		
Airline Ticket Counter Length	10.61	=	11	Feet		
Inbound Baggage Claim Length	18.73	=	19	Feet		
Rental Car Counter Length	16.45	=	16	Feet		
Airline Gate Length	93.88		94	Feet		
Secured Departure Holdroom Area at Gates	483.87	=	484	Square Feet	Sterile	
Secured Concession Area (Lease/Vendor)	861.29	=	861	Square Feet	Sterile	
Secured Public Circulation Area (Concourse)	1,548.39	=	1,548	Square Feet	Sterile	
Secured Public Restroom Area	241.94	=	242	Square Feet	Sterile	3,135
Security Office and Holding Area	365.16	=	365	Square Feet	TSA	
Security Screening Area	100.00	=	100	Square Feet	TSA	
Security Queue Area	193.55	=	194	Square Feet	TSA	659
Airline Ticketing Queue and Circulation Area	133.06	=	133	Square Feet	Public	
Airport Management Offices	400.00	=	400	Square Feet	Public	
Inbound Baggage Handling Area	280.89	=	281	Square Feet	Public	
Inbound Baggage Public Area	133.03	=	133	Square Feet	Public	
Outbound Baggage Area at ATO	450.00	=	450	Square Feet	Public	
Airline Ticketing Office (ATO) and Support	525.00	=	525	Square Feet	Public	
Public Telephone Area	20.03	=	20	Square Feet	Public	
Rental Car Counter Queue Area	241.94	=	242	Square Feet	Public	
Rental Car Office Space	394.84	=	395	Square Feet	Public	
Public Food and Beverage Area (Lease)	1,290.32	=	1,290	Square Feet	Public	
Public Restroom Area	241.94	=	242	Square Feet	Public	
Public / Visitor Waiting and Lobby Area	483.87	=	484	Square Feet	Public	
Public Circulation Area	1,102.78	=	1,103	Square Feet	Public	5,698
TOTAL AIR CARRIER TERMINAL BUILDING AREA:	9,491.89	=	9,492	Square Feet		
Rounded Total Building Area:			**9,000**	Square Feet		
Public Automobile Parking Spaces			18	Spaces		
Employee Automobile Parking Spaces			6	Spaces		
Rental Car Parking Spaces			6	Spaces		
TOTAL AUTOMOBILE PARKING SPACES			**30**	Spaces		
Public Automobile Parking Area			11,419	Square Feet		

NOTE: This table is based on the Airport Steering Committee's determination of 10,000 annual enplanements for the Short Term planning period, assuming a single peak hour scenario.

Table 2f

NON-HUB AIRLINE TERMINAL BUILDING SPACE REQUIREMENTS
Ultimate Demand - Single Daily Peak
ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT
Prescott, Arizona

Facility Space Requirements:	**Gates**	=	**4**	**Annual Enplanements=**	**50,000**

Number of Public Telephones	10.02	=	10	Each		
Airline Ticket Counter Length	37.06	=	37	Feet		
Inbound Baggage Claim Length	41.63	=	42	Feet		
Rental Car Counter Length	42.26	=	42	Feet		
Airline Gate Length	375.50		376	Feet		
Secured Departure Holdroom Area at Gates	9,677.42	=	9,677	Square Feet	Sterile	
Secured Concession Area (Lease/Vendor)	2,306.45	=	2,306	Square Feet	Sterile	
Secured Public Circulation Area (Concourse)	7,741.94	=	7,742	Square Feet	Sterile	
Secured Public Restroom Area	1,209.68	=	1,210	Square Feet	Sterile	20,935
Security Office and Holding Area	1,025.81	=	1,026	Square Feet	TSA	
Security Screening Area	500.00	=	500	Square Feet	TSA	
Security Queue Area	967.74	=	968	Square Feet	TSA	2,494
Airline Ticketing Queue and Circulation Area	1,330.65	=	1,331	Square Feet	Public	
Airport Management Offices	2,000.00	=	2,000	Square Feet	Public	
Inbound Baggage Handling Area	624.44	=	624	Square Feet	Public	
Inbound Baggage Public Area	649.16	=	649	Square Feet	Public	
Outbound Baggage Area at ATO	900.00	=	900	Square Feet	Public	
Airline Ticketing Office (ATO) and Support	1,050.00	=	1,050	Square Feet	Public	
Public Telephone Area	100.16	=	100	Square Feet	Public	
Rental Car Counter Queue Area	1,209.68	=	1,210	Square Feet	Public	
Rental Car Office Space	1,014.19	=	1,014	Square Feet	Public	
Public Food and Beverage Area (Lease)	6,451.61	=	6,452	Square Feet	Public	
Public Restroom Area	1,209.68	=	1,210	Square Feet	Public	
Public / Visitor Waiting and Lobby Area	2,419.35	=	2,419	Square Feet	Public	
Public Circulation Area	4,550.14	=	4,550	Square Feet	Public	23,509
TOTAL AIR CARRIER TERMINAL BUILDING AREA:	**46,938.09**	=	**46,938**	Square Feet		
Rounded Total Building Area:			**47,000**	Square Feet		
Public Automobile Parking Spaces			90	Spaces		
Employee Automobile Parking Spaces			30	Spaces		
Rental Car Parking Spaces			32	Spaces		
TOTAL AUTOMOBILE PARKING SPACES			**152**	Spaces		
Public Automobile Parking Area			57,097	Square Feet		

NOTE: This table is based on the Airport Steering Committee's determination of 50,000 annual enplanements for the Long Term planning period, assuming a single peak hour scenario.

Table 2g

NON-HUB AIRLINE TERMINAL BUILDING SPACE REQUIREMENTS
Single Daily Peak - Using Louis Berger 2027 Master Plan Values for Enplanements
ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT
Prescott, Arizona

Facility Space Requirements:	**Gates**	=	**3**	**Annual Enplanements=**		**36,673**
Number of Public Telephones	7.35	=	7	Each		
Airline Ticket Counter Length	28.25	=	28	Feet		
Inbound Baggage Claim Length	34.00	=	34	Feet		
Rental Car Counter Length	33.66	=	34	Feet		
Airline Gate Length	281.63		282	Feet		
Secured Departure Holdroom Area at Gates	5,323.50	=	5,324	Square Feet	Sterile	
Secured Concession Area (Lease/Vendor)	1,824.96	=	1,825	Square Feet	Sterile	
Secured Public Circulation Area (Concourse)	5,678.40	=	5,678	Square Feet	Sterile	
Secured Public Restroom Area	887.25	=	887	Square Feet	Sterile	13,714
Security Office and Holding Area	805.70	=	806	Square Feet	TSA	
Security Screening Area	366.73	=	367	Square Feet	TSA	
Security Queue Area	709.80	=	710	Square Feet	TSA	1,883
Airline Ticketing Queue and Circulation Area	975.98	=	976	Square Feet	Public	
Airport Management Offices	1,466.92	=	1,467	Square Feet	Public	
Inbound Baggage Handling Area	509.97	=	510	Square Feet	Public	
Inbound Baggage Public Area	477.20	=	477	Square Feet	Public	
Outbound Baggage Area at ATO	900.00	=	900	Square Feet	Public	
Airline Ticketing Office (ATO) and Support	1,050.00	=	1,050	Square Feet	Public	
Public Telephone Area	73.46	=	73	Square Feet	Public	
Rental Car Counter Queue Area	887.25	=	887	Square Feet	Public	
Rental Car Office Space	807.84	=	808	Square Feet	Public	
Public Food and Beverage Area (Lease)	4,732.00	=	4,732	Square Feet	Public	
Public Restroom Area	887.25	=	887	Square Feet	Public	
Public / Visitor Waiting and Lobby Area	1,774.50	=	1,775	Square Feet	Public	
Public Circulation Area	3,490.17	=	3,490	Square Feet	Public	18,032
TOTAL AIR CARRIER TERMINAL BUILDING AREA:	**33,628.88**	=	**33,629**	Square Feet		
Rounded Total Building Area:			**34,000**	Square Feet		
Public Automobile Parking Spaces			66	Spaces		
Employee Automobile Parking Spaces			22	Spaces		
Rental Car Parking Spaces			24	Spaces		
TOTAL AUTOMOBILE PARKING SPACES			**112**	Spaces		
Public Automobile Parking Area			41,874	Square Feet		

NOTE: This table is based on the Airport Master Plan's determination of 36,673 annual enplanements in planning year 2027, assuming a single peak hour scenario. The Master Plan recommended a 33,550 square foot Terminal Building.

Table 2h

NON-HUB AIRLINE TERMINAL BUILDING SPACE REQUIREMENTS
Long Term Demand - Alternate Split-Peak Estimate
ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT
Prescott, Arizona

Facility Space Requirements:	**Gates**	=	**2**	**Annual Enplanements=**	**50,000**

Number of Public Telephones	10.02	=	10	Each		
Airline Ticket Counter Length	20.53	=	21	Feet		
Inbound Baggage Claim Length	27.31	=	27	Feet		
Rental Car Counter Length	26.13	=	26	Feet		
Airline Gate Length	187.75		188	Feet		
Secured Departure Holdroom Area at Gates	2,419.35	=	2,419	Square Feet	Sterile	
Secured Concession Area (Lease/Vendor)	1,403.23	=	1,403	Square Feet	Sterile	
Secured Public Circulation Area (Concourse)	3,870.97	=	3,871	Square Feet	Sterile	
Secured Public Restroom Area	604.84	=	605	Square Feet	Sterile	8,298
Security Office and Holding Area	1,025.81	=	1,026	Square Feet	TSA	
Security Screening Area	500.00	=	500	Square Feet	TSA	
Security Queue Area	483.87	=	484	Square Feet	TSA	2,010
Airline Ticketing Queue and Circulation Area	665.32	=	665	Square Feet	Public	
Airport Management Offices	1,000.00	=	1,000	Square Feet	Public	
Inbound Baggage Handling Area	409.72	=	410	Square Feet	Public	
Inbound Baggage Public Area	326.58	=	327	Square Feet	Public	
Outbound Baggage Area at ATO	900.00	=	900	Square Feet	Public	
Airline Ticketing Office (ATO) and Support	1,050.00	=	1,050	Square Feet	Public	
Public Telephone Area	100.16	=	100	Square Feet	Public	
Rental Car Counter Queue Area	604.84	=	605	Square Feet	Public	
Rental Car Office Space	627.10	=	627	Square Feet	Public	
Public Food and Beverage Area (Lease)	3,225.81	=	3,226	Square Feet	Public	
Public Restroom Area	604.84	=	605	Square Feet	Public	
Public / Visitor Waiting and Lobby Area	1,209.68	=	1,210	Square Feet	Public	
Public Circulation Area	2,573.77	=	2,574	Square Feet	Public	13,299
TOTAL AIR CARRIER TERMINAL BUILDING AREA:	**23,605.87**	=	**23,606**	Square Feet		
Rounded Total Building Area:			**24,000**	Square Feet		
Public Automobile Parking Spaces			90	Spaces		
Employee Automobile Parking Spaces			30	Spaces		
Rental Car Parking Spaces			16	Spaces		
TOTAL AUTOMOBILE PARKING SPACES			**136**	Spaces		
Public Automobile Parking Area			51,048	Square Feet		

NOTE: This table is based on the Airport Steering Committee's determination of 50,000 annual enplanements for the Long Term planning period, assuming a split peak hour scenario.

Table 2i

NON-HUB AIRLINE TERMINAL BUILDING SPACE REQUIREMENTS
Maximum Annual Enplanements Accommodated by Building Space Available (Split Peaking)
ERNEST A. LOVE FIELD / PRESCOTT MUNICIPAL AIRPORT
Prescott, Arizona

Facility Space Requirements:	**Gates**	=	**4**	**Annual Enplanements=**		**96,000**
Number of Public Telephones	19.23	=	19	Each		
Airline Ticket Counter Length	35.74	=	36	Feet		
Inbound Baggage Claim Length	40.48	=	40	Feet		
Rental Car Counter Length	40.97	=	41	Feet		
Airline Gate Length	375.50		376	Feet		
Secured Departure Holdroom Area at Gates	9,290.32	=	9,290	Square Feet	Sterile	
Secured Concession Area (Lease/Vendor)	2,234.19	=	2,234	Square Feet	Sterile	
Secured Public Circulation Area (Concourse)	7,432.26	=	7,432	Square Feet	Sterile	
Secured Public Restroom Area	1,161.29	=	1,161	Square Feet	Sterile	20,117
Security Office and Holding Area	1,785.55	=	1,786	Square Feet	TSA	
Security Screening Area	960.00	=	960	Square Feet	TSA	
Security Queue Area	929.03	=	929	Square Feet	TSA	3,675
Airline Ticketing Queue and Circulation Area	1,277.42	=	1,277	Square Feet	Public	
Airport Management Offices	1,920.00	=	1,920	Square Feet	Public	
Inbound Baggage Handling Area	607.26	=	607	Square Feet	Public	
Inbound Baggage Public Area	623.35	=	623	Square Feet	Public	
Outbound Baggage Area at ATO	900.00	=	900	Square Feet	Public	
Airline Ticketing Office (ATO) and Support	1,050.00	=	1,050	Square Feet	Public	
Public Telephone Area	192.31	=	192	Square Feet	Public	
Rental Car Counter Queue Area	1,161.29	=	1,161	Square Feet	Public	
Rental Car Office Space	983.23	=	983	Square Feet	Public	
Public Food and Beverage Area (Lease)	6,193.55	=	6,194	Square Feet	Public	
Public Restroom Area	1,161.29	=	1,161	Square Feet	Public	
Public / Visitor Waiting and Lobby Area	2,322.58	=	2,323	Square Feet	Public	
Public Circulation Area	4,414.15	=	4,414	Square Feet	Public	22,805
TOTAL AIR CARRIER TERMINAL BUILDING AREA:	**46,599.07**	=	**46,599**	Square Feet		
Rounded Total Building Area:			**47,000**	Square Feet		
Public Automobile Parking Spaces			173	Spaces		
Employee Automobile Parking Spaces			58	Spaces		
Rental Car Parking Spaces			31	Spaces		
TOTAL AUTOMOBILE PARKING SPACES			**262**	Spaces		
Public Automobile Parking Area			98,088	Square Feet		

NOTE: This table is based on "backing in" to determine the theoretical capacity of the building at a set area of 47,000 square feet, and assuming a split peak hour scenario.

Airside Development Envelope

The type of air carrier aircraft in use significantly affects the space required in the air carrier aircraft gate and movement area. For the purposes of this Assessment the critical aircraft identified in the 2010 Airport Master Plan[1], the Bombardier CRJ-700, was used. The turning radii for the CRJ-700 are depicted on **Figure 2-4** at the end of this section.

The type of gate parking procedures in place will also significantly affect the gate and movement area space requirements. There are two types of parking procedures that are considered.[4] These are Taxi In / Push Back and Taxi In / Taxi Out operations. They are described as follows:

Taxi In / Push Back - This is the most common procedure used at high activity airports. The process involves the taxiing of arriving aircraft directly into gate positions under their own power. Parking is generally nose-in and perpendicular to the Terminal Building or Pier, but may be angled depending upon the available apron space. Departing aircraft are typically backed out by towing or pushing with a tractor or tug to a clear apron area where they can safely proceed under their own power. Aircraft that can utilize reverse thrust can power out. This procedure is generally the most costly for the serving airlines from an operational standpoint. At low volume airports, airlines will be hesitant to invest in equipment and additional personnel for Taxi In / Push Back operations. However, this procedure utilizes minimum gate area and therefore permits more gates for the same building or pier length. It also typically requires shorter loading bridges and may allow more efficient use of apron space and service equipment. The Taxi In / Push Back procedure with perpendicular parking and the Taxi In / Push Back procedure with angled parking are illustrated in **Figure 2-5** and **2-6**, respectively, at the end of this section.

Taxi In / Taxi Out - This procedure is typically used at lower activity airports. Aircraft taxi into and away from gate positions under their own power. Parking may be designed to be either parallel to the building or pier, or (more typically) at an angle determined by the design aircraft. Although the Taxi In / Taxi Out procedure is less costly operationally because there is no need for tug equipment and additional personnel, it requires more apron area and permits a fewer number of gates per available building or pier length. The Taxi In / Taxi Out procedure is illustrated in **Figure 2-7** at the end of this section.

For the purposes of this Assessment, the Taxi In / Taxi Out gate procedure has been assumed because of the relatively low projected airline traffic volumes. The site layouts developed in **Section 3 – Feasibility of Development** are based on this assumption.

Landside Development Envelope

The number of public automobile parking spaces and the paved area required for the automobile parking was estimated using a factor of 0.0018 times the projected total annual passenger enplanements[3].

Additional automobile parking for airport employee parking was calculated by using a factor of 0.0006 times the projected total annual passenger enplanements. Additional parking for rental

cars was estimated by assuming that 20% of the peak hour terminating (arriving) passengers would require a rental car to be available.

The total area required for the automobile parking was calculated by allowing 375 square feet for each parking space[3].

The automobile parking space requirements are listed in **Table 2h**, below. The values for the Short Term and the Long Term Planning horizons (10,000 annual enplanements and 50,000 annual enplanements respectively) are shown.

Table 2h
Minimum Automobile Parking Space Requirements

Total Annual Enplanements	**Short Term** 10,000 Enplanements	**Long Term** 50,000 Enplanements
Public Parking	18	90
Employee Parking	6	30
Rental Car Parking	6	32
Total Automobile Parking Spaces	**30**	**152**

General Aviation Space Requirements

The focus of this assessment is on the space requirements for future airline activity. However, the activity at the PRC airport is primarily General Aviation (GA). The 2010 Airport Master Plan[1] projected about 230,000 total annual GA operations in 2007, increasing to 325,000 operations by 2027.

Building space for GA activity at PRC is primarily provided by the Fixed Base Operators (FBOs) who do business on the airfield. Some airports provide an Executive GA Terminal that serves business aviation. These facilities typically include a pilot's lounge, flight planning area, meeting facilities, food services, restrooms, and may include space for FBOs. The Airport Master Plan suggests that GA services will continue to be provided by the FBOs, estimating 3,800 square feet of building space in 2007, increasing to 9,600 square feet of building space by 2027 to meet the needs of General Aviation.

This additional GA terminal space has not been included in the estimates for the air carrier Terminal Building.

FIGURE 2-1

CONCOURSE IS INTEGRAL WITH SECURED HOLDING ROOMS

LINEAR GATE POSITIONS

CONCOURSE

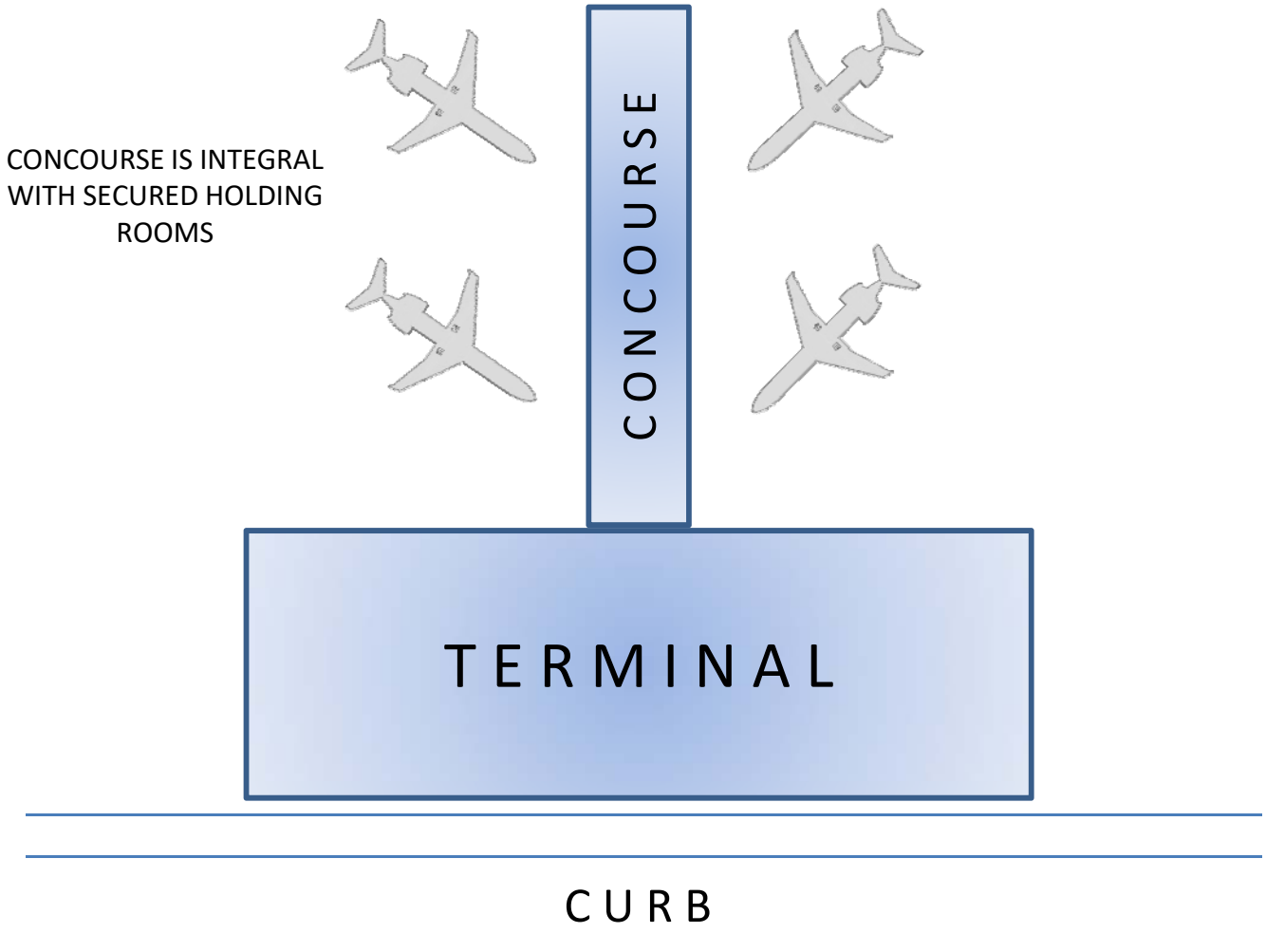
TERMINAL

CURB

Source: Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities, Federal Aviation Administration, April 22, 1988

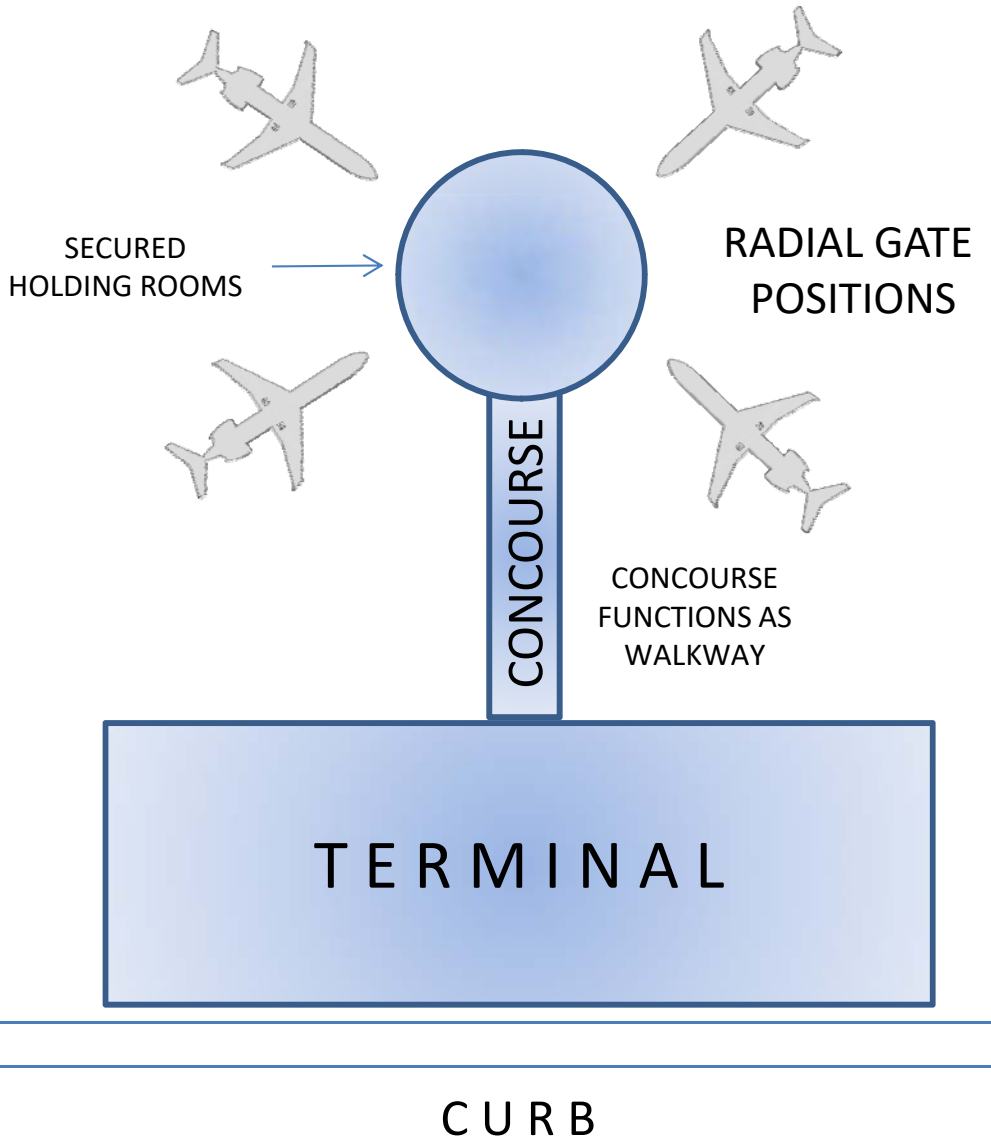
FIGURE 2-2

LINEAR GATE POSITIONS
ALONG PIER



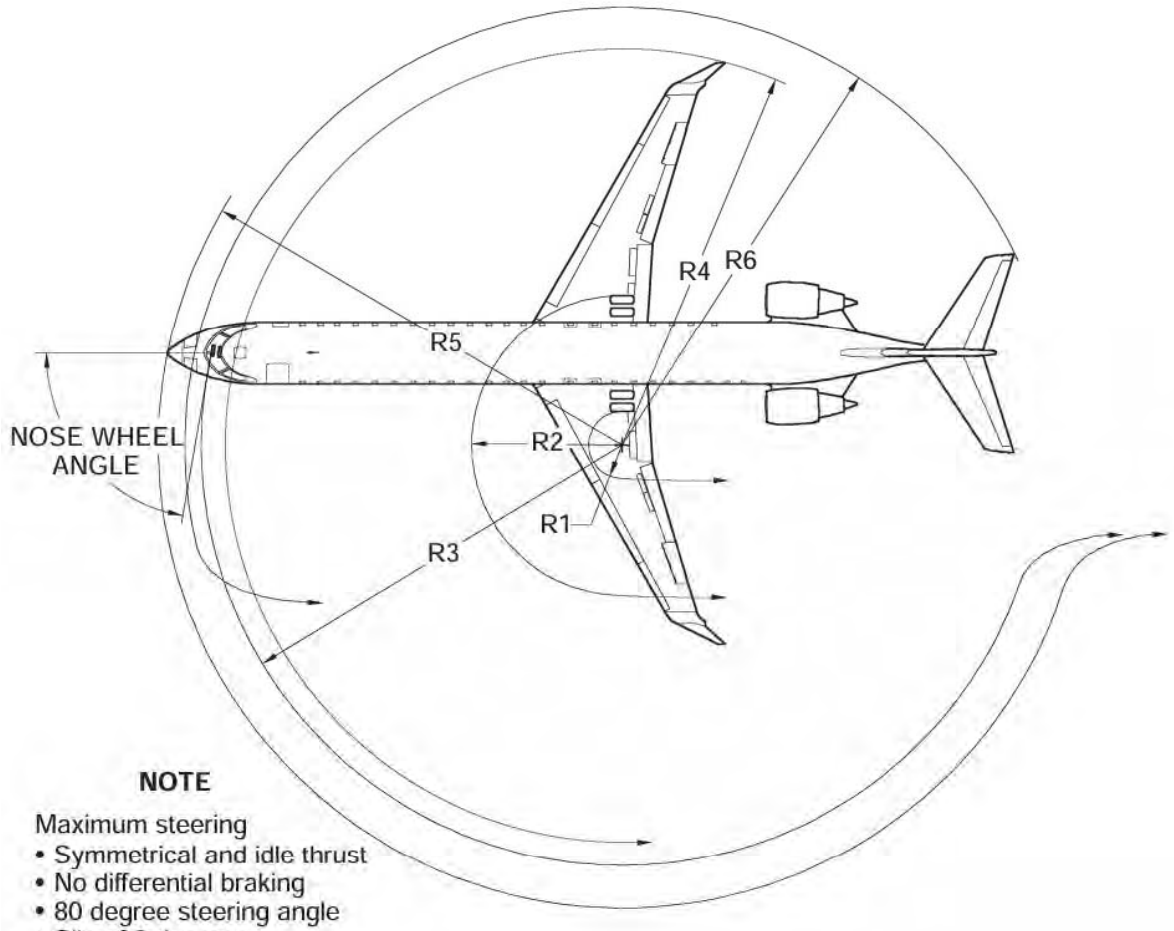
Source: Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities, Federal Aviation Administration, April 22, 1988

FIGURE 2-3



Source: Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities, Federal Aviation Administration, April 22, 1988

FIGURE 2-4



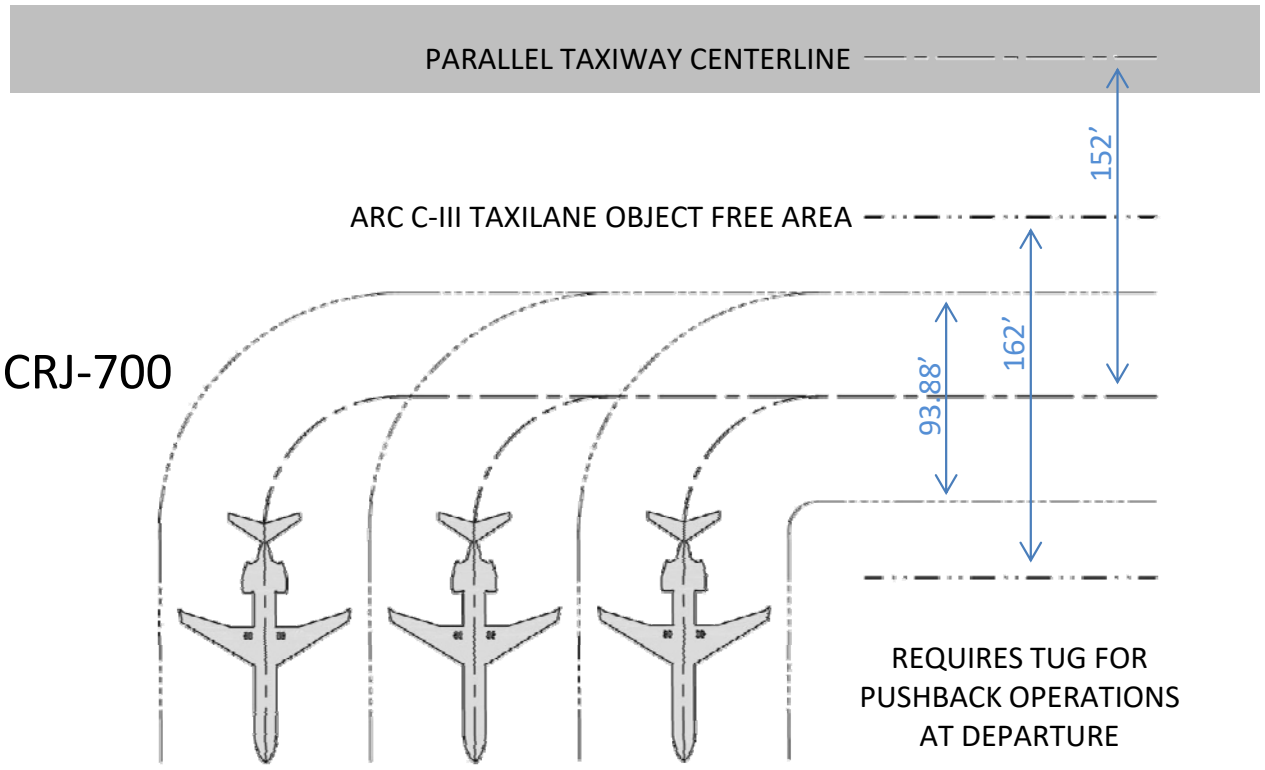
NOTE

Maximum steering
- Symmetrical and idle thrust
- No differential braking
- 80 degree steering angle
- Slip of 3 degrees
- Dry runway
- Slow continuous turn
- Maximum airplane weight
- Aft center of gravity

TURNING RADII FOR VARIOUS NOSE WHEEL ANGLES

ANGLE	R1		R2		R3		R4		R5		R6	
	ft	m	ft	m	ft	m	ft	m	ft	m	ft	m
20°	147.13	44.85	163.55	49.85	166.24	50.67	197.18	60.10	167.93	51.19	177.70	54.16
30°	89.70	27.34	106.10	32.34	114.01	34.75	139.76	42.59	116.85	35.62	124.41	37.92
40°	59.11	18.02	75.53	23.02	88.91	27.10	109.30	33.31	92.75	28.27	97.98	29.86
50°	39.15	11.93	55.57	16.94	74.77	22.79	89.49	27.27	79.45	24.22	82.29	25.08
60°	24.32	7.41	40.74	12.42	66.27	20.20	74.85	22.81	71.61	21.83	72.02	21.95
70°	12.24	3.73	28.65	8.73	61.17	18.64	63.00	19.20	66.99	20.42	64.96	19.80
80°	4.69	1.43	21.10	6.43	59.05	18.00	54.84	16.71	65.08	19.84	61.35	18.70

FIGURE 2-5



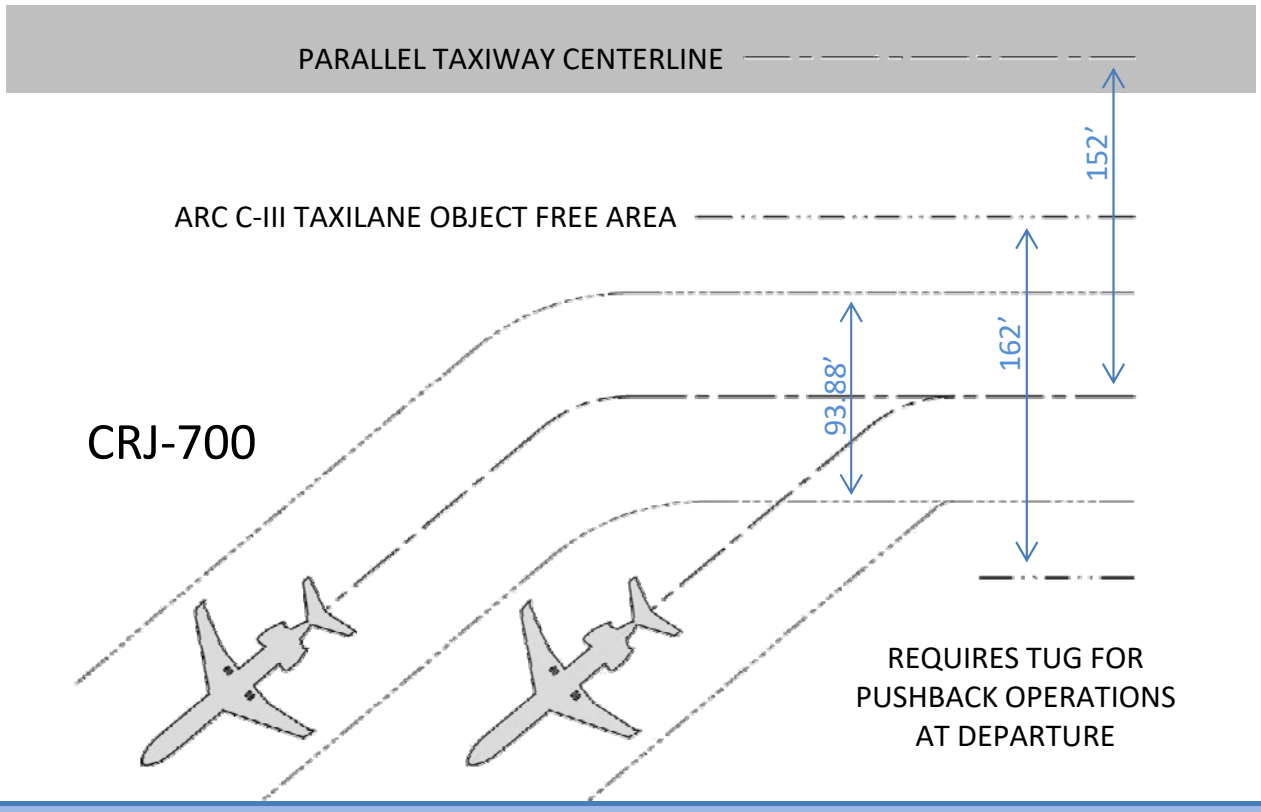
TERMINAL

Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TAXI IN / PUSH BACK GATE CONCEPT (PERPENDICULAR)

FIGURE 2-6

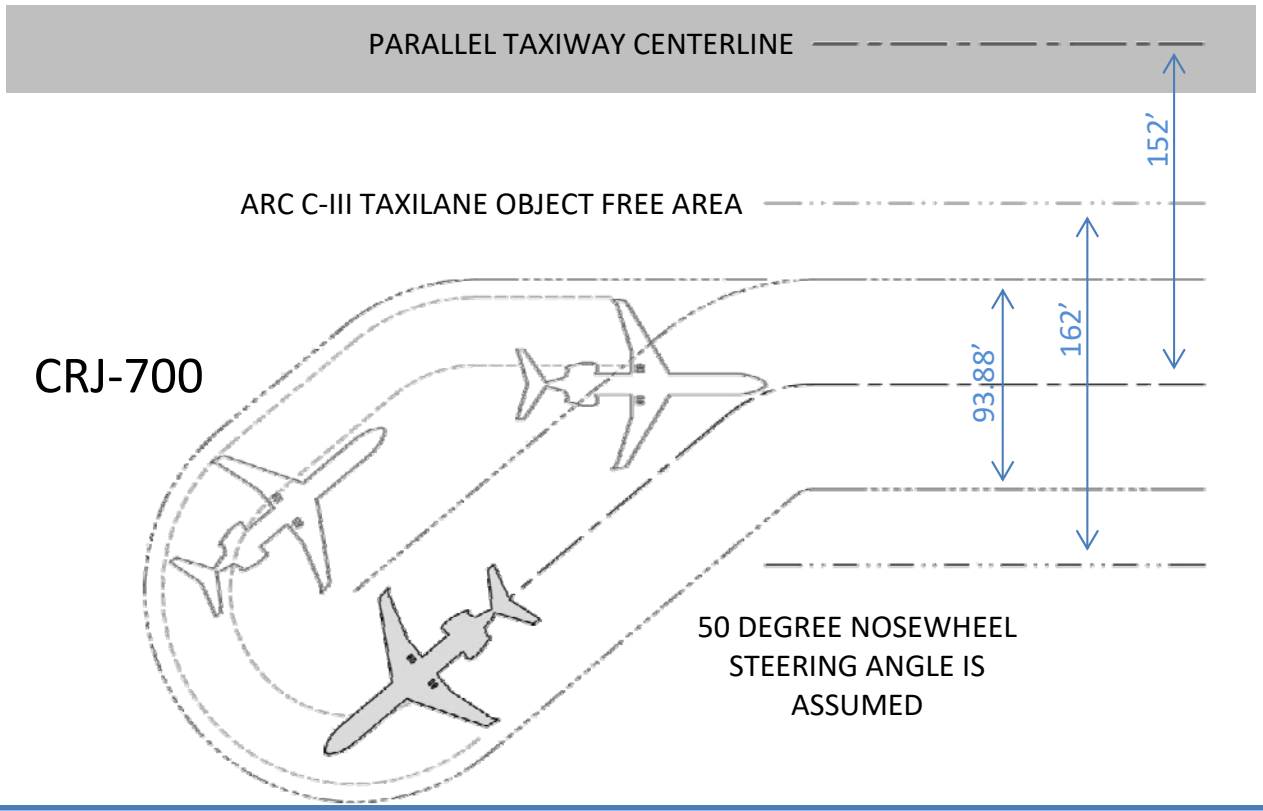


Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

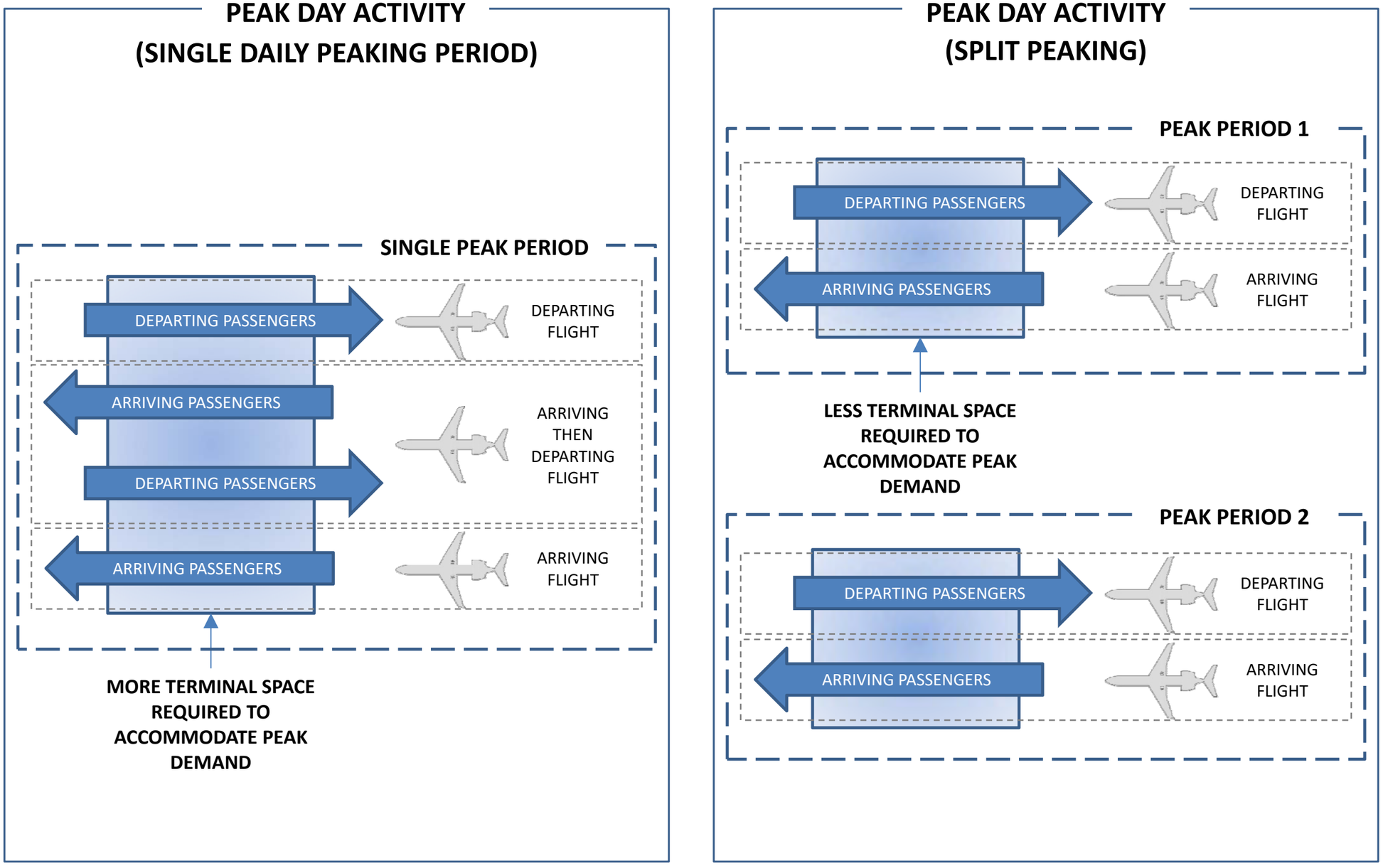
TAXI IN / PUSH BACK GATE CONCEPT (ANGLED)

FIGURE 2-7



TERMINAL

NOTE
This drawing represents the selected gate design concept that was used in this report.


PEAK DAY ACTIVITY
(SINGLE DAILY PEAKING PERIOD)
SINGLE PEAK PERIOD
DEPARTING PASSENGERS
DEPARTING FLIGHT
ARRIVING PASSENGERS
ARRIVING THEN DEPARTING FLIGHT
DEPARTING PASSENGERS
ARRIVING PASSENGERS
ARRIVING FLIGHT
MORE TERMINAL SPACE REQUIRED TO ACCOMMODATE PEAK DEMAND
PEAK DAY ACTIVITY
(SPLIT PEAKING)
PEAK PERIOD 1
DEPARTING PASSENGERS
DEPARTING FLIGHT
ARRIVING PASSENGERS
ARRIVING FLIGHT
LESS TERMINAL SPACE REQUIRED TO ACCOMMODATE PEAK DEMAND
PEAK PERIOD 2
DEPARTING PASSENGERS
DEPARTING FLIGHT
ARRIVING PASSENGERS
ARRIVING FLIGHT

3 Feasibility of Development

Introduction

In this section, the conceptual building, airside, and landside envelopes that were developed in **Section 2 – Concept Development** are applied to each of the two alternative sites. The potential constraints to development on each of the two sites were identified with reference to the planned geometry of the concept development layouts. Offsite roadway access plans were developed for each of the two sites that are based on prior and in-progress planning by the City for development of new roadways in the vicinity of the sites. The requirements for acquisition of additional land and utilities were identified and potential operational, constructability, and phasing issues were explored. An estimate of approximate costs for development on each site is also presented.

Each of the two site layouts included in this section are based on final build-out development of a 47,000 square foot Terminal Building that is equipped with four gate positions. This is based on the ultimate projection of 50,000 annual enplanements, as was established by the Airport Area Steering Committee.[2] In order to model the maximum development that could reasonably occur at the airport, it has been assumed that multiple flights would arrive and depart within a very small time frame (a Single Peak scenario, as defined in Section 2). In all cases, the form of the building envelope follows the functional locations of the aircraft gate positions and also the need for separation of public areas from the secured concourse and gates.

The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

Note that the first phase of development (assuming 10,000 annual enplanements) may require only a 9,000 square foot Terminal Building with a single gate position. The first development phase may be approached as a building that is designed from the outset to be expandable based on an ultimate development floor plan, or it may be built as a temporary facility with the intent that it would be replaced when and if the demand increases. This decision is beyond the scope of this assessment, and is better suited for the initial design process.

On both sites, the aircraft apron is laid out to accommodate the future design aircraft. This is a Bombardier CRJ-700. The layouts assume application of Taxi In / Taxi Out operations. This requires a larger apron area than Taxi In / Push Back operations, and also requires a longer concourse pier to accommodate the distance between the gates.

The automobile parking and curbside layouts for both sites are based on the ultimate requirement for a minimum of 152 automobile parking spaces to serve the ultimate 47,000 square foot Terminal Building.

The conceptual site layout for the West Site is included on **Figure 3-3**, at the end of this section. The layout for the East Site is included in **Figure 3-7**. Alternative layouts for each site are included in **Figure 3-4** and **3-8**, respectively. These layouts are discussed in the following narrative.

Conceptual floor plan layouts based on the Single Peak scenario (50,000 annual enplanements / one daily peak / 47,000 square feet / 4 gates) for the West Site and East Site are included in **Figures 3-1** and **3-5**, respectively. Example conceptual floor plan layouts based on the Split Peak scenario (50,000 annual enplanements / two daily peaks / 24,000 square feet / 2 gates) for the West Site and East Site are included in **Figures 3-2** and **3-6**, respectively.

Site Specific Concept Development Layouts – Ultimate Term

West Site (Figure 3-3) – The layout of the West Site was a more complex process than the East Site, because it is a completely developed site, with existing hangars, aircraft parking, and other features. The layout of this site focused on minimizing the demolition of existing buildings and hangars, while containing construction of the full build-out of the new Terminal Building, aircraft apron, automobile parking, and access roads on existing airport property.

The aircraft apron is based on the CRJ-700 design aircraft, using Taxi In / Taxi Out operations. Aircraft can arrive and depart via parallel Taxiway C, and can depart via Taxiway C or E.

The Terminal Building concept is a modified Pier system (as illustrated in **Figure 2-2**), with the form of the secured portion of the building following the function of the aircraft apron. The pier has three gates located along only the southeast side of the pier, and one gate at the end of the pier. The layout represents an option that would require the most space to construct, and is thus considered to be an appropriate conservative representation of the maximum potential build-out area. The use of a smaller design aircraft, or the use of Taxi In / Push Back parking would significantly affect the length of the pier portion of the building, and of the apron area required for aircraft movement into and out of the gates.

Vehicular access to this site is from the southwest from State Route 89 via MacCurdy Drive or via a new connection (under construction by ADOT) from the northwest from State Route 89 via Deep Well Ranch Road (now under construction), to Crystal Lane and Janine Drive (see **Figure 3-9**). Automobile parking is located primarily to the southwest of the Terminal Building, across the access road (Janine Drive), with some parking located to the northwest of the Terminal Building.

This development would require the removal and relocation of four multiple aircraft tee hangars and one conventional hangar in the Terminal Building/Apron area, as well as two small Quonset-type buildings in the auto parking development area. The existing hangar structure, current airport administration complex, and Northaire hangar to the northwest of the new Terminal could remain, as could the former Legend Aviation building on the southwest corner of the intersection of MacCurdy Drive and Janine Drive.

The existing Terminal Building would be removed with the planned development. The existing building is located within the Building Restriction Line, and is thus in noncompliance with current FAA airport design standards.

West Site Alternate Layout (Figure 3-4) – An alternative layout for development at the West Site was developed in collaboration with the Airport Director, and represents another option for the

phased development of the West Site. Note that the conceptual floor plan developed for the original layout was not used in this design.

The original West Site layout's geometry as depicted in **Figure 3-3** was predicated on minimizing the removal and replacement of the buildings and infrastructure that are located to the northwest of the Terminal area (including the Northaire hangar and facilities, the Airport Administration complex, and the shop/hangar building). This alternative layout would require removal of these buildings and facilities in the ultimate development phase.

The alternative development is assumed to occur in three phases, with the full build-out being a 47,000 square foot Terminal with at least four gate positions. The major development features of each phase are described as follows:

Phase 1 - Construct an initial 9,000 square foot Terminal Building with a single gate position.

Construct a Terminal Roadway loop and the first phase of automobile parking.

Remove the existing Terminal Building.

Construct an aircraft pull-through and parking lane over the existing auto parking area.

Phase 2 - Construct a 20,000 square foot Terminal Building expansion with a second gate position. The second gate/hold room would be located northwest of the initial (phase 1) aircraft gate position. This would be an in-line position, and may be temporary. Arriving aircraft would use the pull-through and parking lane as a queue when necessary and for bypass operations.

Expand the automobile parking area as required to accommodate the second phase demand.

Phase 3 - Construct an 18,000 square foot Terminal Building expansion with as many as three additional gate positions along the northwest side of the building. This will require removal and replacement of the existing shop/hangar building, the current Airport Administration complex, and the Northaire hangar facility.

Expand the automobile parking area as required to accommodate the third phase demand.

The building and facilities removal and relocation/replacement would make this alternate significantly more expensive than the full build-out layout as depicted on **Figure 3-3**. It is estimated that the building demolition and replacement could add approximately $7 million to the total long term project costs. However, this alternative concept has not been removed from consideration as a long term development option.

East Site (Figure 3-7) – The layout of the East Site is completely contained on undeveloped airport property. As with the West Site layout, the aircraft apron is based on the CRJ-700 design aircraft, using Taxi In / Taxi Out operations. Aircraft can arrive and depart via parallel Taxiway D.

The Terminal Building concept is a modified Linear configuration, with all gates located along the northwest side of the concourse. As with the West Site, this layout represents an option that would require the most space to construct, and is thus considered to be an appropriate conservative representation of the maximum potential build-out area. The use of a smaller design aircraft, or the use of Taxi In / Push Back parking would significantly affect the length of the pier portion of the building, and of the apron area required for aircraft movement into and out of the gates.

Vehicular access to this site would currently be from State Route 89 via the existing Perkins Drive, Wilkinson Drive, and Melville Road. The City is considering a new access route from the east from State Route 89A to Wilkinson Drive (see **Figure 3-10**). Automobile parking is located primarily to the northeast of the Terminal Building, with some parking located to the southwest of the Terminal Building.

There would be no removal of existing buildings or facilities with the East Site development. However, the existing Terminal Building at the West Site would be removed with the East Site development (the existing building is located within the Building Restriction Line).

East Site Alternate Layout (Figure 3-8) – During the initial planning process, an alternate layout for the East Site was developed. This layout began with the assumption that the ultimate build-out of the Terminal Building, apron, and automobile parking might exceed the limits of the available land owned by the airport. The alternate layout would make use of the industrial/commercial land to the southeast of the East Site for ultimate development. This land is approximately 40 feet higher in elevation than the airport property, thus a multi-level Terminal Building structure was envisioned. The alternate concept would include development of the initial phase of the Terminal on the lower level with vehicular access via Melville Road. The ultimate Terminal build-out would be on the higher land and vehicular access would be via Cirrus Drive, with the passenger entry point and public area on the higher land with escalator/elevator movement to TSA screening and the secured concourse and gate areas on the lower level. The ultimate development would require bridging over Melville Road. The complexity of this type of construction along with the acquisition of about three acres of additional land would make this alternate significantly more expensive than full build-out on the current airport owned land. It is estimated that the building would be at least 20% more expensive to construct than a single level structure, adding approximately $1,630,000 to the project costs. The additional land may add another $200,000 to the development costs (based on recent sales prices in the airpark).

As the planning process proceeded, it was found that the ultimate improvements could in fact be contained on the present East Site on-airport land, and the alternate multi-level layout was removed from further consideration.

Site Specific Concept Development Layouts – Short Term

In order to present a vision for phased development of the Terminal Building sites, layouts for the short term were prepared. These layouts are based upon 10,000 total annual passenger enplanements, with a Single Peak scenario, and a single passenger gate. The short term Terminal Building's first phase is 9,000 square feet under roof.

Conceptual site layouts for the short term phase of development are included for both the West Site (**Figure 3-19**) and the East Site (**Figure 3-20**).

Identification of Site Constraints

Expansion Potential – Both the West Site and the East Site were found to be able to contain the projected maximum potential growth improvements as defined in Section 2. However, both sites have constraints to expansion beyond the limits defined in this assessment.

The West Site is constrained for development beyond that projected in this assessment because it is adjacent to currently built out areas. Future expansion to the north beyond the limits defined in this assessment would require removal/relocation of the large hangar, airport administration complex, and possibly the Northaire hangar to the north of the new Terminal Building. Expansion of the West Site to the southwest would require acquisition of part of the golf course and residential land. Expansion of the West Site to the northeast or southeast is constrained by the runway and taxiway environment.

Expansion of the Terminal Building and automobile parking at the East Site is constrained for development beyond that projected in this assessment by the site reserved for the new Air Traffic Control Tower and the existing hangars to the southwest of that site. Expansion of the building and automobile parking at this site is also constrained by the Legend Aviation fuel farm. The fuel farm has a 50' setback requirement from the leasehold boundary, as predicated by the National Fire Protection Association (NFPA)[11]. The aircraft apron could be expanded beyond the development limits of this assessment to the southwest and to the northeast if required.

Airfield Geometry – Development on both the West Site and the East Site will be subject to height restrictions as defined by Federal Air Regulations, Part 77.[12]

At the West Site, Terminal Building development to the northeast and southeast is constrained by the Building Restriction Line (BRL). Ramp expansion beyond the maximum limits determined in this assessment would be constrained by the location of parallel Taxiway C to the southeast, and by parallel Taxiway E to the northeast.

The East Site is constrained by the Building Restriction Line (BRL) for Terminal Building expansion towards the northwest. Ramp expansion beyond the maximum limits determined in this assessment would be constrained to the northwest by the location of parallel Taxiway D.

Terrain - The West Site is fairly level with no significant excavation or fill required. However, pavement removal, utility removal and relocations, and building demolition would complicate grading construction.

The northeastern two thirds of the East Site is fairly level. However, the southwestern third of the site is occupied by higher terrain and would require removal of a significant amount of earth, with excavation depths up to 40 feet.

Offsite Roadway Access Alternatives

Terminal Building Vehicular Traffic Volumes - The number of passenger enplanements in the peak hour is used to calculate a peak hour traffic volume (a Single Peak hour is assumed). At maximum build-out with 50,000 enplanements per year, the peak hour enplanement value is 325. This calculates to 280 vehicle trips in the peak hour (or approximately 5 trips per minute on average). The number of trips is not a substantial increase in the traffic on the access roads or on the highways.

West Site Access / Existing Access - Access to the West Site is primarily from SR 89 and MacCurdy Drive. MacCurdy Drive is a 2,000 foot long, two lane, paved access road which bisects the Antelope Hills Country Club's north course. SR 89 and MacCurdy Drive is a signalized intersection and it has a skew of approximately 45 degrees. MacCurdy Drive becomes Willow Creek Road to the south and heads into the west side of Prescott.

A secondary access to the West Site is via SR 89 to Ruger Road and then turning off onto Crystal Lane and then Janine Drive. This 3,000 foot long drive takes the back way into the site. Ruger is a narrow two-lane paved road. The intersection of Ruger Road and SR 89 is stop controlled and it is difficult to exit the site from this point during peak hour traffic. Crystal Lane and Janine Drive are also narrow two-lane, paved roads. In addition to providing access to the existing Terminal area, Crystal Lane provides access to the Airport offices, several hangars, and several small business parking areas.

SR 89 and Deep Well Ranch Road are currently under construction by ADOT, who is constructing a roundabout at SR 89 and the new Deep Well Ranch Road. They are also upgrading SR 89 to a 4-lane divided highway from the roundabout to Chino Valley. Deep Well Ranch Road travels east from SR 89 and then curves south to intersect Ruger Road approximately 120 feet east of the Crystal Lane Intersection. ADOT is signing Deep Well Ranch Road as an access into the airport.

West Site Access / Planned Improvements - The City of Prescott is starting the design of a Crystal Lane reconstruction project to realign Crystal Lane to match into the Deep Well Ranch Road intersection with Ruger Road.

Deep Well Ranch Road is anticipated to continue easterly from the curve which heads to the airport, making the Deep Well Ranch Road an intersecting roadway with the airport access road. A new hospital and other developments are planned on the Deep Well Ranch Road extension.

The City of Prescott is also realigning Willow Creek Road to deviate from the existing alignment just north of Pioneer Parkway and head north and then east to intersect SR 89 at the Deep Well Ranch Road roundabout. Willow Creek Road between Pioneer Parkway and SR 89/MacCurdy Drive will be abandoned.

ADOT is currently designing an upgrade to SR89 between SR 89A and Pioneer Parkway (SR 89A) to a four lane roadway which includes a new James Lane from SR 89 to the realigned Willow Creek Road along the Perkins Drive alignment.

West Site Access Alternatives - W1, MacCurdy Drive and Deep Well Ranch Road (see **Figure 3-8**, at the end of this section) **-** Drivers from the south on SR 89 from Prescott or Prescott Valley can continue to use MacCurdy Drive. The future intersection of MacCurdy Drive and SR 89 will be signalized and the old Willow Creek leg will be terminated with a cul-de-sac. The access on MacCurdy Drive will need to be improved to a 3-lane section in order to allow turning movements off of MacCurdy Drive.

With Alternative W1, drivers accessing the airport from the north and from Willow Creek Road can use the Deep Well Ranch Road access road. Crystal Lane should be aligned to be in-line with Janine Drive rather than the access to the business parking areas. The City is currently in the process of designing this roadway.

East Site Access / Existing Access - Access to the East Site from SR 89 is via the eastbound Pioneer Parkway on-ramp. The east-bound ramp has a slip ramp to Larry Caldwell Drive interchange. The Pioneer Parkway ramps with Larry Caldwell Drive are stop controlled. Larry Caldwell Drive comes to a T-intersection 400 north of the westbound ramps. Wilkinson Drive is the right leg and Larry Caldwell Road is the left leg. Wilkinson Drive is used to reach Melville Road and then the east terminal site. The intersection with Larry Caldwell and Wilkinson is stop controlled but the major movement is the north and east legs, so the west leg has the stop sign. Wilkinson Drive also serves the Commerce Park, the US Forest Service Prescott Fire Center, numerous airport related businesses, and the Hanson Ready Mix Concrete Yavapai Plant.

Larry Caldwell Drive is a two-lane paved rural road with left turn lanes at the two SR 89A ramp junctions and at Wilkinson Drive. Wilkinson Road is a paved, two-lane rural road from Larry Caldwell Road to Melville Road with northbound left and right turn lanes at Gulfstream, an unused third lane with curb and gutter along the UniSource Energy frontage, and a NB right turn lane at Cirrus Drive.

Melville Road is a two-lane paved road which traverses from Wilkinson Drive to Corsair Avenue. East of Corsair Avenue, the Melville Road pavement ends and the dirt roads continue further east to the Prescott Wastewater Treatment Plant back entrance. Cirrus Drive and Gulfstream are urban, three-lane streets constructed as part of the Commerce Center. Corsair Avenue is a wide, paved, two-lane urban street built as part of the Prescott Airpark Unit 3 industrial development. Corsair Avenue currently allows on-street parking and the roadway terminates at Melville to the north and at the Wapiti property south of Avenger Road.

East Site Access / Planned Improvements - The Central Yavapai Metropolitan Planning Organization (CYMPO) has a draft 2040 Regional Transportation Plan Update[17] which includes a new Airport Boulevard which parallels SR 89A and connects Wilkinson Drive to the new Granite Dells Parkway east of the airport and eventually continuing east to tie into Viewpoint Drive in Prescott Valley. This would serve as a new collector road for the Prescott Regional Airpark and Commerce Center industrial area and the east terminal site. Granite Dells Parkway has the existing TI with Pioneer Parkway which includes roundabouts at the ramp junctions. The Granite Dells Parkway is planned to be extended north to the planned Airport Boulevard and another mile north in the Draft 2040 Plan. Airport Boulevard would cross over Granite Creek with a bridge and the Peavine Trail with an at-grade or grade separated crossing.

East Site Access Alternatives - The analysis of the East Side access considered four alternatives, two using the Larry Caldwell Drive interchange on SR 89A, and two using the new Granite Dells interchange on SR 89A. It must be noted that the Larry Caldwell Drive interchange is known to be heavily congested in the CYMPO 2040 Regional Transportation Plan Update[17] and the Airport Area Transportation Plan[19]. The terminal will only add a minor volume of traffic. The existing Airpark Commerce Center and the proposed Granite Dells Ranch industrial and commercial development will add significant volumes of traffic as each site is developed. This development will eventually require the Larry Caldwell Drive TI to be widened or reconstructed. The costs for these improvements are not included in any of the East Site alternatives. The costs are based on improving the east side terminal access roadways to a City of Prescott 3-lane collector street standard.

East Site Access Alternatives - **E1, Larry Caldwell and Wilkinson Drive** (see **Figure 3-10**, at the end of this section) - Alternative E1 uses the existing Larry Caldwell TI on SR 89A. Traffic would use the existing Wilkinson Drive to the northeast corner of Section 36. Due to the sharp curve in Wilkinson Drive, this alternative would require reconstruction which would continue up to the existing 3-lane section adjacent to the UniSource Energy frontage. Near Cirrus Drive, Wilkinson Drive would be reconstructed to a 3-lane section and a new curve added at the Melville Road intersection to make the Wilkinson/Melville movement the primary movement. Alternative E1 would continue the 3-lane alternative on Melville Road through the proposed terminal parking.

Alternative E1 maximizes the use of existing right-of-way. The 3-lane roadway section will allow for safer and more efficient turning movements into and out of the numerous driveways along the route. This alternative does not account for the congestion projected at the SR 89A/Larry Caldwell Drive interchange and the Larry Caldwell Drive/Wilkinson Drive intersection that is projected as the east airport industrial area develops.

East Site Access Alternatives - E2, Larry Caldwell Drive, Wilkinson Drive and Gulfstream (see **Figure 3-11**, at the end of this section) - Alternative E2 also uses the Larry Caldwell Drive TI on SR 89A. Traffic would use the existing Wilkinson Drive to the northeast corner of Section 36, but instead of turning west along Wilkinson Drive, the access road would be realigned to match into the north-south section of Gulfstream Drive. Gulfstream Drive is slightly offset from the Wilkinson Drive alignment, but the shift can easily take place. New-right-of-way would be required across two parcels. The Prescott Airpark Commerce Center parcel 1 would be bisected while parcel 2

would lose a portion of the west corner. These two parcels are currently vacant. The north segment of Wilkinson Drive would be realigned to tie into the Gulfstream Drive extension. The existing Gulfstream Drive is a 3-lane roadway so no additional improvements are planned up to Cirrus Drive.

North of Cirrus Drive, Gulfstream Drive would be extended across lot 29 and then curve easterly down the 40-foot high embankment to tie into Melville Road near the East Site proposed parking area. The back of lots 30 through 33 would be amended to convert this area for the new right-of-way. This section would be a two-lane roadway to minimize the footprint and impact to the Commence Center parcels.

Alternative E2 creates a straighter alternative to the east terminal site. The steep grade approaching Melville Road is unexpected for drivers as they drive the flatter grades across the mesa and then abruptly turning and descending to the terminal site. This alternative does not account for the congestion projected at the SR 89A/Larry Caldwell Drive interchange and the Larry Caldwell Drive/Wilkinson Drive intersection that is projected as the east airport industrial area develops.

East Site Access Alternatives - E3, Granite Dells Parkway, Airport Blvd, and Wilkinson Road (see **Figure 3-12**, at the end of this section) - Alternative E3 uses the new Granite Dells TI with SR 89A and extends a 4-lane Granite Dells Parkway up to the north line of Section 31. Airport Boulevard is planned along the north line of Section 31 from Wilkinson Drive to Viewpoint Road in Prescott Valley. This report uses a 3-lane roadway for Airport Road from Wilkinson Drive to Granite Dells Parkway. A new bridge over Granite Creek is required for this alternative. A grade separated crossing of the Prescott Peavine Trail is also included.

Along Wilkinson Drive north of Airport Boulevard, alternative E3 uses the same roadway alignments as alternative E2.

Airport Boulevard is a key component to the transportation network according to the Airport Area Transportation Plan[19] and will likely be constructed at some future time, but it is not programmed in any transportation budget. Nor is the extension of Granite Dells Parkway. These are both expensive roadway linkages. Larry Caldwell Drive can still be used so the roadway network has redundancy in case of traffic incidents.

East Site Access Alternatives - E4, Granite Dells Parkway, Airport Blvd and Corsair Avenue (see **Figure 3-13**, at the end of this section) - Alternative E4 also uses Granite Dells Parkway and Airport Boulevard, but it switches to an extension of Corsair Avenue. Corsair Avenue is a wide 2-lane roadway, but the roadway would have to be re-signed for “No Parking” in order to create a 3-lane roadway, increasing the safety and capacity of the East Site terminal access road. Corsair Avenue would also be extended from its current southerly terminus south of Avenger Road to the proposed Airport Boulevard. The right-of-way would be required from three thin private parcels.

At the north end of Corsair, the existing roundabout at Melville Road would require adjustment to increase safety and functionality. West of the roundabout, Melville Road would be upgraded to a 3-lane roadway to the east terminal site parking area.

This alternative could extend Airport Boulevard to Wilkinson Drive in order to create a better circulation network. This section of Airport Boulevard from Wilkinson Drive to Corsair Avenue is expected to cost $620,000[20] and is not included in the estimates below.

Offsite Roadway Estimated Development Costs

West Site Access Improvements Costs - Since most of the roadway projects are in construction or funded and programmed, the required upgrades to improve access to the proposed west terminal site is limited to improving MacCurdy Drive to a 3-lane collector roadway section from SR 89 to the terminal site.

The cost for the Alternative W1 offsite roadway improvements is estimated to be approximately $1,000,000.

East Site Access Improvements Costs - Table 3a below shows the four East Site access road alternatives. The costs are not intended to be budgetary costs but only for comparison purposed.

Table 3a
East Site Access Road Comparative Costs

Alternative	Estimated Comparative Cost
E1	$ 4,800,000
E2	$ 4,400,000
E3	$ 9,200,000
E4	$ 7,900,000

Offsite Roadways - Estimated Travel Time

Part of the access road study is to compare the five alternatives, W1 and E1 through E4, and the calculated travel times for each. The regional transportation network around the Prescott Airport has four primary arterial roads, SR 89A to Prescott Valley, SR 89 south to Prescott (east), Willow Creek Road south to Prescott (west), and SR 89 north to Chino Valley. The airport primarily serves these three communities as well as the communities further in the distance.

For this analysis, one point was chosen on each of the four regional roadways which is common to all alternatives. Point A is located 500 feet south of the Pioneer Parkway on Willow Creek Road. Point B is located 500 feet south of SR 89A on SR 89. Point C is located 500 feet north of Deep

Well Ranch Road on SR 89. Point D is located 1,200 feet east of Granite Dells Parkway on SR 89A. **Figure 3-14**, at the end of this section shows these point locations.

From each of these points, the shortest (by time) routes were chosen for each alternative to the West or East terminal site as appropriate. In order to fairly weight the calculated times to the volume of traffic travelling to the terminal site, each travel path was weighted based on the relative population of Prescott (west side), Prescott (east side), Prescott Valley, and Chino Valley. The weighting is presented in **Table 3b** below. The Prescott area population of 39,843 was divided by estimating the percentage of population of the east side (55%) compared to the west side (45%).

Table 3b
Population Weighting

Point/Roadway	Population (2010 census)	Weight percentage
A - Willow Creek Road	39,843 (Prescott)(45%)	20%
B- SR 89 south	39,843 (Prescott)(55%)	25%
C – SR 89 north	10,817 (Chino Valley)	12%
D – SR 89A	38,822 (Prescott Valley)	43%

From the weighted population and the calculated travel time of each route, a weighted travel time was calculated by summing the travel time by the weighted percentage. **Table 3c** on the following page presents the travel times and weighted travel time evaluation for each alternative.

The results show that the West Site and Alternative W1 have the lowest travel times to the terminal site than any of the east terminal site alternatives, even for the East Site from the Prescott Valley direction. The roadway network required to access the East Site is not direct and includes several slow interior streets and numerous intersections which slow traffic down.

Table 3c
Weighted Travel Time Calculations

Point	Roadway	Weighted Percentage	Travel Time (sec)
Alternative W1			
A	WCR	20%	279
B	SR 89 South	25%	210
C	SR 89 North	12%	135
D	SR 89A	43%	304
		Weighted Travel Time	255.22
Alternative E1			
A	WCR	20%	438
B	SR 89 South	25%	379
C	SR 89 North	12%	554
D	SR 89A	43%	352
		Weighted Travel Time	400.19
Alternative E2			
A	WCR	20%	403
B	SR 89 South	25%	344
C	SR 89 North	12%	519
D	SR 89A	43%	317
		Weighted Travel Time	365.19
Alternative E3			
A	WCR	20%	403
B	SR 89 South	25%	344
C	SR 89 North	12%	304
D	SR 89A	43%	322
		Weighted Travel Time	341.54
Alternative E4			
A	WCR	20%	463
B	SR 89 South	25%	404
C	SR 89 North	12%	579
D	SR 89A	43%	308
		Weighted Travel Time	395.52

Land Acquisition Requirements

Land Acquisition – There would be no additional land acquisitions required for either the West Site or the East Site development. All maximum potential build-outs could be contained on current airport property.

Construction Phasing and Scheduling

West Site - Construction Phasing for the West Site would require a minimum of four phases. These are explained as follows:

1. **Construction of Phase I (9,000 SF) Terminal Building:**

   - ***Phase I:*** Demolition of Hangars, Relocate Hangars to Bottleneck Location, Remove existing Quonset buildings, Earthwork/Site preparation, Install Utilities, Construct Phase I Terminal Building (9,000 square feet), Construct Automobile Parking Area (30 spaces), Replace Apron Pavement at hangar removal sites.

   - ***Phase II:*** Demolition of the existing terminal building and existing parking lot, Construction of new terminal apron.

   Minor operational disruption would occur during the demolition of the existing parking lot. With the new terminal complete, the new pavement, where hangars are removed will serve as a temporary loading and unloading area.

   - ***Phase III:*** Remove any temporary pavement markings used for temporary loading and unloading site.

   The remaining portion of the construction phasing and schedule would not take place until airport capacity/operations prompted the need for additional terminal gate locations.

2. **Construction of Ultimate Terminal Building (Expansion of up to 47,000 SF):**

   - ***Phase IV:*** Remaining Earthwork, Expansion of MacCurdy & Janine road, Install Utilities, Construct Ultimate Terminal Building (expand to up to 47,000 square feet), Construct Remaining Automobile Parking Area (expand to up to 152 spaces), Construct Access Loop around parking lot.

East Site - The East Site has fewer phasing and scheduling issues than the West Site. Operations at the existing terminal at the West Site would not be disrupted during the construction of the new terminal at the East Site. Construction Phasing would require a minimum of five phases.

1. **Construction of Phase I Terminal Building:**

   - ***Phase I:*** Earthwork, Install Utilities, Construct Phase I Terminal Building (9,000 square feet), Construct Automobile Parking Area (30 spaces) construction, Construct Apron Pavement outside of the Taxiway Safety Area.

   - ***Phase II:*** Construct Remaining Apron Pavement inside the Taxiway Safety Area (Requires partial closure of Taxiway 'D').

   - ***Phase III:*** Demolition of the existing terminal.

   The remaining portion of the construction phasing and schedule would not take place until airport capacity/operations prompted the need for additional terminal gate locations.

2. **Construction of Ultimate Terminal Building (Expansion of up to 47,000 SF):**

   - ***Phase IV:*** Earthwork, Install Utilities, Construct Ultimate Terminal Building (expand to up to 47,000 square feet), Construct Remaining Parking Area (expand to up to 152 spaces), Construct Apron Pavement outside the Taxiway Safety Area.

   - ***Phase V:*** Construct Remaining Apron Pavement inside the Taxiway Safety Area (Requires partial closure of Taxiway 'D').

Operational Considerations

Taxi Operations – For the purposes of this assessment, it has been assumed that ARC C-III air carrier operations will only occur on Runway 3R-21L. This is conformance with the most current Airport Layout Plan[5]. It has also been assumed that air carrier taxiway operations will use parallel Taxiway D, since parallel Taxiway C is not currently in compliance for use by ARC C-III aircraft. The location of the Terminal area will affect taxi times to and from the runway ends. The approximate taxi distances from each of the sites to each of the Runway 3R-21L departure ends have been calculated and are presented in **Table 3d**. For these calculations, the ultimate extended runway length has been used.

When taxiing to or from the West Site to Runway 21L, it will be necessary to cross Runway 12-30. Assuming the use of Taxiway D instead of Taxiway C, it will also be necessary to cross the end of Runway 3R-21L when taxiing to or from Runway 21L.

When taxiing to or from the East Site to Runway 3R, it will be necessary to cross Runway 12-30.

Table 3d
Approximate Taxi Distances from Development Sites to Runway Ends

Runway End	DISTANCE FROM	
	West Site	East Site
RWY 3R	1,500'	5,200'
RWY 21L (Ultimate)	12,900'	7,100'

Estimated Development Cost

The estimates in this section are based on the development of the West Site and East Site layouts as depicted in **Figure 3-3** and **Figure 3-7**, respectively.

Terminal Building Cost – The cost of construction of the Terminal Building was estimated using the average cost per square foot of similar types of airport terminals, assuming normal structural design, and average interior and exterior treatments. [10] The estimated cost for the 47,000 square foot building constructed at either site is $8,131,000, based on $173 per square foot under roof.

Utilities Improvements - Proposed water and sewer alignments for each of the sites have been developed based on the new maximum potential build-out Terminal Building area footprint, and are tied into existing alignments from the City of Prescott's Utility GIS data. The proposed water utility pipe sizes are also based on the new Terminal Building area footprint and the City of Prescott's Fire Protection Guidelines. No system flow design modeling was used at this time since this is a predesign level assessment.

Figures 3-15 and **3-16** show the proposed water & sewer alignments for the West Site and East Site, respectively.

- **Water System**: Fire protection is the driving factor for calculating water service to the proposed Terminal Building. A 47,000 to 50,000 square foot building will typically require a fire flow of 2,500 gallons per minute, and a minimum diameter pipe of ten inches should be used to keep velocity at or below 10 feet per second. The water pipe should be aligned in a loop around the structure with additional smaller diameter service lines to the building. Three fire hydrants will be positioned at optimal positions on the loop, with no more than 250 feet (fire hose length) between them. It is assumed that the new water service will also support a sprinkler system in the building.

  West Site - The geometry of the West Site building allows for a shorter water alignment around the building as compared to that at the East Site. The ten-inch pipe for the West Site can be tied into the 12-inch water main along MacCurdy Drive and Janine Drive. The

proposed system includes 1,575 linear feet of 10-inch pipe (including fittings and valves), and 3 fire hydrants.

East Site - The geometry of the East Site building creates a longer water alignment around the building as compared to that at the West Site. The ten-inch pipe for the East Site can be tied into the City's 12-inch water main along Melville Drive. The proposed system includes 1,740 linear feet of 10-inch pipe (including fittings and valves), and 3 fire hydrants.

- **Sewer System**: A sewer service line of 6-inch diameter is typical for servicing a 47,000 to 50,000 square-foot building. However, how the service line is connected into the City's sewer system should be analyzed in the design phase to avoid overwhelming the capacity of the system.

  West Site - The closest tie-in to the City's sewer system is a 6-inch service line that also serves residences at the golf course and various airport facilities. Although this is the same sewer service line that serves the existing terminal building, the proposed increase in the terminal size could overwhelm the system. From the City's existing 8-inch main on Ruger Road, a new 8-inch sewer main is proposed to run along Crystal Lane and Janine Drive, with a 6-inch sewer service line provided to the new terminal. This proposed sewer alignment would require 5 new manholes. The proposed system includes 1,150 linear feet of 8-inch pipe (new sewer main), with 5 manholes and 50 linear feet of 6-inch pipe (service line).

  East Site - The 6-inch sewer service line for the proposed terminal can be tied into the City's 10-inch sewer main that runs parallel to Taxiway "D". The 10-inch main should have enough capacity to accommodate the additional flow coming from the new terminal. The proposed system includes 425 linear feet of 6-inch pipe (including cleanouts).

Site Work Cost Estimates - Pavement sections were developed for each paved area based on their projected use by either the critical air carrier aircraft (apron and taxiways), or by vehicles (automobile parking and access roads). **Table 3e** provides the material types and design thicknesses used in the cost estimate calculations.

Table 3e
Pavement Sections Used in Cost Estimates

PAVEMENT SECTION	**Bituminous Surface Course** (inches)	**Cement Treated Base** (inches)	**Aggregate Base Course** (inches)	**Compacted Subgrade** (inches)
Large Aircraft Pavement	4	6	8	12
Small Aircraft Pavement	4	-	10	12
Vehicular Pavement	3	-	6	8

West Site – Demolition of existing hangars, pavement, and other features, as well as replacement of hangars contributes to the construction costs for the West Site. At this site, the Large Aircraft Pavement section is used for new apron pavement located on southeast side of the Terminal Building. The Small Aircraft Pavement section is used for apron pavement located on northwest side of the Terminal Building where pavement would need to be repaired due to demolition of the existing hangars. The Vehicular Pavement section is used for all new landside pavement in the automobile parking areas and for widening of Janine Drive.

East Site - Although no demolition is needed at the East Site, the earthwork for the development of this site is a major contributor to the construction costs due to the mound located at the southwest side of the site. At this site, the Large Aircraft Pavement section is used for all new airside pavement including the apron and taxiway connectors. The Small Aircraft Pavement section is not used at the East Site. The Vehicular Pavement section is used for all new landside pavement in the parking areas and roadways.

Total Development Costs of the Two Options - The total estimated costs to construct the proposed onsite improvements, the Terminal Building, and the offsite access roads is presented below in **Table 3f**. Estimated costs are included for both the Maximum Build-out long term development (with 47,000 square foot building), and the short term initial phase (with 9,000 square foot building).

Table 3f
Summary of Estimated Construction Costs – Ultimate Phase (w/47,000 SF building)

	APPROXIMATE CONSTRUCTION COST	
	West Site	**East Site**
Terminal Building	$ 8,131,000	$ 8,131,000
Site Development and Utilities	$ 5,199,300	$ 4,685,710
Offsite Airport Access Roads	$ 1,000,000	$ 4,400,000*
TOTAL APPROXIMATE DEVELOPMENT COST	**$ 14,330,300**	**$ 17,216,710**

Summary of Estimated Construction Costs – Initial Phase (w/9,000 SF building)

	APPROXIMATE CONSTRUCTION COST	
	West Site	**East Site**
Terminal Building	$ 1,557,000	$ 1,557,000
Site Development and Utilities	$ 3,321,200	$ 3,330,530
Offsite Airport Access Roads	$ 1,000,000	$ 4,400,000*
TOTAL APPROXIMATE DEVELOPMENT COST	**$ 5,878,200**	**$ 9,287,530**

**The estimated development cost of the four alternatives for offsite roadway access to the East Site ranged from $4,400,000 to $9,200,000. The least expensive option is reflected here.*

Environmental Considerations

Potential for Environmental Impacts - The National Environmental Policy Act (NEPA)[14] requires that all new airport construction projects be evaluated in terms of possible environmental impacts. Thus, it is important in the planning process to identify the environmental issues which may need to be addressed prior to the implementation of recommended airport development projects. While it is beyond the scope of this Terminal Building Site Assessment to provide a detailed analysis of the potential areas of impact, it is important to identify any known factors that may have a potential for impact.

Federal environmental actions under NEPA fall into one of three categories:

- Categorical Exclusions;
- Actions normally requiring an Environmental Assessment (EA); and
- Actions normally requiring an Environmental Impact Statement (EIS).

In general terms, actions categorically excluded are those actions which are normally found to have no potential for significant environmental impact. The following items would normally be categorically excluded unless extraordinary circumstances are identified by the FAA which would create a requirement for an Environmental Assessment. ("Extraordinary circumstances" include opposition by federal, state or local government agencies, or by a significant number of persons who would be affected by the action, as well as any obvious circumstance which may indicate the potential for environmental impact.)

- Runway reconstruction or repair work where the runway's alignment, length, capacity and classification are not affected;
- Construction or repair of taxiways, aprons or loading ramps;
- Installation or upgrade of airfield lighting systems, including runway and taxiway edge lighting systems, runway end identifier lights (REIL), visual approach aids (VASI, PAPI), rotating beacons, and electrical distribution systems;
- Installation of miscellaneous items including segmented circles, wind or landing direction indicators, weather stations, and fencing;
- Construction or expansion of buildings and passenger handling facilities, including general aviation arrival/departure building and hangars;
- Construction, relocation or repair of entrance and service roads;
- Obstruction removal on airport property;
- Erosion control actions with no off-airport impacts;
- Landscaping or construction of airport jet blast and/or noise mitigation barriers, as well as projects to carry out noise compatibility programs;
- Land acquisitions and/or relocations associated with any of the above listed items.
- Federal release of airport land, removal of a displaced threshold, airspace determinations, airport planning projects, noise compatibility programs, acquisition of security equipment required under 14 CFR Part 107 or safety equipment required under 14 CFR Part 139,

acquisition of snow removal equipment, airport certifications, and preliminary or tentative engineering or design actions are also categorically excluded.

NOTE: All applications for FAA grant participation must be preceded by submittal of Categorical Exclusion (CatEx) documentation.

Actions normally requiring an Environmental Assessment are those which have been found by experience to sometimes have significant environmental impacts. Included actions are:

- Airport location or relocation (construction of a new airport);
- Construction of a new runway;
- Major runway extension;
- Runway strengthening which would result in a 1.5 Ldn or greater increase in noise over any noise sensitive area located within the 65 Ldn noise exposure contour;
- Entrance or service road development which would adversely affect the capacity of other public roads.
- Land acquisition associated with any of the above-listed items, or land acquisitions which result in relocation of residential units when there is evidence of insufficient replacement dwellings or major disruption of business activities;
- Land acquisition which involves land covered under Section 4(f) of the DOT Act (public owned land from a public park, recreation area or wildlife or waterfowl refuge, or a historical site of local state or national significance);
- Establishment or relocation of an instrument landing system, or an approach lighting system;
- Any action which would affect property included (or eligible for inclusion) on the National Register of Historic Places, property of state, local, or national historical, architectural, archeological, or cultural significance;
- Land acquisitions which involve significant conversion of farmland

Actions determined to have significant impacts during preparation of the Environmental Assessment will be required to be addressed by an Environmental Impact Statement (EIS). The preparation of the Environmental Assessment is the responsibility of the airport sponsor. Based upon the results of the Environmental Assessment, the FAA would either prepare an Environmental Impact Statement (EIS) or would issue a "Finding Of No Significant Impact" (FONSI).

Federal regulations require that a sponsor seeking a grant for airport improvements must prepare and submit an Airport Layout Plan (ALP), showing detailed information regarding the existing and proposed facility, along with an Environmental Assessment prepared in accordance with FAA Order 5050.4B[15] and FAA Order 1050.1E[13], if an assessment is required.

The anticipated Terminal Building development is normally categorically excluded, and should not require the preparation of an Environmental Assessment (EA) unless requested by the FAA. The airport access road, aircraft apron, and automobile parking improvements are also normally

categorically excluded. However, if it is determined that improvement of the airport access routes would adversely affect the capacity of other public roads an EA would be necessary.

Coordination with Other Planned Improvements

Onsite Improvements - PRC Airport prepares an annual Airport Capital Improvement Program (ACIP) that includes all airport capital improvement projects anticipated for a five year period.[16] The ACIP is coordinated with the Arizona Department of Transportation (ADOT) Multi Modal Planning Division, and is submitted to both ADOT and the FAA for incorporation into their system-wide plans. The actual timing for the implementation of the ACIP projects is dependent upon the availability of local, federal, and State funding. The current ACIP includes a program of development for the Fiscal Year 2016 through 2020 period. The Terminal Building development program in the current ACIP does not begin until FY 2019, with 30% design of the Terminal Building programmed for FY 2019, and final design programmed for FY 2020.

A limited, focused, update of the Airport Master Plan is scheduled for FY 2016, and an Air Service Development Study is programmed for FY 2017. These studies will provide definition to the justification, development timing, and scope of the Terminal Building development program, with updated assessment of current demand, projections of future demand, and an assessment of the current and projected air service market.

There are several major improvement projects included on the current ACIP that will have to be coordinated with the Terminal Building development. The most critical of these in terms of potential impacts to the Terminal Building development is the new Air Traffic Control Tower (ATCT) and the development of a new Airport Rescue and Fire Fighting (ARFF) facility, since their ultimate locations could affect the placement of the Terminal Building and related facilities.

Offsite Improvements - The timing of the offsite roadway projects that have been previously discussed in this assessment will also have to be coordinated with the Terminal Building development. The routes to the West Site are either currently under construction or have been funded and programmed for implementation. The East Site's access routes are new concepts that would require planning and funding.

Table 3g depicts the interrelationship of the planned airport capital improvement projects throughout the most current ACIP period, FY 2016 through 2020.[16]

Table 3g
Anticipated Capital Improvement Projects[16] Affecting the Terminal Building Development

Fiscal Year	Programmed Terminal Development Activity	Other Major Airport Projects That May Affect Terminal Area Development	Potential Effect Upon…	
			West Site	East Site
2016	None	Air Service Development Study	✓	✓
		Airport Master Plan Addendum	✓	✓
		ARFF Facility – Phase 1, Design		✓
2017	None	None		
2018	None	ARFF Facility – Phase 2, Construction		✓
2019	Terminal Building Development Phase 1, 30% Design	New Air Traffic Control Tower – Phase 1, Design Study		✓
2020	Terminal Building Development Phase 2, Final Design	None		

Impacts to Adjacent Land Uses

Adjacent Land Uses: West Site – The off-airport land immediately adjacent to the West Site includes the Antelope Hills Golf Course, a small cemetery, and private residential properties. There is no identified need for acquisition of additional land to accommodate the maximum potential development envelope for this site as it is defined in this assessment. However, development of expanded Terminal Building facilities at the West Site would have some level of impact upon these properties. The primary impact would be the increase in peak period vehicular traffic on MacCurdy Drive, Ruger Road, Crystal Lane, and Janine Drive. Other impacts would include floodlighting of the new automobile parking lots that would be adjacent to the golf course and existing residential properties.

Adjacent Land Uses: East Site – The Prescott Regional Airpark and Commerce Center is located immediately southeast of the East Site. There is no identified need for acquisition of additional land to accommodate the maximum potential development envelope for this site as it is defined in this assessment. However, development of expanded Terminal Building facilities at the East

Site would have some level of negative impact upon this adjacent commercial development property, specifically the increase in peak period vehicular traffic through existing roadways, as has been described earlier in this assessment. It should be noted, however, that improvement of the offsite access route to the East Site Terminal area would have a positive impact to the commercial properties that are also served by the route.

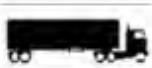
Transportation Safety Administration (TSA) Requirements

The TSA mandates that the airport "has a responsibility to provide a safe and secure operating environment and infrastructure"[7]. The extent of the protection afforded each facility should be based on the results of a comprehensive security analysis of a new facility (or vulnerability assessment of an existing facility). A high priority should be placed on protection of aircraft from the unlawful introduction of weapons, explosives, or dangerous substances. Protection of the airport's perimeter with adequate fences, gates, automated monitoring, and/or security patrol is the first line of defense in providing security. The second line of defense is the installation of interior controls such as access control, security checkpoints, and interior video monitoring.

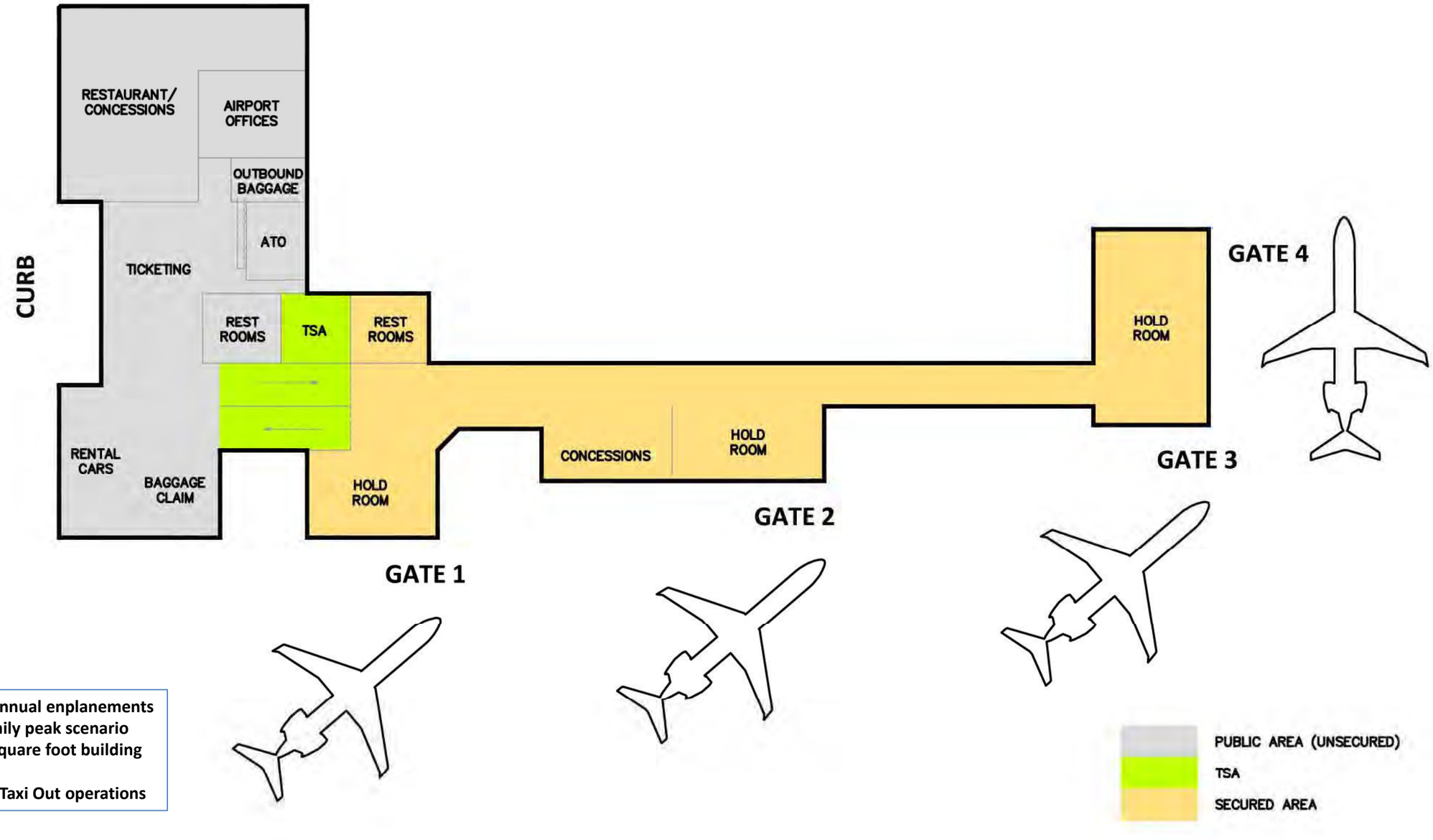
The new Terminal Building should be designed with the understanding that the airport may be faced with the possibility of attack by explosives-laden vehicles. Soon after the September 11, 2001 attacks the TSA mandated a 300 foot perimeter from any airport passenger terminal wherein automobile parking was not allowed. This was based upon the Bureau of Alcohol, Tobacco, Firearms, and Explosives' (ATF) determination of the lethal air blast range for the amount of explosives that could be contained in a small box van (see **Table 3h** on the following page). This mandate was an interim measure that has since been remanded as airports implemented other measures to mitigate the effects of such an attack, the most effective of which is the "hardening" of the exterior of passenger terminal buildings such that they will withstand the effects of a explosives-laden vehicle blast without collapse.

It is recommended that the design of the new Terminal Building be preceded by a Blast Analysis Plan (BAP), and that the building structure be designed to withstand a blast that might occur based on the largest capacity vehicle that would access the area within its lethal air blast range. Additional security may be afforded by controlling the size of vehicles that are permitted to access the proximity of the Terminal Building.

Table 3h
Vehicle Bomb Explosion Hazard and Evacuation Distance Tables

ATF	VEHICLE DESCRIPTION	MAXIMUM EXPLOSIVES CAPACITY	LETHAL AIR BLAST RANGE	MINIMUM EVACUATION DISTANCE	FALLING GLASS HAZARD
	COMPACT SEDAN	500 Pounds 227 Kilos (In Trunk)	100 Feet 30 Meters	1,500 Feet 457 Meters	1,250 Feet 381 Meters
	FULL SIZE SEDAN	1,000 Pounds 455 Kilos (In Trunk)	125 Feet 38 Meters	1,750 Feet 534 Meters	1,750 Feet 534 Meters
	PASSENGER VAN OR CARGO VAN	4,000 Pounds 1,818 Kilos	200 Feet 61 Meters	2,750 Feet 838 Meters	2,750 Feet 838 Meters
	SMALL BOX VAN (14 FT BOX)	10,000 Pounds 4,545 Kilos	300 Feet 91 Meters	3,750 Feet 1,143 Meters	3,750 Feet 1,143 Meters
	BOX VAN OR WATER/FUEL TRUCK	30,000 Pounds 13,636 Kilos	450 Feet 137 Meters	6,500 Feet 1,982 Meters	6,500 Feet 1,982 Meters
	SEMI-TRAILER	60,000 Pounds 27,273 Kilos	600 Feet 183 Meters	7,000 Feet 2,134 Meters	7,000 Feet 2,134 Meters

(Reproduced from Recommended Security Guidelines for Airport Planning, Design and Construction, Transportation Security Administration, Revised May, 2011)



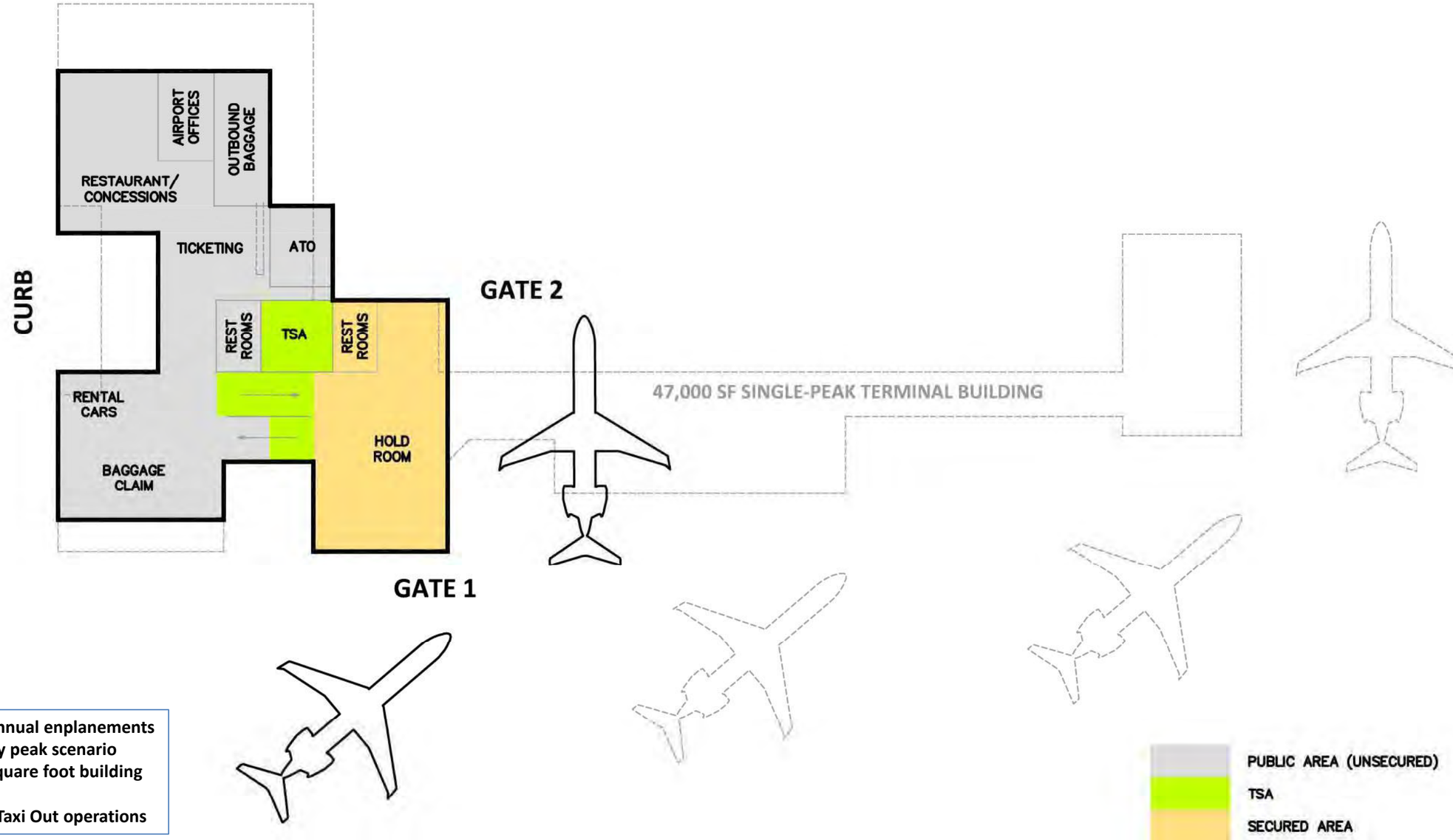
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE CONCEPTUAL FLOOR PLAN – MAXIMUM BUILD-OUT

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE CONCEPTUAL FLOOR PLAN – SPLIT PEAK SCENARIO

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

FIGURE 3-3

50,000 annual enplanements
Single daily peak scenario
47,000 square foot building
4 gates
Taxi In / Taxi Out operations

CEMETERY
JANINE DR
ANTELOPE HILLS GOLF COURSE
SCALE: 1"= 100'
AUTO PARKING
TERMINAL ROADWAY
CURB
REMOVE HANGAR
SHOP
AIRPORT ADMINISTRATION
NORTHAIRE
REMOVE HANGARS
TERMINAL BUILDING
AIRPORT PROPERTY LINE
BUILDING RESTRICTION LINE
BUILDING TO REMAIN
MAC CURDY DRIVE
5030
5020
93'
MINIMUM OFFSET TWY CL TO FIXED OR MOVABLE OBJECT
PRESCOTT 5045
TAXIWAY E
RUNWAY VISIBILITY ZONE
EXISTING TERMINAL BUILDING (REMOVE)
TAXIWAY C

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE CONCEPT LAYOUT – MAXIMUM BUILD-OUT

nicholas j pela & associates
airport planners

50,000 annual enplanements
Single daily peak scenario
47,000 square foot building
4 gates
Taxi In / Taxi Out operations

DEMOLITION OF THE ADMINISTRATION BUILDING, SHOP/HANGAR, AND NORTHAIRE FACILITY WOULD OCCUR AS PART OF PHASE 3

FIGURE 3-4

CEMETERY
JANINE DRIVE
ANTELOPE HILLS GOLF COURSE
SCALE: 1" = 100'
AIRPORT PROPERTY LINE
BUILDING RESTRICTION LINE
BUILDING TO REMAIN
MAC CURDY DRIVE
REMOVE HANGAR
REMOVE HANGARS
SHOP
AIRPORT ADMINISTRATION
NORTHAIRE
PHASE 3
PHASE 3
PHASE 3
PHASE 3 TERMINAL BUILDING
PHASE 2
PHASE 2
CURB
TERMINAL ROADWAY
AUTO PARKING
CURB
PHASE 1
PHASE 1
93'
AIRCRAFT PULL-THROUGH AND PARKING
EXISTING TERMINAL BUILDING (REMOVE)
TWY CL TO FIXED OR MOVABLE OBJECT MINIMUM OFFSET
RUNWAY VISIBILITY ZONE
TAXIWAY E
PRESCOTT
5045
5030
5020

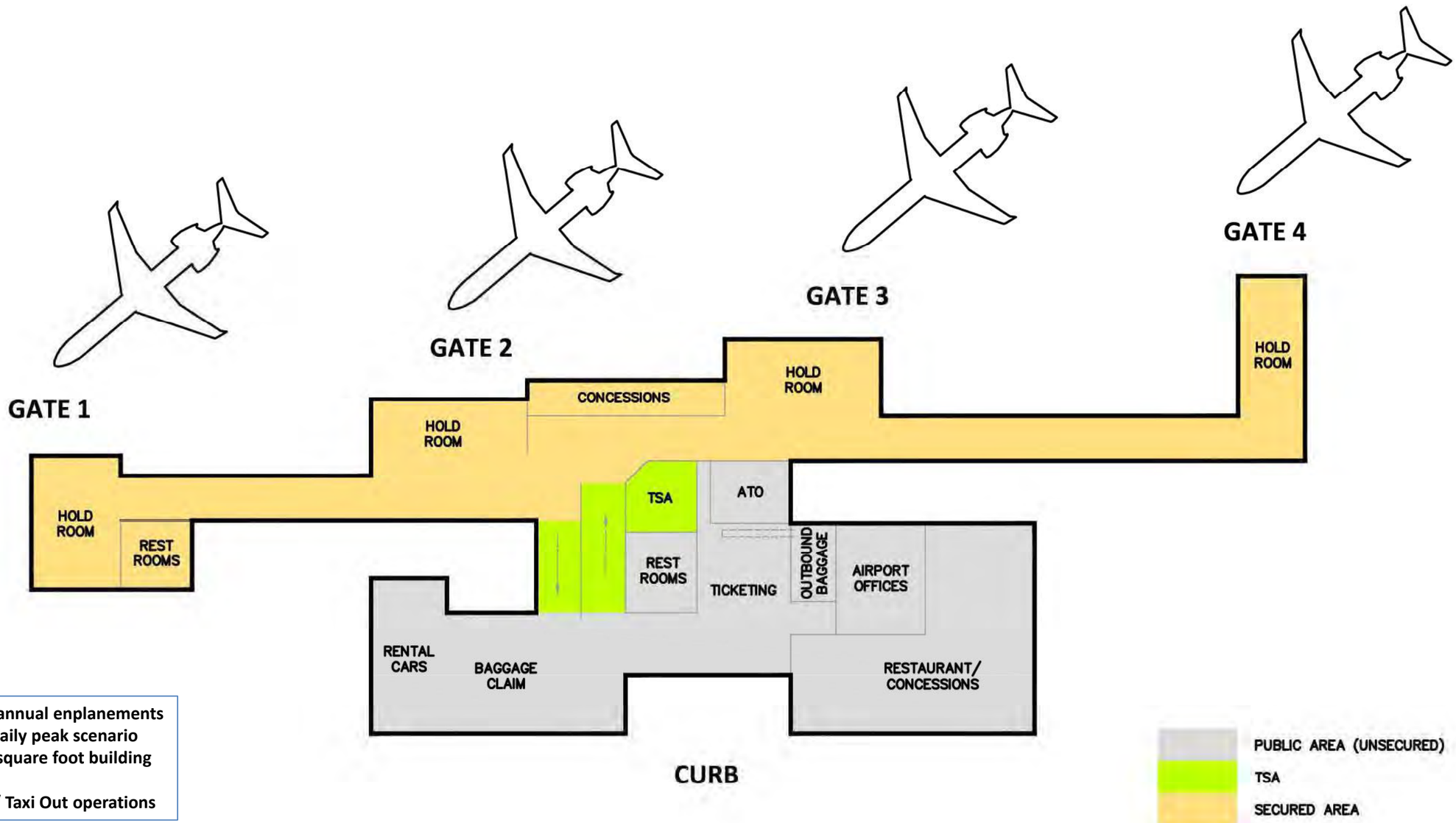
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE ALTERNATE LAYOUT – MAXIMUM BUILD-OUT

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.



50,000 annual enplanements
Single daily peak scenario
47,000 square foot building
4 gates
Taxi In / Taxi Out operations

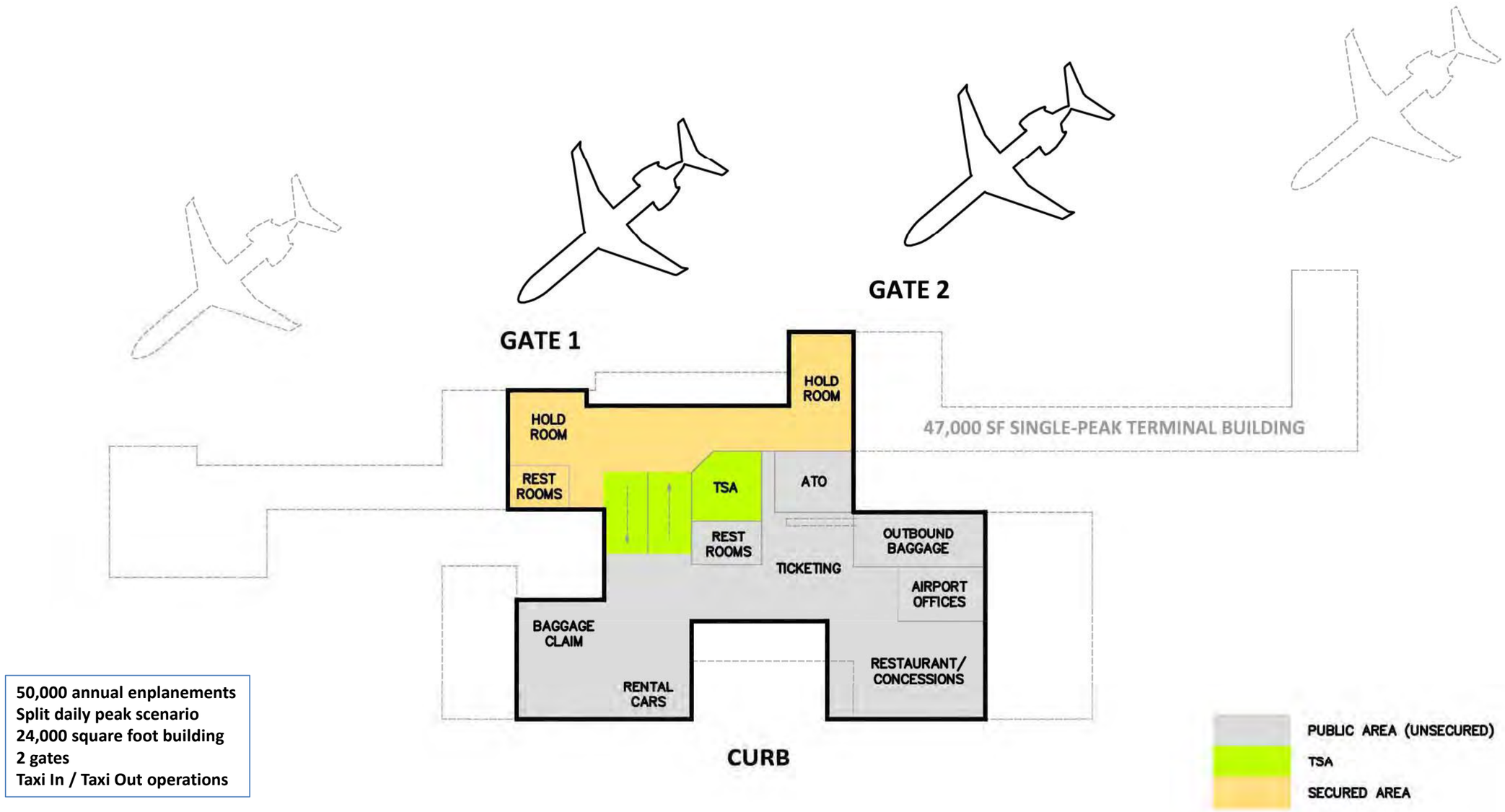
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

EAST SITE CONCEPTUAL FLOOR PLAN – MAXIMUM BUILD-OUT

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

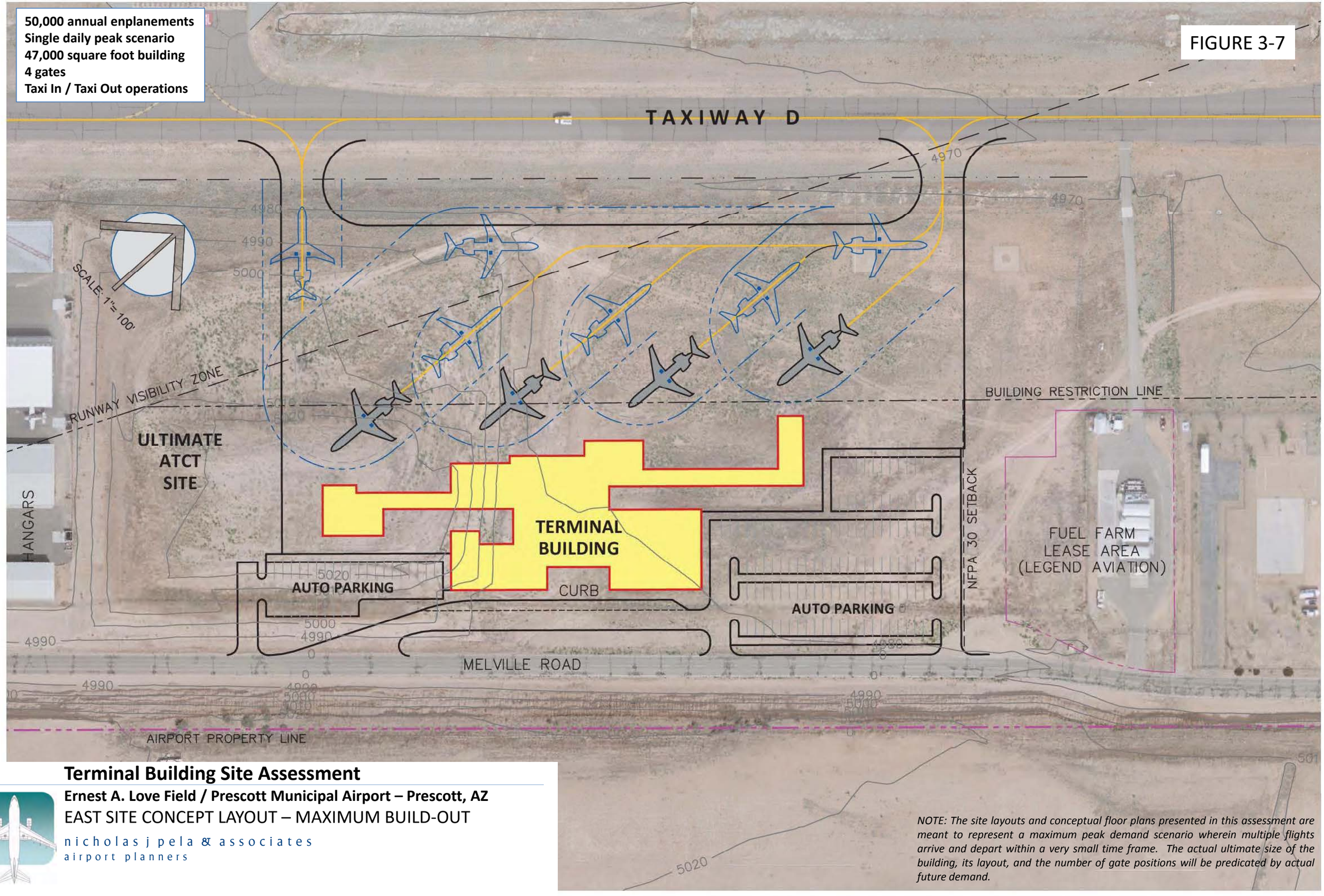
EAST SITE CONCEPTUAL FLOOR PLAN – SPLIT PEAK SCENARIO

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

FIGURE 3-7

50,000 annual enplanements
Single daily peak scenario
47,000 square foot building
4 gates
Taxi In / Taxi Out operations



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

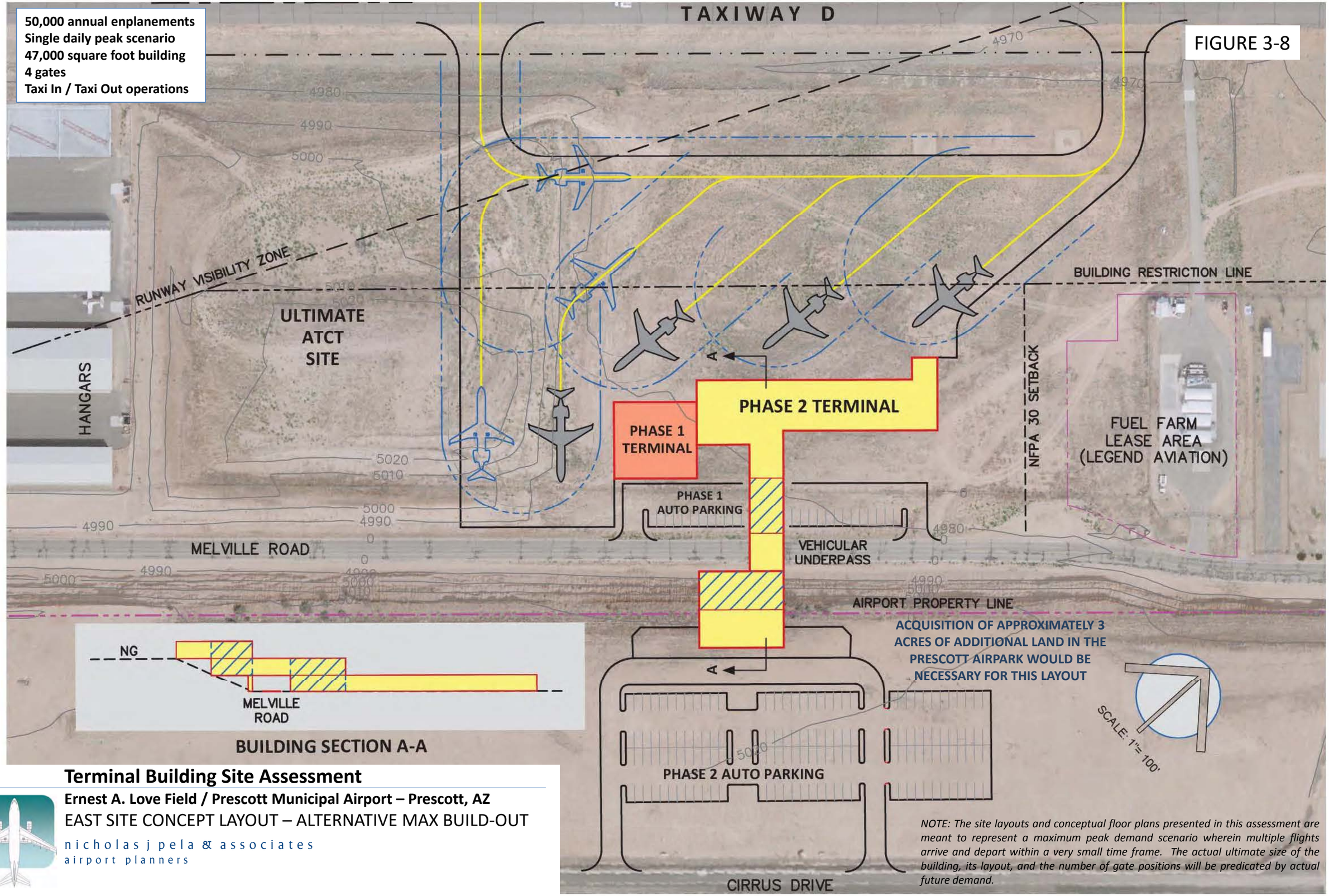
EAST SITE CONCEPT LAYOUT – MAXIMUM BUILD-OUT

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

FIGURE 3-8

50,000 annual enplanements
Single daily peak scenario
47,000 square foot building
4 gates
Taxi In / Taxi Out operations



NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

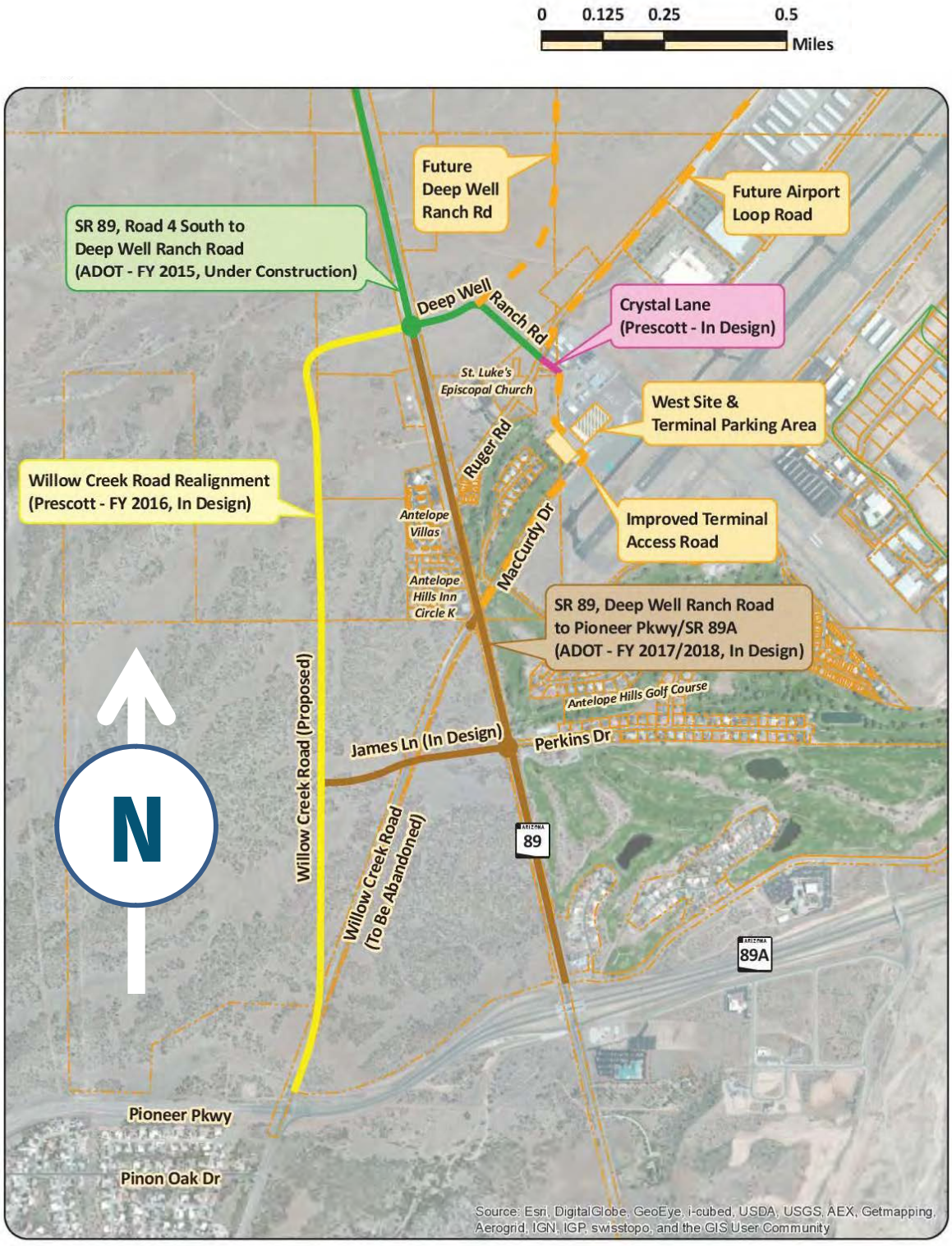
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

EAST SITE CONCEPT LAYOUT – ALTERNATIVE MAX BUILD-OUT

nicholas j pela & associates
airport planners

FIGURE 3-9



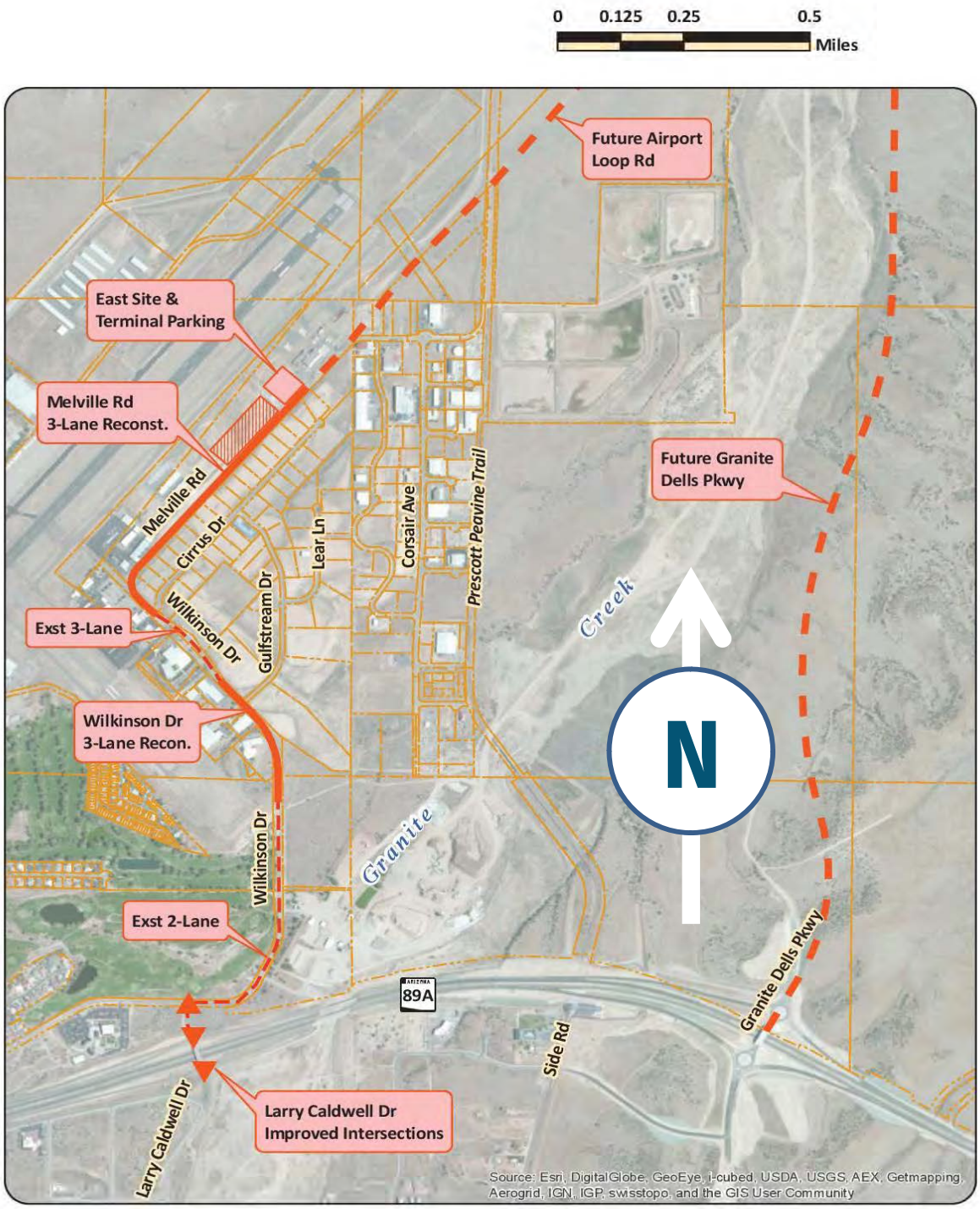
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TERMINAL ACCESS EXHIBIT – ALTERNATIVE W1

Dibble Engineering

FIGURE 3-10



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TERMINAL ACCESS EXHIBIT – ALTERNATIVE E1

Dibble Engineering

FIGURE 3-11

Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TERMINAL ACCESS EXHIBIT – ALTERNATIVE E2

Dibble Engineering

FIGURE 3-12

Terminal Building Site Assessment

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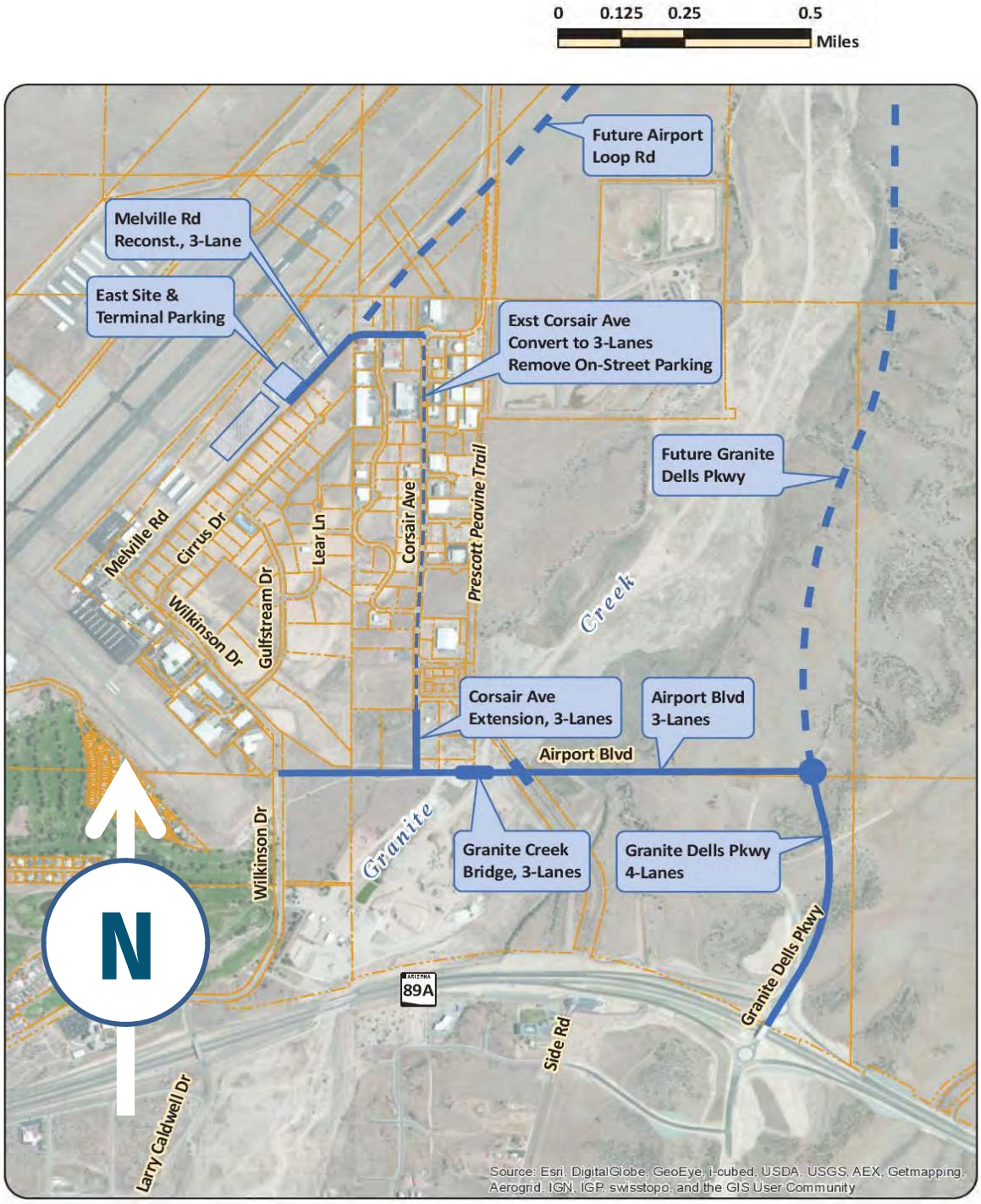
TERMINAL ACCESS EXHIBIT – ALTERNATIVE E3

Dibble Engineering

FIGURE 3-13



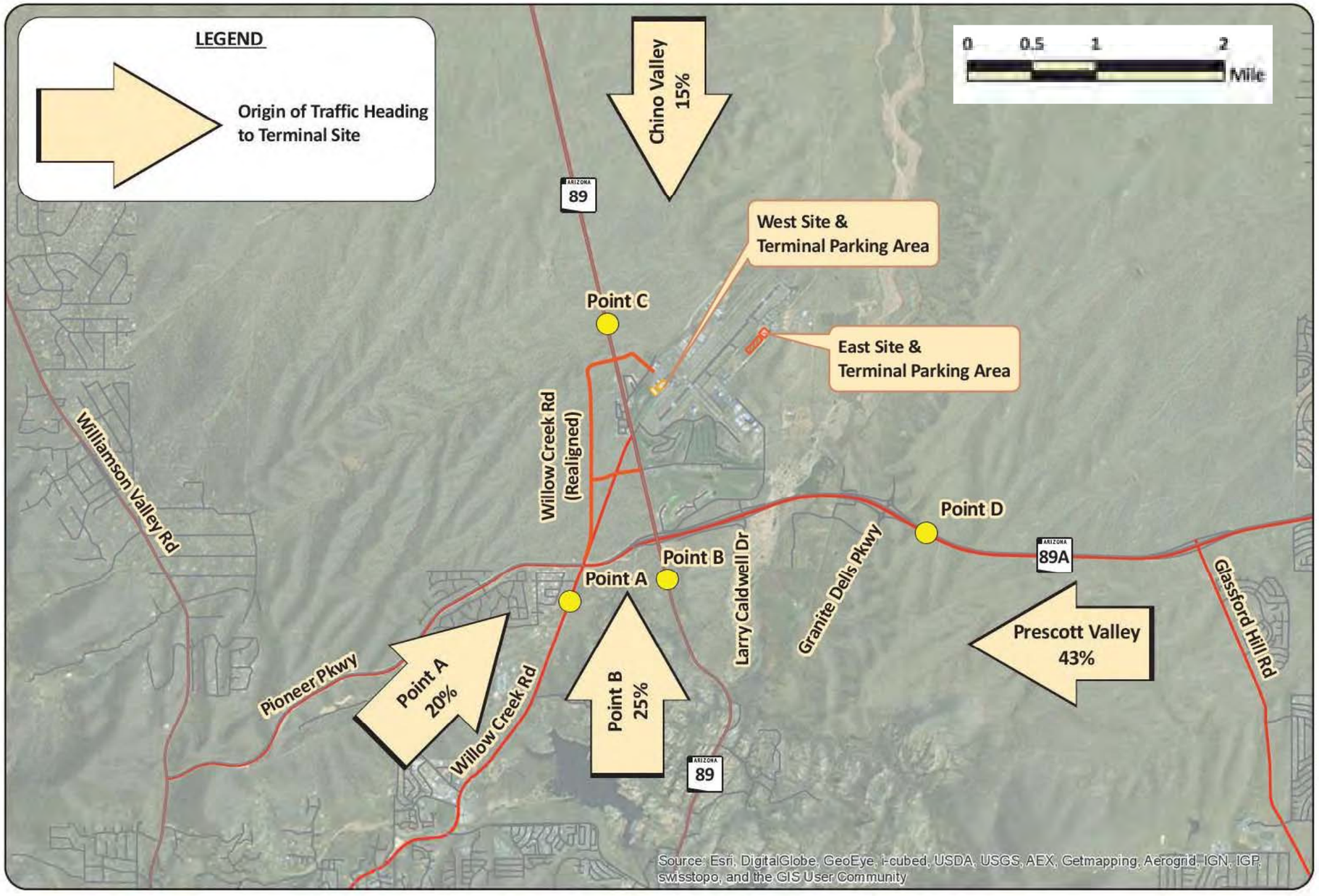
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TERMINAL ACCESS EXHIBIT – ALTERNATIVE E4

Dibble Engineering

FIGURE 3-14



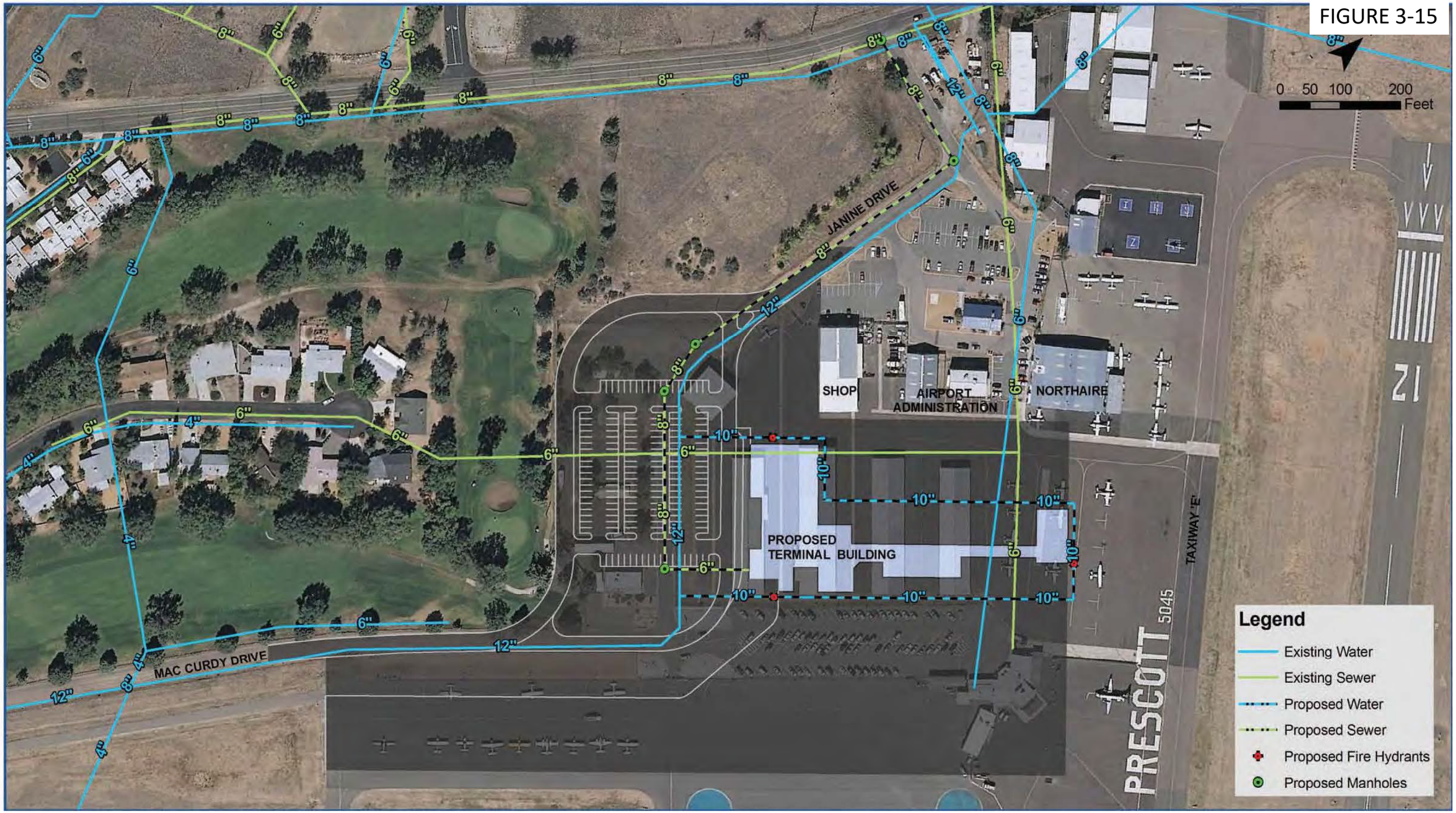
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

TRAVEL TIME ANALYSIS

Dibble Engineering

FIGURE 3-15



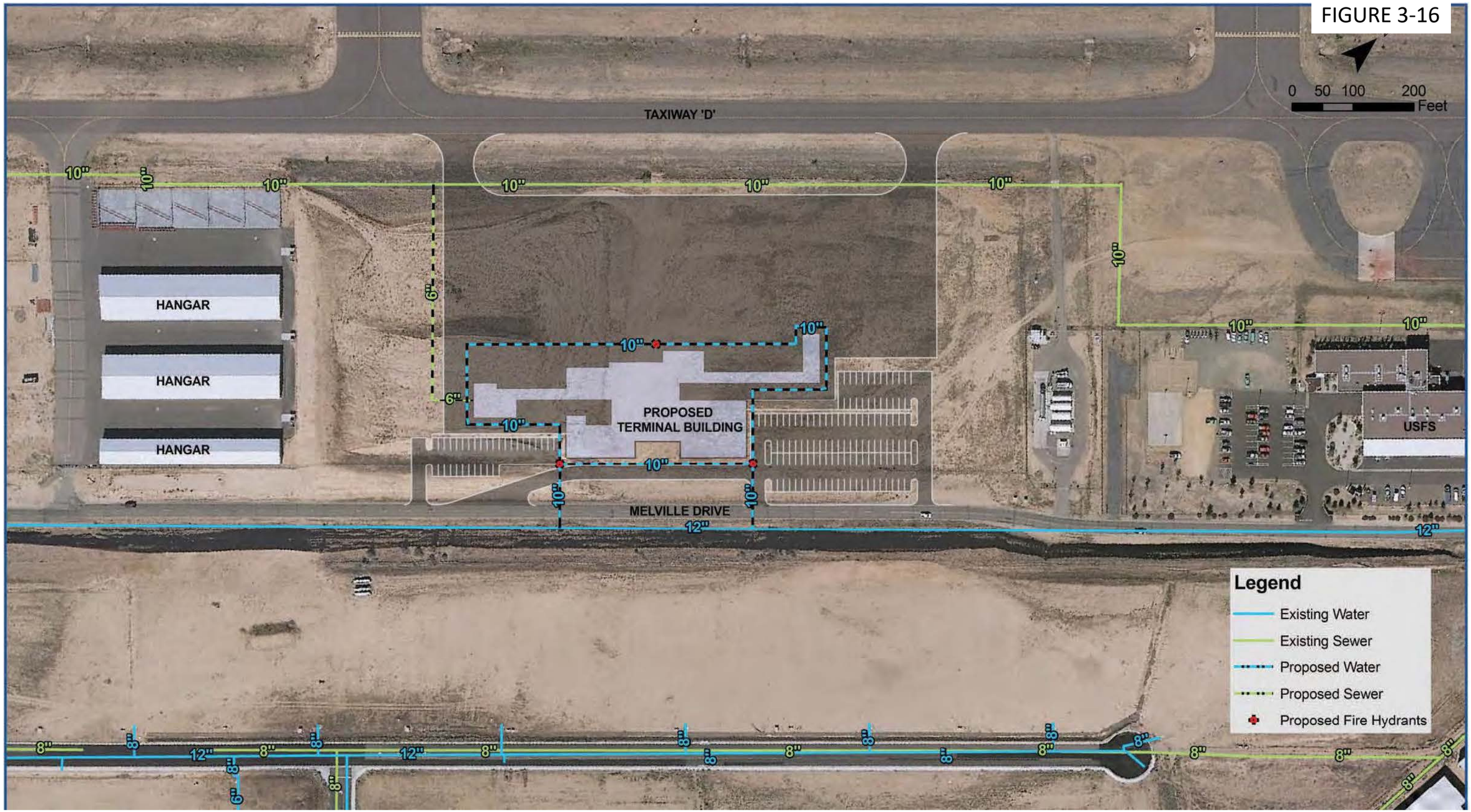
Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE UTILITIES PLAN

Dibble Engineering

FIGURE 3-16



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

EAST SITE UTILITIES PLAN

Dibble Engineering

FIGURE 3-17

LINE No.	DESCRIPTION	APPROX. QTY.	UNIT	UNIT PRICE	AMOUNT
	CIVIL				
1	Contractor's Quality Control	1	LS	$80,000.00	$80,000.00
2	Mobilization	1	LS	$165,000.00	$165,000.00
3	Remove Existing Terminal Building	1	LS	$50,000.00	$50,000.00
4	Remove Existing Hangars	5	LS	$10,000.00	$50,000.00
5	Remove Existing Quonset Stuctures	2	LS	$8,000.00	$16,000.00
6	Miscellaneous Demolition	1	LS	$20,000.00	$20,000.00
7	Replace Hangers	5	LS	$85,000.00	$425,000.00
8	Earthwork	59,770	CY	$11.00	$657,470.00
9	Pavement Removal	47,640	SY	$2.50	$119,100.00
10	Subgrade Preparation	46,851	SY	$3.00	$140,560.00
11	Crushed Aggregate Base Course	46,860	SY	$10.00	$468,600.00
12	Cement-Treated Base	20,070	SY	$12.00	$240,840.00
13	Bituminous Surface Course	9,750	TON	$70.00	$682,500.00
14	Curb & Gutter	7,170	LF	$14.00	$100,380.00
15	Sidewalk	535	LF	$5.00	$2,680.00
16	Pavement Markings	13,480	SF	$2.00	$26,960.00
17	Fence	1,500	LF	$15.00	$22,500.00
18	Dry Utilities/Site Lighting	1	LS	$250,000.00	$250,000.00
19	Water - 10" DIP (Includes Fittings and Valves)	1,575	LF	$175.00	$275,630.00
20	Water - Fire Hydrants	3	EA	$5,000.00	$15,000.00
21	Sewer - 8" Main (Includes Trenching)	1,150	LF	$125.00	$143,750.00
22	Sewer - Manholes	5	EA	$10,000.00	$50,000.00
23	Sewer - 6" PVC (Includes Clean Outs)	140	LF	$85.00	$11,900.00
24	Landscaping	1	LS	$80,000.00	$80,000.00
				CONSTRUCTION SUBTOTAL	***$4,093,870.00***
				12% CA&O Fee	$491,270.00
				CONSTRUCTION TOTAL	**$4,585,140.00**
				5% Admin Fee	$204,700.00
				10% Design Fee	$409,390.00
				PROJECT TOTAL	**$5,199,300.00**

Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

WEST SITE CONSTRUCTION COST ESTIMATE (ONSITE)

Dibble Engineering

LINE No.	DESCRIPTION	APPROX. QTY.	UNIT	UNIT PRICE	AMOUNT
	CIVIL				
1	Contractor's Quality Control	1	LS	$72,000.00	$72,000.00
2	Mobilization	1	LS	$145,000.00	$145,000.00
3	Remove Existing Terminal Building	1	LS	$50,000.00	$50,000.00
4	Miscellaneous Demolition	1	LS	$10,000.00	$10,000.00
5	Unclassified Excavation	112,000	CY	$11.00	$1,232,000.00
6	Subgrade Preparation	37,615	SY	$3.00	$112,850.00
7	Crushed Aggregate Base Course	38,000	SY	$10.00	$380,000.00
8	Cement-Treated Base	29,271	SY	$12.00	$351,260.00
9	Bituminous Surface Course	7,995	TON	$70.00	$559,650.00
10	Curb & Gutter	3,400	LF	$14.00	$47,600.00
11	Sidewalk	900	LF	$5.00	$4,500.00
12	Pavement Markings	5,200	SF	$2.00	$10,400.00
13	Fence	625	LF	$15.00	$9,380.00
14	Dry Utilities/Site Lighting	1	LS	$250,000.00	$250,000.00
15	Water - 10" DIP (Includes Fittings and Valves)	1,850	LF	$175.00	$323,750.00
16	Fire Hydrants	3	EA	$5,000.00	$15,000.00
17	Sewer - 6" VCP (Includes Clean Outs)	425	LF	$85.00	$36,130.00
18	Landscaping	1	LS	$80,000.00	$80,000.00
				CONSTRUCTION SUBTOTAL	***$3,689,520.00***
				12% CA&O Fee	$442,750.00
				CONSTRUCTION TOTAL	**$4,132,270.00**
				5 %Admin Fee	$184,480.00
				10% Design Fee	$368,960.00
				PROJECT TOTAL	**$4,685,710.00**

FIGURE 3-19

10,000 annual enplanements
Single daily peak scenario
9,000 square foot building
1 gate
Taxi In / Taxi Out operations

CEMETERY
JANINE DR
ANTELOPE HILLS GOLF COURSE
SCALE: 1"= 100'
AIRPORT PROPERTY LINE
BUILDING RESTRICTION LINE
MAC CURDY DRIVE
TERMINAL ROADWAY
CURB
AUTO PARKING
REMOVE HANGAR
SHOP
AIRPORT ADMINISTRATION
NORTHAIRE
FIRST PHASE TERMINAL BUILDING
REMOVE HANGARS
REMOVE HANGAR
HANGAR MAY REMAIN
9,000 SF
BUILDING TO REMAIN
MAXIMUM BUILD-OUT TERMINAL EXPANSION
EXISTING TERMINAL BUILDING (REMOVE)
TAXIWAY C
TAXIWAY E
RUNWAY VISIBILITY ZONE
PRESCOTT
5045
5030
5020

Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

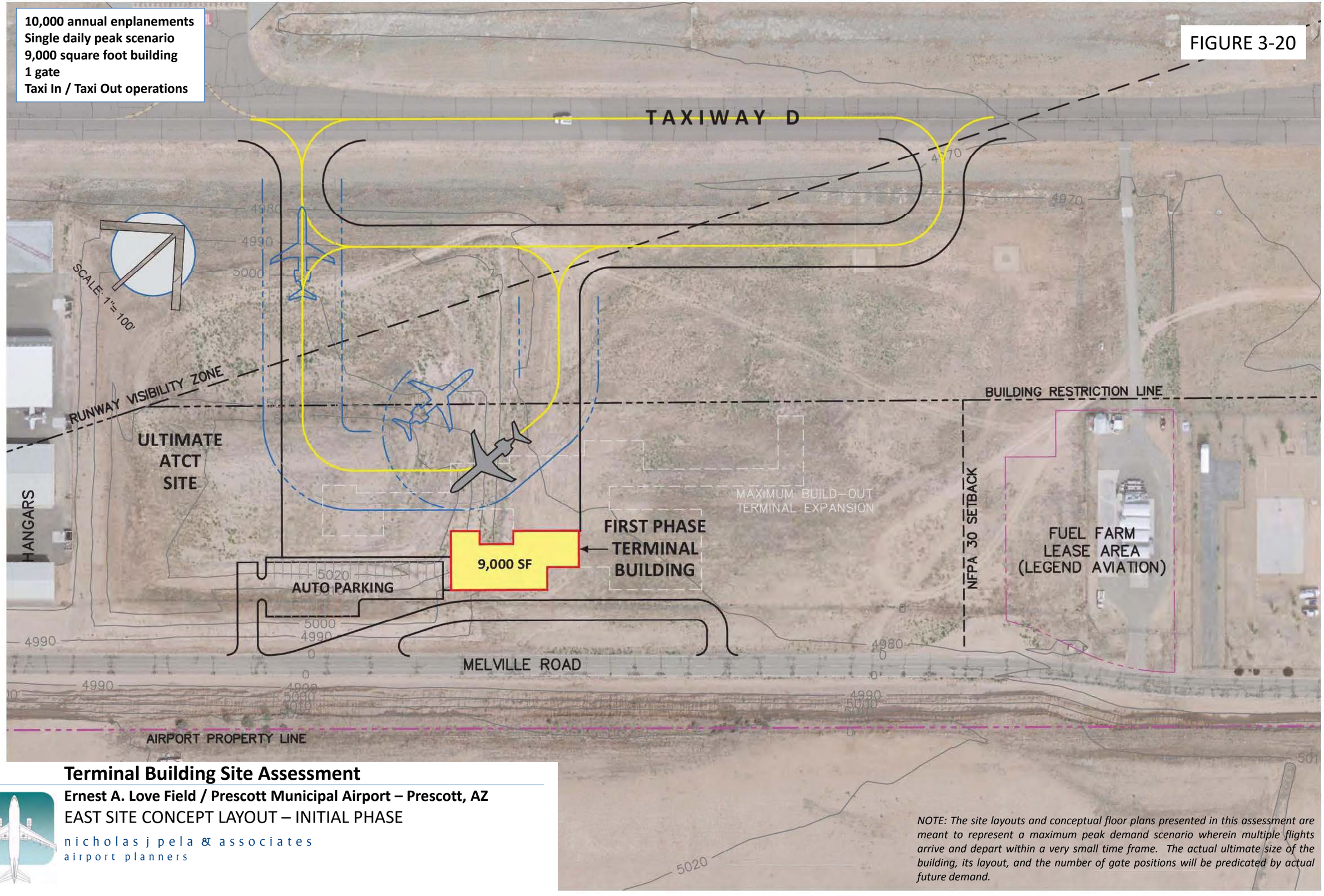
WEST SITE CONCEPT LAYOUT – INITIAL PHASE

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

FIGURE 3-20

10,000 annual enplanements
Single daily peak scenario
9,000 square foot building
1 gate
Taxi In / Taxi Out operations



Terminal Building Site Assessment

Ernest A. Love Field / Prescott Municipal Airport – Prescott, AZ

EAST SITE CONCEPT LAYOUT – INITIAL PHASE

nicholas j pela & associates
airport planners

NOTE: The site layouts and conceptual floor plans presented in this assessment are meant to represent a maximum peak demand scenario wherein multiple flights arrive and depart within a very small time frame. The actual ultimate size of the building, its layout, and the number of gate positions will be predicated by actual future demand.

4 Comparative Analysis

Introduction

The comparative analysis in this section evaluates each site with reference to several selection criteria that are based on the identification of site constraints discussion in **Section 3 – Feasibility of Development**. A binary matrix evaluation was utilized. That is, within each selection criterion the site that is considered to be more favorable was initially assigned one point and the less favorable site was assigned a 0.

Certain selection criteria that have impacts that would carry into the future have been weighted by a factor of 2. Those with more transient impacts were not weighted.

In the decision making process, it is highly likely that the cost of development will be compared against the other "non-cost" selection criteria. Separate subtotal ratings are provided to illustrate this, and weighting was applied to the cost related criteria as explained below.

The matrix evaluation is shown in **Table 4a**, on page 4-5.

Note that the analysis in this section relates to the ultimate build-out layouts presented in **Figure 3-1** (West Site), and **Figure 3-4** (East Site).

Evaluation of Options for "Non-Cost" Criteria

The relative rankings for the criteria that are not cost related are as follows:

Expansion Potential / Development Constraints – This evaluates the ability of the site to be expanded to the maximum build-out depicted in the site layouts. Also evaluated are constraints caused by airfield geometry, including impediments such as other existing improvements and the ultimate Building Restriction Line. Site terrain is also a factor in this area, although this difference will be more clearly revealed in the relative development cost criteria.

The West Site is slightly more constrained that the East Site simply because it is located in a fully built up area of the airfield. The East Site is vacant land with fewer constraints by existing facilities. Both sites share the regulatory height restrictions imposed by FAR Part 77 and are equal in that regard. Since both sites have been shown to be able to be expanded to the maximum build-out, they are considered to be equal in this area.

- Both the West Site and the East Site were assigned a "1" to represent equality between the two options.

Ease of Access from Service Area – This criterion addresses the relative ease of access from the population centers to the airport via the planned offsite roadways. The length and complexity of the routes are included in the evaluation.

The West Site's proposed access route has the lowest travel times to the Terminal than any of the East Site's alternatives (4 minutes versus about 7 minutes). The access route from the population centers to the West Site is more direct than that of the East Site, which includes several slow interior streets and numerous intersections which slow traffic down.

Because the impacts in this area of evaluation would extend into the future, the matrix value has been weighted by a factor of 2.

- The West Site has been assigned a "1", and the East Site was assigned a "0".

Land Acquisition – In this assessment, the need for acquisition of additional development land has been shown to be essentially equal between the two sites. Neither site would need additional land to accommodate the maximum build-out scenario for 50,000 annual enplanements with single hour peaking.

- Both the West Site and the East Site were assigned a "1" to represent equality between the two options.

Difficulty of Construction Phasing – The proposed Terminal Building development is a complex construction project that will have to be carefully phased while maintaining the operations at the airport. Construction phasing may include relocations, construction of temporary facilities, and demolition, as well as temporary security measures.

Construction at the West Site will be much more complex because it is located in a completely developed area. A complicated phasing plan that will include construction of temporary/relocated automobile parking facilities, modified access routes, and probably temporary utility connections will be necessary. A plan to keep the existing Terminal Building operational during construction will also be necessary, and will be followed by demolition of the building. Construction of the aircraft apron along with demolition and/or relocation of existing hangars and buildings will add to the complexity of the work. Construction activity at the East Site can be conducted with little disruption to airport operations. If the East Site is selected, demolition of the existing Terminal Building could be conducted after the new Terminal is operational.

- The West Site has been assigned a "0", and the East Site was assigned a "1".

Operational Considerations – These considerations include the taxi length required for air carrier aircraft to taxi from the Terminal to the departure ends of Runway 3R-21L. Other considerations include the number of runway crossings that would be required along the taxi routes.

Taxi access from the West Site to Runway 3R is shorter than from the East Site (1,500' versus 5,200'). Taxi access from the West Site to the ultimate end of Runway 21L is significantly longer than from the East Site (12,900' versus 7,100'). When taxiing to or from the West Site to Runway 21L, it will be necessary to cross Runway 12-30. Assuming the use of Taxiway D instead of Taxiway C, it will also be necessary to cross the end of Runway 3R-21L when taxiing to or from Runway 21L.

When taxiing to or from the East Site to Runway 3R, it will be necessary to cross Runway 12-30. With these factors in mind, it appears that the East Site's location provides a more balanced taxi distance to the runway ends.

Because the impacts in this area of evaluation would extend into the future, the matrix value has been weighted by a factor of 2.

- The West Site has been assigned a "0", and the East Site was assigned a "1".

Potential for Environmental Impacts – In this assessment, the potential for environmental impacts has been shown to be essentially equal between the two sites. Development at both sites would require the same level of environmental study and documentation.

- Both the West Site and the East Site were assigned a "1" to represent equality between the two options.

Coordination with Other Planned Improvements – The upcoming Airport Master Plan Addendum and Air Service Development Study, planned for Fiscal Year 2016, will provide better definition to the scheduling of the Terminal Building development with respect to the other planned airport and offsite improvements. According to the latest Airport Capital Improvement Program (ACIP) that was developed by the airport in late 2014, the Terminal Building is scheduled for 30% design in FY 2019 and final design in 2020.

According to the latest ACIP, there is a new ARFF Facility scheduled for design in FY 2016 and construction in 2018. Since the site for the new ARFF Facility may be near the East Site, this project would impact the scheduling of the Terminal Building development. The West Site would not be affected by the ARFF development.

The latest ACIP also includes a design study for a new Air Traffic Control Tower (ATCT) in FY 2019. The Airport Master Plan indicates that the new ATCT may be located on the East Site, and the proposed study would evaluate that. The West Site would not be affected by the ATCT development, since it has been excluded as a viable Tower site because of compromised line-of-sight to the runways.

- The West Site has been assigned a "1", and the East Site was assigned a "0".

Impacts to Adjacent Land Uses – Although no need for acquisition of additional adjacent land has been identified for development at either site, there may be some impacts to existing land uses adjacent to the development sites. The West Site is adjacent to the Antelope Hills Golf Course, a small cemetery, and residential properties. The additional vehicular traffic during peak hours along with floodlighting of new automobile parking areas may adversely impact these properties. The Prescott Regional Airpark and Commerce Center is located immediately southeast of the East Site. Additional traffic through this area to the Terminal may adversely impact these commercial properties. Conversely, improvement of the access route to the East Site may positively impact the commercial properties.

Although the level of these impacts may not be significant, the residential properties adjacent to the West Site are considered to be more sensitive than the commercial properties adjacent to the East Site.

Because the impacts in this area of evaluation would extend into the future, the matrix value has been weighted by a factor of 2.

- The West Site has been assigned a "0", and the East Site was assigned a "1".

Evaluation of Options for Cost Related Criteria

Because of the significant differences in development cost between the two sites, a weighting factor was applied to each of the cost related criteria. This weighting factor was defined as the ratio between the cost differences. That is, for each selection criteria a multiplier represented by the higher cost divided by the lower cost was applied.

The relative rankings for the criteria that are cost related are as follows:

Cost of Terminal Building – The cost for the construction of the Terminal Building itself was assumed to be equal for either of the development sites, at approximately $8.1 million.

- Both the West Site and the East Site were assigned a "1" to represent equality between the two options.

Cost of Site Work and Utilities – The cost for the construction of site work (aircraft apron, taxiway connectors, automobile parking, and lighting), and the cost for utilities is very similar between the two sites. The West Site construction was estimated at approximately $5.2 million, and the East Site was estimated at about $4.7 million. The $500,000 difference between the two sites equals about 10.6%. A matrix weighting of 1.11 was applied (5.2/4.7) to this item.

- The West Site has been assigned a "0", and the East Site was assigned a "1".

Cost of Offsite Airport Access Roads – The estimated cost for development of offsite access roadways is significantly different between the two sites. Offsite roadway development for the West Site would cost approximately $1 million, while the four alternates explored for the East Site would range from $4.4 million to $9.2 million. For the purposes of the matrix analysis, it was assumed that the least expensive option would be selected if the East Site is chosen as the preferred development location. A matrix weighting of 4.40 was applied (4.4/1.0) to this item.

- The West Site has been assigned a "1", and the East Site was assigned a "0".

Evaluation Matrix

The evaluation matrix is presented below.

Table 4a
Evaluation Matrix

SELECTION CRITERIA	Weighting Multiplier	BINARY RANKING		WEIGHTED VALUE	
		WEST SITE	EAST SITE	WEST SITE	EAST SITE
Expansion Potential / Constraints	1.00	**1**	**1**	1.0	1.0
Ease of Offsite Access from Service Area *	2.00	**1**	0	2.0	0.0
Land Acquisition	1.00	**1**	**1**	1.0	1.0
Difficulty of Construction Phasing	1.00	0	**1**	0.0	1.0
Operational Considerations *	2.00	0	**1**	0.0	2.0
Potential for Environmental Impacts	1.00	**1**	**1**	1.0	1.0
Coordination w/Other Planned Improvements	1.00	**1**	0	1.0	0.0
Impacts to Adjacent Land Uses *	2.00	0	**1**	0.0	2.0
SUBTOTAL				**6.0**	**8.0**
Cost of Terminal Building	1.00	**1**	**1**	1.0	1.0
Cost of Sitework and Utilities	1.11	0	**1**	0.0	1.1
Cost of Offsite Airport Access Roads **	4.40	**1**	0	4.4	0.0
SUBTOTAL				**5.4**	**2.1**
TOTALS				**11.4**	**10.1**

** Evaluation criteria that have impacts that would carry into the future have been weighted by a factor of 2. Those with only transient impacts are not weighted.*

*** The estimated development cost of the four alternatives for offsite roadway access to the East Site ranged from $4,400,000 to $9,200,000. The least expensive option is reflected here*

5 Meetings

Meetings and Public Involvement

The Consultant team and Airport staff participated in the following meetings during the development of this Assessment. Meeting notes are included in Appendix B.

- Project Kickoff and Stakeholder Meeting .....January 9, 2015
- Supervisory Briefing Meeting .....March 5, 2015
- Presentation of the Final Draft to the City Council .....June 2, 2015
- Adoption of the Terminal Building Site Assessment by the City Council .....October 27, 2015

APPENDIX A

Bibliography

Appendix A - Bibliography

The following reference documents were used in the preparation of the Terminal Building Site Assessment:

1 Airport Master Plan Update - Prescott Municipal Airport (Ernest A. Love Field), the Louis Berger Group, Inc., December, 2010

2 City of Prescott Ad Hoc Airport Area Steering Group Recommendations, December 2, 2014

3 Advisory Circular AC 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Locations, Federal Aviation Administration, April 4, 1980

4 Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities, Federal Aviation Administration, April 22, 1988

5 Airport Layout Plan – Ernest A. Love Field, Prescott Municipal Airport, update by Nicholas J. Pela & Associates and Dibble Engineering, approved by FAA on November 26, 2014

6 Advisory Circular AC 150/5300-13A, Airport Design, Federal Aviation Administration, September 28, 2012 (as revised February 26, 2014)

7 Recommended Security Guidelines for Airport Planning, Design and Construction, Transportation Security Administration, Revised May, 2011

8 City of Prescott Council Resolution NO. 4265-1474, A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF PRESCOTT, YAVAPAI COUNTY, ARIZONA, ACCEPTING AND ADOPTING THE FINDINGS AND RECOMMENDATIONS OF THE PRIVATE SECTOR AD HOC AIRPORT AREA STEERING GROUP PERTAINING TO DEVELOPMENT OF PRESCOTT MUNICIPAL AIRPORT AND ECONOMIC DEVELOPMENT OF THE SURROUNDING AIRPORT AREA.

9 Bombardier CRJ-700 Flight Crew Operating Manual - Revision 3, May 3, 2005

10 R.S. Means Estimating Guide, January 28, 2015

11 National Fire Protection Association, NFPA 30, 2008 Edition

12 Federal Air Regulations, 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace - Docket No. FAA-2006-25002, 75 FR 42303, July 21, 2010,

13 FAA Order 1050.1E, Environmental Impacts: Policies and Procedures, March 20, 2006

14 The National Environmental Policy Act (NEPA), [42 U.S.C. 4321 et seq.], January 1, 1970

[15] FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instruction for Airport Actions, April 28, 2006.

[16] Arizona Department of Transportation 2016-2020 Tentative Five-Year Transportation Facilities Construction Program, Airport Capital Improvement Program

[17] CYMPO Regional Transportation Plan Update 2040- Draft, AECOM, Inc., December 2014

[18] SR 89/Willow Creek Road "Triangle Area", Traffic Analysis Report, DMJM Harris, August 2008

[19] City of Prescott Airport Area Transportation Plan, AECOM/Jacobs, June 2009

[20] Airport Blvd – Connection Cost Estimate, Ian Mattingly, P.E., April 21, 2014

[21] Granite Dells Ranch Development Draft Memorandum, Patrizia Gonella, August 19, 2008

APPENDIX B

Meetings

Meeting Notes

Ernest A. Love Field / Prescott Municipal Airport (PRC)
TERMINAL BUILDING SITING ASSESSMENT

Meeting: Project Kickoff and Stakeholder Meeting
Date: Friday, January 9, 2015
Time: 1:30 PM
Place: PRC Airport Conference Room

Meeting Participants (see attached sign-in sheet):

- John Cox, PRC Airport Manager
- Mary Catherine Tenant, PRC Airport Management
- Nicholas J. Pela, Nicholas J. Pela & Associates
- Ken Snyder, Dibble Engineering
- Robin Sobotta, Embry Riddle Aeronautical University
- Charles Andrews, City of Prescott Engineering
- Mike Liversidge, Prescott Airport Users Association
- Currie Lee, Prescott Airport Users Association
- Bill Derouch, Prescott Airport Users Association and EAA
- Brian Roggow, Embry Riddle Aeronautical University
- Ted Wickstrom, Prescott Airport Users Association
- Terry Marshall, Prescott Airport Users Association
- Frank Hall, City of Prescott Planning
- Jeff Burt, City of Prescott

Please refer to the attached presentation to aid in understanding the flow of the proceedings.

1. Introductions

John Cox opened the meeting proceedings, and all participants introduced themselves.

2. Scope of Work

N. Pela gave a general description of the scope of the Terminal Building Site Assessment (TBSA), followed by a more detailed summary of each phase of the work. The following questions were addressed:

Regarding the comparative cost estimates that will be prepared as part of Phase 3: Feasibility of Development: “Will the analysis include the revenues that will be lost because of removal of the hangars at the West Site?”. Response: The Master Plan shows the terminal building at the West Site, located such that several existing hangars would have to be removed. The cost of relocating/replacing these hangars will be included in the TBSA cost estimates. While the scope of the TBSA does not include a full economic impact analysis, the plan is to maintain the current revenues and relocate any hangars that would need to be removed.

3. Project Schedule

N. Pela provided a summary overview of the project schedule. The Assessment work is fairly linear on the flow chart, since each task is dependent on previous tasks. A draft version of the TBSA is planned for early March. The draft will be reviewed by the City. A work session is planned for the third week in March and the report should be finalized by early April.

4. Similar and Nearby Airports

N. Pela provided an overview of some other terminal buildings at airports that have similar levels of activity (the TBSA will assume 50,000 annual enplanements in the ultimate term). This information was presented primarily to set the stage for the planning and design work that will occur as the project moves forward, and as the next phases of planning and design occur. Pela noted that, although the TBSA will not provide a building design, at some point in the future the City must decide whether the new terminal building will be a "statement" design or whether it will be a more utilitarian structure that will focus primarily on accommodating demand. Examples of both were presented.

The airport terminals presented included Flagstaff (62,300 enplanements), Santa Fe NM (45,500 enplanements), Sioux City IA (27,500 enplanements), St. George UT (53,500 enplanements), and Grand Canyon Airport (many more enplanements than are projected for PRC, but offered as an existing terminal that is in the process of rebuilding). All enplanement information presented was from the 2012 FAA records.

The following questions were addressed during this phase of the meeting:

Regarding Santa Fe, NM, John Cox noted that Santa Fe was at 5,000 enplanements ten years ago so their activity was comparable then to PRC's activity now.

Regarding St. George, UT, C. Lee noted that that the St. George terminal is "way down on one end of the airport, and does not inhibit operation of the rest of the airport".

Regarding the "statement versus utility" terminal design decision, F. Hall noted that making a statement with a building is much more expensive than designing for a more utility focused structure.

5. Discussion

N. Pela presented aerial photos of the entire airport and also larger scale photos of the West and East Sites to aid in discussion. Some of the obvious site features and constraints were pointed out.

Regarding the East Site, N. Pela noted that the initial idea is to fit the terminal complex into the available space on the lower level, on airport property; but if all the elements won't fit, consideration will be given to acquiring some of the private land to the south and putting a portion of the terminal on the higher ground.

The meeting was then opened up for general questions and discussion. The following comments and questions were addressed:

F. Hall asked if the consultant team had preconceived ideas about which site would be recommended for development. Both N. Pela and K. Snyder responded that the team was entering into the process with no preconceived notions, and that the TBSA recommendations would be based solely on analytical work.

A participant asked if the consultant team has the information that the Airport Area Steering Committee presented to the City Council in February, 2014. K. Snyder responded that the team does have that information, and that it will be used as a starting point for the TBSA.

Regarding the East Site, a participant asked if the team would be considering this site's proximity to the existing fuel farm (safety concerns). N. Pela responded that this will be one of the potential site constraints that would be addressed for the East Site.

Regarding the East Site, MC Tenant noted that Melville Rd is inside the current airport boundary.

T. Wickstrom asked if the team would be considering the TSA's requirements with respect to siting constraints. N. Pela responded that this would be included in the site constraints analysis and the building space calculations, particularly with respect to passenger loading/unloading, parking clearances for explosives, etc. MC tenant noted that she has worked with these issues extensively on a prior project and will share that experience with the consultant team.

R. Sobotta asked if the required distances from GA to Air Carrier operations is a factor. N. Pela responded that these setbacks would be included in the analysis.

N. Pela also brought up that a decision should be made by the Airport on whether GA activity should be included in the new terminal building/area or whether it should be isolated. A GA area could be included in the airline terminal (to serve as an "Executive Terminal" for business aviation), but much of the GA services are now provided by FBOs. This may be assumed to continue.

C. Lee noted that it would be important that there is interest in building up the airport as a GA aircraft destination and that it may be important to include space for a pilot restaurant and GA parking at the new terminal. The airport is mostly GA operations now, and a terminal can be done in such a way as to either inhibit or encourage GA activity. N. Pela responded that the TBSA is to assess an air carrier terminal location, but that the team will look at separations and impacts to operations such as GA, as well as the space requirements for GA in the terminal. John Cox noted that the restaurant in the existing FBO building was underutilized and is now vacant, so actual demand for such a facility needs to be considered.

R. Sobotta asked about possible future air traffic control tower locations, and the possibility of co-locating the terminal and the tower to save infrastructure cost. N. Pela responded that security issues need to be considered but adjacent sites might allow some shared infrastructure, with some cost savings. The Master Plan and ALP show the new tower just south of the East Site. This location is subject to future tower siting study. There are significant line of sight problems with the existing tower's location.

C. Lee asked if the team is locked into only the West Site and East Site as options. He believes that it is a mistake to develop the constrained West Site, and expressed concern over setbacks pushing the terminal back and possible impacts to the existing cemetery. He noted that the current terminal location is within the Building Restriction Line and has been "waivered" by the FAA. The East Site would also involve a lot of taxiing. He suggested looking at a site at one end of the airport.

C. Lee also suggested that the vacant land next to Ruger and C-Tech has the depth to accommodate a terminal, and that the new highway connection is close. He suggested that this site be included as an option. John Cox responded that the TBSA's authorized scope is limited to the two sites noted. He also noted that roadway access is limited, the site is fairly small and is inhibited by the Runway 3L/21R RPZ and Approach Surface. K. Snyder added that the selected sites are not arbitrary, and that the Airport Master Plan included an evaluation of sites for the terminal and that the TBSA builds on that work. The suggested additional site is planned for hangar development. A participant noted that at one time there was a long waiting list for hangars but now there is not, so perhaps that land is not needed for hangars.

T. Wickstrom asked if the Master Plan has an exhibit that shows the surrounding roadways in context. K. Snyder responded that the team will look for an area-wide exhibit that shows this.

T. Wickstrom noted that commercial access to the East Site is not adequate, since the roadways can't accommodate heavy 18-wheel vehicles. J. Burt indicated that the Airport Master Plan included an access route into the airport called "Airport Blvd." There is additional information in the Prescott Area Transportation Plan and the 2020 General Plan. The road would be dual-use, for both commercial area access and airport access.

B. Roggow asked what makes money for the airport, and noted that the airport tenant and fuel sales probably make up a large portion of revenues. MC Tenant noted that the level of airline enplanements impact the amount of funding that the Airport receives from the FAA.

B. Roggow noted that his priorities as a user of airline terminals are"How quickly can I get in and out, not how nice is the Terminal", and also safety.

A participant asked if the existing terminal can be redeveloped. The team responded that remodeling of such an old structure would be difficult, and also that the current building is within the Building Restriction Line.

A participant asked when will input from the stakeholder group be sought again. John Cox responded that there is another stakeholder meeting once the draft TBSA report is ready for comments.

F. Hall repeated his initial question, asking if after this meeting's discussions if the consultants now have a preference for one of the sites. N. Pela and K. Snyder reiterated that the team has no preconceived preference and that the team has an open mind and are taking a completely analytical approach. The team will evaluate the positives and negatives of each site with the goal of giving the airport and the Council/Mayor the ammunition they need to make an informed decision as to the best site on balance.

The meeting was adjourned at approximately 3:00 PM.

Meeting Notes

Ernest A. Love Field / Prescott Municipal Airport (PRC)
TERMINAL BUILDING SITING ASSESSMENT

Meeting: Supervisory Briefing Meeting
Date: Thursday, March 5, 2015
Time: 10:00 AM
Place: Prescott City Hall – City Manager's Conference Room

Meeting Participants:

- Marlin Kuykendall, Mayor – City of Prescott
- Craig McConnell, City Manager – City of Prescott
- Jeff Burt, Director of Economic Initiatives - City of Prescott
- John Cox, PRC Airport Manager
- Nicholas J. Pela, Nicholas J. Pela & Associates
- Ken Snyder, Vice President - Dibble Engineering
- Drew Spear, Senior Project Manager, Transportation – Dibble Engineering

Please refer to the referenced report graphics and attachments to aid in understanding the flow of the proceedings.

1. Introductions

John Cox opened the meeting proceedings, and all participants introduced themselves. Mayor Kuykendall provided a discussion of historical context of the commercial activity at the airport over the years, and of the recent changes in the character of the Prescott area.

2. Presentation of the Draft Terminal Building Site Assessment

Nicholas Pela gave a general description of the scope of the Terminal Building Site Assessment (TBSA), including defining the assumptions that were made and the methodologies that were employed in developing the TBSA. The assumptions presented are summarized on the attached Exhibit A. The methodologies used are presented on the attached Exhibits B, C, D, and E. An explanation of the two peaking models that were used was presented. This is illustrated in Figure 2-8 in the TBSA report.

This was followed by a summary of the results of the studies, including presentation of the conceptual terminal building floor plans and site layouts for the full build-out of the two development sites being considered, in both the "Single Peak" and "Split Peak" scenarios. The conceptual floor plans are illustrated in Figures 3-2, 3-3, 3-5, and 3-6 in the TBSA report. The conceptual site layouts are illustrated in Figures 3-1, 3-4, 3-7, 3-18, and 3-19.

Drew Spear explained the offsite roadway access alternatives for the two sites. The alternative layouts are illustrated in Figures 3-8 through 3-13 in the TBSA report.

Nicholas Pela presented the draft estimates for development on each of the two sites, both for the ultimate build-out and an initial development phase. The preliminary cost estimates that were presented are included in the attached Exhibit F.

A presentation of the decision factors that were used to determine the preferred development site followed. The factors considered were separated into "non-cost" and "cost" items (see the attached Exhibit G). These were discussed and a preliminary evaluation matrix was presented for discussion. In the preliminary matrix, the "non-cost" factors that would carry into the future were weighted, but those that would have only temporary impacts were not. The "cost" factors were weighted based on relative cost. It was emphasized that the preliminary matrix was meant to be used as a tool for the City's review, and that the Consultant team was requesting the City's input on the relative importance of the various evaluation factors. The preliminary evaluation matrix that was presented is included in the attached Exhibit H.

3. Discussion

The draft TBSA was informally discussed.

It was suggested by Mayor Kuykendall that the first phase of the terminal building might be constructed at the West Site, but that the East Site could be reserved for potential future development of an expanded terminal.

No decision was made regarding the weighting of the evaluation factors. Mayor Kuykendall will refer this to the Technical Committee (City Planner and City Engineer, plus representatives from the local Prescott Airport Users Association and other airport stakeholders) for further discussion.

The meeting was adjourned at approximately 11:30 PM.

Attachments:

Exhibits A through H, from Meeting Presentation

assumptions…

The intent of the Terminal Building Site Assessment is to provide information to the City Council to facilitate their decision-making process regarding the relative merits of two alternative actions which had been previously identified by the City.

The Terminal Building Site Assessment began with the following assumptions:

- The assessment would be limited to the two sites previously identified by the City and previously presented in the latest approved Airport Master Plan.
- The short term demand would be based on 10,000 total annual enplanements. This was developed by the Airport Area Steering Committee.
- The long term demand would be based on the activity potentially reaching 50,000 total annual enplanements. This was also developed by the Airport Area Steering Committee.
- The methodologies for estimating required Terminal Building space requirements would be based primarily upon those documented by the Federal Aviation Administration (FAA).
- The ultimate air carrier design aircraft would be the Bombardier CRJ-700. This was identified in the latest approved Airport Master Plan, and is documented in the latest FAA approved Airport Layout Plan (ALP).

methodology…

The basic sizing of the Terminal Building was based on FAA documented methodology. This was then expanded to provide a more detailed and useful vision of the potential ultimate building and site improvement requirements.

The following methodologies were utilized:

- The basic terminal building sizing equations were derived from FAA Advisory Circular AC 150/5360-9, Planning and Design of Airport Terminal Building Facilities at Nonhub Locations, and Advisory Circular AC 150/5360-13, Planning and Design Guidelines for Airport Terminal Facilities
- Additional consultant-designed equations were utilized to provide more detailed derivations of space requirements for the various uses.
- The number of passenger gates was derived by a consultant-designed equation that was then checked against the FAA's nomograph (that provides a typical range of number of gates based on annual enplanements).
- A "Full Buildout" building envelope was developed for each site based on the FAA's "Single Peak" methodology.
- A "Split Peak" model was also developed in order to provide a better vision of what the ultimate space requirements would be depending upon the airlines' actual flight schedules…

methodology…

The full potential build-out envelope for each site was based on the "Single Peak" model. This gives a vision of the potential maximum space requirements based on the worst case scenario.

The following methodologies were utilized:

- A concept floor plan was developed for each site based on the "Single Peak" space requirement of 47,000 square feet with four passenger gates. The form of the concourse/gate portion of the buildings was laid out to follow the functional requirements for Taxi-In / Taxi-Out operations of the CRJ-700 aircraft.
- An air carrier apron was laid out for each site based on current FAA requirements for airfield design.
- Automobile parking and access roads were conceptually laid out for each site…

methodology…

A conceptual Terminal Building floor plan based on the "Split Peak" model was developed for each site.

The following methodologies were utilized:

- A concept floor plan was developed for each site based on the "Split Peak" space requirement of 24,000 square feet with two passenger gates. The form of the concourse/gate portion of the buildings was laid out to follow the functional requirements for Taxi-In / Taxi-Out operations of the CRJ-700 aircraft.

methodology…

A conceptual site layout for each site was developed that shows an initial Terminal Building construction phase. This was done in order to facilitate estimating the cost for an initial construction phase for each site.

The following methodologies were utilized:

- A concept building envelopewas developed for each site based on the “Single Peak” space requirement of 9,000 square feet with a single passenger gate.
- An initial phase of development of the aircraft apron was lad out based on the functional requirements for Taxi-In / Taxi-Out operations of the CRJ-700 aircraft.
- Alternative off site roadway access alternatives were developed and evaluated.
- Approximate costs were calculated for each alternative.

EXHIBIT F

INITIAL PHASE w/9,000 SF BUILDING

Summary of Estimated Construction Costs – Initial Phase (w/9,000 SF building)

	APPROXIMATE CONSTRUCTION COST	
	West Site	East Site
Terminal Building	$ 1,557,000	$ 1,557,000
Site Development and Utilities	$ 3,231,400	$ 3,330,530
Offsite Airport Access Roads	$ 1,000,000	$ 4,400,000*
TOTAL APPROXIMATE DEVELOPMENT COST	**$ 5,788,400**	**$ 9,287,530**

ULTIMATE PHASE w/47,000 SF BUILDING

Summary of Estimated Construction Costs – Ultimate Phase (w/47,000 SF building)

	APPROXIMATE CONSTRUCTION COST	
	West Site	East Site
Terminal Building	$ 8,131,000	$ 8,131,000
Site Development and Utilities	$ 4,388,100	$ 4,685,710
Offsite Airport Access Roads	$ 1,000,000	$ 4,400,000*
TOTAL APPROXIMATE DEVELOPMENT COST	**$ 13,519,100**	**$ 17,216,710**

This estimate was not included in the Draft document

decision factors and analysis…

The assessment examined several key factors that will contribute to the decision making process when selecting the preferred development site. The analysis was based on the ultimate maximum build-out scenario.

The following "Non-Cost" factors were examined:

- Expansion Potential / Constraints
- Ease of Offsite Access from Service Area
- Land Acquisition
- Difficulty of Construction Phasing
- Operational Considerations
- Potential for Environmental Impacts
- Coordination w/Other Planned Improvements
- Impacts to Adjacent Land Uses

The following "Cost" factors were examined:

- Cost of the Terminal Building
- Cost of Sitework and Utilities
- Cost of Offsite Airport Access Roads

a DRAFT Evaluation Matrix was developed to initially rank the sites…

EXHIBIT H

SELECTION CRITERIA	Weighting Multiplier	BINARY RANKING		WEIGHTED VALUE	
		WEST SITE	EAST SITE	WEST SITE	EAST SITE
Expansion Potential / Constraints	1.00	1	1	1.0	1.0
Ease of Offsite Access from Service Area *	2.00	1	0	2.0	0.0
Land Acquisition	1.00	1	1	1.0	1.0
Difficulty of Construction Phasing	1.00	0	1	0.0	1.0
Operational Considerations *	2.00	0	1	0.0	2.0
Potential for Environmental Impacts	1.00	1	1	1.0	1.0
Coordination w/Other Planned Improvements	1.00	1	0	1.0	0.0
Impacts to Adjacent Land Uses *	2.00	0	1	0.0	2.0
SUBTOTAL				**6.0**	**8.0**
Cost of Terminal Building	1.00	1	1	1.0	1.0
Cost of Sitework and Utilities	1.07	1	0	1.1	0.0
Cost of Offsite Airport Access Roads **	4.40	1	0	4.4	0.0
SUBTOTAL				**6.5**	**1.0**
TOTALS				**12.5**	**9.0**

** Evaluation criteria that have impacts that would carry into the future have been weighted by a factor of 2. Those with only transient impacts are not weighted.*

*** The estimated development cost of the four alternatives for offsite roadway access to the East Site ranged from $4,400,000 to $9,200,000. The least expensive option is reflected here*

NOTE:
The matrix was modified based on refined cost estimates for the West Site after the West Site layout revisions made after the 03/05/15 meeting. See Table 4a on page 4-5 of the report.

RESOLUTION NO. 4308-1517

A RESOLUTION OF THE MAYOR AND COUNCIL OF THE CITY OF PRESCOTT, YAVAPAI COUNTY, ARIZONA, ACCEPTING AND ADOPTING THE FINDINGS AND RECOMMENDATIONS OF THE PRIVATE SECTOR AD HOC AIRPORT AREA STEERING GROUP PERTAINING TO THE TERMINAL BUILDING SITE ASSESSMENT

RECITALS:

WHEREAS, the Airport is an important asset of the City of Prescott and its future economic growth; and

WHEREAS, the Prescott Municipal Airport terminal building is nearly 60 years old and has been identified by FAA as being deficient due to inadequate distance separation between the terminal and adjoining taxiways; and

WHEREAS, the City retained Dibble Engineering, in association with Nicholas J. Pela and Associates, to perform a Terminal Building Site Assessment; and

WHEREAS, an informal, ad hoc Airport Area Steering Group was convened by the Department of Economic Initiatives (the "Department") of the City to gain private sector perspective on the future siting of a new airport terminal; and

WHEREAS, the Steering Group studied the Site Assessment and Dibble Engineering's presentation to Council, and held detailed discussions on the Terminal Building Site Assessment; and

WHEREAS, the Steering Group wishes to publicly report its findings and recommendations to the Mayor and Council.

ENACTMENTS:

NOW, THEREFORE BE IT RESOLVED BY THE COUNCIL OF THE CITY OF PRESCOTT AS FOLLOWS:

1. THAT, the City Council hereby receives, accepts, and adopts the findings and recommendations (Exhibit A) of the airport Area ad hoc Steering Group which is provided for the City's guidance in planning and developing a new Prescott Municipal Airport Terminal.

2. THAT, it is hereby recognized and acknowledged that these recommendations are consistent with and further evidence of the long-term commitment (15 to 20 years) of the City to the Airport as previously acknowledged in Airport Area Resolution No. 4265-1474 of December 12, 2014.

3. THAT, the Terminal Building Site Assessment seeks to provide information to City leaders in evaluating the near and long-term options of a facility that is the focal point of airport activity.

4. THAT, the City Council hereby directs its staff, working in concert with the Federal Aviation Administration, Arizona Department of Transportation, and other partners public and private, to pursue and take actions necessary to realize a new terminal on the "West Site," and conduct a master planning process to address possible future redevelopment of adjacent lands.

5. THAT, the Mayor and City Council request that the Department provide regular and timely updates on actions, issues, and progress made with respect to the Steering Group recommendations and other items identified herein be provided.

PASSED, APPROVED, AND ADOPTED by the Mayor and Council of the City of Prescott this _____ day of _____, 2015.

_____
MARLIN D. KUYKENDALL, MAYOR

ATTEST:

_____
DANA R. DeLONG
City Clerk

APPROVED AS TO FORM:

_____
JON M. PALADINI
City Attorney

Exhibit "A"

Findings and Recommendations of ad hoc Airport Area Steering Group

Key Terminal Building Site Assessment Findings

1. The recent and pending improvements to SR 89 indicate that it will remain the primary access road for Airport visitors

2. The West Site provides proximity, ease of access, and visibility from SR 89

3. The cost of the terminal structure is the same for either site although at full build-out the East Site presents site development costs 10 percent lower ($513,000) than the West

4. The cost of road improvements required to make either terminal site a viable location weigh significantly to the advantage of the West Site ($1 million versus $4.4 million) and easily overcomes the site development advantage of the East Site

5. The West Site offers the potential to leverage its visibility and proximity to SR 89 on lands to the west of the proposed terminal site for commercial redevelopment.

Terminal Building Site Assessment Recommendations

1. The Steering Group recommends the West Site for the new terminal facility based upon its review and findings; and

2. Furthermore, the Steering Group recommends that the City undertake a master planning process for the long term redevelopment of land adjacent to and west of the proposed terminal site.

Appendix G | Future Condition Noise Analysis

Image by Delta Airport Consultants, Inc.

PRESCOTT MUNICPAL AIRPORT
MASTER PLAN UPDATE

Noise Technical Report

Prepared for:
Delta Airport Consultants, Inc.

Prepared by:
KB Environmental Sciences, Inc.

FINAL
July 24, 2018

KB Environmental Sciences

TABLE OF CONTENTS

Section 1 – Introduction 3

Section 2 – Methodology.....4

Section 3 – Existing Conditions (2016).....6

Section 4 – Future No Build Conditions (2036).....14

Section 5 – Future Build Conditions (2036).....17

Section 6 – Conclusion.....20

SECTION 1
Introduction

Prescott Municipal Airport (PRC) is currently preparing an update to its Master Plan. As part of the Master Plan Update, noise contours were prepared for the following scenarios:

- *Existing Conditions*, using the Master Plan baseline year of 2016
- *Future No Build Conditions*, using the Master Plan forecast year of 2036
- *Future Build Conditions*, using the same 2036 forecast and reflecting the proposed runway extensions.

This noise analysis technical report describes the methodology used to develop the contours and the resulting noise exposure levels in the vicinity of the airport. The noise contours were prepared for informational and planning purposes only and are not intended to be used for the purpose of 14 CFR Part 150, *Airport Noise Compatibility Planning.*

SECTION 2
Methodology

The noise contour maps were developed using the Federal Aviation Administration (FAA) Aviation Environmental Design Tool (AEDT) Version 2c Service Pack 2. The AEDT was developed by the FAA using methods and calculations from SAE International's Aerospace Information Report (AIR) 1845, *Procedure for the Calculation of Airplane Noise in the Vicinity of Airports*.

The AEDT produces aircraft noise contours that delineate areas of equal day-night average sound level (DNL). The AEDT works by defining a network of grid points at ground level around an airport. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation, along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g. DNL 65, 70 and 75 dB). Using the results of the grid point analysis, noise contours of equal noise exposure can then be plotted.

The DNL is a 24-hour time-weighted sound level that is expressed in A-weighted decibels and is abbreviated as dB(A) or dB. The FAA, and other federal agencies, use DNL as the primary measure of noise impact because: it correlates well with the results of attitudinal surveys regarding noise; it increases with the duration of noise events; and, it accounts for an increased sensitivity to noise at night by increasing each noise event that occurs during nighttime hours (i.e., 10 pm to 7 am) by 10 dB(A).

In Appendix A of 14 CFR Part 150, the FAA identifies, as a function of yearly (365-day average) DNL value, land uses which are compatible and land uses which are not compatible in an airport environs. As shown in **Table 2-1**, the FAA considers all land uses to be compatible with aircraft noise if the DNL is less than 65 dB(A).

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*[1] stipulates that the AEDT is to be used to provide noise exposure contours at the DNL 65, 70, and 75 dB levels. Accordingly, this report includes documentation of DNL contours, in addition to flight tracks, for the existing conditions and future conditions.

[1] Federal Aviation Administration Order 1050.1F, Appendix B, Section B-1.4. July 2015.

Table 2-1. Land Use Compatibility

Land use	DNL expressed in dB(A)					
	Below 65	65–70	70–75	75–80	80–85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

SLUCM=Standard Land Use Coding Manual. Y (Yes) = Land Use and related structures compatible without restrictions. N (No) = Land Use and related structures are not compatible and should be prohibited. NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.
(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.

Source: 14 CFR Part 150

SECTION 3
Existing Conditions (2016)

This section details the development of noise contours for the existing 2016 conditions. The data used as input to the AEDT for the year 2016 were comprised of the following:

- Runway layout and use,
- Number of aircraft operations,
- Operational Time-of-Day,
- Aircraft fleet mix, and
- Flight tracks and profiles.

3.1 Runway Layout and Use

PRC has three runways, Runway 3R/21L (7,619 feet long and 150 feet wide), Runway 3L/21R (4,846 feet long and 60 feet wide), and Runway 12/30 (4,408 feet long and 75 feet wide). The average runway use provided by the airport is shown in **Table 3-1**. Of note, runway use for helicopters also included several helipads and landing/takeoff locations on the airfield that are not runway ends. The helipads and corresponding flight tracks were modeled based on input from the airport and air traffic controllers.

Table 3-1. Annual Average Runway Use (Percent) for 2016

	Runway						
	03R	**21L**	**03L**	**21R**	**12**	**30**	**TOTAL**
	Arrivals						
Jet/Turboprop	20	80	0	0	0	0	100
Piston/Prop	10	30	0	20	25	15	100
Helicopter	10	50	0	0	25	15	100
	Departures						
Jet/Turboprop	20	80	0	0	0	0	100
Piston/Prop	10	40	10	0	25	15	100
Helicopter	10	50	0	0	25	15	100
	Local						
Jet/Turboprop	20	80	0	0	0	0	100
Piston/Prop	10	40	10	10	20	10	100
Helicopter	10	10	10	60	5	5	100

Prepared by: KB Environmental Sciences, Inc.
Source: PRC Airport

3.2 Aircraft Operations

Forecasts of operations by aircraft type were prepared as part of the PRC Airport Master Plan for the 2016 base year. The overall forecast of aviation activity was divided into categories of aircraft. The 2016 aircraft operations by category is provided in **Table 3-2.** As shown, in 2016 there were 265,989 operations at PRC (an average of approximately 729 operations per day). An aircraft operation is defined as either one arrival or one departure. A touch-and-go operation – an arrival of an aircraft and the departure of the same aircraft – is defined as two operations.

Table 3-2. 2016 Aircraft Operations by Category

Aircraft Category	Operations
Jet	6,012
Multi Engine Piston	31,691
Single Engine Piston	199,891
Turboprop	1,229
Helicopter	27,166
Total	**265,989**

Prepared by: KB Environmental Sciences, Inc.
Source: PRC Airport Master Plan Study
Note: Operations are subject to rounding.

3.3 Operational Time-of-Day

As previously stated, DNL is calculated such that aircraft operations that occur after 10 pm and before 7 am (i.e., during the nighttime) are penalized by the addition of 10 dB(A) to each operation. Based on discussions with airport staff, it was estimated that approximately 0.3 percent of the operations at the airport occur during the nighttime hours.

3.4 Fleet Mix

The AEDT includes a number of individual aircraft types as well as a number of FAA-approved substitute aircraft. The Master Plan forecast of aircraft operations was used to develop the aircraft fleet mix for 2016, in conjunction with more detailed aircraft type data available from the list of based aircraft and the FAA Traffic Flow Management System Counts (TFMSC). The 2016 AEDT aircraft operations and fleet mix are provided in **Table 3-3.**

Table 3-3. 2016 AEDT Aircraft Fleet Mix

Category	Aircraft ID	Annual Operations
Jet	CNA500	1,872
	CNA510	884
	CNA55B	566
	CNA750	406
	CNA560XL	239
	IA1125	239
	CNA560U	207
	CL600	279
	LEAR35	470
	CNA680	127
	ECLIPSE500	127
	CNA525C	96
	GIV	96
	GV	96
	CIT3	64
	MU3001	64
	A4C	180
	Subtotal	***6,012***
Multi-Engine Prop	BEC58P	25,377
	DHC6	5,956
	PA30	358
	Subtotal	***31,691***
Single-Engine Prop	CNA172	155,049
	COMSEP	15,829
	PA28	6,005
	GASEPF	4,969
	GASEPV	14,909
	CNA206	3,129
	Subtotal	***199,891***
Turboprop	CNA441	665
	CNA208	280
	EMB120	104
	GASEPF	180
	Subtotal	***1,229***
Helicopter	R44	27,166
	Subtotal	***27,166***
Total		**265,989**

Prepared by: KB Environmental Sciences, Inc.
Sources: PRC Master Plan (PRC Master Plan; Based Aircraft List; FAA TFMSC System
Note: Operations are subject to rounding.

3.5 Flight Tracks and Profiles

The AEDT uses airport-specific ground tracks and vertical flight profiles to compute three-dimensional flight paths for each modeled aircraft. The "default" AEDT vertical profiles, which consist of altitude, speed, and thrust settings, are compiled from data provided by aircraft manufacturers.

The location of flight paths is an important factor in determining the geographic distribution of noise contours on the ground. The itinerant AEDT flight tracks are shown on **Figures 3-1** and **3-2**. The local touch-and-go tracks are shown on **Figure 3-3**. These flight tracks were provided by airport staff and included detailed fixed wing and helicopter tracks.

3.6 2016 Existing DNL Contours

The 2016 DNL contours are provided on **Figure 3-4.** **Table 3-4** provides the area, in acres, of each contour interval (i.e., DNL 65-69.9 dB, DNL 70-74.9 dB, and DNL 75 dB and greater). As shown, the total area encompassed by the DNL 65 dB contour is 380 acres.

Table 3-4. 2016 Existing Conditions DNL Contour Areas

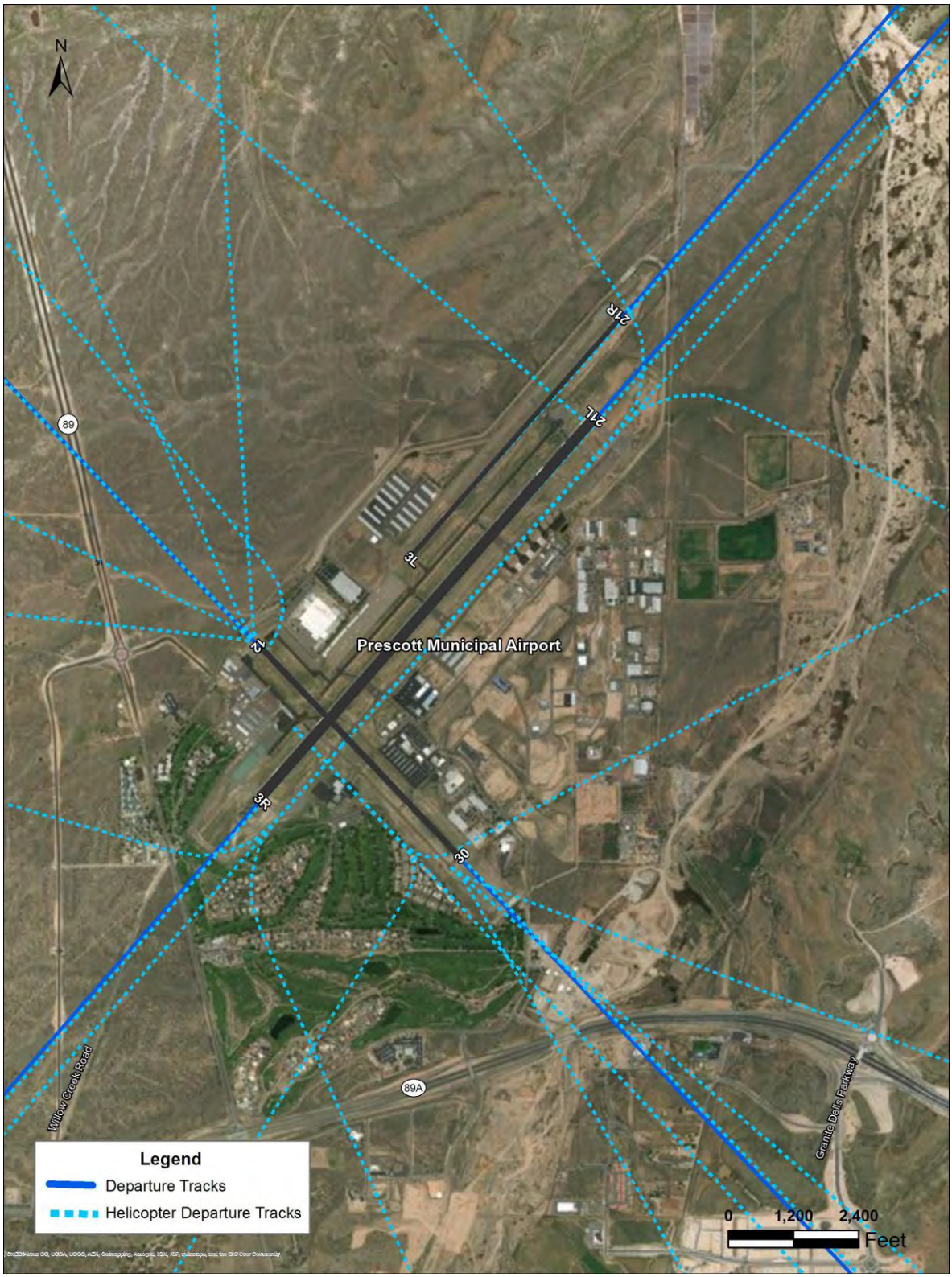
DNL (dB)	Area (Acres)
65 to 69.9	196.7
70 to 74.9	119.8
75 and greater	63.5
Total	**380.0**

Source: AEDT 2c SP2;
KB Environmental Sciences, Inc.

Figure 3-1. 2016 Itinerant Flight Tracks – Arrivals

Prepared by: KB Environmental Sciences, Inc.

Figure 3-2. 2016 Itinerant Flight Tracks – Departures

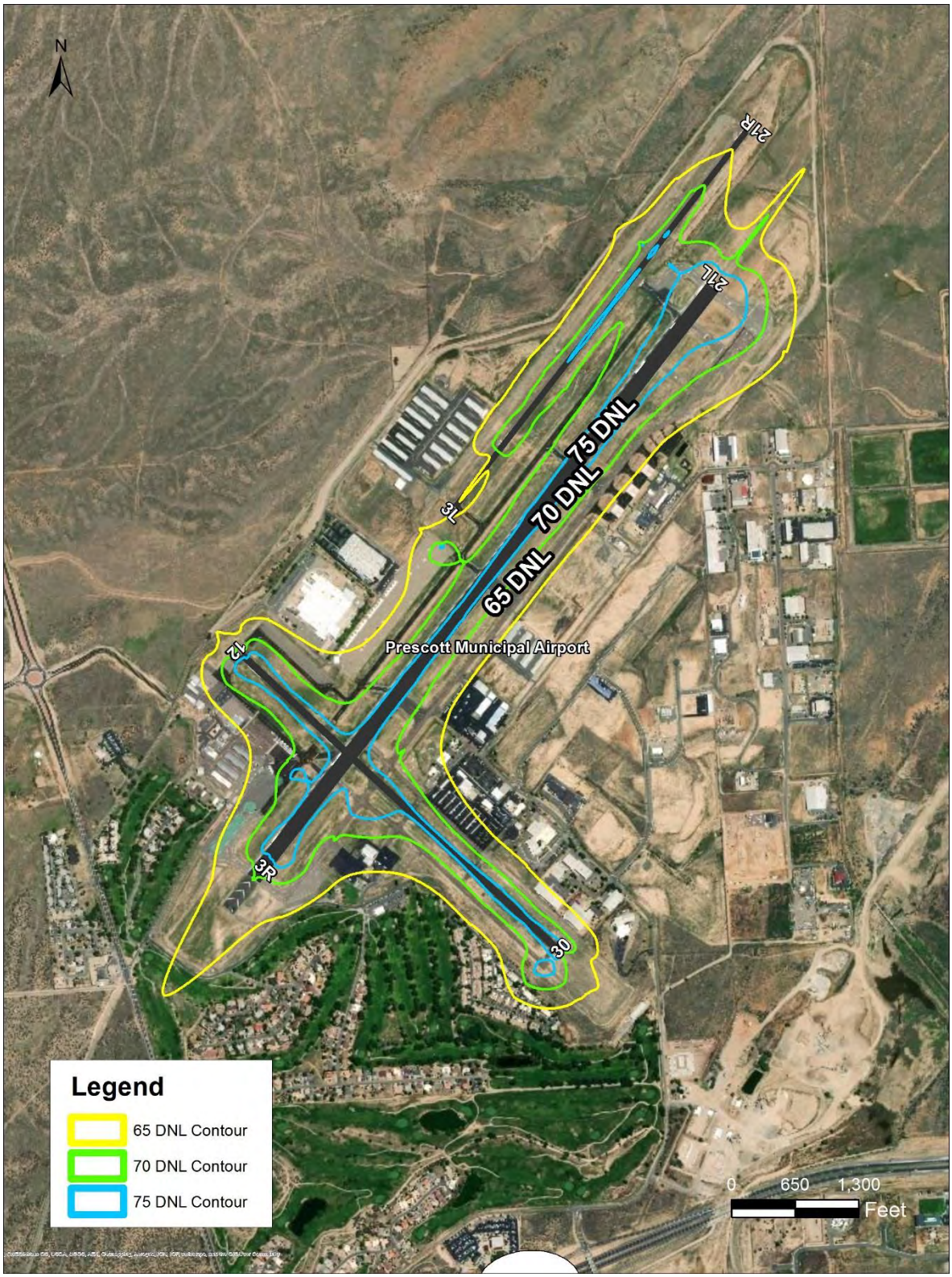


Prepared by: KB Environmental Sciences, Inc.

Figure 3-3. 2016 Local Flight Tracks

Prepared by: KB Environmental Sciences, Inc.

Figure 3-4. Existing 2016 DNL Contours



Prepared by: KB Environmental Sciences, Inc.

SECTION 4
Future No Build Conditions (2036)

This section discusses the input data for the future 2036 No Build condition and the resulting DNL contours. The future 2036 No Build condition included the same runway use, flight tracks, and profiles as the existing conditions. However, the aircraft operations and fleet mix for the future 2036 conditions were defined using the aviation activity forecast from the Master Plan Update.

4.1 Runway Layout and Use

The airfield configuration modeled for the future No Build condition was the same as the existing condition, with one exception. Runway end 3L was shifted by 240 feet to relocate the physical end of the runway, shortening the current displaced threshold from 811 feet to 571 feet. The runway utilization for the future No Build condition remained the same as the existing condition.

4.2 Aircraft Operations

A forecast of operations was prepared as part of the PRC Airport Master Plan project for the future year 2036. The forecast of operations by aircraft category is presented in **Table 4-1.** As shown, the 2036 forecast includes 285,790 operations at EYW (an average of approximately 783 operations per day).

Table 4-1. 2036 Forecast of Operations by Category

Aircraft Category	Operations
Jet	4,280
Multi Engine Piston	20,270
Single Engine Piston	201,780
Turboprop	4,940
Helicopter	54,520
Total	**285,790**

Prepared by: KB Environmental Sciences, Inc.
Source: PRC Airport Master Plan Study
Note: Operations are subject to rounding.

4.3 Operational Time-of-Day

The percentage of nighttime operations for the future No Build condition was maintained at a similar level as the existing condition.

4.4 Fleet Mix

The future 2036 aircraft fleet mix was provided from the Master Plan Update. The future aircraft operations and fleet mix are provided in **Table 4-2**.

Table 4-2. 2036 Aircraft Operations and AEDT Fleet Mix

Category	Aircraft ID	Annual Operations
Jet	BAE146	300
	CL600	70
	CNA500	890
	CNA510	170
	CNA55B	430
	CNA560U	300
	CNA680	40
	CNA750	230
	CRJ9-ER	110
	EMB170	1,200
	GIV	20
	GV	180
	IA1125	120
	LEAR35	220
	Subtotal	***4,280***
Multi-Engine Prop	BEC58P	20,270
	Subtotal	***20,270***
Single-Engine Prop	CNA172	171,180
	GASEPF	30,440
	GASEPV	160
	Subtotal	***201,780***
Turboprop	1900D	1,860
	C130	200
	CNA208	440
	CNA441	480
	DHC6	1,460
	DHC830	500
	Subtotal	***4,940***
Helicopter	R22	22,810
	R44	31,710
	Subtotal	***54,520***
Total		**285,790**

Prepared by: KB Environmental Sciences, Inc.
Sources: PRC Master Plan
Note: Operations are subject to rounding.

4.5 Flight Tracks

The flight tracks modeled for the future No Build condition was the same as those for the existing 2016 condition. Flight track use was maintained at similar levels as the existing conditions.

4.6 2036 DNL Contours

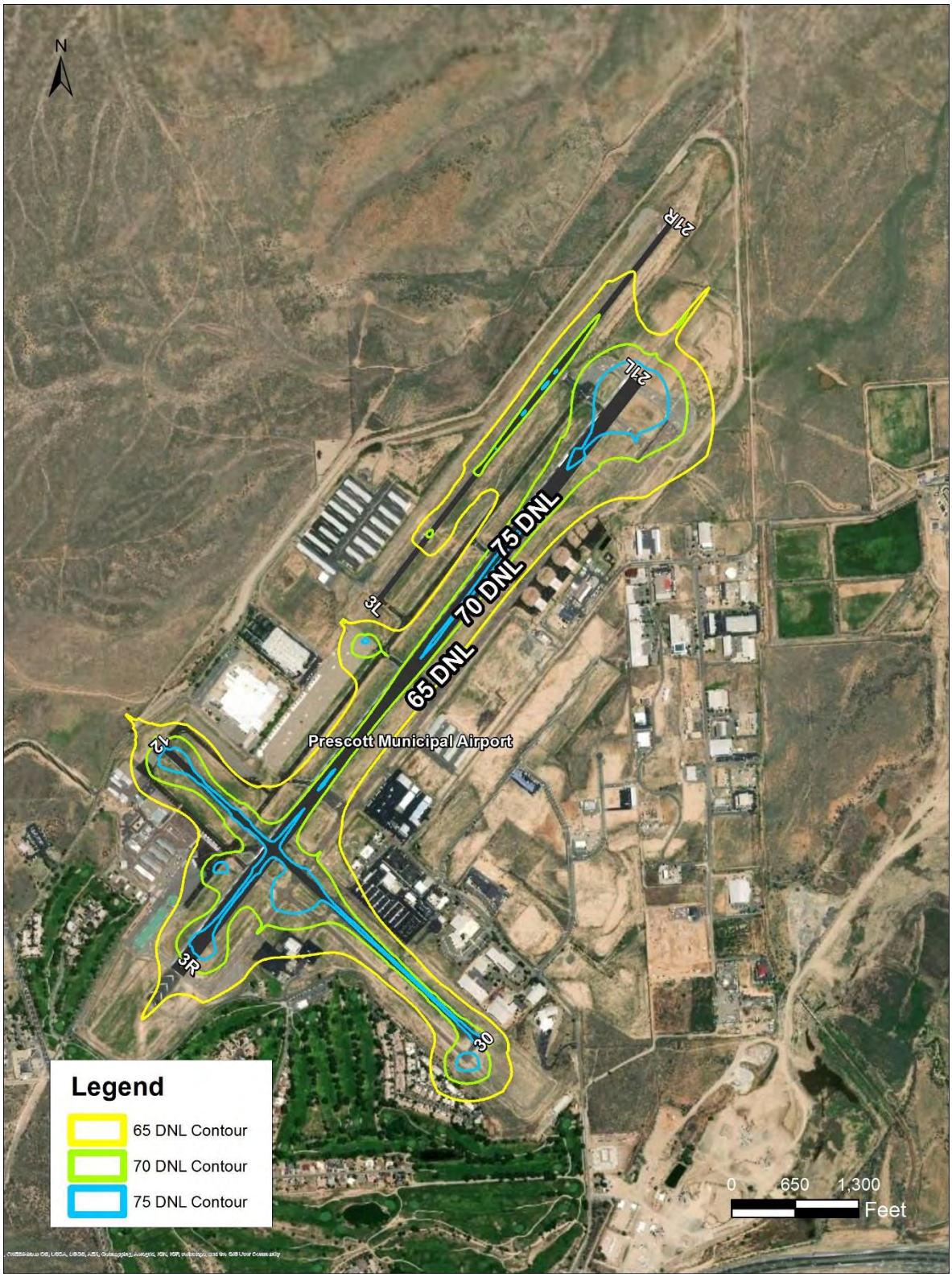
The DNL contours for the future 2036 No Build condition is provided on **Figures 4-1. Table 4-3** provides the area, in acres, of each contour interval.

Table 4-3. 2036 No Build Condition DNL Contour Areas

DNL (dB)	Contour Area (Acres)
65 to 69.9	162.3
70 to 74.9	76.3
75 and greater	26.6
Total	**265.2**

Source: AEDT 2c SP2;
KB Environmental Sciences, Inc.

Figure 4-1. Future 2036 No Build DNL Contours



Prepared by: KB Environmental Sciences, Inc

SECTION 5
Future Build Conditions (2036)

This section discusses the input data for the future 2036 Build condition and the resulting DNL contours.

5.1 Runway Layout and Use

The airfield configuration modeled in the future with the Build condition included a number of proposed airfield improvements. Runway end 3L was shortened by 811 feet to relocate the physical runway end to match the current displaced threshold. Runway ends 21R and 21L were extended by 2,163 feet and 2,381, respectively. Finally, Runway end 12 was shortened by 150 feet to relocate the physical end to match the current displaced threshold. The runway utilization for the future Build condition remained the same as the existing and future No Build conditions.

5.2 Aircraft Operations

The forecast of operations modeled for the future Build condition was the same as the future No Build condition, shown previously in **Table 4-1.**

5.3 Operational Time-of-Day

The percentages of nighttime operations for the future Build condition was maintained at a similar level as the existing and future No Build conditions.

5.4 Fleet Mix

The aircraft fleet mix modeled in the future Build condition was the same fleet mix modeled under the future No Build condition. The future aircraft operations and fleet mix are shown in **Table 4-2**.

5.5 Flight Tracks

The flight tracks for both of the future conditions modeled were the same as those for the existing and No Build conditions. Flight track use was maintained at similar levels as the existing conditions.

5.6 2036 DNL Contours

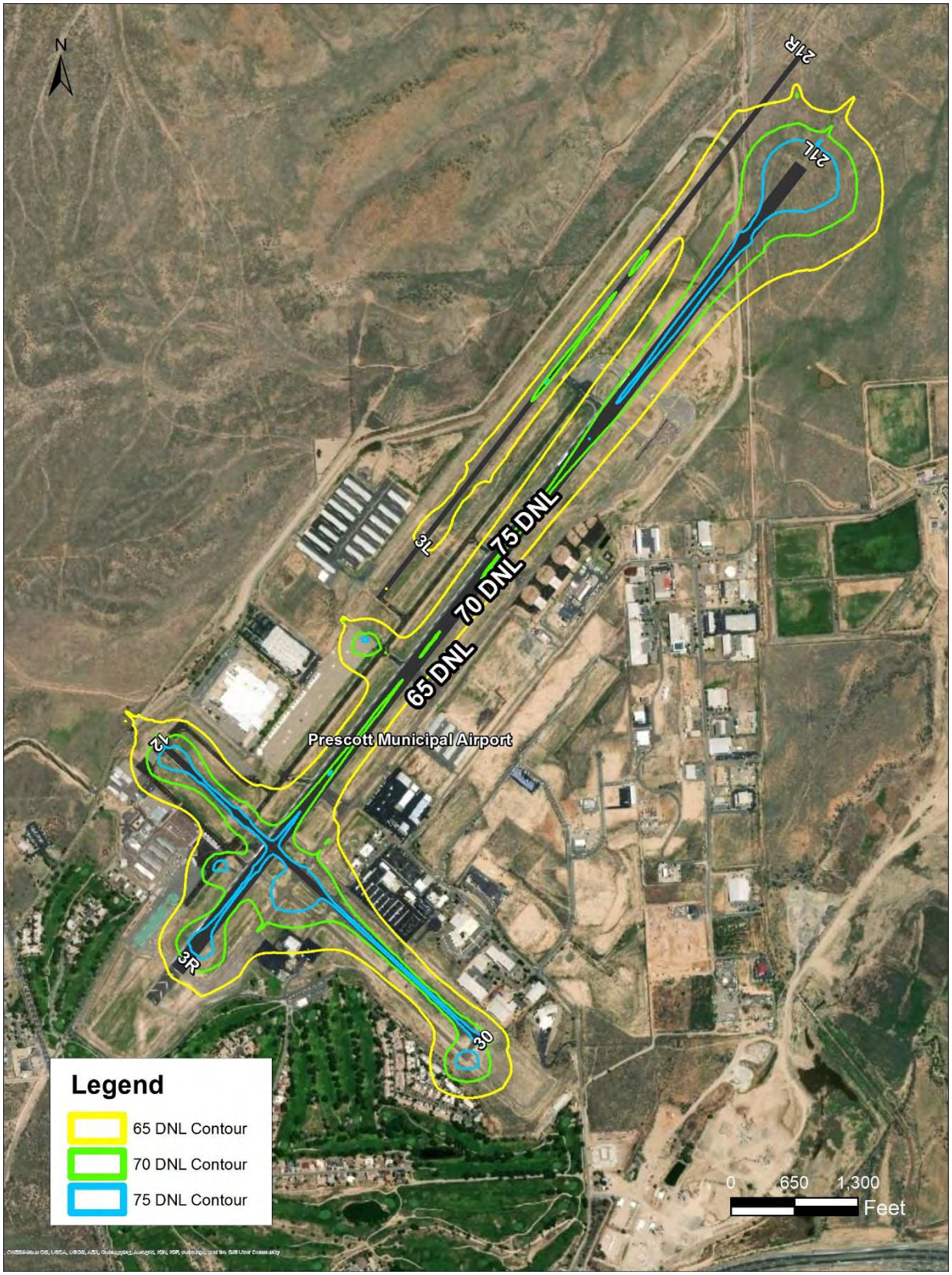
The DNL contours for the future 2036 Build conditions are provided on **Figure 5-1. Table 5-1** provides the area, in acres, of each contour interval.

Table 5-1. 2036 Build Condition DNL Contour Areas

DNL (dB)	Contour Area (Acres)
65 to 69.9	189.8
70 to 74.9	67.7
75 and greater	27.8
Total	**285.3**

Source: AEDT 2c SP2;
KB Environmental Sciences, Inc.

Figure 5-1. Future 2036 Build DNL Contours



Prepared by: KB Environmental Sciences, Inc.

SECTION 6
Conclusion

A noise analysis was prepared as part of the PRC Master Plan Update. The contours were modeled to identify the noise exposure from the existing 2016 condition and the future 2036 No Build and Build conditions. In all three noise contour maps, residences were identified within the limits of the DNL 65 dB contour, based on a visual inspection of aerial imagery near the end of Runway 30 where helicopters operate (see **Figures 3-4, 4-1, and 5-1**). The calculation of noise impacts (population counts and land use analysis) is to be prepared by others on the Master Plan Team. Once this calculation is completed, the resulting impacts can be compared to the noise contour maps for planning purposes. The noise contours were prepared for informational and planning purposes only and are not intended to be used for the purposes of 14 CFR Part 150.

Appendix H | Traffic Retention and Leakage Study

Image by Delta Airport Consultants, Inc.

VOLAIRE
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Traffic Retention and Leakage Study

Prescott Municipal Airport

Year-End Third Quarter 2017 - Published March 2018

- 53 zip codes in Yavapai County and Coconino County in Arizona makeup the catchment area of Prescott Municipal Airport.
- A sample of 15,688 tickets booked for travel in the year-end third quarter 2017 in the 53 zip codes of the catchment area were combined with year-end third quarter 2017 Department of Transportation DB1A data to determine the number of passengers traveling to and from the Prescott catchment area. The 15,688 tickets were extrapolated to a total market size of 1,313,915 origin and destination passengers in the catchment area.
- The number of tickets purchased over the one-year period of the survey translates to demand of 1,800 passengers per day each way (PDEW) generated in the Prescott catchment area.
- Domestic travel accounted for 95.7% of the traffic, and international traffic accounted for 4.3% of the traffic.
- Prescott Municipal Airport captured 0.9% of the domestic traffic and virtually none of the international traffic; Phoenix Sky Harbor International Airport captured 84.5% of the domestic traffic and 84.8% of the international traffic; Las Vegas McCarran International Airport captured 4.7% of the domestic traffic and 13.3% of the international traffic; Phoenix-Mesa Gateway Airport captured 5.1% of the domestic traffic and none of the international traffic; Flagstaff Pullman Airport captured 4.8% of the domestic traffic and 1.8% of the international traffic.
- Denver, the Los Angeles Basin, the San Francisco Bay Area, Seattle and Chicago are the catchment areas's five largest markets.
- American captured 33.9% of traffic generated in the catchment area; Southwest captured 33.8%, United captured 8.3%, Delta captured 8.1%, Allegiant captured 5.2% and Alaska captured 3.0%.

Domestic + International Traffic

Rank	Airport Code	Airport Location and Name	O&D Passengers	PDEW	Share	RDEW	Fare
1	PHX	Phoenix Sky Harbor International Airport	1,110,341	1,521.0	84.5%	$282,369	$186
2	LAS	Las Vegas McCarran International Airport	66,536	91.1	5.1%	$15,957	$175
3	AZA	Phoenix-Mesa Gateway Airport	63,841	87.5	4.9%	$10,543	$121
4	FLG	Flagstaff Pullman Airport	61,687	84.5	4.7%	$17,850	$211
5	PRC	Prescott Municipal Airport	11,510	15.8	0.9%	$1,983	$126
6							
7							
		All Airports	1,313,915	1,799.9	100.0%	$328,702	$183

Domestic Traffic

Rank	Airport Code	Airport Location and Name	O&D Passengers	PDEW	Share	RDEW	Fare
1	PHX	Phoenix Sky Harbor International Airport	1,062,482	1,455.5	84.5%	$250,522	$172
2	AZA	Phoenix-Mesa Gateway Airport	63,841	87.5	5.1%	$10,543	$121
3	FLG	Flagstaff Pullman Airport	60,645	83.1	4.8%	$16,978	$204
4	LAS	Las Vegas McCarran International Airport	59,051	80.9	4.7%	$11,438	$141
5	PRC	Prescott Municipal Airport	11,492	15.7	0.9%	$1,964	$125
6							
7							
		All Airports	1,257,511	1,722.6	100.0%	$291,445	$169

International Traffic

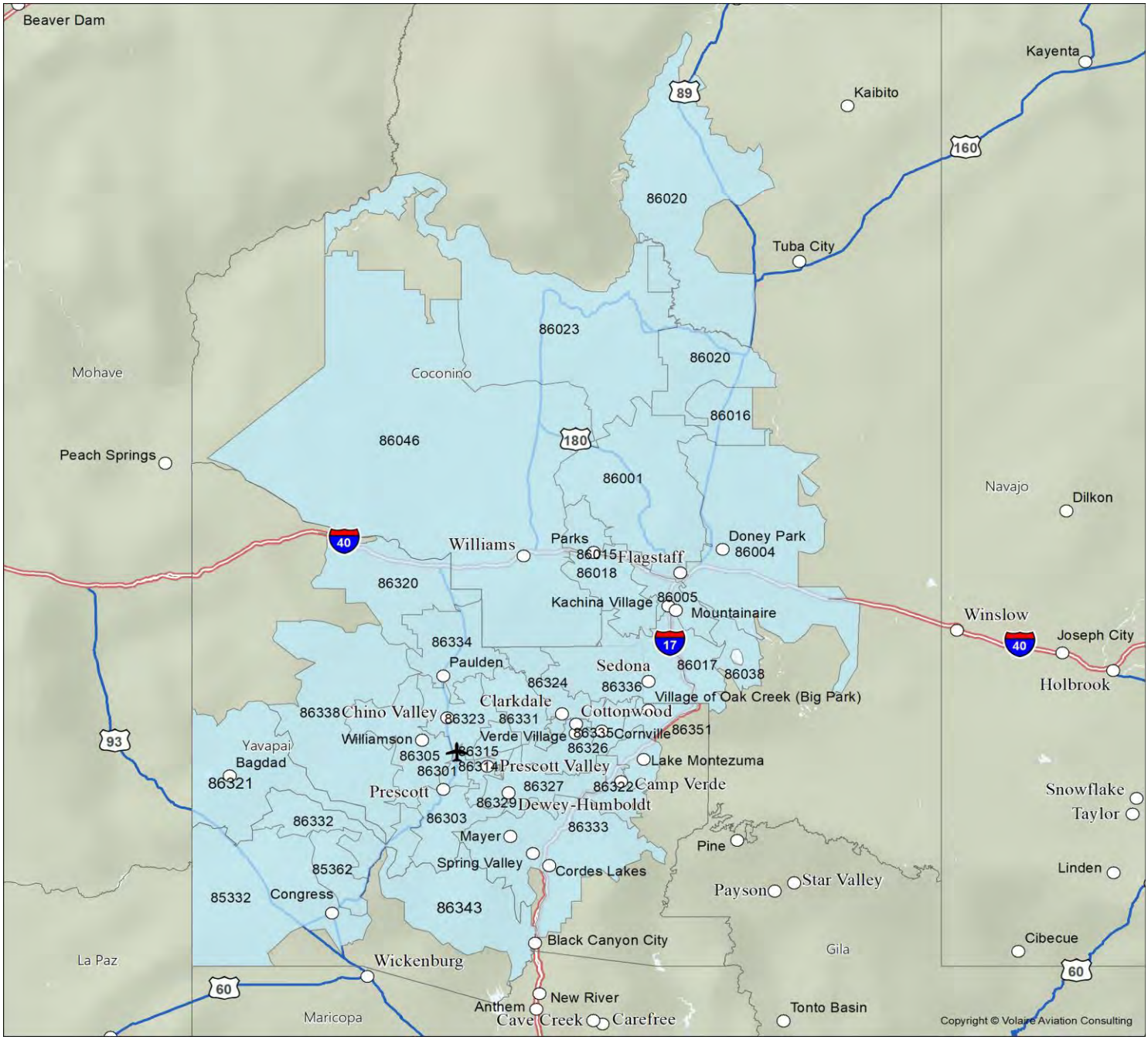
Rank	Airport Code	Airport Location and Name	O&D Passengers	PDEW	Share	RDEW	Fare
1	PHX	Phoenix Sky Harbor International Airport	47,859	65.6	84.8%	$31,846	$486
2	LAS	Las Vegas McCarran International Airport	7,486	10.3	13.3%	$4,519	$441
3	FLG	Flagstaff Pullman Airport	1,042	1.4	1.8%	$872	$611
4	PRC	Prescott Municipal Airport	18	0.0	0.0%	$19	$760
5							
6							
7							
		All Airports	56,404	77.3	100.0%	$37,256	$482

Prescott Municipal Airport
Leakage and Retention Study
Year-End Third Quarter 2017

Table of Contents

Summary	Cover
Prescott Municipal Airport Zip Code Catchment Area Map	3
Prescott Municipal Airport Zip Code Population and Ticket Sample List	4
Prescott Municipal Airport PDEW and Share by Zip Code and Point of Origin	5
Prescott Municipal Airport Drive Time Map	6
Distribution of Traffic among Airports in the Region	7
15 Largest O&D Markets and Average Fares in the Catchment Area	8
Domestic Market Size Rankings by Airport (Markets 1-50)	9
Domestic Market Size Rankings by Airport (Markets 51-100)	10
Domestic Market Size Rankings by Airline	11
Metro Area Multiple Airport Detail	12
Domestic Resident and Visitor Point of Origin PDEW and Percentage by Airport (1-50)	13
Domestic Resident and Visitor Point of Origin PDEW and Percentage by Airport (51-100)	14
International Market Size Rankings by Airport	15
International Market Size Rankings by Airline	16
Domestic Airline Rankings by Airport	17
International Airline Rankings by Airport	18
Distribution of Traffic among Airlines - Prescott Municipal Airport	19
15 Largest O&D Markets and Average Fares - Prescott Municipal Airport	20
Nonstop Routes Flown - Prescott Municipal Airport	21
Market Size Rankings and Airline Detail - Prescott Municipal Airport	22
Distribution of Traffic among Airlines - Phoenix-Mesa Gateway Airport	23
15 Largest O&D Markets and Average Fares - Phoenix-Mesa Gateway Airport	24
Nonstop Routes Flown - Phoenix-Mesa Gateway Airport	25
Market Size Rankings and Airline Detail - Phoenix-Mesa Gateway Airport	26
Distribution of Traffic among Airlines - Phoenix Sky Harbor International Airport	27
15 Largest O&D Markets and Average Fares - Denver International Airport	28
Nonstop Routes Flown - Phoenix Sky Harbor International Airport	29
Market Size Rankings and Airline Detail - Phoenix Sky Harbor International Airport	30
Distribution of Traffic among Airlines - Las Vegas McCarran International Airport	31
15 Largest O&D Markets and Average Fares - Las Vegas McCarran International Airport	32
Nonstop Routes Flown - Las Vegas McCarran International Airport	33
Market Size Rankings and Airline Detail - Las Vegas McCarran International Airport	34
Distribution of Traffic among Airlines - Flagstaff Pullman Airport	35
15 Largest O&D Markets and Average Fares - Flagstaff Pullman Airport	36
Market Size Rankings and Airline Detail - Flagstaff Pullman Airport	37
Market Size Rankings and Airline Detail - Flagstaff Pullman Airport	38

Prescott Municipal Airport Zip Code Catchment Area Map



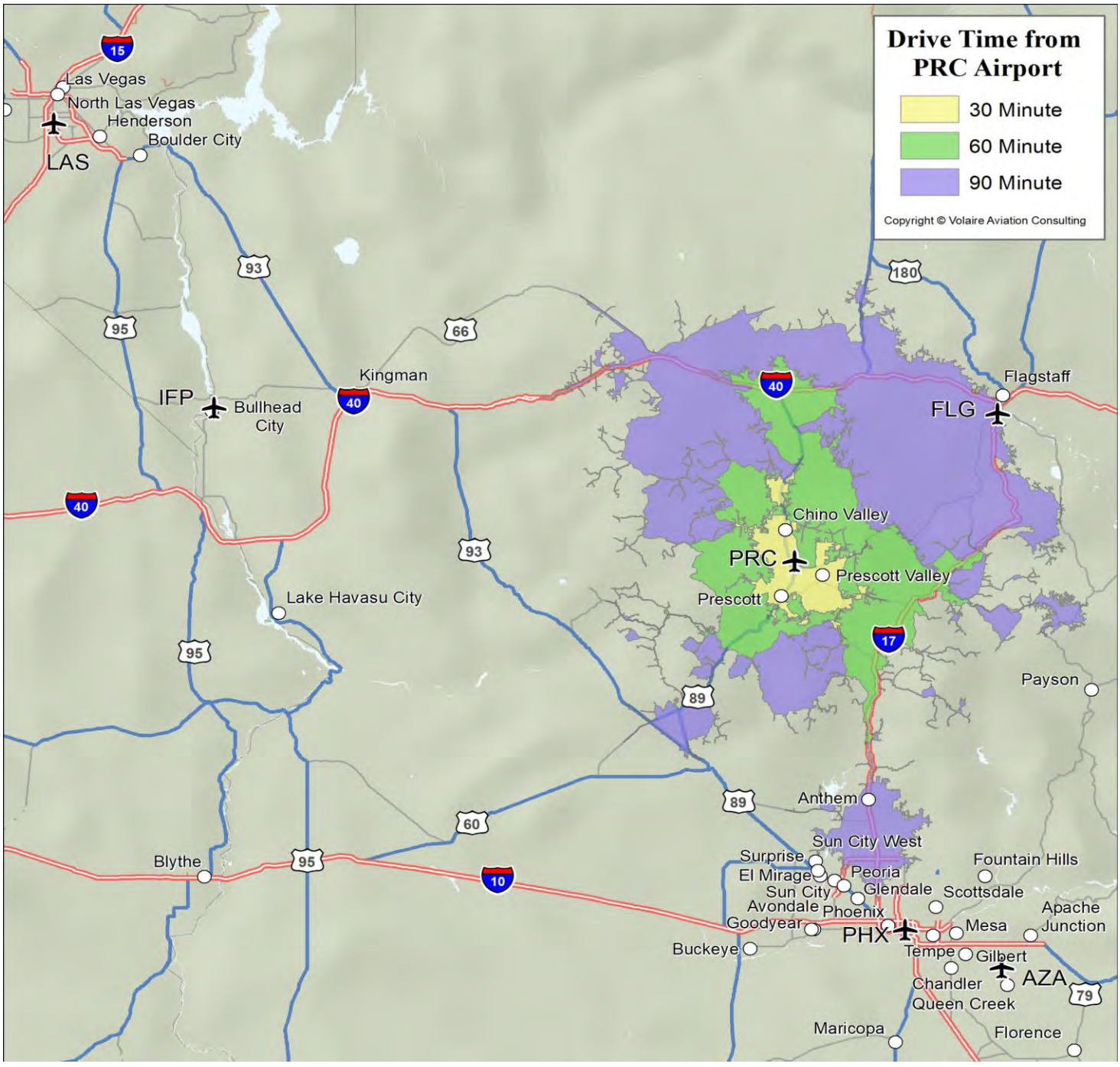
Prescott Municipal Airport Zip Code Population and Ticket Sample List

Rank	Zip Code	City	Estimated Population	Population Share	Sample Tickets	Ticket Share	Extrapolated Market Size
1	86001	FLAGSTAFF	44,641	16.1%	1,917	12.2%	160,554
2	86004	FLAGSTAFF	40,004	14.4%	2,172	13.8%	181,911
3	86314	PRESCOTT VALLEY	36,828	13.3%	1,416	9.0%	118,594
4	86326	COTTONWOOD	23,332	8.4%	938	6.0%	78,560
5	86301	PRESCOTT	22,087	8.0%	1,339	8.5%	112,145
6	86303	PRESCOTT	19,794	7.1%	1,167	7.4%	97,740
7	86305	PRESCOTT	19,368	7.0%	1,236	7.9%	103,519
8	86323	CHINO VALLEY	13,170	4.7%	601	3.8%	50,335
9	86336	SEDONA	11,880	4.3%	1,045	6.7%	87,522
10	86327	DEWEY	9,286	3.3%	465	3.0%	38,945
11	86322	CAMP VERDE	7,658	2.8%	324	2.1%	27,136
12	86351	SEDONA	7,247	2.6%	607	3.9%	50,838
13	86046	WILLIAMS	5,954	2.1%	191	1.2%	15,997
14	86325	CORNVILLE	4,361	1.6%	257	1.6%	21,524
15	86333	MAYER	4,221	1.5%	90	0.6%	7,538
16	86334	PAULDEN	2,075	0.7%	82	0.5%	6,868
17	86335	RIMROCK	1,834	0.7%	122	0.8%	10,218
18	86332	KIRKLAND	1,589	0.6%	42	0.3%	3,518
19	85324	BLACK CANYON CITY	1,328	0.5%	105	0.7%	8,794
20	86022	FREDONIA	565	0.2%	19	0.1%	1,591
21	86038	MORMON LAKE	136	0.0%	3	0.0%	251
22	86321	BAGDAD	97	0.0%	66	0.4%	5,528
23	86044	TONALEA	65	0.0%	4	0.0%	335
24	86036	MARBLE CANYON	28	0.0%	4	0.0%	335
25	86040	PAGE	0	0.0%	195	1.2%	16,332
26	86018	PARKS	0	0.0%	53	0.3%	4,439
27	86023	GRAND CANYON	0	0.0%	97	0.6%	8,124
28	86015	BELLEMONT	0	0.0%	41	0.3%	3,434
29	86045	TUBA CITY	0	0.0%	200	1.3%	16,751
30	86002	FLAGSTAFF	0	0.0%	95	0.6%	7,957
31	86003	FLAGSTAFF	0	0.0%	78	0.5%	6,533
32	86320	ASH FORK	0	0.0%	35	0.2%	2,931
33	86337	SELIGMAN	0	0.0%	26	0.2%	2,178
34	86340	SEDONA	0	0.0%	43	0.3%	3,601
35	86017	MUNDS PARK	0	0.0%	35	0.2%	2,931
36	86339	SEDONA	0	0.0%	75	0.5%	6,281
37	86341	SEDONA	0	0.0%	52	0.3%	4,355
38	86020	CAMERON	0	0.0%	3	0.0%	251
39	86312	PRESCOTT VALLEY	0	0.0%	99	0.6%	8,292
40	86302	PRESCOTT	0	0.0%	71	0.5%	5,946
41	86331	JEROME	0	0.0%	19	0.1%	1,591
42	86338	SKULL VALLEY	0	0.0%	23	0.1%	1,926
43	86304	PRESCOTT	0	0.0%	116	0.7%	9,715
44	85332	CONGRESS	0	0.0%	37	0.2%	3,099
45	86035	LEUPP	0	0.0%	7	0.0%	586
46	85362	YARNELL	0	0.0%	17	0.1%	1,424
47	86435	SUPAI	0	0.0%	1	0.0%	84
48	86329	HUMBOLDT	0	0.0%	37	0.2%	3,099
49	86313	PRESCOTT	0	0.0%	4	0.0%	335
50	85931	FOREST LAKES	0	0.0%	5	0.0%	419
51	86011	FLAGSTAFF	0	0.0%	3	0.0%	251
52	86343	CROWN KING	0	0.0%	4	0.0%	335
53	86053	KAIBETO	0	0.0%	5	0.0%	419
54							
55							
56							
57							
58							
59							
60							
		Totals	277,548	100.0%	15,688	100.0%	1,313,915

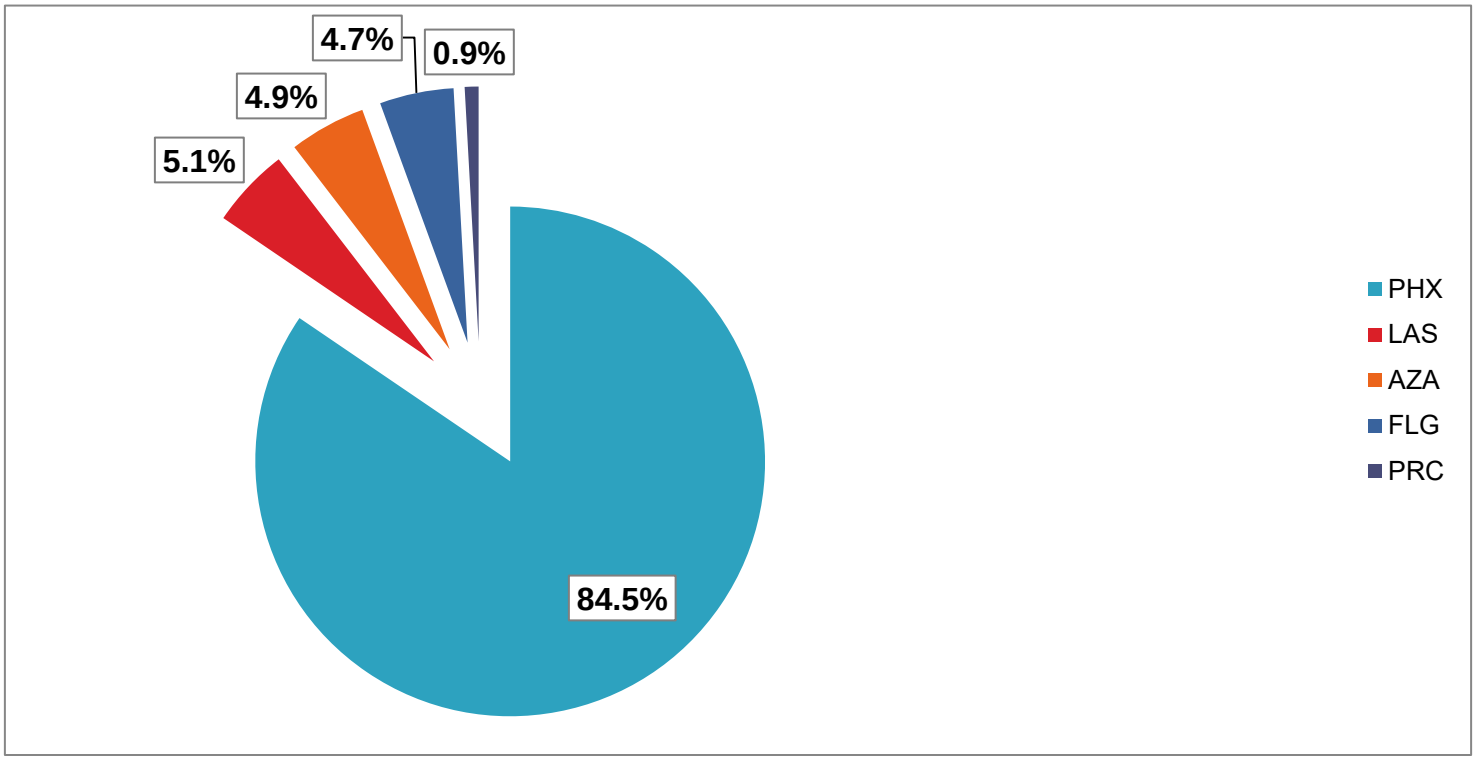
Prescott Municipal Airport PDEW and Share by Zip Code and Point of Origin

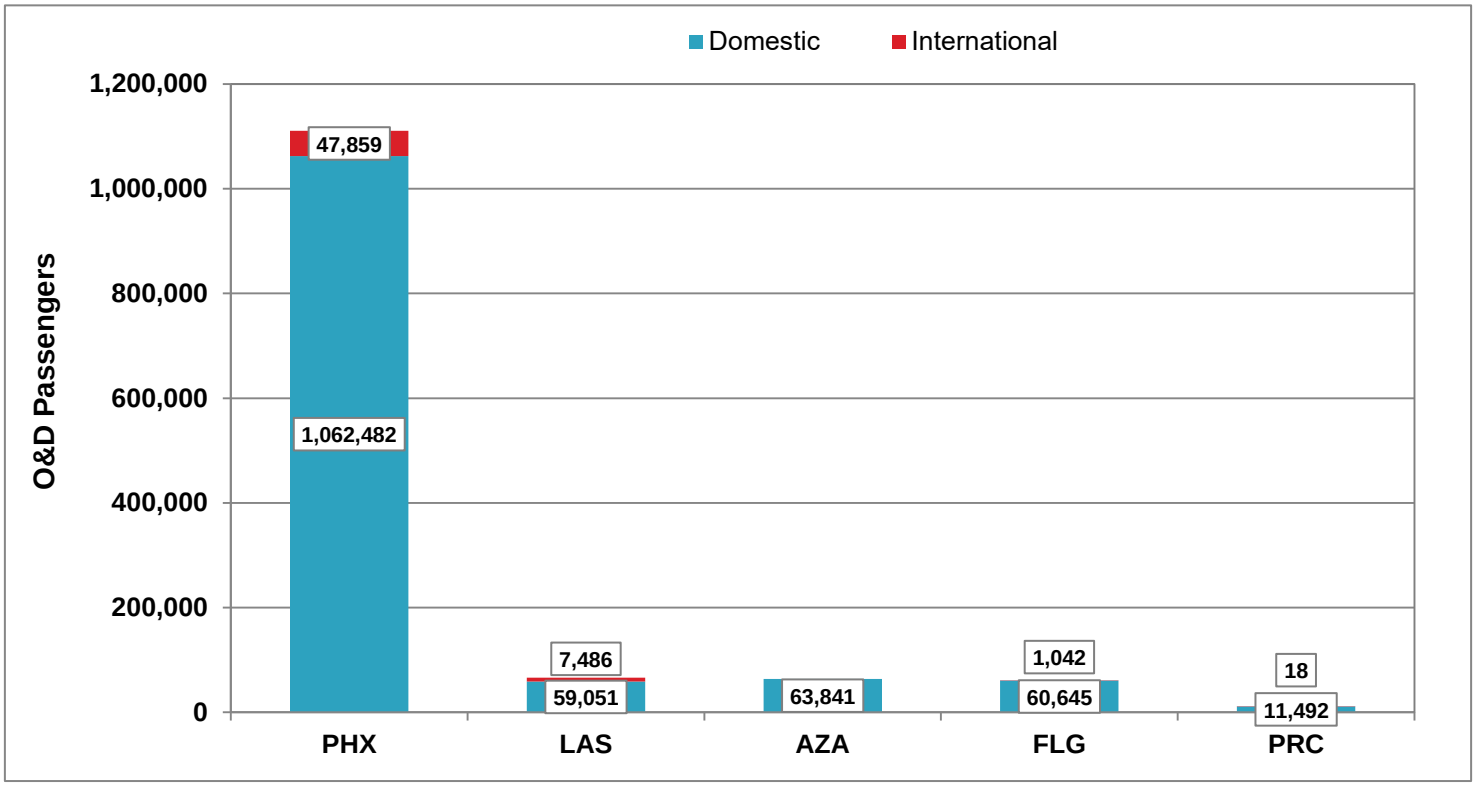
			Passengers per Day Each Way and Share by Airport								
Rank	Zip Code	City	PHX	*% PHX*	LAS	*% LAS*	AZA	*% AZA*	FLG	*% FLG*	Total
1	86004	FLAGSTAFF	186.9	*75.0%*	55.0	*22.1%*	7.1	*2.9%*	0.2	*0.1%*	249.2
2	86001	FLAGSTAFF	166.5	*75.7%*	45.4	*20.7%*	7.9	*3.6%*	0.1	*0.1%*	219.9
3	86314	PRESCOTT VALLEY	156.7	*96.5%*	0.0	*0.0%*	3.4	*2.1%*	2.3	*1.4%*	162.5
4	86301	PRESCOTT	148.3	*96.6%*	0.2	*0.1%*	2.1	*1.3%*	3.0	*1.9%*	153.6
5	86305	PRESCOTT	138.5	*97.7%*	0.0	*0.0%*	1.7	*1.2%*	1.6	*1.1%*	141.8
6	86303	PRESCOTT	130.4	*97.4%*	1.0	*0.8%*	1.4	*1.0%*	1.0	*0.8%*	133.9
7	86336	SEDONA	114.2	*95.2%*	4.1	*3.4%*	1.6	*1.3%*	0.0	*0.0%*	119.9
8	86326	COTTONWOOD	105.0	*97.5%*	0.3	*0.3%*	2.3	*2.1%*	0.0	*0.0%*	107.6
9	86351	SEDONA	67.2	*96.5%*	1.0	*1.5%*	1.4	*2.0%*	0.0	*0.0%*	69.6
10	86323	CHINO VALLEY	63.7	*92.3%*	0.2	*0.3%*	3.7	*5.3%*	1.4	*2.0%*	69.0
11	86327	DEWEY	52.3	*98.1%*	0.0	*0.0%*	0.8	*1.5%*	0.2	*0.4%*	53.3
12	86322	CAMP VERDE	36.5	*98.1%*	0.1	*0.3%*	0.3	*0.9%*	0.2	*0.6%*	37.2
13	86325	CORNVILLE	29.1	*98.8%*	0.2	*0.8%*	0.1	*0.4%*	0.0	*0.0%*	29.5
14	86045	TUBA CITY	19.8	*86.5%*	2.6	*11.5%*	0.5	*2.0%*	0.0	*0.0%*	22.9
15	86040	PAGE	13.2	*59.0%*	2.1	*9.2%*	7.1	*31.8%*	0.0	*0.0%*	22.4
16	86046	WILLIAMS	16.6	*75.9%*	2.6	*12.0%*	2.6	*12.0%*	0.0	*0.0%*	21.9
17	86335	RIMROCK	13.9	*99.2%*	0.0	*0.0%*	0.1	*0.8%*	0.0	*0.0%*	14.0
18	86304	PRESCOTT	12.2	*91.4%*	0.0	*0.0%*	0.8	*6.0%*	0.3	*2.6%*	13.3
19	85324	BLACK CANYON CITY	11.9	*99.0%*	0.0	*0.0%*	0.1	*1.0%*	0.0	*0.0%*	12.0
20	86312	PRESCOTT VALLEY	10.4	*91.9%*	0.0	*0.0%*	0.8	*7.1%*	0.1	*1.0%*	11.4
21	86023	GRAND CANYON	5.7	*51.5%*	2.6	*23.7%*	2.8	*24.7%*	0.0	*0.0%*	11.1
22	86002	FLAGSTAFF	8.8	*81.1%*	1.7	*15.8%*	0.3	*3.2%*	0.0	*0.0%*	10.9
23	86333	MAYER	10.0	*96.7%*	0.0	*0.0%*	0.3	*3.3%*	0.0	*0.0%*	10.3
24	86334	PAULDEN	8.7	*92.7%*	0.0	*0.0%*	0.6	*6.1%*	0.1	*1.2%*	9.4
25	86003	FLAGSTAFF	6.9	*76.9%*	1.5	*16.7%*	0.6	*6.4%*	0.0	*0.0%*	8.9
26	86339	SEDONA	8.0	*93.3%*	0.5	*5.3%*	0.1	*1.3%*	0.0	*0.0%*	8.6
27	86302	PRESCOTT	7.9	*97.2%*	0.0	*0.0%*	0.2	*2.8%*	0.0	*0.0%*	8.1
28	86321	BAGDAD	7.2	*95.5%*	0.0	*0.0%*	0.3	*4.5%*	0.0	*0.0%*	7.6
29	86018	PARKS	3.2	*52.8%*	2.2	*35.8%*	0.7	*11.3%*	0.0	*0.0%*	6.1
30	86341	SEDONA	5.7	*96.2%*	0.2	*3.8%*	0.0	*0.0%*	0.0	*0.0%*	6.0
31	86340	SEDONA	4.8	*97.7%*	0.1	*2.3%*	0.0	*0.0%*	0.0	*0.0%*	4.9
32	86332	KIRKLAND	4.8	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	4.8
33	86015	BELLEMONT	3.8	*80.5%*	0.9	*19.5%*	0.0	*0.0%*	0.0	*0.0%*	4.7
34	85332	CONGRESS	4.2	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	4.2
35	86329	HUMBOLDT	4.2	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	4.2
36	86320	ASH FORK	3.0	*74.3%*	0.2	*5.7%*	0.8	*20.0%*	0.0	*0.0%*	4.0
37	86017	MUNDS PARK	3.3	*82.9%*	0.7	*17.1%*	0.0	*0.0%*	0.0	*0.0%*	4.0
38	86337	SELIGMAN	1.4	*46.2%*	0.1	*3.8%*	1.4	*46.2%*	0.1	*3.8%*	3.0
39	86338	SKULL VALLEY	2.2	*82.6%*	0.0	*0.0%*	0.5	*17.4%*	0.0	*0.0%*	2.6
40	86022	FREDONIA	0.5	*21.1%*	0.0	*0.0%*	1.7	*78.9%*	0.0	*0.0%*	2.2
41	86331	JEROME	2.0	*89.5%*	0.0	*0.0%*	0.2	*10.5%*	0.0	*0.0%*	2.2
42	85362	YARNELL	2.0	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	2.0
43	86035	LEUPP	0.8	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.8
44	85931	FOREST LAKES	0.6	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.6
45	86053	KAIBETO	0.6	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.6
46	86044	TONALEA	0.5	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.5
47	86036	MARBLE CANYON	0.2	*50.0%*	0.0	*0.0%*	0.2	*50.0%*	0.0	*0.0%*	0.5
48	86313	PRESCOTT	0.5	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.5
49	86343	CROWN KING	0.5	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.5
50	86038	MORMON LAKE	0.2	*66.7%*	0.1	*33.3%*	0.0	*0.0%*	0.0	*0.0%*	0.3
51	86020	CAMERON	0.1	*33.3%*	0.2	*66.7%*	0.0	*0.0%*	0.0	*0.0%*	0.3
52	86011	FLAGSTAFF	0.3	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.3
53	86435	SUPAI	0.1	*100.0%*	0.0	*0.0%*	0.0	*0.0%*	0.0	*0.0%*	0.1
54											
55											
56											
57											
58											
59											
60											
		Totals	1,521.0	*84.5%*	91.1	*5.1%*	87.5	*4.9%*	84.5	*4.7%*	1,799.9

Prescott Municipal Airport Drive Time Map

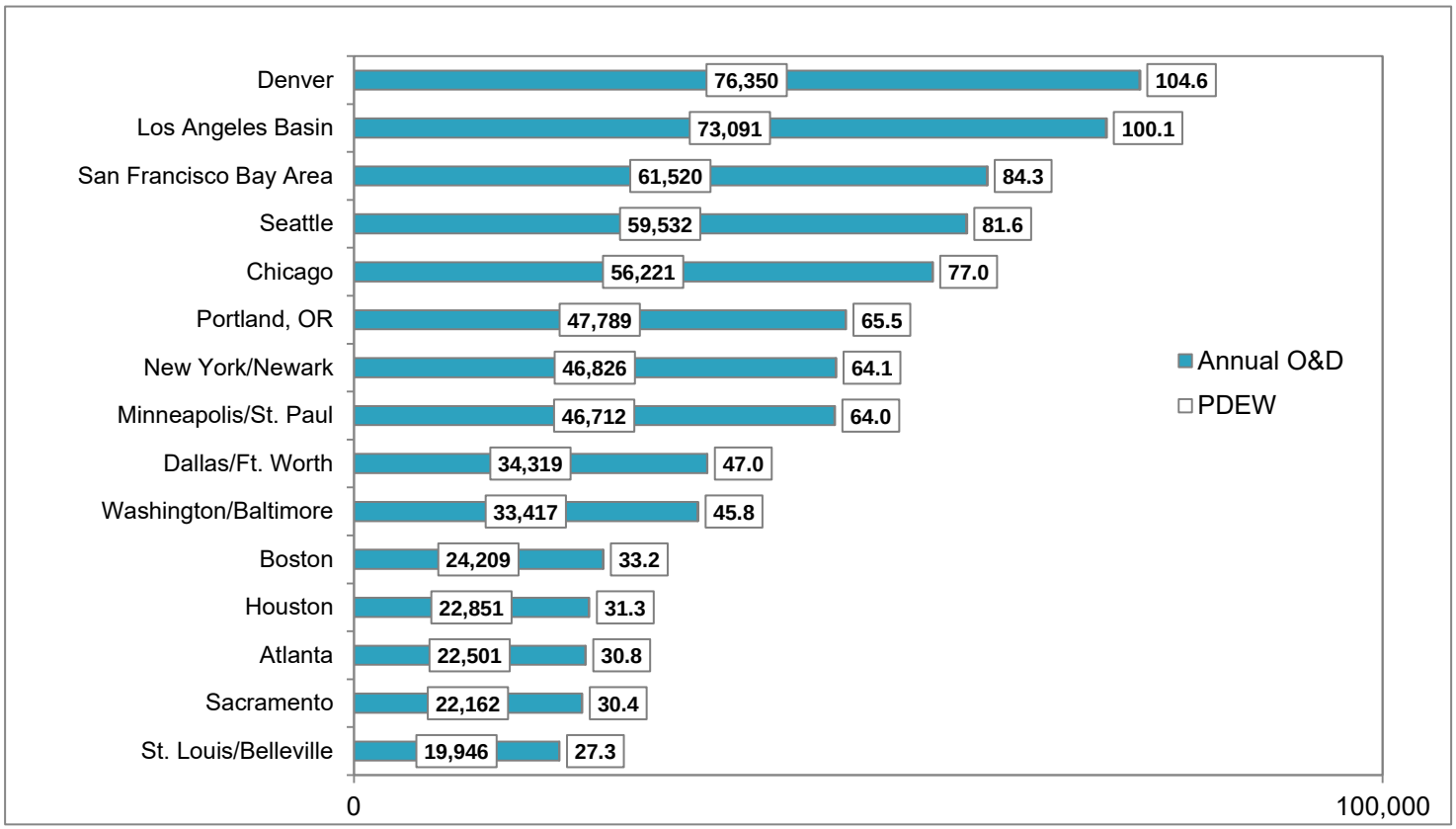


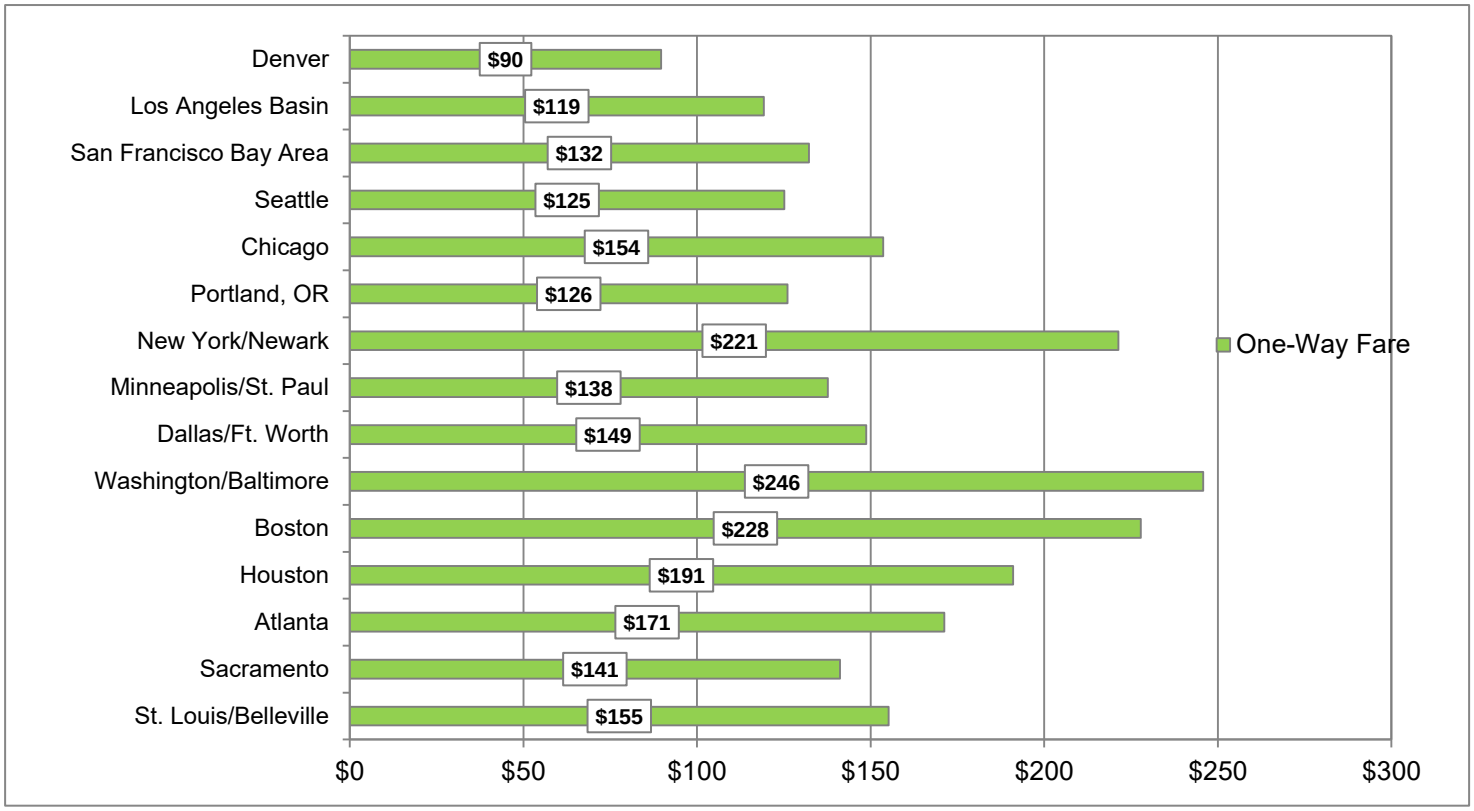
Distribution of Traffic among Airports in the Region





15 Largest O&D Markets and Average Fares in the Catchment Area





Domestic Market Size Rankings by Airport (Markets 1-50)

		Passengers per Day Each Way					Market Share				One-Way Fare				
Rank	Metro Area	PHX	AZA	FLG	LAS	Total	PHX	AZA	FLG	LAS	PHX	AZA	FLG	LAS	Total
1	Denver	99.4		2.7	1.8	104.6	95.0%		2.6%	1.7%	$88		$163	$86	$90
2	Los Angeles Basin	78.2		5.0	3.0	100.1	78.1%		5.0%	3.0%	$119		$157	$75	$119
3	San Francisco Bay Area	66.4	1.8	5.9	10.0	84.3	78.8%	2.2%	7.0%	11.9%	$136	$130	$169	$88	$132
4	Seattle	74.4		3.6	3.4	81.6	91.3%		4.4%	4.2%	$124		$166	$113	$125
5	Chicago	70.6		3.0	3.4	77.0	91.7%		3.9%	4.4%	$151		$224	$144	$154
6	Portland, OR	58.5		2.8	4.1	65.5	89.3%		4.3%	6.2%	$124		$200	$107	$126
7	New York/Newark	58.2		2.9	3.0	64.1	90.7%		4.6%	4.7%	$219		$276	$220	$221
8	Minneapolis/St. Paul	61.4		1.2	1.3	64.0	96.0%		1.9%	2.0%	$136		$197	$165	$138
9	Dallas/Ft. Worth	40.1		3.6	3.3	47.0	85.2%		7.7%	7.0%	$144		$206	$136	$149
10	Washington/Baltimore	42.3		1.5	1.9	45.8	92.5%		3.3%	4.2%	$245		$324	$208	$246
11	Boston	31.6		1.1	0.5	33.2	95.2%		3.2%	1.6%	$226		$279	$227	$228
12	Houston	28.3		2.0	0.9	31.3	90.3%		6.5%	3.0%	$189		$230	$156	$191
13	Atlanta	29.1		0.7	1.0	30.8	94.4%		2.2%	3.3%	$169		$237	$183	$171
14	Sacramento	29.3		1.0		30.4	96.4%		3.4%		$140		$176		$141
15	St. Louis/Belleville	26.7		0.6		27.3	97.8%		2.2%		$154		$226		$155
16	Milwaukee	26.6		0.7		27.3	97.4%		2.6%		$155		$193		$156
17	Nashville	25.7		0.7		26.4	97.5%		2.5%		$182		$320		$186
18	San Diego	20.6		2.1	2.1	24.9	82.8%		8.5%	8.4%	$126		$161	$81	$125
19	Detroit	22.7		1.0	0.9	24.6	92.4%		4.1%	3.5%	$165		$227	$191	$168
20	Omaha	23.4		0.6		23.9	97.7%		2.3%		$164		$173		$164
21	Orlando/Sanford	17.4		1.8	4.1	23.3	74.8%		7.6%	17.5%	$223		$275	$177	$219
22	Salt Lake City	17.4		1.4	2.0	20.8	83.5%		6.9%	9.6%	$131		$173	$111	$132
23	Kansas City	19.7		1.0		20.8	94.9%		5.0%		$169		$214		$171
24	Miami/Ft. Lauderdale	18.1		0.4	1.8	20.3	89.3%		2.0%	8.7%	$235		$269	$186	$231
25	Phoenix/Mesa			13.8	4.2	18.0			76.5%	23.5%			$133	$112	$128
26	Austin	15.3		1.0		16.3	93.9%		6.1%		$188		$207		$189
27	Philadelphia	13.1		1.1	2.0	16.2	81.0%		7.0%	12.1%	$246		$287	$202	$244
28	Indianapolis	11.9	0.0	2.1	1.9	16.0	74.7%	0.0%	13.2%	12.1%	$200	$192	$238	$163	$200
29	Spokane	14.2		0.6	0.7	15.6	91.2%		4.0%	4.7%	$161		$202	$131	$161
30	Tampa/St. Petersburg	13.5		1.2		14.7	91.8%		8.2%		$231		$246		$233
31	San Antonio	11.3		0.2	1.4	12.9	87.4%		1.8%	10.8%	$194		$215	$130	$187
32	Anchorage	12.4		0.1	0.2	12.7	97.6%		0.6%	1.7%	$219		$278	$176	$219
33	New Orleans	10.6		0.1	1.8	12.5	84.6%		1.2%	14.2%	$206		$315	$149	$199
34	Buffalo	11.7		0.6		12.2	95.5%		4.5%		$213		$325		$218
35	Cleveland	11.8	0.3			12.0	97.9%	2.1%			$157	$143			$156
36	Charlotte/Concord	10.9		0.4	0.4	11.8	92.9%		3.3%	3.8%	$261		$255	$254	$260
37	Des Moines	7.9	2.7		1.0	11.5	68.5%	23.0%		8.4%	$169	$141		$133	$160
38	Pittsburgh	10.7		0.8		11.4	93.1%		6.9%		$216		$271		$220
39	Sioux Falls	2.8	6.4		2.0	11.2	25.2%	56.7%		18.1%	$184	$123		$117	$137
40	Honolulu	10.4		0.2	0.1	10.7	97.1%		1.9%	0.9%	$319		$427	$290	$321
41	Boise	8.8		0.4	0.8	10.0	87.9%		4.5%	7.6%	$156		$173	$120	$154
42	Eugene	4.0	5.3	0.2	0.2	9.7	41.5%	54.1%	2.2%	2.3%	$165	$114	$238	$120	$138
43	Reno	8.7		0.8		9.5	91.5%		8.0%		$164		$199		$167
44	Columbus	8.1		0.8		8.9	91.2%		8.8%		$220		$276		$225
45	Rapid City	1.4	7.2			8.6	16.4%	83.6%			$237	$105			$127
46	Hartford	8.0		0.4		8.4	95.1%		4.9%		$241		$290		$243
47	Bismarck	1.3	5.0		1.8	8.0	15.8%	62.0%		22.0%	$238	$133		$114	$146
48	Missoula	2.8	5.2			8.0	34.7%	65.3%			$187	$114			$139
49	Great Falls	1.4	6.4			7.8	18.5%	81.5%			$180	$93			$109
50	Manchester	7.5				7.5	100.0%				$223				$223
	Markets 1-50	1,206.7	40.1	72.3	67.1	1,401.5	86.1%	2.9%	5.2%	4.8%	$162	$116	$197	$133	$161
	Other Markets	248.8	47.3	10.8	13.8	321.1	77.5%	14.7%	3.4%	4.3%	$221	$125	$251	$180	$206
	All Markets	1,455.5	87.5	83.1	80.9	1,722.6	84.5%	5.1%	4.8%	4.7%	$172	$121	$204	$141	$169

Domestic Market Size Rankings by Airport (Markets 51-100)

		Passengers per Day Each Way					Market Share				One-Way Fare				
Rank	Metro Area	PHX	AZA	FLG	LAS	Total	PHX	AZA	FLG	LAS	PHX	AZA	FLG	LAS	Total
51	Las Vegas	6.3	0.4	0.7		7.4	85.2%	5.0%	9.8%		$112	$109	$139		$114
52	Grand Rapids	3.9	2.6	0.3	0.4	7.2	54.3%	36.8%	3.6%	5.3%	$204	$168	$352	$187	$195
53	Ft. Myers/Punta Gorda	6.8		0.3		7.1	95.3%		4.7%		$235		$254		$236
54	Billings	2.5	4.0		0.3	6.8	36.3%	59.5%		4.2%	$200	$127		$126	$153
55	Raleigh/Durham	6.3		0.2		6.5	96.7%		3.3%		$234		$265		$235
56	Albany	6.3		0.2		6.5	97.0%		3.0%		$237		$299		$239
57	Wichita	3.7	2.5			6.2	60.2%	39.8%			$127	$112			$121
58	Medford	3.8	1.0	0.3	1.1	6.2	61.8%	16.2%	4.4%	17.5%	$157	$134	$380	$122	$157
59	Norfolk/Newport News	5.9		0.2		6.2	96.2%		3.6%		$245		$334		$249
60	Maui	5.8			0.3	6.0	95.6%			4.2%	$346			$312	$345
61	Little Rock	6.0				6.0	100.0%				$165				$165
62	El Paso	2.2		0.2	3.6	5.9	36.5%		2.9%	60.6%	$137		$165	$112	$123
63	Tulsa	5.8		0.1		5.9	98.4%		1.6%		$186		$314		$188
64	Spingfield	1.2	4.5			5.7	21.1%	78.9%			$256	$118			$147
65	Albuquerque	5.2		0.3		5.5	94.3%		5.7%		$125		$173		$128
66	Richmond	3.8		0.9	0.6	5.4	71.2%		17.0%	11.8%	$245		$283	$242	$251
67	Lihue	5.2			0.1	5.4	97.6%			2.4%	$358			$332	$357
68	Bozeman	1.9	3.1		0.3	5.3	35.5%	58.5%		6.0%	$183	$113		$124	$138
69	Cincinnati	3.8	0.7		0.5	5.1	75.3%	14.1%		10.6%	$143	$112		$136	$138
70	Oklahoma City	5.0		0.1		5.1	98.8%		1.2%		$199		$276		$200
71	Providence	5.0		0.0		5.0	99.0%		1.0%		$224		$304		$225
72	Redmond	4.2		0.1	0.5	4.9	86.7%		2.5%	10.7%	$161		$194	$143	$160
73	Jacksonville	4.2		0.1	0.2	4.5	92.4%		2.1%	5.4%	$241		$324	$218	$241
74	Greenville/Spartanburg	4.1		0.1		4.2	98.0%		2.0%		$217		$287		$219
75	South Bend	0.7	3.4			4.1	16.6%	83.4%			$286	$127			$153
76	San Juan	4.0				4.0	100.0%				$259				$259
77	Rochester	3.6			0.4	4.0	90.9%			9.1%	$227			$214	$226
78	Moline	1.0	2.9			3.9	26.5%	73.5%			$249	$129			$161
79	Bellingham	0.8	2.9	0.2		3.9	20.7%	74.3%	5.0%		$135	$94	$317		$114
80	Cedar Rapids	0.9	2.8	0.1		3.7	23.4%	74.9%	1.7%		$254	$144	$390		$174
81	Memphis	2.8	0.3		0.3	3.5	81.3%	9.9%		8.4%	$217	$196		$199	$214
82	Portland, ME	3.1		0.1	0.2	3.4	91.2%		4.0%	4.8%	$250		$283	$250	$252
83	Knoxville	2.4		0.1	0.7	3.1	75.3%		2.7%	22.0%	$270		$381	$213	$260
84	Syracuse	2.6		0.5		3.1	83.8%		16.2%		$263		$296		$268
85	Fresno	2.6	0.2	0.3		3.1	82.7%	8.0%	9.3%		$173	$160	$224		$177
86	Dayton	3.1				3.1	100.0%				$204				$204
87	Ft. Wayne	0.9	1.9		0.2	3.1	29.5%	62.6%		7.4%	$252	$143		$222	$181
88	Islip	3.0				3.0	100.0%				$203				$203
89	Charleston,SC	2.6		0.1	0.2	2.9	91.3%		3.2%	5.6%	$260		$314	$257	$262
90	Kona	2.5			0.3	2.9	87.9%			12.1%	$367			$338	$364
91	Appleton	0.5	2.3			2.9	18.1%	81.9%			$258	$145			$166
92	Harrisburg	2.6			0.2	2.8	92.6%			7.4%	$271			$269	$271
93	Santa Barbara	2.6		0.2		2.8	92.5%		6.6%		$151		$194		$154
94	Kallispell	2.2		0.0	0.5	2.8	80.7%		1.5%	17.8%	$202		$355	$114	$188
95	Grand Island	0.1	2.6			2.7	3.2%	96.8%			$224	$89			$93
96	Birmingham	2.5		0.2		2.7	91.8%		8.2%		$254		$307		$259
97	Pensacola	2.3			0.3	2.6	86.9%			13.1%	$234			$249	$236
98	Savannah	1.9			0.6	2.5	75.8%			24.2%	$265			$255	$263
99	Minot	0.3	2.2			2.5	10.9%	89.1%			$247	$126			$139
100	San Luis Obispo	2.3		0.1		2.5	94.8%		3.6%		$155		$193		$158
	Markets 51-100	162.8	40.4	6.0	11.9	221.3	73.6%	18.3%	2.7%	5.4%	$218	$125	$263	$172	$200
	Other Markets	86.0	6.9	4.8	1.9	99.9	86.1%	6.9%	4.8%	1.9%	$227	$122	$235	$229	$220
	All Markets	1,455.5	87.5	83.1	80.9	1,722.6	84.5%	5.1%	4.8%	4.7%	$172	$121	$204	$141	$169

Domestic Market Size Rankings by Airline

		Passengers per Day Each Way							One-Way Fare						
Rank	Metro Area	WN	AA	DL	UA	G4	AS	Total	WN	AA	DL	UA	G4	AS	Total
1	Denver	55.6	21.4	0.1	14.9			104.6	$83	$101	$127	$102			$90
2	Los Angeles Basin	49.5	25.6	4.2	4.7		1.5	100.1	$116	$132	$111	$117		$103	$119
3	San Francisco Bay Area	44.8	25.0	1.0	6.7	2.1	2.2	84.3	$125	$151	$111	$133	$125	$104	$132
4	Seattle	20.4	17.7	15.3	1.3		23.2	81.6	$116	$139	$127	$103		$124	$125
5	Chicago	26.5	30.0	1.0	11.8			77.0	$139	$166	$164	$164			$154
6	Portland, OR	25.4	20.5	1.6	0.6		13.6	65.5	$115	$146	$130	$109		$119	$126
7	New York/Newark	5.5	24.7	13.8	14.8		0.1	64.1	$215	$241	$216	$211		$146	$221
8	Minneapolis/St. Paul	12.2	19.5	17.7	0.7			64.0	$129	$146	$149	$136			$138
9	Dallas/Ft. Worth	17.8	24.2	0.1	0.9			47.0	$130	$168	$148	$91			$149
10	Washington/Baltimore	15.4	19.4	2.9	7.2			45.8	$232	$262	$226	$243			$246
11	Boston	2.4	20.6	1.4	2.6			33.2	$221	$243	$222	$207			$228
12	Houston	13.2	7.2	0.2	10.1			31.3	$184	$200	$189	$195			$191
13	Atlanta	7.1	9.8	10.2	0.8			30.8	$159	$168	$187	$164			$171
14	Sacramento	19.4	10.0		0.0		0.9	30.4	$139	$147		$234		$119	$141
15	St. Louis/Belleville	17.0	7.8	0.7	0.3			27.3	$146	$175	$187	$148			$155
16	Milwaukee	15.7	9.2	0.6	0.3			27.3	$148	$170	$178	$136			$156
17	Nashville	19.7	3.5	0.6	0.8			26.4	$176	$242	$195	$189			$186
18	San Diego	16.5	6.7	0.2	0.1		0.9	24.9	$120	$141	$96	$288		$132	$125
19	Detroit	4.3	8.1	7.0	0.6			24.6	$151	$174	$186	$145			$168
20	Omaha	14.5	7.9	0.3	0.9			23.9	$157	$177	$183	$171			$164
21	Orlando/Sanford	7.9	11.1	0.5	1.0			23.3	$201	$239	$222	$229			$219
22	Salt Lake City	9.1	6.0	5.4			0.1	20.8	$125	$136	$138			$179	$132
23	Kansas City	13.7	6.5	0.3	0.2			20.8	$164	$185	$176	$171			$171
24	Miami/Ft. Lauderdale	5.0	10.5	1.9	1.4			20.3	$218	$245	$236	$207			$231
25	Phoenix/Mesa	3.2	14.9					18.0	$109	$132					$128
26	Austin	9.8	6.3	0.1				16.3	$180	$204	$183				$189
27	Philadelphia	2.8	11.1	0.6	0.8			16.2	$232	$253	$199	$229			$244
28	Indianapolis	7.6	7.1	0.2	0.4	0.3		16.0	$186	$217	$216	$201	$160		$200
29	Spokane	7.0	6.1	1.3			1.2	15.6	$153	$173	$163			$144	$161
30	Tampa/St. Petersburg	5.5	8.2	0.1	0.5			14.7	$223	$239	$250	$234			$233
31	San Antonio	7.7	4.8	0.2		0.1		12.9	$177	$209	$146		$128		$187
32	Anchorage		5.9	3.3	1.4		2.1	12.7		$233	$213	$208		$193	$219
33	New Orleans	8.0	1.0	0.6	2.0			12.5	$194	$252	$223	$203			$199
34	Buffalo	9.0	1.2	1.4	0.5			12.2	$208	$275	$230	$234			$218
35	Cleveland	5.4	0.7	0.3	1.6	0.3		12.0	$143	$216	$207	$199	$143		$156
36	Charlotte/Concord	0.7	8.0	1.3	1.6			11.8	$263	$282	$194	$201			$260
37	Des Moines	0.9	4.7	0.1	1.6	3.1		11.5	$135	$182	$188	$160	$138		$160
38	Pittsburgh	4.7	5.7	0.7	0.2			11.4	$205	$232	$214	$224			$220
39	Sioux Falls		2.1	0.4	0.5	7.7		11.2		$186	$231	$191	$118		$137
40	Honolulu		4.8	0.0	0.6	0.0		10.7		$340	$318	$317	$283		$321
41	Boise	4.4	4.1	1.2	0.1	0.1	0.1	10.0	$148	$163	$155	$143	$115	$152	$154
42	Eugene		1.9	1.1	0.8	5.4	0.6	9.7		$190	$161	$139	$113	$148	$138
43	Reno	5.3	4.1	0.1				9.5	$159	$178	$136				$167
44	Columbus	3.5	5.0	0.1	0.2			8.9	$212	$234	$236	$216			$225
45	Rapid City		0.2	0.3	0.9	7.2		8.6		$274	$241	$227	$105		$127
46	Hartford	2.7	3.6	1.2	0.9			8.4	$232	$254	$251	$224			$243
47	Bismarck		0.1	0.5	0.6	6.3		8.0		$372	$248	$264	$125		$146
48	Missoula			1.7	1.0	5.2	0.1	8.0			$177	$205	$114	$179	$139
49	Great Falls			1.2		6.4	0.3	7.8			$183		$93	$169	$109
50	Manchester	5.2	1.7	0.2	0.5			7.5	$210	$261	$264	$219			$223
	50 Largest Markets	531.9	466.1	105.1	98.9	44.2	46.9	1,401.5	$144	$186	$173	$174	$115	$126	$161
	Other Markets	60.2	121.7	34.9	39.5	50.2	6.2	321.1	$181	$239	$235	$221	$124		$206
	All Markets	592.1	587.8	140.0	138.3	94.4	53.2	1,722.6	$148	$197	$189	$188	$120	$129	$169

Metro Area Multiple Airport Detail

		Passengers per Day Each Way					Market Share				One-Way Fare				
Metro Area	Airport	PHX	FLG	LAS	PRC	Total	PHX	FLG	LAS	PRC	PHX	FLG	LAS	PRC	Total
Los Angeles Basin	BUR	2.3	0.6			2.9	78.4%	21.6%			$126	$157			$133
	LAX	65.7	2.7	2.8	14.0	85.2	77.1%	3.1%	3.3%	16.4%	$118	$157	$76	$116	$117
	LGB	2.5	0.4	0.2		3.2	80.8%	12.5%	6.6%		$126	$157	$60		$126
	ONT	2.2	0.3			2.5	87.6%	12.4%			$126	$157			$130
	SNA	5.4	0.9			6.4	85.1%	14.9%			$126	$157			$131
		78.2	5.0	3.0	14.0	100.1	78.1%	5.0%	3.0%	14.0%	$119	$157	$75	$116	$119
San Francisco Bay Area	OAK	44.0	0.7	5.8	0.0	52.3	84.1%	1.3%	11.0%	0.0%	$131	$169	$87	$130	$127
	SFO	16.4	3.6	3.6	0.1	23.6	69.4%	15.2%	15.2%	0.3%	$144	$169	$87	$205	$139
	SJC	6.0	1.6	0.7	0.1	8.4	72.0%	19.1%	7.9%	0.9%	$144	$169	$106	$208	$146
		66.4	5.9	10.0	0.2	84.3	78.8%	7.0%	11.9%	0.2%	$136	$169	$88	$200	$132
Chicago	MDW	25.6		1.3		26.8	95.3%		4.7%		$140		$124		$139
	ORD	45.1	3.0	2.1		50.2	89.8%	6.0%	4.2%		$157	$224	$155		$161
		70.6	3.0	3.4		77.0	91.7%	3.9%	4.4%		$151	$224	$144		$154
New York/Newark	EWR	24.0	1.0	0.6	0.0	25.7	93.4%	4.0%	2.5%	0.1%	$222	$276	$238	$411	$225
	JFK	23.2	1.6	2.1		26.9	86.2%	5.8%	8.0%		$215	$276	$215		$218
	LGA	10.9	0.3	0.2		11.5	94.9%	3.0%	2.1%		$219	$276	$220		$221
		58.2	2.9	3.0	0.0	64.1	90.7%	4.6%	4.7%	0.0%	$219	$276	$220	$411	$221
Dallas/Ft. Worth	DAL	16.8		1.5		18.3	91.6%		8.4%		$130		$124		$130
	DFW	23.3	3.6	1.8		28.7	81.2%	12.7%	6.2%		$155	$206	$147		$161
		40.1	3.6	3.3		47.0	85.2%	7.7%	7.0%		$144	$206	$136		$149
Washington/Baltimore	BWI	22.7	0.6	1.2		24.5	92.6%	2.4%	4.9%		$242	$324	$195		$241
	DCA	12.5	0.8	0.5	0.0	13.7	91.0%	5.6%	3.3%	0.1%	$252	$324	$225	$316	$255
	IAD	7.1	0.1	0.3		7.5	94.9%	1.6%	3.5%		$241	$324	$239		$243
		42.3	1.5	1.9	0.0	45.8	92.5%	3.3%	4.2%	0.0%	$245	$324	$208	$316	$246
Houston	HOU	13.0	0.2	0.3		13.5	96.3%	1.3%	2.4%		$185	$230	$135		$184
	IAH	15.3	1.9	0.6	0.1	17.8	85.8%	10.4%	3.4%	0.4%	$192	$230	$168	$352	$196
		28.3	2.0	0.9	0.1	31.3	90.3%	6.5%	3.0%	0.2%	$189	$230	$156	$352	$191
Miami/Ft. Lauderdale	FLL	8.7	0.1	1.2		10.0	87.6%	0.6%	11.8%		$225	$269	$173		$219
	MIA	7.7	0.1	0.6		8.4	92.3%	0.7%	7.0%		$245	$269	$212		$243
	PBI	1.7	0.3			2.0	85.3%	14.7%			$239	$269			$243
		18.1	0.4	1.8		20.3	89.3%	2.0%	8.7%		$235	$269	$186		$231
Norfolk/Newport News	ORF	5.3			0.0	5.3	99.8%			0.2%	$244			$509	$244
	PHF	0.7	0.2			0.9	75.0%	25.0%			$254	$334			$274
		5.9	0.2		0.0	6.2	96.2%	3.6%		0.2%	$245	$334		$509	$249
London	LGW	0.1		0.5		0.6	15.4%		84.6%		$801		$344		$414
	LHR	2.8	0.1	0.7		3.7	76.9%	3.6%	19.4%		$735	$935	$584		$713
		2.9	0.1	1.2		4.2	68.8%	3.1%	28.1%		$737	$935	$488		$674
Tokyo	HND	0.5				0.5	100.0%				$880				$880
	NRT	0.3		0.7		1.0	30.8%		69.2%		$953		$770		$826
		0.8		0.7		1.5	55.8%		44.2%		$906		$770		$846
South Texas	BRO	0.1				0.1	100.0%				$354				$354
	HRL	0.8				0.8	100.0%				$277				$277
	MFE	0.5				0.5	100.0%				$327				$327
		1.3				1.3	100.0%				$300				$300
Moscow	DME	0.0				0.0	100.0%				$657				$657
	SVO	0.1				0.1	100.0%				$592				$592
		0.1				0.1	100.0%				$605				$605

Domestic Resident and Visitor Point of Origin PDEW and Percentage by Airport (Markets 1-50)

		Resident Point of Origin PDEW				Visitor Point of Origin PDEW				Resident Point of Origin %			
Rank	Metro Area	PHX	AZA	FLG	Total	PHX	AZA	FLG	Total	PHX	AZA	FLG	Total
1	Denver	45.0		1.4	46.4	54.4		1.3	55.7	45.3%		51.5%	35.8%
2	Los Angeles Basin	38.4		2.0	40.4	39.8		2.9	42.8	49.1%		40.7%	37.9%
3	San Francisco Bay Area	31.0	1.0	2.5	34.4	35.4	0.9	3.4	39.7	46.7%	52.1%	42.1%	35.0%
4	Seattle	32.3		1.6	33.9	42.1		2.0	44.1	43.4%		44.2%	33.3%
5	Chicago	28.2		1.3	29.5	42.4		1.7	44.1	40.0%		42.5%	31.2%
6	Portland, OR	26.3		1.1	27.4	32.2		1.7	33.9	44.9%		40.0%	34.7%
7	New York/Newark	24.9		1.1	26.0	33.3		1.8	35.1	42.8%		37.1%	32.1%
8	Minneapolis/St. Paul	20.9		0.6	21.5	40.5		0.6	41.1	34.0%		50.0%	26.0%
9	Dallas/Ft. Worth	18.0		1.1	19.1	22.0		2.6	24.6	45.0%		29.1%	30.5%
10	Washington/Baltimore	18.9		0.8	19.7	23.5		0.7	24.2	44.6%		53.7%	32.5%
11	Boston	13.5		0.4	13.9	18.1		0.6	18.7	42.7%		39.2%	33.4%
12	Houston	12.0		0.8	12.8	16.3		1.3	17.5	42.5%		37.9%	27.4%
13	Atlanta	12.3		0.3	12.6	16.8		0.4	17.2	42.4%		42.0%	28.8%
14	Sacramento	12.2		0.4	12.7	17.1		0.6	17.6	41.7%		43.8%	31.9%
15	St. Louis/Belleville	10.5		0.3	10.7	16.2		0.3	16.6	39.2%		42.4%	28.8%
16	Milwaukee	9.9		0.3	10.1	16.7		0.4	17.2	37.1%		36.7%	26.9%
17	Nashville	12.0		0.3	12.4	13.7		0.3	14.0	46.8%		47.9%	32.5%
18	San Diego	11.2		1.0	12.2	9.5		1.1	10.6	54.0%		48.6%	41.7%
19	Detroit	8.7		0.3	9.0	14.0		0.7	14.7	38.3%		31.7%	25.6%
20	Omaha	8.5		0.3	8.8	14.9		0.3	15.2	36.4%		45.9%	28.2%
21	Orlando/Sanford	11.1		1.1	12.1	6.3		0.7	7.0	63.5%		60.1%	47.4%
22	Salt Lake City	8.4		0.8	9.2	9.0		0.6	9.7	48.1%		56.1%	41.3%
23	Kansas City	7.6		0.4	8.0	12.2		0.6	12.8	38.4%		43.4%	28.5%
24	Miami/Ft. Lauderdale	10.3		0.2	10.6	7.8		0.2	8.0	57.0%		55.1%	40.5%
25	Phoenix/Mesa			5.0	5.0			8.8	8.8			36.5%	29.5%
26	Austin	6.9		0.4	7.2	8.4		0.6	9.1	45.0%		35.3%	31.7%
27	Philadelphia	5.0		0.5	5.5	8.1		0.6	8.7	37.9%		48.4%	27.7%
28	Indianapolis	4.6	0.0	0.8	5.4	7.3	0.0	1.3	8.7	38.8%	0.0%	36.6%	27.8%
29	Spokane	6.0		0.2	6.2	8.3		0.4	8.7	41.8%		36.1%	33.3%
30	Tampa/St. Petersburg	6.6		0.4	7.0	6.9		0.8	7.7	48.6%		34.6%	32.3%
31	San Antonio	5.7		0.1	5.8	5.6		0.1	5.8	50.4%		40.9%	30.9%
32	Anchorage	5.5		0.1	5.6	6.8		0.0	6.9	44.8%		82.0%	37.1%
33	New Orleans	6.5		0.1	6.6	4.0		0.1	4.1	61.8%		44.1%	40.7%
34	Buffalo	4.5		0.1	4.6	7.1		0.5	7.6	38.9%		11.6%	28.9%
35	Cleveland	4.4	0.1		4.5	7.4	0.2		7.6	37.3%	29.3%		28.1%
36	Charlotte/Concord	4.7		0.1	4.8	6.2		0.3	6.5	43.1%		24.5%	28.0%
37	Des Moines	2.9	0.9		3.8	5.0	1.7		6.7	36.6%	35.8%		28.7%
38	Pittsburgh	4.3		0.2	4.5	6.4		0.6	7.0	40.3%		24.4%	27.1%
39	Sioux Falls	1.1	2.4		3.5	1.7	4.0		5.7	39.7%	37.3%		30.8%
40	Honolulu	7.4		0.1	7.5	3.0		0.1	3.1	71.3%		48.4%	46.7%
41	Boise	3.8		0.1	4.0	5.0		0.3	5.3	43.4%		28.6%	35.6%
42	Eugene	1.6	2.6	0.1	4.2	2.5	2.7	0.1	5.3	39.0%	48.6%	45.8%	36.8%
43	Reno	4.5		0.4	4.8	4.2		0.4	4.6	51.3%		46.5%	48.4%
44	Columbus	3.1		0.3	3.4	5.0		0.5	5.5	37.9%		36.9%	24.9%
45	Rapid City	0.7	3.3		3.9	0.7	3.9		4.7	46.7%	45.4%		39.3%
46	Hartford	3.3		0.2	3.4	4.7		0.3	5.0	40.8%		38.5%	28.4%
47	Bismarck	0.4	1.6		2.1	0.8	3.3		4.2	33.9%	32.7%		27.6%
48	Missoula	1.1	2.6		3.7	1.6	2.7		4.3	41.3%	49.0%		39.3%
49	Great Falls	0.5	2.4		3.0	0.9	4.0		4.9	37.8%	37.7%		31.0%
50	Manchester	3.2			3.2	4.3			4.3	42.5%			30.7%
	Markets 1-50	530.3	16.8	29.4	576.4	676.4	23.4	42.9	742.6	43.9%	41.8%	40.7%	43.7%
	Other Markets	141.3	20.3	6.0	21.4	107.5	27.0	4.8	382.2	56.8%	42.9%	55.6%	5.3%
	All Markets	671.6	37.1	35.4	597.8	783.9	50.4	47.7	1,124.8	46.1%	42.4%	42.6%	34.7%

Domestic Resident and Visitor Point of Origin PDEW and Percentage by Airport (Markets 51-100)

		Resident Point of Origin PDEW				Visitor Point of Origin PDEW				Resident Point of Origin %			
Rank	Metro Area	PHX	AZA	FLG	Total	PHX	AZA	FLG	Total	PHX	AZA	FLG	Total
51	Las Vegas	4.4	0.2	0.4	5.0	1.9	0.1	0.4	2.4	69.8%	62.0%	48.7%	69.4%
52	Grand Rapids	1.4	1.2	0.1	2.7	2.5	1.5	0.2	4.1	35.5%	44.8%	37.0%	29.1%
53	Ft. Myers/Punta Gorda	3.4		0.1	3.5	3.4		0.2	3.6	50.1%		38.4%	37.8%
54	Billings	0.9	1.7		2.6	1.5	2.3		3.9	37.7%	42.1%		33.8%
55	Raleigh/Durham	2.6		0.1	2.6	3.7		0.1	3.9	40.9%		30.2%	28.5%
56	Albany	2.7		0.1	2.8	3.6		0.1	3.7	42.7%		49.0%	29.3%
57	Wichita	1.5	1.1		2.6	2.2	1.4		3.6	40.5%	43.9%		31.1%
58	Medford	1.8	0.6	0.1	2.5	2.0	0.4	0.2	2.6	47.0%	63.1%	35.0%	39.2%
59	Norfolk/Newport News	2.6		0.1	2.7	3.3		0.2	3.5	43.8%		29.2%	31.4%
60	Maui	5.0			5.0	0.8			0.8	86.0%			70.6%
61	Little Rock	2.6			2.6	3.5			3.5	42.8%			28.1%
62	El Paso	1.1		0.1	1.2	1.1		0.1	1.1	50.9%		56.3%	34.2%
63	Tulsa	2.3		0.0	2.3	3.5		0.1	3.6	39.3%		34.2%	28.3%
64	Spingfield	0.5	2.1		2.6	0.7	2.4		3.1	40.5%	47.0%		36.9%
65	Albuquerque	2.6		0.2	2.8	2.6		0.2	2.7	50.4%		51.0%	39.5%
66	Richmond	1.4		0.1	1.5	2.4		0.8	3.2	37.8%		10.5%	27.7%
67	Lihue	4.6			4.6	0.7			0.7	87.4%			72.2%
68	Bozeman	0.9	1.4		2.3	1.0	1.7		2.7	45.7%	45.7%		38.2%
69	Cincinnati	1.4	0.3		1.7	2.4	0.4		2.8	36.4%	42.7%		25.1%
70	Oklahoma City	2.0		0.0	2.0	3.0		0.0	3.0	39.9%		54.6%	26.9%
71	Providence	2.2		0.0	2.2	2.8		0.0	2.8	44.2%		64.3%	33.2%
72	Redmond	1.8		0.1	1.9	2.4		0.1	2.5	42.6%		51.9%	35.2%
73	Jacksonville	1.9		0.0	1.9	2.3		0.1	2.4	44.6%		33.1%	31.0%
74	Greenville/Spartanburg	1.6		0.0	1.6	2.6		0.1	2.6	37.7%		37.1%	27.7%
75	South Bend	0.2	1.5		1.7	0.5	1.9		2.3	32.1%	44.6%		32.7%
76	San Juan	2.7			2.7	1.3			1.3	66.9%			52.9%
77	Rochester	1.4			1.4	2.2			2.2	38.6%			31.5%
78	Moline	0.3	1.1		1.5	0.7	1.7		2.4	31.8%	39.1%		30.1%
79	Bellingham	0.2	1.1	0.1	1.4	0.6	1.8	0.1	2.5	27.5%	38.4%	33.3%	21.5%
80	Cedar Rapids	0.3	1.1	0.0	1.4	0.6	1.7	0.0	2.3	35.8%	38.2%	49.5%	29.6%
81	Memphis	1.1	0.2		1.3	1.7	0.2		1.9	39.3%	50.3%		30.3%
82	Portland, ME	1.5		0.1	1.5	1.6		0.1	1.7	48.3%		48.1%	38.0%
83	Knoxville	0.9		0.0	0.9	1.5		0.1	1.5	38.3%		37.5%	25.5%
84	Syracuse	1.1		0.1	1.2	1.6		0.4	2.0	40.2%		25.2%	30.1%
85	Fresno	1.1	0.1	0.1	1.3	1.5	0.1	0.2	1.8	42.0%	46.2%	33.1%	33.0%
86	Dayton	1.2			1.2	1.9			1.9	38.0%			30.7%
87	Ft. Wayne	0.3	0.7		1.0	0.6	1.2		1.8	36.2%	35.4%		28.8%
88	Islip	1.3			1.3	1.6			1.6	44.9%			38.1%
89	Charleston,SC	1.3		0.0	1.4	1.3		0.1	1.4	50.9%		34.9%	37.6%
90	Kona	2.1			2.1	0.5			0.5	81.6%			70.3%
91	Appleton	0.1	0.9		1.1	0.4	1.4		1.8	25.8%	39.9%		29.1%
92	Harrisburg	0.9			0.9	1.7			1.7	35.8%			25.8%
93	Santa Barbara	1.3		0.1	1.4	1.3		0.1	1.4	51.0%		52.1%	48.5%
94	Kallispell	1.1		0.0	1.1	1.2		0.0	1.2	47.3%		79.2%	37.9%
95	Grand Island	0.0	1.0		1.0	0.1	1.6		1.7	30.3%	37.5%		30.4%
96	Birmingham	1.0		0.0	1.0	1.5		0.2	1.7	39.0%		14.7%	24.7%
97	Pensacola	1.1			1.1	1.2			1.2	48.6%			36.3%
98	Savannah	1.0			1.0	1.0			1.0	50.1%			34.1%
99	Minot	0.1	0.8		0.9	0.2	1.4		1.6	39.4%	35.0%		30.9%
100	San Luis Obispo	1.1		0.0	1.1	1.3		0.1	1.3	45.5%		35.8%	43.7%
	Markets 51-100	77.7	17.1	2.1	96.9	85.1	23.3	3.9	112.3	47.7%	42.4%	35.1%	46.3%
	Other Markets	593.9	19.9	33.3	500.9	698.7	27.1	43.7	1,012.5	45.9%	42.4%	43.2%	33.1%
	All Markets	671.6	37.1	35.4	597.8	783.9	50.4	47.7	1,124.8	46.1%	42.4%	42.6%	34.7%

Prescott Municipal Airport
Leakage and Retention Study
Year-End Third Quarter 2017

International Market Size Rankings by Airport

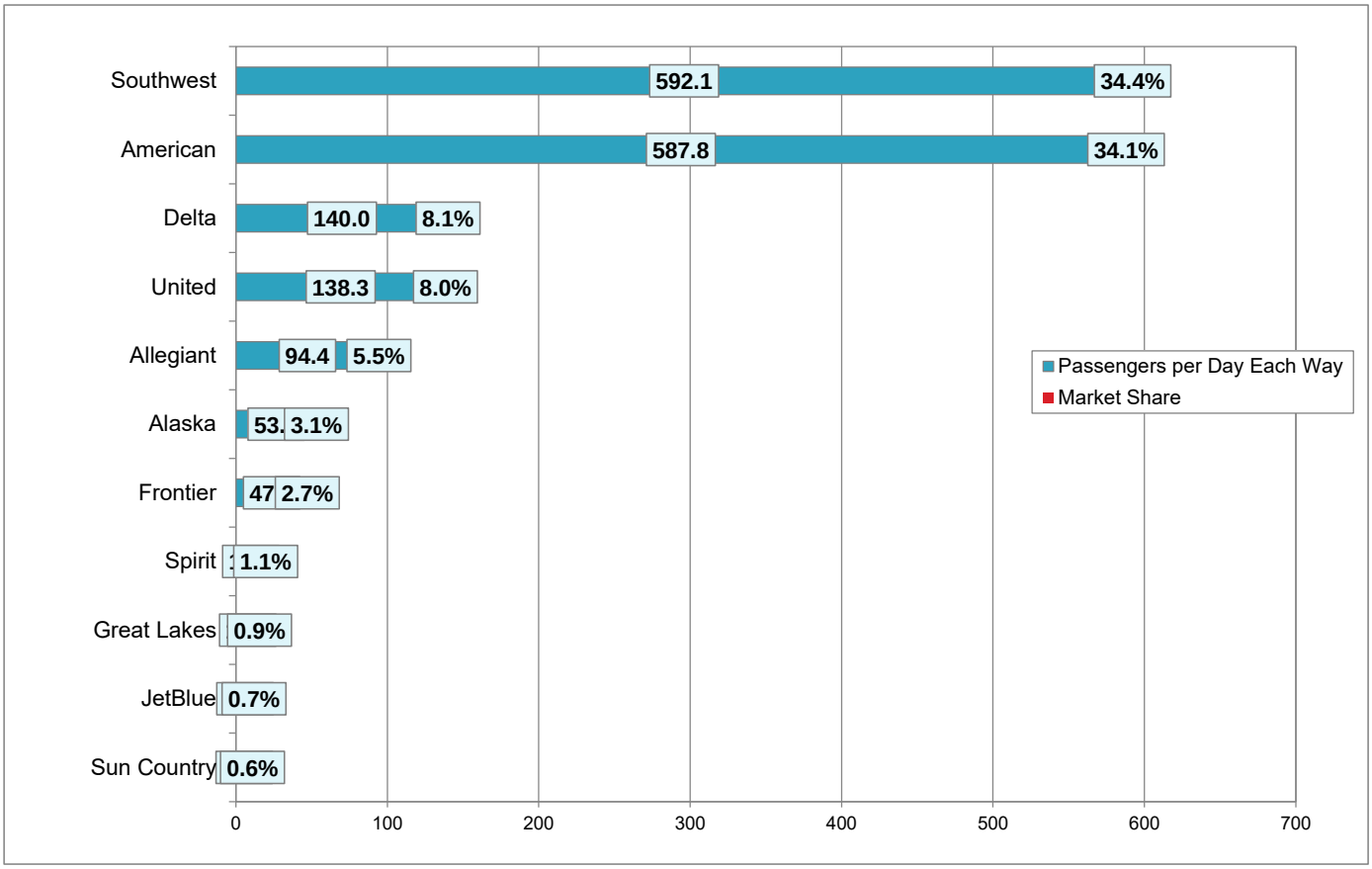
Rank	Metro Area	Passengers per Day Each Way					Market Share				One-Way Fare				
		PHX	LAS	FLG	PRC	Total	PHX	AZA	FLG	LAS	PHX	AZA	FLG	LAS	Total
1	London	2.9	1.2	0.1		4.2	68.8%	28.1%	3.1%		$737	$488	$935		$674
2	Cancun	2.8	0.6	0.1		3.5	80.4%	17.4%	2.2%		$272	$198	$348		$261
3	Los Cabos	2.8	0.2	0.1		3.1	88.1%	7.4%	4.5%		$233	$213	$238		$232
4	Mexico City	2.0	1.0	0.0		3.1	65.0%	33.6%	1.4%		$265	$160	$250		$230
5	Dublin	2.1	0.4	0.0		2.5	84.6%	14.8%	0.6%		$554	$354	$587		$524
6	Puerto Vallarta	2.0	0.1	0.1		2.2	93.6%	3.2%	3.2%		$233	$200	$246		$232
7	Paris	0.7	1.0	0.0		1.7	39.9%	58.6%	1.5%		$714	$473	$877		$575
8	Tokyo	0.8	0.7			1.5	55.8%	44.2%			$906	$770			$846
9	San Jose	1.0	0.1	0.1		1.2	82.7%	12.2%	5.1%		$361	$272	$275		$346
10	Amsterdam	0.6	0.5	0.1		1.1	50.5%	41.1%	8.4%		$509	$320	$400		$422
11	Bangkok	1.0	0.1			1.0	94.8%	5.2%			$583	$453			$576
12	Lima	0.5	0.5	0.0		1.0	47.8%	50.7%	1.6%		$600	$493	$533		$545
13	Rome	0.7	0.2	0.0		0.9	77.4%	20.8%	1.8%		$614	$661	$498		$621
14	Tel Aviv	0.5	0.2	0.0		0.7	67.2%	30.6%	2.2%		$731	$877	$586		$773
15	Sydney	0.6	0.1			0.7	78.9%	21.1%			$892	$1,076			$930
16	Madrid	0.5	0.2	0.1		0.7	69.8%	21.5%	8.7%		$688	$537	$488		$638
17	Auckland	0.6	0.1			0.7	86.3%	13.7%			$976	$1,008			$980
18	Guadalajara	0.7	0.0			0.7	95.5%	4.5%			$237	$198			$235
19	Manila	0.6	0.0			0.7	96.7%	3.3%			$614	$574			$613
20	Seoul	0.6	0.0			0.6	93.4%	6.6%			$701	$558			$691
21	Brisbane	0.6				0.6	100.0%				$783				$783
22	New Castle	0.6				0.6	100.0%				$333				$333
23	Kathmandu	0.6				0.6	100.0%				$531				$531
24	Beijing	0.5	0.1			0.6	83.7%	16.3%			$677	$676			$676
25	Liberia	0.4				0.4	100.0%				$327				$327
26	Venice	0.3	0.1			0.4	80.1%	19.9%			$598	$170			$513
27	Bogata	0.4			0.0	0.4	94.1%			5.9%	$483			$760	$500
28	Billund	0.4				0.4	100.0%				$557				$557
29	Shannon	0.4				0.4	100.0%				$487				$487
30	Helsinki	0.4				0.4	100.0%				$446				$446
31	Delhi	0.4				0.4	100.0%				$786				$786
32	Copenhagen	0.4				0.4	100.0%				$773				$773
33	Ho Chi Minh City	0.4				0.4	100.0%				$595				$595
34	Frankfurt	0.3		0.1		0.4	79.4%		20.6%		$662		$635		$657
35	Panama City	0.3	0.1	0.0		0.4	70.0%	25.7%	4.2%		$402	$279	$408		$371
36	Quito	0.4				0.4	100.0%				$463				$463
37	Istanbul	0.1	0.2			0.3	37.6%	62.4%			$458	$677			$594
38	Mumbai	0.3				0.3	100.0%				$725				$725
39	Milan	0.3				0.3	100.0%				$741				$741
40	Hong Kong	0.0	0.3			0.3	7.3%	92.7%			$1,117	$692			$723
41	Leon	0.2	0.1			0.3	58.0%	42.0%			$424	$159			$313
42	Stuttgart	0.3				0.3	100.0%				$1,480				$1,480
43	Christchurch	0.3				0.3	100.0%				$825				$825
44	Budapest	0.3				0.3	100.0%				$529				$529
45	Mazatlan	0.3		0.0		0.3	86.0%		14.0%		$279		$236		$273
46	Barcelona	0.3				0.3	100.0%				$548				$548
47	Prague	0.3				0.3	100.0%				$672				$672
48	Munich	0.3				0.3	100.0%				$675				$675
49	Belize	0.3				0.3	100.0%				$331				$331
50	Abuja	0.3				0.3	100.0%				$1,659				$1,659
	50 Largest Markets	34.1	8.2	0.9	0.0	43.2	78.9%	18.9%	2.1%	0.1%	$529	$452	$464	$760	$513
	Other Markets	31.4	2.1	0.5	0.0	34.0	92.3%	6.1%	1.5%	0.0%	$439	$397	$862	#DIV/0!	$443
	All Markets	65.6	10.3	1.4	0.0	77.3	84.8%	13.3%	1.8%	0.0%	$486	$441	$611	$760	$482

International Market Size Rankings by Airline

		Passengers per Day Each Way							One-Way Fare						
Rank	Metro Area	AA	UA	AC	BA	DL	WS	Total	AA	UA	AC	BA	DL	WS	Total
1	London	0.3	0.2	0.2	2.5	0.1	0.2	4.2	$914	$666	$657	$731	$571	$557	$674
2	Cancun	2.3	0.5			0.2		3.5	$275	$250			$208		$261
3	Los Cabos	2.5	0.1			0.1		3.1	$235	$207			$203		$232
4	Mexico City	2.2	0.2			0.1		3.1	$241	$267			$170		$230
5	Dublin	0.2	0.5		0.4	0.0		2.5	$647	$381		$553	$612		$524
6	Puerto Vallarta	1.7	0.2			0.0		2.2	$238	$197			$225		$232
7	Paris	0.9	0.2		0.3	0.1		1.7	$508	$621		$524	$630		$575
8	Tokyo	0.5	0.3	0.2		0.2		1.5	$782	$1,011	$864		$642		$846
9	San Jose	0.6	0.2			0.1		1.2	$365	$323			$315		$346
10	Amsterdam	0.0	0.1		0.3	0.2		1.1	$637	$502		$368	$585		$422
11	Bangkok	0.0	0.2	0.0	0.0	0.0		1.0	$743	$687	$705	$705	$799		$576
12	Lima	0.5	0.0					1.0	$525	$630					$545
13	Rome	0.2	0.1	0.1	0.1			0.9	$657	$570	$697	$486			$621
14	Tel Aviv	0.2	0.3		0.0			0.7	$724	$881		$619			$773
15	Sydney	0.1	0.1			0.1		0.7	$1,238	$943			$936		$930
16	Madrid	0.3	0.0		0.2	0.0		0.7	$624	$546		$716	$496		$638
17	Auckland	0.1	0.2					0.7	$922	$999					$980
18	Guadalajara	0.7	0.0					0.7	$237	$198					$235
19	Manila	0.1	0.0					0.7	$709	$539					$613
20	Seoul	0.0	0.2					0.6	$972	$692					$691
21	Brisbane	0.1						0.6	$985						$783
22	New Castle		0.6					0.6		$333					$333
23	Kathmandu							0.6							$531
24	Beijing	0.0	0.2			0.0		0.6	$577	$701			$550		$676
25	Liberia	0.1	0.1			0.0		0.4	$349	$364			$314		$327
26	Venice	0.2	0.0	0.0	0.0	0.0		0.4	$649	$696	$146	$527	$736		$513
27	Bogata		0.3			0.1		0.4		$510			$463		$500
28	Billund				0.1			0.4				$456			$557
29	Shannon	0.1	0.1		0.0	0.0		0.4	$572	$598		$550	$616		$487
30	Helsinki				0.1			0.4				$953			$446
31	Delhi		0.0		0.1	0.1		0.4		$843		$1,500	$715		$786
32	Copenhagen				0.1			0.4				$1,061			$773
33	Ho Chi Minh City	0.1	0.1					0.4	$628	$620					$595
34	Frankfurt	0.1	0.0			0.0		0.4	$622	$908			$633		$657
35	Panama City	0.1	0.1			0.1		0.4	$393	$410			$290		$371
36	Quito	0.3	0.1					0.4	$459	$486					$463
37	Istanbul	0.0		0.2	0.1			0.3	$419		$677	$414			$594
38	Mumbai				0.1	0.1		0.3				$1,063	$577		$725
39	Milan	0.1			0.1	0.1		0.3	$819			$626	$568		$741
40	Hong Kong		0.0	0.1				0.3		$1,117	$519				$723
41	Leon	0.1	0.1			0.1		0.3	$434	$410			$159		$313
42	Stuttgart			0.1				0.3			$940				$1,480
43	Christchurch	0.1	0.1					0.3	$916	$979					$825
44	Budapest		0.0	0.0	0.1	0.1		0.3		$555	$231	$559	$586		$529
45	Mazatlan	0.3						0.3	$273						$273
46	Barcelona	0.1	0.0		0.0	0.1		0.3	$645	$480		$781	$517		$548
47	Prague				0.1	0.0		0.3				$685	$651		$672
48	Munich	0.0	0.1		0.1			0.3	$710	$1,083		$741			$675
49	Belize	0.1	0.1					0.3	$340	$327					$331
50	Abuja				0.3			0.3				$1,659			$1,659
	50 Largest Markets	15.3	5.5	1.0	5.3	2.1	0.2	43.2	$374	$539	$695	$736	$492	$557	$161
	Other Markets	7.2	5.3	6.1	1.8	3.4	2.4	34.0	$418	$429	$238	$774	$424	$151	$206
	All Markets	22.5	10.8	7.1	7.0	5.5	2.6	77.3	$388	$485	$301	$745	$450	$182	$482

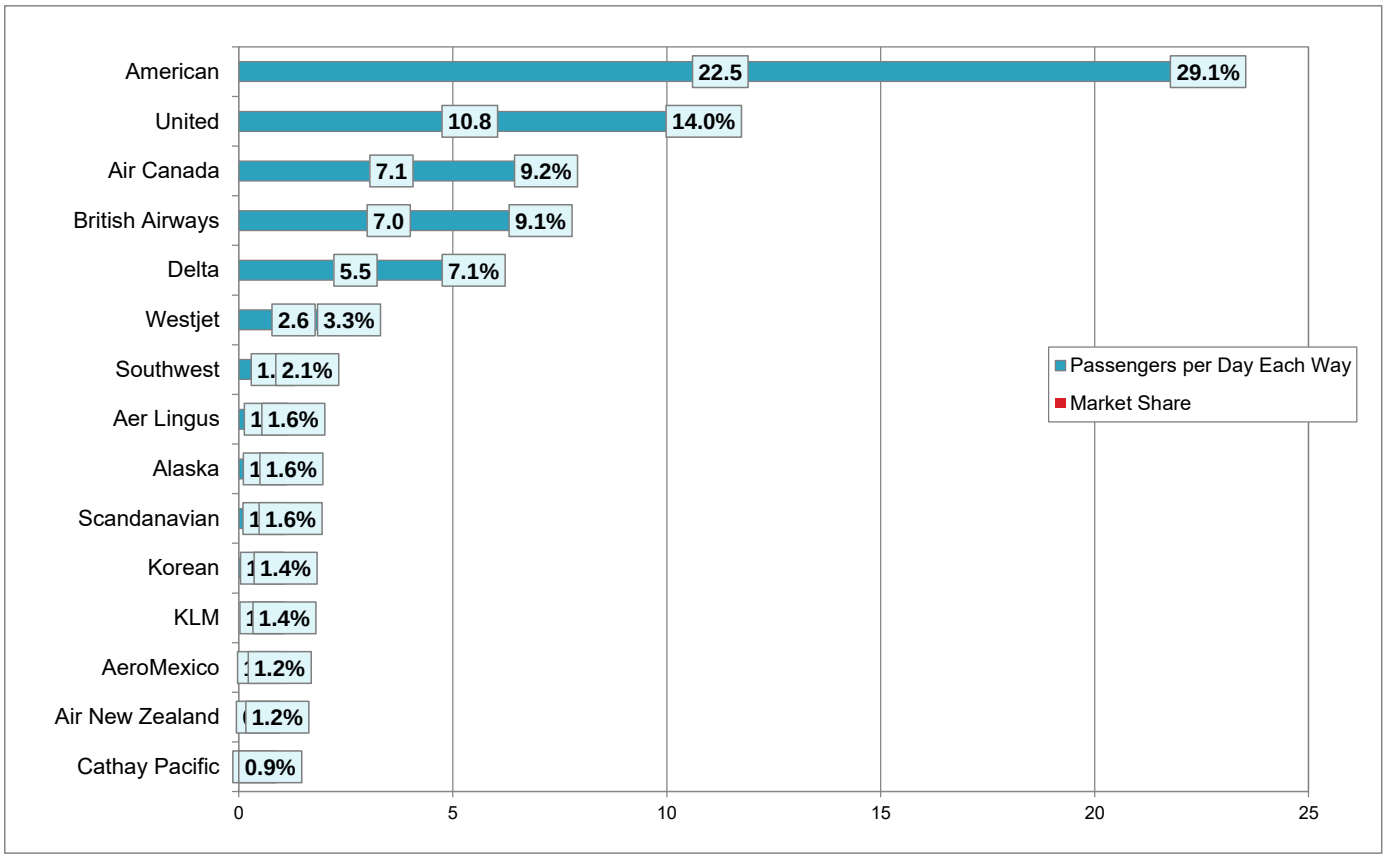
Domestic Airline Rankings by Airport

			Passengers per Day Each Way					Airport Share				One-Way Fare				
Rank	Airline Code	Airline	PHX	AZA	FLG	LAS	Total	PHX	AZA	FLG	LAS	PHX	AZA	FLG	LAS	Total
1	WN	Southwest	562.9			29.1	592.1	95.1%			4.9%	$150			$118	$148
2	AA	American	495.6		82.6	9.5	587.8	84.3%		14.1%	1.6%	$195		$204	$205	$197
3	DL	Delta	131.8			8.2	140.0	94.1%			5.9%	$189			$186	$189
4	UA	United	131.8			6.3	138.3	95.3%			4.6%	$187			$187	$188
5	G4	Allegiant		87.5		7.0	94.4		92.6%		7.4%		$121		$108	$120
6	AS	Alaska	46.2		0.4	6.5	53.2	86.9%		0.8%	12.3%	$131		$241	$107	$129
7	F9	Frontier	43.3			3.8	47.1	91.9%			8.1%	$136			$131	$136
8	NK	Spirit	13.3			6.4	19.6	67.6%			32.4%	$130			$125	$128
9	ZK	Great Lakes					15.6									$123
10	B6	JetBlue	10.9			1.0	11.9	91.8%			8.2%	$188			$130	$184
11	SY	Sun Country	10.6			0.3	10.9	97.0%			3.0%	$121			$136	$121
12	HA	Hawaiian	8.8			0.4	9.2	95.2%			4.8%	$318			$324	$318
13	VX	Virgin America				2.3	2.3				100.0%				$114	$114
14	4B	Boutique Air	0.2				0.2	100.0%				$115				$115
15																
		15 Largest Airlines	1,455.5	87.5	83.1	80.9	1,722.6	84.5%	5.1%	4.8%	4.7%	$172	$121	$204	$141	$169
		All Other Airlines														
		All Airlines	1,455.5	87.5	83.1	80.9	1,722.6	84.5%	5.1%	4.8%	4.7%	$172	$121	$204	$141	$169

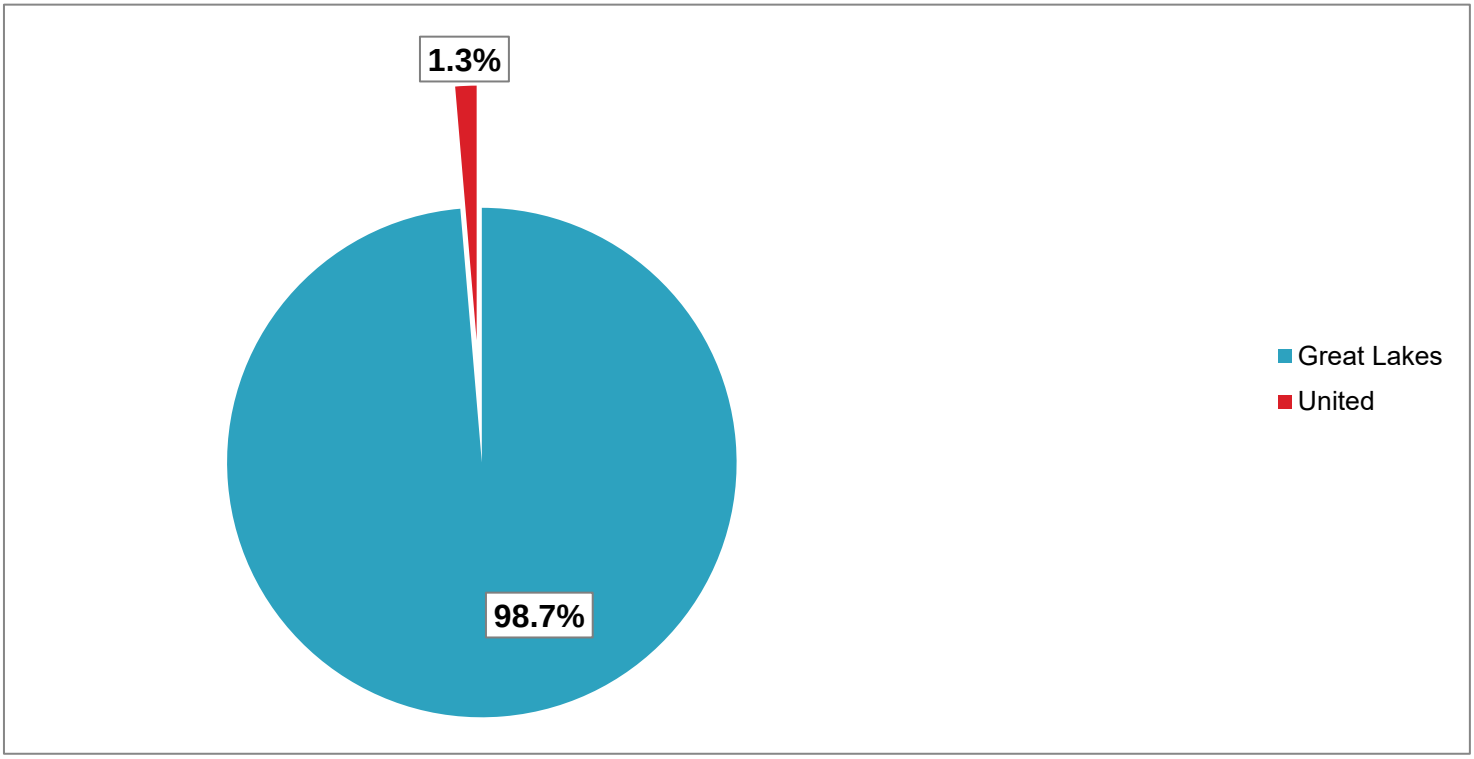


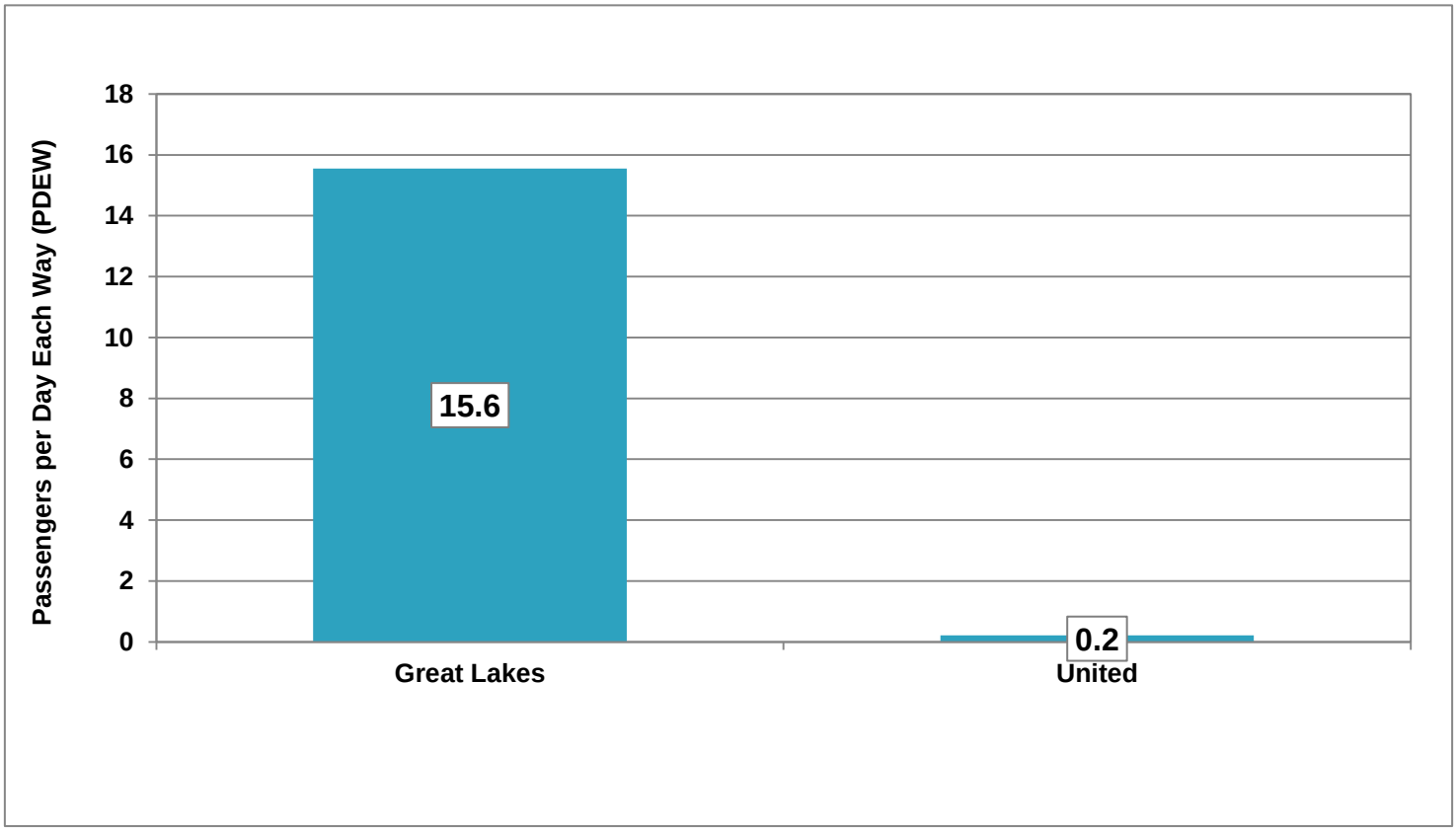
International Airline Rankings by Airport

			Passengers per Day Each Way					Airport Share				One-Way Fare				
Rank	Airline Code	Airline	PHX	LAS	FLG	PRC	Total	PHX	LAS	FLG	PRC	PHX	LAS	FLG	PRC	Total
1	AA	American	19.0	2.4	1.1		22.5	84.5%	10.6%	4.9%		$372	$426	$592		$388
2	UA	United	9.5	1.3		0.02	10.8	87.7%	12.1%		0.2%	$484	$484		$760	$485
3	AC	Air Canada	6.1	1.1			7.1	84.9%	15.1%			$266	$497			$301
4	BA	British Airways	5.8	0.9	0.3		7.0	82.8%	13.5%	3.7%		$780	$545	$702		$745
5	DL	Delta	4.7	0.8			5.5	85.7%	14.3%			$477	$287			$450
6	WS	Westjet	2.4	0.2			2.6	92.2%	7.8%			$167	$358			$182
7	WN	Southwest	1.4	0.2			1.6	89.2%	10.8%			$262	$197			$255
8	EI	Aer Lingus	1.3				1.3	100.0%				$545				$545
9	AS	Alaska	1.2				1.2	100.0%				$178				$178
10	SK	Scandanavian	1.2				1.2	100.0%				$648				$648
11	KE	Korean	0.8	0.3			1.1	70.0%	30.0%			$595	$878			$680
12	KL	KLM	1.0	0.1			1.1	93.6%	6.4%			$546	$332			$532
13	AM	AeroMexico	0.1	0.9			1.0	6.5%	93.5%			$293	$236			$240
14	NZ	Air New Zealand	0.9				0.9	100.0%				$856				$856
15	CX	Cathay Pacific	0.7				0.7	100.0%				$799				$799
		15 Largest Airlines	55.9	8.1	1.4	0.02	65.5	85.5%	12.4%	2.1%	0.0%	$444	$436	$613	$760	$447
		All Other Airlines	9.6	2.12	0.1	0.00	11.8	81.5%	17.9%	0.6%	0.0%	$728	$460	$581		$679
		All Airlines	65.6	10.3	1.4	0.02	77.3	84.8%	13.3%	1.8%	0.0%	$486	$441	$611	$760	$482

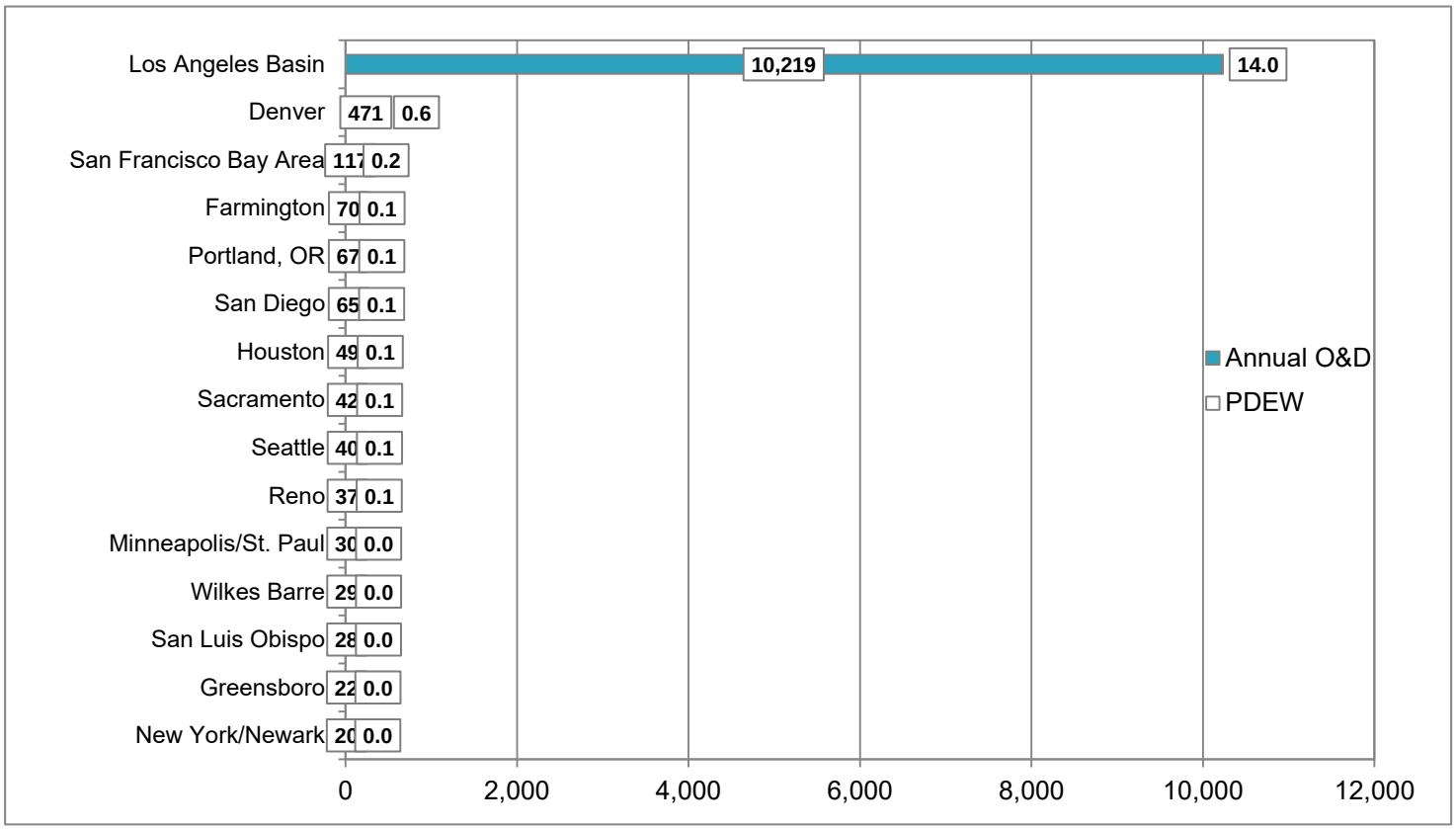


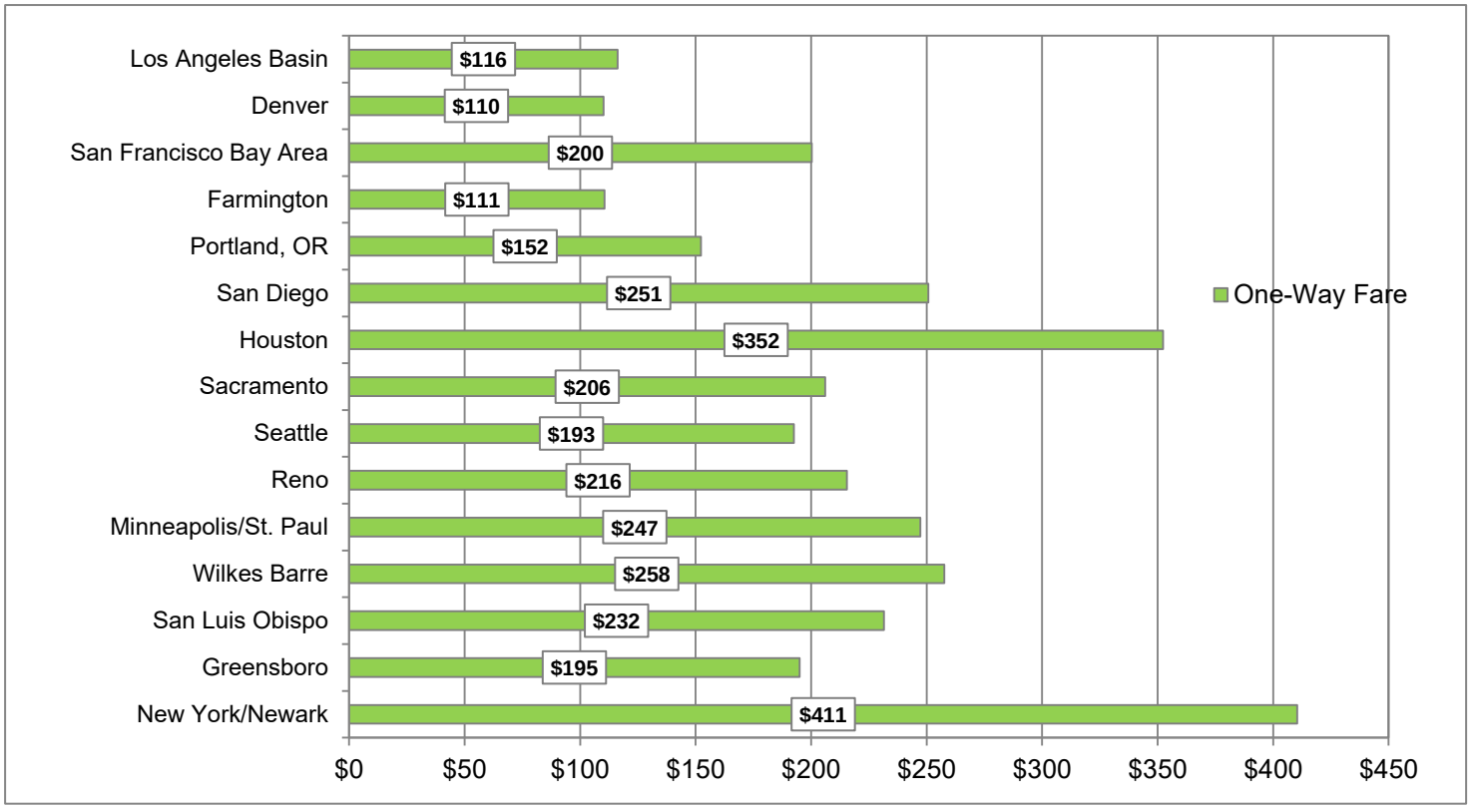
Distribution of Traffic among Airlines - Prescott Municipal Airport





15 Largest O&D Markets and Average Fares - Prescott Municipal Airport





Nonstop Routes Flown - Prescott Municipal Airport

Great Lakes operated Los Angeles and limited Phoenix and Farmington service from Prescott in YE 3Q 2017

Prescott Municipal Airport
Leakage and Retention Study
Year-End Third Quarter 2017

Market Size Rankings and Airline Detail - Prescott Municipal Airport

		Great Lakes		United								All Carriers	
Rank	Metro Area	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare
1	Los Angeles Basin	13.98	$116	0.02	$90							14.00	$116
2	Denver	0.65	$110									0.65	$110
3	San Francisco Bay Area	0.12	$223	0.04	$134							0.16	$200
4	Farmington	0.10	$111									0.10	$111
5	Portland, OR	0.09	$152									0.09	$152
6	San Diego	0.04	$202	0.05	$288							0.09	$251
7	Houston	0.05	$327	0.01	$464							0.07	$352
8	Sacramento	0.04	$197	0.01	$234							0.06	$206
9	Seattle	0.05	$193									0.05	$193
10	Reno	0.05	$216									0.05	$216
11	Minneapolis/St. Paul	0.04	$247									0.04	$247
12	Wilkes Barre	0.04	$258									0.04	$258
13	San Luis Obispo	0.01	$163	0.03	$264							0.04	$232
14	Greensboro	0.03	$195									0.03	$195
15	New York/Newark	0.01	$411	0.01	$411							0.03	$411
16	Santa Barbara	0.02	$182									0.02	$182
17	Bogata			0.02	$760							0.02	$760
18	Kansas City	0.02	$205									0.02	$205
19	Bismarck	0.02	$276									0.02	$276
20	Aspen			0.02	$178							0.02	$178
21	Spokane	0.02	$384									0.02	$384
22	Salt Lake City	0.01	$345									0.01	$345
23	Baton Rouge	0.01	$207									0.01	$207
24	Maui	0.01	$394									0.01	$394
25	Ft. Wayne	0.01	$283									0.01	$283
26	Washington/Baltimore	0.01	$316									0.01	$316
27	Orlando/Sanford	0.01	$244									0.01	$244
28	Monterrey	0.01	$313									0.01	$313
29	Memphis	0.01	$477									0.01	$477
30	Honolulu	0.01	$426									0.01	$426
31	Atlanta	0.01	$713									0.01	$713
32	Norfolk/Newport News	0.01	$509									0.01	$509
33	Butte	0.01	$315									0.01	$315
34													
35													
36													
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40													
41													
42													
43													
44													
45													
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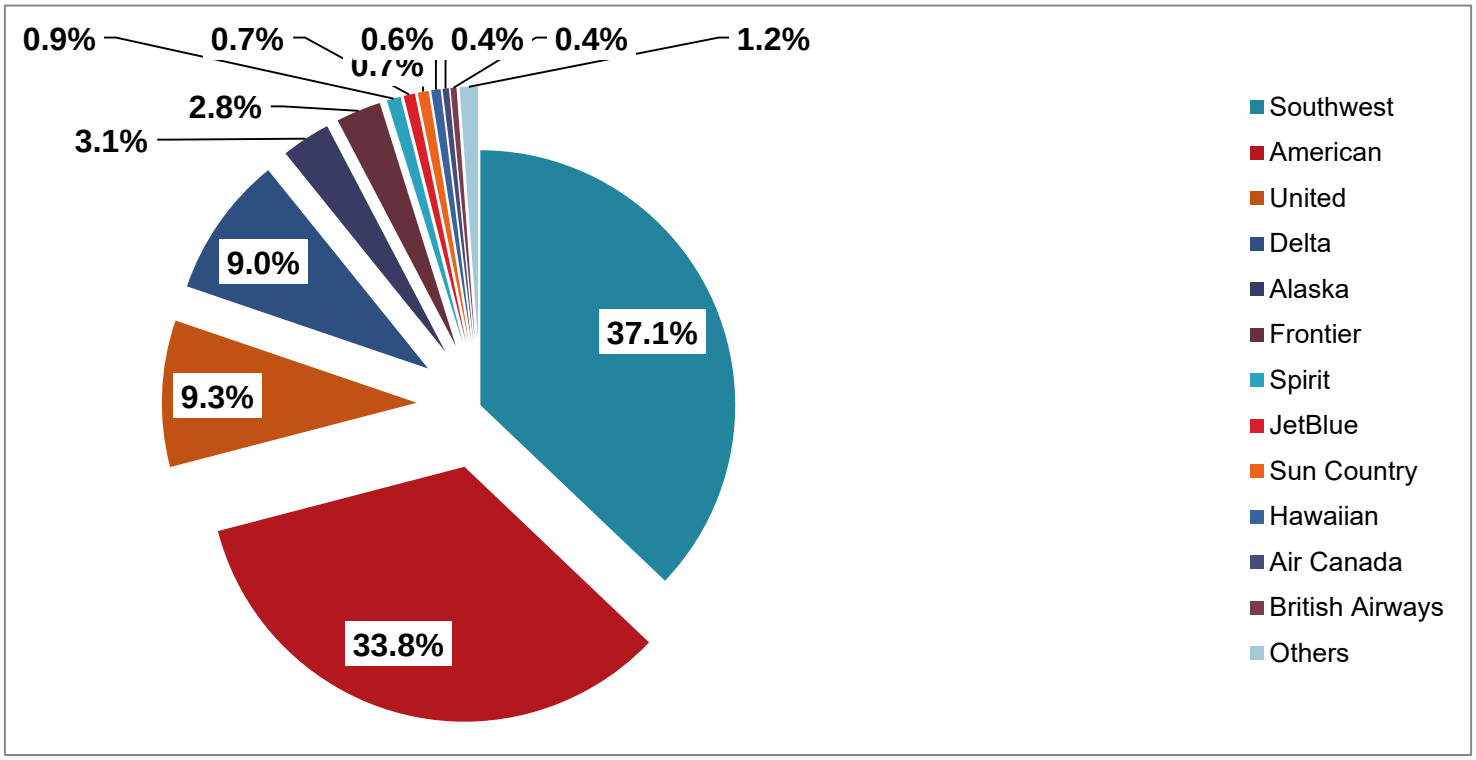
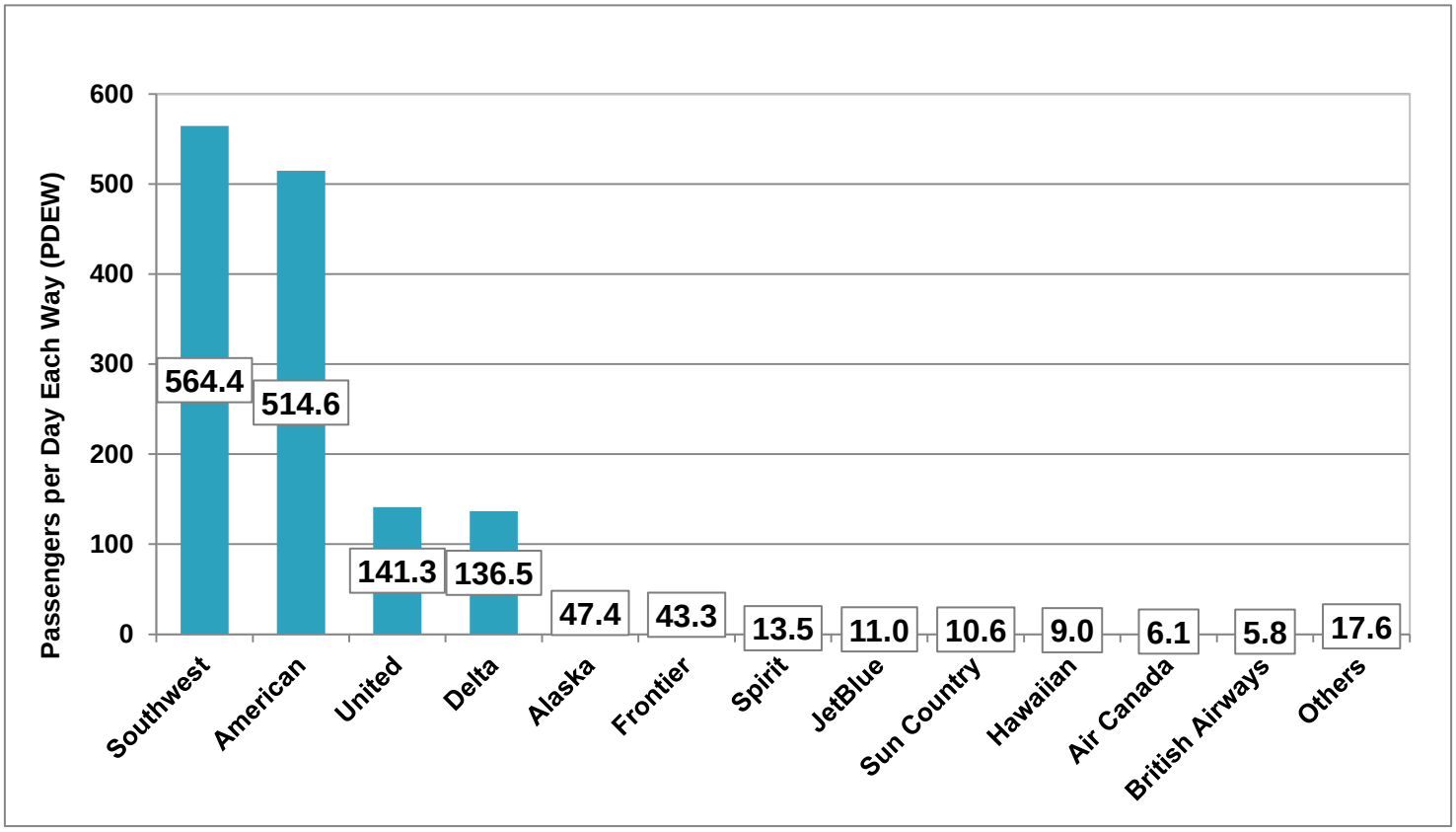
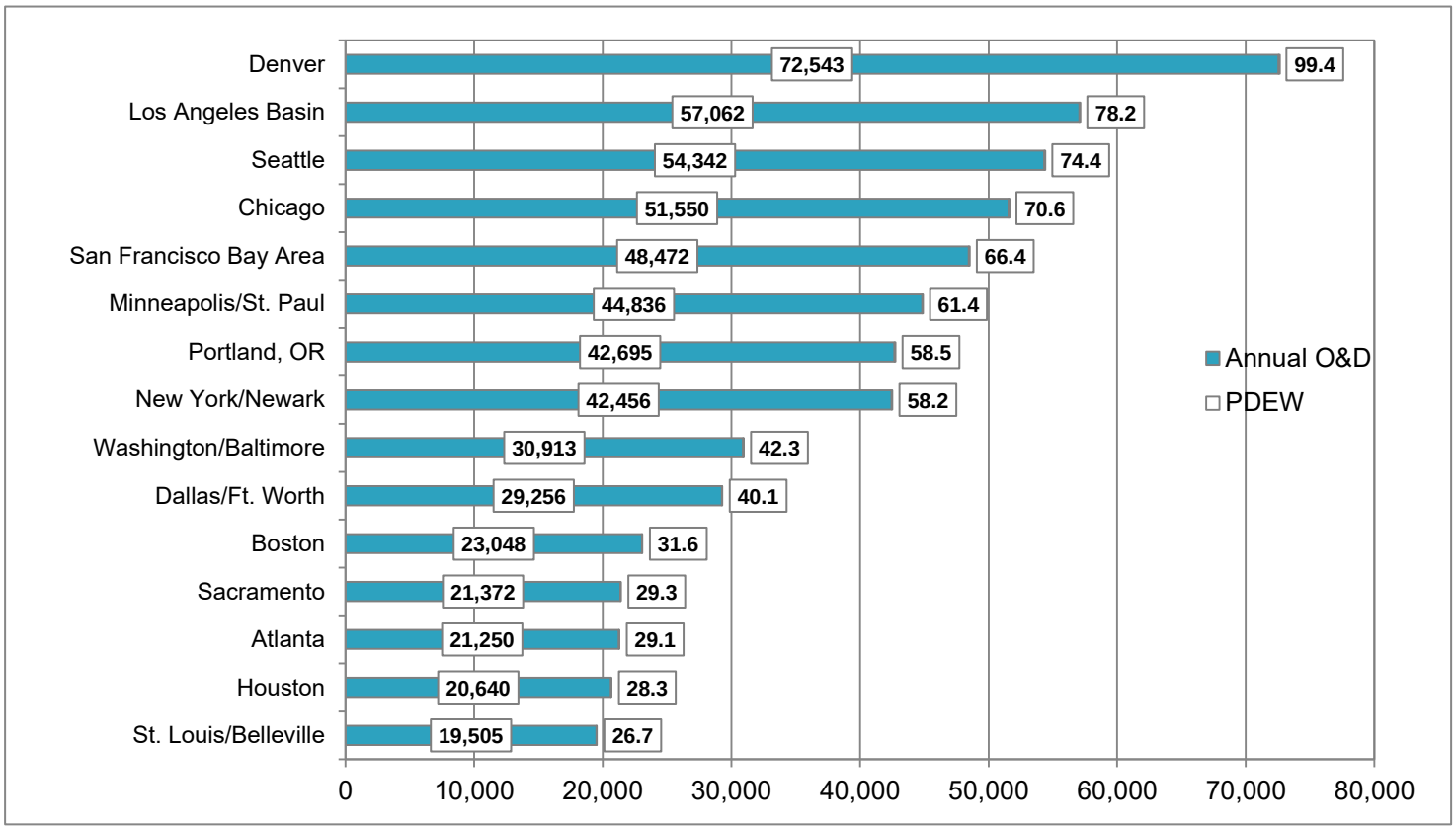
49													
50													
	Markets 1-50	15.6	$123	0.21	$303							15.8	$126
	Other Markets												
	All Markets	15.6	$123	0.21	$303							15.8	$126

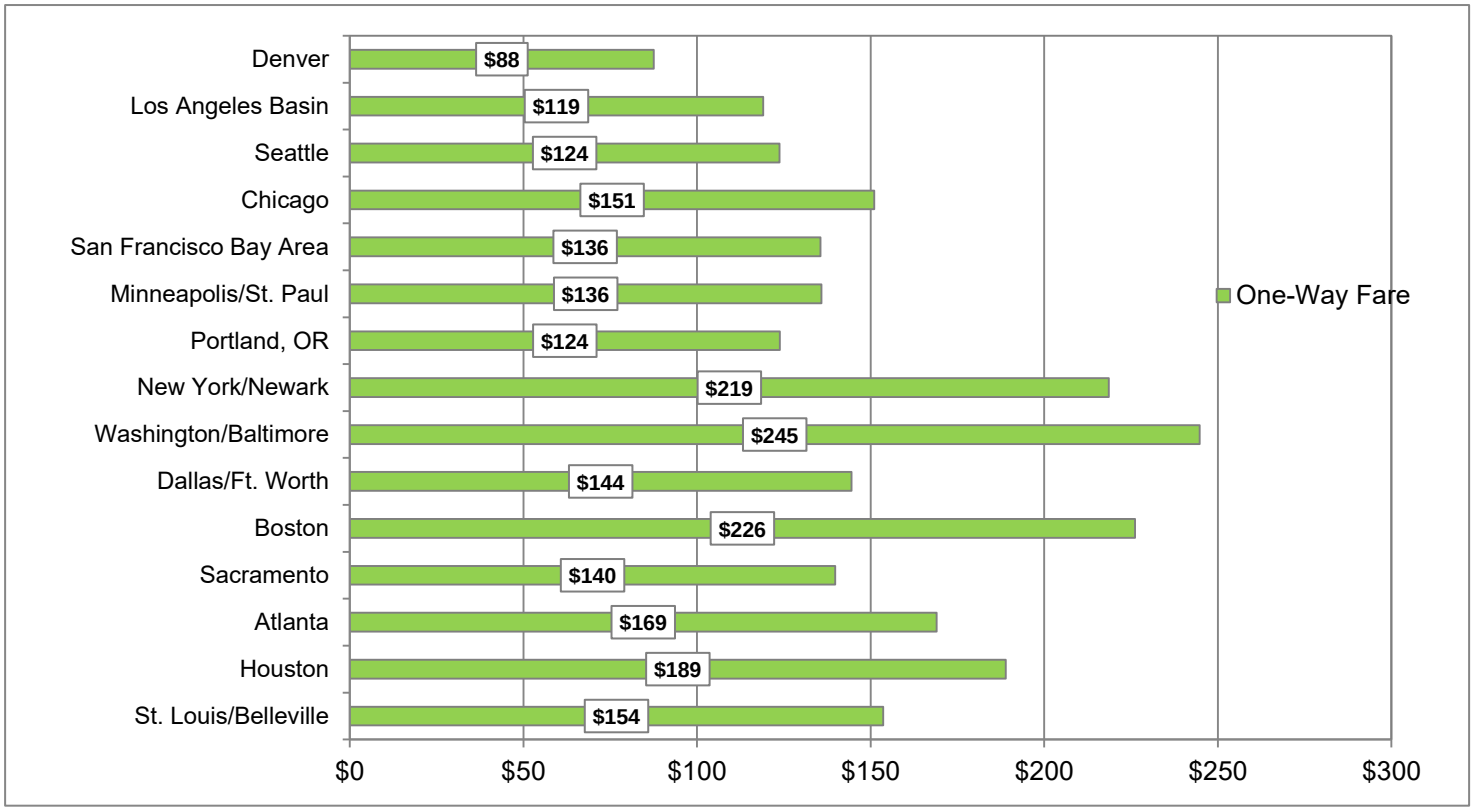
Distribution of Traffic among Airlines - Phoenix Sky Harbor International Airport



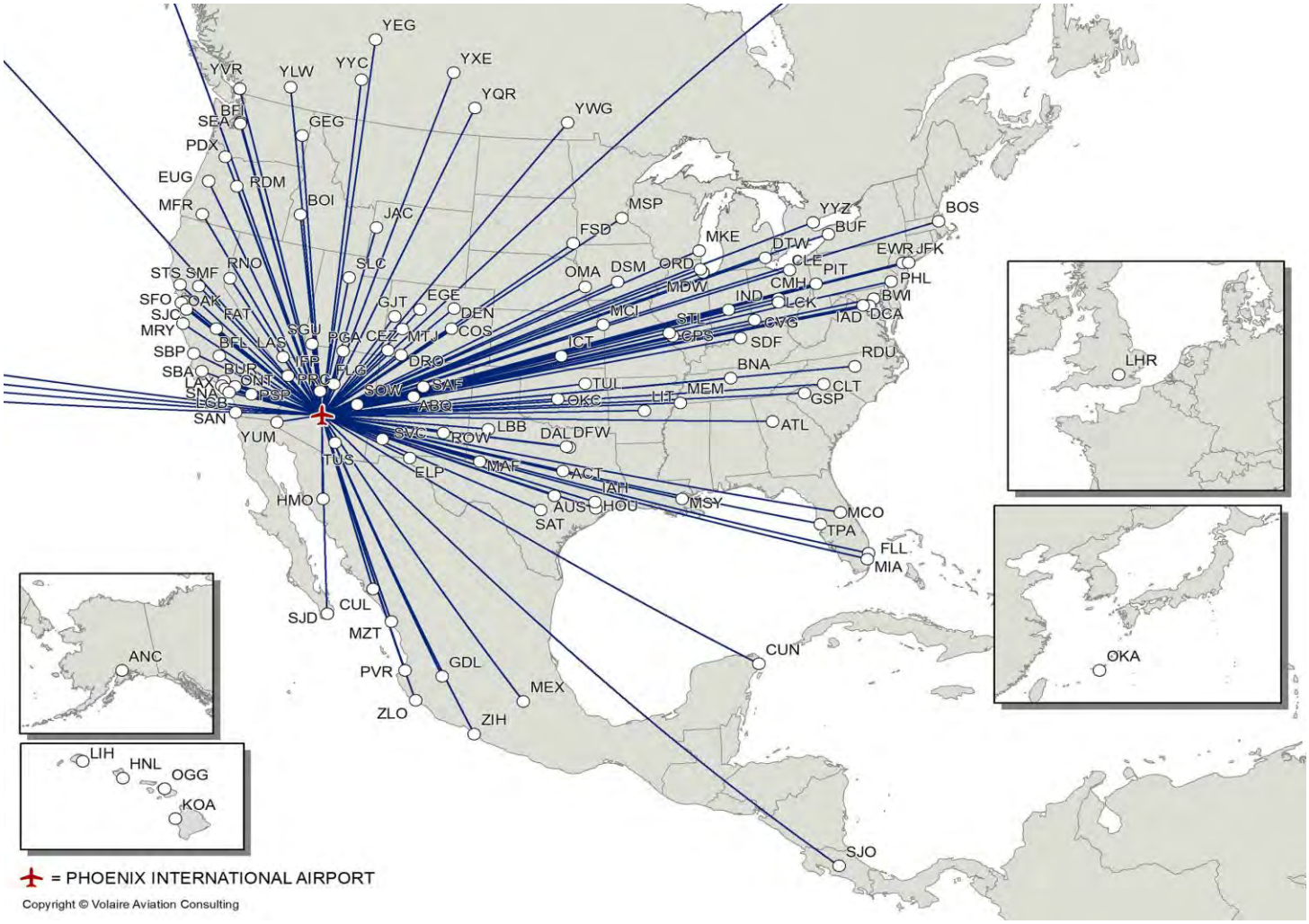


15 Largest O&D Markets and Average Fares - Denver International Airport





Nonstop Routes Flown - Phoenix Sky Harbor International Airport

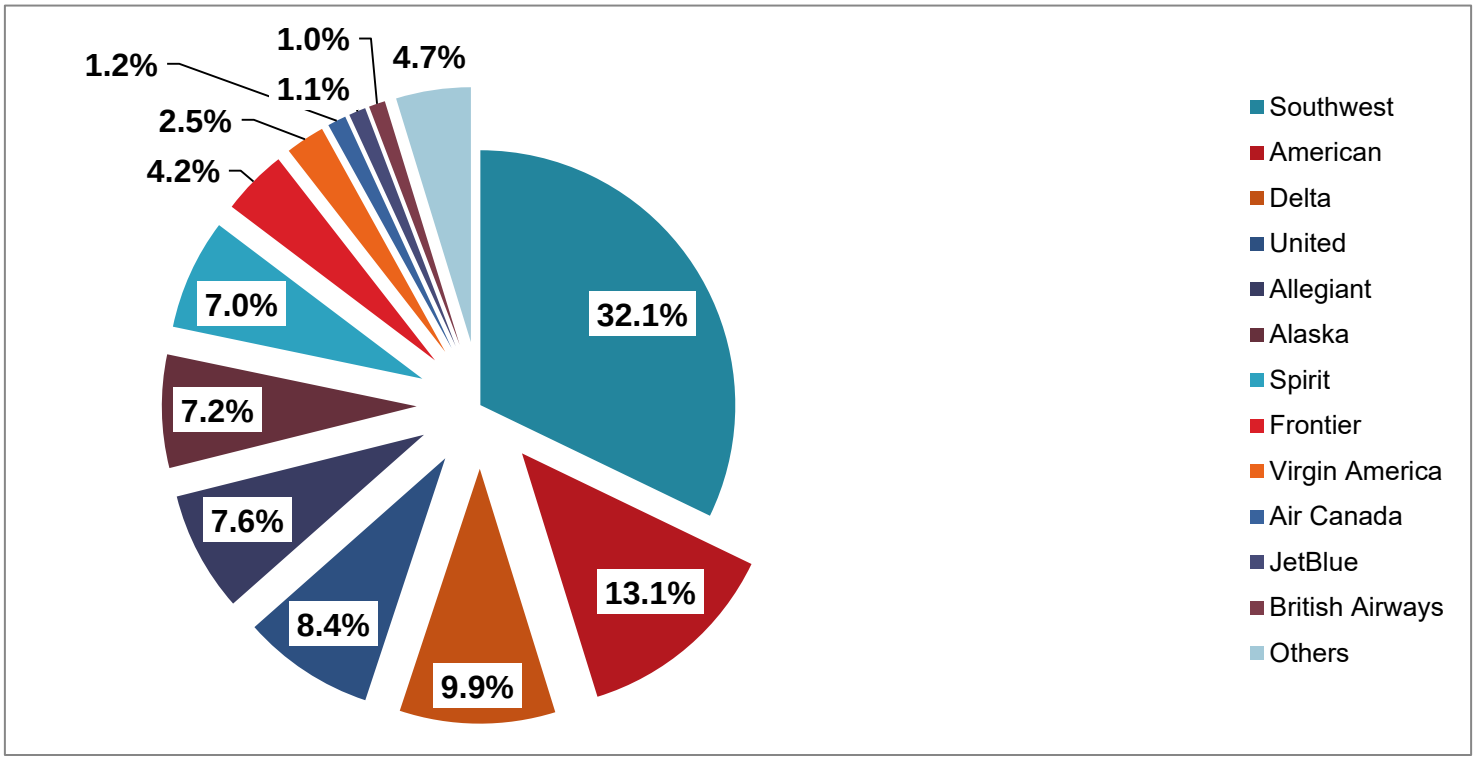


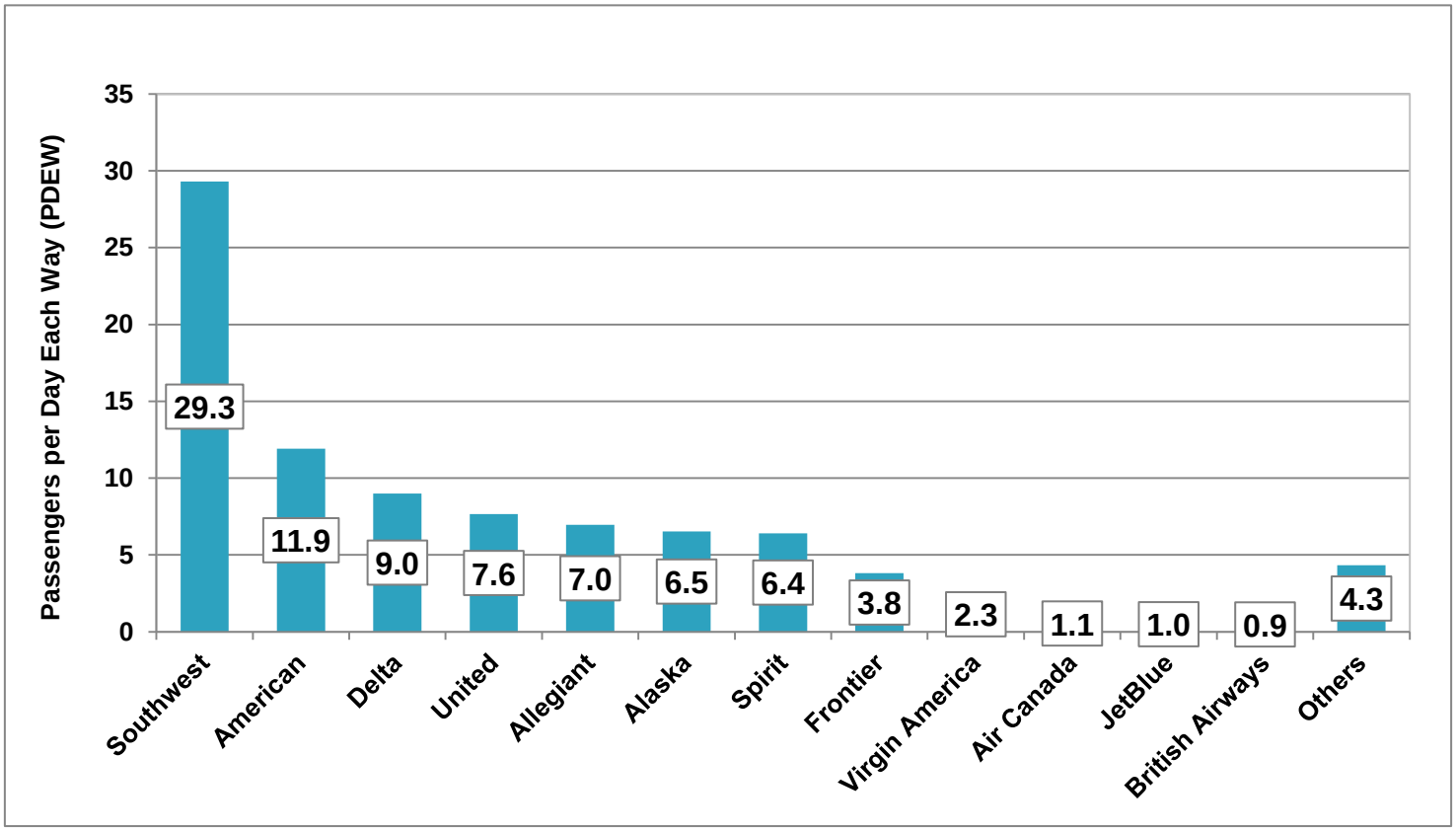
Airlines operated 125 nonstop routes from Phoenix Sky Harbor International Airport in YE 3Q 2017

Market Size Rankings and Airline Detail - Phoenix Sky Harbor International Airport

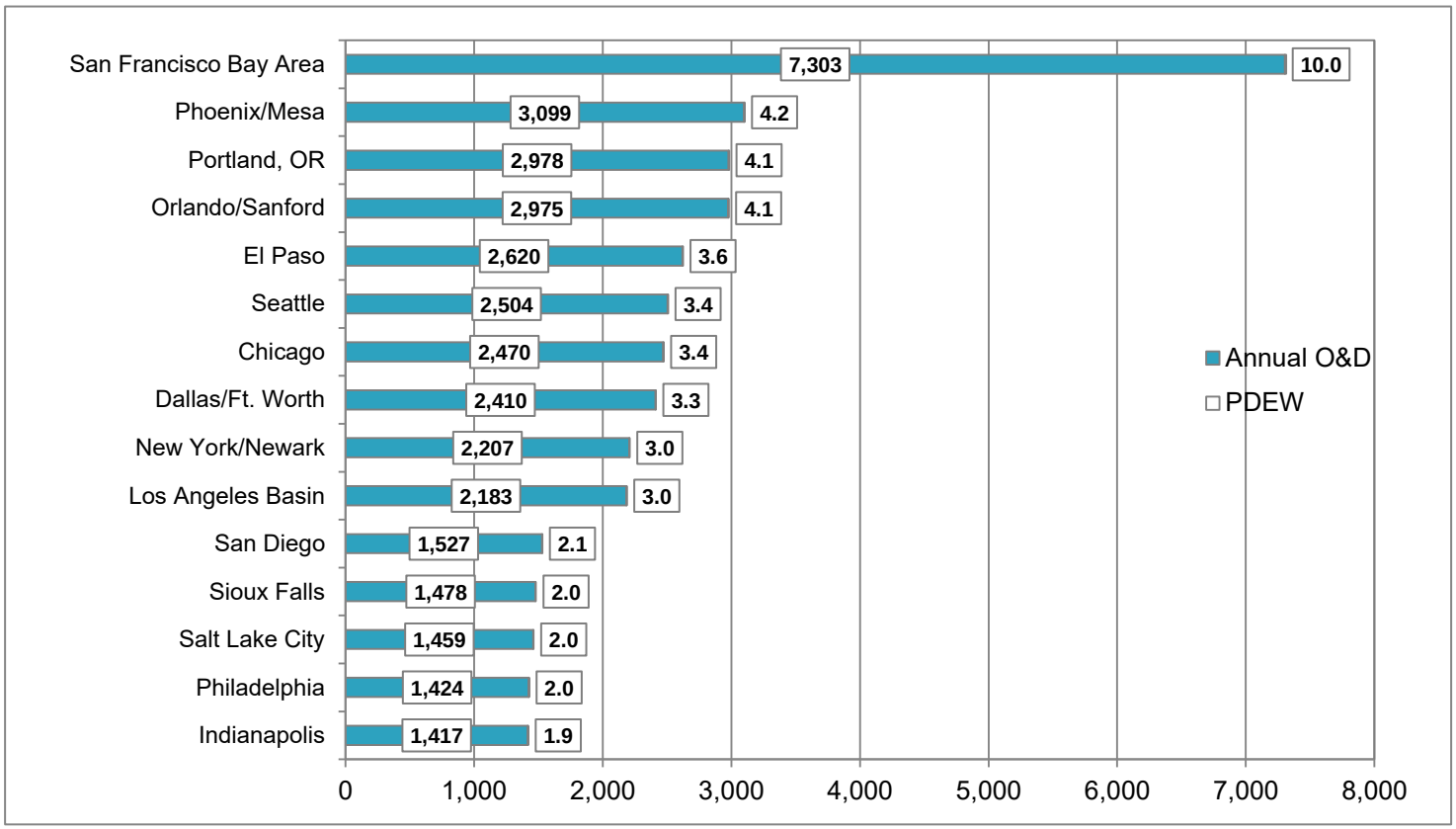
		Southwest		American		United		Delta		Alaska		All Carriers	
Rank	Metro Area	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare
1	Denver	54.7	$83	18.4	$91	14.9	$102	0.1	$127			99.4	$88
2	Los Angeles Basin	48.0	$117	20.3	$126	4.6	$118	4.2	$111	1.1	$125	78.2	$119
3	Seattle	19.9	$116	14.3	$132	1.3	$103	14.8	$127	21.1	$125	74.4	$124
4	Chicago	25.2	$140	26.7	$160	10.8	$162	1.0	$164			70.6	$151
5	San Francisco Bay Area	39.8	$130	19.2	$146	5.6	$140	0.3	$121	1.2	$135	66.4	$136
6	Minneapolis/St. Paul	12.2	$129	18.3	$142	0.7	$136	16.9	$147			61.4	$136
7	Portland, OR	23.9	$116	17.7	$138	0.6	$109	1.6	$130	11.6	$120	58.5	$124
8	New York/Newark	5.4	$215	21.3	$236	14.2	$209	12.8	$215			58.2	$219
9	Washington/Baltimore	14.5	$234	17.6	$257	6.9	$243	2.7	$226			42.3	$245
10	Dallas/Ft. Worth	16.8	$130	19.5	$161	0.9	$91	0.1	$148			40.1	$144
11	Boston	2.3	$222	19.5	$241	2.6	$207	1.0	$217			31.6	$226
12	Sacramento	19.4	$139	9.0	$144					0.9	$119	29.3	$140
13	Atlanta	6.8	$159	9.1	$163	0.6	$162	9.9	$185			29.1	$169
14	Houston	12.8	$185	5.1	$188	9.8	$195	0.2	$189			28.3	$189
15	St. Louis/Belleville	17.0	$146	7.2	$171	0.3	$148	0.7	$187			26.7	$154
16	Milwaukee	15.7	$148	8.5	$168	0.3	$136	0.6	$178			26.6	$155
17	Nashville	19.7	$176	2.8	$224	0.8	$189	0.6	$195			25.7	$182
18	Omaha	14.5	$157	7.3	$178	0.9	$171	0.3	$183			23.4	$164
19	Detroit	4.2	$150	7.1	$166	0.6	$145	6.6	$184			22.7	$165
20	San Diego	15.1	$123	4.6	$132					0.9	$132	20.6	$126
21	Kansas City	13.7	$164	5.4	$180	0.2	$171	0.3	$176			19.7	$169
22	Miami/Ft. Lauderdale	4.7	$221	9.3	$247	1.4	$207	1.9	$236			18.1	$235
23	Orlando/Sanford	5.9	$213	9.2	$233	0.2	$220	0.5	$222			17.4	$223
24	Salt Lake City	8.3	$127	4.5	$125			4.3	$144	0.1	$179	17.4	$131
25	Austin	9.8	$180	5.3	$204			0.1	$183			15.3	$188
26	Spokane	6.6	$155	5.4	$170			1.0	$170	1.2	$144	14.2	$161
27	Tampa/St. Petersburg	5.5	$223	7.0	$238	0.5	$234	0.1	$250			13.5	$231
28	Philadelphia	2.4	$239	9.2	$251	0.7	$244	0.3	$199			13.1	$246
29	Anchorage			5.9	$233	1.4	$208	3.3	$213	1.8	$193	12.4	$219
30	Indianapolis	6.4	$192	4.6	$210	0.4	$201	0.2	$216			11.9	$200
31	Cleveland	5.4	$143	0.7	$216	1.6	$199	0.3	$207			11.8	$157
32	Buffalo	9.0	$208	0.7	$233	0.5	$234	1.4	$230			11.7	$213
33	San Antonio	6.7	$184	4.5	$208							11.3	$194
34	Charlotte/Concord	0.7	$264	7.2	$285	1.6	$201	1.3	$194			10.9	$261
35	Pittsburgh	4.7	$205	4.9	$226	0.2	$224	0.7	$214			10.7	$216
36	New Orleans	7.0	$201	0.8	$242	2.0	$203	0.4	$233			10.6	$206
37	Honolulu			4.6	$336	0.6	$317	0.0	$318			10.4	$319
38	Boise	3.9	$152	3.6	$162			1.2	$155	0.1	$152	8.8	$156
39	Reno	5.3	$159	3.3	$173			0.1	$136			8.7	$164
40	Columbus	3.5	$212	4.2	$226	0.2	$216	0.1	$236			8.1	$220
41	Hartford	2.7	$232	3.2	$249	0.9	$224	1.2	$251			8.0	$241
42	Des Moines	0.6	$141	4.6	$182	1.6	$160	0.1	$188			7.9	$169
43	Manchester	5.2	$210	1.7	$261	0.5	$219	0.2	$264			7.5	$223
44	Ft. Myers/Punta Gorda	1.4	$232	2.6	$250	1.9	$210	0.6	$261			6.8	$235
45	Las Vegas	4.7	$109	1.6	$119							6.3	$112
46	Albany	3.2	$225	1.2	$272	1.3	$227	0.6	$253			6.3	$237
47	Raleigh/Durham	3.3	$227	1.6	$250	0.5	$217	0.8	$240			6.3	$234
48	Little Rock	4.7	$161	0.3	$230	1.0	$160					6.0	$165
49	Norfolk/Newport News	1.7	$233	3.4	$256	0.4	$209	0.4	$237			5.9	$245
50	Tulsa	4.8	$182	0.2	$225	0.6	$193	0.2	$223			5.8	$186
	50 Largest Markets	529.8	$147	394.5	$185	96.2	$174	96.1	$174	40.1	$128	1,236.3	$163
	Other Markets	34.6	$188	120.1	$258	45.0	$278	40.4	$257	7.3	$158	284.7	$283
	All Markets	564.4	$150	514.6	$202	141.3	$207	136.5	$199	47.4	$132	1,521.0	$186

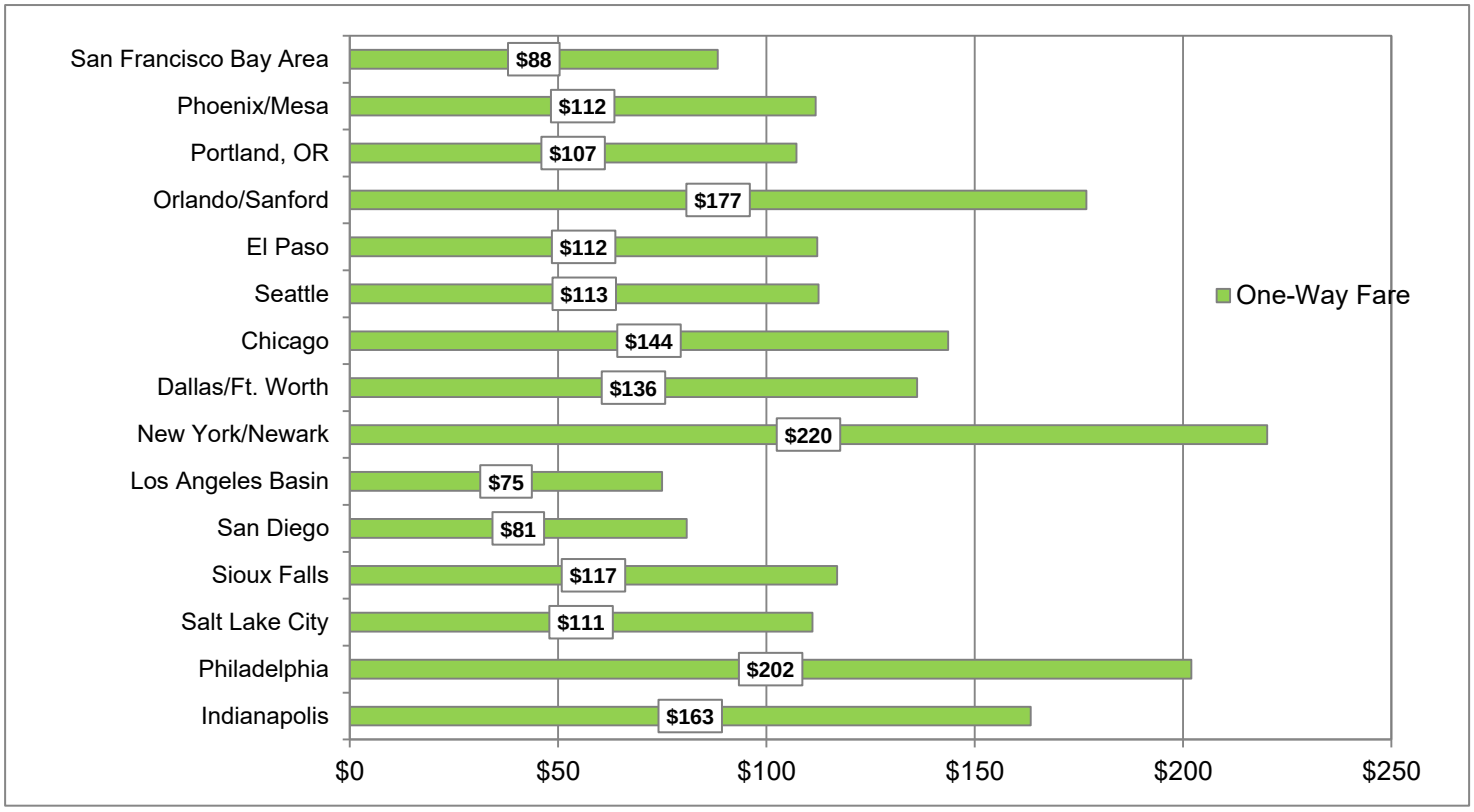
Distribution of Traffic among Airlines - Las Vegas McCarran International Airport



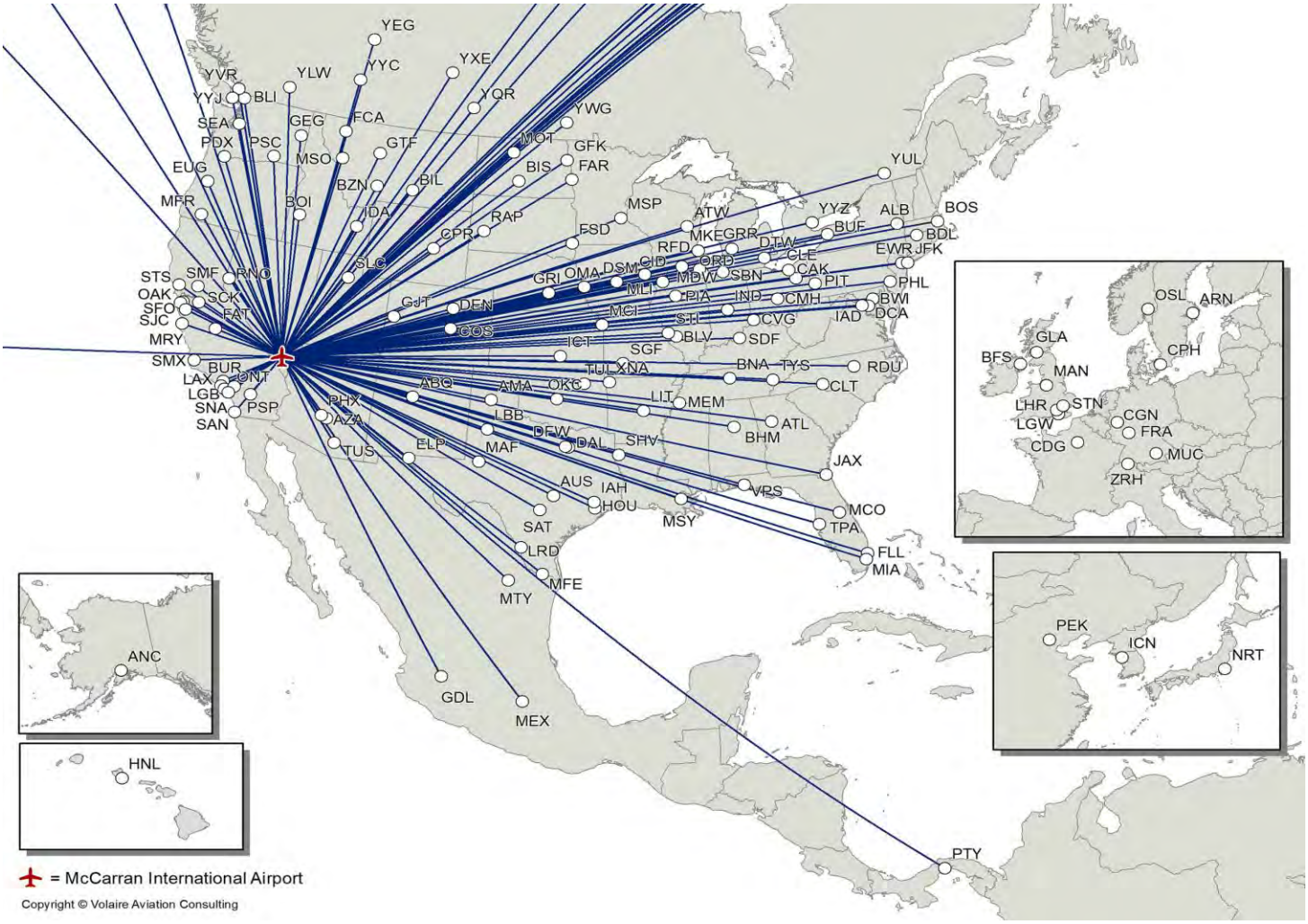


15 Largest O&D Markets and Average Fares - Las Vegas McCarran International Airport





Nonstop Routes Flown - Las Vegas McCarran International Airport

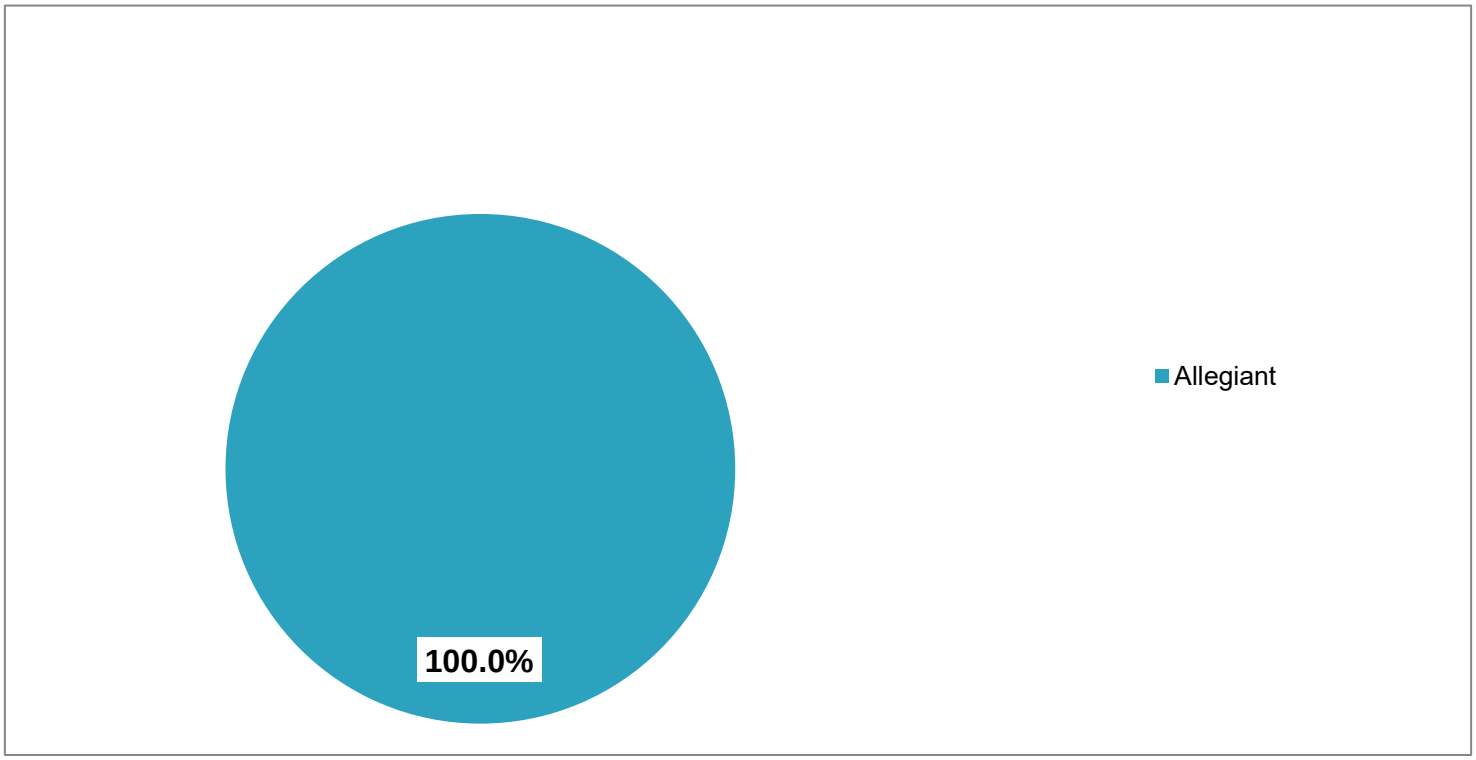


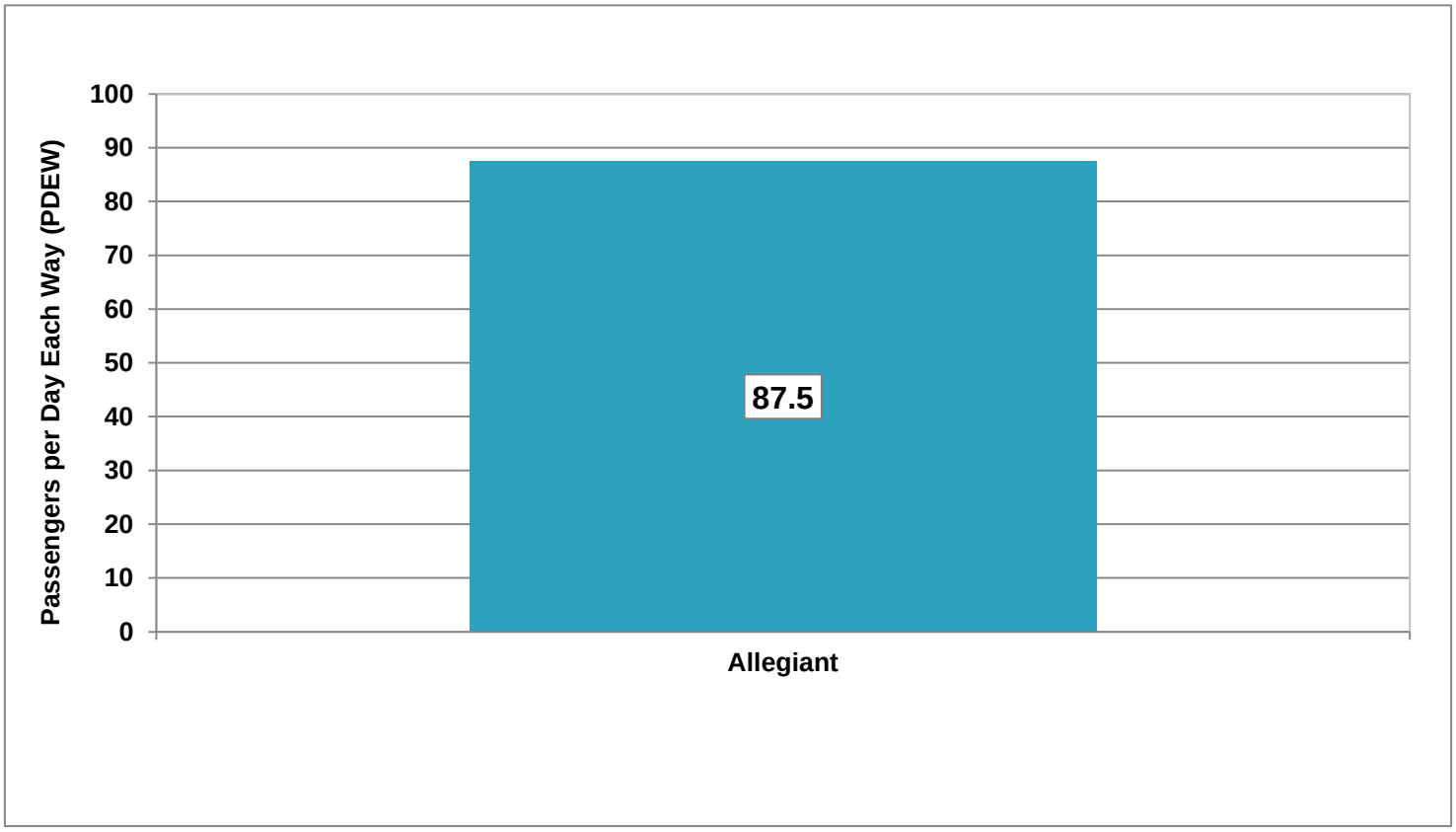
Airlines operated 147 nonstop routes from Las Vegas in YE 3Q 2017

Market Size Rankings and Airline Detail - Las Vegas McCarran International Airport

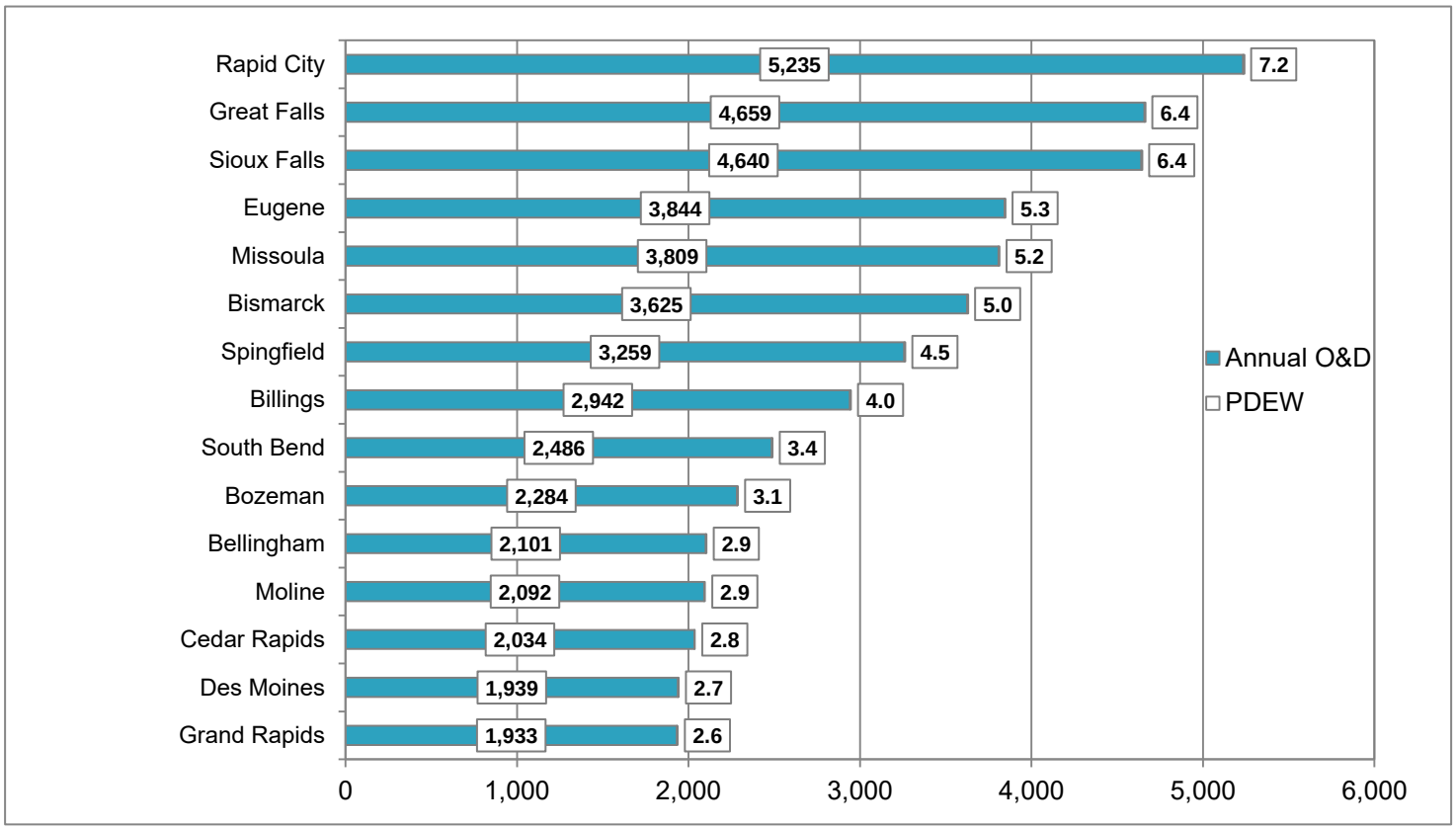
		Southwest		American		Delta		United		Allegiant		All Carriers	
Rank	Metro Area	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare
1	San Francisco Bay Area	5.0	$87			0.7	$106	1.0	$98	0.2	$87	10.0	$88
2	Phoenix/Mesa	3.2	$109	1.1	$119							4.2	$112
3	Portland, OR	1.5	$102									4.1	$107
4	Orlando/Sanford	1.9	$162	0.1	$227			0.8	$231			4.1	$177
5	El Paso	2.6	$109					0.3	$153	0.7	$109	3.6	$112
6	Seattle	0.5	$104			0.5	$130					3.4	$113
7	Chicago	1.3	$124	0.3	$166			1.0	$180			3.4	$144
8	Dallas/Ft. Worth	1.1	$122	1.1	$161							3.3	$136
9	New York/Newark	0.1	$221	0.5	$219	1.0	$238	0.6	$238			3.0	$220
10	Los Angeles Basin	1.5	$82	0.4	$81			0.1	$80			3.0	$75
11	San Diego	1.4	$79			0.2	$96					2.1	$81
12	Sioux Falls					0.3	$240			1.4	$98	2.0	$117
13	Salt Lake City	0.9	$106			1.1	$115					2.0	$111
14	Philadelphia	0.4	$188	0.8	$225	0.3	$199	0.2	$163			2.0	$202
15	Indianapolis	1.2	$160	0.3	$180					0.3	$160	1.9	$163
16	Washington/Baltimore	0.9	$190	0.3	$236	0.3	$226	0.3	$241			1.9	$208
17	Denver	0.9	$76	0.3	$147							1.8	$86
18	New Orleans	1.0	$141			0.2	$203					1.8	$149
19	Bismarck			0.1	$372					1.4	$93	1.8	$114
20	Miami/Ft. Lauderdale	0.3	$167	0.8	$212							1.8	$186
21	San Antonio	0.9	$128			0.2	$146			0.1	$128	1.4	$130
22	Minneapolis/St. Paul	0.1	$142			0.8	$182					1.3	$165
23	London					0.0	$549	0.1	$515			1.2	$488
24	Medford			0.1	$218					0.7	$98	1.1	$122
25	Mexico City	0.0	$144	0.5	$168	0.1	$170	0.1	$202			1.0	$160
26	Paris			0.8	$478							1.0	$473
27	Atlanta	0.3	$162			0.3	$223	0.2	$174			1.0	$183
28	Des Moines	0.3	$123	0.2	$185					0.5	$123	1.0	$133
29	Houston	0.3	$135					0.3	$198			0.9	$156
30	Detroit	0.1	$163			0.4	$223					0.9	$191
31	Boise	0.5	$115					0.1	$143	0.1	$115	0.8	$120
32	Spokane	0.5	$128			0.3	$136					0.7	$131
33	Knoxville			0.3	$265					0.3	$171	0.7	$213
34	Tokyo			0.4	$723							0.7	$770
35	Richmond	0.2	$234	0.5	$244							0.6	$242
36	Cancun	0.1	$201	0.1	$206	0.1	$206	0.1	$217			0.6	$198
37	Savannah			0.3	$248	0.3	$261					0.6	$255
38	Cincinnati	0.0	$112			0.2	$184			0.1	$112	0.5	$136
39	Boston	0.0	$205			0.4	$236					0.5	$227
40	Redmond					0.1	$151	0.1	$151			0.5	$143
41	Lima			0.2	$444							0.5	$493
42	Kallispell							0.1	$239	0.4	$84	0.5	$114
43	Amsterdam											0.5	$320
44	Charlotte/Concord	0.0	$235	0.4	$256							0.4	$254
45	Grand Rapids	0.1	$172					0.2	$206	0.1	$172	0.4	$187
46	Dublin							0.4	$354			0.4	$354
47	Rochester	0.1	$206					0.2	$217			0.4	$214
48	Kona					0.1	$333					0.3	$338
49	Pensacola	0.1	$226	0.2	$258							0.3	$249
50	Vancouver					0.1	$155					0.3	$133
	50 Largest Markets	28.9	$118	10.2	$245	7.9	$183	6.1	$196	6.4	$108	82.3	$156
	Other Markets	0.4	$221	1.7	$272	1.1	$283	1.6	$395	0.6	$111	2.2	$2,273
	All Markets	29.3	$119	11.9	$249	9.0	$195	7.6	$238	7.0	$108	84.5	$211

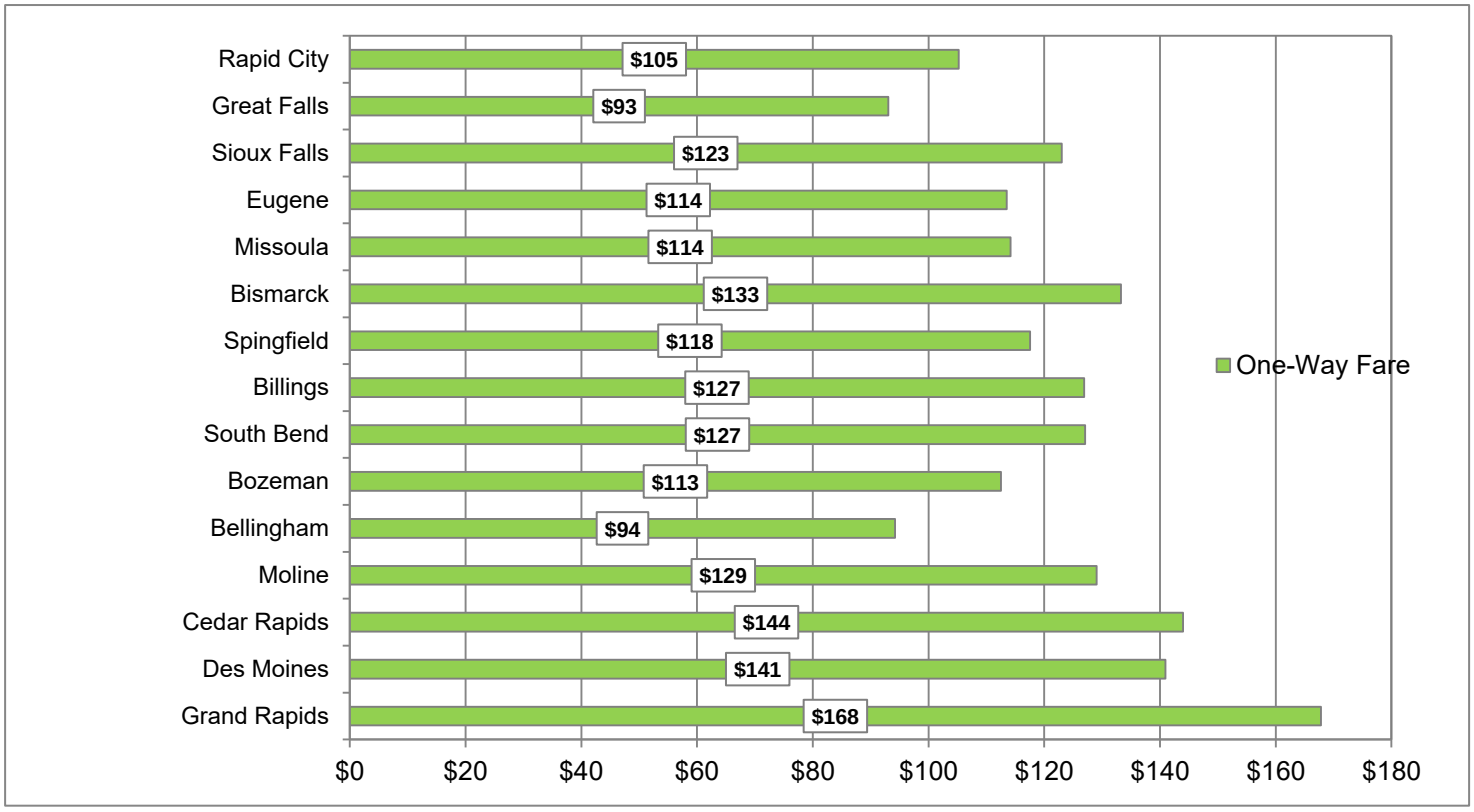
Distribution of Traffic among Airlines - Phoenix-Mesa Gateway Airport



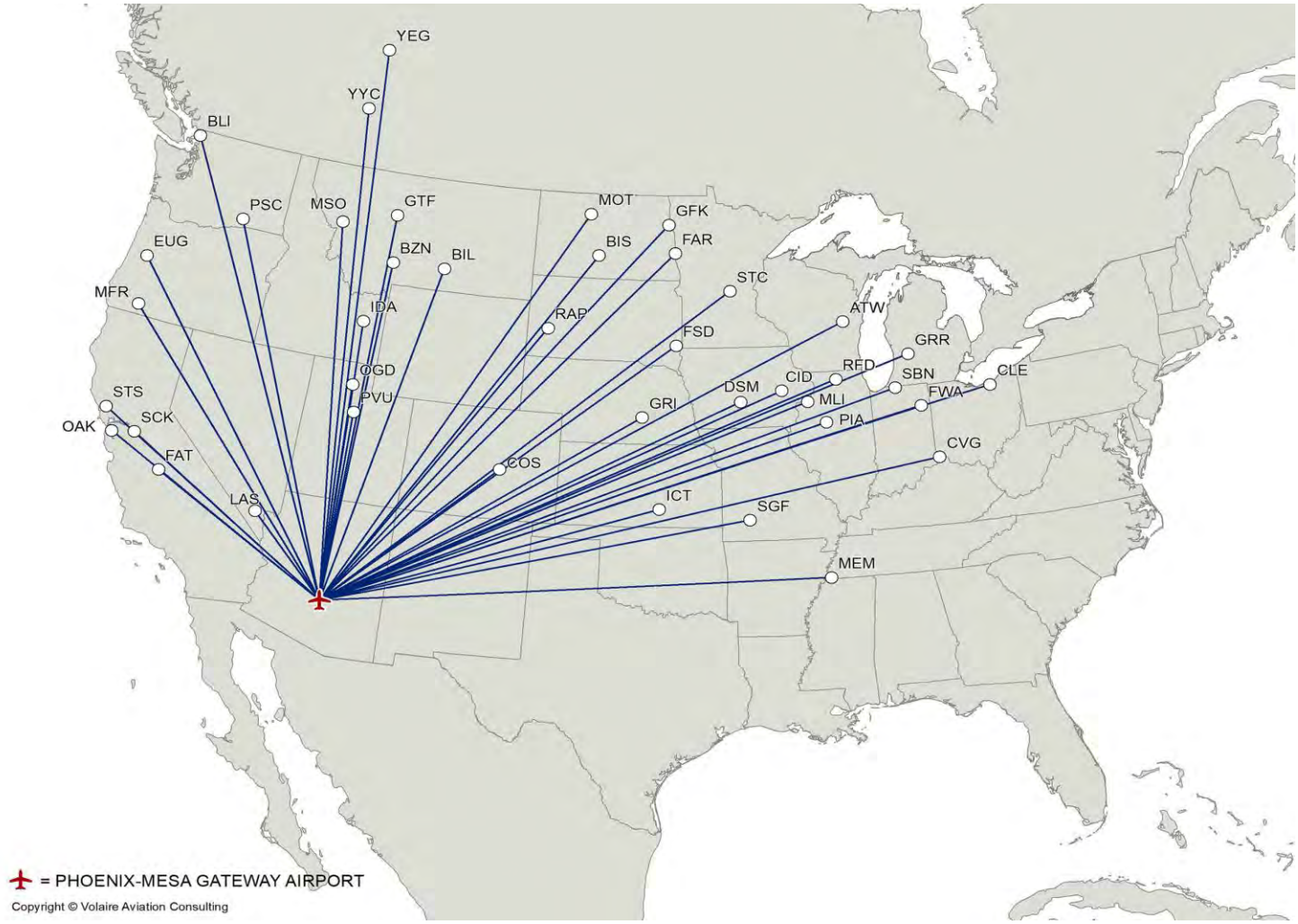


15 Largest O&D Markets and Average Fares - Phoenix-Mesa Gateway Airport





Nonstop Routes Flown - Phoenix-Mesa Gateway Airport

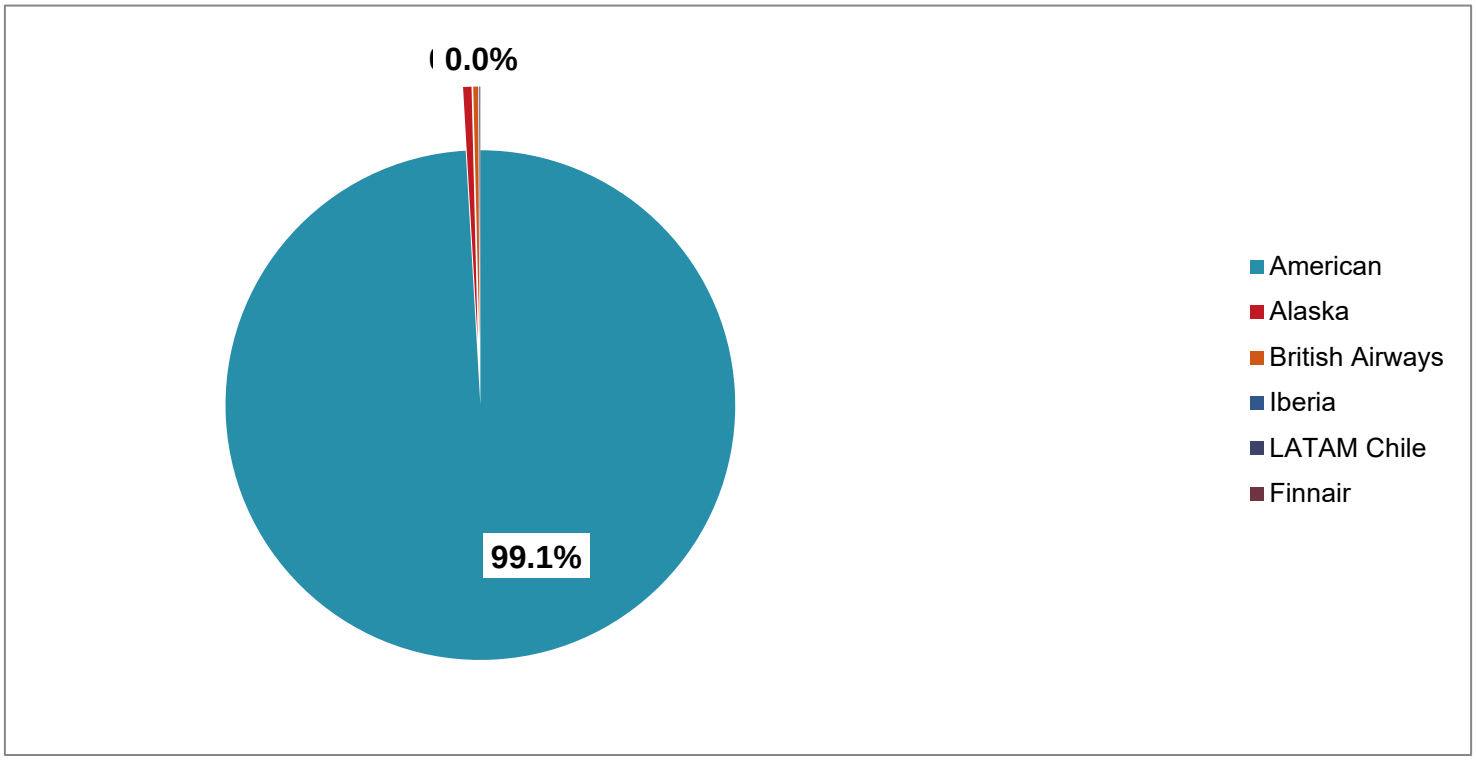


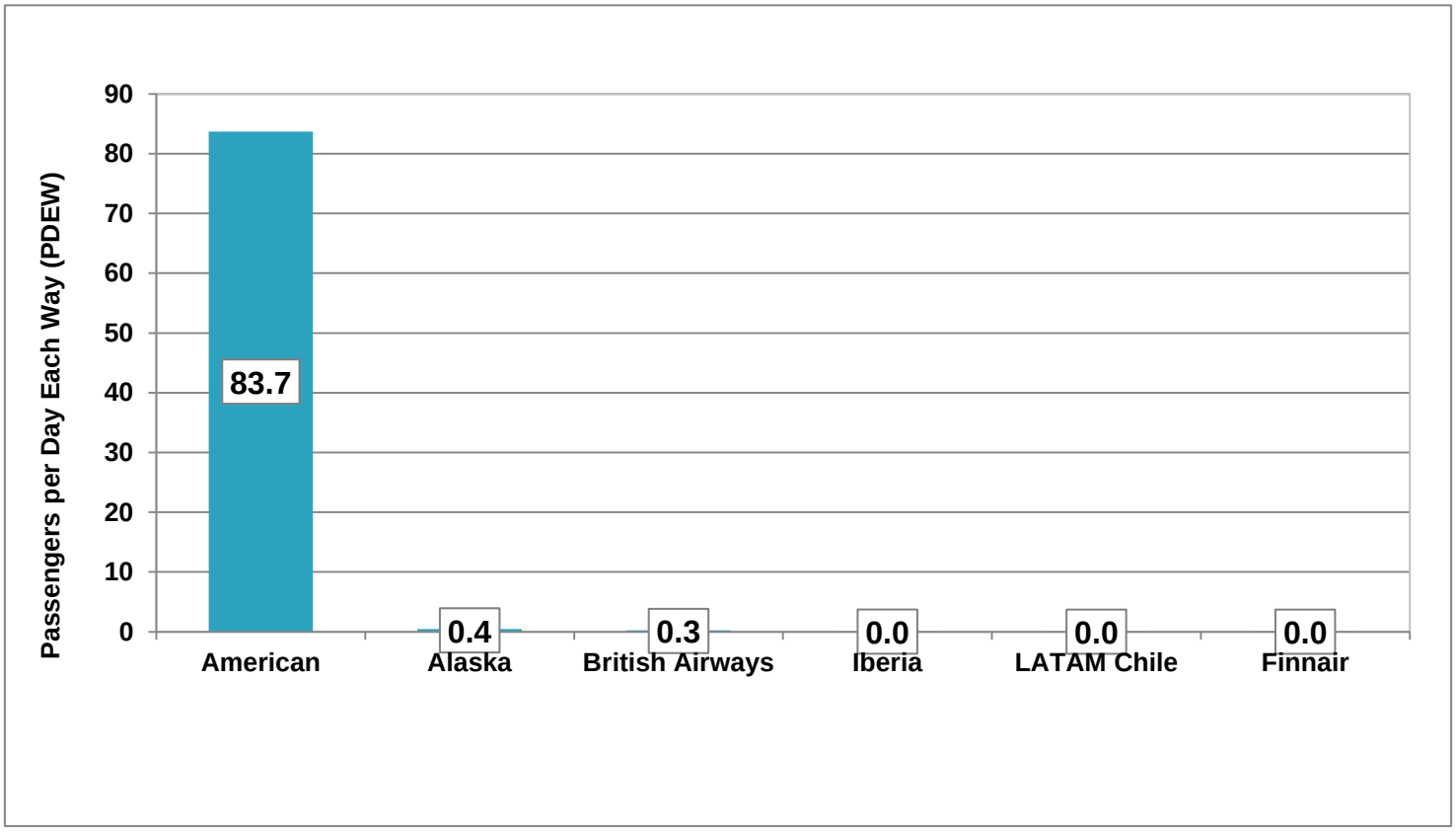
Allegiant operated 41 nonstop routes from Phoenix-Mesa Gateway Airport in YE 3Q 2017

Market Size Rankings and Airline Detail - Phoenix-Mesa Gateway Airport

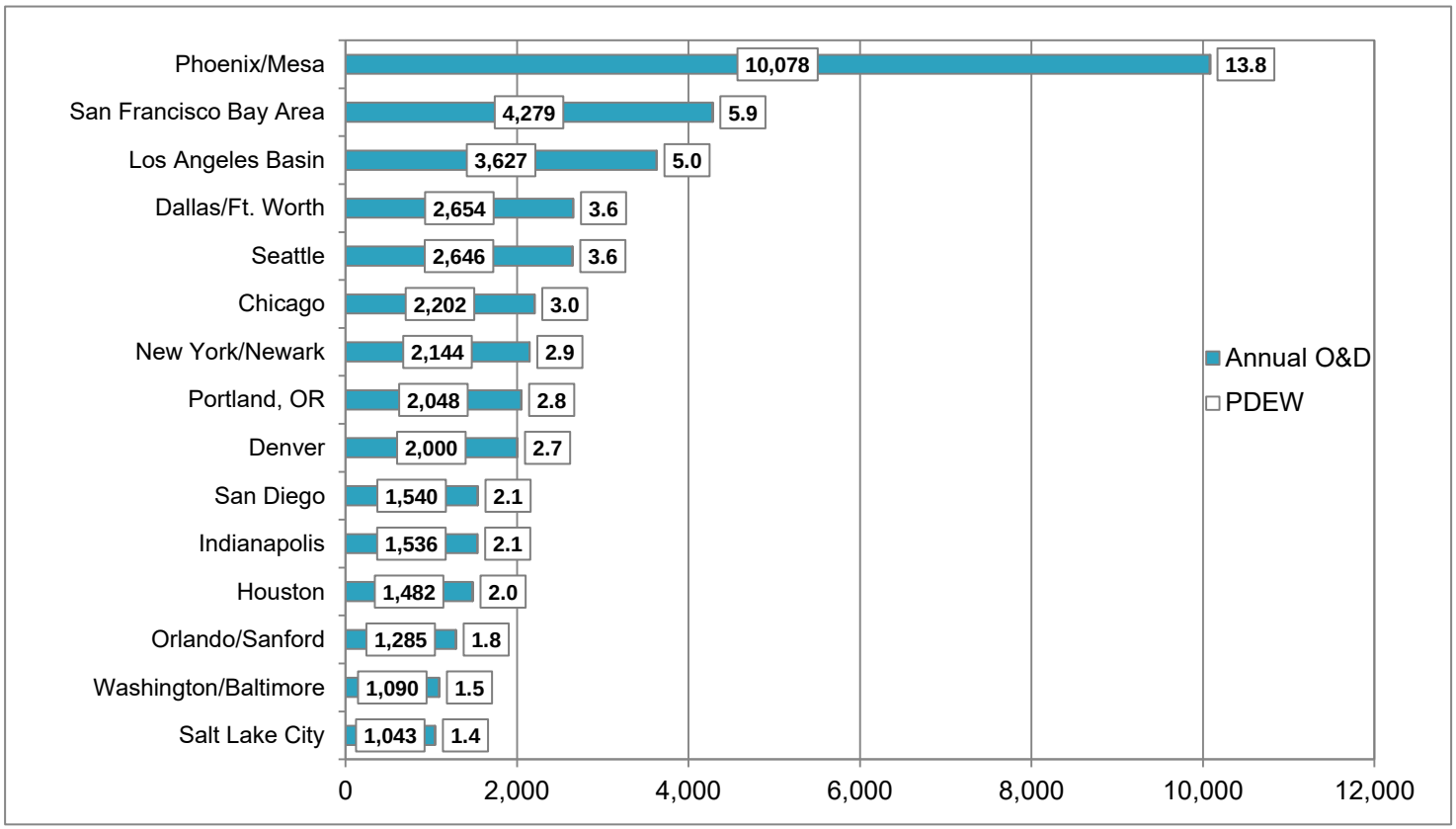
		Allegiant										All Carriers	
Rank	Metro Area	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare
1	Rapid City	7.2	$105									7.2	$105
2	Great Falls	6.4	$93									6.4	$93
3	Sioux Falls	6.4	$123									6.4	$123
4	Eugene	5.3	$114									5.3	$114
5	Missoula	5.2	$114									5.2	$114
6	Bismarck	5.0	$133									5.0	$133
7	Spingfield	4.5	$118									4.5	$118
8	Billings	4.0	$127									4.0	$127
9	South Bend	3.4	$127									3.4	$127
10	Bozeman	3.1	$113									3.1	$113
11	Bellingham	2.9	$94									2.9	$94
12	Moline	2.9	$129									2.9	$129
13	Cedar Rapids	2.8	$144									2.8	$144
14	Des Moines	2.7	$141									2.7	$141
15	Grand Rapids	2.6	$168									2.6	$168
16	Grand Island	2.6	$89									2.6	$89
17	Wichita	2.5	$112									2.5	$112
18	Appleton	2.3	$145									2.3	$145
19	Minot	2.2	$126									2.2	$126
20	Ft. Wayne	1.9	$143									1.9	$143
21	San Francisco Bay Area	1.8	$130									1.8	$130
22	Peoria	1.7	$125									1.7	$125
23	Fargo	1.6	$148									1.6	$148
24	Grand Forks	1.3	$126									1.3	$126
25	Idaho Falls	1.2	$90									1.2	$90
26	Medford	1.0	$134									1.0	$134
27	Pasco	0.7	$104									0.7	$104
28	Cincinnati	0.7	$112									0.7	$112
29	Santa Rosa	0.4	$114									0.4	$114
30	Las Vegas	0.4	$109									0.4	$109
31	Memphis	0.3	$196									0.3	$196
32	Cleveland	0.3	$143									0.3	$143
33	Fresno	0.2	$160									0.2	$160
34	Indianapolis	0.0	$192									0.0	$192
35													
36													
37													
38													
39													
40													
41													
42													
43													
44													
45													
46													
47													
48													
49													
50													
	50 Largest Markets	87.5	$121									87.5	$121
	Other Markets												
	All Markets	87.5	$121									87.5	$121

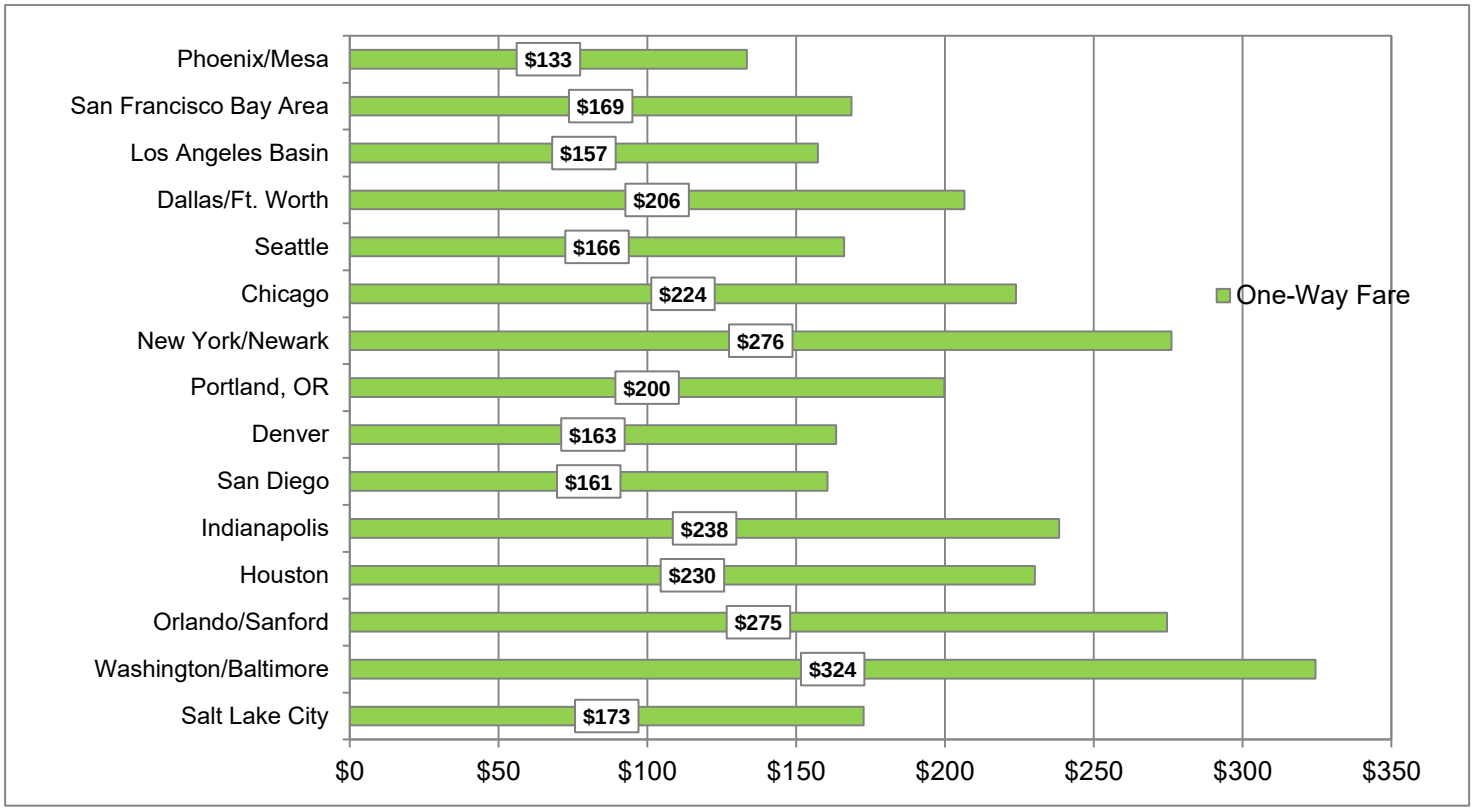
Distribution of Traffic among Airlines - Flagstaff Pullman Airport





15 Largest O&D Markets and Average Fares - Flagstaff Pullman Airport





Nonstop Routes Flown - Flagstaff Pullman Airport

American operated Phoenix service from Flagstaff in YE 3Q 2017

Market Size Rankings and Airline Detail - Flagstaff Pullman Airport

		American		Alaska		British Airways		Iberia		LATAM Chile		All Carriers	
Rank	Metro Area	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare	PDEW	Fare
1	Phoenix/Mesa	13.8	$133									13.8	$133
2	San Francisco Bay Area	5.9	$169									5.9	$169
3	Los Angeles Basin	5.0	$157									5.0	$157
4	Dallas/Ft. Worth	3.6	$206									3.6	$206
5	Seattle	3.4	$166	0.2	$166							3.6	$166
6	Chicago	3.0	$224									3.0	$224
7	New York/Newark	2.9	$276									2.9	$276
8	Portland, OR	2.8	$200									2.8	$200
9	Denver	2.7	$163									2.7	$163
10	San Diego	2.1	$161									2.1	$161
11	Indianapolis	2.1	$238									2.1	$238
12	Houston	2.0	$230									2.0	$230
13	Orlando/Sanford	1.8	$275									1.8	$275
14	Washington/Baltimore	1.5	$324									1.5	$324
15	Salt Lake City	1.4	$173									1.4	$173
16	Minneapolis/St. Paul	1.2	$197									1.2	$197
17	Tampa/St. Petersburg	1.2	$246									1.2	$246
18	Philadelphia	1.1	$287									1.1	$287
19	Boston	1.1	$279									1.1	$279
20	Kansas City	1.0	$214									1.0	$214
21	Sacramento	1.0	$176									1.0	$176
22	Detroit	1.0	$227									1.0	$227
23	Austin	1.0	$207									1.0	$207
24	Richmond	0.9	$283									0.9	$283
25	Pittsburgh	0.8	$271									0.8	$271
26	Columbus	0.8	$276									0.8	$276
27	Reno	0.8	$199									0.8	$199
28	Las Vegas	0.7	$139									0.7	$139
29	Kalamazoo	0.7	$271									0.7	$271
30	Milwaukee	0.7	$193									0.7	$193
31	Atlanta	0.7	$237									0.7	$237
32	St. Louis/Belleville	0.6	$226									0.7	$320
33	Spokane	0.6	$202									0.6	$202
34	St. Louis/Belleville	0.6	$226									0.6	$226
35	Buffalo	0.6	$325									0.6	$325
36	Omaha	0.6	$173									0.6	$173
37	Buffalo	0.6	$325									0.6	$325
38	Syracuse	0.5	$296									0.5	$296
39	Boise	0.4	$173									0.4	$173
40	Chattanooga	0.4	$189									0.4	$189
41	Hartford	0.4	$290									0.4	$290
42	Miami/Ft. Lauderdale	0.4	$269									0.4	$269
43	Charlotte/Concord	0.4	$255									0.4	$255
44	Ft. Myers/Punta Gorda	0.3	$254									0.3	$254
45	Gainesville	0.3	$314									0.3	$314
46	Albuquerque	0.3	$173									0.3	$173
47	Fresno	0.3	$224									0.3	$224
48	Medford	0.3	$380									0.3	$380
49	Grand Rapids	0.3	$352									0.3	$352
50	San Antonio	0.2	$215									0.2	$215
	50 Largest Markets	77.0	$200	0.2	$166							77.3	$201
	Other Markets	6.7	$312	0.2	$311	0.3	$702					7.2	$320
	All Markets	83.7	$209	0.4	$241	0.3	$702	0.04	$635	0.02	$533	84.5	$211

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