

VGT

NORTH LAS VEGAS AIRPORT

AIRPORT MASTER PLAN







MASTER PLAN

FOR

NORTH LAS VEGAS AIRPORT (VGT)

North Las Vegas, Nevada

PREPARED FOR THE

CLARK COUNTY DEPARTMENT OF AVIATION

Clark County, Nevada

BY

Coffman Associates
Airport Consultants

September 2025

The preparation of this document was supported in part with financial assistance through the Airport Improvement Program from the Federal Aviation Administration as provided under Title 49 USC § 47104. 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 acceptable in accordance with appropriate public laws.



Table of Contents





TABLE OF CONTENTS

INTRODUCTION

ABOUT THE STUDY i-2
What is a Master Plan? i-2
Who is Preparing the Master Plan? i-4
Master Plan Goals and Objectives i-4
MASTER PLAN ELEMENTS AND PROCESS i-6
Coordination and Outreach i-8

CHAPTER ONE – INVENTORY

1.1 BACKGROUND AND LOCAL SETTING 1-1
1.1.1 Regional Aviation Facilities 1-4
1.1.2 Ownership and Management 1-7
1.1.3 Airport History 1-9
1.1.4 Airport Strengths, Weaknesses, Opportunities, and Threats Analysis 1-11
1.1.5 Economic Impact 1-14
1.2 AIRPORT SYSTEM PLANNING ROLE 1-14
1.2.1 Federal System Planning 1-15
1.2.2 State System Planning 1-17
1.2.3 Regional System Planning 1-18
1.2.4 Local System Planning 1-19
1.3 AIRSPACE STRUCTURE AND APPROACH CAPABILITIES 1-19
1.3.1 Airspace 1-19
1.3.2 Procedures and Instrument Approaches 1-26
1.4 AIRSIDE FACILITIES 1-28
1.4.1 Airport Design Standards 1-31
1.4.2 Runways 1-31
1.4.3 Taxiways 1-39
1.4.4 Apron Areas 1-39
1.4.5 Meteorological Conditions 1-40
1.4.6 Airfield Lighting 1-46
1.4.7 Navigational Aids 1-47
1.4.8 Airfield Pavement 1-48
1.4.9 Runway Incursion Mitigation 1-52
1.4.10 Airfield Signage 1-55
1.5 LANDSIDE FACILITIES 1-56
1.5.1 Terminal Building 1-59
1.5.2 General Aviation Tenants 1-60

CHAPTER ONE – INVENTORY (CONTINUED)

1.6 ANCILLARY AND SUPPORT FACILITIES 1-62
1.6.1 Airport Administration and Maintenance 1-62
1.6.2 Fuel Storage 1-62
1.6.3 Emergency Services 1-63
1.6.4 Airport Security 1-64
1.6.5 Utility Infrastructure 1-67
1.7 LAND USE AND ZONING 1-67
1.7.1 Zoning 1-68
1.7.2 Land Use Planning 1-75
1.7.3 Off-Airport Land Uses 1-79
1.7.4 Noise Abatement Procedures 1-80
1.7.5 Part 77 Requirements 1-83
1.8 SURFACE TRANSPORTATION 1-85
1.8.1 Regional Roadways 1-85
1.8.2 Roadway Planning 1-87
1.8.3 Municipal and Local Roadways 1-88
1.8.4 Airport Roadways 1-88
1.9 SUSTAINABILITY 1-89
1.10 ENVIRONMENTAL CONSIDERATIONS 1-90
1.10.1 Water Resources 1-90
1.10.2 Endangered and Threatened Species 1-94
1.10.3 Noise Exposure 1-95
1.10.4 *Department of Transportation Act*, Section 4(f) 1-97
1.10.5 Air Quality 1-101
1.10.6 Hazardous Materials 1-102
1.10.7 Climate 1-102
1.10.8 Farmlands 1-103
1.10.9 Historical, Architectural, Archaeological, and Cultural Resources 1-104
1.10.10 Natural Resources and Energy Supply 1-104
1.10.11 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks 1-105
1.10.12 Visual Effects 1-106

CHAPTER TWO – FORECASTS

2.1 INTRODUCTION 2-1
2.2 HISTORICAL ACTIVITY 2-4
2.3 FORECASTING ASSUMPTIONS 2-5
2.4 PREVIOUS FORECASTS 2-6
2.5 SOCIOECONOMIC BACKGROUND 2-7
2.5.1 Population 2-10
2.5.2 Employment 2-10

CHAPTER TWO – FORECASTS (CONTINUED)

2.5.3 Per Capita Personal Income....2-10
2.5.4 Visitor Volume and Gaming Revenue....2-11
2.6 BASED AIRCRAFT FORECASTS....2-11
2.6.1 Based Aircraft – Socioeconomic Variable Forecasts....2-11
2.6.2 Based Aircraft – Regional Market Share Forecast....2-12
2.6.3 Based Aircraft – Linear Regression Forecast....2-15
2.6.4 Based Aircraft – Recommended Methodology....2-15
2.6.5 Based Aircraft – Fleet Mix Forecast....2-17
2.7 AIRCRAFT OPERATIONS FORECASTS....2-19
2.7.1 General Aviation Operations – Socioeconomic Variable Forecast....2-20
2.7.2 General Aviation Operations – Regional Market Share Forecast....2-20
2.7.3 General Aviation Operations – Operations Per Based Aircraft Forecast....2-22
2.7.4 General Aviation Operations – Recommended Methodology....2-23
2.7.5 Air Taxi Operations Forecast....2-25
2.7.6 Military Operations Forecast....2-25
2.7.7 Local/Itinerant Operations Forecast....2-26
2.7.8 Daytime/Evening Operations Forecast....2-27
2.7.9 Instrument Operations Forecast....2-27
2.7.10 Touch-and-Go Operations Forecast....2-28
2.7.11 Operational Fleet Mix Forecast....2-29
2.8 PEAK OPERATIONS FORECASTS....2-29
2.9 DESIGN AIRCRAFT....2-31
2.10 FORECAST SUMMARY....2-34
2.11 FEDERAL AVIATION ADMINISTRATION FORECAST REVIEW AND APPROVAL....2-37

CHAPTER THREE – AIRPORT DEMAND AND FACILITY REQUIREMENTS

3.1 INTRODUCTION....3-1
3.2 AIRFIELD DEMAND AND CAPACITY....3-3
3.2.1 Airfield Capacity....3-3
3.3 FAA DESIGN STANDARDS....3-5
3.3.1 Airport Reference Code....3-10
3.3.2 Runway Design Code....3-10
3.3.3 Taxiway Design Group....3-12
3.4 AIRSIDE FACILITIES....3-13
3.4.1 Runway Requirements....3-13
3.4.2 Taxiway Requirements....3-34
3.4.3 Navigational Aids....3-42
3.4.4 Airfield Lighting and Marking Requirements....3-43
3.4.5 Airfield Pavement....3-44
3.4.6 Helicopter Landing Areas and Advanced Air Mobility....3-44
3.4.7 Airport Traffic Control Tower....3-49

CHAPTER THREE – AIRPORT DEMAND AND FACILITY REQUIREMENTS (CONTINUED)

3.4.8 Run-Up Aprons 3-50
3.4.9 Airspace Protection 3-50
3.4.10 Aircraft Storage Hangar Requirements 3-52
3.4.11 Aircraft Parking Apron and Tiedown Requirements 3-53
3.4.12 Airside Facility Requirements Summary 3-54
3.5 LANDSIDE FACILITIES 3-57
3.5.1 General Aviation Terminal Building 3-57
3.5.2 Surface Transportation 3-57
3.5.3 Landside Facility Requirements Summary 3-58
3.6 SUPPORT FACILITIES 3-59
3.6.1 Aviation Fuel Storage 3-59
3.6.2 Airport Maintenance and Storage 3-59
3.6.3 Utility Infrastructure 3-60
3.7 AIRPORT SECURITY 3-60
3.8 SUMMARY 3-62

CHAPTER FOUR – ALTERNATIVES ANALYSIS

4.1 SUMMARY OF FACILITY NEEDS 4-2
4.2 AIRPORT LAND USE PLANNING 4-3
4.2.1 Overview 4-3
4.2.2 Bureau of Land Management Memorandum of Understanding 4-3
4.2.3 Recent Developments 4-4
4.3 OPPORTUNITIES AND CONSTRAINTS 4-4
4.3.1 Opportunities 4-4
4.3.2 Constraints 4-5
4.4 EVALUATION CRITERIA 4-5
4.5 NO-BUILD ALTERNATIVE 4-6
4.6 RUNWAY ALTERNATIVES 4-7
4.6.1 Runway Configuration Alternatives Summary 4-28
4.7 AIRSIDE ALTERNATIVES 4-28
4.8 ALTERNATIVES SUMMARY 4-29

CHAPTER FIVE – RECOMMENDED DEVELOPMENT CONCEPT

5.1 RUNWAY/TAXIWAY PLAN 5-2
5.1.1 Design Standards 5-5
5.1.2 Runway 12R-30L 5-5
5.1.3 Runway 12L-30R 5-8
5.1.4 Runway 7-25 5-10
5.1.5 Taxiway Improvements 5-11
5.1.6 Traffic Study 5-17

CHAPTER FIVE – RECOMMENDED DEVELOPMENT CONCEPT (CONTINUED)

5.2 HANGAR/APRON DEVELOPMENT PLAN 5-17
5.2.1 West Side 5-18
5.2.2 North Side 5-21
5.2.3 East Side 5-25
5.3 ENVIRONMENTAL OVERVIEW 5-29
5.4 LAND USE COMPATIBILITY 5-43
5.4.1 Existing Land Use 5-44
5.4.2 Zoning 5-46
5.4.3 Subdivision Regulations 5-50
5.4.4 Building Code 5-51
5.4.5 Future Land Use Plans 5-51
5.4.6 Incompatible Development Analysis 5-56
5.4.7 Recommendations 5-58
5.5 AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION 5-60
5.5.1 Regulatory Guidelines 5-60
5.5.2 Solid Waste 5-61
5.5.3 Existing Services 5-64
5.5.4 Goals and Recommendations 5-64
5.6 SUSTAINABILITY 5-66
5.7 SUMMARY 5-68

CHAPTER SIX – FACILITIES IMPLEMENTATION PLAN

6.1 PROJECT DESCRIPTIONS 6-2
6.1.1 Phase 1 – Runway 12L-30R and Parallel Taxiways C and D 6-2
6.1.2 Phase 2 – Reroute Carey Avenue 6-5
6.1.3 Phase 3 – Runway 12R-30L 6-9
6.1.4 Phase 4 – Runway 7-25 and Taxiway F 6-13
6.2 ENVIRONMENTAL CLEARANCE STRATEGIES 6-17
6.2.1 Environmental Overview Summary of the Four Proposed Development Phases 6-17
6.3 CAPITAL IMPROVEMENT PROGRAM 6-18
6.4 MASTER PLAN IMPLEMENTATION 6-19

APPENDIX A – GLOSSARY OF TERMS
APPENDIX B – FAA FORECAST APPROVAL LETTER
APPENDIX C – TRAFFIC STUDY
APPENDIX D – UTILITIES PLAN
APPENDIX E – AIRPORT LAYOUT PLANS

TABLES

Introduction

i PAC and TAC Representatives i-9

Chapter One – Inventory

1.1 VGT Aviation Economic Impact 1-14
1.2 National Plan of Integrated Airport Systems (NPIAS) Classifications 1-15
1.3 Airport Capital Improvement Project History 1-16
1.4 General Aviation Airport Roles 1-17
1.5 NAHSP Classification 1-18
1.6 Restricted Airspace Summary 1-25
1.7 Instrument Approach Procedures 1-27
1.8 Aircraft Approach Category 1-31
1.9 Airplane Design Group 1-31
1.10 North Las Vegas Airport Declared Distances 1-33
1.11 Existing Runway Characteristics (2020 ALP) 1-34
1.12 Taxiway Data Table 1-39
1.13 Weather Observations Breakdown 1-42
1.14 Allowable Crosswind Component 1-43
1.15 VGT Pavement Classification Numbers 1-51
1.16 VGT Hangar Facilities Summary 1-61
1.17 Noise Abatement Voluntary Rules and Procedures 1-80
1.18 Species Protected Under ESA Section 7 with Potential to Occur Within Two Miles of the Airport 1-94
1.19 Noise-Sensitive Land Uses Within One Mile of Airport Boundaries 1-97
1.20 U.S. Dept. of Transportation Section 4(f) Resources Within One Mile of Airport Boundaries 1-101
1.21 Summary by Map Unit – Las Vegas Valley Area, Nevada, Part of Clark County (NV788) 1-104
1.22 50+ Year Old Buildings on the Airport 1-104

Chapter Two – Forecasts

2.1 VGT Historical Operations Data 2-5
2.2 Historical Based Aircraft Counts 2-5
2.3 Previous Forecasts 2-7
2.4 Historical and Forecast Socioeconomic Indicators 2-9
2.5 Based Aircraft – Socioeconomic Variable Forecast 2-12
2.6 Historical Market Share of Based Aircraft 2-13
2.7 Based Aircraft – Regional Market Share Forecast 2-14
2.8 Based Aircraft – Linear Regression Forecast 2-15
2.9 Based Aircraft Fleet Mix Forecast 2-17
2.10 General Aviation Operations – Socioeconomic Variable Forecast 2-20
2.11 Historical Market Share of General Aviation Operations 2-21

TABLES (CONTINUED)

Chapter Two – Forecasts (continued)

2.12 General Aviation Operations – Regional Market Share Forecast 2-22
2.13 General Aviation Operations – Operations per Based Aircraft Forecast 2-22
2.14 Air Taxi Operations Forecast 2-25
2.15 Military Operations Forecast 2-26
2.16 Local/Itinerant Operations Forecast 2-27
2.17 Daytime/Evening Operations Forecast 2-27
2.18 Instrument Operations Forecast 2-28
2.19 Touch-and-Go Operations Forecast 2-28
2.20 Operational Fleet Mix Forecast 2-29
2.21 Peak Operations Forecast 2-30
2.22 Aircraft Approach Category Criteria 2-32
2.23 Airplane Design Group Criteria 2-32
2.24 Historical and Forecast Operations by Airport Reference Code 2-33
2.25 Historical and Forecast Design Aircraft Operations 2-34
2.26 Existing and Future Design Aircraft Characteristics 2-34
2.27 Aviation Activity Forecast Summary 2-35

Chapter Three – Airport Demand and Facility Requirements

3.1 Airfield Capacity Summary 3-4
3.2 Annual Service Volume, Capacity, and Annual Aircraft Delay 3-4
3.3 Applicability of FAA Design Standards 3-9
3.4 Runway Design and Separation Standards 3-11
3.5 Operations by Taxiway Design Group 3-12
3.6 Taxiway/Taxilane Dimensions and Standards 3-12
3.7 Airplane Weight Classification for Runway Length Requirements 3-14
3.8 Aircraft Categories for Runway Length Determination 3-15
3.9 Runway Length Requirements – Aircraft Between 12,500 and 60,000 Pounds 3-20
3.10 Supplemental Business Aircraft Takeoff Length Requirements 3-21
3.11 Supplemental Business Aircraft Landing Length Requirements 3-22
3.12 Runway Eligibility 3-24
3.13 Runway Grading Requirements 3-29
3.14 Expectations of Airport Sponsors – Existing Incompatible Land Uses 3-32
3.15 Expectations of Airport Sponsors – New Incompatible Land Uses 3-33
3.16 Runway Pavement Strength 3-44
3.17 Reference Aircraft 3-46
3.18 Takeoff and Landing Area Dimensions 3-47
3.19 Hangar Needs 3-53
3.20 Aircraft Apron Requirements 3-53
3.21 Landside Facility Requirements Summary 3-58
3.22 Fuel Storage Requirements 3-59
3.23 TSA Airport Infrastructure Security Recommendations ..... 3-60 / 3-61

TABLES (CONTINUED)

Chapter Four – Alternatives Analysis
4.1 Facility Requirements Summary ..... 4-2 / 4-3
4.2 Runway Configuration Alternatives Summary 4-28

Chapter Five – Recommended Development Concept
5.1 Runway Classifications 5-5
5.2 Taxiway Plan ..... 5-15 / 5-16
5.3 Summary of Potential Environmental Concerns ..... 5-30 – 5-43
5.4 Zoning Classifications Within the Ultimate Approach Surfaces Out to One Mile 5-49
5.5 Future Land Use Designations Within the Ultimate Approach Surfaces Out to One Mile ..... 5-55 / 5-56
5.6 Waste Management and Recycling Goals 5-64

Chapter Six – Facilities Implementation Plan
6.1 Anticipated Environmental Review for Proposed Development Projects ..... 6-17 / 18
6.2 Summary of Cost Estimates by Phase and Funding Sources 6-18

FIGURES

Introduction
iA Master Plan Process and Elements i-6

Chapter One – Inventory
1.1 Development Impediments 1-3
1.2 Vicinity Airports 1-5
1.3 North Las Vegas Airport Management Organizational Chart 1-8
1.4 Timeline and History 1-10
1.5 Airspace Classification 1-20
1.6 Vicinity Airspace 1-22
1.7 Existing Airside Facilities 1-29
1.8 Existing Safety Areas 1-37
1.9 Climate Data 1-41
1.10 Windroses ..... 1-44 / 1-45
1.11 2022 Pavement Conditions 1-49
1.12 FAA Hot Spots 1-53
1.13 Existing Landside Facilities 1-57
1.14 Annual Fuel Dispensed 1-63
1.15 Perimeter Fence and Gates 1-65
1.16 City of North Las Vegas Zoning Map ..... 1-69 / 1-70
1.17 Air Terminal Environs Overlay District 1-73
1.18 City of North Las Vegas Land Use Plan / City of Las Vegas Land Use Plan ..... 1-77 / 1-78
1.19 Noise Abatement Procedures 1-81

FIGURES (CONTINUED)

Chapter One – Inventory (continued)

1.20 Part 77 Surfaces 1-84
1.21 Airport Vicinity/Location Maps 1-86
1.22 Floodplains 1-91
1.23 Section 4(f) Resources 1-96
1.24 50+ Year Old Buildings 1-99

Chapter Two – Forecasts

2.1 Las Vegas Metropolitan Statistical Area Map 2-8
2.2 Regional Market Share – Historical Based Aircraft 2-13
2.3 Based Aircraft Forecast Methodology Summary 2-16
2.4 Based Aircraft Fleet Mix Forecast 2-18
2.5 Historical General Aviation Operations 2-21
2.6 General Aviation Operations Forecast Methodology Summary 2-24
2.7 Historical and Forecast Based Aircraft 2-35
2.8 Historical and Forecast Total Operations 2-36
2.9 FAA Template for Comparing Airport Planning and TAF Forecasts 2-39
2.10 Template for Summarizing and Documenting Airport Planning Forecasts 2-40

Chapter Three – Airport Demand and Facility Requirements

3.1 Forecast Summary 3-2
3.2 Applicability of FAA Design Standards 3-7
3.3 Business Jet Runway Length Charts ..... 3-17 / 3-18 / 3-19
3.4 Existing Safety Areas 3-27
3.5 Taxiway Object Free Areas 3-36
3.6 Airfield Geometry Review 3-39
3.7 Reference Aircraft Controlling Dimensions 3-46
3.8 Takeoff and Landing Area 3-48
3.9 Vertiport Imaginary Surfaces 3-49
3.10 Airside Facility Requirements Summary 3-55

Chapter Four – Alternatives Analysis

4.1 Runway Configuration Alternative 1 4-9
4.2 Runway Configuration Alternative 2 4-13
4.3 Runway Configuration Alternative 3 4-17
4.4 Runway Configuration Alternative 4 4-21
4.5 Runway Configuration Alternative 5 4-25

Chapter Five – Recommended Development Concept

5.1 Master Plan Concept 5-3
5.2 Existing Taxiway Designations 5-13
5.3 Ultimate Taxiway Designations 5-14
5.4 West Side Development 5-19

FIGURES (CONTINUED)

Chapter Five – Recommended Development Concept (continued)

5.5 North Side Development 5-23
5.6 East Side Development Plan 5-27
5.7 Existing Noise Contours / Ultimate Noise Contours ..... 5-37 / 5-38
5.8 Existing Land Use 5-45
5.9 Zoning 5-47
5.10 Comprehensive Plan 5-53
5.11 Airport Waste Stream Inputs 5-63
5.12 Waste Audit Example 5-65

Chapter Six – Facilities Implementation Plan

6.1 Phase 1 – Runway 12L-30R and Parallel Taxiways C and D 6-3
6.2 Phase 2 – Reroute Carey Avenue 6-7
6.3 Phase 3 – Runway 12R-30L 6-11
6.4 Phase 4 – Runway 7-25 and Taxiway F 6-15



Introduction









Introduction

North Las Vegas Airport (VGT) is one of five airports owned by Clark County, Nevada, and operated by the Clark County Department of Aviation (CCDOA), along with Harry Reid International Airport (LAS), Perkins Field (U08), Jean Airport (0L7), and Henderson Executive Airport (HND). VGT supports the general aviation needs of the City of North Las Vegas and the wider Las Vegas Valley. The airport is part of a larger system of airports which comprise the National Airspace System, connecting people and goods to national and international economic markets.

According to an August 2019 report by Oxford Economics, *The Economic Contribution of the Clark County Airports*, **VGT supports 919 jobs, with an annual payroll of $39,183,400 and a total economic output of $218,032,790**. The CCDOA recognizes the value of the airport, and this master plan is evidence of a desire to support the airport so that it can continue to serve as an economic engine for the community and region.

The CCDOA is responsible for funding capital improvements at VGT, as well as obtaining development grants from the Federal Aviation Administration (FAA). In addition, the CCDOA oversees facility enhancements and infrastructure development conducted by private contractors and consultants at the airport. This master plan is intended to provide guidance for future development and justification for projects for which the airport may receive funding through an updated capital improvement program (CIP) to demonstrate the future investment required by Clark County, as well as the FAA.

ABOUT THE STUDY

WHAT IS A MASTER PLAN?

A master plan provides an evaluation of an airport's aviation demand and an overview of the recommended development, guiding modernization of the airport to meet its aviation demand while considering potential environmental and socioeconomic impacts. The master plan establishes development objectives and provides for a 20-year planning period that details the rationale for various study elements, including airfield configuration, facility development, on-airport land use recommendations, and support facilities. It also serves as a strategic tool for establishing improvement priorities and justifying the need for federal and state funding assistance.

The last master plan for VGT was completed in 1988. The FAA currently recommends that airports update their master plans every seven to 10 years, or periodically to address local changes at the airport. The master plan is tailored to the specific needs of the airport and focuses on the airport's critical issues at the local level. A scope of work developed by the planners and airport sponsor determined the details of the individual master plan elements for VGT, and the CCDOA received an Airport Improvement Program (AIP) grant from the FAA to update the airport master plan.

The airport master plan follows a systematic approach outlined by the FAA to identify airport needs in advance of the actual need for improvement. This is done to ensure the CCDOA can coordinate environmental reviews, project approvals, design, financing, and construction to maintain the facilities at an Air Elite® standard.

An important outcome of the master plan process is a recommended development plan that reserves sufficient areas for future facility needs. Such planning will protect development areas and ensure they will be readily available when required to meet future needs. The intended outcome of this study is a detailed on-airport land use concept that outlines specific uses for all areas of airport property, including strategies for revenue enhancement.

The cost of maintaining an airport is an investment that yields impressive benefits to the local community. With a sound and realistic master plan, the airport can maintain its role as an important link to the regional, state, national, and global air transportation systems. Moreover, the plan will aid in supporting decisions for directing valuable CCDOA resources for future airport development. Some of the common questions regarding what a master plan is or is not are answered in the following graphics.

What an Airport Master Plan is:

- A comprehensive, long-range study of the airport and all air and landside components that describes plans to meet FAA safety standards and future aviation demand.
- Recommended by the FAA to be conducted periodically to ensure plans are up-to-date and reflect current conditions and FAA regulations.
- Funded in part by the FAA through the Airport Improvement Program (AIP). 93.75% of this study is being funded by AIP funds, with the remainder funded by the CCDOA.
- The FAA approves the Aviation Demand Forecasts and the Airport Layout Plan (ALP) drawing set elements.
- An opportunity for airport stakeholders and the general public to engage with airport staff on issues related to the airport and its current and future operations and environmental and socioeconomic impacts. Four (4) public information workshops will be conducted throughout the master plan process to facilitate this public outreach effort.

What an Airport Master Plan is not:

- A guarantee that the airport will proceed with any planned projects. Master plans are guides that help airport staff plan for future airport development; however, the need/demand for certain projects may not ever materialize.
- A guarantee that Clark County, NDOT, or the FAA will fund any planned projects. Project funding is considered on a project-by-project basis requiring appropriate need and demand. Certain projects may require the completion of a benefit-cost analysis.
- Environmental clearance for any planned projects. The master plan includes an environmental overview that identifies potential environmental sensitivities per the National Environmental Policy Act of 1969 (NEPA); however, most planned projects will require a separate NEPA study (Environmental Impact Statement/ Environmental Assessment/Categorical Exclusion) prior to construction.

WHO IS PREPARING THE MASTER PLAN?

Through a qualifications-based selection process, the CCDOA contracted with Coffman Associates, Inc. to undertake the airport master plan. Coffman Associates is an airport consulting firm that specializes in master planning and environmental studies. Coffman Associates led the planning team, with support from HNTB, Lean Engineering, Accretive Consulting, Martinez Geospatial, and GCW Engineers/Surveyors. HNTB is an engineering firm that provided support and insights into development alternatives and estimates of probable costs. Lean Engineering conducted a technical analysis of airspace, instrument procedures, navigational aids (NAVAIDs), and approach lighting. Accretive Consulting assisted with stakeholder engagement and public outreach. Martinez Geospatial provided remote-sensing and photogrammetry services. GCW Engineers/Surveyors evaluated traffic impacts related to overall development recommendations.

The airport master plan update was prepared in accordance with FAA requirements, including Advisory Circular (AC) 150/5300-13B, *Airport Design*, and AC 150/5070-6B, *Airport Master Plans*. The master plan was closely coordinated with other planning studies relevant to the area and with aviation plans developed by the FAA. The plan was also coordinated with the CCDOA, the City of North Las Vegas, and other local and regional agencies as appropriate.

MASTER PLAN GOALS AND OBJECTIVES

The primary goal of this master plan is to provide the framework needed to guide future airport development that will cost-effectively satisfy aviation demand while considering potential environmental and socioeconomic impacts. Additionally, the plan evaluated VGT in relation to the system of airports serving the Las Vegas Valley. Accomplishing this goal required an evaluation of the existing airport to decide what actions should be taken to maintain a safe, adequate, and reliable facility.

Master Plan Objectives

- To research factors likely to affect all air transportation demand segments at VGT over the next 20 years.
- To determine projected needs of the airport users for the next 20 years.
- To recommend improvements that will enhance the airport's ability to satisfy future aviation needs, including the possibility of developing an entirely new general aviation apron and hangar location.
- To analyze the existing airfield system to determine the existing and ultimate runway lengths required to satisfy the airport's critical aircraft.
- To produce updated and accurate base maps of existing and proposed facilities and updated Airport Layout Plan (ALP) drawings consistent with FAA standards.
- To review future use and zoning of airport property and approaches to each runway for future protection.

- To evaluate landside development options to maximize use of available property in order to accommodate forecast demand, increase revenue production, and be sustainable in both approaches.

- To establish a schedule of development priorities and a program for improvements proposed in the master plan, consistent with the FAA's capital improvement program planning.

- To consider sustainability efforts – specifically waste and recycling improvements – as part of updated FAA standards.

Additional Issues Addressed

- Parallel taxiway separation standards and potential shifts to meet standards.

- FAA hot spot designation and other non-standard airfield geometry changes.

- Analysis of the North Las Vegas area's growth in residential and commercial development as it relates to compatible land uses surrounding the airport.

- Airspace analysis to factor and define compatible building heights in the runway approach zones and for extended VGT operations in proximity to Nellis Air Force Base and Harry Reid International Airport to ensure the long-term viability of airfield operations at VGT.

- Sustainability and environmental best practices.

Baseline Assumptions

A long-range planning study requires several baseline assumptions that will be used throughout this analysis. The baseline assumptions for this study are as follows:

- VGT will continue to accommodate general aviation tenants, as well as itinerant and local aircraft operations by air taxi, general aviation, and military operations.

- The aviation industry will develop through the planning periods as projected by the FAA in their annual Aerospace Forecasts report, the most recent available at the time of writing being the FY 2023-2043 edition.[1]

- The socioeconomic characteristics of the region will generally change as forecasted (see Chapter Two).

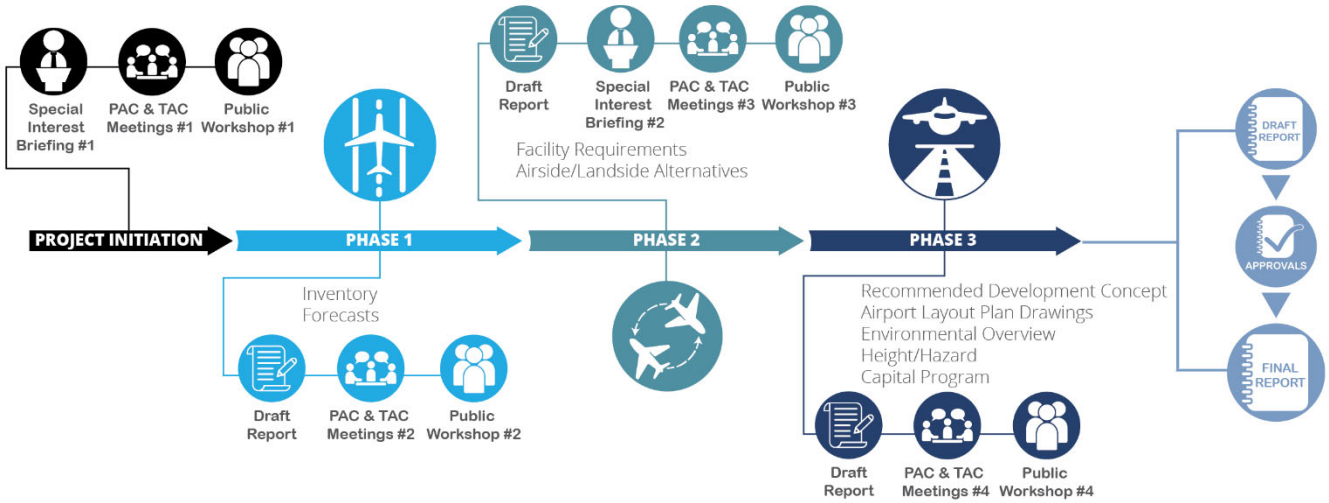
- A federal airport improvement program will be in place through the planning period to assist in funding capital development needs.

[1] https://www.faa.gov/data_research/aviation/aerospace_forecasts

MASTER PLAN ELEMENTS AND PROCESS

The airport master plan is prepared with the appropriate elements determined from the scope of services that has been coordinated with the CCDOA. The study has 12 specific elements that are intended to assist in the identification of future facility needs and which provide the supporting rationale for their implementation. **Figure iA** provides a graphical depiction of the elements and process involved in the study.

Figure iA – *Master Plan Process and Elements*



Element 1 – Study Initiation and Project Administration includes development of the scope of services, schedule, and study website. The purpose of this element is to allow for appropriate time to manage the project, including the website, project updates with the sponsor, team management, and overall quality assurance and quality control (QA/QC).

Element 2 – Coordination and Public Involvement Program is included to qualify and quantify specific levels of public outreach and to establish the Planning Advisory Committee (PAC) and Technical Advisory Committee (TAC). The overall goal of the program is to educate and communicate high-level aviation planning concepts in a manner that is capable of being understood by all key stakeholders. The approach is to be collaborative and direct for those with vested or generalized interests.

Element 3 – Inventory of Existing Conditions involves assembly and organization of information and data pertaining to VGT and the surrounding area. A series of inventory efforts is necessary to collect and organize a variety of specific historical, technical, legal, financial, and planning data that are used to establish a baseline of existing information from which the remainder of the master plan is built.

Element 4 – Aviation Demand Forecasts examines the estimates of future levels of air traffic and based aircraft at VGT using industry-accepted forecasting methods. These forecasts considered factors such as historical demand and use, socioeconomic characteristics, and FAA projections to estimate future demand at VGT over a 20-year period. An existing and ultimate critical design aircraft based on AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, will be established to determine future

planning design standards. The results of this effort are used to determine the types and sizes of facilities that will be required to meet the projected aviation demand at the airport through the planning period. The forecasts were submitted to the FAA for review and approval.

Element 5 – Demand/Capacity and Facility Requirements analyzes and assesses the available capacities of various facilities at VGT, including their conformance or non-conformance with FAA standards, and identifies the facilities that will be needed to meet compliance requirements or projected demand over the next 20 years.

Element 6 – Sustainability Planning includes the development of a recycling plan by evaluating the feasibility of solid waste recycling, minimizing the generation of waste, identifying operations and maintenance requirements, reviewing waste management contracts, and identifying the potential for cost savings or revenue generation. Other sustainability initiatives will also be included, such as solar and improved or expanded electrical facilities that may be needed as aircraft electrification becomes more common.

Element 7 – Alternatives Analysis and Recommended Development Plan considers a variety of solutions to accommodate projected facility needs through the long-term planning period. An analysis is completed to identify the strengths and weaknesses of each proposed development alternative, with the intention of determining a single feasible direction for development.

Element 8 – Environmental Considerations identifies potential issues associated with the airport development alternatives and recommended development concept, including mitigation measures that may be needed for proposed projects. Using operational forecasts prepared in Element 4, conceptual aircraft noise exposure contours are developed as part of the master plan for informational purposes. These will be prepared using FAA's Airport Environmental Design Tool (AEDT) for the existing and future conditions. The conceptual noise contours provide a basic understanding of noise exposure at the airport but do not rise to the level of Airport Noise Compatibility Planning, which would need to be studied separately from the master plan as outlined within 14 CFR Part 150. An evaluation of compatible land use is also detailed. Projects that will require further analysis under the *National Environmental Policy Act* (NEPA) are identified.

Element 9 – Facility Implementation Phasing Plan analyzes benefits and costs that may be associated with the recommended plan. This element also determines and sets out the assumptions, terms, and conditions by which agreed-upon capital improvement programs can be financially implemented for VGT.

Element 10 – Airport Plans involves the development of the Airport Layout Plan (ALP) drawing set. The ALP will meet the FAA's Standard Operating Procedure (SOP), *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs),* effective October 1, 2013. The updated ALP set will be included as an appendix to the master plan and submitted to the FAA for review and approval.

Element 11 – Airspace Analysis and Modeling is a complete data collection of the airport environment that was conducted to assist in the development of the ALP and the analysis of Part 77 surfaces.

Element 12 – Final Reports provides documents that depict the findings of the study effort and present the study and its recommendations to appropriate local organizations. The final document incorporates the revisions to previous working papers, prepared under earlier elements, into a usable master plan document.

COORDINATION AND OUTREACH

The airport master plan is of interest to many within the local community and region, including local citizens, local businesses, local governmental agencies, community organizations, county officials, airport users, airport tenants, and aviation organizations. As a component of the regional, state, and national aviation systems, the master plan is of importance to both state and federal agencies responsible for overseeing the air transportation system.

To assist in the development of the airport master plan, the CCDOA assembled a Planning Advisory Committee (PAC) and Technical Advisory Committee (TAC), which consist of a group of stakeholders – including government representatives, airport users and tenants, and local community leaders – who acted in an advisory role in the development of the master plan. Members of the PAC and TAC met four times at designated points during the master plan study to review study materials and provide comments to help ensure that a realistic, viable plan is developed. Two additional CCDOA-hosted PAC and TAC workshops were conducted to review/refine development alternatives. **Table i** on the following page provides a list of those entities that are represented on the PAC and TAC.

Draft working paper materials were prepared at various milestones in the planning process. The working paper process allows for timely input and review during each step within the master plan to ensure that all issues are fully addressed as the recommended program develops.

A series of public information workshops were also conducted as part of the study coordination effort. These workshops were designed to allow any and all interested persons to receive information and provide input concerning the master plan process. Notices of meeting times and locations were advertised through local media outlets. Draft working papers and other information related to the master plan are available to the public via a website dedicated to the study: https://vgt.airportstudy.net. Outreach to the public included notices posted to social media and published by newspaper.

TABLE i | PAC and TAC Representatives

Representing	Name	Title
Planning Advisory Committee		
AJB General Contractor	Alan Jeskey	Owner
Beauty Society	Jeannie Lorin & Dan Chapman	Owners
CCDOA	Majed Khater	Airport Senior Manager, ERP / GIS
CCDOA	Erika Hanuscin	Aviation Affairs Manager
CCDOA	Tony Perkins	Land Use & Noise Manager
City of North Las Vegas	Timothy Reesman	City Traffic Engineer
City of North Las Vegas	Brittany West	Economic Development Specialist
City of North Las Vegas	Riezl Pe Benito	Special Assistant to the Mayor & Council
City of North Las Vegas	Marco Velotta	Chief Sustainability Officer
CNLV	Jeff Alpert	Community Representative
Las Vegas Chamber of Commerce	Mary Beth Sewald	President & CEO
Panattoni Development Company	Michael Argier	Senior Development Manager
Technical Advisory Committee		
702 Helicopter/Air Tour SASO Representative	Brian & Bianca Lorenz	Owners
AirSmart/Charter SASO Representative	Tommy Suell	CEO / Director of Operations
West Air/Aircraft Rental SASO Representative	Mellisa Brewer	Manager
DAC/Hangar Leasing SASO Representative	Gerald Haan	Manager
Lone Mountain/Aircraft Maintenance SASO Representative	Kenny Scherado	President
ATP/Flight School SASO Representative	Amber Gaines	Training Support Manager
ATP/Flight School SASO Representative	Mark Butler	Director of Planning and Development
ATP/Flight School SASO Representative	Thomas Salmon	Facilities Manager
Cheyenne Air Center	Michael Black	Vice President
Airport Tenant Representative	David Edwards	Hangar Owner
Airport Tenant Representative	Ted Barney	Hangar Owner
CCDOA	Terry Ferrell	Airport Program Administrator, Airspace
CCDOA	Raul Valdez	Airport Senior Civil Engineer
CCDOA	Chris Fenton	Airport Senior Manager, Construction Design
FAA – AZ/NV Engineer	Ricky Sanchez	Civil Engineer
FAA – Flight Standard District Office (FSDO)	Terri Wolcott	FAAST Program Manager
FAA – VGT ATCT Manager	Adrienne Brown	Air Traffic Manager
NDOT – State Aviation Manager	Kurt Haukohl	State Aviation Manager
NDOT – State Aviation Manager	Christopher Yarrow	Transportation Planner
NDOT – State Aviation Manager	Natasha Ashby	Transportation Planner
Savage Aviation	Nic Sacco	CEO
Both – PAC & TAC		
Accretive Consulting	Kami Dempsey-Goudie	President
CCDOA	Bruce Daughtery	Airport Manager, General Aviation (HND)
CCDOA	Karina Tarnowska	Airport Manager, General Aviation (VGT)
CCDOA	SundayLee Cabrera	Airport Manager, Real Estate & Land Use
CCDOA	Ben Czyzewski	Managing Director, General Aviation
CCDOA	Bryant Holt	Managing Director, Planning
CCDOA	Jim Chrisley	Senior Director
CCDOA	Christa Schueler	Senior Planner
CCDOA	Tiffany Vaughn	Management Analyst II
CCDOA	Michael Mercado	Management Analyst – Airport Noise
Coffman Associates	Mike Dmyterko	President
Coffman Associates	Eric Pfeifer	Principal
FAA – AZ/NV ADO	Mike Williams	Manager
FAA – AZ/NV ADO	Kyler Erhard	Assistant Manager
FAA	Alan McKinney	Program Manager
FAA – Las Vegas FSDO	James Brownell	Manager
HNTB	Justin Bychek	Group Director, Aviation Planning & Environmental

Source: Clark County Department of Aviation



Chapter 1

Inventory







Chapter 1
Inventory

The inventory of existing conditions is the initial step in the preparation of the North Las Vegas Airport (VGT) Master Plan. The inventory will serve as an overview of the airport's physical and operational features, including facilities, users, and activity levels, as well as specific information related to the airspace, air traffic activity, and role of the airport. Additionally, a summary of socioeconomic characteristics and review of existing environmental conditions on and adjacent to the airport are detailed, which will provide further input into the study process.

Information provided in this chapter serves as the baseline for the remainder of the master plan, which is compiled using a wide variety of resources, including: applicable planning documents; on-site visits; interviews with airport staff, tenants, and users; aerial and ground photography; federal, state, and local publications; and project record drawings.

1.1 BACKGROUND AND LOCAL SETTING

VGT is located in the City of North Las Vegas, Nevada, approximately three miles northwest of the Las Vegas city center, providing the closest access to aviation services from downtown. Clark County is Nevada's most populous county, accounting for almost 2.3 million people or approximately 73 percent of the state's population. According to U.S. Census Bureau estimates from 2021, the City of North Las Vegas is home to approximately 274,000 people, the third most populated city in Clark County. North Las Vegas shares its southern and western border with Las Vegas, its northern border with the Desert National Wildlife Range, and its eastern border with Nellis Air Force Base (AFB) and Sunrise Manor.

Airport property includes 920 acres of land in the southwest corner of North Las Vegas. The primary airfield property is comprised of 806 acres and is bordered to the west by the major roadway Rancho Drive, to the north by Cheyenne Avenue, to the east by Simmons Street, and the south by Carey Avenue. There are currently approximately 143 acres of undeveloped land in the northeast corner of the airport, which includes the Runway 25 runway protection zone (RPZ), parts of the runway and Taxiways A and W, and Las Vegas Metropolitan Police Department (LVMPD) Metro Search and Rescue facilities. Approximately 110 acres of the northeast area have been designated as a Las Vegas Bearpoppy (a State of Nevada listed Critically Endangered plant species) conservation area. There is approximately 77 acres of undeveloped property in the southeast corner of airport property. Much of this area has been identified to contain hazardous soil including fissures, which may cause challenges for development. Identified challenges are the risk of subsidence-related movements in the vicinity of faults, risk of continued growth of repaired fissures or the development of new fissures, and the tectonic hazard associated with the faults. There are approximately 114 acres of airport land segregated to the south by Carey Avenue. Portions of this undeveloped area are subject to a City of North Las Vegas right-of-way (ROW) for a detention basin and are encumbered by the Runway 30R runway protection zone (RPZ), which will be discussed in greater detail in Chapter Three, which further limit the development potential in this area. The development impediments for the areas described above are depicted on **Figure 1.1**.

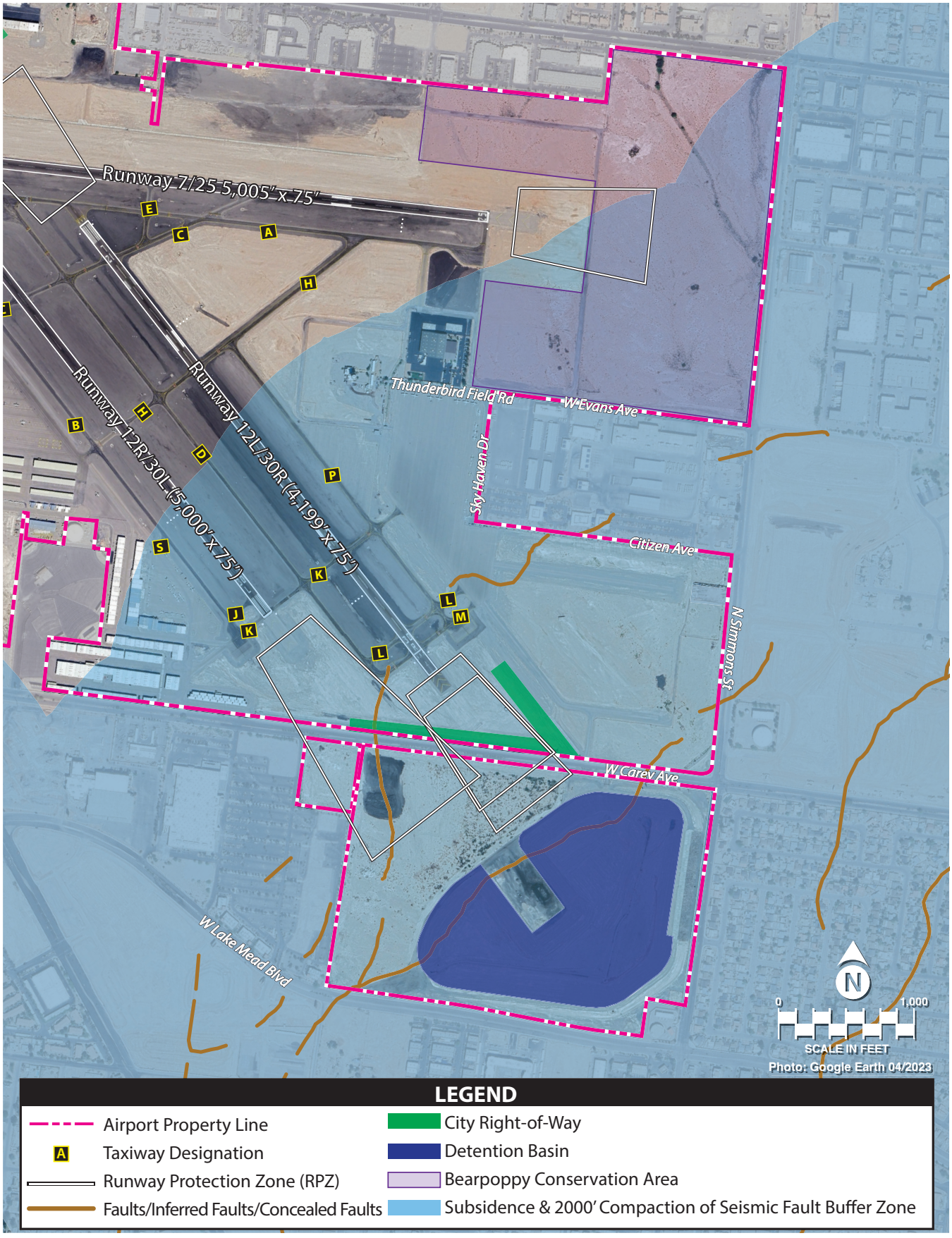
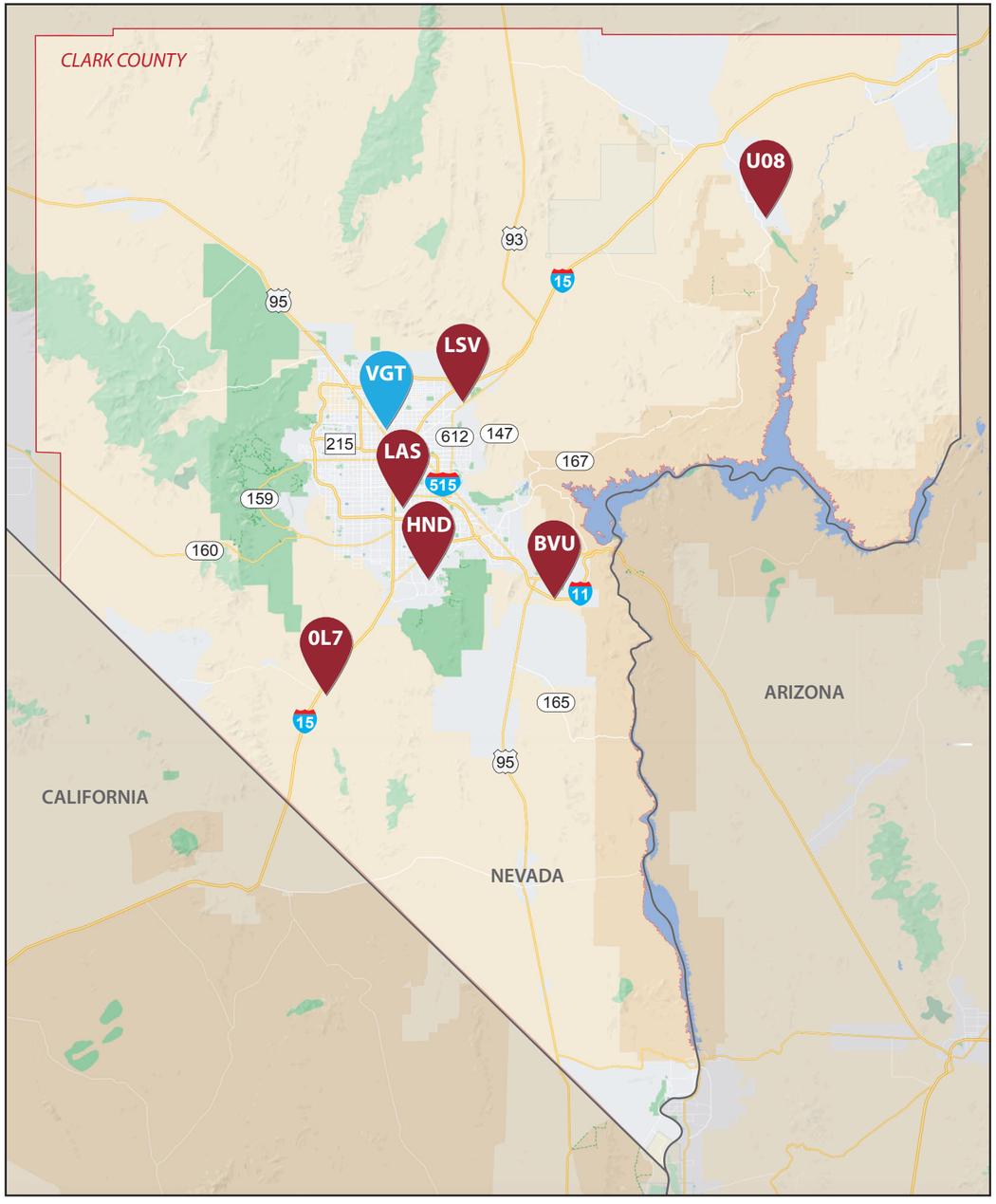


Figure 1.1
DEVELOPMENT IMPEDIMENTS

1.1.1 REGIONAL AVIATION FACILITIES

There are four public use airports within 30 nm of VGT, along with Nellis Air Force Base. In addition to VGT, the System of Airports includes Harry Reid International Airport, Henderson Executive Airport, Jean Airport, and Perkins Field Airport (Overton). The Clark County Department of Aviation (CCDOA) has also proposed development of a second commercial service airport, the Southern Nevada Supplemental Airport (SNSA), to supplement capacity to accommodate anticipated future demand at Harry Reid International Airport. The SNSA is still in the planning stages with an estimated opening date of 2037, contingent on the Environmental Impact Statement (EIS) resulting in a favorable record of decision. Currently, Harry Reid International Airport is the only airport in Clark County offering scheduled passenger service, with the remaining airports in the county providing general aviation services. Both Henderson Executive Airport and VGT serve as reliever airports. These airports are described below with the intent of providing a high-level overview of each facility and additional context regarding VGT's role within the regional system of airports. Additional information on each of the vicinity airports is summarized on **Figure 1.2**.

Airport	Distance From VGT (mi)	Distance From the Las Vegas City Center (mi)	Runway Configuration & Length (ft)	FBO	ATCT	2023 NPIAS Role	Area (acres)	Elevation (ft)	Based Aircraft (Aug. 2023)
North Las Vegas Airport (VGT)	N/A	7	7/25: 5,005' x 75' 12L/30R: 4,199' x 75' 12R/30L: 5,000' x 75'	Yes	Yes	Reliever	920	2,205'	511
Harry Reid International Airport (LAS)	8	2.7	08L-26R: 14,835' x 150' 08R-26L: 10,526' x 150' 01R-19L: 9,770' x 150' 01L-19R: 9,769' x 150'	Yes	Yes	Primary Commercial Service	2,800	2,181'	176
Henderson Executive (HND)	14.5	9	17R-35L: 6,501' x 100' 17L-35R: 5,001' x 75'	Yes	Yes	Reliever	760	2,492'	254
Boulder City Municipal (BVU)	22.6	21	09-27: 5,103' x 75' 15-33: 3,852' x 75'	Yes	Yes	Non-hub Primary	530	2,203'	240
Jean Sport Aviation Center (0L7)	27.3	25	02R-20L: 3,700' x 60' 02L-20R: 4,600' x 75'	No	No	GA Basic	232	2,835'	37
Nellis Air Force Base (LSV)	7.9	12	02R-20L: 3,700' x 60' 02L-20R: 4,600' x 75'	Yes	Yes	N/A	14,000	1,869'	N/A
Perkins Field Airport (U08)	42.0	62.7	13-31: 4,811' x 75'	No	No	GA Basic	250	1,365'	19



Notes:
N/A = not applicable
ATCT = airport traffic control tower
FBO = fixed base operator
NPIAS = National Plan of Integrated Airport Systems
MSL = mean sea level

Figure 1.2
VICINITY AIRPORTS

This page intentionally left blank

Harry Reid International Airport (LAS) | Harry Reid International (LAS) is a large hub primary commercial service airport located about eight nm south of VGT and is also owned/operated by CCDOA. It features four runways and handled approximately 25.48 million passenger enplanements and 581,116 operations in 2022. Almost all activity comes from commercial airline activity but does include some general aviation operations.

Henderson Executive (HND) | Henderson Executive (HND) is the other national reliever airport in Nevada, located 14.5 nm south of VGT, and is also owned/operated by CCDOA. It features two parallel runways, the longest of which is 6,501 feet long. HND handled 78,000 operations in 2022, accommodating primarily general aviation operations such as recreational, business, and air taxi operations.

Boulder City Municipal (BVU) | Boulder City Municipal (BVU) is a nonhub primary commercial service airport located 22.6 nm southeast of VGT. BVU had almost 63,243 passenger enplanements and recorded 115,100 operations in 2022. BVU features two runways, the longest of which is 5,103 feet.

Jean Sport Aviation Center (0L7) | Jean Sport Aviation Center (0L7) is a basic general aviation airport located 27.3 nm south of VGT. It is also owned/operated by CCDOA and had 12 based aircraft and 16,048 operations in 2022. 0L7 features two parallel runways, the longest of which is 4,600 feet.

Nellis Air Force Base (LSV) | Nellis Air Force Base (LSV) is located 7.9 nm east of VGT and supports training activities for military personnel with the U.S. Air Force, Navy, Army, and Marine Corps. The base encompasses more than 14,000 acres and supports more squadrons and units than any other Air Force base in the world.

1.1.2 OWNERSHIP AND MANAGEMENT

VGT is a public-use airport owned by Clark County, Nevada and operated by the CCDOA as a part of the Clark County System of Airports. The CCDOA is operated under the policy direction of the Board of County Commissioners, the authority of the County Manager, and the management of the Director of Aviation and three Senior Directors of Aviation. The department also manages the following divisions:

- Marketing
- Commercial/Business Development
- Diversity, Procurement & Contracts
- Construction/Engineering
- General Aviation
- Landside Operations
- Airside Operations
- Terminal Operations
- Finance
- Airport Employee Services
- Information Technology
- Facilities/Maintenance
- Security

Daily operations at VGT are overseen by an Airport Manager and Supervisors for Customer Service, Line Service, and Maintenance and Operations. These individuals provide oversight and direction for staff that includes operations, maintenance, and administrative personnel. See **Figure 1.3** for the VGT Management Organizational Chart.



Figure 1.3 - NORTH LAS VEGAS AIRPORT MANAGEMENT ORGANIZATIONAL CHART

1.1.3 AIRPORT HISTORY

Aviation enthusiasts opened the airport under its original name of Sky Haven Airport on December 7, 1941. Its opening celebration and flying demonstrations were interrupted by the news of the air raid at Pearl Harbor. Despite its somber start, the airport became successful during World War II as it was used for training navy pilots and was frequented by off-duty Las Vegas Army Airbase pilots. After the war, the airport was bought and sold multiple times, being renamed Thunderbird Field and, later, North Las Vegas Air Terminal. In the 1960s, the runways were paved, and services expanded to include a new administration building and restaurant. In 1974, the airport became a reliever for Harry Reid International Airport and the Federal Aviation Administration (FAA) started to provide air traffic control (ATC) services. Clark County purchased the airport in 1987 and invested heavily in the facilities to support and maintain the large number of based aircraft and high frequency of aircraft operations. Today, VGT is used for a variety of purposes, including primary and advanced flight training, sightseeing flights, and personal and business aviation. The airport is also home to various government agencies that provide support to the community, including the LVMPD, the Bureau of Land Management, and fire support. A timeline of significant events and facility improvements is provided on **Figure 1.4**.

1941



Airfield Grand Opening "Sky Haven Airport."

WWII Navy Pilots trained under the Civilian Pilot Training Program.

1942



1960



Airport sold and renamed Vegas Thunderbird Field, leading to the VGT identifier. Facility improvements included paving the runway, constructing a shaded hangar and office/restaurant.

The FAA classifies the airport as a reliever for Harry Reid International Airport.

1974



1975



Portable ATCT established.

Clark County purchases Las Vegas Air Terminal and additional surrounding land.

1987



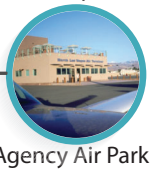
1991



50th Anniversary
Runway 12R-30L reconstructed and expanded to 5,000' long, Taxiway A and B constructed, airfield lighting, NAVAIDS, and 20 acres of apron constructed.

New Terminal Building and Restaurant constructed.

1992



1995



Agency Air Park constructed.

ILS added to Runway 12L/30R. FAA ATCT constructed.

2001



2005



Part 139 certification issued to allow for air carrier operations.

New Fuel tanks installed increasing capacity by 30,000 gallons.

2008



2010



EPA certified facilities installed.

Taxiway A and G reconfigured to improve guidance and reduce confusion.

2013



2015



Wildlife Hazard Assessment completed; Wildlife Hazard Management Plan developed.

Runway Incursion Mitigation (RIM) Analysis (2017-2020).

2017



2019



Main Terminal remodeled. Part 139 certification surrendered following Vision Air's decision to cease operations.

1.1.4 AIRPORT STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS ANALYSIS

A SWOT analysis is a strategic business planning technique used to identify **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats associated with an action or plan. The SWOT analysis involves identifying an action, objective, or element, and then identifying the internal and external forces that are positively and negatively impacting that action, objective, or element in a given environment. For this study, the SWOT analysis factors are applied to the airport within the structure of the master plan. As a result, the SWOT analysis provides a continuous vision and direction for the development of the master plan.

1.1.4.1 SWOT Definitions

The SWOT analysis groups information into two categories:

- **Internal –** attributes of the airport and market area that may be considered strengths or weaknesses to the action, objective, or element.
- **External –** attributes of the aviation industry that may present as opportunities or threats to the action, objective, or element.

The SWOT analysis further categorizes information into one of the following groups:

- **Strengths –** internal attributes of the airport that are helpful to achieving the action, objective, or element.
- **Weaknesses –** internal attributes of the airport that are harmful to achieving the action, objective, or element.
- **Opportunities –** external attributes of the industry that are helpful to achieving the action, objective, or element.
- **Threats –** external attributes of the industry that are harmful to achieving the action, objective, or element.

1.1.4.2 SWOT Analysis Exercise

The SWOT analysis for VGT is based upon information gathered during the first PAC and TAC meetings, which were conducted on June 28, 2023. As previously discussed, the PAC and TAC consist of a diverse group of stakeholders, community leaders, and government agencies that represent several interests in the airport. A SWOT analysis was conducted with each group to identify key factors that might be addressed in the master plan. A summary of the results from the SWOT analysis exercise are detailed below. These results were used to frame the subjective or judgmental processing of the data presented in the master plan.

Strengths

- The airport is located approximately three miles northwest of downtown Las Vegas, contributing to its continued success.
- VGT has three runways, two parallel and a crosswind.
- VGT airport traffic control tower (ATCT) staff work closely with Harry Reid International Airport controllers to ensure the safe and efficient flow of air traffic in the area.
- The instrument landing system (ILS) on Runway 12L allows for continued operations during poor visibility conditions.
- VGT has room for expansion on undeveloped portions of airport property.
- VGT is a well-maintained facility with a recently renovated terminal. A range of services is provided, including an airport restaurant, lounge, wi-fi, TVs, on-site rental cars, flight planning station, and fuel services, and the FBO is an Air Elite® facility, allowing the airport to cater to personal, corporate, and charter aircraft as well as aviation enthusiasts.
- The airport is well-managed by CCDOA and is safe, well-regarded, and a good neighbor to the surrounding communities.
- The airport has an on-site airfield maintenance team managed by CCDOA that offers quick response times.
- Population and business growth in the region contribute to VGT's growth and success.
- High-capacity roadways nearby make the airport easily accessible.
- Sporting events hosted in Las Vegas draw visitors and contribute to increased traffic at VGT.

Weaknesses

- The airport is essentially landlocked with limited room for expansion beyond its current footprint.
- The airspace in and around Las Vegas is congested and can lead to reduced efficiency at airports in the area, including VGT. Diverse aircraft types (i.e., faster corporate jets and slower piston-powered aircraft) can compound this issue.
- The airport's value to the community may be understated due to a lack of public awareness of VGT's economic impact.
- Portions of airport property have been underutilized/undeveloped. This contributes to limited hangar capacity that prevents aircraft owners from basing at VGT.
- VGT does not have on-site Customs and Border Protection, so international flights must use Harry Reid.

- Existing runway lengths are too short for some jets to safely operate, especially during hot weather. The parallel runways are separated by 700 feet, which allows for simultaneous operations in visual flight rule (VFR) conditions only.
- The airfield layout can be confusing or limiting to some pilots.
- The ATCT's height limits visibility to all aircraft queued in non-movement areas. Controllers also face challenges during certain meteorological conditions.
- There are no standard operating procedures for helicopter activity at VGT.
- VGT relies on mutual aid for aircraft rescue and firefighting (ARFF) and police support.
- The terminal building lacks some features that are often included at airports similar to VGT, such as showers for pilot use.
- The immediate area is challenged with unhoused population and crime occurrences.

Opportunities

- The airport and the North Las Vegas area are friendly to businesses, giving VGT the opportunity to promote its growth and economic contributions to the city and region. This could also translate to positive operational changes, such as extended operating hours for the terminal.
- VGT experiences significant local support and enjoys positive partnerships with adjacent neighborhoods.
- VGT is a reliever airport, currently experiencing significant air charter operations and poised for growth in this segment of aviation activity.
- Area entertainment and national events in the area promote growth at VGT.
- Expansion of helicopter facilities to support diverse operations and services by rotorcraft.
- Emerging Advanced Air Mobility (AAM) technology can lead to growth in vertical takeoff and landing (VTOL) aircraft operations and AAM services.
- While undeveloped property adjacent to VGT is limited, the airport could pursue acquisition of available property for future compatible land use and facility expansion.
- Responsible land planning sustainable practices, and airport-compatible land uses can be applied to new development on and near the airport (i.e., industrial and commercial).
- Increased collaboration with the City of North Las Vegas and the CCDOA, along with enhanced public outreach, will be crucial in promoting the airport's growth objectives.

Threats

- VGT is utilized by diverse aircraft types as described above. When these aircraft operate at the same time, it can contribute to increased delay and reduced capacity on the airfield and in apron areas.

- Adjacent land uses, such as residential homes, encroach upon VGT and could limit development potential of the airport and its airspace and increased noise complaints could result. This will also likely increase congestion on the local roadway network and make airport connectivity more difficult.

- Because major stakeholders of VGT include governmental agencies, frequent changes in City and County staff create difficulties in maintaining close relationships. This could prove to be threatening as airport expansion projects rely heavily on partnership with public entities. However, a growing community results in more stakeholders that may influence local development, public policy, and airport operations.

- Corporate jets have recently undergone international scrutiny due to climate change and environmental concerns, and GA accidents have impacted the public perception of safety in private aviation.

1.1.5 ECONOMIC IMPACT

VGT is a significant contributor to the local and regional economy. There are 32 businesses operating at the airport, including flight schools, aerial tour companies, aircraft maintenance providers, aircraft sales/rentals and charter services, catering providers, and rental car services. As part of the *Nevada Airport and Heliport System Plan* (NAHSP), an airport economic impact study (AEIS) was conducted on the 51 airports studied in Nevada. The AEIS evaluated direct, indirect, and induced impact on state-wide employment, labor income, and output activities. Four output activities were measured, including airport operations, airport tenants, capital expenditure, and visitors. **Table 1.1** summarizes the economic impact of VGT.

Table 1.1 | VGT Aviation Economic Impact

Employment (no. of Jobs)	919
Labor Income	$39,183,400
Annual Output	$218,032,790

Source: Nevada Airport and Heliport System Plan (2019)

1.2 AIRPORT SYSTEM PLANNING ROLE

Airport planning exists on many levels: national, state, regional, and local. Each level has a different emphasis and purpose. On the national level, VGT is included in the *National Plan of Integrated Airport Systems* (NPIAS). At the state level, the airport is included in the 2022 *Nevada Airport and Heliport System Plan* (NAHSP). At the regional level, the airport is included in the *Transform Clark County Master Plan*, adopted in 2021. The local planning level includes the last airport master plan, airport layout plan (ALP) update from 2020, and runway incursion mitigation (RIM) study completed from 2017-2020.

1.2.1 FEDERAL SYSTEM PLANNING

Many of the nation's existing airports were initially constructed by the federal government, or their development and maintenance was partially funded through various federal grant-in-aid programs to local communities. The system of airports existing today is thus due in large part to federal policy that promotes the development of civil aviation. As part of a continuing effort to develop a national airport system, the U.S. Congress has maintained a national plan for the development and maintenance of airports.

The FAA maintains the NPIAS, which categorizes all eligible airports by the type of activities that take place, including commercial service, cargo service, reliever operations, and general aviation (shown in **Table 1.2**). The NPIAS is published and used by the FAA in administering the Airport Improvement Program (AIP), which is the source of federal funds for airport improvement projects across the country. The AIP is funded exclusively by user fees and user taxes, such as those on fuel and airline tickets. An airport must be included in the NPIAS to be eligible for federal funding assistance through the AIP.

Table 1.2 | National Plan of Integrated Airport Systems (NPIAS) Classifications

Airport Category	Regional Example
Primary Commercial Service	
Large Hub	Harry Reid International (LAS)
Medium Hub	Reno/Tahoe International (RNO)
Small Hub	Palm Springs International (PSP)
Nonhub	Boulder City Municipal (BVU)
Nonprimary Commercial Service	
–	Vernal Regional (VEL)
General Aviation	
National & Reliever	**North Las Vegas (VGT)**
National & Reliever	Henderson Executive (HND)
Regional	Carson City (CXP)
Local	Fallon Municipal (FLX)
Basic	Jean (0L7); Perkins (U08)
Unclassified	Independence (2O7)

Source: NPIAS (2023-2027)

1.2.1.1 Capital Improvement Program

Like the maintenance, repair, rehabilitation, and expansion of major highway systems, airports also undergo infrastructure projects in order to prolong pavement life, increase safety, update geometry to adhere to new standards, and upgrade facilities for forecasted demands. Infrastructure projects are critical to an airport's safety and success and require significant planning and resources to do so. Airport projects are funded primarily by federal aid administered by the FAA through the AIP. AIP projects at reliever airports in states with greater than five percent public land, which includes Nevada, require a 6.25 percent contribution from the airport sponsor, leading to a 93.75 percent federal contribution. **Table 1.3** summarizes approximately $31.3 million dollars in grant-aided capital improvement projects at VGT since 2002. This has included funding for a variety of projects related to airfield safety, drainage, pavement construction and rehabilitation, and airport planning.

Table 1.3 | Airport Capital Improvement Project History

Fiscal Year	Grant Number	Project Description	Total Grant Amount
2002	19	Acquire Land for Development	$1,641,683
2002	19	Acquire Land for Development	$1,355,580
2002	19	Construct Taxiway	$200,000
2004	21	Construct Apron	$4,025,732
2005	22	Remove Obstructions	$4,675,732
2006	24	Acquire Aircraft Rescue & Firefighting Vehicle	$156,747
2007	23	Improve Airport Drainage	$4,089,433
2008	25	Safety Management System (SMS) Program	$90,558
2009	26, 27, 28	Remove Obstructions (Overhead Transmission Lines)	$7,566,334
2010	29	Install Airfield Guidance Signs	$35,000
2010	30	Rehabilitate Apron	$1,422,512
2010	29	Rehabilitate Taxiway	$788,212
2013	32	Construct Taxiway	$453,321
2013	32	Improve Airport Drainage	$276,652
2013	32	Improve Airport Erosion Control	$590,394
2013	31	Install Airfield Guidance Signs	$580,578
2013	32	Install Runway Incursion Marking (14 CFR Part 139)	$160,385
2013	32	Rehabilitate Access Road	$525,533
2013	33	Wildlife Hazard Assessments	$89,063
2016	34	Conduct Miscellaneous Study (Runway Incursion Mitigation (RIM) Analysis)	$1,406,250
2021	–	CRRSA Act Funds	$57,000
2021	–	General ARPA	$148,000
2022	39	Update Airport Master Plan or Study	$932,804
		Total FY 2002 – 2022:	**$31,267,503**

Source: FAA Grant History – VGT

The current NPIAS plan, *NPIAS 2023-2027,* classifies VGT as a National Reliever Airport. Due to different operating requirements between small general aviation (GA) aircraft and large commercial aircraft, GA pilots often find it difficult to use a congested commercial service airport. In recognition of this, the FAA has encouraged the development of high-capacity GA airports in major metropolitan areas. These specialized airports, called relievers, provide pilots with attractive alternatives to using congested hub airports as well as GA access to the surrounding area. The formal FAA criteria to define a reliever airport involve designation of an airport by the Secretary of Transportation to relieve congestion at a commercial service airport and to provide more GA access to the overall community. GA roles are defined in **Table 1.4**.

Table 1.4 | General Aviation Airport Roles

Classification	Role Description
National	Supports the National Airport System by providing communities access to national and international markets in multiple states throughout the United States. National Airports have very high levels of aviation activity with many jets and multi-engine propeller aircraft.
Regional	Supports regional economies by connecting communities to regional and national markets. Generally located in metropolitan areas and serve relatively large populations. Regional airports have high levels of activity with some jets and multi-engine propeller aircraft. The metropolitan areas in which regional airports are located can be Metropolitan Statistical Areas with an urban core population of at least 50,000 or Micropolitan Statistical Areas with a core urban population between 10,000 and 50,000.
Local	Supplements local communities by providing access to markets within a state or immediate region. Local airports are most often located near larger population centers, but not necessarily in metropolitan or micropolitan areas. Most of the flying at local airports is by piston aircraft in support of business and personal needs. These airports typically accommodate flight training, emergency services, and charter passenger service.
Basic	Links the community with the national airport system and supports general aviation activities, such as emergency response, air ambulance service, flight training, and personal flying. Most of the flying at basic airports is self-piloted for business and personal reasons using propeller-driven aircraft. They often fulfill their role with a single runway or helipad and minimal infrastructure.
Unclassified	Currently in the NPIAS but with limited activity.

Source: FAA NPIAS 2023-2027

1.2.2 STATE SYSTEM PLANNING

The *Nevada Airport and Heliport System Plan* (NAHSP) was prepared in 2022 and evaluates the State of Nevada's 48 public use airports. The purpose of the NAHSP is to provide an analysis of the state airport system components, including:

- Setting goals and performance measures
- Discussing state, regional, and local aviation issues
- Taking inventory of the system condition and performance
- Conducting and defining airport roles
- Developing system forecasts
- Evaluating system performance
- Identifying system needs
- Considering alternatives
- Recommending system changes

The report also reclassifies airports based upon the following state-recognized roles. Based on this classification system, VGT is considered to have a National role within the State of Nevada airport system. The state role of a National airport means VGT supports the national and state airport system by providing communities with access to national and international markets. North Las Vegas Airport and Henderson Executive Airport are the only two Nevada airports with this State Role Classification. State classifications for primary, national, and regional airports retain the FAA NPIAS classification, while basic, local, and non-NPIAS airports were defined by new state classifications as shown on **Table 1.5**. VGT, therefore, retains its NPIAS classification for the state system plan analysis and is classified as such due to the airport's support of business aviation operations that connect Las Vegas area corporations to national and international markets.

Table 1.5 | NAHSP Classification

NPIAS Classification	NAHSP Classification	Role Description	Number of Airports	Example
Primary	Retains Same NPIAS Classification	Commercial service airports with more than 10,000 passenger boardings each year. Primary airports are further grouped into four sub-categories (Large Hub, Medium Hub, Small Hub, and Nonhub) based on each airport's enplanement totals.	4	Harry Reid International Airport (LAS)
National	**Retains Same NPIAS Classification**	**Support the National Airport System by providing communities access to national and international markets in multiple states throughout the United States. National Airports have very high levels of aviation activity with many jets and multi-engine propeller aircraft.**	**2**	**North Las Vegas Airport (VGT)**
Regional	Retains Same NPIAS Classification	Support regional economies by connecting communities to regional and national markets. Generally, located in metropolitan areas and serve relatively large populations. Regional airports have high levels of activity with some jets and multi-engine propeller aircraft. The metropolitan areas in which regional airports are located can be Metropolitan Statistical Areas with an urban core population of at least 50,000 or Micropolitan Statistical Areas with a core urban population between 10,000 and 50,000.	3	Carson City Airport (CXP)
NPIAS Basic, Local, and Non-NPIAS	General	Multi-purpose public use GA facilities.	18	Jean Airport (07L)
	Access	Regularly utilized for a specific reason related to accessing the location, such as emergency, medical, or business (e.g., mining, casinos).	13	Searchlight Airport (1L3)
	Backcountry	Public use aviation facilities that are primarily rural and contribute to the state's aviation system. These airports may have limited users and are mostly used for recreation.	9	Calvada Meadows Airport (74P)
	Special Event	Privately owned airports that are temporarily used by the public for special events.	2	Dead Cow Lakebed Airstrip (High Sierra)

Source: NAHSP

1.2.3 REGIONAL SYSTEM PLANNING

At the regional level, VGT is included in the *Transform Clark County Master Plan,* which was adopted in November 2021. The master plan serves to identify the community's core values, goals, policies, and desired quality of life in the next 10 to 20 years. One of the master plan's goals is to support continued improvements and expansions of commercial airport operations in Clark County. This goes on to include statements regarding existing public use airports, as well as the goal to minimize encroachment on airport operations by restricting expansion of land use within the airport environs overlay that are incompatible due to noise, safety, and other concerns.

1.2.4 LOCAL SYSTEM PLANNING

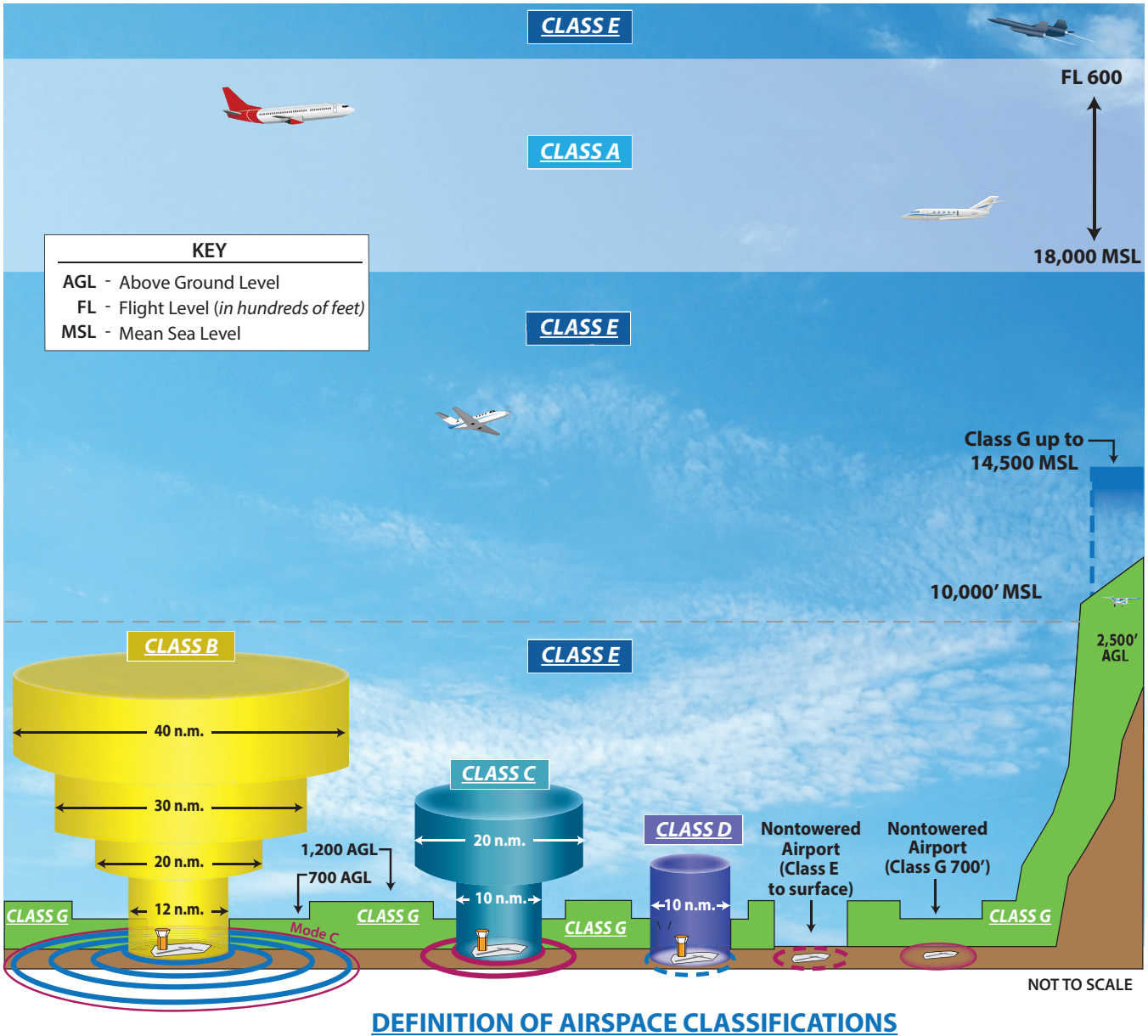
Local system planning at the North Las Vegas Airport includes airport planning documents such as airport layout plans (ALPs) and a runway incursion mitigation (RIM) study. The latest ALP was updated in 2020 and approved by the FAA. It included future development opportunities such as the relocation of taxiways to alleviate hot spots and improve geometry based on the RIM study recommendations. The RIM study was conducted from 2017-2020 to evaluate incidents and accidents as they relate to airport geometry and operations. The results of the study identified and analyzed five alternative airfield layouts that addressed the perceived risks and FAA-designated hot spots. The recommendations from the RIM study will be examined as part of the master plan study.

1.3 AIRSPACE STRUCTURE AND APPROACH CAPABILITIES

The *FAA Act of 1958* established the FAA as the responsible agency for the control and use of navigable airspace within the U.S. The FAA has established the National Airspace System (NAS) to protect persons and property on the ground, in addition to establishing a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS covers the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; and personnel and material. The system also includes components shared jointly with the military.

1.3.1 AIRSPACE

Airspace within the U.S. is broadly classified as either “controlled” or “uncontrolled.” The difference between controlled and uncontrolled airspace relates primarily to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions. Six classes of airspace have been designated in the U.S., as shown on **Figure 1.5**.



DEFINITION OF AIRSPACE CLASSIFICATIONS

CLASS A Think A - Altitude. Airspace above 18,000 feet MSL up to and including FL 600. Instrument Flight Rule (IFR) flights only, ADS-B 1090 ES transponder required, ATC clearance required.

CLASS B Think B - Busy. Multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports. ADS-B 1090 ES transponder required, ATC clearance required.

CLASS C Think C - Mode C. Mode C transponder required. ATC communication required. Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.

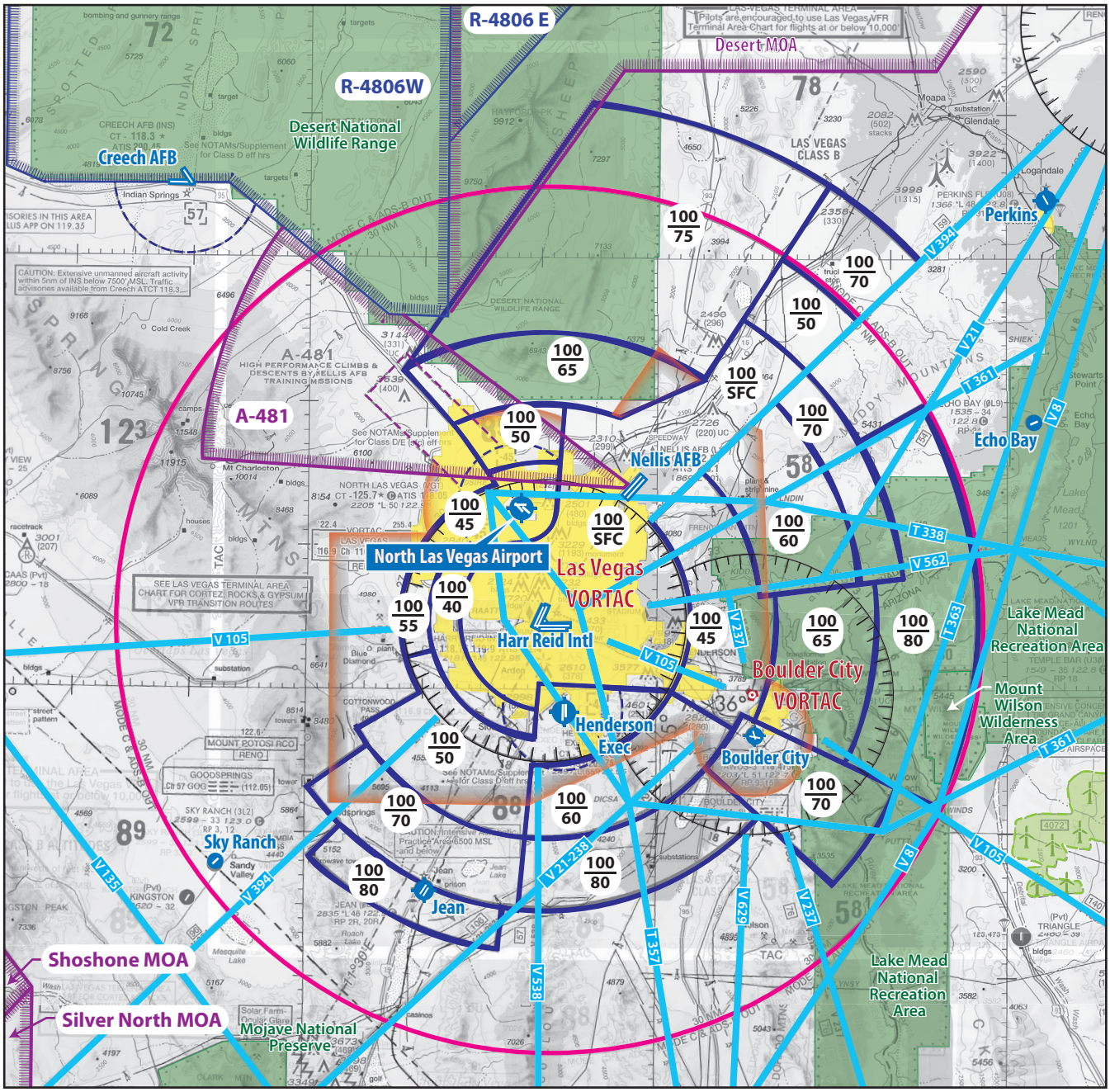
CLASS D Think D - Dialogue. Pilot must establish dialogue with tower. Generally airspace from the surface to minimum 2,500 feet AGL surrounding towered airports.

CLASS E Think E - Everywhere. Controlled airspace that is not designated as any other Class of airspace.

CLASS G Think G - Ground. Uncontrolled airspace. From surface to 1,200 feet AGL (in mountainous areas 2,500 feet AGL) Exceptions: near airports it lowers to 700 feet AGL; some airports have Class E to the surface. Visual Flight Rules (VFR) minimums apply.

Source: www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/15_phak_ch15.pdf

Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control (ATC). Airspace surrounding VGT is depicted on **Figure 1.6**.



LEGEND

- Airports with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- VORTAC
- Compass Rose
- Wilderness Area
- Populated Areas
- Wind Turbine Farm
- Mode C & ADSB
- Class B Airspace
- Class D Airspace
- Class E Airspace starting at 700' AGL
- Class E Airspace starting at the surface
- Victor Airways
- Alert Area and Military Operations Area
- Prohibited, Restricted, and Warning Areas
- 100/65 Class B Shelf Starting/Stopping Altitudes

Source: US Department of Commerce, National Oceanic and Atmospheric Administration; Las Vegas, December 29, 2022

1.3.1.1 Class A Airspace

Class A airspace includes all airspace from 18,000 feet mean sea level (MSL) to flight level (FL) 600 (approximately 60,000 MSL) over the contiguous 48 states and Alaska. This airspace is designated in Federal Aviation Regulation (FAR) Part 71.33 for positive control of aircraft. All aircraft must be on an IFR clearance to operate within Class A airspace.

1.3.1.2 Class B Airspace

Class B airspace has been designated around some of the country's major airports, such as Harry Reid International Airport (LAS), to separate all aircraft within a specified radius of the primary airport. Each Class B airspace is specifically tailored for its primary airport. All aircraft operating within Class B airspace must have ATC clearance. Certain minimum aircraft equipment and pilot certification requirements must also be met. This airspace is the most restrictive controlled airspace routinely encountered by pilots operating under VFR. VGT and its airspace are located under the LAS Class B shelf.

1.3.1.3 Class C Airspace

The FAA has established Class C airspace at approximately 120 airports around the country that have significant levels of IFR traffic. Class C airspace is designed to regulate the flow of uncontrolled traffic above, around, and below the arrival and departure airspace required for high-performance passenger-carrying aircraft at major airports. To fly inside Class C airspace, an aircraft must have a two-way radio, an encoding transponder, and have established communication with the ATC facility. Aircraft may fly below the floor of the Class C airspace or above the Class C airspace ceiling without establishing communication with ATC. There is no Class C airspace within the vicinity of the Las Vegas area.

1.3.1.4 Class D Airspace

Class D airspace is controlled airspace surrounding airports with an ATCT. The Class D airspace typically constitutes a cylinder with a horizontal radius of four or five nautical miles (nm) from the airport, extending from the surface up to a designated vertical limit, typically set approximately 2,500 feet above the airport elevation. As shown on **Figure 1.6**, VGT operates within Class D airspace, beginning at the surface and extending to, but not including, 4,500 feet MSL. Pilots planning to operate within Class D airspace are required to contact the VGT ATC prior to entering or departing VGT airspace and must remain in contact while within the controlled airspace. VGT Class D service is only available when the ATCT is attended 6:00 a.m. to 8:00 p.m. October through March and 6:00 a.m. to 9:00 p.m. April through September. At all other times, when the ATCT is closed, the airspace reverts to Class G.

1.3.1.5 Class E Airspace

Class E airspace consists of controlled airspace designed to contain IFR operations near an airport and while aircraft are transitioning between the airport and enroute environments. Class E airspace vertical dimensions may vary depending on how it is depicted on the sectional chart. Class E airspace may begin

at the surface, 700 feet above ground level (AGL), 1,200 feet AGL, or 14,500 feet MSL, and will typically continue up to 17,999 feet MSL or other overlying airspace. Only aircraft operating under IFR are required to be in contact with ATC when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio contact with ATC facilities, visual flight can only be conducted if minimum visibility and cloud ceilings exist. Class E airspace starting from the surface is present northeast of the VGT airspace to control IFR arrivals and departures beyond the Class D boundary.

1.3.1.6 Class G Airspace

Airspace not designated as Class A, B, C, D, or E is considered uncontrolled, or Class G, airspace. ATC does not have the authority or responsibility to exercise control over air traffic within this airspace. Class G airspace lies between the surface and the overlying Class E airspace (700 to 1,200 feet AGL).

While aircraft may technically operate within this Class G airspace without any contact with ATC, it is unlikely that many aircraft will operate this low to the ground. Furthermore, federal regulations specify minimum altitudes for flight. FAR Part 19.119, *Minimum Safe Altitudes*, generally states that except when necessary for takeoff or landing, pilots must not operate aircraft over any congested area of a city, town, or settlement, or over any open-air assembly of persons, at an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

Over less congested areas, pilots must maintain an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure. Helicopters may be operated at less than the minimums prescribed above if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with any routes or altitudes specifically prescribed for helicopters by the FAA.

1.3.1.7 Victor Airways

For aircraft arriving or departing the regional area using very high frequency omnidirectional range (VOR) facilities, a system of Federal Airways referred to as Victor Airways has been established. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet AGL to 18,000 feet MSL and extend between VOR navigational facilities. Victor Airways near VGT are identified on **Figure 1.6**. For aircraft enroute to or departing VGT, there are several Victor Airways available, converging at the Las Vegas VORTAC located nine nm south of the airport.

1.3.1.8 Military Operations Areas

Military Operations Areas (MOAs) are areas of airspace where military activities are conducted. The nearest MOA to VGT is the Desert MOA, which has a southern boundary that begins approximately 15 nm north of VGT. The Desert MOA is controlled by Nellis AFB Approach and Flight Services, with active military aircraft operating in the Desert MOA from 100 feet AGL to, but not including, 18,000 feet MSL. This MOA is operated from sunrise to sunset Monday through Saturday and other times as issued by notices to air missions (NOTAM).

1.3.1.9 Alert Areas

Alert areas are often associated with high concentrations of military aircraft performing training maneuvers. Military activities in these areas typically operate at lower altitudes and may occur any time of day or night. General aviation flights are not restricted within these areas, but pilots are strongly cautioned to be alert for high-speed military training aircraft.

Alert area A-481 is located two nm north of VGT. The area is associated with Nellis AFB and alerts of high-performance climbs and descents by Nellis AFB training missions. Per the Las Vegas VFR sectional chart, the alert area does not extend into the controlled B, D, and E airspace surrounding VGT.

1.3.1.10 Restricted Areas

There are six restricted areas to the northwest of VGT, including R-4806E, R-4806W, R-4808N, R-4807B, R-4807A, and R-4809. The restricted areas begin approximately 15 nm northwest of VGT and extend north and west an additional 120 miles. See **Table 1.6** for a summary of the restricted areas.

Table 1.6 | Restricted Airspace Summary

Number	Altitude	Time of Use	Controlling Agency
R-4806E	100 AGL to Unlimited	0500 – 2000 Mon-Sat	Nellis Range Con
R-4806W	Unlimited	Continuous	Nellis Range Con
R-4808N	Unlimited	Continuous	Nellis Range Con
R-4807B	Unlimited	Continuous	Nellis Range Con
R-4807A	Unlimited	0600 Mon – 1900 Fri	Nellis Range Con
R-4809	Unlimited	Continuous	Nellis Range Con

Source: FAA VFR Sectional Chart – Las Vegas

1.3.1.11 Airspace Control

The FAA has established 21 Air Route Traffic Control Centers (ARTCCs) throughout the continental United States to control aircraft operating under IFR within controlled airspace and while enroute. An ARTCC assigns specific routes and altitudes along Federal Airways to maintain separation and orderly traffic flow. The Los Angeles ARTCC controls IFR airspace enroute to and from VGT.

Flight Service Stations (FSS) are air traffic facilities that provide pilot briefings, flight plan processing, inflight radio communications, search and rescue (SAR) services, and assistance to lost aircraft and aircraft in emergency situations. FSSs also relay ATC clearances, process NOTAMs, broadcast aviation meteorological and aeronautical information, and notify Customs and Border Protection of trans-border flights. The Reno FSS is the nearest FSS facility to VGT.

1.3.1.12 Airport Traffic Control Tower (ATCT)

The VGT ATCT is an FAA-managed tower that operates 6:00 a.m. to 8:00 p.m. October through March and 6:00 a.m. to 9:00 p.m. April through September. The tower was constructed from 2000 to 2002 and is located on the east side of the airfield, accessed by Thunderbird Field Road. It is 85 feet to the top of the beacon and is considered in good condition.

While tower controllers have good visibility for the entirety of the aircraft movement area, some portions of the non-movement area have line-of-sight issues. According to the VGT *Runway Incursion Mitigation Study* (RIM Study) completed in May 2020, ATCT controllers face line-of-sight challenges due to the limited tower height. Controllers have inadequate sightlines of the northwest portion of the airfield which is co-located with three airport hotspots. During the late afternoon hours solar glare creates visual sight line issues to the northwest side of the airfield. Additionally, controllers have difficulty in identifying aircraft on final approach from the northwest, especially during poor meteorological conditions.



Airport Traffic Control Tower

The most common arrival and departure runways are the parallel runways 12R-30L (primary runway) and 12L-30R. The majority of traffic at VGT is VFR and therefore receive suggested heading north/northwest when departing in order to keep aircraft clear of the Las Vegas Class B airspace.

1.3.2 PROCEDURES AND INSTRUMENT APPROACHES

Flight procedures are a set of predetermined aircraft guidance maneuvers established by the FAA, using electronic or visual navigational aids that assist pilots in locating and landing at or departing from an airport. VGT has instrument approach procedures, departure procedures, and standard terminal arrivals (STARs).

1.3.2.1 Instrument Approach Procedures

Instrument approach procedures assist pilots in locating and landing at an airport during low visibility and cloud ceiling conditions. They are defined as either precision, approach with vertical guidance (APV), or non-precision. Precision instrument approach aids provide an exact course alignment and vertical descent path for an aircraft on final approach to a runway with height above threshold (HAT) lower than 250 feet and visibility lower than ¾ mile. APVs also provide course alignment and vertical descent path guidance but have HATs of 250 feet or more and visibility minimums of ¾ mile or greater. Non-precision instrument approach aids provide only course alignment information with no vertical component.

Instrument approach procedure capabilities are defined by visibility and cloud ceiling minimums. Visibility minimums define the horizontal distance a pilot must be able to see to complete the approach, while cloud ceilings define the lowest level a cloud layer (defined in feet above ground) can be situated for the pilot to complete the approach. If the observed visibility or cloud ceilings are below the minimums prescribed for the approach, the pilot cannot complete the instrument approach.

There are currently two published instrument approach procedures at VGT. Runway 12L has an ILS/LOC approach and Runway 12R has an RNAV (GPS) approach. See **Table 1.7** for instrument approach details.

Table 1.7 | Instrument Approach Procedures

	Approach Minimums by Aircraft Approach Category							
	Category A		Category B		Category C		Category D	
	DA	VIS	DA	VIS	DA	VIS	DA	VIS
ILS or LOC Runway 12L								
S-ILS 12L	2456	1[a]	2456	1[a]	N/A		N/A	
S-LOC 12L	2620	1	2620	1	N/A		N/A	
Sidestep 12R	2720	1-3/8	2720	1-3/8	N/A		N/A	
Circling	2720	1	2720	1	N/A		N/A	
RNAV (GPS) Runway 12R								
LP MDA	2620	1	2620	1	2620	1-1/8	2620	1-1/8
LNAV MDA	2820	1	2820	1	2820	1-3/4	2820	1-3/4
Sidestep 12L	2820	1	2820	1	2820	1-3/4	2820	2
Circling	2820	1	2820	1	2840	1-3/4	3540	3

Notes: [a] The S-ILS 12L approach has published minimums of 7/8-miles; however, the airport and the FAA have agreed that the minimums should be raised to 1-mile. The airport will be issuing a notice to airmen (NOTAM) in the interim until new approach plates with the correct 1-mile minimums are published.

Source: FAA Approach Plates

1.3.2.2 Arrival and Departure Procedures

Due to heavily used airspace as well as terrain obstacles in the vicinity of the Las Vegas metropolitan area, the FAA has established a series of standard terminal arrival (STAR) and departure procedures. A STAR is a preplanned ATC arrival procedure designed to provide for the transition from the enroute phase of the flight to an outer fix or an instrument approach fix in the terminal area. The three published STARs are FLCHR One (RNAV), NTNDO One (RNAV), and WYLND One (RNAV).

Departure procedures are preplanned instrument procedures that provide obstruction clearance from the terminal area to the appropriate enroute structure. These procedures can either provide obstacle clearance protection information to pilots through obstacle departure procedures (ODPs) or increase airspace efficiency and reduce communications and departure delays through standard instrument departures (SIDs). There are two departure procedures published for VGT. Northtown Five is a SID and Boulder City One is an ODP. Northtown Five is the most commonly issued instrument departure, which departs traffic to the west before intercepting a radial from the Las Vegas VOR.

1.3.2.3 VFR Transition Routes

Three VFR transition routes have been established to provide safe passages and standards for arriving and departing VFR traffic at VGT. The Rocks Route, Cortez Route, and Gypsum Route establish procedures including VFR waypoints, altitudes, and frequencies required for the appropriate clearances and separation from congested commercial and military traffic in the Las Vegas area. The Rocks Route provides arrival and departure information and guidance for the west side of the LAS Class B airspace, the Cortez Route provides arrival information and guidance for aircraft arriving from the east, and the Gypsum Route provides information and guidance for air traffic departing from VGT to the east and for air traffic arriving from the east and transitioning to the west. These VFR transition routes are depicted and described on the LAS terminal area chart.

1.4 AIRSIDE FACILITIES

Airport facilities can be functionally classified into two categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations, such as taxi, takeoff, and landing operations. The landside category includes those facilities that are located outside the airport operations area (AOA) fence and support aircraft servicing, storage, maintenance, and operational safety. This section describes the airside facilities, including runways, taxiways, lighting, marking, navigational aids, and weather reporting. Airside facilities are depicted and detailed on **Figure 1.7**.

Runway Data Table						
	Runway 12R-30L		Runway 12L-30R		Runway 7-25	
Runway Feature	**12R End**	**30L End**	**12L End**	**30R End**	**7 End**	**25 End**
Length (feet)	5,000'		4,199'		5,005'	
Width (feet)	75'		75'		75'	
Runway End Elevation (MSL)	2,205.0'	2,163.0'	2,188.6'	2,145.1'	2,204.2'	2,172.5'
Gradient	-0.8%	+0.8%	-1.0%	+1.0%	-0.6%	+0.6%
Magnetic Heading	120	300	120	300	074	254
True Heading	134	314	134	314	088	268
Runway Design Code (RDC)	B-II-5000	B-II-VIS	B-II-4000	B-II-VIS	B-II-VIS	B-II-VIS
Pavement Surface Material	Asphalt		Asphalt		Asphalt	
Pavement Condtion	Good		Good		Good	
Pavement Markings	Non-Precision	Non-Precision	Precision	Basic	Basic	Basic
Pavement Marking Conditions	Good	Good	Good	Good	Good	Good
Traffic Pattern Direction	Left	Left	Left	Left	Left	Left
Pavement Load Bearing Strength						
Single Wheel Loading (S)	30,000 lbs		30,000 lbs		30,000 lbs	
Pavement Classification Number (PCN)	48/F/C/X/T		15/F/C/X/T		58/F/C/X/T	
Visual and Instrument Approach Aids						
Visual Slope Indicator	PAPI-4 on left	PAPI-4 on left	PAPI-4 on left	PAPI-4 on left	PAPI-4 on left	PAPI-4 on left
Visual Glide Angle	3.00 Degrees	3.00 Degrees	3.20 Degrees	3.00 Degrees	3.00 Degrees	3.00 Degrees
Approach Lighting	None	None	None	None	None	None
Edge Lighting	MIRL		MIRL		MIRL	
Runway End Identifier Lights (REILs)	Yes	Yes	Yes	Yes	Yes	Yes
Instrument Approach Aids	RNAV (GPS)	None	ILS/DME	None	None	None

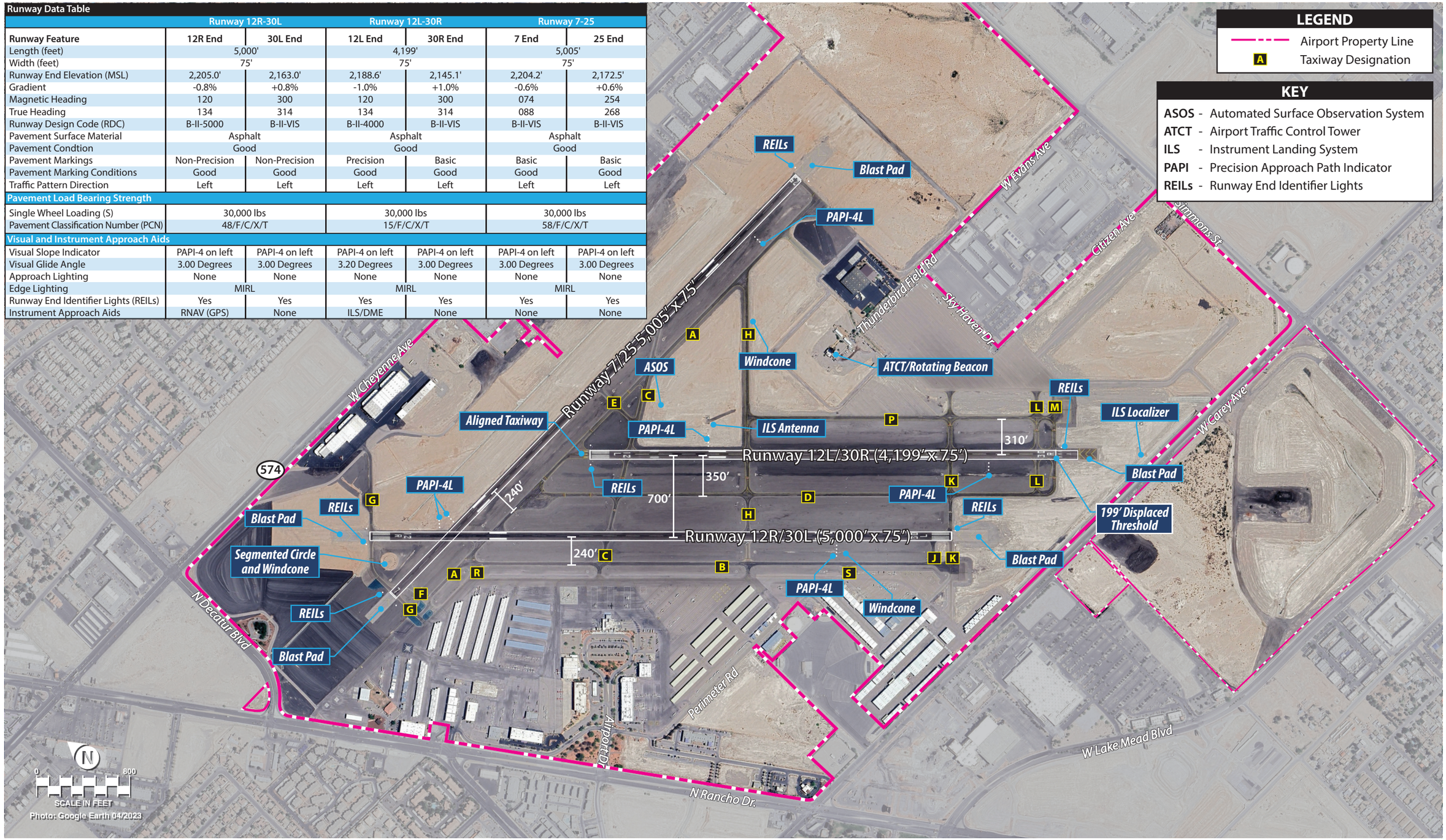


Figure 1.7
EXISTING AIRSIDE FACILITIES

This page intentionally left blank

1.4.1 AIRPORT DESIGN STANDARDS

Airport design standards are contained within FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*. The standards relate to various airport infrastructure and their functions and cover a wide range of size and performance characteristics of aircraft that are anticipated to use an airport. One of the most important aspects of AC 150/5300-13B, is the consideration of an airport's critical aircraft and Airport Reference Code (ARC). As defined by FAA, the critical aircraft is the most demanding aircraft that conducts at least 500 operations per year at the airport. This may be one aircraft, or a combination of multiple aircraft, which presents the most demand on the airport in terms of operational and physical characteristics.

The ARC is used to relate airport design criteria to the operational and physical characteristics of the aircraft types that will operate at the airport. The ARC is comprised of two components: 1) the aircraft approach category (AAC), which is designated with a capital letter (A through E) and is based on operational characteristics; and 2) the airplane design group (ADG), which is designated by a Roman numeral (I through VI) and is based on an aircraft's wingspan and tail height (physical characteristics). AAC and ADG are detailed in **Tables 1.8** and **1.9**.

Table 1.8 | Aircraft Approach Category

APPROACH CATEGORY	
A	< 91 knots
B	91 - <121 knots
C	121 - <141 knots
D	141 - <166 knots
E	166 knots or more

Table 1.9 | Airplane Design Group

AIRPLANE DESIGN GROUP		
Group #	Tail Height	Wingspan
I	<20'	< 49'
II	20' - <30'	49' - <79'
III	30' - <45'	79' - <118'
IV	45' - <60'	118' - <171'
V	60' - <66'	171' - <214'
VI	66' - <80'	214' - <262'

The 2020 Airport Layout Plan for VGT assigned an ARC of B-II to the airport, with the King Air 350 identified as the critical aircraft for each runway. The ARC and critical aircraft will be reevaluated as part of the aviation forecasts in the next chapter of the Airport Master Plan.

1.4.2 RUNWAYS

VGT has three runways: two parallel (12R-30L and 12L-30R) and one crosswind (7-25). All three runways are constructed from asphalt and are reported to be in good pavement condition. The parallel runways are separated by 700 feet from centerline to centerline, which is the minimum separation distance required for simultaneous independent VFR landings and takeoffs.

1.4.2.1 Runway 12R-30L

Runway 12R-30L is a parallel runway and is the closest runway to the terminal and primary GA aprons. This runway is oriented northwest-southeast and is 5,000 feet long and 75 feet wide, with blast pads on each end measuring 95 feet wide and 300 feet long. This runway features non-precision pavement markings in excellent condition, which include markings for the runway threshold, aiming point, landing designation, centerline, and pavement edge. Runway lighting features medium intensity runway lights (MIRL) and runway end identifier lights (REILs) for both ends. Visual approach guidance includes a four-light precision approach path indicator (PAPI) on the left side for each runway direction.



Runway 30L (Source: Google Earth)



Runway 30R (Source: Google Earth)

1.4.2.2 Runway 12L-30R

Runway 12L-30R is the primary runway, located farther northeast on the airfield. 12L-30R is VGT's only precision runway and features an instrument landing system (ILS)/distance measuring equipment (DME) instrument approach aid for the 12L end. This runway is 4,199 feet long and 75 feet wide, the shortest runway of the three. This runway has a 199-foot-long displaced threshold on the 30R end as well as a 95-foot-wide and 152-foot-long blast pad. The 12L end has an aligned taxiway runway entrance. As the only precision runway, the 12L end features precision pavement markings in excellent condition, which include markings for the runway threshold, aiming point, landing designation, centerline, pavement edge, and touchdown zone. The 30R end features basic pavement markings. Runway lighting features MIRLs and REILs for both ends. Visual approach guidance includes a four-light PAPI on the left side for each runway direction.

1.4.2.3 Runway 7-25

Runway 7-25 is VGT's crosswind runway, which is located on the north part of the airfield and intersects Runway 12R-30L at the 7/12R ends. This runway is 5,005 feet long and 75 feet wide and has blast pads on each runway end measuring 95 feet wide and 300 feet long. It features basic pavement markings for both runway ends, including markings for the landing designation, centerline, and pavement edge. Runway lighting features MIRL and REILs for both ends. Visual approach guidance includes a four-light PAPI on the left side for each runway direction.

1.4.2.4 Runway Declared Distance Information

Declared distance information is how the FAA defines distances for different types of aircraft operations on a runway. Understanding how physical runway elements at an airport affect these distances is critical to creating airfield geometry that supports the safe operation of aircraft. There are four operations for which declared distances are defined:

- *Takeoff Run Available (TORA)* – the length of the runway suitable for the ground run of an aircraft taking off plus the length of a displaced threshold, if present
- *Takeoff Distance Available (TODA)* – the length of TORA plus the length of a clearway, if present
- *Accelerate-Stop Distance Available (ASDA)* – the length of the runway plus the length of a stopway, if present, for the acceleration and deceleration of an aircraft aborting a takeoff
- *Landing Distance Available (LDA)* – the length of the runway declared available for the ground run of a landing aircraft

Some runways may have different physical elements on opposite sides of the same runway, so the declared distances are specific to the runway end in which they are defined. For example, the LDA for Runway 30R is different than the LDA for Runway 12L, even though they are the same span of pavement (12L-30R). The physical runway elements that affect declared distances include stopways, clearways, and displaced thresholds. VGT does not have stopways or clearways, but it does have a displaced threshold. Declared distances are summarized in **Table 1.10**.

Table 1.10 | North Las Vegas Airport Declared Distances

Declared Distance	Runway 12R-30L		Runway 12L-30R		Runway 7-25	
	12R	30L	12L	30R	7	25
Takeoff Run Available (TORA)	5,000	5,000	4,199	4,199	5,005	5,005
Takeoff Distance Available (TODA)	5,000	5,000	4,199	4,199	5,005	5,005
Accelerate-Stop Distance Available (ASDA)	5,000	5,000	4,199	4,199	5,005	5,005
Landing Distance Available (LDA)	5,000	5,000	4,199	4,000	5,005	5,005
All measurements are in feet.						

Source: FAA Airport Master Record Form 5010

1.4.2.5 Dimensional Criteria

The following dimensional criteria are established in FAA AC 150/5300-13B. The required dimensions for VGT are provided in **Table 1.11**.

Table 1.11 | Existing Runway Characteristics (2020 ALP)

	Runway 12R-30L		Runway 12L-30R		Runway 7-25	
Runway Component	**12R**	**30L**	**12L**	**30R**	**7**	**25**
Runway Length	5,000'		4,199'		5,005'	
Runway Width	75'		75'		75'	
Aircraft Approach Category (AAC)	C		B		B	
Airplane Design Group (ADG)	II		II		II	
Runway Visual Range (RVR)	5000		5000		Visual	
Runway Design Code (RDC)	C-II-5000		B-II-5000		B-II-VIS	
Critical Aircraft	Challenger 300		King Air 350		King Air 350	
Pavement Type	Asphalt		Asphalt		Asphalt	
Pavement Markings	Nonprecision	Nonprecision	Precision	Basic	Basic	Basic
Edge Lights	MIRL		MIRL		MIRL	
Declared Distances	See Table 1.10		See Table 1.10		See Table 1.10	
Displaced Threshold	No	No	No	199’	No	No
Runway End Elevation (MSL)	2,205.0'	2,163.0'	2,188.6'	2,145.1'	2,204.2'	2,172.5'
Approach Lighting	No	No	No	No	No	No
Runway End Identifier Lights (REILs)	Yes	Yes	Yes	Yes	Yes	Yes
Visual Approach Aids	PAPI-4	PAPI-4	PAPI-4	PAPI-4	PAPI-4	PAPI-4
Runway Shoulder Width	10'	10'	10'	10'	10'	10'
Runway Blast Pad Width	95'	95'	N/A	95'	95'	95'
Runway Blast Pad Length	300'	300'	N/A	152'	300'	300'
Runway Centerline to Holding Position Distance	200'		200'		200'	
RSA Width	500'		150'		150'	
RSA Length Beyond Runway End	1,000'		300'		300'	
ROFA Area Width	800'		500'		500'	
ROFA Length Beyond Runway End	1,000'		300'		300'	
OFZ Width	400'		400'		400'	
OFZ Length Beyond Runway End	200'		200'		200'	
RPZ Length	1,700'	1,700'	1,000'	1,000'	1,000'	1,000'
RPZ Inner Width	500'	500'	500'	500'	500'	500'
RPZ Outer Width	1,010'	1,010'	700'	700'	700'	700'

Source: VGT ALP (2020) updated to reflect current runway design code for Runway 12R-30L.

Runway Safety Area (RSA)

The RSA is a surface surrounding a runway identified to reduce the risk of damage to an aircraft in the event of an undershot, overshot, or excursion from the runway. The RSA must be cleared and graded and have no hazardous surface variations and free of objects, except for objects needed for air navigation or aircraft ground maneuvering. The FAA does not permit modifications to the standards of an RSA.

Runway Object Free Area (ROFA)

The ROFA is an area centered and surrounding the runway that precludes parked airplanes and objects, except those needed for air navigation. The ROFA clearing standard requires clearance of above ground objects protruding above the nearest point of the RSA. It is acceptable for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes to protrude above the nearest point of the RSA, and to taxi and hold aircraft in the ROFA. Objects nonessential for air navigation or aircraft ground maneuvering purposes must not be placed in the ROFA.

Obstacle Free Zone (OFZ)

An OFZ is a three-dimensional volume of airspace along the runway and extended runway centerline that provides clearance protection for arriving and departing aircraft. The OFZ is required to be free of all penetrations, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function. An additional OFZ component is its height, which is the airspace above the surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline.

Runway Protection Zone (RPZ)

The RPZs function is to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered on the extended runway centerline. There are both approach and departure RPZs applicable to each runway end and their location is dependent upon landing and takeoff distances. In the case of VGT, both the approach and departure RPZs are located with respect to the physical runway ends for all runway ends except for Runway 30R, which has a displaced threshold. The approach RPZ dimension for a particular runway end is a function of the type of aircraft and approach visibility minimums associated with that runway end.

Due to a recent change in design standard for Runway 12R-30L, the RSA and ROFA associated with this runway extend beyond airport property and include incompatibilities (West Cheyenne Avenue, perimeter road/fencing to the north, West Carey Avenue and perimeter road/fencing to the south, and Taxiway B). The existing RSA and ROFA associated with Runways 12L-30R and 7-25 are fully contained on airport property. The RPZs associated with Runways 12R, 30L, 30R, and 7 extend beyond the airport's boundary and encompass public roadways, and in the case of the 12R RPZs, commercial structures. Refer to **Figure 1.8** for an illustration of these surfaces. A full analysis of required dimensional standards associated with the existing and future ARC will be performed as part of the Facility Requirements of this Airport Master Plan Update.

This page intentionally left blank

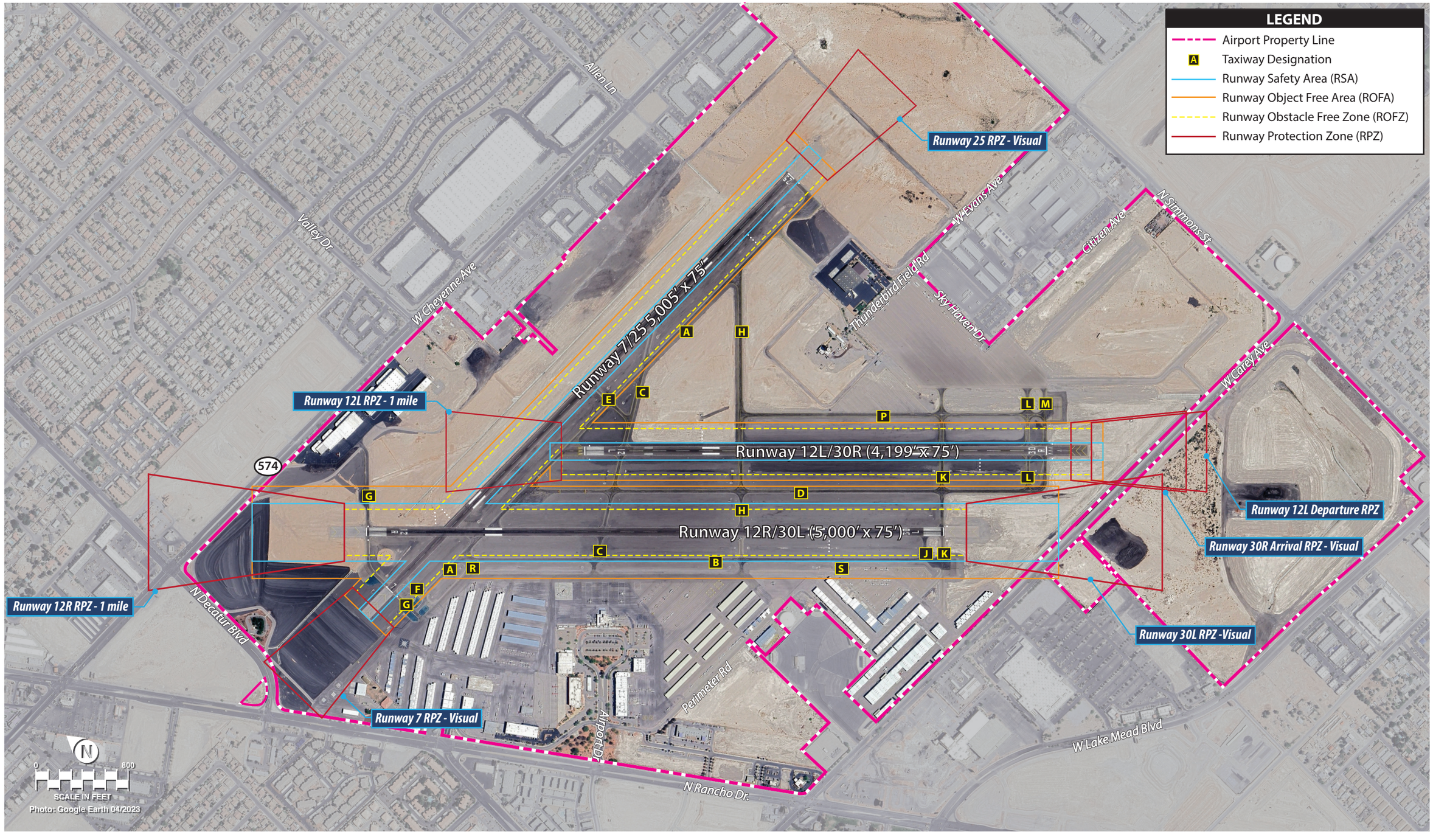


Figure 1.8
EXISTING SAFETY AREAS

This page intentionally left blank

1.4.3 TAXIWAYS

The taxiway network at VGT (shown on **Figure 1.7**) consists of parallel, connecting, access, and entrance/exit taxiways. All taxiways are paved with asphalt and have a width of 35 feet. The taxiways are marked with centerline and edge markings outlined in black paint to enhance the conspicuity of the markings. The primary taxiways – A, B, and D – are all parallel taxiways serving movements for arriving and departing aircraft. All taxiways have medium intensity blue edge lights (MITL) for enhanced visibility at night or during reduced visibility conditions. **Table 1.12** provides additional information for each taxiway at VGT.

Table 1.12 | Taxiway Data Table

Designation	Width (feet)	Description
A	35	Parallel taxiway to Runway 7-25
B	35	Parallel taxiway to Runway 12R-30L
C	35	Connector and high-speed exit between Runway 7-25 and terminal apron
D	35	Parallel taxiway between Runways 12R-30L and 12L-30R
E	35	Exit/connector between Taxiway C and Runway 7-25
F	35	Entrance/connector between Taxiway A and Runway 7-25
G	35	Entrance/connector to Runway 7 and Runway 12R; connector to Cheyenne Air Center apron
H	35	Connector taxiway between Shaded Hangar Units and Taxiway A
J	35	Connector from Taxiway B to Runway 12R-30L
K	35	Entrance/connector from Taxiway B to Runway 30L, Runway 12L-30R, and the Outback Hangars
L	35	Connector taxiway between Taxiways D and P; entrance to Runway 12L-30R
M	35	Connector taxiway between Taxiway P and the east transient apron
P	35	Parallel taxiway to Runway 12L-30R
R	60	Connector taxiway from portable T-hangars to Taxiways A and B
S	40	Connector taxiway from the Skid Row Hangars to Taxiway B
W	35	Connector taxiway from the LVMPD Hangar to Taxiway A

Source: FAA Airport Diagram

1.4.4 APRON AREAS

Aircraft aprons are large pavement areas typically situated between hangars and taxiways. Aprons provide aircraft ample space to maneuver, park, and load and unload passengers without interfering with active taxiing operations. An apron area is not controlled by the ATCT and is considered a non-movement area, meaning aircraft can freely taxi on the apron pavement without the pilot needing authorization from the ATCT. VGT has approximately 4.4 million sf of apron pavement for public and tenant use. Aprons also house aircraft tie-downs, which are generally more economical options to store aircraft rather than renting enclosed hangar space. VGT features 238 open tie-downs that are leased month to month.



Terminal Apron – Itinerant Aircraft Parking

1.4.4.1 Helipads

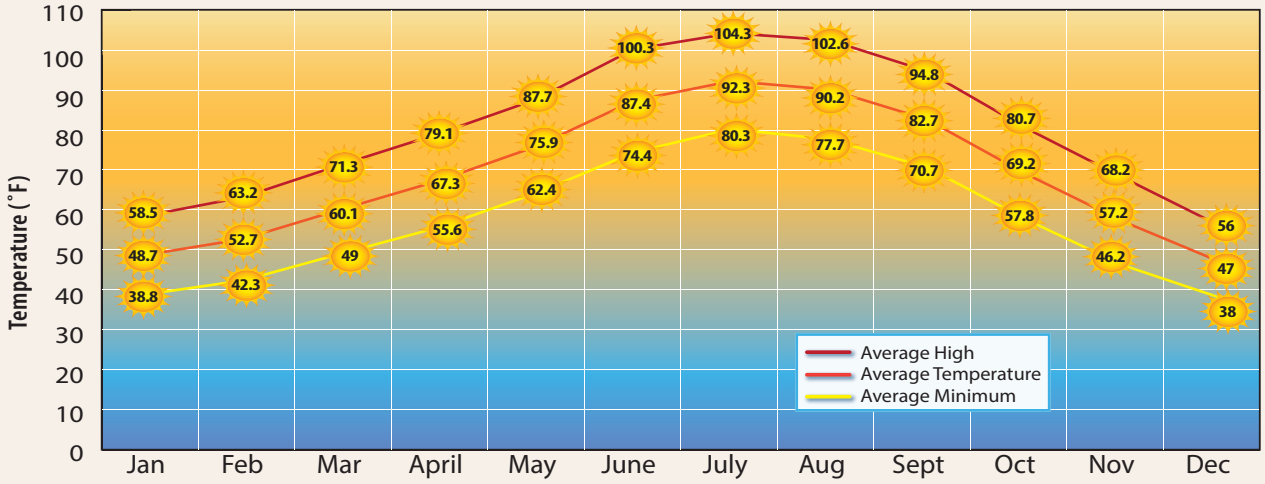
VGT experiences significant helicopter activity, both recreational and for essential services including activities associated with air ambulance operators, the LVMPD, and the Bureau of Land Management. In terms of recreational helicopter operations, the Las Vegas area is very popular for aerial tours. With numerous helicopter air tour operators based at VGT, there are multiple helicopter landing pads. VGT has 18 helipads on the main GA apron and three helipads on the Cheyenne apron. All of the helipads have asphalt pavement except for five concrete helipads near the inter-agency hangars.

1.4.5 METEOROLOGICAL CONDITIONS

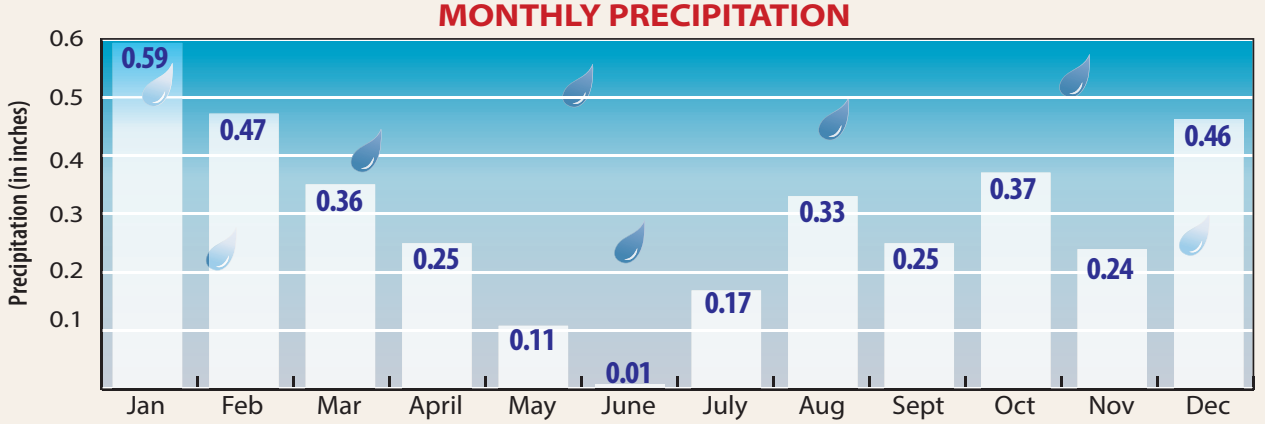
Knowledge of climate and weather conditions is important to the planning and development of an airport. Elements such as temperature, wind speed, and direction directly influence the geometric dimensions and layouts of runways at an airport. Temperature is an essential factor in determining runway length requirements, while wind direction and speed are used to determine optimum runway orientation. The need for navigational aids and lighting is determined by the percentage of time that visibility is impaired due to cloud coverage or other conditions.

The Las Vegas area climate is described as a hot desert climate which features usually hot, and sometimes exceptionally hot, periods of the year. Weather data shown in **Figure 1.9** is provided by the National Oceanic and Atmospheric Administration (NOAA) via the on-airport automatic surface observing system (ASOS). Precipitation occurs in small amounts, averaging only four inches annually, which is significantly less than the U.S. average of 30 inches of annual precipitation. December through March are the wettest parts of the year with monthly average precipitation amounts between 0.36 and 0.59 inches. The annual average temperature is around 69 degrees, with the hottest monthly average maximum temperature of 104.3 degrees occurring in July and an average monthly minimum temperature of 38 degrees occurring in December.

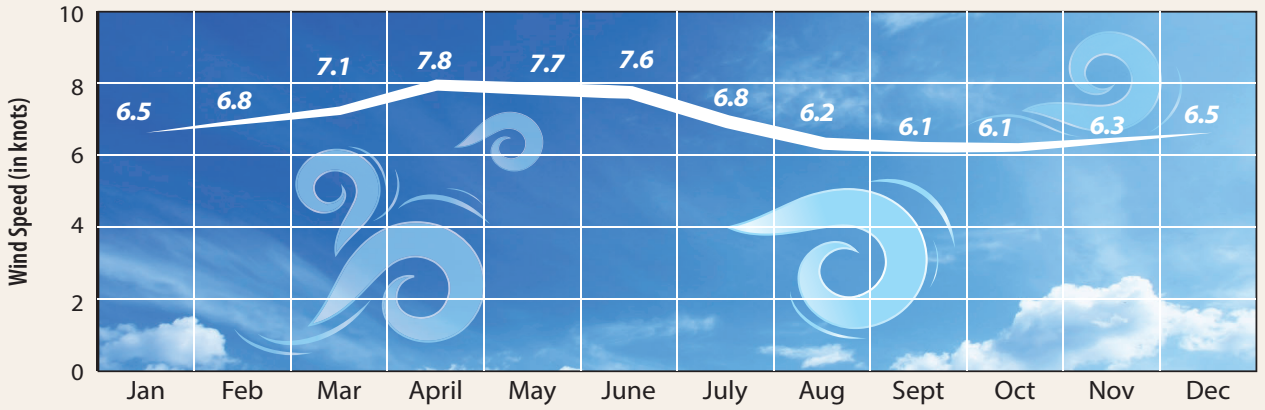
MONTHLY TEMPERATURES



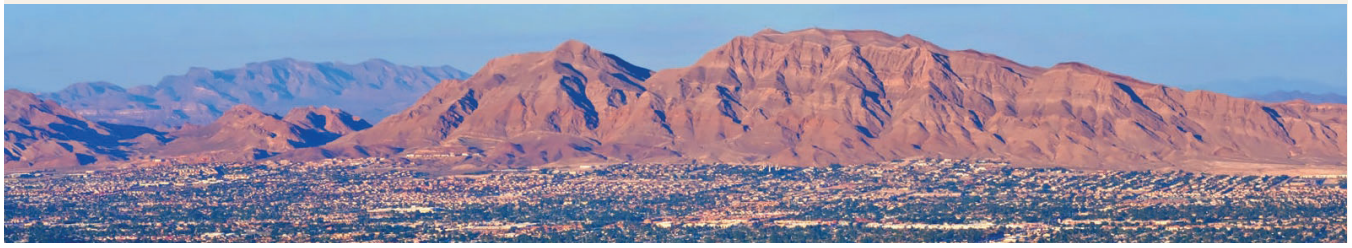
MONTHLY PRECIPITATION



AVERAGE WIND SPEED BY MONTH



Source: Las Vegas Air Terminal, GHCND: USW00053123, NOAA 2006-2020



1.4.5.1 Weather Conditions

Pilots are required to gather all available weather information prior to conducting a flight under IFR or a flight not in the vicinity of an airport. This means pilots arriving at or departing from VGT typically gather local weather information provided by the weather reporting station located at the airport. On-airport weather reporting stations provide pilots with the best available weather information for the terminal area they represent. At VGT, this information is provided by an Automated Surface Observation System (ASOS) and a Limited Aviation Weather Reporting System (LAWRS) and is communicated by an Automatic Terminal Information System (ATIS) broadcast. The ASOS equipment is co-located with the Runway 12L ILS antenna and PAPI equipment on the left side of the Runway 12L aiming point markings. Other weather and communication facilities located on the airport include a segmented circle and lighted wind cone. These facilities are located between the Runway 12R, Runway 7, and Taxiway G island.



ASOS Equipment

Table 1.13 indicates that visual meteorological conditions (VMC) occur 99.85 percent of the time. When under VMC conditions, pilots can operate using visual flight rules (VFR) and are responsible for maintaining proper separation from objects and other aircraft. Instrument meteorological conditions (IMC) account for all weather conditions less than VMC conditions that still allow for aircraft to safely operate under instrument flight rules (IFR). Under IFR, pilots rely on instruments in the aircraft to accomplish navigation. Less than IMC, or poor visibility conditions (PVC), are weather conditions that are lower than instrument approach minimums, making the airport inaccessible to most air traffic. IMC and PVC conditions combined occur well under one percent of the time annually at the airport.

Table 1.13 | Weather Observations Breakdown

Type	Duration (minutes)	Percentage
IFR	6,387	0.12%
PVC	1,394	0.03%
VFR	5,249,353	99.85%
Total	5,257,134	100.00%

Source: North Las Vegas Air Terminal Weather Observations 1/1/13 - 12/31/22. Site: 72484653123

1.4.5.2 Traffic Flow

Local operating procedures at VGT consist of standard traffic pattern procedures for arriving, departing, and local traffic as well as procedures for the Las Vegas Class B airspace assisting VFR arrivals and departures utilizing VGT. The most common arrival and departure runways are the parallel Runways 12R-30L and 12L-30R. Most of the traffic at VGT is VFR and therefore receive suggested heading west/northwest when departing VGT in order to keep aircraft clear of the Las Vegas Class B airspace. About 90 percent of traffic pattern operations are conducted on Runway 12L-30R, which is considered the “inboard” runway and is the closer of the two parallel runways to the tower. Pattern operations make up approximately one third of all operations at VGT due to the high concentration of flight schools.

Jet aircraft are estimated to utilize Runway 12R-30L 85 percent of the time, Runway 7-25 10 percent of the time, and Runway 12L-30R 5 percent of the time. Turboprop aircraft are estimated to use Runway 12R-30L 70 percent of the time, Runway 12L-30R 20 percent of the time, and Runway 7-25 10 percent of the time. Single engine piston aircraft are estimated to use Runway 12R-30L 45 percent of the time, Runway 12L-30R 45 percent of the time, and Runway 7-25 10 percent of the time.

Due to the congested traffic surrounding Harry Reid International Airport (LAS), the FAA published additional charts and procedures to safely separate VFR traffic transiting through or near the LAS Class B airspace enroute to VGT. The published material includes a terminal area chart (TAC) for the Las Vegas area, a VFR Flyway Planning Chart, and three VFR transition routes to and from VGT.

1.4.5.3 Crosswind Coverage

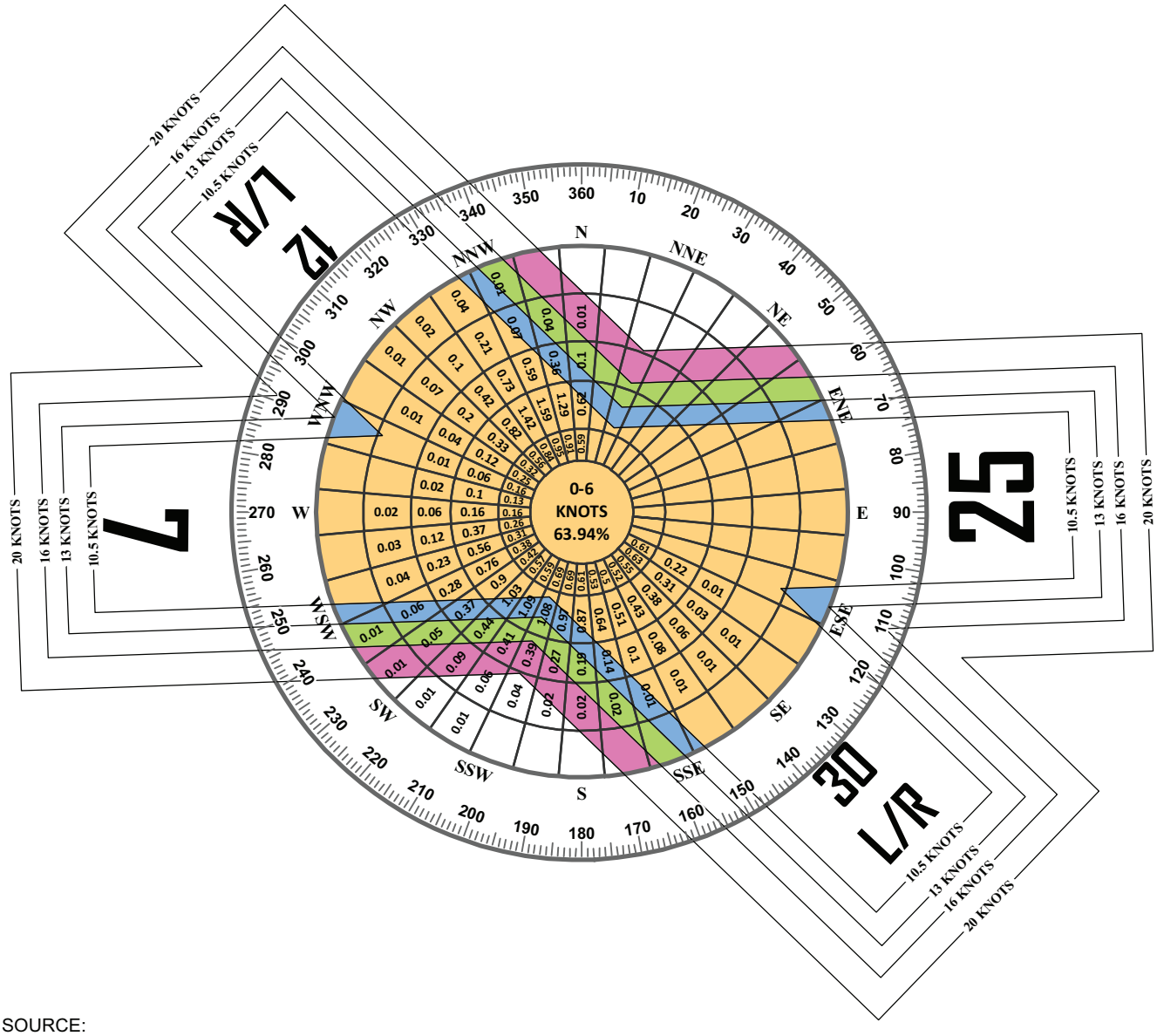
Prevailing winds are winds that blow predominately in a given direction. At an airport, the direction of prevailing winds determines the desired alignment, configuration, and usage of a runway. Aircraft can only tolerate limited crosswind, a component of wind that blows perpendicular to the runway centerline. Ideally, runways are configured to allow aircraft to take off and land into the wind 100 percent of the time. Because winds change direction, FAA planning standards indicate that an airport's primary runway should be capable of operating under allowable wind conditions at least 95 percent of the time. The 95 percent wind coverage is based on a crosswind not exceeding the wind speed listed in **Table 1.14**. If a runway does not meet this 95 percent coverage, then FAA funding assistance for the development of a crosswind runway may be advisable.

Table 1.14 | Allowable Crosswind Component

Crosswind	Airport Reference Code	Aircraft Characteristics
10.5 knots	A-I and B-I (includes small)	Small single engine and light-twin engine aircraft
13 knots	A-II and B-II	Larger and heavier turboprop and medium jet-type aircraft
16 knots	A-III, B-III C-I thru C-III D-I thru D-III	Larger corporate/military jet and narrow-body commercial type aircraft
20 knots	A-IV and B-IV C-IV thru C-VI D-IV thru D-VI E-I thru E-VI	Larger narrow-body and wide-body commercial-type aircraft

Figure 1.10 presents the calculated coverage of Runways 12-30 and Runway 7-25 for each of the four crosswind components (10.5, 13, 16, and 20 knots). It should be noted that, per FAA guidelines, this analysis uses the airport's true runway headings of 134 and 314 degrees for Runways 12R/L and 30L/R and 088 degrees and 268 degrees for Runway 7-25. While runway designations represent the existing magnetic heading, the Earth's magnetic lines slowly drift over time causing the true runway headings to shift.

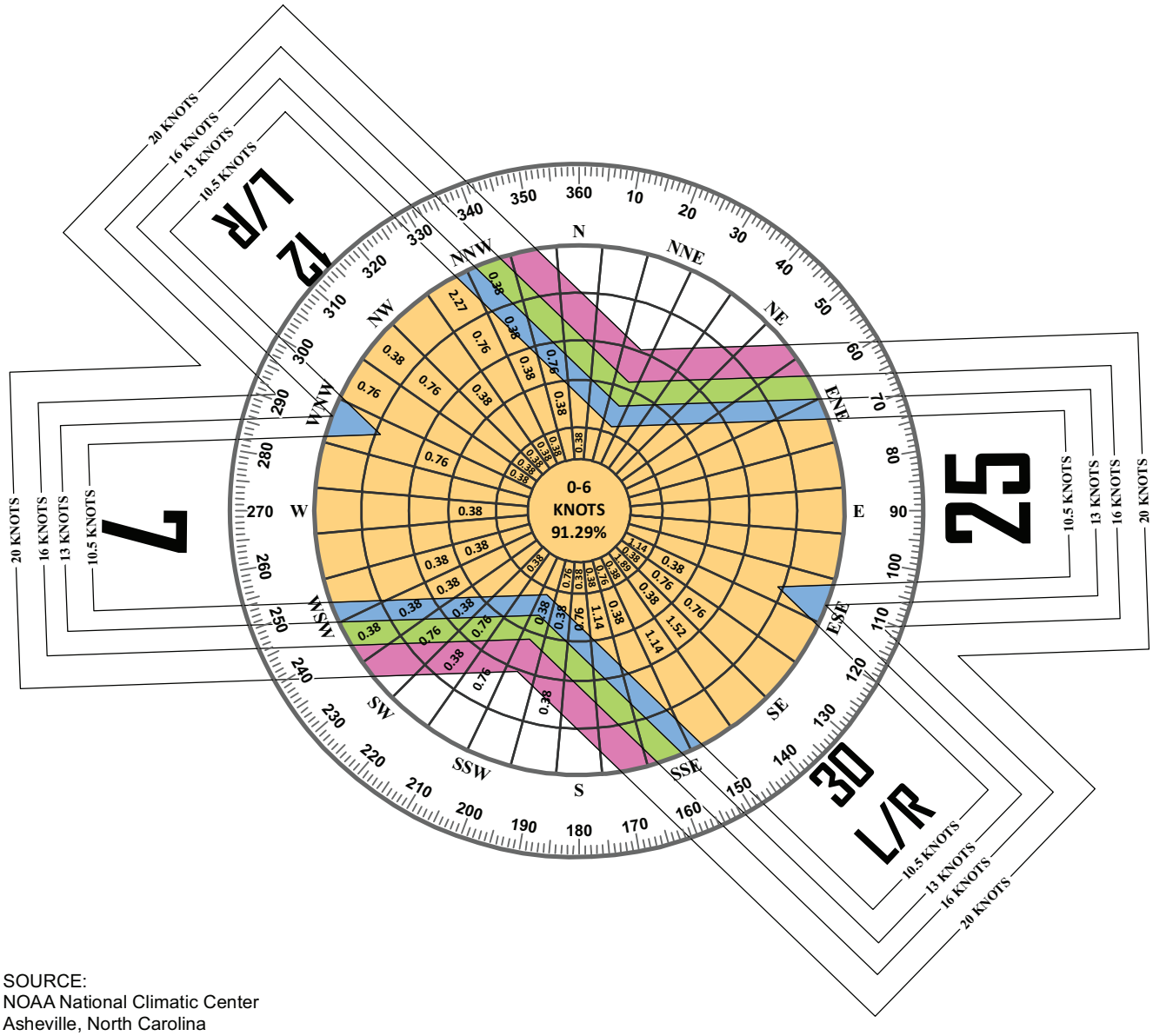
ALL WEATHER WIND COVERAGE				
Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7/25	85.39%	90.80%	96.38%	99.12%
Runway 12LR/30LR	90.18%	94.02%	97.43%	99.28%
All Runways	94.19%	97.34%	99.10%	99.87%



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
North Las Vegas Airport
Las Vegas, Nevada

OBSERVATIONS:
85,176 All Weather Observations
Jan. 1, 2013 - Dec, 31 2022

IFR WIND COVERAGE				
Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7/25	85.90%	87.74%	91.33%	94.23%
Runway 12LR/30LR	92.65%	94.46%	95.50%	97.18%
All Runways	94.20%	96.22%	97.89%	99.15%



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
North Las Vegas Airport
Las Vegas, Nevada

OBSERVATIONS:
448 IFR Weather Observations
Jan. 1, 2013 - Dec, 31 2022

As shown in **Table 1.14**, with an ARC of B-II, VGT's runway configuration should provide availability of at least 95 percent on the basis of the crosswind component not exceeding 13 knots. Overall, the existing runway headings exceed the FAA's 95 percent recommendation under all-weather and IFR and conditions for the B-II aircraft category. However, smaller aircraft such as group A-I aircraft generally operate only in VFR conditions and are unable to use the airport approximately six percent of the time due to a lack of crosswind coverage.

1.4.6 AIRFIELD LIGHTING

Airfield lighting systems provide pilots with enhanced visual cues for airport elements (such as taxiways and runways) and guidance during night operations and periods of poor visibility. A variety of lighting systems are installed at VGT for this purpose and are categorized by function below.

1.4.6.1 Runway Pavement and Edge Lighting

Pavement edge lighting utilizes light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations at night and/or during times of low visibility in order to maintain safe and efficient access to and from the runway and aircraft parking areas. Different colored edge lights identify different pavement uses: runway edge lights are white and taxiway edge lights are blue. VGT's runways and taxiways are equipped with medium intensity runway lighting (MIRL) and medium intensity taxiway lighting (MITL), which is pilot controlled during hours when the ATCT is closed.



Medium Intensity Runway Light (MIRL) Fixture

1.4.6.2 Taxiway Lighting

All airfield taxiways serving the runway system are equipped with MITL along the taxiway edges. Taxiway lighting systems also include runway guard lights (RGL), which provide a visual indication to pilots that they are about to enter an active runway. RGLs are made up of two unidirectional alternating yellow lights co-located with hold positions on taxiways.



Medium Intensity Taxiway Light (MITL) Fixture

1.4.6.3 Pilot Controlled Lighting

During nighttime hours when the ATCT is closed, pilots can utilize the pilot-controlled lighting system to activate certain airfield lights from their aircraft. Pilots can turn on and change the intensity of the lighting system by clicking their radio transmitter microphone a certain number of times in series while tuned in to the common traffic advisor frequency (CTAF) of 125.7 Mhz.

1.4.7 NAVIGATIONAL AIDS

Navigational aids (NAVAIDS) are electronic devices that transmit radio frequencies which pilots in properly equipped aircraft can translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to and from VGT include very high frequency omnidirectional range tactical air navigation (VORTAC), distance measuring equipment (DME), and global positioning (GPS) systems. VOR, VORTAC, and DME systems require ground-based facilities to emit the radio frequency information received by aircraft equipment. GPS utilizes satellites in the earth's orbit to provide navigational information to aircraft without any ground-based facility. The Runway 12L ILS approach utilizes the on-site localizer and glideslope antenna as well as the VORTAC NAVAID equipment located at Harry Reid International Airport (LAS) for missed approaches; the facility is approximately nine miles south of VGT.



Runway 12L Localizer Equipment



Runway 12L ILS Glideslope Equipment

1.4.7.1 Airport Identification Lighting

The location of the airport at night or during low-visibility weather is universally identified by a rotating beacon. Civilian land airport rotating beacons project two beams of light, one white and one green, 180 degrees apart. The rotating beacon at VGT is located on the roof of the ATCT.

1.4.7.2 Visual Approach Lighting

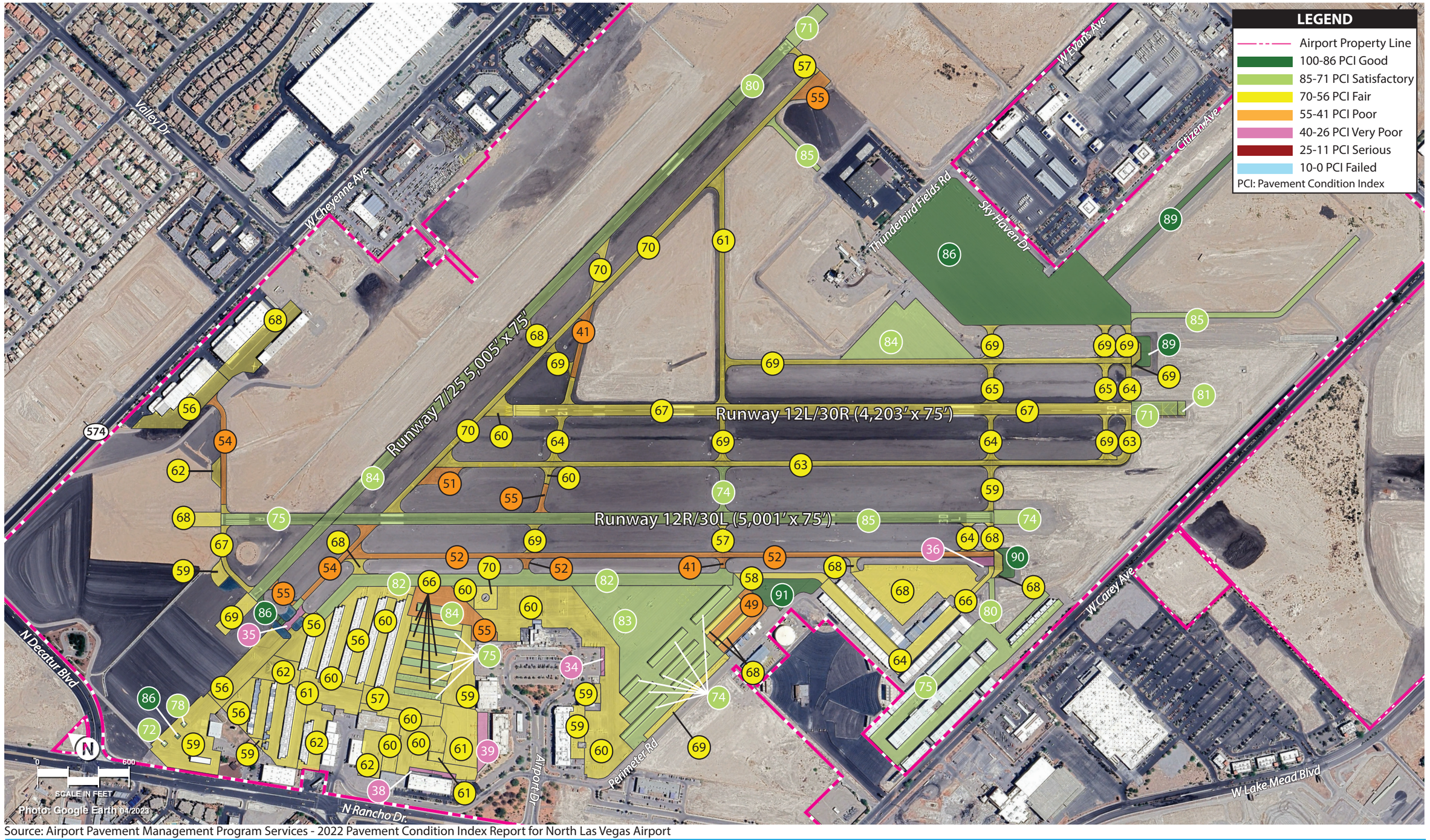
Visual approach aids have been installed at VGT to assist pilots in determining the correct descent path to the runways during an approach. A precision approach path indicator (PAPI) provides visual information that helps pilots determine whether they are below, above, or on the specified glide angle. The Runway 7-25 and Runway 12R-30L PAPIs are FAA-owned while the CCDOA owns the PAPIs on Runway 12L-30R. A PAPI is made up of either two lights (PAPI-2) or four lights (PAPI-4) which are located on either the right (PAPI-2R or PAPI-4R) or left (PAPI-2L or PAPI-4L) side of the runway. They emit two-color light beams (white and red) and display either color depending on the aircraft's position relative to the glide angle. PAPIs have an effective visual range of five miles during the day and 20 miles at night. VGT has six (6) four-light PAPI (PAPI-4L) systems installed on the left sides of each runway end. Runway 12L has a glide angle of 3.20 degrees while all other runways have the standard 3.00-degree glide angle. Glide angles may be higher than normal to clear obstructions or reduce noise impacts to surrounding areas.

1.4.7.3 Runway End Identifier Lights (REILs)

REILs provide a visual identification of the runway end for landing aircraft. The REILs consist of two synchronized flashing white lights, located laterally on each side of the runway end, facing the approaching aircraft. These flashing lights can be seen day or night for a distance up to 20 miles, depending on visibility conditions. Each runway at VGT has an FAA-owned REIL system installed.

1.4.8 AIRFIELD PAVEMENT

Airfield pavement includes runways, taxiways, and aprons. Pavement condition management and improvement is critical due to the hazard poor pavement may pose to aircraft operational safety. Cracked and broken pavement may damage aircraft tires and/or landing gear or become dislodged due to prop and jet wash, creating dangerous Foreign Object Debris (FOD) on the airfield. CCDOA has a pavement management program (PMP) in place for VGT which evaluates airfield pavement and provides a plan for the replacement and repair of pavement surfaces in poor condition. The most recent PMP was evaluated in 2022 and is recommended to be updated every three years. Pavement conditions are analyzed by calculating a Pavement Condition Index (PCI) for areas of pavement with similar properties (type, dimensions, and construction date). The PCI uses a scale from 0 to 100 to identify the pavement condition, where 0 indicates a failed pavement and 100 is a newly constructed pavement. These ratings consider the distress type, quantity, and severity to calculate a single PCI value. VGT's PCI indices are depicted on **Figure 1.11**.



Source: Airport Pavement Management Program Services - 2022 Pavement Condition Index Report for North Las Vegas Airport

This page intentionally left blank

The 2022 PCI Map indicates that the majority of airfield pavement at VGT is generally in good to fair condition. Pavements in poor condition include the full length of Taxiway B, portions of Taxiway A and Taxiway C, the Runway 12L holding bay, and a few minimal ramp areas. Very poor pavement was indicated at the Taxiway A/G/F intersection, Taxiway B/K intersection, and a few minimal ramp areas.



Holding Position Marking, Enhanced Taxiway Centerline, and In-Pavement RGLs

The PCI report is typically used by airport maintenance, planners, engineers, and contractors for information pertaining to the life cycle and repair management of airfield pavement, but it is not used for the immediate determination of pavement strength for aircraft use. The FAA utilizes a different pavement strength reporting method for aircraft use through the Aircraft Classification Number (ACN) and Pavement Classification Number (PCN) method. The ACN-PCN is a standardized system used by pilots and airports to determine if an airfield's pavement strength is adequate for the aircraft load utilizing the airfield. Airports across the country have different pavement thicknesses and strengths based on the levels of activity and types of aircraft that use them. A pilot can look up an airport's PCN values on FAA-published airport diagrams and chart supplements and can check their ACN to determine if the aircraft they intend to use at the airport will be within the airport's PCN limitations. The ACN-PCN system is designed so that airport pavement with a particular PCN value can support aircraft with an ACN value equal to or less than the PCN. **Table 1.15** depicts the PCN value for each runway at VGT.

Table 1.15 | VGT Pavement Classification Numbers

Runway	PCN
07-25	58/F/C/X/T
12L-30R	15/F/C/X/T
12R-30L	48/F/C/X/T

Source: FAA Airport Master Record Form 5010

1.4.8.1 Airport Pavement Markings

Pavement markings aid in the movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. VGT provides and maintains a pavement marking system in accordance with Part 139.311(a) and FAA AC 150/5340-1, *Standards for Airport Markings*. All pavement markings on VGT's three runways are in excellent condition.

Specific configurations of pavement markings are used on different runways to identify and aid in the type of operation that a runway may have. As detailed previously, Runway 12R-30L has non-precision pavement markings, Runway 12L has precision pavement markings due to its precision instrument approach, and Runways 30R and 7-25 have basic pavement markings.

Taxiway and taxilane centerline markings are provided to assist pilots in maintaining proper clearance from pavement edges and objects near the taxiways. Taxiway markings also include elements used to enhance the pilot's awareness when nearing a runway, including holding position markings, surface painted holding position signs (SPHPS), and enhanced centerlines. Holding position markings are used on a taxiway prior to runway/taxiway intersections to alert taxiing aircraft that they are about to enter

an active runway. The function of holding position markings is to keep aircraft from entering the runway environment without clearance from the ATCT. Holding position markings are located 200 feet from the runway centerline for all three VGT runways. SPHPS markings identify the runway designator on which the taxiway will intersect. Enhanced centerline markings provide centerline dashes on either side of it to signal that the taxiway is leading to a runway intersection.

Other applications of pavement markings at VGT include no-taxi island pavement markings adjacent to Taxiway G which help to visually separate the taxiway from surrounding pavement. Another pavement marking element at VGT is the aligned taxiway lead-in to Runway 12L. Aligned taxiways for new construction or reconstruction projects are prohibited and corrective measures for the aligned taxiway will be evaluated as part of the master plan.



No-Taxi Island Painted Green and Lighted for Enhanced Visibility

1.4.9 RUNWAY INCURSION MITIGATION

A runway incursion is defined by the FAA as an occurrence at an airport involving the incorrect presence of an aircraft, vehicle, or person on a protected area designated for the landing and takeoff of aircraft. Specific locations on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary, are known as hot spots. As depicted in **Figure 1.12**, VGT has four[1] published hot spots. These hot spots are identified in the FAA's Airport/Facility Directory to make it easier for the airport's users to plan the safest possible path of movement in and around the airfield.

[1] Since the original publishing of this chapter, the FAA has eliminated hot spots 5 and 6, resulting in four total hot spots at VGT.


LEGEND
Airport Property Line
A Taxiway Designation
*Note: Since the original publishing of this chapter, the FAA has eliminated hot spots 5 and 6 resulting in four total hot spots at VGT.
Allen Ln
Valley Dr
W Cheyenne Ave
W Evans Ave
Thunderbird Field Rd
Sky Haven Dr
Citizen Ave
N Simmons St
W Carey Ave
Runway 7/25 5,005'x 75'
Runway 12L/30R (4,199'x 75')
Runway 12R/30L (5,000'x 75')
Hot Spot 1
Hot Spot 2
Hot Spot 3
Hot Spot 4
Hot Spot 5*
Hot Spot 5*
Hot Spot 6*
574
N Decatur Blvd
Perimeter Rd
Airport Dr
N Rancho Dr.
W Lake Mead Blvd
0
800
SCALE IN FEET
Photo: Google Earth 04/2023

This page intentionally left blank

- Hot Spot 1 encompasses the area around the intersections of Taxiways F and G with the Runway 7 end. The hold lines on Taxiways F and G are in close proximity to the edge of a large paved area, and pilots often cross the Runway 7 hold line on Taxiway G without ATC authorization.

- Hot Spot 2 is the result of pilots sometimes entering or crossing Runway 12R without authorization.

- Hot Spot 3 is located at the convergence of Taxiways A, B, and R. Pilots taxiing east on Taxiway A to Runway 30L sometimes miss the turn onto Taxiway B, proceeding onto Runway 12R without authorization.

- Hot Spot 4 includes the area of Taxiway A between the north end of Taxiway D and the Runway 12L threshold. Pilots taxiing east on Taxiway A sometimes fail to hold short of Runway 12L, or neglect to turn onto Runway 12L for departure, instead departing on Taxiway A.

- Hot Spot 5 was the result of pilots mistaking Runway 12L for Runway 12R or vice versa when landing. **Hot Spot 5 has been removed by the FAA**.

- Hot Spot 6 was the result of pilots mistaking Runway 30R for Runway 30L when landing, especially during overhead crossing to left downwind approach. **Hot Spot 6 has been removed by the FAA**.

1.4.10 AIRFIELD SIGNAGE

The airport has a runway/taxiway signage system that is designed to assist pilots in identifying their location on the airfield and direct them to their desired location. The presence of runway/taxiway signage is an essential component of a surface movement guidance control system and is necessary for the safe and efficient operation of the airport. The signage system installed at VGT includes runway and taxiway designations, holding positions, routing/directional, distance remaining, and runway exits.



Runway Hold Position Signage



Taxiway Directional Signage

1.5 LANDSIDE FACILITIES

Landside facilities support the aircraft and pilot/passenger handling functions as well as other non-aviation facilities typically providing a revenue stream to the airport. These facilities include general aviation facilities such as the airport terminal building, aircraft storage hangars, and vehicle parking lots. The primary landside facilities at the airport are identified on **Figure 1.13**. VGT's landside facilities include over one million square feet (sf) of buildings, hangars, and offices.

Building #	Tenant Name	Services	Facility Type
A-01	VGT	Airport Administration, Fuel	Terminal Building
A-01	Sunshine and Tailwinds Café	Dining	Terminal Building
A-01	Enterprise	Rental Car	Terminal Building
A-01	Hertz	Rental Car	Terminal Building
A-02	FAA ATCT	Government	Control Tower
A-03	Horton Avionics Services	Aircraft Maintenance/ Aircraft Rental	Conventional Hangar
A-04	Vacant	N/A	Conventional Hangar
A-05	VGT	Fuel Storage	Fuel Farm
A-06	Metro/Homeland Security	Government	Offices
A-07 & A-14	Airport Mainentance Building	Maintenance	Storage Building
A-08	Desert Aviation Center Hangars	Aircraft Storage	Conventional Hangar
A-09 (OB1-OB12, OB21-OB44 OB50-OB63)	Outback Hangars	Aircraft Storage	Executive Hangars
A-09 (OB70-OB84)	Private Portable T-Hangars	Aircraft Storage	T-Hangars
A-10	Civil Air Patrol (Ranch House)	Government	Offices
A-11 (A1-A12, B1-B12, C1-C12, D1-D12, E1-E12, F1-F11, G1-G10, H1-H10, 1-J5, K1-K5, L1-L6, M1-M5, N1-N9, P1-P10, Q1-Q12, R1-R11)	Private Portable T-Hangars	Aircraft Storage	T-Hangars
A-11 (SP1-SP6)	Private Portable T-Hangars	Aircraft Storage	T-Hangars
A-12 (SH28-43, SH 44-59, SH60-75, SH76-88)	Private Shaded Tie-down (North Shade Hangar)	Aircraft Storage	Shaded Tie-down
A-12 (SHA1-7, SHB1-14, SHC 1-19, SHD1-13, SHE1-15, SHF1-15, SHG1-13, SHH1-15, SHJ1-15)	Private Shaded Tie-down (South Shade Hangar)	Aircraft Storage	Shaded Tie-down

Building #	Tenant Name	Services	Facility Type
A-15	VGT	Self Service Fuel	Fuel Island
A-17	Sin City Flying Club	Flight Training	Offices
A-18	Vegas Aviation	Flight Training	Conventional Hangar
A-18	Skyline Helicopters	Flight Training	Conventional Hangar
A-18	702 Helicopters	Air Tour/Aircraft Maintenance/ Flight Training	Conventional Hangar
A-18	Wild West Helicopters	Air Tour	Conventional Hangar
A-18	Flyright Aviation	Flight Training	Conventional Hangar
A-19	BLM Helitak Building	Government	Offices
A-20	LVMPD Armor	Government	Conventional Hangar
A-21	Agency Hangars	Government	Box Hangars
A-22	West Air Flight Training	Air Tour/Flight Training	Conventional Hangar
A-23 (SR01-SR31)	Skid Row Hangars	Aircraft Storage	Executive Hangars
A-24	Cheyenne Air Center	Commercial Leasing	Conventional Hangar
A-24	5 Star Helicopter Tours	Air Tour	Conventional Hangar
A-25	Steelman Aviation	Air Charter	Conventional Hangar
A-25	AirSmart	Air Charter	Conventional Hangar
A-26	Desert Aviation Center	Commercial Leasing	Conventional Hangar
A-26	Airwork Las Vegas	Air Tour/Aircraft Rental/Flight Training	Conventional Hangar
A-26	Desert Dogs Aviation	Flight Training	Conventional Hangar
A-26	Sheble Flight School	Flight Training	Conventional Hangar
A-26	Chennault Flying Services	Flight Training	Conventional Hangar
A-26	Light Sport Aviation	Flight Training	Conventional Hangar
A-27	Private Executive Hangars	Aircraft Storage	Conventional Hangar
A-27	All In Aviation	Flight Training	Conventional Hangar
A-27	Lone Mountain Aviation	Aircraft Maintenance	Conventional Hangar
A-28	EGA Aviation	Aircraft Maintenance	Conventional Hangar
A-29	Las Vegas Metropolitan Police	Government	Conventional Hangar
EH1-EH-4	Private Executive Hangars	Aircraft Storage	Executive Hangars

Information current as of February 28, 2023

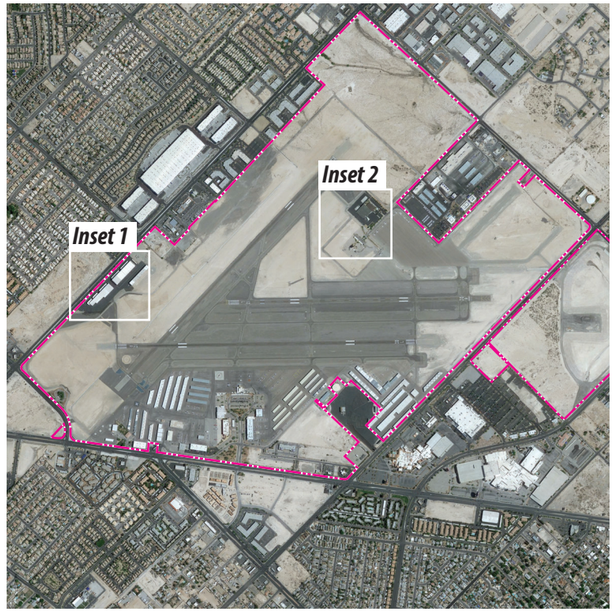


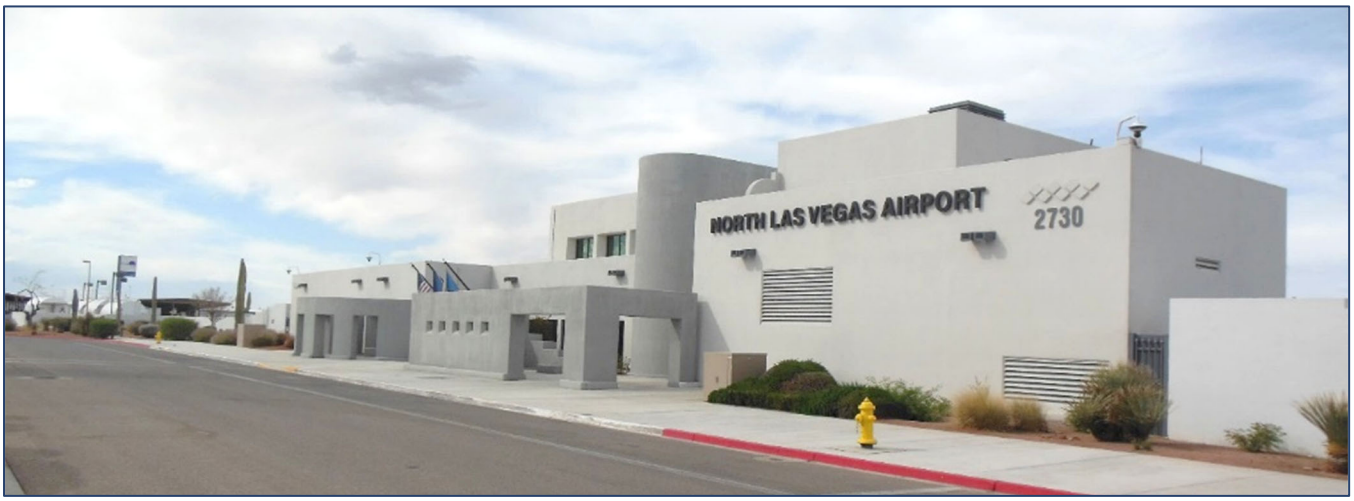


Figure 1.13
EXISTING LANDSIDE FACILITIES

This page intentionally left blank

1.5.1 TERMINAL BUILDING

VGT's terminal building, which consists of two levels encompassing approximately 20,612 sf, was constructed in 1992 and renovated in 2019. The terminal building includes offices for VGT airport staff, FBO services, rental car agencies, restrooms, a lobby, a pilot lounge, a vending area, rental conference rooms, an observation deck, and a café. The terminal provides apron access to the center of the west apron.



North Las Vegas Airport Terminal – Landside



North Las Vegas Airport Terminal – Airside

1.5.1.1 Fixed Based Operator

FBOs provide aviation services and other amenities at an airport to based and transient aircraft. FBOs are operated by private companies or the airport owner, and services often include aircraft fueling, maintenance and repair, aircraft rental and/or charter services, pilot lounge and flight planning facilities, and aircraft tie-down and/or hangar storage.

1.5.1.2 Automobile Parking

There are three public parking lots available for vehicle use at the main terminal. The central parking lot provides 148 spaces, including five accessible spaces. The two parking lots on either side of the terminal building provide an additional 50 spaces each for a total of 248 spaces. Private businesses operating at VGT have adjacent parking lots. Public parking lots near the terminal building are depicted on **Figure 1.13**. ATCT employees utilize a vehicle parking lot consisting of 18 covered parking spaces and 20 uncovered spaces.

VGT's only FBO is owned by Clark County and operated by CCDOA as an Air Elite® location. Air Elite® is a network built to elevate FBO service and facility standards to the level of the legendary diamond standard in hospitality. Each Air Elite® FBO is a member of the World Fuel Services Network and has met strict criteria for facility and service standards. A variety of general aviation services are provided by the full-service FBO at VGT. The FBO is based in the terminal building and provides transient aircraft tie-downs on the main terminal apron for jets, piston aircraft, and helicopters.

1.5.2 GENERAL AVIATION TENANTS

Businesses that choose to locate on or adjacent to an airport provide significant impact not only to the airport, but also to the region. Encouraging businesses to locate in the vicinity of an airport is a good practice for several reasons. First, the business will benefit from being near a commerce and transportation hub. Second, the community will benefit because the airport will develop a buffer of industry and manufacturing that will restrict incompatible land uses – such as residential housing – from locating too close to the airport. Third, business development on and around airports can generate a direct revenue stream for the airport and lead to airport self-sufficiency.

Many general aviation services are available at VGT, including aircraft rental, flight training, maintenance, avionics, air charter, aircraft management, fueling, sales, detailing, hangar rental, pilot supplies, car rental, a restaurant, and many other services. In total, there are 32 businesses operating at VGT, as well as community services such as the Civil Air Patrol (CAP), Las Vegas Metropolitan Police Department (LVMPD), and Bureau of Land Management (BLM). The table in **Figure 1.13**, shown previously, provides a summary of airport businesses.



LVMPD Search and Rescue

1.5.2.1 Aircraft Hangar Facilities

Existing hangar facilities at VGT consist of large conventional hangars, mid-sized executive hangars, T-hangars, shade hangars, and box hangars designed to accommodate smaller aircraft. Conventional and executive hangars make up the majority of hangar capacity based on square footage at VGT. T-hangars are typically about 1,500 sf and each hold one small aircraft. Shade units are leased month to month while conventional, box, T-hangar, and executive hangar leases vary based on lease agreements. Hangars at VGT are identified on **Figure 1.13** and approximate square footage for each hangar type are summarized in **Table 1.16**.

Table 1.16 | VGT Hangar Facilities Summary

Type	Quantity	Approx. Square Footage
Conventional	14	373,300
Executive	85	324,100
Box Hangars	7	30,800
T-Hangar Units	175	241,100
Shade Units	182	184,100
	Total:	**1,153,400**

Source: North Las Vegas Airport, Coffman Associates analysis



Commercial Hangar



Shade Hangar

1.6 ANCILLARY AND SUPPORT FACILITIES

1.6.1 AIRPORT ADMINISTRATION AND MAINTENANCE

The airport's administrative offices are located in the main terminal building. CCDOA's maintenance facility is located south of the main terminal on the perimeter road and adjacent to the "South Shade Hangars." It consists of a 12,500-sf building housing the following equipment:

- Sweepers (2)
- Lift (1)
- Roller (1)
- Dump Truck (1)
- Backhoe (1)
- Boxblade (1)
- Pressure Washer (1)
- Lighted X's (2)
- Trailers (2)
- Forklift (1)
- Water Truck (1)
- Lighted Tower (1)
- Tarpod (1)



Airport Maintenance Facility

1.6.2 FUEL STORAGE

Aviation fuel services are offered by VGT's FBO at the main terminal. Aircraft can be fueled at the self-service fuel island, which provides two pumps of 100LL. Full-service Jet A and 100LL are available by contacting the FBO. Fuel is stored at the fuel farm adjacent to the north public parking lot near the main terminal. It provides one (1) 30,000-gallon Jet A storage tank, one (1) 20,000-gallon Jet A storage tank, and two (2) 20,000-gallon 100LL storage tanks. There are also four (4) CCDOA fuel trucks providing full-service fuel to aircraft, as well as five (5) fuel trucks that are leased by the CCDOA to based commercial tenants.



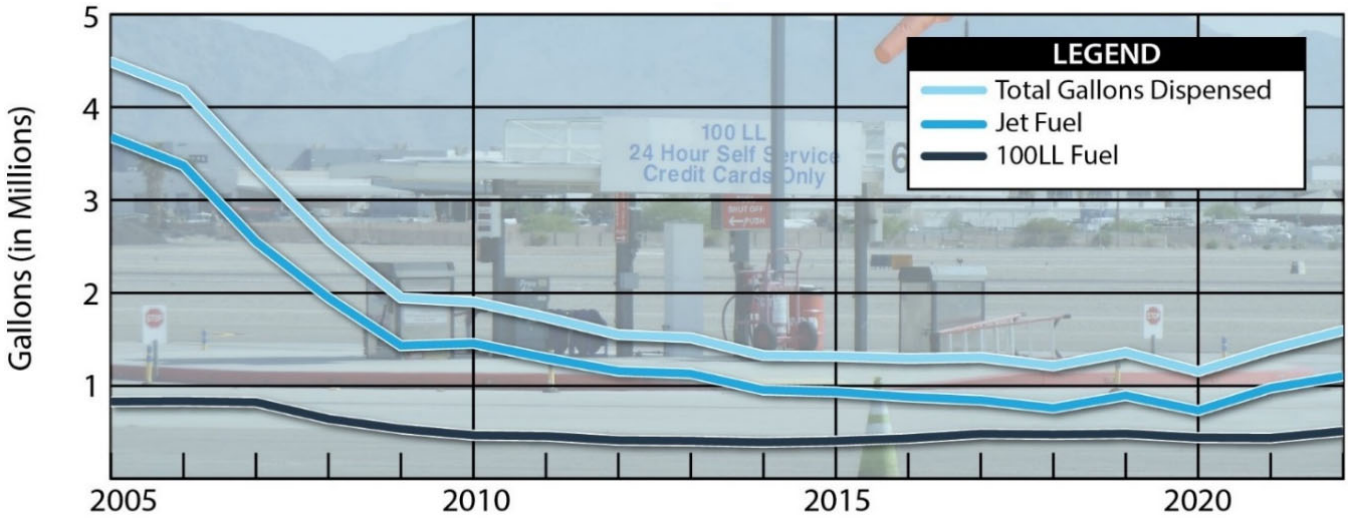
Fuel Farm



Self-Service 100LL Fuel Island

Annual gallons of dispensed aviation fuel tracked by the airport between 2005 and 2022 are displayed in **Figure 1.14**. Total fuel dispensed at VGT has declined since 2005, most likely as a result of the decrease in based aircraft at the airport, increase in more fuel-efficient aircraft engines, and the 2008 recession. Other factors contributing to the overall decline include a decrease in operations by Vision Air before they ceased service in 2017, and the discontinuation of services by Silver State Helicopters in 2008. There has been an increase in Jet A dispensed since 2020, which indicates more jet and turboprop activity, while annually dispensed piston fuel (100LL) has remained flat.

Figure 1.14 – *Annual Fuel Dispensed*



Source: Clark County Department of Aviation

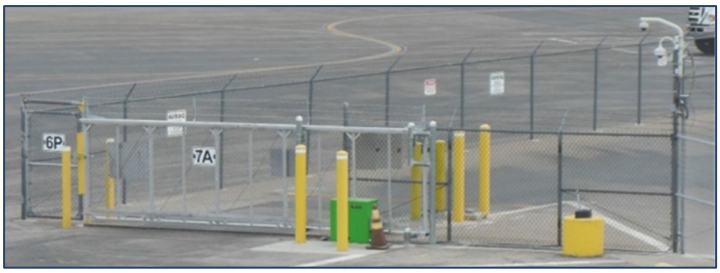
1.6.3 EMERGENCY SERVICES

Part 139 Certified airports are required to provide ARFF services during air carrier operations. Depending on the airport index assigned, different types and quantities of ARFF equipment are necessary.

VGT was previously Part 139 certified until 2019, when the certificate was surrendered after the Part 121 carrier (Vision Air) ceased operations. The airport maintains and staffs one TM-5150 Renegade Support Vehicle which is operated by CCDOA staff and available between 6:00 a.m. and 10:00 p.m. local time. This vehicle is stored under a shade unit on the west ramp and carries 500 pounds of PKW dry chemical, five gallons of aqueous film forming foam, and 150 gallons of water equal to 2,000 gallons of finished foam. The dry chemical agents are sufficient to meet FAA Index A requirements. VGT also has mutual aid agreements with the City of North Las Vegas and North Las Vegas Fire Departments. The City of North Las Vegas Fire Station 43 is the nearest fire station, 2.4 miles away from the airport.

1.6.4 AIRPORT SECURITY

VGT is secured with a six-foot perimeter fence topped with three-strand barbed wire. There are six RFID card reader access gates located along the perimeter fence around the airport. There are 61 combined pedestrian and vehicle gates located along the perimeter of the airport. Perimeter fencing and gate locations are depicted on **Figure 1.15**.



Security Gate

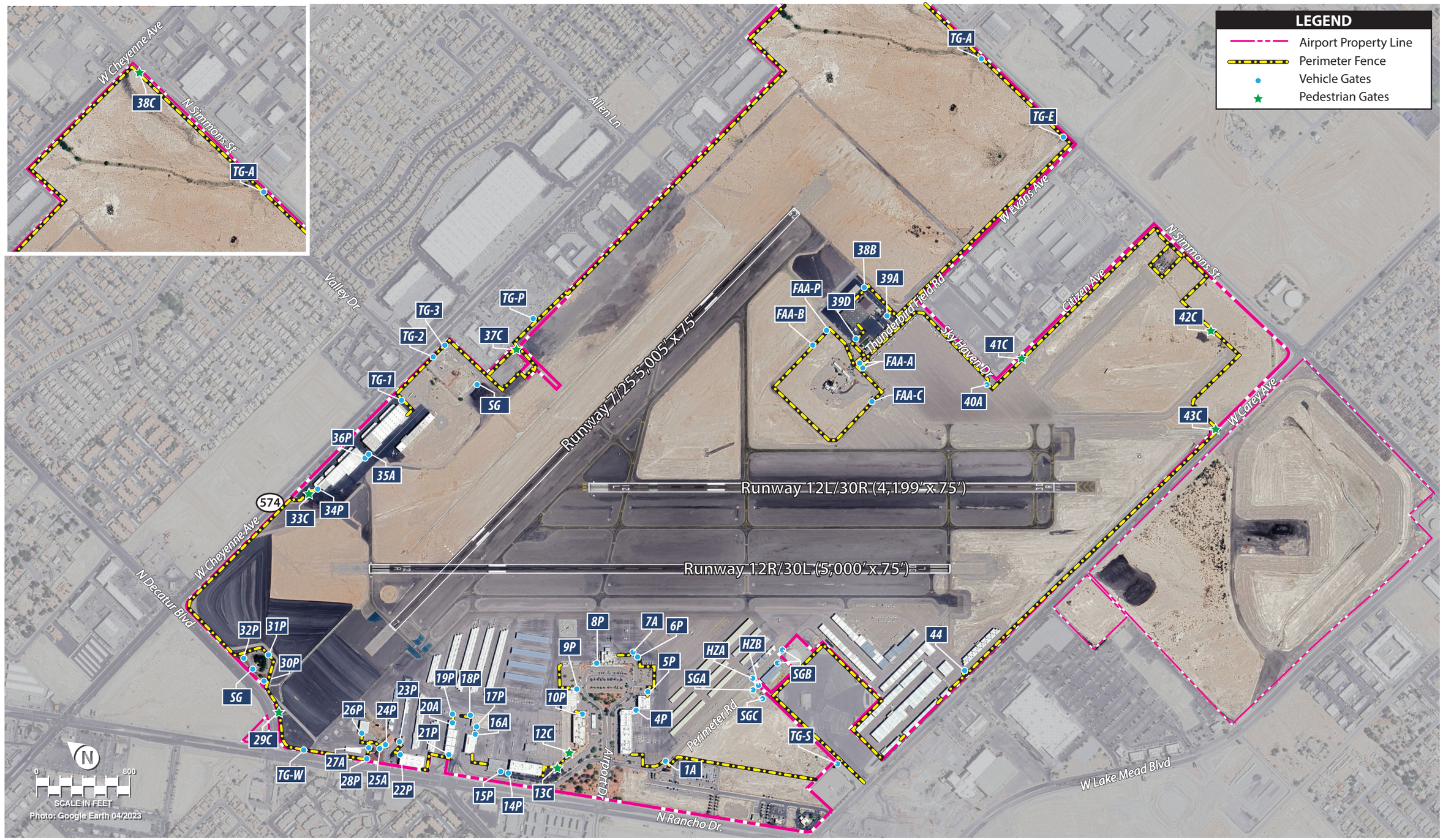


Figure 1.15
PERIMETER FENCE AND GATES

This page intentionally left blank

1.6.5 UTILITY INFRASTRUCTURE

Utility availability and capacity are critical elements when considering future expansion for both airside and landside components at an airport.

- **Water |** Water is provided by the City of North Las Vegas. The current water system connects to multiple water mains surrounding the airport property. The main terminal and western parts of the airport connect via Rancho Drive and Decatur Boulevard. The system includes a water line that runs north south under the middle of the airfield connecting Carey Avenue with Cheyenne Avenue. Water lines serving the LVMPD hangar and FAA tower join City of North Las Vegas water mains at Thunderbird Field Road.

- **Sewer |** Sanitary sewer is provided by the City of North Las Vegas. The main terminal and east apron are served by sewer lines connecting to Rancho Drive. The Outback and Skid Row hangar areas connect to Carey Avenue while the Cheyenne Air Center connects via Cheyenne Avenue. To the east, the LVMPD hangar and FAA tower join at Thunderbird Rd.

- **Stormwater |** Storm water lines run throughout the airport property and drain to various connections within the City of North Las Vegas systems. Storm water is collected at many drainage inlets and drainage trenches throughout the airfield. Trenches parallel to all three runways collect and redirect runoff away from the runways, taxiways, and aprons.

- **Electricity |** Electrical service is provided by NV Energy with backup generators owned by the CCDOA on-site in electrical vaults on the east and west sides of the airport.

- **Natural Gas |** Natural Gas service is provided by Southwest Gas. Gas lines run to most corporate hangars on the west side of the airport, Outback and Skidrow hangars to the south, the Cheyenne Air Center to the north, and the LVMPD hangar on the east.

- **Communication |** Communications at the airport are provided by COX and CenturyLink. These lines provide internet and phone service to the west side of the airport including the airport terminal and hangars.

1.7 LAND USE AND ZONING

Land use planning and zoning regulations near an airport help to ensure that land uses, structures, and activities are compatible with aviation operations. Pursuant to FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, the compatibility of land uses near an airport is focused primarily on noise levels in the community and the safety of persons and property both on the ground and in the air. Under ideal conditions, land uses that are generally considered to be noncompatible with airport operations (e.g., residential, schools, and churches) would be located away from airports and land uses that are more compatible (e.g., industrial, commercial) would be located near airports.

Currently, there are several noise-sensitive land uses, primarily residential, adjacent to VGT. There are also several schools, churches, and a senior care facility that represent potential incompatible land uses due to aircraft noise and disruption. Future development near the airport also may be incompatible with airspace and pose a threat to the airport's operational safety, efficiency, and capacity.

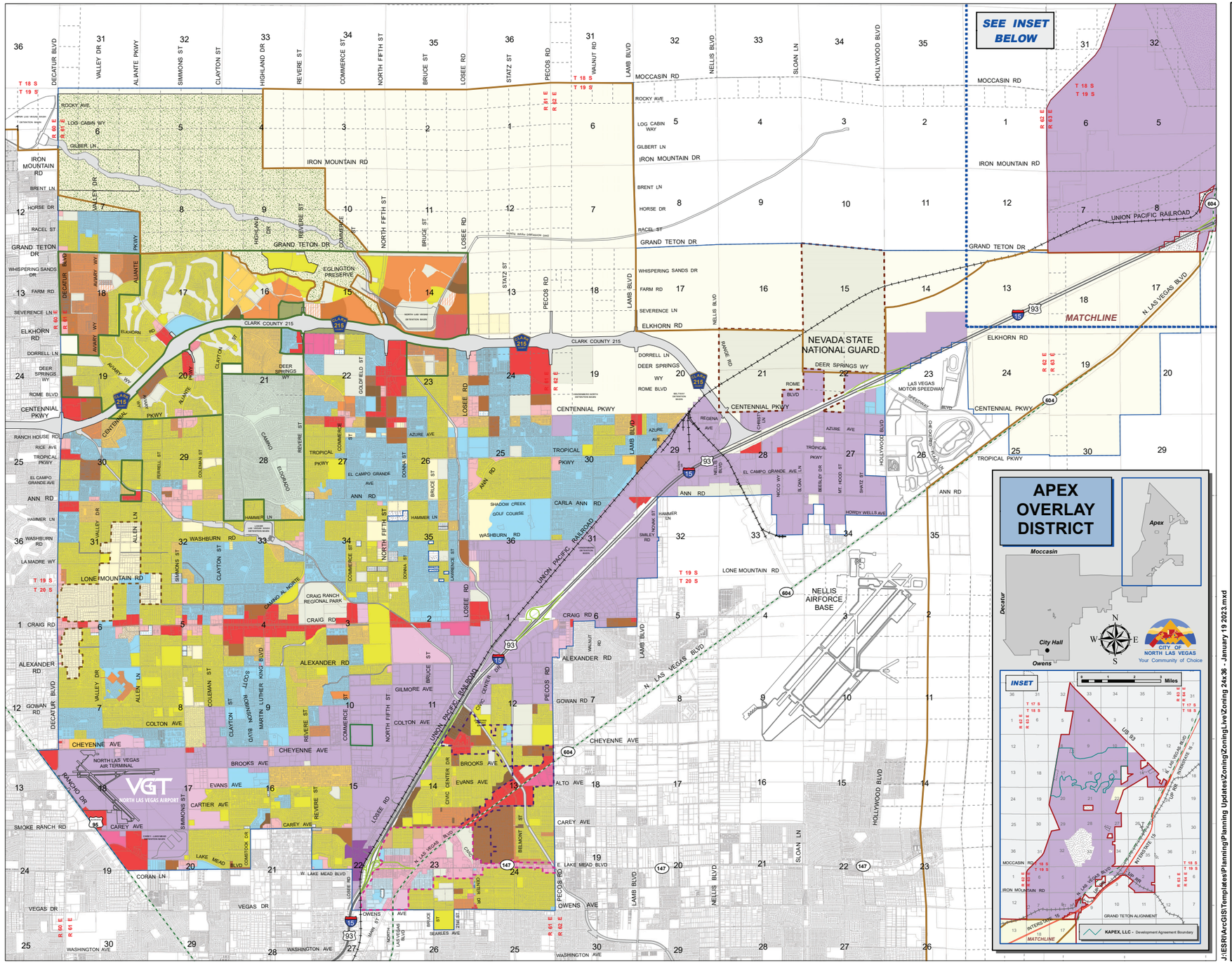
While the FAA encourages airport owners to seek compatible land uses in the areas surrounding an airport through appropriate positive control (e.g., fee-simple purchase or easement acquisition), coordinated zoning, and municipal planning efforts, the FAA also recognizes that local governments are responsible for administering land use planning and zoning regulations. Because VGT is owned by Clark County and resides within the City of North Las Vegas and portions of the airspace reside within the City of Las Vegas, interjurisdictional collaboration is central to ensuring compatible land use in the vicinity of the airport. This collaborative planning promotes shared objectives, economic development, and optimal land uses that will enhance long-term public benefits.

This section provides an overview of zoning and land uses in the vicinity of VGT.

1.7.1 ZONING

VGT is located in the southwest corner of the City of North Las Vegas and borders the City of Las Vegas to its west. The airport is surrounded by a variety of land uses, including industrial, commercial, public use, and residential. To the north, the airport is bordered by mainly industrial and residential areas with a small amount of commercial development along W. Cheyenne Avenue. To the east is all industrial use and some public/semi-public land use for the Regional Transportation Commission. West of VGT is a mix of residential, commercial, and some industrial land use along Rancho Drive. South land use includes commercial and residential land use. Residential areas are primarily single-family homes and some multi-family apartments and condominiums. The industrial area to the east includes aerospace manufacturing, distribution, and storage facilities. The commercial land use is home to shopping, restaurants, hotels, a variety of independent businesses, and a drive-in movie theater.

Zoning on and around VGT is shown on **Figure 1.16**.



ZONING

January 25, 2023

BOUNDARIES
- Clark County Island
- Apex Overlay District
- SNPLMA Land Disposal Boundary
- * Development Agreements
- Downtown Redevelopment Area
- North Redevelopment Area
- Ranch Estates Rural Preservation Overlay District
- National Guard
- Open Space

RESIDENTIAL
- O-L Open Land
- R-E Ranch Estates or *R-E PCD
- R-EL Ranch Estates Limited
- R-1 Single Family Low Density or *R-1 PCD or * RZ6 MPC
- R-CL Single Family Compact Lot or *R-CL PCD
- R-2 Medium Density or *RZ10 MPC or *R-2 PCD
- *RZ13 MPC
- R-3 Multifamily or *RZ25 MPC or *R-3 PCD
- R-4 High Density or *RZ50 MPC or *R-4 PCD

DOWNTOWN REDEVELOPMENT AREA SUBDISTRICTS
- R-A/DC Downtown Core
- R-A/PSP Public / Semi-Public
- R-A/R-2 Medium Density Residential
- R-A/R-3 Medium High Density Residential
- R-A/R-4 High Density Residential

COMMERCIAL
- C-1 Neighborhood or *C-1 PCD
- C-2 General or *C-2 PCD
- C-3 General Service
- C-P Professional Office
- *C/RC PCD Commercial / Resort Casino
- PSP Public / Semi Public or *PSP PCD

INDUSTRIAL
- M-1 Business Park
- M-2 General
- M-3 Heavy

MIXED USE CENTERS
- MUD MX-1 NEIGHBORHOOD
- MUD MX-2 COMMUNITY
- MUD MX-3 REGIONAL
- *MUZ MPC

OTHER
- PCD Planned Community District
- PUD Planned Unit Development
- PID Planned Infill Development
- PUD PID Planned Unit Development / Planned Infill Development
- O-L DA Eldorado Master Planned Community

CITY OF NORTH LAS VEGAS
Your Community of Choice

LAND DEVELOPMENT AND COMMUNITY SERVICE DEPARTMENT
PLANNING AND ZONING DIVISION

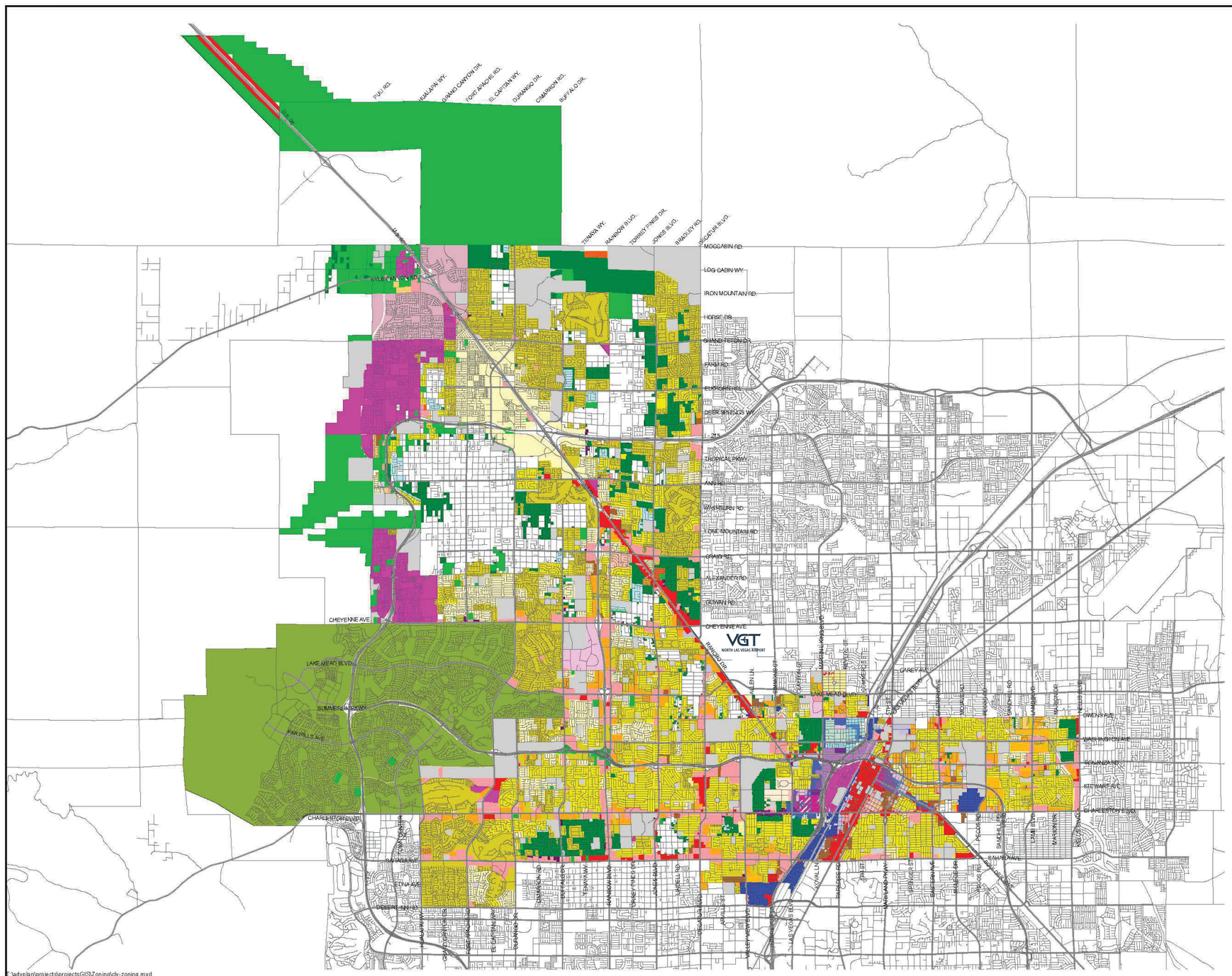
This information is for display purposes only.
No liability is assumed as to the accuracy of the geographic data delineated hereon.

**** See Appropriate Development Agreement for Specific Requirements.***

J:\ESRI\ArcGIS\Templates\Planning\Planning Updates\Zoning\Zoning Live\Zoning 24x36 - January 19 2023.mxd

Source: City of North Las Vegas, Land Development and Community Service Department, Planning and Zoning Division. Map can be accessed at: https://www.cityofnorthlasvegas.com/home/showpublisheddocument/5800/638210398264470000

Figure 1.16
CITY OF NORTH LAS VEGAS ZONING MAP



City Of Las Vegas

ZONING

- U - (GPA Designation) Undeveloped
- R-A - Ranch Acres
- R-E - Residence Estates
- R-D - Single Family Residential-Restricted
- R-PD - Residential Planned Development
- R-1 - Single Family Residential
- R-CL - Single Family Compact-Lot
- R-SL - Residential Small Lot
- R-TH - Single Family Attached
- R-2 - Medium-Low Density Residential
- R-3 - Medium Density Residential
- R-4 - High Density Residential
- R-5 - Apartment
- R-MH - Mobile/Manufactured Home Residence
- R-MHP - Residential Mobile/Manufactured Home Park
- T3-N - T3 Neigborhood
- T4-C - T4 Corridor
- T4-MS - T4 Main Street
- T4-N - T4 Neighborhood
- T5-N - T5 Neighboorhood
- T5-M - T5 Maker
- T5- T5 MS Main Street
- T5-C - T5 Corridor
- T6-UC - T6 Urban Core
- T6-UG - T6 Urban Gerneral
- T6-UG-L -T6 Urban General Limited
- P-R - Professional Offices and Parking
- P-O - Professional Office
- N-S - Neighborhood Service
- O - Office
- C-D - Designed Commercial
- C-1 - Limited Commercial
- C-2 - General Commercial
- C-PB - Planned Business Park
- C-M - Commercial/Industrial
- M - Industrial
- C-V - Civic
- P-C - Planned Community
- T-D - Traditional Development
- PD - Planned Development
- T-C - Town Center
- ROI Zoning

SOURCE: City of Las Vegas , Planning and Development Department

GIS maps are normally produced only to meet the needs of the City. Due to continuous development activity this map is for reference only.

Geographic Information System
Planning & Development Dept.
702-229-6301

Printed: Monday, February 6, 2023

Source: City of North Las Vegas, Land Development and Community Service Department, Planning and Zoning Division. Map can be accessed at: https://www.lasvegasnevada.gov/Government/Maps

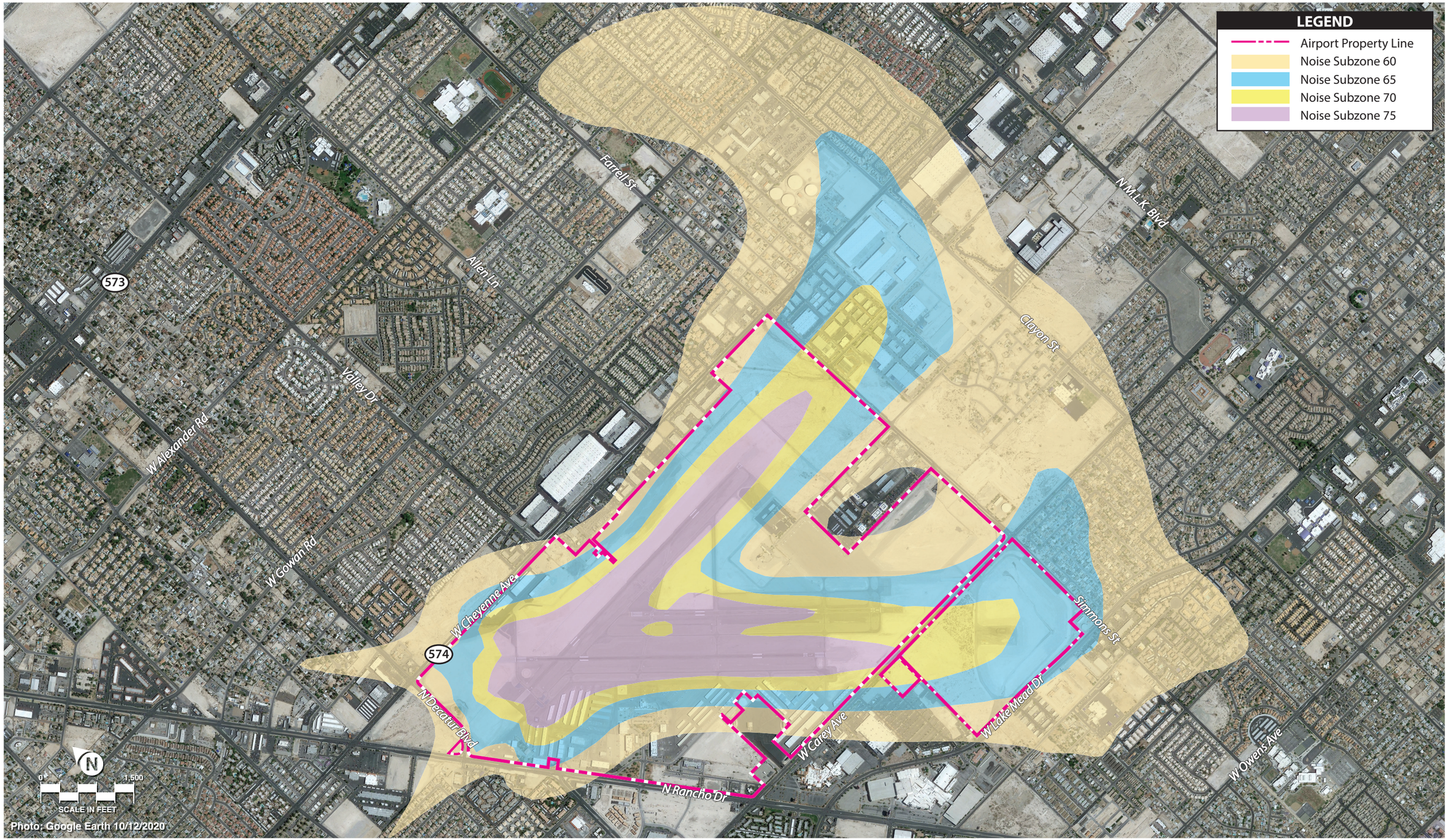
Figure 1.16 (continued)
CITY OF LAS VEGAS ZONING MAP

The intent of the zoning map and ordinance in the City of North Las Vegas is to implement the North Las Vegas Comprehensive Plan, as well as to protect the public health, safety, and general welfare of the community and the people of North Las Vegas. Zoning establishes regulations governing development and use of land to promote the balanced supply of commercial, industrial, institutional, and transportation land that is compatible with adjacent land uses.

The airport itself is zoned as general industrial (M-2), which includes both the primary airport property and the segmented airport property south of Carey Avenue. Zoning to the south of the airport property includes general industrial (M-2), general commercial (C-2), general service commercial (C-3), neighborhood commercial (C-1), and planned unit development (PUD). Land west of the airport is zoned as general industrial (M-2), general service commercial (G-2) and general commercial (C-2), medium density residential (R-3), residential planned development (R-PD), and commercial/industrial (C-M). Zoning to the north of the airport includes planned unit development (PUD), business park industrial (M-1), single-family compact lot residential (R-CL), and neighborhood commercial (C-1). Finally, zoning east of the airport includes general industrial (M-2), business park industrial (M-1), general commercial (C-2), and single-family low density residential (R-1).

As an additional land use aid, the City of North Las Vegas published an Air Terminal Environs Overlay District shown on **Figure 1.17**. The purpose of the overlay is to define noise subzones in relation to the land surrounding the airport and to identify boundaries such as runway protection zones (RPZs) and accident potential zones.

This page intentionally left blank



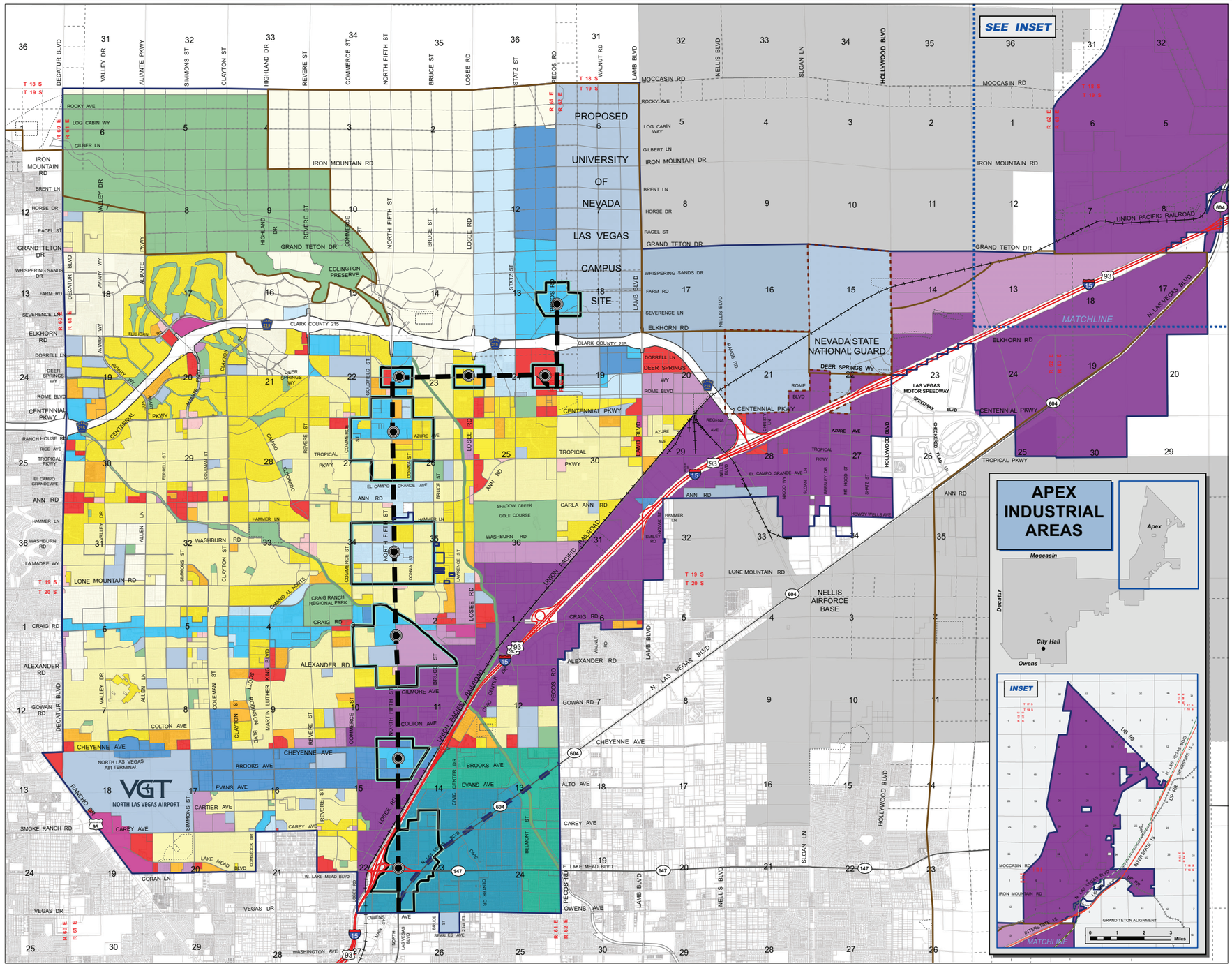
Source: City of North Las Vegas Air Terminal Environs Overlay Districts January 11, 2023

This page intentionally left blank

1.7.2 LAND USE PLANNING

Land use planning at and around an airport ensures that new and existing development is compatible with aviation-related activities in relation to both safety and noise concerns. The City of North Las Vegas adopted their Comprehensive Master Plan in November 2006, with an amendment made in February 2011. The plan includes three specific planning areas: residential neighborhoods, activity centers, and employment districts. VGT is bounded to the north by the Cheyenne North District and to the south by the South District, both of which are categorized as residential neighborhoods. The Cheyenne North District also includes the Cheyenne Technology Corridor, which includes mixed-use development (i.e., office, retail, services, and housing). The city's current land use plan, which was updated in May 2023, identifies the areas immediately adjacent to the airport as community commercial, resort commercial, mixed-use employment, employment, and single family residential. The City of Las Vegas, which bounds the airport on the west, adopted the 2050 Master Plan in July 2021. Specific plans for the area adjacent to VGT along Rancho Drive include mixed use center, corridor mixed use, and medium density residential. Both cities' land use plans are depicted in **Figure 1.18**.

This page intentionally left blank



LAND USE PLAN

May 22, 2023

LAND USES

RESIDENTIAL

- Ranch Estates (up to 2 du / ac)
- Single Family Low (up to 6 du / ac)
- Single Family Medium (up to 13 du / ac)
- Multi-Family (up to 25 du / ac)
- Master Planned Community

NON - RESIDENTIAL

- Open Space
- Neighborhood Commercial
- Resort Commecial
- Community Commercial
- Public / Semi - Public
- Downtown Business District
- Downtown Area of Influence
- Employment
- Heavy Industrial

MIXED - USE

- Mixed - Use Employment
- Mixed - Use Commercial
- Mixed - Use Neighborhood

TRANSPORTATION

- Future North 5th Transit Route
- Future Transit Influence Area
- Future North 5th Transit Station
- Existing Transit Route
- Main Streets
- Union-Pacific Railroad
- Flood Control Basins

N W E S

CITY OF NORTH LAS VEGAS
Your Community of Choice

0 0.5 1 1.5 2 Miles

LAND DEVELOPMENT AND COMMUNITY SERVICE DEPARTMENT
PLANNING AND ZONING DIVISION

This information is for display purposes only.
No liability is assumed as to the accuracy of the geographic data delineated hereon.

J:\ESRI\ArcGIS\Templates\Planning\Planning Updates\Land Use\LandUseLive\LandUse 24x36 - April 25 2023.mxd

Figure 1.18
CITY OF NORTH LAS VEGAS LAND USE PLAN

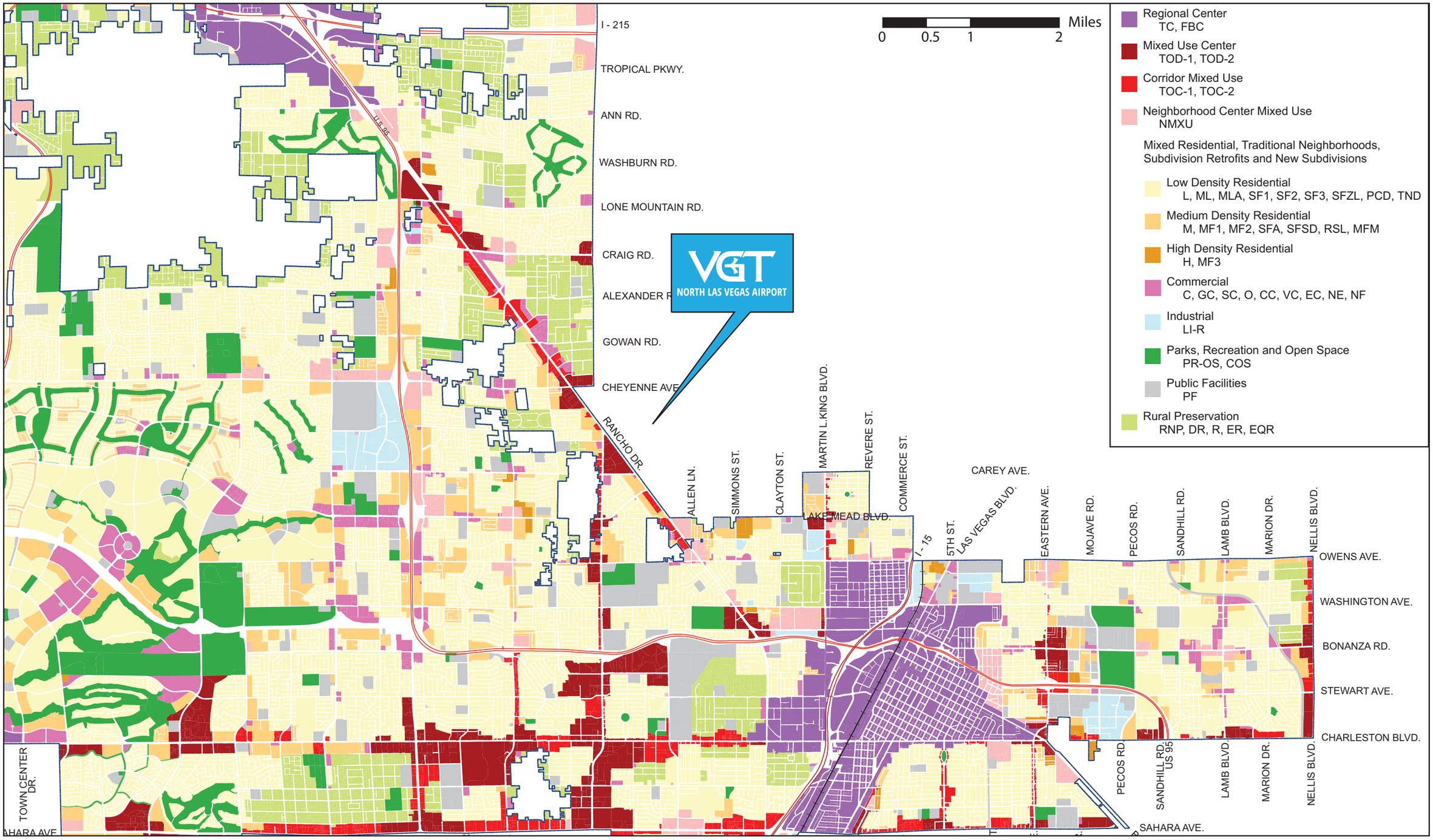


Figure 1.18 (continued)
CITY OF LAS VEGAS LAND USE PLAN

1.7.3 OFF-AIRPORT LAND USES

The areas immediately west, north, and south of VGT are heavily developed with residential neighborhoods, schools, parks, and industrial and commercial businesses. The land to the east of the airport is moderately developed, with commercial uses and low density residential. The following sections provide additional detail on the existing land uses in the vicinity of the airport.

- **Northern Airport Vicinity |** There is a combination of commercial and residential land uses north of VGT, which is bounded on the north side by Cheyenne Avenue. This area is developed with land uses that include retail/commercial/industrial and a church. Additionally, an approximate 30-acre area between the 7-11 convenience store and the Calvary Chapel Meadow Mesa church is currently under development for residential use. Land immediately north of this area is heavily developed with multi-family and single-family housing.

- **Eastern Airport Vicinity |** Simmons Street serves as VGT's primary boundary to the east, except for the area bounded by Sky Haven Drive, Citizen Avenue, and Evans Avenue. This area, along with much of the land east of Simmons Street and north of Evans Avenue, is moderately developed with commercial/industrial uses. The land east of Simmons and south of Evans has limited single family residential development and includes Greater Faith Baptist Church and Gilbert Magnet Elementary School.

- **Southern Airport Vicinity |** The area south of the airport is generally bounded by Carey Avenue, Rancho Drive, and Simmons Street. The CCDOA owns an undeveloped portion of land immediately south of Carey Avenue and west of Simmons Street. As described previously, this portion of property includes a portion of the Runway 30R RPZ and a detention basin right-of-way (ROW). West of this, the area is developed with commercial uses including a Walmart Supercenter, the Hylo Park Arena, and other commercial and retail uses.

- **Western Airport Vicinity |** The western boundary of the airport is established by Rancho Drive and Decatur Boulevard to the north. The land west of Rancho Drive is heavily developed with a mix of residential uses, including multi-family and single-family homes. Other land uses include commercial/retail and community facilities, including multiple churches and Doris M. Reed Elementary School.

As the area around VGT continues to grow and develop, consideration should be made to accommodate current and forecasted operations and development at the airport. Land use compatibility is especially important under flight paths and within the RPZs. While noise attenuation can help in maintaining quality of life inside of residences, residents located within and adjacent to the Air Terminal Environs Overlay District will still experience noise when outdoors. The FAA encourages the airport owner to control the RPZ through fee simple ownership of the land.

1.7.4 NOISE ABATEMENT PROCEDURES

CCDOA has implemented voluntary noise abatement procedures for VGT through the "Fly Safely and Quietly" program. Procedures include preferred departure practices, touch-and-go operation practices, calm wind runway preferences, and nighttime noise management practices. These procedures are summarized in **Table 1.17** and depicted on **Figure 1.19**.

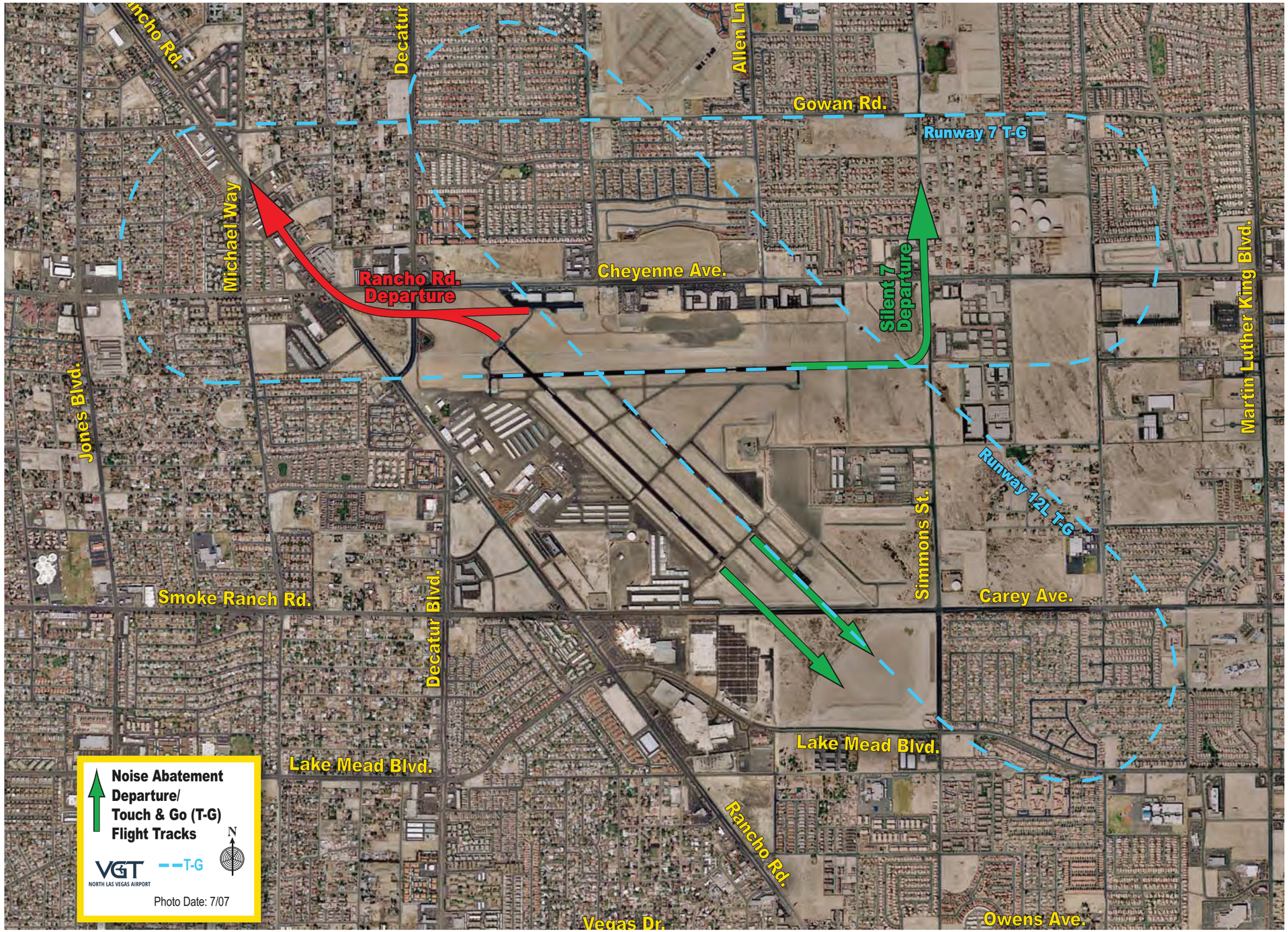


"Fly Safely and Quietly" Signage

Table 1.17 | Noise Abatement Voluntary Rules and Procedures

General Operations and Arrivals
Runway 12R and Runway 7 are the designated calm wind runways.
Runway 12L is the designated calm wind runway for touch-and-go operations.
At night or after hours, use Runway 7 for departure unless operationally necessary.
Avoid overflight of populated areas whenever feasible.
For aircraft with a variable pitch propeller, avoid propeller setting changes below pattern altitude whenever practicable.
Intersection departures between the hours of 8:00 p.m. and 7:00 a.m. are prohibited.
Please refrain from doing engine runs for maintenance purposes from 11:00 p.m. to 7:00 a.m.
Automated runway lights - microphone activated 125.7 MHZ VHF; 3 clicks – "low" intensity; 5 clicks – "medium" intensity; 7 clicks – "high" intensity; lights automatically turn off 15 minutes after the last click.
For arrivals, utilize high profile, low throttle approaches whenever possible.
Avoid large propeller RPM increases below pattern altitude.
Departure Operations
All Runways
Utilize Pilots Operating Handbook procedures, if available.
Climb at best rate until reaching 500 feel AGL (weather permitting) before making any turns.
Remain clear of the Class B airspace unless clearance has been received.
For aircraft with variable pitch propellers, reduce power and prop RPM to climb power setting (preferably to 2500 RPM and 25 in. for non-turbo charged aircraft) as soon as practicable.
Runway 12L/12R
For departures making a left turn, turn left to remain north of the freeway (US-95); downwind should remain west of Martin Luther King (MLK) Blvd.
For departures making a right turn, turn right to remain north of the Freeway (US-95); downwind departures should remain well west of Rancho Blvd. to avoid inbound traffic.
Runway 7 (Silent 7 Departure)
For departures requiring a left turn, turn left, fly a northerly heading until crossing Craig Rd., and remain clear of Class B airspace (elevation 4500 feet MSL) before executing any turns.
Runway 30 (Rancho Road Departure)
After crossing Cheyenne Ave., proceed along Rancho Rd. until attaining 800 feet AGL before executing any runs.
Touch-and-Go Operations
Traffic pattern altitude 3003 MSL (800 feet AGL)
On downwind leg of Runway 12L, if practical, remain north of Lake Mead Blvd., west of MLK Blvd.
On downwind leg of Runway 7, if practical, remain west of MLK Blvd. and south of Gowan Rd.

Source: Fly Safely and Quietly at North Las Vegas Airport (VGT)


Rancho Rd.
Decatur
Allen Ln
Gowan Rd.
Runway 7 T-G
Michael Way
Rancho Rd. Departure
Cheyenne Ave.
Silent 7 Departure
Martin Luther King Blvd.
Jones Blvd.
Runway 12L T-G
Simmons St.
Smoke Ranch Rd.
Decatur Blvd.
Carey Ave.
Lake Mead Blvd.
Lake Mead Blvd.
Rancho Rd.
Vegas Dr.
Owens Ave.
Noise Abatement Departure/ Touch & Go (T-G) Flight Tracks
N
VGT
NORTH LAS VEGAS AIRPORT
T-G
Photo Date: 7/07

This page intentionally left blank

1.7.5 PART 77 REQUIREMENTS

Part 77 establishes civil airport imaginary surfaces in relation to the airport and to each runway. The purpose of Part 77 is to help the FAA and sponsors identify potential obstructions to navigable airspace. These surfaces support the proper planning of land uses and zoning so that as new development occurs in a community, it can be evaluated to determine potential effects on airport airspace. The size and slope of each imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The Part 77 classifications for each runway end at VGT are as follows: 12L is a precision approach runway with visibility minimums greater than ¾-mile [P (C)]; 12R is a non-precision approach runway with visibility minimums greater than ¾-mile [NP (C)]; and 30R, 30L, 7, and 25 are each visual approach runways [V (B)]. The Part 77 surface descriptions are outlined below:

- The **Primary Surface** is a surface longitudinally centered on a runway. It extends 200 feet beyond each end of the runway; the elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface is 500 feet for all visual and non-precision runways at VGT. Runway 12L, the precision runway, has a primary surface width of 1,000 feet.

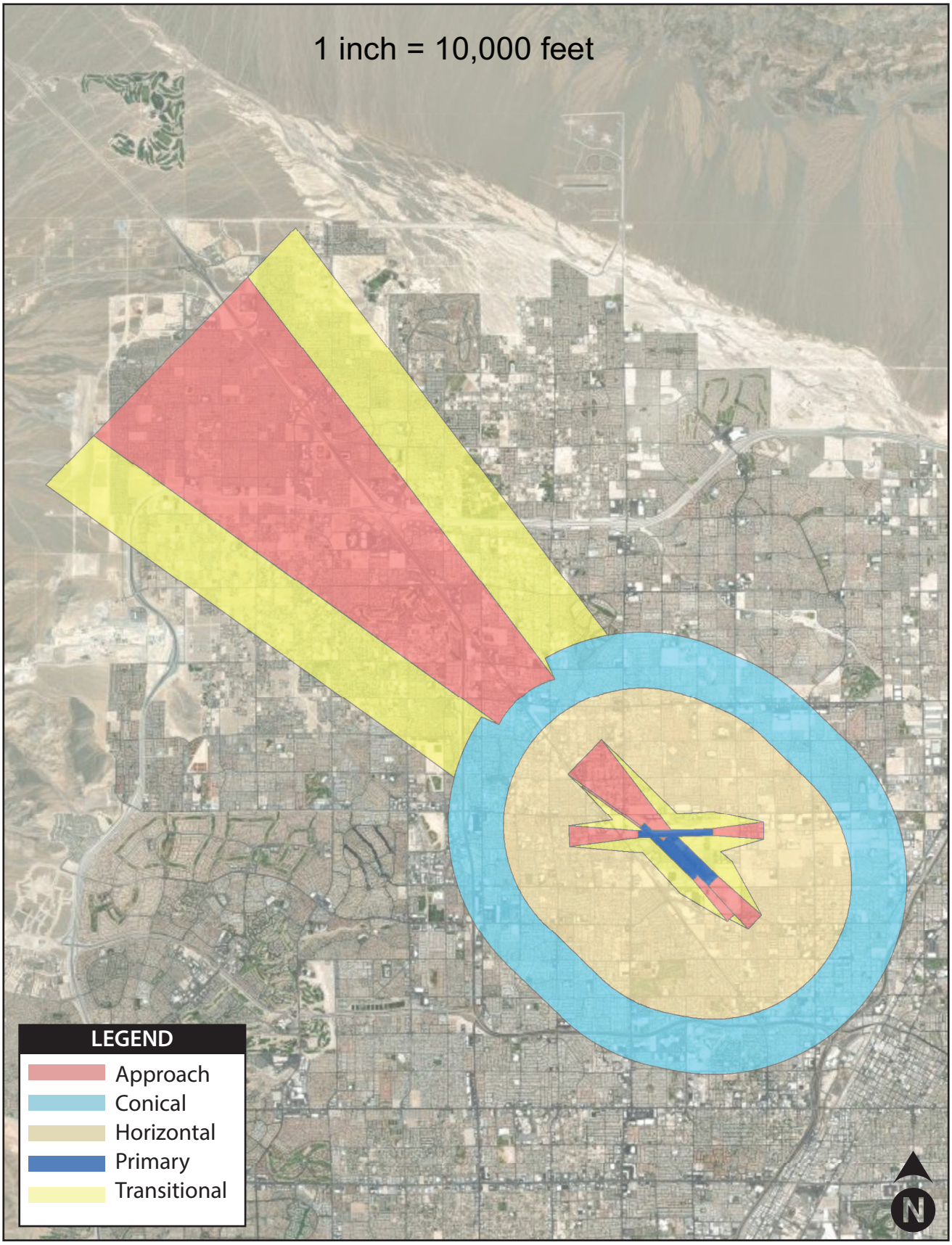
- The **Approach Surface** is a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. The inner edge of the approach surface is the same width as the primary surface, and it expands uniformly to a width of 1,500 feet for all visual runways; 3,500 feet for non-precision runways; and 16,000 feet for precision runways. The approach surface for visual runways extends for a horizontal distance of 5,000 feet at a slope of 20 to 1. Non-precision runway approach surfaces extend for a horizontal distance of 10,000 feet at a slope of 34 to 1. Precision runway approach surfaces extend for a horizontal distance of 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at 40 to 1.

- The **Transitional Surface** extends outward and upward at right angles to the runway centerline and the runway centerline extended, at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces.

- The **Horizontal Surface** consists of a horizontal plane, which is 150 feet above the established airport elevation. The established airport elevation at VGT is 2,205 feet above MSL; thus, the horizontal surface is 2,355 feet.

- The **Conical Surface** extends outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

The existing Part 77 surfaces at VGT are depicted on **Figure 1.20**. Should the runway threshold locations change in the ultimate runway configuration, the Part 77 surfaces would subsequently need to be modified to reflect any new runway configuration or lengths.



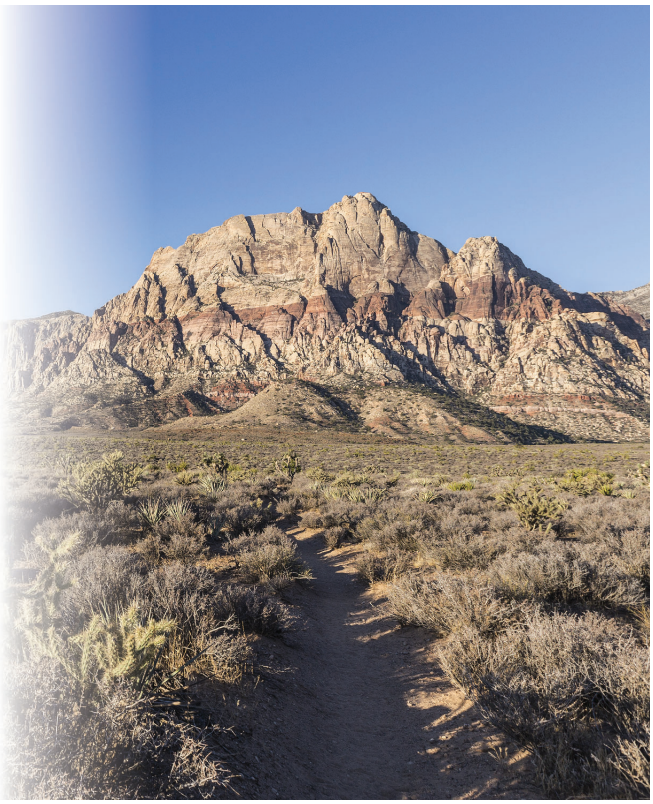
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

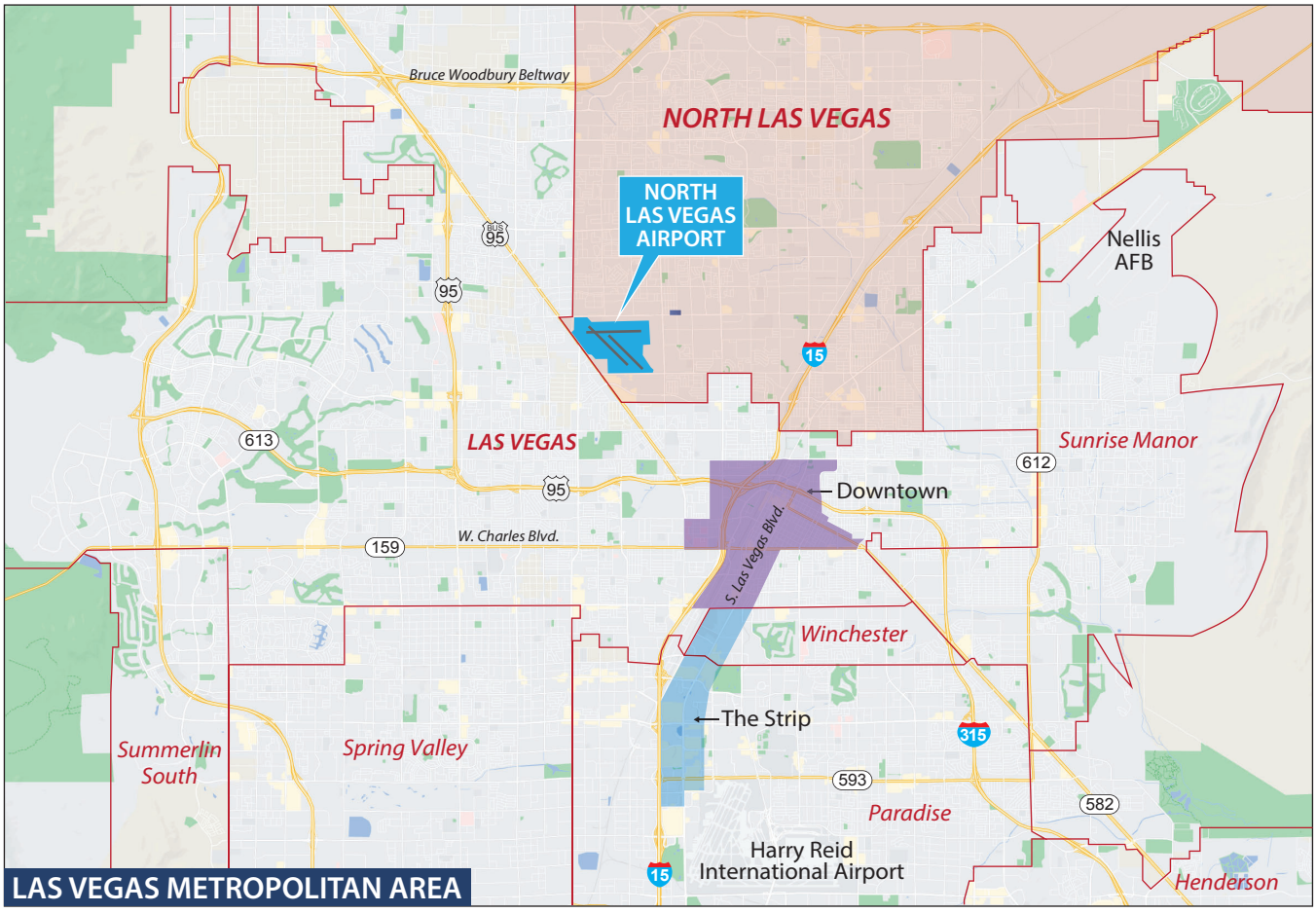
1.8 SURFACE TRANSPORTATION

1.8.1 REGIONAL ROADWAYS

Regional roadways are designed to serve multiple communities and accommodate large volumes of traffic, often through uninterrupted travel. These roadways include freeways, highways, and arterials that provide access to the airport but are used primarily for non-airport trips. The following describes the main regional roadways providing access to VGT, while **Figure 1.21** depicts the regional setting graphically.


OREGON
IDAHO
UTAH
CALIFORNIA
ARIZONA
Reno
Carson City
Elko
Las Vegas
NORTH LAS VEGAS
NEVADA




Bruce Woodbury Beltway
NORTH LAS VEGAS
NORTH LAS VEGAS AIRPORT
Nellis AFB
LAS VEGAS
Sunrise Manor
Downtown
W. Charles Blvd.
S. Las Vegas Blvd.
Winchester
The Strip
Summerlin South
Spring Valley
Paradise
Harry Reid International Airport
Henderson
LAS VEGAS METROPOLITAN AREA

- **Interstate 15 |** Interstate 15 is a major north-south Interstate Highway located east of the airport. The segment of the Interstate that runs through the Las Vegas Valley is designated as the Las Vegas Freeway and is the only major north-south Interstate in the area.

- **Bruce Woodbury Beltway (Interstate 215 and Clark County Route 215) |** Located north of the airport, the Bruce Woodbury Beltway, also known as the Las Vegas Beltway, is a semicircle around the Las Vegas Valley and carries two numerical designations. Beginning at its southern terminus east of Interstate 515/Interstate 11, the highway is designated as Interstate 215 and runs west and northwest toward Interstate 15. Upon its intersection with Interstate 15 southwest of Harry Reid International Airport, the highway's designation changes to Clark County Route 215.

- **U.S. Highway 95 (Oran K. Gragson Freeway and Veterans Memorial Highway) |** U.S. Highway 95 is a major highway that traverses the state of Nevada from north to south and runs directly through Las Vegas. The highway runs north-south on VGT's west side, approximately 2.7 miles from the airport, before turning to the east and connecting with Interstate 15.

1.8.2 ROADWAY PLANNING

The State of Nevada developed the *One Nevada Transportation Plan* in 2018, which used a data-driven planning process to create a Statewide Transportation Improvement Program. This plan analyzed the existing transportation facilities and their needs statewide and developed a program to improve mobility and meet the state's future transportation needs. The six goal areas identified from this plan are:

- Enhance safety by building, maintaining, and operating the safest transportation system possible.

- Preserve infrastructure to support economic vitality, visitor experience, and travel safety.

- Optimize mobility to provide convenient and reliable movement of people and goods across all modes.

- Transform economies by supporting an innovative transportation framework.

- Foster sustainability by lowering long-term maintenance costs, promoting fiscal responsibility, and reducing greenhouse gas emissions from the transportation sector.

- Connect communities to local resources and amenities and collaborate with partners to best serve our communities.

The *One Nevada Transportation Plan* addresses aviation by reaffirming the alignment of goals between the Nevada Department of Transportation (NDOT) and the plan to work towards common outcomes.

1.8.3 MUNICIPAL AND LOCAL ROADWAYS

Municipal and local roadways are integral elements of a transportation network. These roadways are designed to provide access and traffic circulation between arterial roadways, community amenities, and residential properties. The following provides a summary of municipal and local roadways in the vicinity of VGT.

- **Rancho Drive (U.S. Route 95 Business and State Route 599) |** Rancho Drive is a six-lane major roadway located immediately west of VGT and connecting the northwest suburbs to central Las Vegas. The City of Las Vegas is currently studying a 6.6-mile segment of Rancho Drive from Rainbow Boulevard to Mesquite Avenue to convert it to a Complete Street, which could consist of three lanes in each direction, offset sidewalks, dedicated shared bus/bike lane, and other amenities.

- **Cheyenne Avenue (State Route 574) |** Cheyenne Avenue is situated north of VGT and is a six-lane east-west roadway. It originates west of the metropolitan area at Bruce Woodbury Beltway and extends for approximately 15 miles before terminating at Nellis Boulevard, just southwest of Nellis AFB.

- **Simmons Street |** Simmons Street is a north-south roadway consisting of four lanes and located east of VGT. It extends from Centennial Parkway to the north for approximately six miles before terminating at Vegas Drive to the south.

- **Carey Avenue |** Located south of the airfield, Carey Avenue bounds the main portion of airport property to the south. Carey Avenue is a four-lane roadway that extends east-west, from Rancho Drive on the west side to its termination east of Arnona Road at the LVMPD Range.

1.8.4 AIRPORT ROADWAYS

VGT's roadways serve as the landside interface between the regional, municipal, and local roadways and the airport's curb-front facilities. A summary of each roadway's characteristics is provided below.

- **Airport Drive |** Airport Drive is a loop road extending from Rancho Drive and providing access to the terminal building and aviation businesses in the immediate vicinity of the terminal.

- **Perimeter Road |** Perimeter Road is accessed from Rancho Drive at its northern terminus and is also centrally accessible from Airport Drive. Perimeter Road provides access to on-airport businesses and hangar facilities on the west side of the airport.

- **Thunderbird Field Road |** Thunderbird Field Road is located on the airport's east side and provides access to the ATCT and the on-airport LVMPD facilities. It is accessible from Simmons Street via Citizen Avenue and Sky Haven Drive.

1.9 SUSTAINABILITY

Sustainability is the responsible management of the environment while maintaining a viable economy and providing for the social well-being of the community. As the long-term road map for airport development, master plans incorporate sustainability to help reduce environmental impacts, increase operational efficiency, and improve community relations while realizing high, stable levels of economic growth. An evaluation of possible sustainability initiatives at VGT are included in later chapters of this Airport Master Plan Update.

The CCDOA has adopted departmentwide sustainable practices, approaches, and goals that are implemented throughout the Clark County airport system. The CCDOA Sustainability Team is tasked with maintaining and enhancing community quality of life by reviewing and implementing all sustainability initiatives at the County's airports. At VGT, there are sustainable practices and features currently in place, including the following:

- Drought tolerant and desert landscaping
- Lower-flow fixtures, sinks, and toilets
- In-terminal, airfield and hangar comingled recycling program
- LED lighting retrofits including in the main terminal, parking lot, roadway, high-mast, and airfield
- Asphalt millings repurposing program
- Hazardous materials disposal and cleanup
- CCDOA Environmental Management System (includes stormwater pollution prevention plans (SWPPP), Spill Prevention Control & Countermeasures plans, and environmental guidelines)
- Waste oil and battery disposal program
- Utility management software to track electricity, gas, water, and waste usage
- (Accreditation *currently pending*) Membership to Airport Carbon Accreditation program and successful calculation of Scope 1 & 2 carbon emissions
- Water refilling stations to reduce plastic waste
- Noise mitigation: "Fly Safely & Quietly" program
- Dry washing rental cars and aircraft

1.10 ENVIRONMENTAL CONSIDERATIONS

The purpose of the following environmental inventory is to identify potential environmental sensitivities that should be considered when planning future improvements at the airport. Research was performed for each of the 14 environmental impact categories described within FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

1.10.1 WATER RESOURCES

1.10.1.1 Stormwater Management

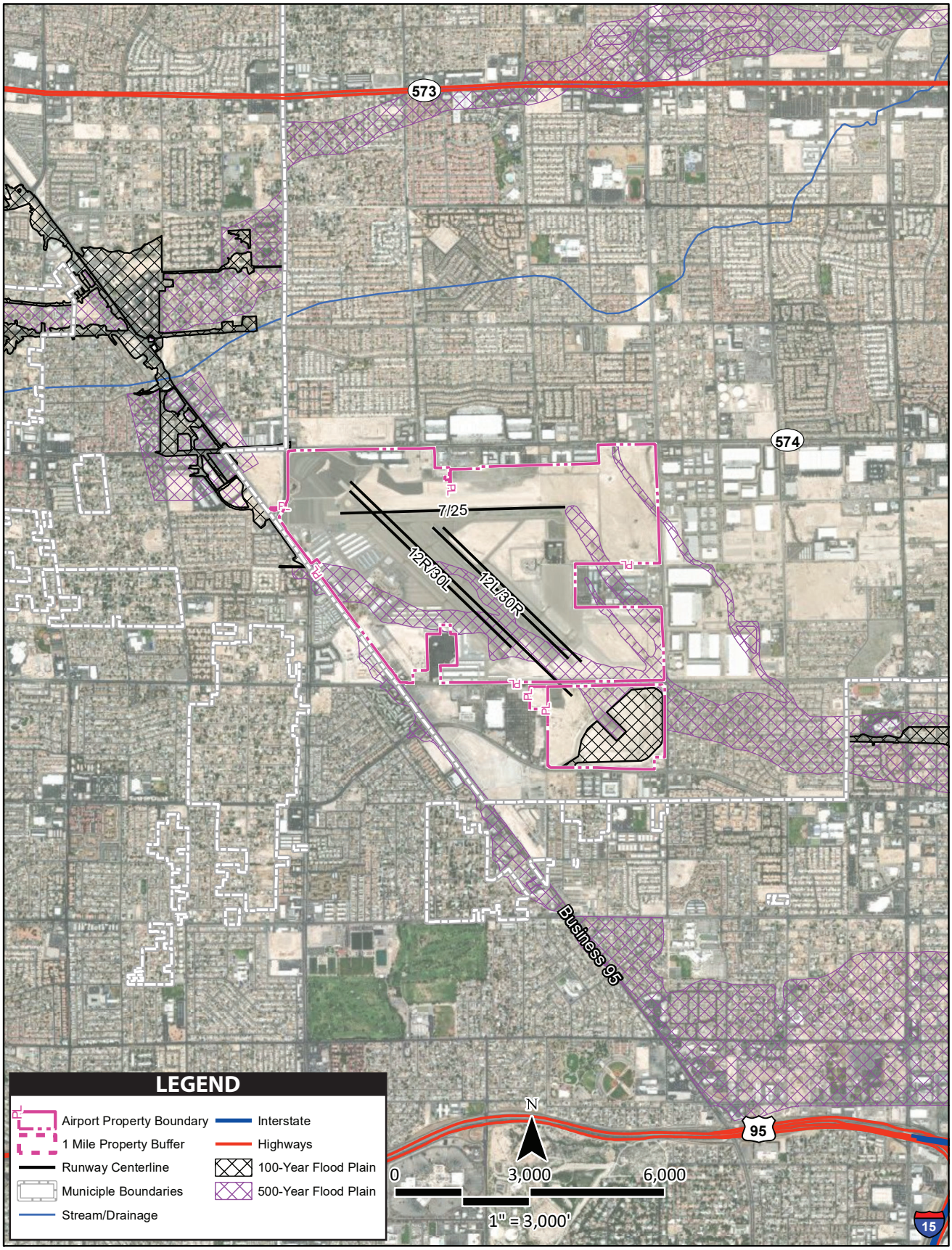
National Pollutant Discharge Elimination System (NPDES) permits outline the regulatory requirements of municipal stormwater management programs and establish requirements to help protect the beneficial uses of the receiving waters. They require permittees to develop and implement Best Management Practices (BMPs) to control/reduce the discharge of pollutants to waters of the United States to the maximum extent practicable (MEP). The NPDES program manages wastewater, construction, stormwater, and pretreatment.

The airport maintains a stormwater pollution prevention plan (SWPPP). The SWPPP ensures that the airport remains in compliance with the requirements of the NPDES program administered by the Nevada Division of Environmental Protection (NDEP) and the U.S. Environmental Protection Agency (EPA) by identifying and evaluating potential pollutant discharge activities that may be conducted by the airport and its tenants. As a result of the identified pollutant discharge activities, the SWPPP has outlined several best management practices (BMPs) that are implemented at VGT to eliminate, prevent, or reduce the potential for pollutants to enter the airport's stormwater system.

1.10.1.2 Floodplains

Executive Order (EO) 11988, *Floodplain Management*, 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. U.S. Department of Transportation (DOT) Order 5650.2, *Floodplain Management and Protection*, implements the guidelines contained in EO 11988.

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel numbers 32003C2155F and 32003C2160F, effective November 16, 2011, indicates that some of the airport is in Zone X, an Area of Minimal Flood Hazard. However, a portion of the airport located south of West Carey Avenue is in Zone A, Special Flood Hazard Areas Without Base Flood Elevation (BFE). This area is located within the 100-year floodplain. In addition, portions of the airport are in the 500-year floodplain (Zone X, 0.2 Pct Annual Chance Flood Hazard) (**Figure 1.22**).



Source: ESRI Basemap Imagery (2022), USDA, FEMA, USGS, TIGER/Line, Clark County, Nevada

1.10.1.3 Wetlands

The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act* (CWA). Wetlands are defined in EO 11990, *Protection of Wetlands*, as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances do or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." Wetlands can include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mudflats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands have three characteristics: the soil is inundated or saturated to the surface at some time during the growing season (hydrology), has a population of plants able to tolerate various degrees of flooding or frequent saturation (hydrophytes), and is saturated enough to develop anaerobic (absent of air or oxygen) conditions during the growing season (hydric).

According to the National Wetlands Inventory, there are no wetlands located within airport property boundaries.[2]

1.10.1.4 Surface Waters

The CWA establishes water quality standards, controls discharges, develops waste treatment management plans and practices, prevents or minimizes the loss of wetlands, and regulates other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc. Additionally, the U.S. Congress has mandated the NPDES under the CWA.

VGT is in the City of Las Vegas-Las Vegas Wash watershed. There are four waterbodies in this watershed, of which all four are designated as impaired.[3] The four waterbodies are not located within airport property boundaries.

1.10.1.5 Groundwater

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as wells, springs, and other water sources. Examples of direct impacts to groundwater could include withdrawal of groundwater for operational purposes or reduction of infiltration or recharge area due to new impervious surfaces.[4]

[2] U.S. Fish & Wildlife Service, National Wetlands Inventory (https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper)
[3] U.S. EPA, How's My Waterway (https://mywaterway.epa.gov/community/north%20las%20vegas%20airport/overview)
[4] United States Geological Survey, What is Groundwater? (https://www.usgs.gov/faqs/what-groundwater)

The City of North Las Vegas obtains a portion of its water from a deep carbonate aquifer at various wells throughout the city. These wells are owned and operated by the city and are primarily used during the summer months to help meet city residents' peak demands.[5]

In 1990, the city established an artificial recharge program. Four recharge wells are used to inject treated Colorado River water when available during off-peak winter months. This water is then banked in the valley's groundwater system and has improved groundwater levels within the area.

The U.S. EPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the *Safe Drinking Water Act* (SDWA). Since 1977, it has been used by communities to help prevent contamination of groundwater from federally funded projects. It has increased public awareness of the vulnerability of groundwater resources. The SSA program is authorized by Section 1424(e) of the SDWA (Public Law 93-523, 42 U.S.C. 300 et. seq), which states:

> "*If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register*."[6]

There are no sole source aquifers located within airport boundaries. The nearest sole source aquifer is Fresno Streamflow Source Zone, which is located 178 miles from the airport.[7]

1.10.1.6 Wild and Scenic Rivers

The *National Wild and Scenic Rivers Act* was established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

The Nationwide River Inventory (NRI) is a list of over 3,400 rivers or river segments that appear to meet the minimum *Wild and Scenic Rivers Act* eligibility requirements based on their free-flowing status and resource values. The development of the NRI resulted from Section 5(d)(1) in the *Wild and Scenic Rivers Act*, directing federal agencies to consider potential wild and scenic rivers in the comprehensive planning process.

There are no designated National Wild and Scenic Rivers in Nevada. The closest designated National Wild and Scenic River identified is the Amargosa River, located 62 miles from the airport in California.[8] The nearest National River Inventory feature is Virgin River, located 51 miles from the airport, where it flows into the northern reaches of Lake Mead.[9]

---

[5] City of North Las Vegas (https://www.cityofnorthlasvegas.com/residents/water/water-quality/water-resources?locale=en)
[6] U.S. EPA, Overview of the Drinking Water Sole Source Aquifer Program (https://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#Authority)
[7] U.S. EPA, Sole Source Aquifers (https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b)
[8] National Wild and Scenic River System in the U.S. (https://nps.maps.arcgis.com/apps/MapJournal/index.html?appid=ba6debd907c7431ea765071e9502d5ac#)
[9] Nationwide River Inventory (https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977)

1.10.2 ENDANGERED AND THREATENED SPECIES

Biotic resources include the various types of plants and animals that are present in an area. The term also applies to rivers, lakes, wetlands, forests, and other habitat types that support plants and animals.

The U.S. Fish and Wildlife Service (USFWS) is charged with overseeing the requirements contained within Section 7 of the *Endangered Species Act* (ESA). The ESA provides a framework to conserve and protect animal or plant species whose populations are threatened by human activities. The FAA and USFWS review projects to determine if a significant impact to protected species will result during the implementation of a proposed project. Significant impacts occur when a proposed action could jeopardize the continued existence of a protected species or would result in the destruction or adverse modification of federally designated critical habitat in the area. The USFWS's Information for Planning and Consultation (IPaC) resource list describes species and habitat protected under the ESA within the vicinity of the airport (**Table 1.18**).

Table 1.18 | Species Protected Under ESA Section 7 with Potential to Occur Within Two Miles of the Airport

Common Name (*Scientific Name*)	Federal Status	Habitat and Range	Potential for Occurrence
Birds			
yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Require contiguous patches of multilayered riparian habitat for nesting. Also found in cottonwood-willow forests (*Populus* spp.- *Salix* spp.). During the winter, yellow-billed cuckoos inhabit a variety of conditions, such as coastal scrub, second-growth forests and woodlands, hedgerows, forest edges, and in smaller riparian patches than those used for breeding.	Unlikely to occur. No suitable habitat is present within airport property boundaries.
Reptiles			
desert tortoise (*Gopherus agassizii*)	Threatened	Sandy flats to rocky foothills, including alluvial fans, washes, and canyons where suitable soils for den construction may occur.	Unlikely to occur. The airport does not contain suitable habitat for this species.
Fishes			
Pahrump poolfish (*Empetrichthys latos*)	Endangered	Endemic to Manse Spring. This species prefers springs (i.e., places where underground water emerges at the surface – the start of streams and ponds) that consist of cool and often permanently flowing water.	Unlikely to occur. No perennial water, cienegas, or stock tanks are present at the airport or in the adjacent vicinity.
Insects			
monarch butterfly (*Danaus plexippus*)	Proposed Threatened	A migratory species found in a variety of habitats. Requires milkweed (*Asclepias* spp.) for breeding. In the southwestern United States, migrating monarch butterflies often occur near water sources (e.g., rivers, creeks, riparian corridors, roadside ditches, and irrigated gardens).	Unlikely to occur. The airport is mostly devoid of flowering plants.

USFWS Status Definitions:
***Endangered*:** an animal or plant species that is in danger of extinction throughout all or a significant portion of its habitat range
***Threatened*:** an animal or plant species that is in danger of extinction throughout all or a significant portion of its habitat range
***Proposed Threatened*:** an animal or plant species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and has been proposed to be listed as threatened; proposed threatened species are not protected by the take prohibitions of section 9 of the ESA

Sources: USFWS IPaC (https://ipac.ecosphere.fws.gov/); U.S. National Park Service (https://www.nps.gov/); Freshwater Habitats Trust (https://freshwaterhabitats.org.uk/habitats/spring/)

Section 3 of the ESA is used to protect critical habitat areas. Designated critical habitat areas are geographically defined and have been determined to be essential to the recovery of a specific species. There is no federally designated critical habitat at the airport.

There is potential for avian concerns for areas at the airport listed in the IPaC. Habitat for migratory birds may occur if bushes or other ground nesting substrate is present.

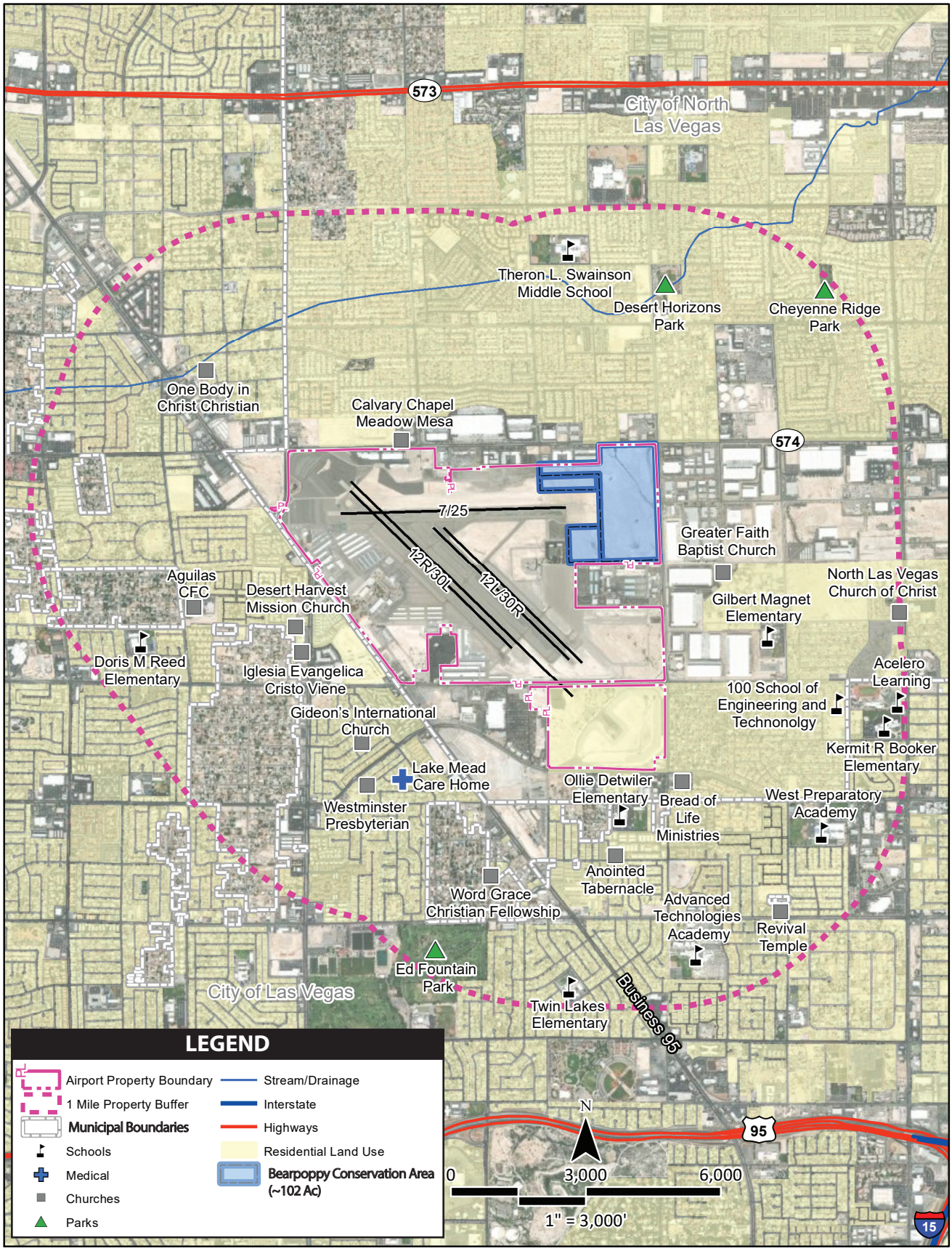
Other species of special concern in this area include the Las Vegas bearpoppy (*Arctomecon californica).* The bearpoppy is listed as critically endangered by the State of Nevada pursuant to NRS 527.260, *et.seq*., and is currently under petition to be listed under the ESA for federal protection. Its status and protection are overseen and administered by the Nevada State Division of Forestry. This species can be found at the airport on a 110-acre undeveloped lot that is located south of Cheyenne Avenue and east of the approach end of Runway 25 (**Figure 1.1**). To preserve the bearpoppy's habitat, Clark County (which owns and manages the 110 acres) entered a Memorandum of Understanding (MOU) with the Bureau of Land Management (BLM). Outlined in the MOU, the county and BLM have agreed to manage this lot as an undeveloped open space, and thus preserve the bearpoppy habitat and ensure the long-term survival of this species.

1.10.3 NOISE EXPOSURE

An Airport Overlay District (AOD) was adopted in 1990 by the City of Las Vegas pursuant to Section 19.10.080 of the *City of Las Vegas Unified Development Ordinance*[10] and in conjunction with Section 17.16.050 of the *City of North Las Vegas Code of Ordinances*[11] and Section30.02.26C, Part A of the *Clark County Title 30: Unified Development Code*.[12] The AOD was created to regulate land uses near the airport and to identify specific ranges of land uses that are compatible with airport hazard and noise exposure zones. The AOD encompasses an area of land characterized by noise levels -- specifically within the 60 day-night average sound level (DNL) noise exposure zone and greater. It also outlines the requirements of specific land uses located within the AOD to be deemed compatible. In the City of North Las Vegas ordinance, residential land uses, for example, are permitted only within areas associated with the 60-70 DNL noise exposure subzones and those units must include noise-attenuated construction (e.g., soundproofing) to be permitted. Similarly, institutional land uses such as schools and churches without noise-attenuated construction are only permitted within the 60 DNL noise exposure zones or within the 65 and 70 DNL noise exposure zones with noise-attenuated construction.

Table 1.19 identifies noise-sensitive land uses within one mile of the airport. These land uses are also shown on **Figure 1.23**. The closest single-family residential areas are located southeast and adjacent to the airport boundary. The nearest multi-family residential areas are located west and adjacent to the airport boundary and to the west of Rancho Drive.

[10] City of Las Vegas Unified Development Ordinance (https://files.lasvegasnevada.gov/planning/Sunstone-Exhibit-I-UDC-2019.pdf)
[11] City of North Las Vegas Code of Ordinances (https://library.municode.com/nv/north_las_vegas/codes/code_of_ordinances)
[12] Clark County Title 30: Unified Development Code (https://www.clarkcountynv.gov/government/departments/comprehensive_planning_department/library/title-30)



Source: ESRI Basemap Imagery (2022), USDA, FEMA, USGS, TIGER/Line, Clark County, Nevada

Table 1.19 | Noise-Sensitive Land Uses Within One Mile of Airport Boundaries

Facility	Location	Distance from Airport (miles)	Direction from Airport
Schools			
Gilbert Magnet Elementary School	2101 W Cartier Avenue	0.40	East
100 School of Engineering and Technology	2341 Comstock Drive	0.70	Southeast
Ollie Detwiler Elementary School	1960 Ferrell Street	0.20	South
Doris M. Reed Elementary School	2501 Winwood Street	0.80	West
Theron L. Swainston Middle School	3500 W Gilmore Avenue	0.90	North
Twin Lakes Elementary School	1205 Silver Lake Drive	1.00	South
Advanced Technologies Academy	1411 Robin Street	0.80	Southeast
West Preparatory Academy	2050 Sapphire Stone Avenue	0.70	Southeast
Kermit R. Booker Elementary School	2277 N M.L.K. Boulevard	0.90	Southeast
Acelero Learning	4366 W Cheyenne Avenue	0.11	Southeast
Places of Worship			
Calvary Chapel Meadow Mesa	4370 W Cheyenne Avenue	0.04	North
Aguilas Christian Family Center (CFC)	5355 Madre Mesa Drive	0.50	West
Revival Temple	1601 N Tonopah Drive	0.80	Southeast
North Las Vegas Church of Christ	2626 N M.L.K. Boulevard	1.00	East
Bread of Life Ministries of His Glory	2721 Coran Lane	0.20	Southeast
Anointed Tabernacle	3050 Holly Avenue	0.40	South
Iglesia Evangélica Cristo Viene	2481 N Decatur Boulevard	0.30	West
Word of Grace Christian Fellowship	3956 Melody Lane	0.50	South
Westminster Presbyterian	4601 W Lake Mead Boulevard	0.50	Southwest
Gideons International Church	4321 Mark Avenue	0.30	West
Desert Harvest Mission Church	4900 Bevvie Drive	0.30	West
One Body in Christ Christian Church	5367 Jay Avenue	0.60	Northwest
Greater Faith Baptist Church	2736 Chamberlain Lane	0.30	East
Health Care Facilities			
Lake Mead Care Home	4325 W Lake Mead Boulevard	0.30	South

Source: U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/); Google Earth Aerial Imagery, January 2023

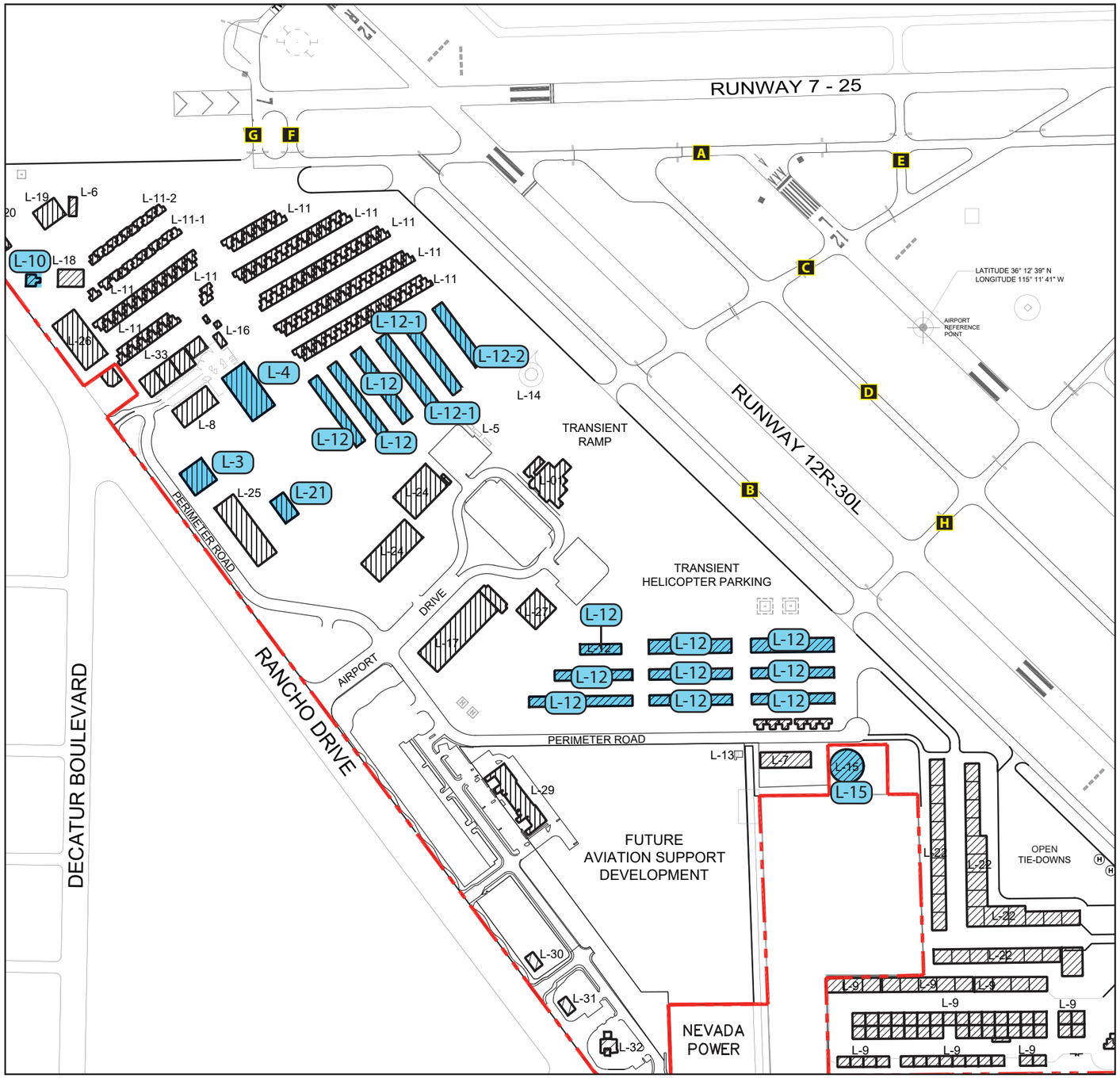
1.10.4 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Section 4(f) of the *Department of Transportation Act,* which was recodified and renumbered as Section 303(c) of 49 United States Code, provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly or privately owned historic sites, public parks or recreation areas, or waterfowl and wildlife refuges of national, state, regional, or local importance unless there is no feasible and prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use.[13]

Figure 1.24 and **Table 1.20** identify potential Section 4(f) resources within one mile of the airport. School playgrounds or athletic fields may be considered a Section 4(f) resource if the recreational facilities at the school are readily available to the public.

[13] Title 49 U.S. Code § 303, Policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites

This page intentionally left blank



Source: Clark County Department of Aviation

50+ YEAR OLD BUILDING LEGEND

NAME	DOAADDRESS	MGMT	BLDGID	AOA	CONSTYR
MAIN TERMINAL	4265 PERIMTER RD	PRIVATE	L-01	YES	1991
FAA CONTROL TOWER	THUNDERBIRD FIELD RD	PRIVATE	L-02	YES	2001
HORTON AVIONICS	2732 PERIMETER RD	DOA	L-03	YES	1963
VACANT-DOA	4265 PERIMTER RD	PRIVATE	L-04	YES	1964
FUEL TANKS AVGAS/JET A	4265 PERIMTER RD	PRIVATE	L-05	YES	1996
LAS VEGAS METROPOLITAN POLICE	4265 PERIMTER RD	PRIVATE	L-06	YES	1983*
DEPARMENT OF AVIATION MAINTENANCE BUILDING	4265 PERIMTER RD	PRIVATE	L-07	YES	1996
DESERT AVIATION CENTER HANGARS	4265 PERIMTER RD	PRIVATE	L-08	YES	2001
OUTBACK HANGARS	2806 PERIMETER RD	PRIVATE	L-09	YES	2005
CIVIL AIR PATROL	4265 PERIMTER RD	PRIVATE	L-10	YES	1969
PORTABLE HANGARS	4265 PERIMTER RD	DOA	L-11	YES	1998
PORTABLE HANGARS	4265 PERIMTER RD	DOA	L-11-1	YES	1987*
PORTABLE HANGARS	4265 PERIMTER RD	DOA	L-11-2	YES	1995
SHADE HANGARS	4265 PERIMTER RD	PRIVATE	L-12	YES	1967
SHADE HANGARS	4265 PERIMTER RD	PRIVATE	L-12-1	YES	1979
SHADE HANGARS	4265 PERIMTER RD	PRIVATE	L-12-2	YES	1997
MAINTENANCE BUILDING WASH RACK	4265 PERIMTER RD	PRIVATE	L-13	YES	2009
SELF SERVICE FUEL STATION	4265 PERIMTER RD	PRIVATE	L-14	YES	1992
CITY OF NORTH LAS VEGAS WATER WELL	4265 PERIMTER RD	PRIVATE	L-15	NO	1964
AIRWORK	2826 PERIMTER RD	PRIVATE	L-16	YES	1988
702 HELICOPTER, FLYRIGHT AVIATION, VGT AVIATION, APEX	2806 PERIMETER RD	PRIVATE	L-17	YES	1993
BUREAU OF LAND MANAGEMENT HELITACK BUILDING	2980 N RANCHO DR	PRIVATE	L-18	YES	1994
LAS VEGAS METROPOLITAN POLICE ARMOR DIVISION	2990 N RANCHO DR	PRIVATE	L-19	YES	1994
MISCELLANEOUS AGENCY HANGARS	4265 PERIMTER RD	PRIVATE	L-20	YES	1996
WEST AIR AVIATION	2726 PERIMTER RD	PRIVATE	L-21	YES	1964
HANGARS SKID ROW	4265 PERIMTER RD	DOA	L-22	YES	1994
CHEYENNE AIR CENTER	4511 W CHEYENNE AVE	PRIVATE	L-23	NO	1996
CHEYENNE AIR CENTER	4511 W CHEYENNE AVE	PRIVATE	L-23-1	NO	1998
STEELMAN AVIATION/AIRSMART	2715/2705 AIRPORT DR	PRIVATE	L-24	YES	1996
DESERT AVIATION CENTER	2722 PERIMTER RD	DOA	L-25	YES	1999
LONE MOUNTAIN AVIATION - SUNRISE AVIONICS	2830 N RANCHO DR.	PRIVATE	L-26	YES	2002
EGA, SKYLINE HELICOPTER TOURS	2642 AIRPORT DR	PRIVATE	L-27	YES	1994
LAS VEGAS METROPOLITAN POLICE AIR SUPPORT/RESCUE HANGAR	4265 PERIMTER RD	PRIVATE	L-28	YES	2009
LEASABLE OFFICE BUILDING	2580 N RANCHO DR	PRIVATE	L-29	YES	2007
METRO PAWN	2480 N RANCHO DR	PRIVATE	L-30	YES	2012
DEL TACO	2450 N RANCHO DR	PRIVATE	L-31	YES	2008
US BANK	2420 N RANCHO DR	PRIVATE	L-32	YES	2008
EXECUTIVE HANGARS	2814 PERIMETER RD	PRIVATE	L-33	YES	1997

* ESTIMATED DATE HISTORICAL GAP IN AERIALS

Note:
Highlighted buildings on the graphic and legend denote buildings 50 years or older.

This page intentionally left blank

Table 1.20 | U.S. Dept. of Transportation Section 4(f) Resources Within One Mile of Airport Boundaries

Place	Location	Distance from Airport (miles)	Direction from Airport
Public Recreational Facilities			
Ed Fountain Park	1400 N Decatur Boulevard	1.00	South
Desert Horizons Park	3750 Simmons Street	0.60	North
Cheyenne Ridge Park	3814 Scott Robinson Boulevard	1.00	Northeast
Public Schools (may or may not have protected Section 4(f) resources)			
100 School of Engineering and Technology	2341 Comstock Drive	0.70	Southeast
Gilbert Magnet Elementary School	2101 W Cartier Avenue	0.40	East
Ollie Detwiler Elementary School	1960 Ferrell Street	0.15	South
Doris M. Reed Elementary School	2501 Winwood Street	0.80	West
Theron L. Swainston Middle School	3500 W Gilmore Avenue	0.90	North
Twin Lakes Elementary School	1205 Silver Lake Drive	1.00	South
Advanced Technologies Academy	1411 Robin Street	0.80	Southeast
West Preparatory Academy	2050 Sapphire Stone Avenue	0.70	Southeast
Kermit R. Booker Elementary School	2277 N M.L.K. Boulevard	0.90	Southeast
Acelero Learning	2730 Airport Drive	0.90	Southeast

Sources: Google Earth Aerial Imagery, January 2023; U.S. Department of the Interior, National Park Service, National Register of Historic Places (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466)

There are no National Register of Historic Places (NRHP)-listed Resources within one mile of the airport. The closest NRHP-listed resource is Berkley Square, a historic district located in Historic West (1.6 miles from the airport).

There are no waterfowl and wildlife refuges within one mile of the airport. The nearest wilderness and national recreation areas are listed below:

- Nearest wilderness area: Rainbow Mountain Wilderness (16 miles from the airport)
- Nearest national recreation area: Lake Mead National Recreation Area (15 miles from the airport)

1.10.5 AIR QUALITY

The concentration of various pollutants in the atmosphere determines the local air quality. The significance of a pollutant's concentration is determined by comparing it to the state and federal air quality standards. In 1971, the U.S. Environmental Protection Agency (EPA) established standards that specify the maximum permissible short- and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for criteria pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb).

Based on federal air quality standards, a specific geographic area can be classified as an "attainment," "maintenance," or "nonattainment" area for each pollutant. The threshold for nonattainment designation varies by pollutant.

The airport is in Clark County, Nevada, in the City of North Las Vegas, three miles northwest of the Las Vegas city center. The portion of Clark County that contains the airport is in moderate nonattainment for ozone (8-hour, 2015).[14] Clark County was redesignated as a maintenance area for CO in 2010 and PM_{10} in 2014.

1.10.6 HAZARDOUS MATERIALS

Federal, state, and local laws regulate hazardous materials use, storage, transport, and disposal. These laws may extend to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminants may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources. According to the EPA's *EJScreen* online tool, there are no Superfunds[15] within one mile of the airport; however, there is one brownfield[16] located southeast of the airport boundary.

Nevada has three solid waste management authorities – the Southern Nevada Health District (covering Las Vegas and Clark County), the Washoe County Health District (covering the Reno area), and the Nevada Division of Environmental Protection (NDEP) – each of which administers state solid waste management regulations, including permitting and enforcing.[17] The NDEP's solid waste branch includes staff responsible for permitting and inspecting solid waste disposal sites, as well as staff responsible for waste reduction, reuse, and recycling programs.

There are several recycling centers within North Las Vegas, Nevada. The closest recycling center is Southern Nevada Recycling Center, located two miles east of the airport on the western side of Interstate 15. The closest solid waste landfill is the Cheyenne Transfer Station two miles east of the airport.

1.10.7 CLIMATE

Increasing concentrations of greenhouse gases (GHGs) can affect global climate by trapping heat in Earth's atmosphere. Scientific measurements have shown that Earth's climate is warming with concurrent impacts, including warmer air temperatures, rising sea levels, increased storm activity, and greater intensity in precipitation events. Climate change is a global phenomenon that can also have local impacts. GHGs, such as water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and O_3, are both naturally occurring and anthropogenic (human-made). Research has established a direct correlation between fuel combustion and GHG emissions. GHGs from anthropogenic sources include CO_2, CH_4, N_2O, hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6). CO_2 is the most important anthropogenic GHG because it is a long-lived gas that remains in the atmosphere for up to 100 years.

[14] Nevada Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (https://www3.epa.gov/airquality/greenbook/anayo_nv.html)
[15] A location that has been contaminated by hazardous waste and has been designated by the U.S. EPA for management.
[16] A property, expansion, redevelopment, or reuse of a location that has the potential presence of a hazardous substance, pollutant, or contaminant.
[17] Nevada Division of Environmental Protection, Solid Waste (https://ndep.nv.gov/land/waste/solid-waste)

The EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2021* shows total U.S. emissions have decreased by two percent from 1990 to 2021, down from a high 15.8 percent above 1990 levels in 2007. During 2020 to 2021, the U.S. saw an increase in economic activity driven by businesses and persons rebounding after the COVID-19 pandemic. This resulted in an increase in total U.S. GHG emissions, of which CO_2 emissions accounted for the majority.

In 2021, the transportation sector and power generation accounted for 79.3 percent of total CO_2 emissions; however, the overall aviation industry has shown a decrease in CO_2 emissions by 18 percent between 1990 and 2021.[18] Commercial aircraft emissions have highly fluctuated over the past 30 years, with a 27 percent increase between 1990 and 2007, a two percent decrease from 2007 to 2019, and a 33 percent decrease from 2019 to 2020, followed by a 23 percent increase from 2020 to 2021. Overall, this represents an eight percent difference between 1990 and 2021 commercial aircraft emissions. Between 1990 and 2021, emissions from military aircraft decreased by 65 percent.

Information regarding the climate for the airport and surrounding environments – including wind, temperature, and precipitation – is found earlier in this airport master plan.

Currently, the State of Nevada has a State Climate Strategy document, which was released in December 2020 and is recognized by the U.S. Center for Climate and Energy Solutions. The plan recommends reducing state GHG emissions 28 percent by 2025, 45 percent by 2030, and reaching net-zero emissions by 2050. Key aspects of the plan include a framework for reducing GHG emissions across all economic sectors, establishing the state's groundwork for climate adaptation and resilience, and creating a structure for ongoing climate action across the state. Previously, Nevada released a climate action plan in 2008.[19]

1.10.8 FARMLANDS

Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and consider the adverse effects of federal programs on the preservation of farmland, to consider appropriate alternative actions that could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines, developed by the U.S. Department of Agriculture (USDA), apply to farmland classified as prime, unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

The USDA Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey shows the types of soils and their farmland classification on and adjacent to the airport. The airport is within urbanized area boundaries.[20] In addition, the entire airport area is classified as "not prime farmland." Therefore, the FPPA would not be applicable to the airport property.

Table 1.21 describes the farmland classifications based on the types of soil within the airport's boundaries.

[18] U.S. EPA, Inventory of U.S. Greenhouse Gases, Chapter 3, Energy (https://www.epa.gov/ghgemissions/draft-inventory-us-greenhouse-gas-emissions-and-sinks-1990-2021)
[19] U.S. State Climate Action Plans (https://www.c2es.org/document/climate-action-plans/), accessed January 2023
[20] U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/), January 2023

Table 1.21 | Summary by Map Unit – Las Vegas Valley Area, Nevada, Part of Clark County (NV788)

Soil Type	Farmland Rating
Glencarb very fine sandy loam, saline	Not prime farmland
Las Vegas gravelly fine sandy loam, 0 to 2 percent slopes	Not prime farmland
Las Vegas-McCarran-Grapevine complex, 0 to 4 percent slopes	Not prime farmland
Las Vegas-DeStazo complex, 0 to 2 percent slopes	Not prime farmland
Skyhaven very fine sandy loam, 0 to 4 percent slopes	Not prime farmland
Urban land	Not prime farmland

1.10.9 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act* (NHPA) *of 1966*, as amended, the *Archaeological and Historic Preservation Act* (AHPA) *of 1974*, the *Archaeological Resources Protection Act* (ARPA), and the *Native American Graves Protection and Repatriation Act* (NAGPRA) *of 1990*. In addition, the *Antiquities Act of 1906*, the *Historic Sites Act of 1935*, and the *American Indian Religious Freedom Act of 1978* also protect historic, architectural, archaeological, and cultural resources. Impacts may occur when a proposed project causes an adverse effect on a resource that has been identified (or is unearthed during construction) as having historic, architectural, archaeological, or cultural significance.

There are no NRHP-listed historic buildings, districts, or neighborhoods within airport property boundaries or within one mile of the airport;[21] however, there are buildings over 50 years old at the airport that were evaluated and determined to have no historic significance. **Table 1.22** and **Figure 1.24** depict these buildings, which are primarily on the west and southwest portion of the airport and include Horton Avionics, Civil Air Patrol, shade hangars, West Air Aviation, and a vacant building. In addition, intact prehistoric resources may be present in undisturbed areas of the airport.

Table 1.22 | 50+ Year Old Buildings on the Airport

Name	Location	Construction Year
Horton Avionics	2732 Perimeter Rd	1963
Vacant DOA	4265 Perimeter Rd	1964
Civil Air Patrol	4265 Perimeter Rd	1969
Shade Hangars	4265 Perimeter Rd	1967
City of North Las Vegas Water Well	4265 Perimeter Rd	1964
West Air Aviation	2726 Perimeter Rd	1964

The nearest tribal land to the airport is the Las Vegas Paiute Tribe Reservation, located more than two miles southeast of the airport on the eastern border of Interstate 15.[22]

1.10.10 NATURAL RESOURCES AND ENERGY SUPPLY

It is the policy of FAA Order 1053.1C, *Energy and Water Management Program for FAA Buildings and Facilities*, to encourage the development of facilities that exemplify the highest standards of design,

[21] U.S. Department of the Interior, National Park Service, National Register of Historic Places (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466)

[22] U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/)

including principles of sustainability. Additionally, EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, establishes goals to create climate resilient infrastructure and operations and reduce energy use.

The NDEP is ultimately tasked with the stewardship of the natural resources of the state, including air, water, and land.[23] The NDEP works with a variety of federal and state organizations to preserve and enhance the environment of Nevada in order to protect public health, sustain ecosystems, and contribute to the state's economy. Furthermore, the NDEP is responsible for a series of core functions: outreach, cleanups, permitting, monitoring, and compliance management.

The City of North Las Vegas obtains its water from two sources: surface water (from the Colorado River at Lake Mead) and groundwater pumped from a deep carbonate aquifer.

1.10.11 SOCIOECONOMICS AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

1.10.11.1 Socioeconomics

Socioeconomics is an umbrella term used to describe aspects of a project that are either social or economic in nature. A socioeconomic analysis evaluates how elements of the human environment, such as population, employment, housing, and public services, might be affected by the proposed action and alternative(s).

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, specifically requires that a federal action causing disproportionate impacts to an environmental justice population (i.e., a low-income or minority population) be considered, as well as an evaluation of environmental health and safety risks to children. The FAA has identified factors to consider when evaluating the context and intensity of potential environmental impact.

Would the proposed action:

- Induce substantial economic growth in an area, either directly or indirectly?
- Disrupt or divide the physical arrangement of an established community?
- Cause extensive relocation when sufficient replacement housing is unavailable?
- Cause extensive relocation of community business which would cause severe economic hardship for affected communities?
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities? Or
- Produce a substantial change in the community tax base?

[23] Nevada Division of Environmental Protection (https://ndep.nv.gov/air)

1.10.11.2 Children's Environmental Health and Safety

Federal agencies are directed, per EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, to make it a high priority to identify and assess the environmental health and safety risks that may disproportionately impact children. Such risks include those that are attributable to products or substances that a child is likely to encounter or ingest (e.g., air, food, and water, including drinking water) or to which they may be exposed.

According to the 2016-2020 ACS estimates, 26 percent of the population within one mile of the airport are aged 17 or under. This equates to 11,827 persons. See **Tables 1.19** and **1.20** for lists of schools and recreational facilities that are used by children within one mile of the airport.

1.10.12 VISUAL EFFECTS

Visual effects deal broadly with the extent to which a proposed action or alternative(s) would either (1) produce light emissions that create an annoyance or interfere with activities, or (2) contrast with or detract from the visual resources and/or the visual character of the existing environment. Each jurisdiction will typically address outdoor lighting, scenic vistas, and scenic corridors in its zoning ordinances and general plan.

1.10.12.1 Light Emissions

These impacts typically relate to the extent to which any source results in light or glare that could create an annoyance for people or would interfere with normal activities. Generally, local jurisdictions will include ordinances in the local code addressing outdoor illumination to reduce the impact of light on surrounding properties.

Airfield lighting at the airport includes a rotating beacon, medium intensity runway lighting (MIRL) at each runway, blue medium intensity taxiway lighting (MITL), runway guard lights (RGL), four-box precision approach path indicator (PAPI) lights at each runway, and runway end identification lights (REILs) at each side of the runway end. The airfield lights utilize pilot-controlled lighting (PCL); thus, the airfield lights are only lit when activated by pilots using the airport. For further information, see the discussion of the types of airfield lighting and visual approach aids earlier in the inventory.

1.10.12.2 Visual Resources and Visual Character

Visual character refers to the overall visual makeup of the existing environment where a proposed action or its alternative(s) would be located. For example, areas near densely populated areas generally have a visual character that could be defined as urban, whereas less developed areas could have a visual character defined by the surrounding landscape features, such as open grass fields, forests, mountains, deserts, etc.

Visual resources include buildings, sites, traditional cultural properties, and other natural or human-made landscape features that are visually important or have unique characteristics. Visual resources

may include structures or objects that obscure or block other landscape features. In addition, visual resources can include the cohesive collection of various individual visual resources that can be viewed at once or in concert from the area surrounding the site of the proposed action or alternative(s).

The airport environment is located within an urban area. Visually, it is characterized by an arid landscape that is surrounded by a mixture of new and old buildings and streets. Views of the airport are accessible from all surrounding roadways due to the vegetation being spread out rather than densely put together. In addition to this, long-range views are not readily available due to the relatively flat topography of the airport environs.

Along the eastern portion of Rancho Drive, which lies near the western portion of the airport boundary, there are primarily residential communities with commercial land uses sprawled out along the roadway. Similarly, near the eastern portion of the airport boundary, there are primarily residential land uses with some commercial use. East of the airport lies Interstate 15. On the southern portion of the airport boundary, the airport is bounded by commercial land uses. North of the airport property line, the airport is surrounded by office and commercial space on the southern side of State Route 574.

The State of Nevada has a designated department called the Nevada Department of Transportation (NDOT) that administers the state-designated scenic roads program, while the Federal Highway Administration (FHWA) administers the national byways program.[24]

At present, there are a total of 11 state-designated scenic byways in Clark County. Of these 11, only two are also national scenic byways.[25] Of the two national scenic byways, the closest one, Las Vegas Boulevard National Scenic Byway, is located less than three miles away from the airport.

[24] U.S. Department of Transportation, Federal Highway Administration, National Scenic Byways and All-American Roads (https://fhwaapps.fhwa.dot.gov/bywaysp/byway/39538/map)
[25] Nevada DOT, Scenic Byways (https://www.dot.nv.gov/travel-info/travel-nevada/scenic-byways)



Chapter 2

Forecasts







Chapter 2
Forecasts

2.1 INTRODUCTION

The forecast chapter is a significant element of the master plan due to the direct impacts forecasted aviation activity has on the remainder of the plans. Demand, capacity, and facility requirements are based on meeting the values of the selected forecasts presented in this chapter. Forecasts are one of two components of a master plan that is reviewed and approved by the Federal Aviation Administration (FAA); the other component is the airport layout plan.

This forecast analysis involves a determination of aviation demand that may reasonably be expected to occur in the near term (5 years), intermediate term (10 and 15 years), and long term (20 years). With 2023 as the base year, these forecast intervals are 2028, 2033, 2038, and 2043. Aviation demand forecasting for North Las Vegas Airport (VGT) will primarily consider based aircraft, aircraft operations, peak activity periods, and the critical aircraft (the most demanding aircraft that conducts at least 500 annual operations).

The forecast analysis considered historical aviation trends at VGT, within the Las Vegas metropolitan region, and nationwide. Local historical data were collected from airport management (Clark County), airport traffic control tower (ATCT) personnel, and FAA sources, including the Terminal Area Forecast (TAF); the Operational Network (OPSNET) database; the Traffic Flow Management System Counts (TFMSC) database; and the 5010-1 *Airport Master Record*. In addition, socioeconomic data for the Las Vegas Metropolitan Statistical Area (MSA), the State of Nevada, the Las Vegas Convention and Visitors Authority (LVCVA), and Clark County were examined to discern local and regional trends and conditions that could impact aviation demand.

The FAA has oversight responsibility to review and approve aviation forecasts developed in conjunction with airport planning studies. The FAA will review individual airport forecasts with the objective of comparing them to its TAF and the National Plan of Integrated Airport Systems (NPIAS). Even though the TAF is updated annually, there has almost always been a disparity between the TAF and master planning forecasts in the past, primarily because the TAF forecasts are the result of a top-down model which does not consider local conditions or recent trends. While the TAF forecasts are a point of comparison for master plan forecasts, they serve other purposes, such as asset allocation by the FAA.

When reviewing a sponsor's forecast (from the master plan), the FAA must ensure that the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate forecasting methods. According to the FAA, forecasts should be:

- Realistic;
- Based on the latest available data;
- Reflective of current conditions at the airport (as a baseline);
- Supported by information in the study; and
- Able to provide adequate justification for airport planning and development.

The forecast process for an airport master plan consists of a series of basic steps which vary in complexity depending on the issues to be addressed and the level of effort required. The steps include a review of previous forecasts; determination of data needs; identification of data sources; collection of data; selection of forecast methods; preparation of the forecasts; and documentation and evaluation of the results. FAA Advisory Circular (AC) 150/5070-6B, Change 2, *Airport Master Plans*, outlines seven standard steps involved in the forecast process, including:

1. **Identify Aviation Activity Measures**: Determine the level and type of aviation activities likely to impact facility needs. For general aviation, this typically includes based aircraft and operations.

2. **Review Previous Airport Forecasts**: May include the FAA's TAF and state or regional system plans.

3. **Gather Data**: Determine what data are required to prepare the forecasts, identify data sources, and collect historical and forecast data.

4. **Select Forecast Methods**: Several appropriate methodologies and techniques are available, including regression analysis; trend analysis; market share or ratio analysis; exponential smoothing; econometric modeling; comparison with other airports; survey techniques; cohort analysis; choice and distribution models; range projections; and professional judgment.

5. **Apply Forecast Methods and Evaluate Results**: Prepare the actual forecasts and evaluate them for reasonableness.

6. **Summarize and Document Results**: Provide supporting text and tables, as necessary.

7. **Compare Forecast Results with the FAA's TAF**: Based aircraft and total operations are considered consistent with the TAF if they meet the following criteria:

   - Forecasts differ by less than 10 percent in the five-year forecast period and less than 15 percent in the 10-year forecast period; or
   - Forecasts do not affect the timing or scale of an airport project; or
   - Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.5, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS) *and the Airports Capital Improvement Plan* (ACIP).

Definitions	
Based Aircraft	An aircraft that is operational and airworthy and is typically based at a facility for the majority of the year
Critical Aircraft	The most physically demanding aircraft with at least 500 annual operations at the airport
Operation	A takeoff or landing at the airport; a touch-and-go counts as two operations
Key Abbreviations	
ATCT	Airport Traffic Control Tower
CAGR	Compound Annual Growth Rate
CCDOA	Clark County Department of Aviation
LVCVA	Las Vegas Convention and Visitors Authority
MSA	Metropolitan Statistical Area
TAF	Terminal Area Forecast
TFMSC	Traffic Flow Management System Counts

Aviation activity can be affected by many influences on the local, regional, and national levels, making it virtually impossible to predict year-to-year fluctuations of activity over 20 years with absolute certainty; therefore, it is important to remember that forecasts are only meant to serve as guidelines, and planning must remain flexible enough to respond to a range of unforeseen developments.

The COVID-19 pandemic significantly affected air travel, tourism, and the economy not only for large metropolitan areas like Las Vegas but for the entire world. It is essential to note that the pandemic and following recovery from spring 2020 to May 2023 brought impacts to nearly every industry, including aviation. In response to the pandemic, the U.S. government restricted international travel to and from the U.S. and most states announced "shelter-in-place" orders that required people to stay in their homes. In Nevada and the Las Vegas Metropolitan Area, the Las Vegas Strip was shut down for 78 days beginning March 18, 2020. Businesses, such as restaurants and casinos, gradually began to reopen with restrictions that limited the number of patrons allowed inside at a given time. In the years following the shutdown, indoor and outdoor gatherings were limited to small amounts of people therefore impacting conventions, sports events, and concerts. Currently, there are no more restrictions in place relating to COVID-19; however, the return to pre-COVID-19 levels has taken time. Aviation activity saw a decrease in 2021 at VGT due to the pandemic's affects. Total operations dropped 15.8 percent from 2019 to 2021. Socioeconomic indicators such as employment saw a 7.5 percent decline in 2020. Clark County visitors and gaming revenue declined significantly, decreasing 55 percent and 37 percent respectively from 2019 to 2020.

The following forecast analysis for the airport was produced following these basic guidelines. Existing forecasts are examined and compared against current and historical activity. Historical aviation activity is then examined along with other factors and trends that can affect demand. The intent is to provide an updated set of aviation demand projections for the airport that will permit the Clark County Department of Aviation (CCDOA) to make planning adjustments as necessary to maintain a viable, efficient, and cost-effective facility.

The forecasts for this master plan will utilize a base year of 2023 with a long-range forecast out to 2043. At the time this chapter was prepared, only part of 2023 data had been collected; therefore, the data for the base year of 2023 is made up from 12 months of data collected from August 2022 to the end of July 2023.

2.2 HISTORICAL ACTIVITY

Historical aviation activity at VGT includes an analysis of the critical general aviation (GA) forecast elements, including based aircraft and aircraft operations. Based aircraft, as defined by the FAA, are aircraft that are operational and airworthy, have agreements for storage at the airport, and are based at the airport longer than six months out of the year. Aircraft operations consist of either a takeoff or landing. An itinerant aircraft that arrives and departs the same day would be counted as performing two operations; likewise, those that occur with flight training "touch-and-go" practice flights – count as two operations.

Historical aircraft operations data have been compiled from the following sources:

- The Terminal Area Forecast (TAF) is the official FAA forecast of aviation activity for NPIAS airports. These forecasts are updated annually to serve the budget and planning needs of the FAA.

- The FAA's Operations Network (OPSNET) is the official source of air traffic operations used to analyze the FAA's air traffic control facilities. The data are reported by calendar year and include instrument flight rule (IFR) and visual flight rule (VFR) itinerant and local traffic counts worked by the tower.

- Motioninfo is an airport-hosted Automatic Dependent Surveillance-Broadcast (ADS-B) receiver that collects 24/7 aircraft flight data. The benefit of Motioninfo data is that they include operations counts that occur during the night when the ATCT at VGT is closed. The CCDOA utilizes Motioninfo-provided operational data for each of its system airports. For the years 2015 and 2019, Motioninfo data was only collected for a few months of the year. In 2015 data was collected from January through March and in 2019 data was collected from January through April. Data for these partial years is noted as incomplete.

- The FAA's Traffic Flow Management System Counts (TFMSC) records are comprised of traffic counts by airport for various data groups, such as aircraft type or by hour of the day. The data are collected from filed flight plans and therefore include data for IFR traffic and exclude VFR operations. These are used to identify the critical aircraft.

Historical annual aircraft operations are presented in **Table 2.1**. OPSNET data are the recommended source for forecasting purposes; however, it should be noted that the data reported to OPSNET are collected and reported by the ATCT during its attended hours (6:00 a.m.to 8:00 p.m. October through March and 6:00 a.m. to 9:00 p.m. April through September). Aircraft operations that occurred when the tower was closed are not reported in OPSNET. The decline in total annual operations in 2023 is due to a mandatory reduction of operations by the FAA imposed after a midair collision in July 2022. This restriction has since been lifted.

Table 2.1 | VGT Historical Operations Data

Year	FAA TAF	OPSNET	Motioninfo ADS-B
2013	124,362	131,426	131,386
2014	131,736	126,942	127,705
2015	133,359	135,687	*incomplete data
2016	150,293	159,430	159,425
2017	176,165	177,298	177,991
2018	173,731	168,748	168,726
2019	178,326	193,214	*incomplete data
2020	184,395	171,684	171,684
2021	159,889	162,624	164,688
2022	187,997	181,408	184,335
2023	169,920	164,781	167,483
CAGR 2013-2023	**3.17%**	**2.29%**	**2.46%**

Notes:
2023 TAF data is reported as an estimate. 2023 OPSNET data are represented by the last 12 months of data collected, ending July 2023. 2023 Motioninfo operations are represented by the last 12 months of data collected, ending April 2023. *In 2015, data was collected from January through March and in 2019 data was collected from January through April. Data for these partial years is noted as incomplete.

Sources: FAA TAF, January 2024; FAA OPSNET; CCDOA

Airport staff enter based aircraft counts into the National Based Aircraft Inventory Program (basedaircraft.com) to maintain up-to-date based aircraft information. At the time this forecast chapter was prepared, the validated based aircraft count was 511 aircraft. It is important to note that while 511 aircraft were validated, more aircraft have storage leases at the airport and may not meet the airworthiness requirements to be considered valid based aircraft. For the purpose of this study, the validated 511 based aircraft will be used for the 2023 base year. Historical based aircraft counts are presented in **Table 2.2**.

Table 2.2 | Historical Based Aircraft Counts

Year	No. of Based Aircraft
2013	489
2014	536
2015	530
2016	582
2017	574
2018	586
2019	594
2020	538
2021	538
2022	492
2023	511
CAGR 2013-2023	**0.44%**

Notes:
The 2023 data set is the validated count from basedaircraft.com (accessed August 2023). The *Henderson Executive Airport Master Plan* data were utilized for 2013-2019. The FAA TAF was utilized for 2020-2022.

Sources: FAA TAF, January 2024; FAA National Based Aircraft Inventory Program; Henderson Executive Airport Master Plan, 2022

2.3 FORECASTING ASSUMPTIONS

As presented above, aircraft operations have gradually increased over the last ten years, while based aircraft have generally decreased. The decrease in based aircraft may be due to regional and national aviation trends. Regionally, the number of registered active aircraft in Clark County decreased by almost 200 aircraft from 2017 to 2018. This could be due to a revised inventory which identified unairworthy aircraft and removed them from registrations. Nationally, single engine and multi engine piston aircraft have declined in the national active aircraft fleet due to rising operating and ownership costs. When aircraft do not receive a current annual inspection, they are deemed unairworthy and may be removed from validated based aircraft counts. These changes in activity can also be attributed to factors such as hangar availability, on-airport services, national aviation trends, economic conditions, oil prices, and availability of capital funds. Aviation activity can be affected by many influences on the local,

regional, and national levels, making it virtually impossible to predict year-to-year fluctuations of activity over 20 years with absolute certainty. Therefore, it is important to remember that forecasts are only meant to serve as guidelines and planning must remain flexible enough to respond to a range of unforeseen developments. To account for changes in activity beyond the airport's control, the following assumptions are listed below:

- The airport will continue to serve general aviation activity and will not serve scheduled air carrier activity.
- Socioeconomic data provided by Woods & Poole Economics, Inc. and the Las Vegas Convention and Visitors Authority (LVCVA) are indicative of existing and future conditions at the state and local level.
- VGT will continue to be included in the FAA's NPIAS and will remain eligible to receive grants under the Airport Improvement Program (AIP).
- A capital improvement program will continue to provide the airport with funding for future demand-based development.
- Development adjacent to the airport property will not impact or restrict airport operations.

2.4 PREVIOUS FORECASTS

Consideration is given to any forecasts of aviation demand for the airport that have been completed in the recent past. For VGT, the previous forecasts reviewed are those in the FAA TAF and the *2020 Runway Incursion Mitigation Study* (RIM Study).

Previous based aircraft and operations forecasts by source are shown in **Table 2.3.** On an annual basis, the FAA publishes the TAF for each airport included in the NPIAS. The TAF is a generalized forecast of airport activity used by the FAA primarily for internal planning purposes. It is available to airports and consultants to use as a baseline projection and is an important point of comparison when developing local forecasts. The TAF available at the time of writing was published in January 2024 and is based on the federal fiscal year (October-September). The TAF includes projections through 2043 for aircraft operations and based aircraft. The RIM study forecast utilized 2017 as their base year and forecast out to 2037. Operations and based aircraft beyond 2037 have been extrapolated based on the 20-year growth rate forecasted from 2017 to 2037.

Table 2.3 | Previous Forecasts

Year	TERMINAL AREA FORECAST		2020 RIM STUDY FORECAST	
	No. of Operations	No. of Based Aircraft	No. of Operations	No. of Based Aircraft
2023	169,920	499	184,179	746
2024	208,313	509	185,351	749
2025	208,729	518	186,531	751
2026	209,148	527	186,531	753
2027	209,566	536	188,914	756
2028	209,986	545	192,203	758
2029	210,407	554	193,618	760
2030	210,828	563	195,044	763
2031	211,251	572	196,481	765
2032	211,674	581	197,928	768
2033	212,099	590	201,955	770
2034	212,524	599	203,605	772
2035	212,950	609	205,269	775
2036	213,378	619	206,946	777
2037	213,805	629	208,637	782
2038	214,235	639	209,592	782
2039	214,664	649	211,269	784
2040	215,096	659	212,959	787
2041	215,527	669	214,663	789
2042	215,960	679	216,380	792
2043	216,393	689	218,111	794
CAGR 2023-2043	**1.22%**	**1.63%**	**0.85%**	**0.31%**

Notes:
RIM study operations and based aircraft counts beyond 2037 have been extrapolated.

Sources: FAA TAF, January 2024; 2020 RIM Study

2.5 SOCIOECONOMIC BACKGROUND

The socioeconomic characteristics of an airport's surrounding area can provide valuable information from which to derive an understanding of the dynamics of growth near an airport. This information is crucial in determining aviation demand level requirements, as most aviation demand is directly related to the socioeconomic conditions of the surrounding region. Statistical analysis of population, employment, and income trends outlines the economic strength of a region and can help determine the ability of the area to sustain a strong economy in the future. The geographical area studied for this analysis included the Las Vegas Metropolitan Statistical Area (MSA) and the State of Nevada. The Las Vegas MSA is comprised of Las Vegas, North Las Vegas, Henderson, Paradise, and Boulder City (see **Figure 2.1**).

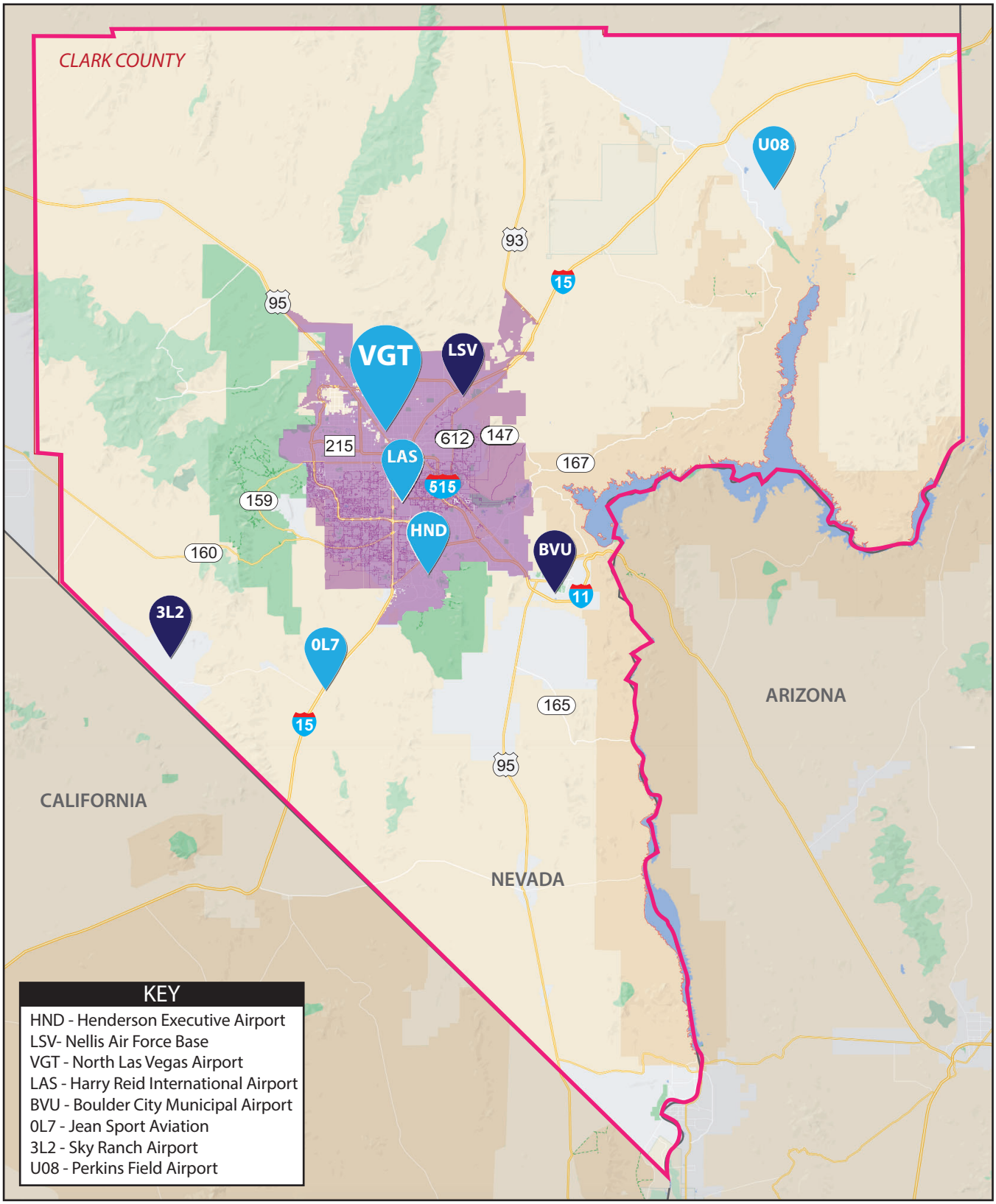


Figure 2.1 -LAS VEGAS METROPOLITAN STATISTICAL AREA MAP

Based aircraft and operations forecasts utilize historical and projected socioeconomic data, as well as other indicators such as visitor and gaming revenue statistics, to project future aviation demand. Socioeconomic data utilized include historical and projected population, employment, and per capita personal income data from Woods and Poole Economics, Inc. Historical visitor and gaming revenue data for Clark County were obtained from the LVCVA.

Historical socioeconomic data from 2013 to 2023 were analyzed to identify possible links to aviation activity at VGT. **Table 2.4** depicts a summary of the historical and projected socioeconomic data for the Las Vegas MSA and State of Nevada. Forecasted visitor volume and gaming revenues were estimated using linear regression from the historical data.

Table 2.4 | Historical and Forecast Socioeconomic Indicators

Year	POPULATION		EMPLOYMENT		PER CAPITA PERSONAL INCOME		CLARK COUNTY	
	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Visitors	Gaming Revenue
Historical								
2013	2,005,429	2,770,175	1,125,627	1,561,387	$38,799	$39,662	39,668,221	$9,674,404,000
2014	2,037,437	2,809,893	1,168,811	1,608,493	$40,977	$41,771	41,126,512	$9,553,864,000
2015	2,077,218	2,857,230	1,216,015	1,664,654	$43,433	$44,490	42,312,216	$9,617,671,000
2016	2,115,503	2,905,986	1,263,381	1,724,745	$44,328	$45,444	42,936,100	$9,713,930,000
2017	2,154,413	2,956,269	1,303,282	1,780,629	$45,979	$47,475	42,214,200	$9,978,503,000
2018	2,195,987	3,012,636	1,355,083	1,848,918	$47,808	$49,661	42,116,800	$10,250,555,000
2019	2,238,778	3,070,422	1,387,818	1,884,215	$50,990	$52,577	42,523,700	$10,355,663,000
2020	2,274,734	3,115,648	1,283,826	1,770,933	$53,530	$55,378	19,031,100	$6,540,595,000
2021	2,295,194	3,146,402	1,368,492	1,875,709	$58,207	$60,167	32,230,600	$11,440,422,000
2022	2,322,985	3,177,772	1,463,960	1,980,834	$61,320	$63,041	38,829,300	$12,786,657,000
2023	2,366,074	3,229,868	1,511,874	2,033,602	$65,285	$66,886	44,766,185	$12,896,235,889
Forecast								
2028	2,589,977	3,499,203	1,706,672	2,257,040	$83,343	$84,821	46,891,577	$13,458,378,335
2033	2,826,300	3,781,062	1,895,744	2,473,936	$105,946	$107,362	49,016,969	$14,866,000,872
2038	3,073,192	4,073,033	2,095,070	2,700,313	$134,771	$136,010	51,142,361	$16,273,623,410
2043	3,332,582	4,377,481	2,305,532	2,937,192	$171,143	$172,040	53,267,753	$17,681,245,947
CAGR								
2013-2023	1.67%	1.55%	2.99%	2.68%	5.34%	5.36%	1.22%	2.92%
2023-2043	1.73%	1.53%	2.13%	1.86%	4.94%	4.84%	0.87%	1.59%

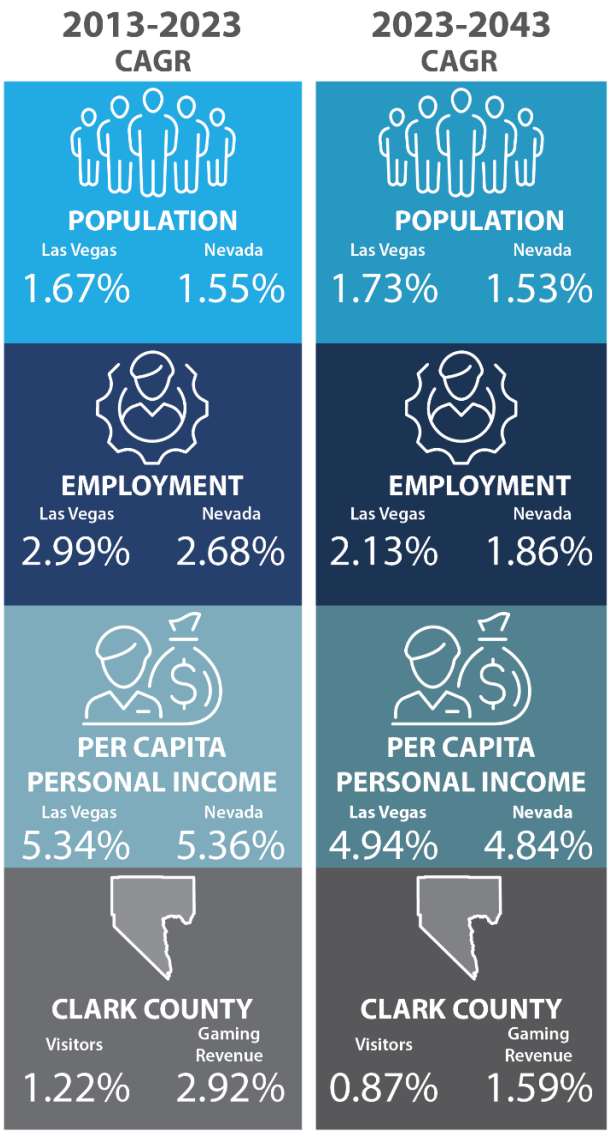
Notes:
CAGR = compound annual growth rate
MSA = Metropolitan Statistical Area
Forecasts of Clark County visitor volume and gaming revenue were developed using linear regression of 2012-2023 data. Data from 2020-2022 were excluded from the regression analysis due to the effects of COVID-19.
All monetary values are presented in 2023 dollars to adjust for inflation.

Sources: Woods and Poole Economics, Inc., 2023; LVCVA

2.5.1 POPULATION

The Las Vegas MSA and the State of Nevada experienced a large population growth for the historical range from 2013 to 2023. The Las Vegas MSA population grew from about 2.01 million residents in 2013 to approximately 2.36 million in 2023, resulting in a 1.67 percent compound annual growth rate (CAGR).

The State of Nevada population grew from about 2.77 million residents in 2013 to approximately 3.23 million in 2023, resulting in a 1.55 percent CAGR. Population is projected to continue to grow over the next 20 years to 3.33 million people in the Las Vegas MSA and 4.37 million people in the State of Nevada by 2043, resulting in CAGRs of 1.73 percent and 1.53 percent, respectively.



2.5.2 EMPLOYMENT

Employment (number of employed persons) in the Las Vegas MSA and State of Nevada also experienced growth, despite the effects of COVID-19. Las Vegas MSA employment grew from about 1.13 million in 2013 to 1.51 million in 2023, resulting in a 2.99 percent CAGR. State of Nevada employment grew from 1.56 million in 2013 to 2.03 million in 2023, resulting in a 2.68 percent CAGR. Employment is projected to grow to 2.3 million for the Las Vegas MSA and 2.94 million in the State of Nevada by 2043, resulting in a CAGR of 2.13 percent and 1.86 percent, respectively.

2.5.3 PER CAPITA PERSONAL INCOME

Per capita personal income (PCPI) is another way to measure the economic growth of an area and provides a broad measure of individual economic well-being. PCPI is a composite measure of market potential and indicates the general ability of persons to purchase products and services (e.g., aircraft ownership or propensity toward corporate travel). PCPI growth over the past 10 years outpaces the other socioeconomic variables considered for this analysis. The Las Vegas MSA PCPI had a CAGR of 5.34 percent, while the State of Nevada had a 5.36 percent CAGR. PCPI measurements for the Las Vegas MSA and the State of Nevada are expected to continue this strong growth through 2043 with CAGRs of 4.94 percent and 4.84 percent, respectively.

2.5.4 VISITOR VOLUME AND GAMING REVENUE

Due to Clark County's unique role as a tourism and gaming destination, historical visitor and gaming revenue data for the county were also analyzed to identify potential links to aviation activity at VGT. Historical data from 2013-2022 were obtained from LVCVA records, while the estimates for 2023 and future projections were calculated using linear regression models to extrapolate the data. Data from 2020 to 2022 were excluded from the regression analysis due to the effects of COVID-19. Annual visitor volume increased from about 39.6 million visitors in 2013 to 44.7 million in 2023, resulting in a CAGR of 1.22 percent. The regression analysis projects approximately 53.2 million visitors by 2043, resulting in a 0.87 percent CAGR.

Gaming revenue also increased from $9.6 billion in 2013 to an estimate of $12.9 billion in 2023, resulting in a 2.92 percent CAGR. The linear regression projection resulted in gaming revenue increasing to $17.6 billion by 2043, a 1.59 percent CAGR.

2.6 BASED AIRCRAFT FORECASTS

Forecasts of based aircraft directly influence the planning and development of hangar space, aircraft parking aprons, taxilanes, and other related facilities. The size and type of based aircraft are also an important consideration, as they impact airfield design standards. The applicable design standards may include separation distances and object clearing surfaces. The addition of numerous small aircraft may have no effect on design standards, while the addition of a few larger business jets can have a substantial impact on design standards.

Due to the numerous variables known to influence aviation demand, several separate forecasts of based aircraft are developed. Each forecast is then examined for reasonableness, and any outliers are discarded or given less weight. The remaining forecasts will collectively create a planning envelope. A single planning forecast is then selected for use in developing facility needs for the airport. The selected forecast of based aircraft can be one of the several forecasts developed, or it can be a blend of the forecasts, based on the experience and judgement of the forecaster.

As previously mentioned, based aircraft are defined by the FAA as aircraft considered airworthy, stored at the airport for the majority of the year, and have a storage agreement with the airport. The FAA-validated based aircraft count for VGT was 511 aircraft at the time this forecast was developed; therefore, 511 aircraft are represented as the base count for 2023. Based aircraft at VGT during the planning horizon from 2023 to 2043 were forecasted using several methodologies, resulting in a recommended methodology and forecast.

2.6.1 BASED AIRCRAFT – SOCIOECONOMIC VARIABLE FORECASTS

Historical and forecast socioeconomic data were provided by Woods & Poole Economics, Inc. and the LVCVA, and were previously discussed in Section 2.5 and depicted in **Table 2.4**. Socioeconomic forecasts for based aircraft projected that the change in the number of based aircraft at VGT beyond 2023 would reflect the projected growth rates observed for population, employment, PCPI, Clark County visitor volume, and Clark County gaming revenue through 2043 within the respective service areas. The projected based aircraft forecasts that applied this socioeconomic variable method are depicted in **Table 2.5**.

Table 2.5 | Based Aircraft – Socioeconomic Variable Forecast

Year	POPULATION		EMPLOYMENT		PER CAPITA PERSONAL INCOME		CLARK COUNTY	
	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Visitors	Gaming Revenue
2023	511	511	511	511	511	511	511	511
2028	557	551	568	560	650	647	534	553
2033	606	595	631	614	827	820	557	598
2038	661	642	701	673	1,053	1,038	582	647
2043	720	693	779	738	1,340	1,314	608	701
CAGR 2023-2043	**1.73%**	**1.53%**	**2.13%**	**1.86%**	**4.94%**	**4.84%**	**0.87%**	**1.59%**

Notes:
CAGR = compound annual growth rate
MSA = metropolitan statistical area
Forecasts of Clark County visitor volume and gaming revenue were developed using linear regression of 2012-2023 data. Data from 2020-2022 were excluded from the regression analysis due to the effects of COVID-19.

Sources: Woods & Poole Economics, Inc., 2023; LVCVA; Coffman Associates analysis

As shown in **Table 2.5**, based aircraft forecasts predicted on socioeconomic projections indicate that based aircraft at VGT may range from 608 to 1,340 by 2043. This range reflects CAGRs of 0.87 percent to 4.94 percent during the planning period.

2.6.2 BASED AIRCRAFT – REGIONAL MARKET SHARE FORECAST

Market share forecasts look at an individual airport's share of a certain aviation component (i.e., based aircraft) within the context of a larger market. A market share analysis for based aircraft was developed using FAA TAF projections of based aircraft at five public-use airports within a 50-mile radius of VGT which serve the Las Vegas Valley: Henderson Executive Airport (HND), Jean Airport (0L7), Boulder City Municipal Airport (BVU), Perkins Field Airport (U08), and Harry Reid International Airport (LAS).

The purpose of examining forecasts of neighboring airport activity is to account for variables that may impact the regional airport system or to identify factors that could affect based aircraft trends at VGT, compared with like airports (e.g., differences in airport facilities, services, rates, etc.). Historical based aircraft from the TAF at these neighboring facilities and VGT's corresponding regional market share are shown are shown in **Table 2.6** and **Figure 2.2**.

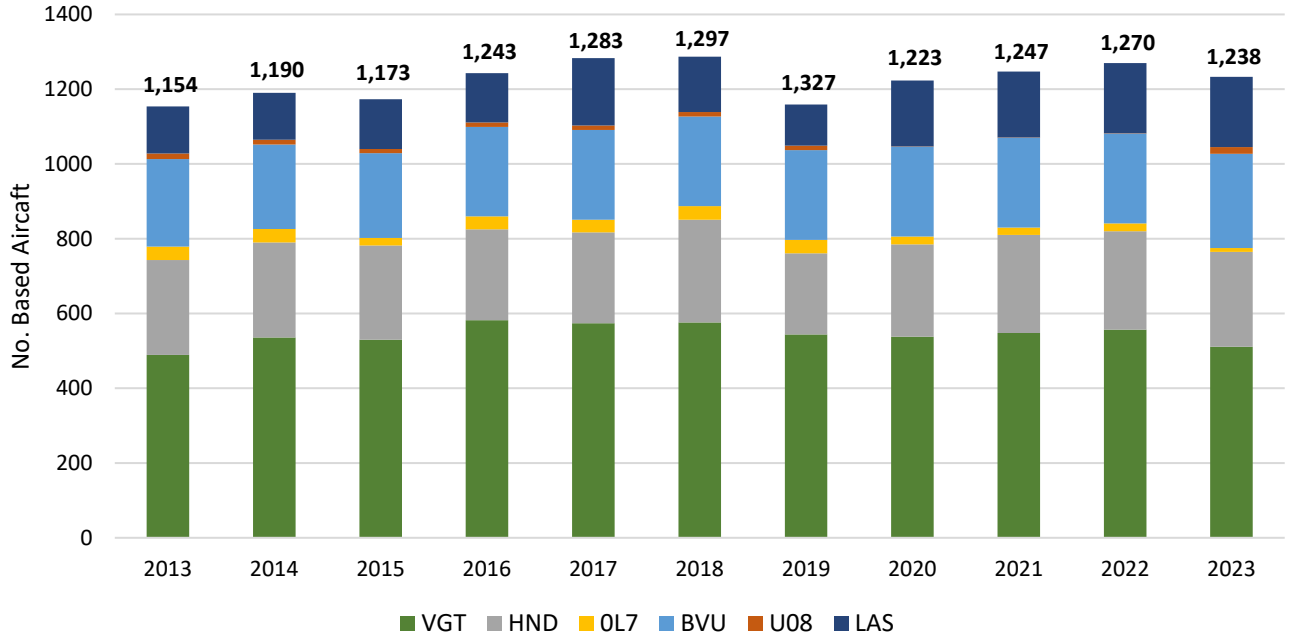
Table 2.6 | Historical Market Share of Based Aircraft

Year	NUMBER OF BASED AIRCRAFT							% North Las Vegas Airport
	North Las Vegas Airport	Henderson Executive Airport	Jean Airport	Boulder City Municipal Airport	Perkins Field Airport	Harry Reid International Airport	Total	
2013	489	254	36	234	15	126	1,154	42.4%
2014	536	254	36	226	13	125	1,190	45.0%
2015	530	252	20	227	11	133	1,173	45.2%
2016	582	243	35	239	12	132	1,243	46.8%
2017	574	243	34	240	12	180	1,283	44.7%
2018	586	244	35	240	12	180	1,297	45.2%
2019	594	266	35	240	12	180	1,327	44.8%
2020	538	247	21	240	1	176	1,223	44.0%
2021	538	262	20	240	1	176	1,247	43.5%
2022	492	263	21	240	1	188	1,270	40.8%
2023	511	254	10	256	19	188	1,238	41.3%
CAGR 2013-2023	**0.44%**	**0.00%**	**-12.02%**	**0.90%**	**2.39%**	**4.08%**	**0.71%**	**–**

Notes:
CAGR = compound annual growth rate
Data for years 2013-2019 were obtained from the 2022 *Henderson Executive Airport Master Plan*. 2023 based aircraft figures for North Las Vegas, Henderson, Jean, and Perkins Field Airports were obtained from the FAA National Based Aircraft Inventory Program; 2020-2022 utilized the FAA TAF; 2023 counts for Boulder City and Harry Reid airports were obtained from FAA Form 5010, *Airport Master Records*.

Sources: FAA TAF, March 2023; FAA National Based Aircraft Inventory Program, accessed August 2023; FAA Form 5010, Airport Master Records, accessed August 2023; Henderson Executive Airport Master Plan, 2022

Figure 2.2 – *Regional Market Share – Historical Based Aircraft*



Sources:
FAA Terminal Area Forecast, March 2023
National Based Aircraft Inventory Program

The FAA TAF forecasts of based aircraft at other airports within the region were used as the basis for analysis of the regional market share forecast. As shown in **Table 2.6**, VGT's regional market share of based aircraft has ranged between 41.3 and 46.8 percent in the past 10 years. Each regional airport included in the analysis has experienced fluctuations in based aircraft since 2013, with periods of rising and falling based aircraft levels. It is difficult to identify specific causes for the fluctuations, but the region reached its peak number of based aircraft in 2019, prior to the COVID-19 pandemic, which may have caused numbers to drop in 2020. Jean Airport is the only airport that has experienced an overall decline in total based aircraft for the 10-year period.

The regional market share forecast of based aircraft included low-, medium-, and high-growth scenarios (see **Table 2.7**). The low-growth scenario assumed that VGT's 2023 market share – 41.3 percent of total based aircraft in the region – would remain constant throughout the planning period. This market share was applied to FAA TAF forecasts of based aircraft at other airports within the region and resulted in 639 based aircraft at VGT by 2043, which resulted in a CAGR of 1.12 percent.

Table 2.7 | Based Aircraft – Regional Market Share Forecast

Year	Regional Based Aircraft	LOW		MEDIUM		HIGH	
		Forecast Based Aircraft	Market Share	Forecast Based Aircraft	Market Share	Forecast Based Aircraft	Market Share
2023	1,238	511	41.3%	511	41.3%	511	41.3%
2028	1,351	557	41.3%	570	42.2%	584	43.2%
2033	1,413	583	41.3%	610	43.2%	638	45.1%
2038	1,479	611	41.3%	653	44.2%	696	47.1%
2043	1,547	639	41.3%	698	45.1%	758	49.0%
CAGR 2023-2043	**1.12%**	**1.12%**	**–**	**1.57%**	**–**	**1.99%**	**–**

Note:
CAGR = compound annual growth rate

Sources: FAA TAF, March 2023; FAA National Based Aircraft Inventory Program, August 2023; Coffman Associates analysis

The high-growth scenario assumed that VGT's market share of regional based aircraft would increase to 49.0 percent by the end of the 20-year planning period, which is viewed as a reasonable possibility if hangar capacity at VGT is expanded to support new tenants, including growth by the airport's flight training schools. VGT's centralized location within the Las Vegas Valley and proximity to downtown Las Vegas make it an attractive airport for corporate/business operators, as well as all manner of GA operators. The high-growth scenario projected 758 based aircraft by 2043, resulting in a 1.99 percent growth rate.

The medium-growth scenario was developed by averaging the 2043 market share percentage from the high- and low-growth scenarios. This resulted in 698 based aircraft projected in 2043 and a CAGR of 1.57 percent.

2.6.3 BASED AIRCRAFT – LINEAR REGRESSION FORECAST

A linear regression analysis can be an effective method to project future activity based on historical variables.

The linear regression method for the based aircraft forecast analyzed historical based aircraft counts from 2013 through 2023. The resulting forecast is shown in **Table 2.8** for informational purposes. The forecast resulted in 574 based aircraft by 2043 and a CAGR of 0.58 percent.

Table 2.8 | Based Aircraft – Linear Regression Forecast

Year	No. of Based Aircraft
Historical	
2013	489
2014	536
2015	530
2016	582
2017	574
2018	586
2019	594
2020	538
2021	548
2022	557
2023	511
Forecast	
2028	556
2033	562
2038	568
2043	574
CAGR 2023-2043	**0.58%**

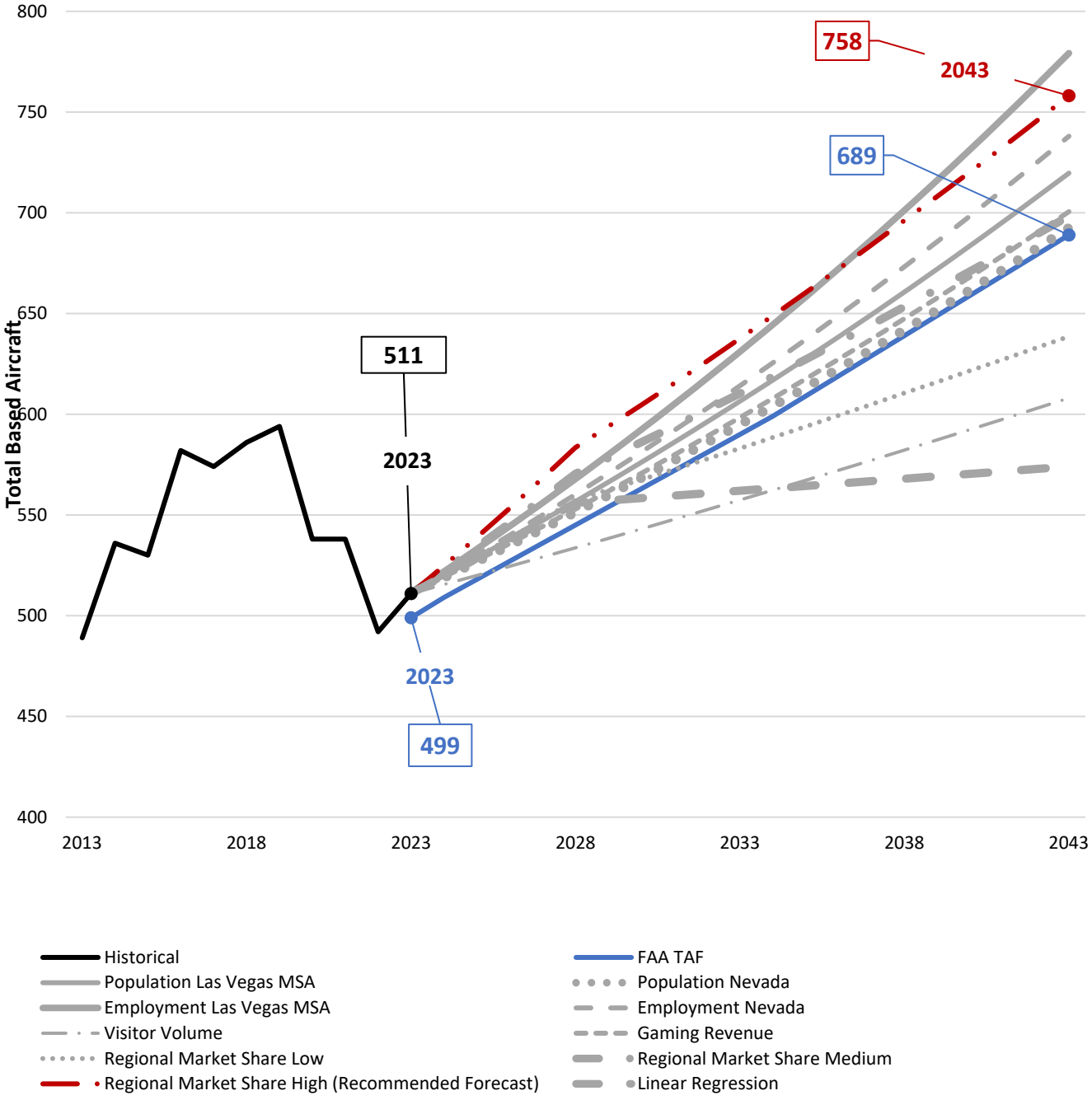
Notes:
CAGR = compound annual growth rate
The 2023 data set is the validated count from basedaircraft.com, accessed August 2023; the *Henderson Executive Airport Master Plan* data were utilized for 2013-2019. The FAA TAF was utilized for 2020-2022.

Sources: FAA TAF, March 2023; FAA National Based Aircraft Inventory Program; Henderson Executive Airport Master Plan, 2022

2.6.4 BASED AIRCRAFT – RECOMMENDED METHODOLOGY

VGT is a hub for flight training, helicopter tours, and personal and business flying in the Las Vegas Valley. These aviation market segments are anticipated to continue to grow as the airport continues to develop and expand its capacity to accommodate more aircraft, including a more diverse fleet mix to include more corporate aircraft. Additionally, the airport has an existing demand for more based aircraft storage needs as evident of the 134 individuals on the hangar waiting list; therefore, the recommended forecast for based aircraft is the regional market share high-growth scenario. In the past 10 years, VGT has reached a regional market share of almost 47 percent, so it is reasonable for a 49 percent market share to be reached in the next 20 years. This forecast projects 758 based aircraft by 2043, reflecting a 1.99 percent CAGR. A summary of the methodologies used to forecast based aircraft is depicted in **Figure 2.3**. The socioeconomic variable forecasts – PCPI for Las Vegas MSA and State of Nevada – are not shown, as they are considered outliers due to the substantial difference from the other forecasts.

Figure 2.3 – *Based Aircraft Forecast Methodology Summary*



Sources:
Woods & Poole Economics, Inc.
Las Vegas Convention and Visitors Authority
FAA Terminal Area Forecast, January 2024
FAA National Based Aircraft Inventory Program
Coffman Associates, 2023

2.6.5 BASED AIRCRAFT – FLEET MIX FORECAST

An airport's fleet mix impacts airport infrastructure, including pavement strength, storage, tie-downs, and parking aprons. Like many general aviation airports, VGT's fleet mix is mainly comprised of single-engine piston (SEP) aircraft. Based on the information received from the National Based Aircraft Inventory Program, reported in July of 2023, VGT had 406 SEP aircraft, 48 multi-engine piston (MEP) aircraft, 18 turboprop (TP) aircraft, 14 jet aircraft, and 25 rotorcraft (HELO).

VGT's fleet mix forecast was developed based on industry trends identified in the FAA Aerospace Forecasts (2023-2043), as well as general assumptions regarding existing and potential future tenants and the types of aircraft they operate. These assumptions incorporated local and national aviation trends which describe growth in corporate turboprop and jet aircraft. Although the national aerospace forecast predicts declines in smaller piston-powered aircraft, VGT is anticipated to continue as a primary flight training hub and therefore will continue to increase its smaller piston aircraft fleet. Additionally, more affordable experimental and light sport aircraft will replace the older piston fleet as they become more expensive to operate and maintain for personal flying.

The existing and forecast based aircraft fleet mix is presented in **Table 2.9** and in **Figure 2.4**. By 2043, SEP aircraft will continue to make up the majority of aircraft based at VGT; however, the representative share of piston aircraft will have decreased slightly, giving way to the anticipated growth in turbine aircraft, like turboprop and jet aircraft. SEP aircraft are projected to increase from 406 to 584 aircraft, representing a 1.84 percent CAGR and a reduction in fleet mix share from 79 percent in 2023 to 77 percent by 2043. MEP aircraft are projected to decrease from 48 in 2023 to 46 by 2043, reducing the fleet mix share from nine percent to six percent. Turboprop aircraft are anticipated to grow from 18 in 2023 to 45 by 2043, representing a 4.69 percent CAGR and an increase in fleet mix share from four percent in 2023 to six percent by 2043. Similarly, jet aircraft are projected to experience growth from 14 based aircraft in 2023 to 38 by 2043, representing a 5.12 percent CAGR and an increase in fleet mix share from three percent in 2023 to five percent by 2043. Rotorcraft are also anticipated to grow from 25 in 2023 to 45 aircraft by 2043, resulting in a 2.98 percent CAGR and a fleet mix share increase from five percent to six percent.

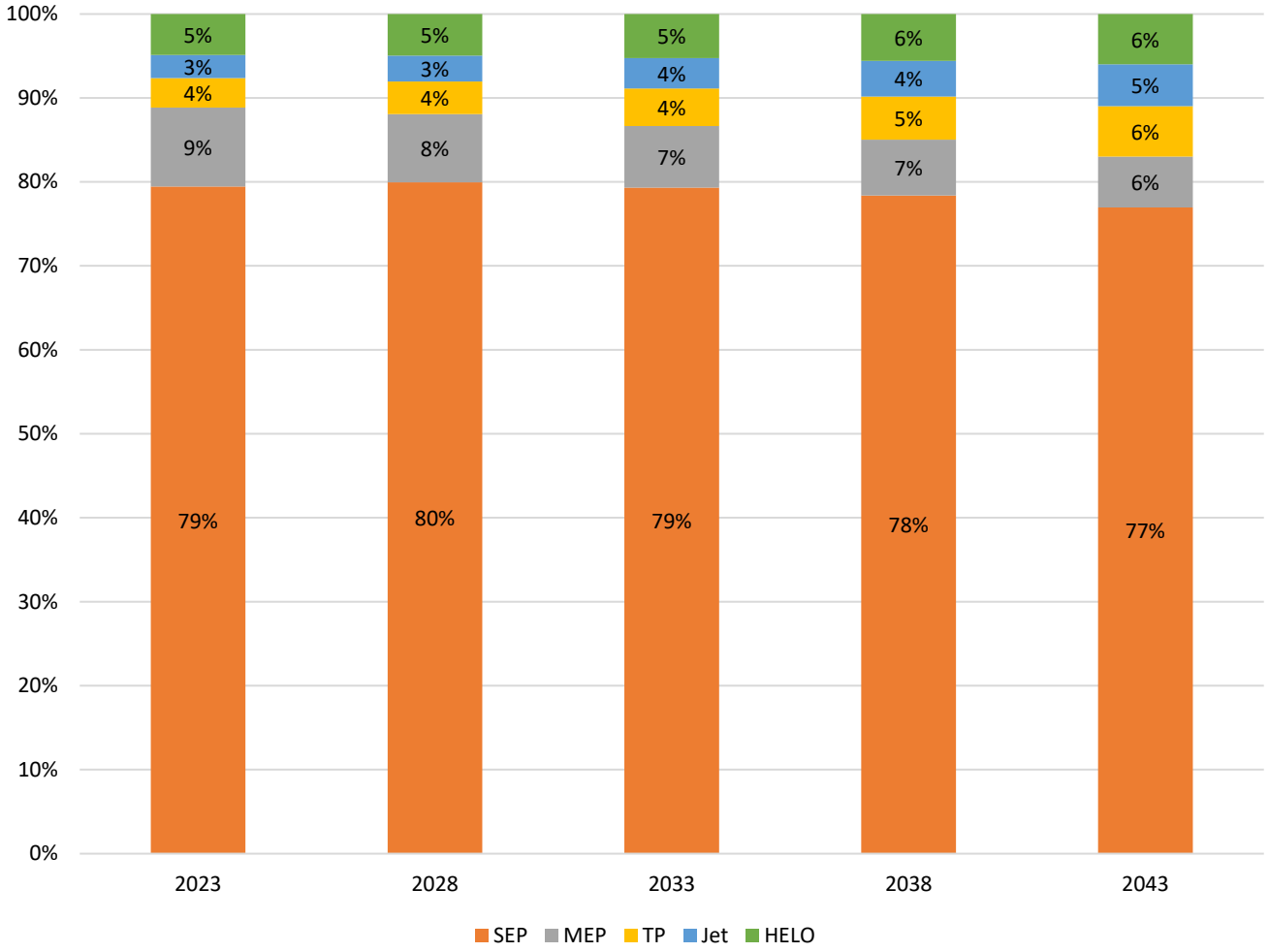
Table 2.9 | Based Aircraft Fleet Mix Forecast

Year	Total	SEP	%	MEP	%	TP	%	Jet	%	HELO	%
2023	511	406	79%	48	9%	18	4%	14	3%	25	5%
2028	584	467	80%	47	8%	23	4%	18	3%	29	5%
2033	638	506	79%	47	7%	28	4%	23	4%	34	5%
2038	696	546	78%	46	7%	36	5%	30	4%	39	6%
2043	758	584	77%	46	6%	45	6%	38	5%	45	6%
CAGR 2023-2043	**1.99%**	**1.84%**	**–**	**-0.21%**	**–**	**4.69%**	**–**	**5.12%**	**–**	**2.98%**	**–**

Notes:
SEP = single-engine piston aircraft
MEP = multi-engine piston aircraft
TP = turboprop aircraft
HELO = rotorcraft
CAGR = compound annual growth rate

Sources: FAA Aerospace Forecast, FY 2023-2043; FAA National Based Aircraft Inventory Program; Coffman Associates analysis

Figure 2.4 – *Based Aircraft Fleet Mix Forecast*



Sources:
FAA Aerospace Forecast, 2023-2043
National Based Aircraft Inventory Program
Coffman Associates, 2023

YEAR	Total	Single-Piston	%	Multi-Piston	%	Turbo-Prop	%	Jet	%	Rotorcraft	%
2023	511	406	79%	48	9%	18	4%	14	3%	25	5%
2028	584	467	80%	47	8%	23	4%	18	3%	29	5%
2033	638	506	79%	47	7%	28	4%	23	4%	34	5%
2038	696	546	78%	46	7%	36	5%	30	4%	39	6%
2043	758	584	77%	46	6%	45	6%	38	5%	45	6%
CAGR (2023-2043)	1.99%	1.84%	-	-0.21%	-	4.69%	-	5.12%	-	2.98%	-

Source: FAA Aerospace Forecast FY 2023-2043; FAA National Based Aircraft Inventory Program; Coffman Associates Analysis

2.7 AIRCRAFT OPERATIONS FORECASTS

Annual aircraft operation forecasts are used to determine funding needs and establish airfield design criteria at airports, as well as to evaluate airfield capacity. There are multiple sources which capture aircraft operations at VGT. Airports with air traffic control towers (ATCTs) manually log takeoff and landing data from local and itinerant aircraft; these data are entered in the FAA's OPSNET database. The CCDOA also utilizes the Motioninfo system, which collects Automatic Dependent Surveillance-Broadcast (ADS-B) information from aircraft operating at and around VGT and the other CCDOA system airports. OPSNET data collection is limited in that it only includes operations data collected during the operating hours of the control tower; therefore, aircraft operations that occur at night while the tower is unattended are not captured. Motioninfo continually collects aircraft data 24/7; however, this data set does not differentiate between general aviation, air taxi, or military operations. As a result, to fully understand the various components of total operations at VGT, the FAA's OPSNET data must be used as the baseline for generating new forecasts.

Annual aircraft operations at VGT are influenced by the number of based aircraft; area socioeconomics; based tenants; local and national economic and aerospace trends; proximity to other airports; and the capability and conditions of the airport facilities. General aviation operations forecasts were developed using several methodologies, including socioeconomic variable comparison, regional market share, and operations per based aircraft. VGT also experiences a minimal amount of military and air taxi operations, which are forecasted later in this section.

2.7.1 GENERAL AVIATION OPERATIONS – SOCIOECONOMIC VARIABLE FORECAST

Forecasts of general aviation operations were developed using the same socioeconomic methodologies utilized for the based aircraft forecasts presented in the previous section. The forecasts used a socioeconomic comparison for population, employment, and PCPI for the Las Vegas MSA and the State of Nevada, as well as Clark County visitor volume and gaming revenue data. Socioeconomic data were previously shown in **Table 2.4** in the based aircraft forecast section. This forecast method assumed that annual general aviation operations would change at the same rate as the socioeconomic indicators. The results of this forecast are shown in **Table 2.10**.

Table 2.10 | General Aviation Operations – Socioeconomic Variable Forecast

Year	POPULATION		EMPLOYMENT		PCPI		CLARK COUNTY	
	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Las Vegas MSA	Nevada	Visitors	Gaming Revenue
2023	150,478	150,478	150,478	150,478	150,478	150,478	150,478	150,478
2028	163,931	162,361	167,219	164,964	191,474	190,567	157,163	162,830
2033	178,587	175,183	185,824	180,845	243,638	241,335	164,146	176,197
2038	194,553	189,018	206,497	198,254	310,015	305,628	171,439	190,660
2043	211,946	203,945	229,471	217,340	394,474	387,050	179,055	206,311
CAGR 2023-2043	**1.73%**	**1.53%**	**2.13%**	**1.86%**	**4.94%**	**4.84%**	**0.87%**	**1.59%**

Notes:
PCPI = per capita personal income
Forecasts of Clark County visitor volume and gaming revenue were developed using linear regression of 2013-2022 data.

Source: FAA OPSNET; Woods & Poole Economics, Inc., 2023; LVCVA; Coffman Associates, 2023

As shown in the table above, this forecast method resulted in a range of 179,055 to 394,474 annual general aviation operations by 2043, resulting in CAGRs ranging from 0.87 percent to 4.94 percent.

2.7.2 GENERAL AVIATION OPERATIONS – REGIONAL MARKET SHARE FORECAST

The regional market share methodology compared VGT's general aviation aircraft operations to general aviation operations at the five public-use airports within a 50-mile radius of VGT. Like the regional market share forecast for based aircraft, this method compared activity at VGT with FAA TAF and OPSNET activity of general aviation operations at regional airports. These data are displayed in **Table 2.11** and **Figure 2.5**.

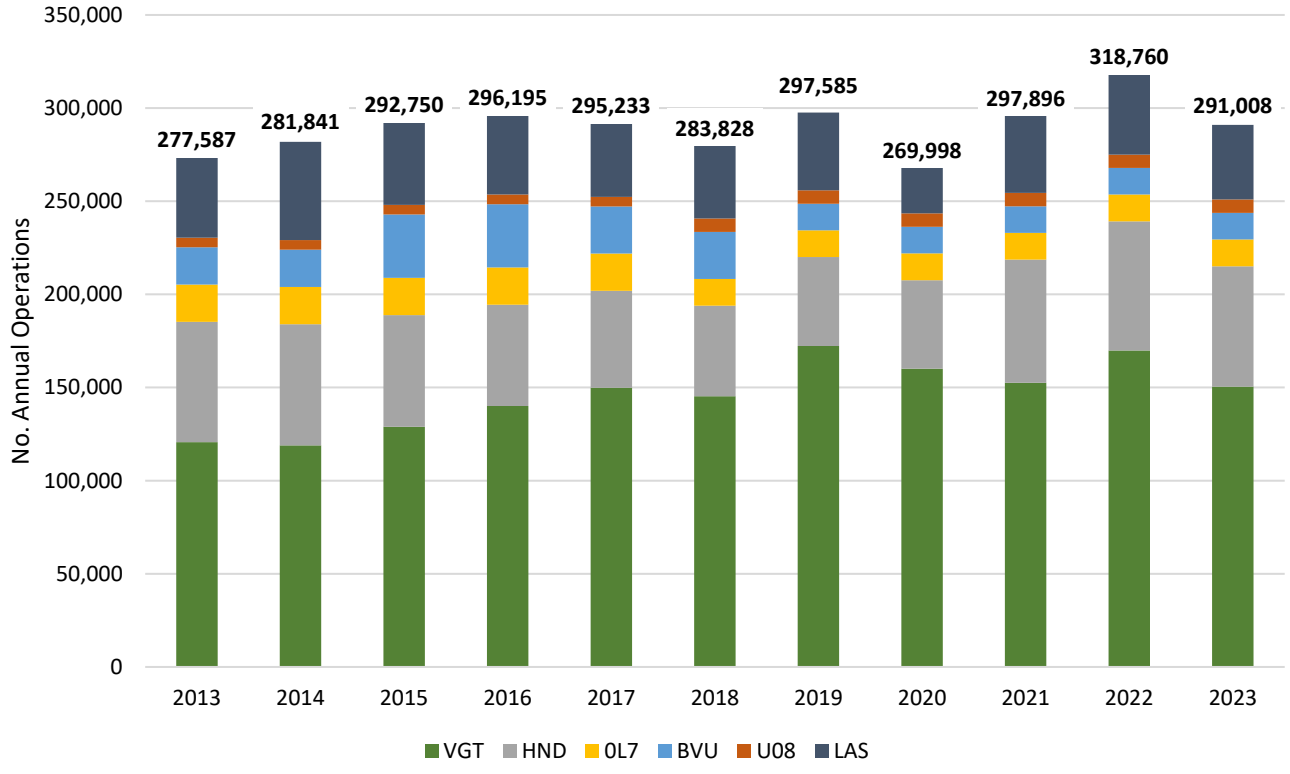
Table 2.11 | Historical Market Share of General Aviation Operations

Year	NUMBER OF ANNUAL GENERAL AVIATION AIRCRAFT OPERATIONS							% North Las Vegas Airport
	North Las Vegas Airport	Henderson Executive Airport	Jean Airport	Boulder City Municipal Airport	Perkins Field Airport	Harry Reid International Airport	Total	
2013	120,697	64,537	20,000	20,000	5,200	47,153	277,587	43.5%
2014	118,920	65,052	20,000	20,000	5,200	52,669	281,841	42.2%
2015	128,877	59,997	20,000	33,970	5,200	44,706	292,750	44.0%
2016	140,031	54,377	20,000	33,970	5,200	42,617	296,195	47.3%
2017	149,869	52,063	20,000	25,210	5,200	42,891	295,233	50.8%
2018	145,286	48,604	14,400	25,210	7,200	43,128	283,828	51.2%
2019	172,257	47,742	14,400	14,260	7,200	41,726	297,585	57.9%
2020	160,041	47,546	14,400	14,260	7,200	26,551	269,998	59.3%
2021	152,498	66,132	14,400	14,260	7,200	43,406	297,896	51.2%
2022	169,862	69,321	14,400	14,260	7,200	43,717	318,760	53.3%
2023	150,478	64,589	14,400	14,260	7,200	40,081	291,008	51.7%
CAGR 2013-2023	**2.23%**	**0.01%**	**-3.23%**	**-3.33%**	**3.31%**	**-1.61%**	**0.47%**	**–**

Notes:
North Las Vegas, Henderson, and Harry Reid 2013-2022 operations data are from FAA OPSNET. 2023 data are the last 12 months of OPSNET operations, ending July 2023. Boulder City, Jean, and Perkins operations data are from FAA TAF records.

Sources: FAA OPSNET; FAA TAF, March 2023; Coffman Associates, 2023

Figure 2.5 – *Historical General Aviation Operations*



Sources:
FAA OPSNET
FAA TAF, March 2023

The regional market share forecasts were developed for general aviation aircraft operations. The low-growth scenario assumed that the airport's market share of 51.7 percent of total general aviation operations in the region would remain constant throughout the planning horizon. This figure was applied to FAA TAF and OPSNET forecasts of general aviation operations at airports within the region and resulted in 212,699 general aviation operations in 2043, which represents a CAGR of 1.75 percent (see **Table 2.12**). The high-growth scenario assumed VGT's market share of regional general aviation operations would increase to 60 percent by the end of the 20-year planning horizon – a return to a historical high market share, which was achieved during 2020. This methodology projected 246,801 general aviation operations by 2043 and a CAGR of 2.50 percent.

Table 2.12 | General Aviation Operations – Regional Market Share Forecast

Year	Regional GA Operations	LOW		MEDIUM		HIGH	
		VGT Operations	VGT Market Share	VGT Operations	VGT Market Share	VGT Operations	VGT Market Share
2023	291,008	150,478	51.7%	150,478	51.7%	150,478	51.7%
2028	346,676	179,263	51.7%	182,856	52.7%	186,449	53.8%
2033	365,802	189,153	51.7%	196,735	53.8%	204,317	55.9%
2038	387,021	200,126	51.7%	212,158	54.8%	224,191	57.9%
2043	411,336	212,699	51.7%	229,750	55.9%	246,801	60.0%
CAGR 2023-2043	**1.75%**	**1.75%**	**–**	**2.14%**	**–**	**2.50%**	**–**

Notes:
CAGR = compound annual growth rate
2023 data are the last 12 months of OPSNET operations, ending July 2023

Source: FAA TAF, March 2023; FAA OPSNET; Coffman Associates analysis

The medium-growth scenario was developed by averaging the product of the high- and low-growth scenarios, which resulted in 229,750 general aviation operations in 2043 and a CAGR of 2.14 percent.

2.7.3 GENERAL AVIATION OPERATIONS – OPERATIONS PER BASED AIRCRAFT FORECAST

Another methodology to forecast general aviation operations used a ratio of operations per based aircraft to estimate future demand. The operations per based aircraft methodology assumed that the ratio of general aviation operations to based aircraft in base year 2023 (294) would remain constant throughout the 20-year forecast horizon (see **Table 2.13**). This ratio was applied to the recommended based aircraft forecast described in the previous section. As shown, this methodology resulted in 222,896 general aviation operations by 2043 and a CAGR of 1.99 percent.

Table 2.13 | General Aviation Operations – Operations per Based Aircraft Forecast

Year	Recommended Forecast – Based Aircraft	General Aviation Operations	Operations per Based Aircraft
2023	511	150,478	294
2028	584	171,554	294
2033	638	187,452	294
2038	696	204,683	294
2043	758	222,896	294
CAGR 2023-2043	**1.99%**		**–**

Note:
CAGR = compound annual growth rate

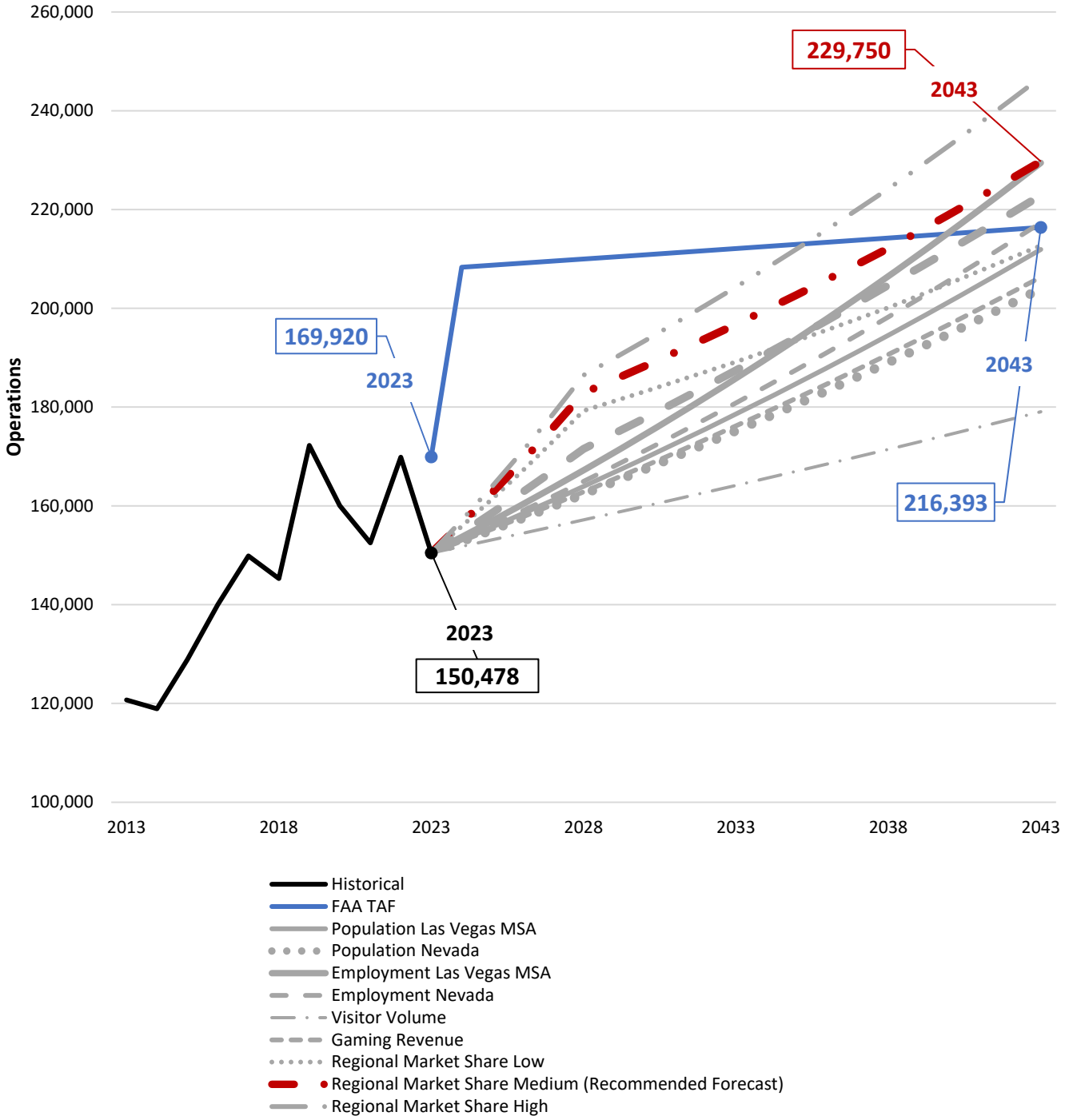
Source: FAA National Based Aircraft Inventory Program; FAA OPSNET; Coffman Associates analysis, 2023

2.7.4 GENERAL AVIATION OPERATIONS – RECOMMENDED METHODOLOGY

General aviation operations at VGT are characterized by fluctuating between rising and falling over the last 10-year period. Flight training activities have experienced a 29 percent increase just in the past five years, and transient general aviation is also increasing, exceeding 6,000 monthly operations during the spring months of 2023 (March through May). These numbers put VGT on pace for one of its busiest years in terms of transient general aviation activity since 2007. The airport has remained a flight training hub and anticipates continuance of that market, especially as the airlines look to replace retiring pilots. Based on discussions with airport management, CCDOA staff, and existing airport tenants, there is strong demand for hangar development and desire for businesses (especially flights schools) to base their business at the airport. Strong economic growth is projected for the Las Vegas Valley, providing more aviation opportunities in terms of based aircraft, increased flight training, and corporate aviation activities.

The various general aviation operations projections resulted in a forecast envelope between 179,055 and 394,474 by 2043 and CAGRs of between 0.87 percent and 4.94 percent. The PCPI projections appear to be outliers, with CAGRs of 4.94 and 4.84 percent, which are well above the other forecasts and exceed what would be considered reasonable based on historical activity. For this reason, the PCPI projections are excluded from the general aviation operations forecast summary in **Figure 2.6**. Over the past 10 years general aviation operations at VGT have grown at a 2.23 percent CAGR. The regional market share – medium-growth scenario, which has a CAGR of 2.14 percent, is nearest this historical rate. Therefore, the regional market share – medium-growth scenario forecast, which projects 229,750 total general aviation operations by 2043, will be used for long-range planning.

Figure 2.6 – *General Aviation Operations Forecast Methodology Summary*



Sources:
Woods & Poole Economics, Inc.
Las Vegas Convention and Visitors Authority
FAA Terminal Area Forecast, January 2024
FAA OPSNET
Coffman Associates, 2023

2.7.5 AIR TAXI OPERATIONS FORECAST

Air taxi operations are those conducted by aircraft operating under Federal Aviation Regulation (FAR) Part 135, otherwise known as "for-hire" or "on-demand" activity. Air taxi operations typically include air tour, air cargo, air ambulance, and fractional ownership operations. Over the past 10 years, air taxi operations reached a peak of 24,125 operations in 2017, when the airport had significant helicopter air tour activities. The COVID-19 pandemic caused air tour operations to significantly decline at VGT from 2020 to 2022; however, the most recent 12 months of activity, ending in July 2023, have seen air taxi operations increase to 12,489. The overall 10-year CAGR for VGT air taxi operations is 2.8 percent.

To develop a forecast of air taxi operations, a market share analysis was conducted comparing air taxi operations at VGT with all airports in the State of Nevada (see **Table 2.14**). The FAA projects air taxi operations in the state to grow at a CAGR of 0.9 percent over the next 20 years, which is below the last 10-year rate of 1.8 percent. Air taxi operations at VGT are on the rise and should continue to outpace growth at the state level. The forecast results in 18,197 air taxi operations at VGT by 2043 at a 1.9 percent CAGR.

Table 2.14 | Air Taxi Operations Forecast

Year	VGT AT Operations	Nevada AT Operations	VGT Market %
2013	9,506	266,266	3.6%
2014	6,791	266,958	2.5%
2015	5,499	260,656	2.1%
2016	17,297	272,333	6.4%
2017	24,125	295,294	8.2%
2018	20,640	283,245	7.3%
2019	19,214	318,118	6.0%
2020	10,130	240,677	4.2%
2021	8,741	280,985	3.1%
2022	9,607	320,226	3.0%
2023	12,489	317,933	3.9%
CAGR 2013-2023	**2.8%**	**1.8%**	**–**
2028	13,721	345,483	4.0%
2033	15,075	355,662	4.2%
2038	16,563	366,366	4.5%
2043	18,197	377,607	4.8%
CAGR 2023-2043	**1.9%**	**0.9%**	**–**

Notes:
AT = air taxi
CAGR = compound annual growth rate
2023 OPSNET data are the last 12 months of operations through July 2023. VGT data combine air taxi and air carrier operations from OPSNET.

Sources: FAA OPSNET; FAA TAF, State of Nevada; Coffman Associates, 2023

2.7.6 MILITARY OPERATIONS FORECAST

VGT experiences limited military operations. Since 2013, military activity has accounted for 1.14 percent of annual operations at VGT. According to the FAA's OPSNET database, VGT experienced 1,662 itinerant and 277 local military operations in 2022. Over the most recent 12-month period, military operations have totaled 1,593 itinerant and 221 local operations for a combined total of 1,814, which is on pace with previous years.

Military operations at public-use airports can be difficult to predict, as military aviation activity is not typically tied to the same drivers that impact general aviation. As such, the FAA's TAF forecast is the preferred methodology for analyzing military operations at VGT. The FAA's TAF projects 1,650 itinerant, 176 local, and 1,826 total military operations annually between 2023 and 2043 (see **Table 2.15**). The following subsections present various forecasts of total operations (general aviation plus military).

Table 2.15 | Military Operations Forecast

Year	Itinerant Military Operations	Local Military Operations	Total Military Operations
2013	829	394	1,223
2014	885	346	1,231
2015	1,079	232	1,311
2016	1,605	497	2,102
2017	2,381	923	3,304
2018	2,192	630	2,822
2019	1,312	431	1,743
2020	1,124	389	1,513
2021	860	525	1,385
2022	1,662	277	1,939
2023	1,593	221	1,814
CAGR 2013-2023	**6.7%**	**-5.6%**	**4.0%**
2028	1,650	176	1,826
2033	1,650	176	1,826
2038	1,650	176	1,826
2043	1,650	176	1,826
CAGR 2023-2043	**0.2%**	**-1.1%**	**0.0%**

Notes:
CAGR = compound annual growth rate
2023 operations reported through July.

Sources: FAA OPSNET; FAA TAF

2.7.7 LOCAL/ITINERANT OPERATIONS FORECAST

Aircraft operations are classified as local or itinerant. Local operations are those conducted by aircraft that remain within a 20-mile radius of an airport and include touch-and-go operations and most training activity. Itinerant operations are performed by aircraft that land at an airport, arriving from outside the airport area, or depart an airport and leave the airport's 20-mile radius prior to their return.

Between 2013 and 2023, the proportion of local operations at VGT remained consistent, only gaining one percent (51 percent in 2013 to 52 percent in 2023). There was significant increase in local operations between 2017 and 2022 due to local pilot training, which increased local operations, and the effects of COVID-19, which decreased itinerant operations. Through the recovery from COVID-19, the ratio has returned to pre-pandemic levels, and the airport will continue to support a wide range of tenants and aviation activity types that generate local and itinerant operations.

As evidenced by the based aircraft fleet mix forecast, non-corporate-type aircraft are projected to maintain a presence at VGT. It is anticipated that the proportion of local operations at the airport will increase linearly from 52 percent of total operations in 2023 to 60 percent by 2043. As shown in **Table 2.16**, the airport is projected to experience 99,884 itinerant operations and 149,827 local operations by 2043.

Table 2.16 | Local/Itinerant Operations Forecast

Year	Total Operations	Local Operations	% Local	Itinerant Operations	% Itinerant
2023	164,781	85,638	52%	79,143	48%
2028	198,404	107,138	54%	91,266	46%
2033	213,637	119,637	56%	94,000	44%
2038	230,547	133,717	58%	96,830	42%
2043	249,773	149,864	60%	99,909	40%
CAGR 2023-2043	**2.10%**	**2.84%**	**–**	**1.17%**	**–**

Notes:
CAGR = compound annual growth rate
2023 OPSNET data are the last 12 months of operations through July 2023.

Source: FAA OPSNET; Coffman Associates analysis

2.7.8 DAYTIME/EVENING OPERATIONS FORECAST

Another component examined for this analysis was forecasts of daytime and evening operations. This is an important element to include in the planning process because noise impacts created by aircraft arriving or departing at night are greater than during the day. The FAA defines nighttime operations as those that are conducted between 10:00 p.m. and 7:00 a.m.

The FAA's TFMSC distributed operational network database creates a summary of traffic by day and hour based on the departure and arrival message times received by the FAA Air Traffic Airspace lab. According to these data, evening operations have represented 6.9 percent of total operations in 2022 and, so far, through July 2023. It is assumed that this figure will remain consistent throughout the projection period and was applied to forecast annual operations (see **Table 2.17**).

Table 2.17 | Daytime/Evening Operations Forecast

Year	Total Operations	Daytime Operations	% Daytime	Evening Operations	% Evening
2023	164,781	153,488	93.1%	11,293	6.9%
2028	198,404	184,807	93.1%	13,597	6.9%
2033	213,637	198,996	93.1%	14,641	6.9%
2038	230,547	214,747	93.1%	15,800	6.9%
2043	249,773	232,655	93.1%	17,118	6.9%
CAGR 2023-2043	**2.1%**	**2.1%**	**–**	**2.1%**	**–**

Notes:
CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected, ending July 2023.

Sources: FAA TFMSC database; Distributed OPSNET; Coffman Associates, 2023

2.7.9 INSTRUMENT OPERATIONS FORECAST

An instrument operation is a takeoff or a landing conducted during IFR conditions, or operations aboard aircraft that enter Class A airspace during a flight (18,000 feet above mean sea level). Aircraft that can operate in Class A airspace are typically commercial or corporate-type turboprops and jets. Instrument operations are reported in the FAA's OPSNET database. Between 2018 and the end of July 2023, the proportion of instrument operations at VGT has averaged approximately 4.4 percent. The forecast applies the five-year average to total operations through 2043. As shown in **Table 2.18**, this methodology projected 10,911 instrument operations by the end of the planning period.

Table 2.18 | Instrument Operations Forecast

Year	Total Operations	Instrument Operations	% Instrument Operations	Visual Operations	% Visual
2018	168,748	9,011	5.3%	159,737	94.7%
2019	193,214	7,998	4.1%	185,216	95.9%
2020	171,684	5,790	3.4%	165,894	96.6%
2021	162,624	8,169	5.0%	154,455	95.0%
2022	181,408	9,198	5.1%	172,210	94.9%
2023	164,781	6,171	3.7%	158,610	96.3%
2028	198,404	8,667	4.4%	189,737	95.6%
2033	213,637	9,332	4.4%	204,305	95.6%
2038	230,547	10,071	4.4%	220,476	95.6%
2043	249,773	10,911	4.4%	238,862	95.6%
CAGR 2023-2043	**2.1%**	**3.0%**	**–**	**2.1%**	**–**

Notes:
CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected, ending July 2023.

Sources: FAA OPSNET; Coffman Associates, 2023

2.7.10 TOUCH-AND-GO OPERATIONS FORECAST

A touch-and-go operation is conducted by an aircraft that lands and departs on a runway without stopping or exiting. This type of operation is typically associated with flight training. Touch-and-go operations forecasts are important to identify because they impact airfield capacity, analysis for which is presented in the subsequent chapter. It is assumed that touch-and-go operations comprise 75 percent of all local operations at VGT. This figure was applied to the total local operations forecast and held constant throughout the projection period. As shown in **Table 2.19**, VGT is anticipated to experience 112,370 touch-and-go operations by 2043.

Table 2.19 | Touch-and-Go Operations Forecast

Year	Total Operations	Local Operations	Touch-and-Go Operations
2023	164,781	85,638	64,229
2028	198,404	107,138	80,354
2033	213,637	119,637	89,728
2038	230,547	133,717	100,288
2043	249,773	149,864	112,398
CAGR 2023-2043	**2.1%**	**2.8%**	**2.8%**

Notes:
CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected, ending July 2023.

Source: VGT ATCT staff; FAA OPSNET; Coffman Associates, 2023

2.7.11 OPERATIONAL FLEET MIX FORECAST

An airport's operational fleet mix impacts design standards, airfield capacity, pavement strength needs, and other facilities, and also informs the development of noise contours. The operational fleet mix for base year 2023 was informed by the FAA's TFMSC database and the based aircraft fleet mix identified by airport staff. Forecast operations by type were primarily reflective of growth rates described for the recommended based aircraft fleet mix forecast. Existing and forecast operations by aircraft class are depicted in **Table 2.20**.

Table 2.20 | Operational Fleet Mix Forecast

Year	Total Operations	SEP	MEP	TP	Small Jet	Medium Jet	Large Jet	HELO
2023	164,781	136,263	15,478	2,803	953	1,213	9	8,062
2028	198,404	164,304	16,119	3,968	1,786	2,381	0	9,846
2033	213,637	175,814	15,688	5,341	2,350	3,205	0	11,239
2038	230,547	187,845	15,313	6,916	2,997	4,611	0	12,865
2043	249,773	199,650	15,155	9,991	3,747	6,244	0	14,986
CAGR 2023-2043	**2.1%**	**1.9%**	**-0.1%**	**6.6%**	**7.1%**	**8.5%**	**–**	**3.1%**

Notes:
SEP = single-engine piston aircraft
MEP = multi-engine piston aircraft
TP = turbo-prop aircraft
HELO = rotorcraft
CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected, ending July 2023.

Sources: FAA TFMSC database; Coffman Associates, 2023

2.8 PEAK OPERATIONS FORECASTS

Forecasts of peak activity (operations) are used to identify airfield capacity issues, itinerant aircraft parking needs, and other facility requirements. Identification of peak periods that occur on a regular basis is essential to ensure that facilities are not underutilized or over-planned. Historically, VGT does not experience significant monthly or seasonal peaking. This is likely due to the high amount of flight training activity that occurs year-round. The spring months are generally the busiest, with operations levels dropping slightly in the summer months and around the holidays later in the year. Due to the high level of flight training activity and the numerous special events hosted in Las Vegas throughout the year, VGT experiences disproportionately high levels of design day and design hour activity.

The periods used in the capacity analysis and facility requirements are as follows:

- **Peak month** – calendar month when peak activity occurs
- **Design day** – representative day that best reflects elevated levels of activity that occur on a regular basis
- **Design hour** – representative hour that best reflects elevated levels of activity that occur on a regular basis

To identify peak month forecasts, monthly operational data for years 2013 through 2023 were obtained from the FAA's OPSNET database. Historically, March, May, and October represent VGT's peak month in terms of operations; however, except for a slight semi-regular decrease in late summer and winter months, there has not been a significant variation in overall activity by month or season.

In 2023, the peak month (October) represented 11.0 percent of annual operations. It was assumed that this figure would increase linearly to 12.0 percent by 2043. Peak month percentages were applied to total forecast annual operations and are depicted in **Table 2.21**.

Table 2.21 | Peak Operations Forecast

Year	Total Operations	Peak Month %	Peak Month Operations	Design Day Operations	Design Hour Operations
2023	164,781	11.0%	18,059	735	60
2028	198,404	11.2%	22,260	816	67
2033	213,637	11.5%	24,525	905	74
2038	230,547	11.7%	27,066	1,004	82
2043	249,773	12.0%	29,973	1,114	91
CAGR 2023-2043	**2.1%**	**–**	**2.6%**	**2.1%**	**2.1%**

Notes:
CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected, ending July 2023.

Sources: FAA OPSNET; FAA TFMSC; Coffman Associates, 2023

Base year 2023 design day activity was determined to be the average of the 25 busiest days that occurred at the airport over the most recent 12-month period, ending July 2023. It was assumed that design day activity would grow commensurate with total operations throughout the 20-year forecast horizon. Base year design hour operations were determined to be the average of the 10 busiest daily average hours during the peak month. It was assumed that design hour operations would increase at the same rate as forecast peak month activity.

YEAR	Total Operations	Peak Month %	Peak Month Operations	Design Day Operations	Design Hour Operations
2023	164,781	11.0%	18,059	735	60
2028	198,404	11.2%	22,260	816	67
2033	213,637	11.5%	24,525	905	74
2038	230,547	11.7%	27,066	1,004	82
2043	249,773	12.0%	29,973	1,114	91
CAGR (2023-2043)	2.1%	-	2.6%	2.1%	2.1%

Source: FAA OPSNET; FAA Traffic Flow Management System Count
Coffman Associates, 2023
Note: CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected ending July of 2023.

2.9 DESIGN AIRCRAFT

The FAA has established airport design criteria and guidance for airport facility planning based on the operational and physical characteristics of aircraft that operate at an airport. These design criteria – as described in FAA Advisory Circular (AC) 150/5300-13B, *Airport Design* – include runway and taxiway dimensions; separation distances between aircraft and various objects; and airspace protection requirements. In support of these requirements, the FAA classifies and groups aircraft with similar approach speeds and sizes into an airport reference code (ARC). Furthermore, each airport has a "critical" or "design" aircraft – as designated by its ARC – that represents the most demanding aircraft or grouping of aircraft with similar characteristics currently using or anticipated to use an airport on a "regular basis," defined as 500 annual operations (excluding touch-and-go operations).

There are two components which comprise the ARC. The first is the aircraft approach category (AAC), which relates to the approach speed of an aircraft, involves grouping aircraft based on final approach speed at the maximum certificated landing weight, and is depicted as a letter (A through E). Approach categories and corresponding approach speed thresholds are depicted in **Table 2.22**.

Table 2.22 | Aircraft Approach Category Criteria

Aircraft Approach Category	Approach Speed
A	Less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

Source: FAA AC 150/5300-13B, Airport Design

The second component of the ARC, represented by a Roman numeral (I through VI), is the airplane design group (ADG), which relates to the physical size of the aircraft, namely its wingspan and tail height. Dimensional standards of aircraft affect airfield geometry design, including separation criteria for runways, taxiways, and aircraft parking areas. ADG categories and corresponding aircraft tail height and wingspan thresholds are depicted in **Table 2.23**.

Table 2.23 | Airplane Design Group Criteria

Airplane Design Group	Aircraft Tail Height (feet)	Aircraft Wingspan (feet)
I	Less than 20'	Less than 49'
II	20' or more but less than 30'	49' or more but less than 79'
III	30' or more but less than 45'	79' or more but less than 118'
IV	45' or more but less than 60'	118' or more but less than 171'
V	60' or more but less than 66'	171' or more but less than 214'
VI	66' or more but less than 80'	214' or more but less than 262'

Source: FAA AC 150/5300-13B, Airport Design

The AAC and ADG collectively identify the ARC, which is used to classify both airports and aircraft. A lower ARC typically represents smaller, slower aircraft used for recreation or training activity. Higher ARCs usually indicate larger commercial or military aircraft. ARC designations in the middle categories usually include turboprops and corporate jets. It should be noted that an airport's ARC is used for planning and design only and does not mean that aircraft outside of the established ARC may not be able to operate safely at an airport.

Historical operational data by ARC were obtained from the FAA's TFMSC database. Data for 2023 showed there were 545 operations conducted by aircraft with an AAC/ADG of C-II, which was the most demanding designation with activity that exceeded the 500-operation threshold. In 2022, AAC C operations also exceeded 500 annual operations and in 2021, AAC C operations totaled 468, just shy of the 500 annual operations threshold. This historic data shows that operations by faster business jets have been increasing significantly at VGT in recent years. Data for the first three months of 2024 has also been included and shows that in just three months, the airport has hosted 492 AAC C aircraft operations. As such, the historical operational activity indicates that the airport's existing ARC is C-II.

To determine the airport's future and ultimate ARC, actual annual historical operations data by ARC from 2013 through 2023 were collected and forecast through 2043 using a growth rate forecast based on historical growth and future fleet mix forecasts. This analysis resulted in strong growth within most categories with the larger business jet categories (C-III, D-II, D-III), in particular. During major events in Las Vegas, such as the Formula 1 race that occurred in November 2023 and the Super Bowl in February 2024,

VGT and all the regional airports reached maximum capacity for handling of business jets. Based on reports from airport staff, if the airport had the capacity to handle more business jets during these events, its true demand for the larger and faster business jets would be much higher. Las Vegas has a three-year agreement to host an annual Formula 1 Las Vegas race (likely to be extended beyond a three-year period) and is likely to be in the regular rotation to host the Super Bowl as well. Negotiations are ongoing to bring major league baseball and professional basketball to Las Vegas, which would bring even more jet traffic to the area. These larger and faster jets are operating on a more frequent basis to Las Vegas regional airports and if improvements are made at VGT to increase its capacity to handle these types of aircraft, the number of operations is likely to continue to grow considerably. As a result, the ultimate ARC for VGT is identified as D-III. Historical and forecast operations by ARC are depicted in **Table 2.24**.

Table 2.24 | Historical and Forecast Operations by Airport Reference Code

Year	B-I	B-II	B-III	C-I	C-II	C-III	D-I	D-II	D-III
Historical									
2019	1,446	1,959	13	163	168	2	0	20	18
2020	881	1,285	4	120	159	8	0	3	9
2021	1,056	2,139	11	202	250	16	1	15	16
2022	1,183	2,263	29	222	283	6	1	8	7
2023	1,258	2,983	51	296	545	73	2	82	42
2024*	287	767	10	107	333	52	0	51	50
Forecast									
2028	1,085	3,957	16	301	870	85	0	97	75
2033	935	5,173	32	305	1,388	129	0	141	104
2038	806	6,764	64	310	2,215	197	0	206	144
2043	695	8,844	128	315	3,535	300	0	300	200

Notes:
*2024 data are comprised of TFMSC data from January through March.
A-I and A-II are not shown as smaller/slower aircraft are unlikely to impact critical design aircraft.
C-IV through C-V and D-IV and above are not shown due to minimal activity at VGT.

Sources: FAA TFMSC; Coffman Associates, 2024

To identify the airport's existing design aircraft, TFMSC data for base year 2023 were examined for operations by aircraft model. Of the 545 operations conducted by ARC C-II aircraft in 2023, 235 operations were conducted by the Challenger 300. As the most frequent C-II aircraft operating at VGT, it is selected to represent that family of aircraft as the current critical aircraft.

Similar to identification of the future ARC, a growth rate forecast was conducted for individual aircraft types with ARCs of C-II and higher that currently operate at the airport, which included the Challenger 300/350, Challenger 600/604, Hawker 800, Global 5000/Express, Gulfstream G450, and Gulfstream G500/G650/G700. The analysis examined operational data from 2013 through 2023 and projected activity through 2043.

Consistent with the operations data by ARC presented in **Table 2.24**, it is projected that cumulative ADG III and AAC D operations will reach 500 annual operations by 2043; therefore, the ARC group D-III is projected to become the ultimate ARC. This ultimate ARC is consistent with the forecasted fleet mix forecast for large jet aircraft and the increase in both national business jet operations as well as regional growth in the Las Vegas Valley that support the growth of business aviation. The FAA national aerospace forecast indicated a 46 percent increase in business jet hours flown over the last year despite the impacts

of the pandemic. Additionally, business jet deliveries have increased by 20.5 percent from 2022 to 2023. The increase in future large business jet operations are further supported by the potential for new professional sports teams in Las Vegas as well as the addition of annual events such as Formula 1 Las Vegas.

It should be noted that operational activity could trigger this change sooner based on existing and potential future tenant demand. Regardless, applicable recommended improvements presented in subsequent portions of this airport master plan were based on an ultimate ARC D-III and Gulfstream G550. A summary of historical and forecasted operations by design aircraft is shown in **Table 2.25**.

Table 2.25 | Historical and Forecast Design Aircraft Operations

Year	Challenger 300/350 (C-II)	Challenger 600/604 (C-II)	Hawker 800 (C-II)	Gulfstream G650/700 (C-III)	Global 5000/ Express (C-III)	Gulfstream G400/G450 (D-II)	Gulfstream G550 (D-III)
Historical							
2019	50	14	12	0	2	20	18
2020	54	12	6	0	8	4	10
2021	74	14	30	4	12	16	18
2022	118	14	18	0	6	6	8
2023	236	40	42	34	40	82	60
Forecast							
2028	422	72	52	56	10	97	75
2033	756	129	65	92	28	141	104
2038	1,357	231	81	152	95	206	144
2043	2,434	414	100	250	207	300	200

Sources: FAA TFMSC; Coffman Associates, 2024

Characteristics of the existing and future design aircraft are presented in **Table 2.26**.

Table 2.26 | Existing and Future Design Aircraft Characteristics

Design Aircraft	2023 Operations	2043 Operations	ARC	TDG	Wingspan (feet)	Tail Height (feet)	Approach Speed (knots)	Typical Seats
Challenger 300 (Existing)	236	2,434	C-II	1B	63.8	20.3	126	8
Gulfstream G550 (Ultimate)	60	200	D-III	2B	93.5	25.8	145	18

Notes:
ARC = airport reference code
TDG = taxiway design group

Sources: FAA TFMSC; FAA Aircraft Characteristics database

2.10 FORECAST SUMMARY

Table 2.27, **Figure 2.7**, and **Figure 2.8** present a summary of recommended forecasts developed in this chapter. As discussed in previous sections, the basis for the selected forecasts is a combination of projected socioeconomic growth for the Las Vegas region; growth in overall aviation activity nationwide; increased demand for flight training activities, which are a key component of VGT operations; and the potential of the airport to expand its facilities and services to accommodate new tenants. The forecasts presented in this chapter are used to inform facility needs presented in Chapter 3, Facility Requirements.

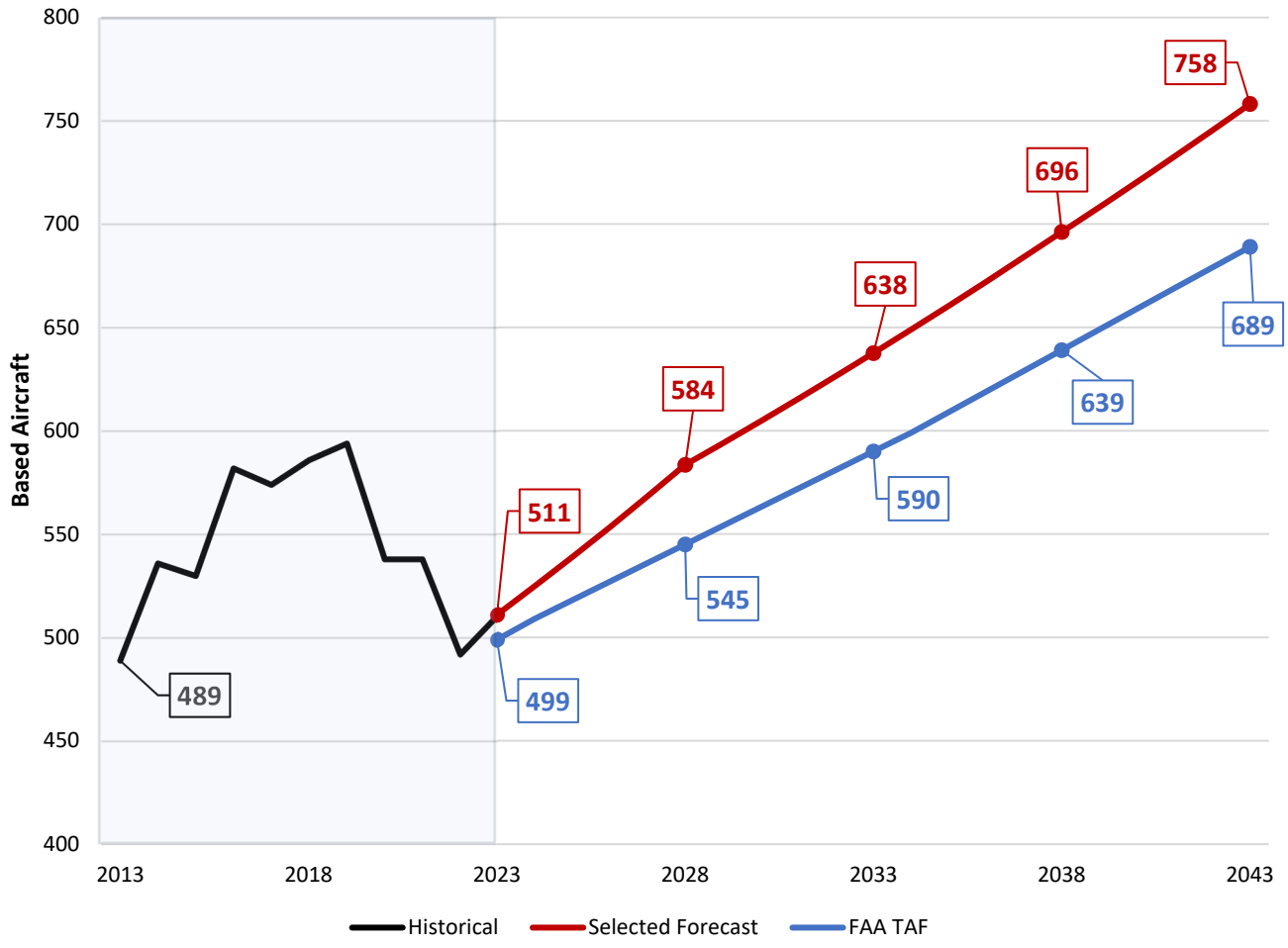
Table 2.27 | Aviation Activity Forecast Summary

Year	General Aviation Operations	Air Taxi Operations	Military Operations	Total Operations	Based Aircraft
2023	150,478	12,489	1,814	**164,781**	511
2028	182,856	13,721	1,826	**198,404**	584
2033	196,735	15,075	1,826	**213,637**	638
2038	212,158	16,563	1,826	**230,547**	696
2043	229,750	18,197	1,826	**249,773**	758
CAGR 2023-2043	**2.1%**	**1.9%**	**0.0%**	**2.1%**	**2.0%**

Note:
CAGR = compound annual growth rate

Sources: FAA OPSNET; FAA National Based Aircraft Inventory Program; Coffman Associates, 2024

Figure 2.7 – *Historical and Forecast Based Aircraft*



Sources:
FAA TAF, January 2024
FAA Based Aircraft Inventory Program
Coffman Associates, 2024

Figure 2.8 – *Historical and Forecast Total Operations*



Sources:
FAA TAF, January 2024
FAA OPSNET
Coffman Associates, 2023

Projections of aviation demand will be influenced by unforeseen factors and events in the future; therefore, it is not reasonable to assume that future demand will follow the exact projection line, but over time, forecasts of aviation demand tend to fall within the planning envelope. The forecasts developed for this master planning effort are considered reasonable for planning purposes. The need for additional facilities will be based upon these forecasts; however, if demand does not materialize as projected, implementation of facility construction can be slower than planned. Likewise, facility construction can be accelerated if demand exceeds these forecasts.

YEAR	General Aviation Operations	Air Taxi Operations	Military Operations	Total Operations	Based Aircraft
2023	150,478	12,489	1,814	164,781	511
2028	182,856	13,721	1,826	198,404	584
2033	196,735	15,075	1,826	213,637	638
2038	212,158	16,563	1,826	230,547	696
2043	229,750	18,197	1,826	249,773	758
CAGR (2023-2043)	2.1%	1.9%	0.0%	2.1%	2.0%

Sources: FAA OPSNET
FAA National Based Aircraft Inventory Program
Coffman Associates, 2023
Note: CAGR = compound annual growth rate

2.11 FEDERAL AVIATION ADMINISTRATION FORECAST REVIEW AND APPROVAL

The FAA Regional Airports Division and District Offices (ADOs) are responsible for review and approval of forecasts developed for most master plans at federally sponsored airports. When reviewing a sponsor's forecast, the FAA must ensure the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate methodologies. Additional discussion on assumptions and methodologies can be found in the FAA Office of Aviation Policy and Plans (APO) report, *Forecasting Aviation Activity by Airport*. After a thorough review of the forecast, the FAA determines if the forecast is consistent with the TAF.

For all classes of airports, forecasts are considered consistent with the TAF if they meet the following criterion: forecasts differ by less than 10 percent in the 5-year forecast period and less than 15 percent in the 10-year forecast period. If the forecast is not consistent with the TAF, differences must be resolved if the forecast is to be used in FAA decision-making. This may involve revisions to the airport sponsor's submitted forecasts, adjustments to the TAF, or both.

The FAA template tables below present a 15-year comparison of recommended forecasts developed in this chapter and forecasts identified in the FAA TAF issued in January 2024 (see **Figure 2.9** and **Figure 2.10**). The tables were obtained from Appendix B and Appendix C of *Forecasting Aviation Activity by Airport*, prepared for the FAA APO's Statistics and Forecast Branch.

As shown in the Appendix C table, forecasts of total aircraft operations and based aircraft presented in this airport master plan satisfy the criteria for approval at the ADO level. Local operations differ greater than 10 percent in the five-year period from the TAF; however, this is due to the TAF showing local operations increasing by over 45 percent in that five-year period, whereas the master plan shows a more gradual growth rate over that period.

Figure 2.9 – *FAA Template for Comparing Airport Planning and TAF Forecasts*

APPENDIX C
Template for Comparing Airport Planning and TAF Forecasts (1)

	Year	VGT Forecast	TAF	VGT/TAF (% Difference)
Based Aircraft				
Base yr.	2023	511	499	2.38%
Base yr. + 5yrs.	2028	584	545	6.83%
Base yr. + 10yrs.	2033	638	590	7.75%
Base yr. + 15yrs.	2038	696	639	8.57%
Itinerant Operations				
Base yr.	2023	79,143	83,321	5.1%
Base yr. + 5yrs.	2028	91,266	84,160	8.1%
Base yr. + 10yrs.	2033	94,000	85,009	10.0%
Base yr. + 15yrs.	2038	96,830	85,869	12.0%
Local Operations				
Base yr.	2023	85,638	86,599	1.1%
Base yr. + 5yrs.	2028	107,138	125,826	16.0%
Base yr. + 10yrs.	2033	119,637	127,090	6.0%
Base yr. + 15yrs.	2038	133,717	128,366	4.1%
Total Operations				
Base yr.	2023	164,781	169,920	3.07%
Base yr. + 5yrs.	2028	198,404	209,986	5.67%
Base yr. + 10yrs.	2033	213,637	212,099	0.72%
Base yr. + 15yrs.	2038	230,547	214,235	7.33%

NOTES: TAF data is on a U.S. Government fiscal year basis (October through September).
(1) Table is developed from Appendix C in the FAA Report, *Forecasting Aviation Activity by Airport*.

Figure 2.10 – *Template for Summarizing and Documenting Airport Planning Forecasts*

APPENDIX B
Template for Summarizing and Documenting Airport Planning Forecasts (1)

AIRPORT NAME: North Las Vegas Airport (VGT)

A. Forecast Levels and Growth Rates

	Base Yr. Level	Base Yr. +5yrs	Base Yr. +10yrs.	Base Yr. +15yrs.	Compound Annual Growth Rates		
	2023	2028	2033	2038	Base yr. to +5	Base yr. to +10	Base yr. to +15
Operations							
Itinerant							
Air Taxi	12,489	13,721	15,075	16,563	1.9%	1.9%	1.9%
General Aviation	65,061	84,114	86,564	89,106	5.3%	2.9%	2.1%
Military	1,593	1,650	1,650	1,650	0.7%	0.4%	0.2%
Local							
General Aviation	85,417	98,743	110,172	123,052	2.9%	2.6%	2.5%
Military	221	176	176	176	-4.5%	-2.3%	-1.5%
TOTAL OPERATIONS	164,781	198,404	213,637	230,547	3.8%	2.6%	2.3%
Instrument Operations	6,171	8,826	9,503	10,256	7.4%	4.4%	3.4%
Peak Hour Operations	60	67	74	82	2.2%	2.1%	2.1%
Based Aircraft							
Single Engine (Nonjet)	406	467	506	546	3.5%	2.5%	2.1%
Multi Engine (Nonjet)	48	47	47	46	-0.3%	-0.3%	-0.3%
Turbo-Prop	18	23	28	36			
Jet Engine	14	18	23	30	6.4%	5.7%	5.5%
Helicopter	25	29	34	39	3.7%	3.3%	3.2%
Other	0	0	0	0	0.0%	0.0%	0.0%
TOTAL	511	584	638	696	3.4%	2.5%	2.2%

B. Operational Factors

	2023	2028	2033	2038
GA operations per based aircraft	170	172	175	179

(1) Table is developed from Appendix B in the FAA Report, *Forecasting Aviation Activity By Airport*.



Chapter 3

Airport Demand and Facility Requirements







Chapter 3
Airport Demand and Facility Requirements

The objective of this chapter is to identify, in general terms, the adequacy of the existing facilities at North Las Vegas Airport (VGT) and outline what facilities may be needed to accommodate future demands. Airport facilities include both runway and airside (hangars, aprons, taxilanes) components. Runway components include the runway system (runways and taxiways), navigational aids, lighting, markings, aprons, and hangars. Landside components include terminal facilities, maintenance facilities, auto parking, surface road access, and support facilities. Having established the facility needs, alternatives for providing these facilities will be evaluated in the following chapter.

3.1 INTRODUCTION

Capacity and demand analyses were completed for airside, landside, and support facilities to evaluate existing infrastructure against forecast demand. These analyses were then used to develop facility requirements for the base year (2023), near-term (2028), mid-term (2033), and long-term (2043) timeframes. These planning milestones will allow the Clark County Department of Aviation (CCDOA) to make informed decisions regarding the timing of development and expansion. While the forecast and facility needs are tied to specific planning years in this airport master plan, the facility needs would need to be adjusted a corresponding amount should actual demand deviate from the forecasts.

A summary of based aircraft and operations forecasts is presented in **Figure 3.1**. Design hour operations reported in Chapter 2 reflect an average of 10 busiest hours experienced during the peak month (October). Peak hour operations forecasts were developed for this chapter to calculate annual service volume. Peak hour operations were calculated based on an average of the peak hours of each day during the peak month, resulting in a peak hour of 122 operations. The growth rate for peak hour operations was assumed to be commensurate with design day operations. The purpose of developing a second peak operations forecast was to provide a more accurate representation of elevated levels of airfield demand that regularly occur on the airfield and more accurately reflect the airfield's actual annual service volume.

Figure 3.1 – *Forecast Summary*

YEAR	Based Aircraft	Annual Operations	Peak Month Operations	Design Day Operations	Design Hour Operations	Peak Hour Operations
2023	511	164,781	18,059	735	60	122
2028	584	198,404	22,260	816	67	135
2033	638	213,637	24,525	905	74	150
2038	696	230,547	27,066	1,004	82	167
2043	758	249,773	29,973	1,114	91	185
CAGR (2023-2043)	2.0%	2.1%	2.6%	2.1%	2.1%	2.1%

Source: FAA OPSNET; Traffic Flow Management System Count
Coffman Associates
Note: CAGR = compound annual growth rate
2023 total operations are represented by the last 12 months of data collected ending July of 2023.

The recommendations in this chapter incorporate forecast operational data from Chapter 2, as well as feedback from airport personnel, tenants, and other stakeholders, which was obtained during technical advisory committee (TAC) and planning advisory committee (PAC) meetings, interviews, and public meetings.

3.2 AIRFIELD DEMAND AND CAPACITY

The analysis presented in this section reflects the airfield's anticipated ability to accommodate forecast levels of demand, as presented in Chapter 2. A detailed capacity analysis was completed as part of the 2020 *North Las Vegas Runway Incursion Mitigation Study* (RIM Study). The RIM Study utilized the Transportation Research Board's (TRB) Airport Cooperative Research Program (ACRP) Project 3-17 (published in 2012), which is an updated model of airfield capacity, compared to the Federal Aviation Administration's (FAA) Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*, which was last updated in 1995. The results of the RIM Study's capacity analysis are summarized below and updated to reflect the forecasts prepared in this master plan.

3.2.1 AIRFIELD CAPACITY

Airfield capacity, also referred to as throughput capacity, is a measure of the maximum number of aircraft operations an airfield can accommodate in a specified time period (i.e., hourly or annually) without incurring substantial delay. As operations or demand approach and potentially exceed the capacity of the airfield, individual aircraft delay will increase.

Airfield capacity evaluation is used in long-range planning to help identify and justify any capacity-related airfield improvements that may be needed over the planning horizon. The analysis also determines the average amount of aircraft delay that could be expected during peak periods of activity. Strategies to mitigate aircraft delay and enhance airfield capacity typically require significant lead time; therefore, it is important to identify potential capacity constraints well in advance of actual needs. The estimated airfield capacity and delay at VGT can be expressed in the following measurements:

- Hourly capacity is the maximum number of aircraft operations the airfield can safely accommodate under continuous demand in a one-hour period.
- Annual service volume is the maximum number of aircraft operations the airfield can accommodate in a one-year period without excessive delay.
- Delay is the time difference between an unconstrained operation (no interference from other aircraft) and the actual amount of time required to conduct an operation. Delay is typically presented in terms of minutes.

Airfield Capacity Analysis

Airfield capacity can be affected with or without physical construction occurring at the airport. Multiple factors impact airfield capacity, including runway configuration and usage, location of exit taxiways, meteorological conditions, percentage of touch-and-go operations, airspace constraints, operational aircraft fleet mix, and others. Based on factors impacting airfield capacity at VGT, application of methodologies and guidance described in ACRP Project 3-17 were used to determine peak hour capacity and annual service volume. Peak hour capacity is determined for both visual flight rule (VFR) and instrument flight rule (IFR) conditions and is a measurement of the maximum number of operations

an airfield can accommodate in a one-hour period. Annual service volume (ASV) reflects total annual operations that an airfield configuration can accommodate (accounting for the identified capacity calculation factors) without incurring significant delay on a regular basis.

The capacity analysis completed for the RIM Study established that the airfield layout can be modeled in north and south flow configurations. In a north flow configuration, Runways 30L/30R and 25 are in use. In a south flow configuration, Runways 12L/12R and 7 are in use. Based on prevailing wind conditions, the north flow configuration is in effect for 40 percent of operations and the south flow configuration is in effect for 60 percent of operations. These assumptions are carried forward as part of the capacity analysis for this master plan.

As summarized in **Table 3.1**, VGT's VFR and IFR hourly capacities are anticipated to increase slightly over the planning period – which is primarily a result of increased total operations levels spread more throughout the day – which dampens peaking period impacts, along with an increasing percentage of touch-and-go operations occurring at VGT. The VFR capacity increases from 166 currently to 188 by 2043, and the IFR capacity increases from 130 to 155. ASV is expected to range between 221,700 and 265,300. Fluctuations in ASV over the course of the planning period can be attributed to changes in the aircraft fleet mix (increasing flight training activity) and changing peaking statistics.

Table 3.1 | Airfield Capacity Summary

Year	VFR Hourly Capacity	IFR Hourly Capacity	Annual Service Volume	VGT Annual Ops	% ASV
2023	166	130	221,700	164,781	74%
2028	181	149	265,300	198,404	75%
2033	183	151	256,900	213,637	83%
2038	186	154	256,500	230,547	90%
2043	188	155	252,700	249,773	99%

Source: ACRP Project 3-17; Coffman Associates

Aircraft Delay

FAA AC 150/5060-5 provides guidance to calculate annual aircraft delay in terms of minutes per aircraft operation. This is an important component because it highlights impacts of potential airfield constraints compared with expected activity and identifies if capacity-enhancing improvements may be needed. Delay is calculated based on the ratio of existing and forecast operations to annual service volume. **Table 3.2** shows the forecast annual operations, expected average aircraft delay (minutes per operation), and total annual aircraft delay (hours). As shown, it is anticipated that VGT will incur approximately 9,991 hours of total aircraft delay by 2043.

Table 3.2 | Annual Service Volume, Capacity, and Annual Aircraft Delay

Year	VGT Annual Operations	Annual Service Volume	Ratio of Operations to Annual Service Volume	Delay per Aircraft Operation (minutes)	Total Annual Delay (hours)
2023	164,781	221,700	74%	0.7	1,922
2028	198,404	265,300	75%	0.7	2,315
2033	213,637	256,900	83%	1.1	3,917
2038	230,547	256,500	90%	1.4	5,379
2043	249,773	252,700	99%	2.4	9,991

Sources: FAA Advisory Circular 150/5060-5, Airport Capacity and Delay; Coffman Associates, 2024

Airfield Demand-Capacity Summary

The FAA recommends that an airport sponsor should begin planning for airfield capacity enhancements (such as additional exit taxiways, additional runways, etc.) when the ratio of annual demand to annual service volume reaches 60 percent, and that implementation of such improvements should occur when the ratio reaches 80 percent. As shown in **Table 3.2**, VGT is already at the 60 percent threshold and will reach the 80 percent threshold between 2033 and 2038. Ultimately, annual operations are forecasted to reach 99 percent of ASV by 2043.

Airfield capacity constraints at VGT and across the entire Clark County system of airports are a known issue to the CCDOA. To address this, the CCDOA has started planning the development of a Southern Nevada Supplemental Airport (SNSA). While the primary purpose of the SNSA is to alleviate commercial aviation congestion at Harry Reid International Airport (LAS), the new airport would also supplement the county airport system's capacity to handle general aviation traffic and could mitigate capacity issues at VGT, to an extent; however, capacity enhancements at VGT will still be necessary and will be considered during the alternatives process. Due to the constrained nature of the airfield, major capacity enhancement projects, such as constructing an additional runway, may not be feasible. Other options – such as adding runway exits and making the taxiway system more efficient, which could enhance ASV by as much as 12 percent – will be explored.

3.3 FAA DESIGN STANDARDS

FAA AC 150/5300-13B defines the applicable airport design standards for North Las Vegas Airport. Some key design standards, along with how they are determined, associated safety areas they affect, and where they apply at an airport, are defined in **Table 3.3**. A graphical representation of where the various design standards apply at VGT is found on **Figure 3.2**.

This page intentionally left blank

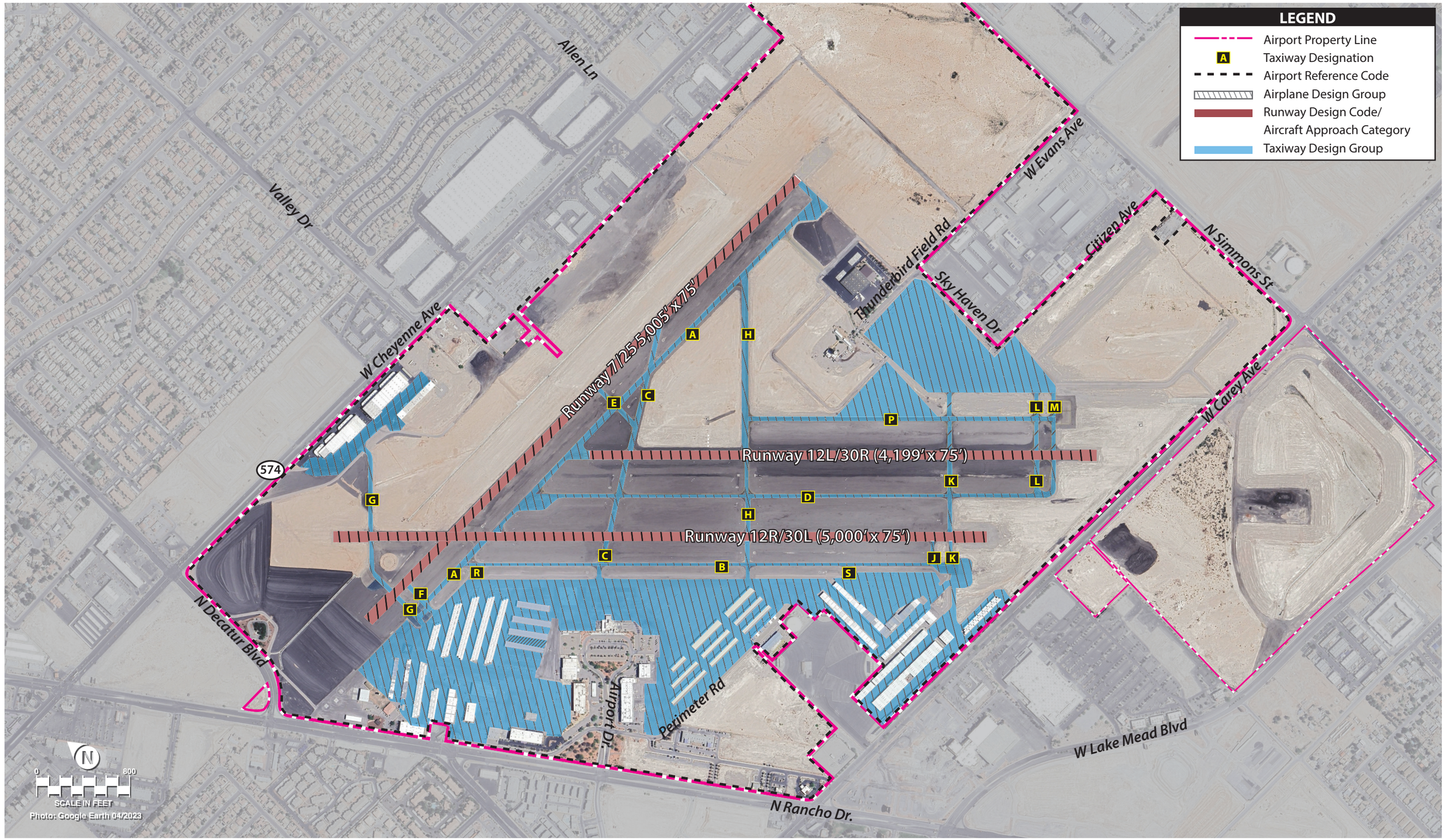


Figure 3.2
APPLICABILITY OF FAA DESIGN STANDARDS

This page intentionally left blank

Table 3.3 | Applicability of FAA Design Standards

FAA Design Standards	Applies To	Applicable Design Standards	Defined By
Airport Reference Code (ARC)	Entire Airport	N/A	Airport's highest RDC (minus the visibility component)
Runway Design Code (RDC)	Runway Environment	• Runway Width • Runway Shoulders • Blast Pad Size • Runway Safety Area • Runway Obstacle Free Zone • Runway Object Free Area • Runway Protection Zone • Hold Line Location • Runway to Parallel Taxiway Separation • Runway to Aircraft Parking Areas	RDC for an individual runway. The RDC is comprised of the aircraft approach category (AAC), airplane design group (ADG), and runway visibility minimums. The runway end with the most restrictive visibility minimums defines the visibility component for the runway.
Aircraft Approach Category (AAC) (included as part of the RDC)	Runway Environment	• Runway Width • Runway Safety Area • Runway Object Free Area • Runway Protection Zone • Runway to Parallel Taxiway Separation	Approach speed
Taxiway Design Group (TDG)	Taxiway Environment Apron Areas	• Taxiway Width Taxiway Edge Safety Margin • Taxiway Shoulder Width • Taxiway/Taxilane Centerline to Parallel Taxiway/Taxilane Centerline	Outer to outer main gear width and cockpit to main gear distance
Airplane Design Group (ADG) (included as part of the RDC)	Runway Environment Taxiway Environment Apron Areas	• Taxiway Safety Area • Taxiway Object Free Area • Taxilane Object Free Area • Taxiway Centerline to Parallel Taxiway/Taxilane Centerline Taxilane Centerline to Parallel Taxilane Centerline • Taxiway Centerline to Fixed or Movable Object • Taxilane Centerline to Fixed or Movable Object • Taxiway Wingtip Clearance • Taxilane Wingtip Clearance	Aircraft wingspan and tail height

Source: FAA AC 150/5300-13B, Airport Design

3.3.1 AIRPORT REFERENCE CODE

An airport's design standards are determined by the most demanding aircraft or grouping of aircraft that conduct or are anticipated to conduct 500 annual operations. This is referred to as the critical design aircraft. As previously noted, **an airport's ARC and critical design aircraft are unrelated to aircraft classifications used for airport capacity determinations.**

The airport reference code (ARC) is composed of two airplane classification systems, the aircraft approach category (AAC) and the airplane design group (ADG). The AAC refers to the approach speed of an aircraft in landing configuration and is depicted by a letter (A through E). The higher the approach speed (operational characteristic), the more restrictive the applicable design standards. The AAC generally applies to runways and runway-related facilities, such as runway width, runway safety area (RSA), runway object free area (ROFA), runway protection zone (RPZ), and separation standards. The ADG, which is depicted by a Roman numeral (I through VI), is a classification of aircraft that relates to aircraft wingspan or tail height (physical characteristics). When the aircraft wingspan and tail height fall in different groups, the higher group (more restrictive) is used. The ADG influences design standards for the taxiway safety area (TSA), taxiway object free area (TOFA), taxilane object free area, apron wingtip clearance, and various separation distances.

VGT's current (2020) airport layout plan (ALP) assigned the Beechcraft King Air 350 as the existing and future critical design aircraft for each runway, which is classified with an ARC of B-II. The ARC and critical design aircraft were reevaluated in Chapter 2 of this master plan. Based on operational data obtained via the FAA's Traffic Flow Management System Counts (TFMSC) database, the existing ARC is within C-II; however, forecasts indicate an ultimate ARC of D-III.

The change in critical design aircraft and associated ARCs is significant for VGT. FAA design standards for C-II and D-III runways are more stringent than the requirements for B-II runways. These changes will be described in more detail in the following sections.

3.3.2 RUNWAY DESIGN CODE

The runway design code (RDC) is a code signifying the specific design standards that apply to each individual runway. The RDC is based on planned development and has no operational component. The RDC is simply the ARC combined with the runway visual range (RVR). The RVR component relates to the available instrument approach visibility minimums, expressed by values in feet of 1,200 (1/8-mile), 1,600 (1/4-mile), 2,400 (1/2-mile), 4,000 (3/4-mile), and 5,000 (1-mile). The RVR values approximate standard visibility minimums for instrument approaches to the runways. A runway designed for visual approaches only will use "VIS" in place of a numerical value for the RVR.

Table 3.4 provides a summary of existing runway design dimensions and separation standards for existing and ultimate RDCs. The FAA issued Draft Change 1 to FAA AC 150/5300-13B on October 31, 2023; the following table and airfield design discussions reflect this draft document.

Table 3.4 | Runway Design and Separation Standards (measurements in feet)

Design Criteria	Runway 12L-30R	Runway 12R-30L	Runway 7-25	Ultimate
	B-II-5000	C-II-5000	B-II-VIS	D-III-4000
RUNWAY DESIGN				
Runway Width	75	75	75	100
Shoulder Width	10[a]	10[a]	10[a]	20
Blast Pad Width	95	95[b]	95	140
Blast Pad Length	150	150	300	200
RUNWAY PROTECTION				
Runway Safety Area (RSA)				
Length Beyond Runway End	300	1,000	300	1,000
Length Prior to Threshold	300	600	300	600
Width	150	500	150	500
Runway Object Free Area (ROFA)				
Length Beyond Runway End	300	1,000	300	1,000
Length Prior to Threshold	300	600	300	600
Width	500	800	500	800
Runway Obstacle Free Zone (ROFZ)				
Length Beyond Runway End	200	200	200	200
Width	400	400	400	400
Approach Runway Protection Zone				
Inner Width	500	500	500	1,000
Outer Width	700	1,010	700	1,510
Length	1,000	1,700	1,000	1,700
Departure Runway Protection Zone				
Inner Width	500	500	500	500
Outer Width	700	1,010	700	1,010
Length	1,000	1,700	1,000	1,700
RUNWAY SEPARATION				
Holding Position	200	250	200	272[c]
Parallel Taxiway Centerline	240	300	240	400

[a] Unpaved shoulders. Paved shoulders are standard for ADG IV and larger runways.
[b] Standard blast pad width is 120 feet.
[c] Standard is 250 feet plus 1 foot per 100 feet of airport elevation above sea level.

Source: Draft FAA AC 150/5300-13B, Airport Design, Change 1

Each runway has previously been planned to meet the same B-II design standards. However, historical operational data reflect that C-II design standards should now be applied to Runway 12R-30L, which is considered the primary runway.

The alternatives analysis will evaluate which parallel runway at VGT is the best candidate for improvement to RDC D-III-4000 standards in the ultimate condition. Crosswind Runway 7-25 is planned to remain a B-II-VIS runway.

3.3.3 TAXIWAY DESIGN GROUP

The TDG is a classification of airplanes based on certain undercarriage dimensions of the aircraft. Both outer-to-outer main gear width (MGW) and cockpit-to-main gear (CMG) distances are used in the classification of an aircraft. The TDG is depicted by an alphanumeric system: 1A, 1B, 2A, 2B, 3, 4, 5, 6, and 7. The taxiway design elements determined by the application of the TDG include the taxiway width, taxiway edge safety margin, taxiway shoulder width, taxiway fillet design and dimensions, and (in some cases) the separation distance between parallel taxiways/taxilanes. Other taxiway elements – such as the taxiway safety area (TSA), taxiway object free area (TOFA), taxiway/taxilane separation to parallel taxiway/taxilanes or fixed or movable objects, and taxiway/taxilane wingtip clearances – are determined solely based on the wingspan (ADG) of the design aircraft utilizing those surfaces. It is appropriate for taxiways to be planned and built to different TDG standards based on expected use.

A review of the FAA's TFMSC data (summarized in **Table 3.5**) shows that TDG 2/2A is the highest TDG to exceed 500 annual operations each year since 2020; therefore, the VGT taxiway system should meet TDG 2/2A design standards in the existing condition. In the ultimate condition, the taxiway system is planned to meet ADG III and TDG 2B design standards to accommodate the Gulfstream G550.

Table 3.5 | Operations by Taxiway Design Group

TDG	2020	2021	2022	2023
1A	2,719	3,806	4,422	5,277
1B	691	1,190	1,410	1,960
2	1,516	2,323	2,814	3,140
2A	1,250	1,807	1,702	2,203
2B	18	36	22	128
3	3	14	31	45
4	0	2	0	5

TDG = taxiway design group

Source: FAA TFMSC Data

Existing and ultimate taxiway and taxilane design standards are summarized in **Table 3.6**. The entirety of the taxiway system at VGT currently meets all ADG II and TDG 2A design requirements. Certain portions of the airside area that are utilized exclusively by small aircraft, such as the T-hangar areas, should adhere to TDG 1A/1B standards.

Table 3.6 | Taxiway/Taxilane Dimensions and Standards (measured in feet)

ADG Standards	ADG I	ADG II	ADG III
TAXIWAY PROTECTION			
Taxiway Safety Area Width	49	79	118
Taxiway Object Free Area Width	89	124	171
Taxilane Object Free Area Width	79	110	158
TAXIWAY SEPARATION			
Taxiway Centerline to:			
Fixed or Movable Object	44.5	62	85.5
Parallel Taxiway/Taxilane	70	101.5	144.5
Taxilane Centerline To:			
Fixed or Movable Object	39.5	55	79
Parallel Taxilane	64	94.5	138
WINGTIP CLEARANCE			
Taxiway Wingtip Clearance	20	22.5	26.5
Taxilane Wingtip Clearance	15	15.5	20
TDG STANDARDS	**TDG 1A/1B**		**TDG 2A/2B**
Taxiway Width Standard	25		35
Taxiway Edge Safety Margin	5		7.5
Taxiway Shoulder Width	10		15

Notes:
ADG = airplane design group
TDG = taxiway design group

Source: FAA AC 150/5300-13B, Airport Design

3.4 AIRSIDE FACILITIES

Airside facilities, as defined in this master plan, include the runway and taxiway system; the runway approach areas; and the associated appurtenances, such as airfield lighting, visual aids, and navigational aids (NAVAIDs). Aircraft parking areas and hangars are also included in this section. The ability of the present runway facilities to accommodate existing and future traffic are examined in the following subsections, as well as the facilities required through the year 2043.

3.4.1 RUNWAY REQUIREMENTS

Applicable design standards were defined in the previous sections of this chapter. This section defines the runway requirements needed to satisfy the forecast demand in terms of runway length, pavement strength, crosswind coverage, and safety areas. Accommodation of these requirements will provide satisfactory facilities for the variety of aircraft expected to use VGT throughout the planning period.

Runway Length Overview

Runway length is one of the most important factors when considering operational efficiency and facility requirements for forecast aviation activity at VGT. As detailed in FAA AC 150/5325-4B, *Runway Length Requirements*, runway length requirements are influenced by multiple factors, including an airport's elevation above mean sea level (MSL), air temperature, runway gradient, runway surface conditions (e.g., dry, wet), and aircraft operating weight. Generally, required takeoff runway length for aircraft increases as the aforementioned factors increase, due to the fact that air is less dense at higher elevations and temperatures. For example, the greater an airport's elevation above MSL, the greater takeoff distance an aircraft will require. Similarly, the required runway length for takeoff will increase as air temperature rises. In both cases, the density altitude is higher, requiring more runway length for aircraft to achieve the lift necessary to safely operate. Since VGT is situated in a warm, desert climate at 2,205 feet above MSL, aircraft will generally require more takeoff runway length than if the same aircraft were operating at an airport located in a cooler climate and/or at a lower elevation.

Although the runway can accommodate a variety of business jets throughout the year, particularly during cooler weather conditions, the existing length significantly limits the potential for most business jet operations during the summer months. Subsequently, some aircraft – including the airport's existing (Challenger 300) and ultimate (Gulfstream G550) critical aircraft – must operate with restrictions to their takeoff weight, due to operational limitations. This is done through either reduced fuel load and/or reduced passenger/cargo capacity. Reductions in fuel load adversely affect the range of aircraft, meaning that an aircraft will need to refuel sooner than its normal range. For example, an aircraft departing from VGT bound for east coast destinations generally will not be able to plan for a non-stop flight because of required weight limitations, which are often achieved through a reduced fuel load; rather, the aircraft will need to plan a stop en route to refuel. This subsequently reduces VGT's marketability for corporate aircraft. The main role of VGT is to serve as a reliever to Harry Reid International Airport (LAS) for these large business jet operations. This role helps minimize delays at LAS and benefits the National Airspace System in reducing overall delays into Southern Nevada.

Because forecasted future demand indicates that VGT should aim to accommodate aircraft operations with ARCs up to and including D-III, the alternatives to follow in the next chapter will include an analysis of possible runway extension alternatives to a minimum of 5,900 feet, which would satisfy takeoff requirements for the existing and ultimate critical aircraft at 60 percent useful load. Longer extensions will also be considered for feasibility to provide even greater utility for larger business jet aircraft.

Runway Length Analysis

There are three methodologies for determining runway length requirements, which are based on the maximum takeoff weight (MTOW) of the critical aircraft or the airplane group for each runway. The airplane group consists of multiple aircraft with similar design characteristics. The three weight classifications are those airplanes with a MTOW of 12,500 pounds or less, those weighing over 12,500 pounds but less than 60,000 pounds, and those weighing 60,000 pounds or more. **Table 3.7** shows these classifications and the appropriate methodology to use in runway length determination.

Table 3.7 | Airplane Weight Classification for Runway Length Requirements

Airplane Weight Category (MTOW)		Design Approach	Methodology
12,500 pounds or less	Approach speeds of less than 30 knots	Family grouping of small airplanes	Chapter 2: para. 203
	Approach speeds of at least 30 knots but less than 50 knots	Family grouping of small airplanes	Chapter 2: para. 204
	Approach speeds of 50 knots or more with fewer than 10 passenger seats	Family grouping of small airplanes	Chapter 2: para. 205, Figure 2-1
	Approach speeds of 50 knots or more with 10 or more passenger seats	Family grouping of small airplanes	Chapter 2: para. 205, Figure 2-2
Over 12,500 pounds but less than 60,000 pounds		Family grouping of large airplanes	Chapter 3: Figures 3-1 or 3-2 and Tables 3-1 or 3-2
60,000 pounds or more, or regional jets		Individual large airplanes	Chapter 4: *Airplane Performance Manuals*

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design

The determination of runway length requirements for the airport is based on five primary factors:

- Mean maximum temperature of the hottest month
- Airport elevation
- Runway gradient
- Critical aircraft type expected to use the runway
- Stage length of the longest non-stop destination (specific to larger aircraft)

The mean maximum daily temperature of the hottest month for VGT is 104.3°F, which occurs in July. The airport elevation is 2,205 feet MSL. The primary runway (12R-30L) has a gradient of 0.84 percent.

Small General Aviation Aircraft (≤12,500 pounds)

Most operations occurring at VGT are conducted using smaller general aviation (GA) aircraft weighing less than 12,500 pounds. Following guidance from AC 150/5325-4B, to accommodate 95 percent of these small aircraft with less than 10 passenger seats, a runway length of 4,200 feet is recommended. For 100 percent of these small aircraft, a runway length of 4,800 feet is recommended. For small aircraft with 10 or more passenger seats, 4,900 feet of runway length is recommended.

Small and Mid-Size Turbine Aircraft (12,500 - 60,000 pounds)

Turbine operations make up a smaller percentage of VGT operations, but this category of activity is projected to experience strong growth over the planning period. Runway length requirements for this classification of aircraft also utilize charts from AC 150/5325-4B and take into consideration the runway gradient and landing length requirements for contaminated (wet) runways. Business jets tend to need greater runway length when landing on a wet surface because of their increased approach speeds. AC 150/5325-4B stipulates that runway length determination for business jets consider a grouping of airplanes with similar operating characteristics. The AC provides two separate family groupings of airplanes, each of which is based on its representative percentage of aircraft in the national fleet. The first grouping is those business jets that make up 75 percent of the national fleet, and the second group is those that make up 100 percent of the national fleet. **Table 3.8** shows example aircraft for both groups.

Table 3.8 | Aircraft Categories for Runway Length Determination

0-75 Percent of the National Fleet	MTOW (pounds)	75-100 Percent of the National Fleet	MTOW (pounds)
Challenger 300	38,850	Lear 55	21,500
Lear 40/45	20,500	Lear 60	23,500
Cessna 550 Citation II	14,100	Hawker 800XP	28,000
Cessna 560XL Excel	20,000	Hawker 1000	31,000
Cessna 650 VII	22,000	Cessna 650 III/IV	22,000
Cessna 680 Sovereign	30,775	Cessna 750 X	35,700
Beechjet 400	15,800	Challenger 604	47,600
Falcon 50	18,500	Falcon 2000	42,800

Notes:
MTOW = maximum takeoff weight

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design

The following is the five-step process for determining the recommended runway length for aircraft with a MTOW between 12,500 pounds and 60,000 pounds.

Step #1: Identify the critical airplane or airplane group.

This runway length analysis assumes that the critical aircraft is a mid-sized business jet that weighs less than 60,000 pounds MTOW. There are more than 500 annual operations by these types of aircraft at VGT. In this case, the appropriate runway length methodology is to examine the general runway length tables from Chapter 3 of AC 150/5325-4B for aircraft weighing between 12,500 pounds and 60,000 pounds.

Step #2: Identify the airplanes or airplane group that will require the longest runway length at maximum certificated takeoff weight (MTOW).

Business jets typically require the longest runway lengths; therefore, the runway length curves in Chapter 3 of AC 150/5325-4B will be examined for future conditions.

Step #3: Determine which of the three methods described in the AC will be used for establishing the runway length.

In consideration of the growing number of business jets, it is necessary to select the specific methodology to use for the business jets. Chapter 3 of the AC groups business jets that weigh over 12,500 pounds but less than 60,000 pounds into the following two categories:

- 75 percent of the fleet
- 100 percent of the fleet

The AC states that the airplanes in the 75 percent of the fleet category generally need 5,000 feet or less of runway at MSL and standard day temperature (59°F), while those in the 100 percent of the fleet category need more than 5,000 feet of runway under the same conditions.

The AC indicates that the airport designer must determine which category to use for runway length determination. VGT experiences significant levels of business jet activity from the full range of the business jet fleet.

There are two runway length curves presented in the AC under the 75-100 percent category:

- 60 percent useful load
- 90 percent useful load

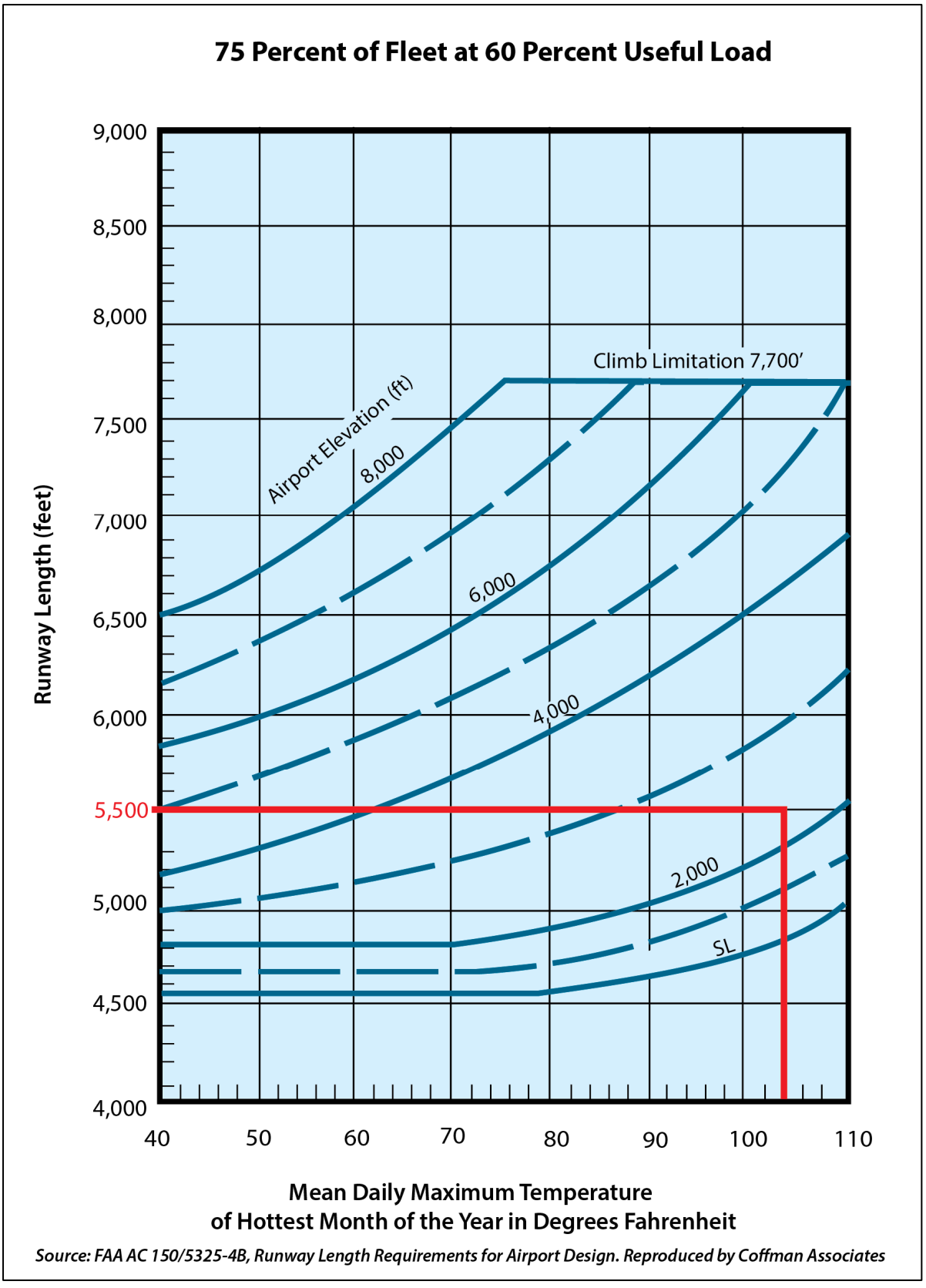
The useful load is the difference between the maximum allowable structural weight and the operating empty weight (OEW). The useful load consists of passengers, cargo, and usable fuel. The determination of which useful load category to use will have a significant impact on the recommended runway length; however, it is inherently difficult to determine because of the variable needs of each aircraft operator. For shorter flights, pilots may take on less fuel; however, pilots may choose to ferry fuel so that they do not have to refuel frequently. Because of the variability in aircraft weights and haul lengths, the 60 percent useful load category is typically considered the default, unless there are specific known operations that would suggest using the 90 percent useful load category. For VGT, there are known long-haul operations that would suggest applying the 90 percent useful load classification. TFMSC data documents city pairs by departing aircraft. An examination of the destinations shows that there were 529 departures from VGT in 2023 to destination airports that are 1,000 miles or more away from VGT. Because of the frequency of long-haul flights to and from VGT, both the 60 and 90 percent useful load categories are included when calculating runway length requirements for business jets weighing between 12,500 and 60,000 pounds.

Step #4: Select the recommended runway length from the appropriate methodology.

The next step is to examine the performance charts (see **Figure 3.3**). These charts require the following inputs:

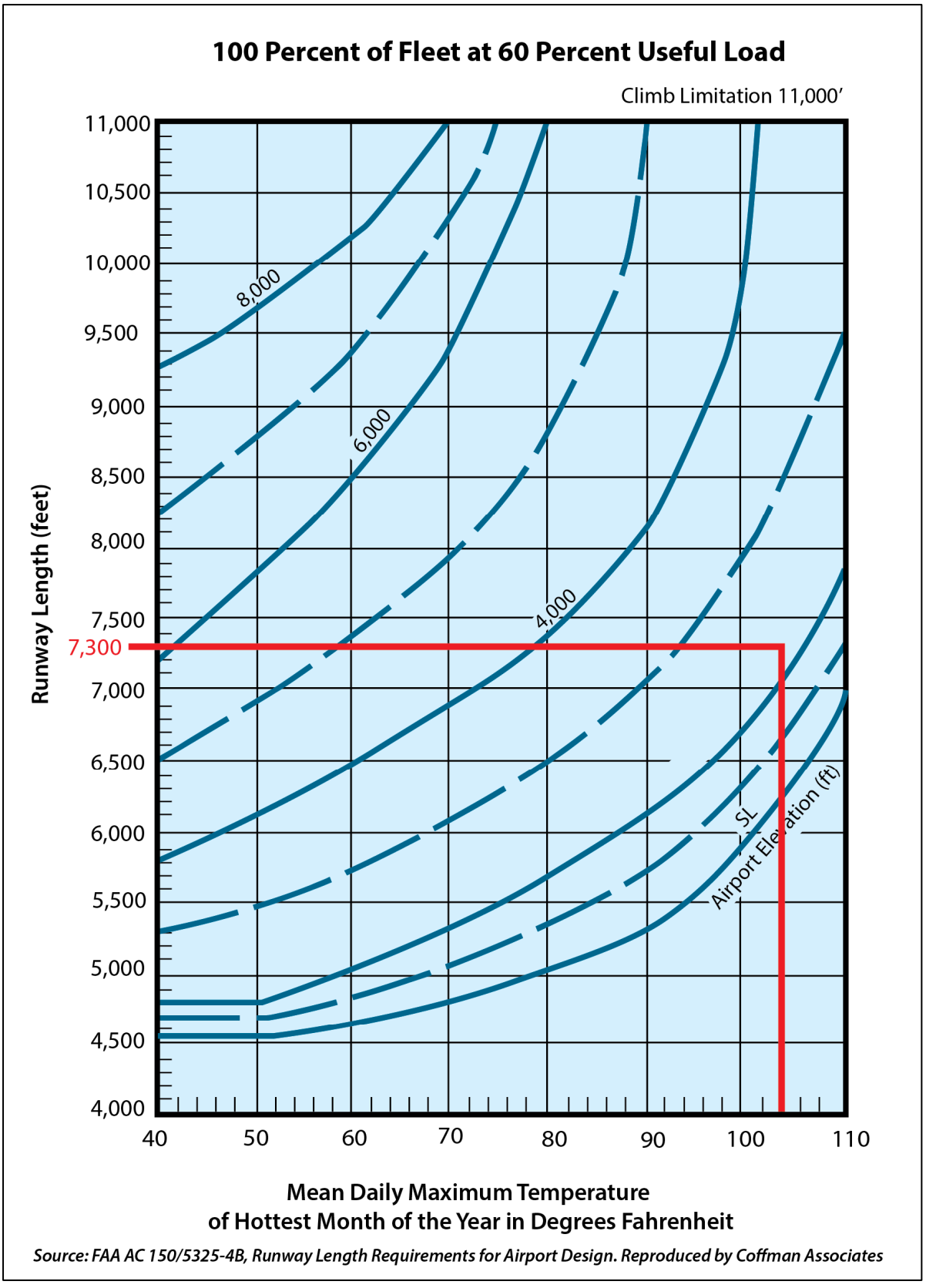
- The mean maximum daily temperature of the hottest month: July at 104.3°F
- The airport elevation: 2,205 feet above MSL

Figure 3.3 – *Business Jet Runway Length Charts*



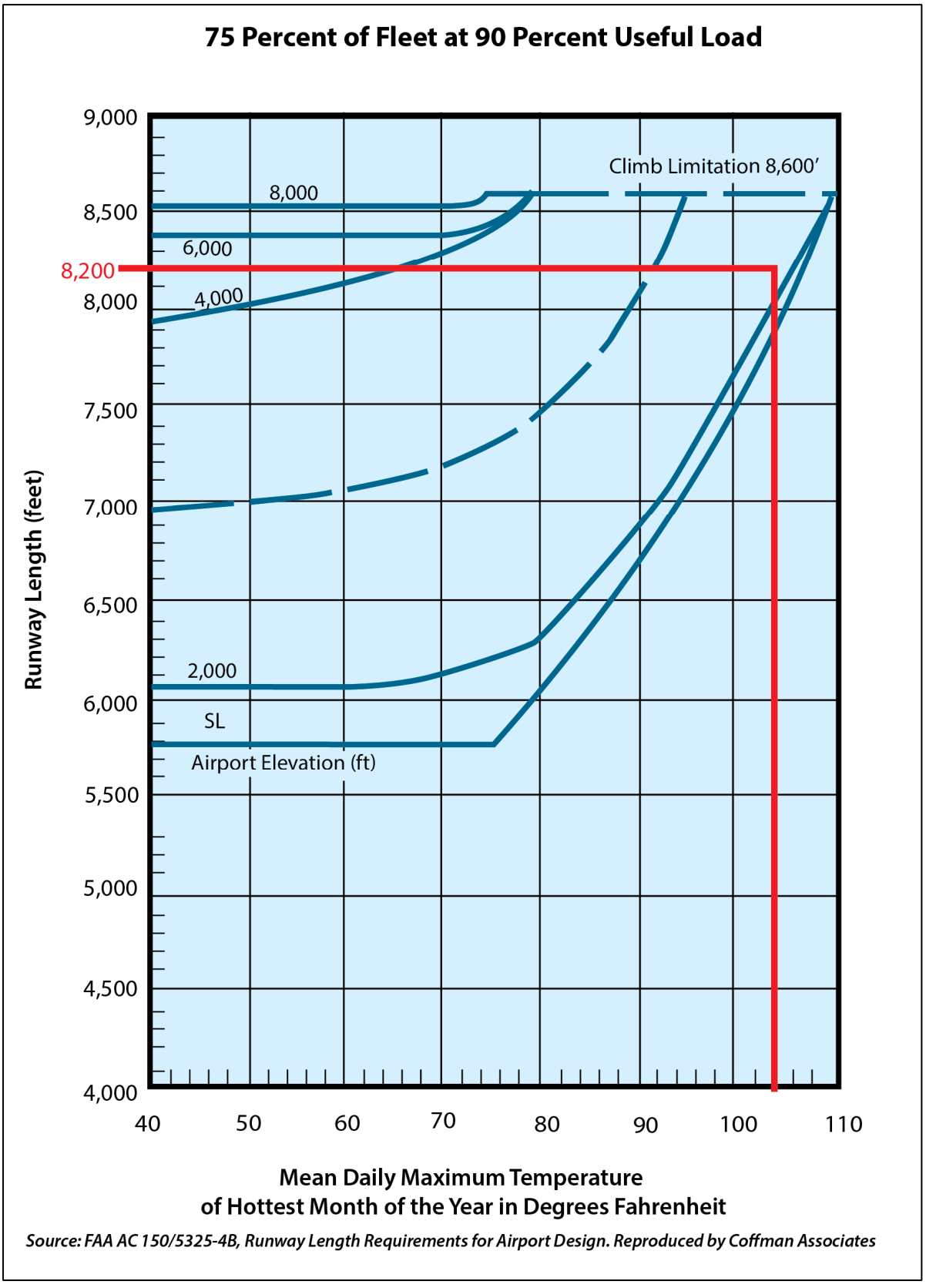
Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design. Reproduced by Coffman Associates

Figure 3.3 – *Business Jet Runway Length Charts (continued)*



Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design. Reproduced by Coffman Associates

Figure 3.3 – *Business Jet Runway Length Charts (continued)*



Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design. Reproduced by Coffman Associates

Due to VGT's elevation and high summertime temperatures, aircraft within the 100 percent of fleet group operating at 90 percent useful load are subject to a climb limitation. This means the aircraft in this group cannot operate at VGT during the hottest periods of the summer at useful loads up to 90 percent; therefore, the runway length chart for that grouping is not included.

Step #5: Apply any necessary adjustments to the obtained runway length.

The raw runway lengths calculated in Step #4 are based on no wind, a dry runway surface, and zero effective runway gradient; therefore, the following criteria are applied:

- Wet runway surface (applies to landing operations only)
- 0.84% effective runway gradient, 42 feet of elevation difference for Runway 12R-30L (applies to takeoff operations only)

To account for a wet/contaminated surface, the runway length obtained from the load performance chart used in Step #4 is increased by 15 percent, or up to 5,000 feet, for the 60 percent category and 7,000 feet for the 90 percent category (whichever is less).

The runway length obtained from Step #4 is also increased at the rate of 10 feet for each foot of elevation difference between the high and low points of the runway centerline. At VGT, this equates to an additional 420 feet of runway length.

Table 3.9 presents the results of the runway length analysis for business jets that weigh between 12,500 and 60,000 pounds, developed following the guidance provided in AC 150/5325-4B. To accommodate 75 percent of the business jet fleet at 60 percent useful load, a runway length of 6,000 feet is recommended. This length is derived from a raw length of 5,500 feet which is adjusted for runway gradient and consideration of landing length needs on a contaminated runway (wet and slippery). To accommodate 100 percent of the business jet fleet at 60 percent useful load, a runway length of 7,800 feet is recommended, and to accommodate 75 percent of the fleet at 90 percent useful load, a runway length of 8,700 feet is recommended.

Table 3.9 | Runway Length Requirements – Aircraft Between 12,500 and 60,000 Pounds

Airport Elevation	2,205' feet above mean sea level			
Average High Monthly Temp.	104.3°F (July)			
Runway Gradient	0.84% Runway 12R-30L (42')			
Fleet Mix Category	**Raw Runway Length from FAA AC**	**Runway Length with Gradient Adjustment**	**Wet Surface Landing Length for Jets (+15%)[1]**	**Final Runway Length[2]**
75% of fleet at 60% useful load	5,500'	5,920'	5,500'	6,000'
100% of fleet at 60% useful load	7,300'	7,720'	5,500'	7,800'
75% of fleet at 90% useful load	8,200'	8,620'	7,000'	8,700'

[1]Max 5,500' for 60% useful load and max 7,000' for 90% useful load in wet conditions
[2]Longest runway need rounded up to nearest hundred

Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design

Supplemental Analysis Undertaken for Typical Business Jets Operating with Local Conditions

Another method to determine runway length requirements for aircraft at VGT is to examine aircraft flight planning manuals under conditions specific to the airport. **Table 3.10** provides a detailed runway length analysis for several of the most common turbine aircraft in the national fleet. These data were obtained from UltraNav software, which computes operational parameters for specific aircraft based on flight manual data. The analysis includes the MTOW allowable and the percent useful load from 60 percent to 100 percent.

The analysis shows that many business jets can only operate at VGT at less than 60 percent useful load during the hottest days of the summer. The existing /ultimate critical aircraft are highlighted in the table. The Challenger 300 (existing critical aircraft) and Gulfstream G550 (ultimate critical aircraft) cannot take off on less than 5,000 feet of runway at 60 percent useful load.

Table 3.10 | Supplemental Business Aircraft Takeoff Length Requirements

		Takeoff Length Requirements (feet)				
		Useful Load				
Aircraft	MTOW	60%	70%	80%	90%	100%
Challenger 300	**38,850**	**5,876**	**6,449**	**7,041**	**7,719**	**8,516**
Challenger 605	48,200	**6,370**	**7,046**	**7,826**	**8,651**	**9,482**
Citation 560 XLS	20,200	4,592	4,999	**5,463**	**6,036**	**C/L**
Citation CJ3	13,870	3,833	4,170	4,641	**5,156**	**5,775**
Citation II (550)	13,300	4,237	4,734	**5,273**	**5,854**	**6,477**
Citation Sovereign	30,300	3,906	4,245	4,622	**5,063**	**5,627**
Citation X	35,700	**6,285**	**6,895**	**C/L**	**C/L**	**C/L**
Falcon 2000	35,800	**6,663**	**7,267**	**7,929**	**8,855**	**C/L**
Falcon 50EX	41,000	**5,618**	**6,249**	**C/L**	**C/L**	**C/L**
Falcon 7X	70,000	**5,570**	**6,252**	**7,067**	**7,929**	**C/L**
Falcon 900EX	49,200	**5,510**	**6,270**	**7,050**	**7,790**	**8,420**
Global 5000	92,500	**5,375**	**5,994**	**6,645**	**7,326**	**C/L**
Global Express	98,000	**5,885**	**6,612**	**7,378**	**C/L**	**C/L**
Gulfstream G280	39,600	**5,481**	**6,128**	**6,908**	**7,798**	**8,760**
Gulfstream G450	74,600	**5,615**	**6,207**	**6,881**	**7,604**	**8,427**
Gulfstream G550	**91,000**	**5,874**	**6,608**	**7,702**	**8,956**	**FLL**
Gulfstream G650	99,600	5,886	6,545	7,276	8,212	C/L
Hawker 4000	39,500	**5,332**	**5,858**	**6,578**	**7,414**	**8,326**
Hawker 800XP	28,000	**5,526**	**C/L**	**C/L**	**C/L**	**C/L**
Hawker 900 XP	28,000	**5,132**	**5,658**	**6,236**	**C/L**	**C/L**
King Air 350	15,000	4,485	4,691	4,888	**5,267**	**5,695**
King Air C90B	10,100	3,384	3,633	3,882	4,160	4,470
Lear 40	21,000	**6,051**	**7,080**	**8,328**	**FLL**	**FLL**
Lear 55	21,500	**7,010**	**FLL**	**FLL**	**FLL**	**FLL**
Lear 60	23,500	**6,917**	**7,620**	**8,534**	**9,702**	**FLL**
Phenom 300	18,551	2,700	3,042	3,500	4,700	**6,715**
Pilatus PC-12	9,921	2,569	2,794	3,031	3,281	3,543

Notes:
Red figures are greater than 5,000 feet (length of the primary runway at VGT).
Runway length calculation assumptions: 2,205' MSL field elevation; 104.3°F ambient temperature; 0.84% runway grade
C/L = climb limited: aircraft cannot maintain required climb gradient
FLL = field length limited: field length is too short; takeoff is rejected at V1
MTOW = maximum takeoff weight
Challenger 300 = existing critical aircraft
Gulfstream G550 = ultimate critical aircraft

Source: UltraNav software

Table 3.11 presents the runway length required for landing under three operational categories: Title 14 Code of Federal Regulations (CFR) Part 25, CFR Part 135, and CFR Part 91k. CFR Part 25 operations are those conducted by individuals or companies that own their aircraft. CFR Part 135 applies to all for-hire charter operations, including most fractional ownership operations. CFR Part 91k includes operations in fractional ownership that utilize their own aircraft under the direction of pilots specifically assigned to said aircraft. Part 91k and Part 135 rules regarding landing operations require operators to land at the destination airport within 60 percent of the effective runway length. An additional rule allows operators to land within 80 percent of the effective runway length if the operator has an approved destination airport analysis in the airport's program operating manual. The landing length analysis conducted accounts for both scenarios.

Table 3.11 | Supplemental Business Aircraft Landing Length Requirements

		LANDING LENGTH REQUIREMENTS (feet)					
		Dry Runway Condition			Wet Runway Condition		
Aircraft Name	MLW	Part 25	80% Rule	60% Rule	Part 25	80% Rule	60% Rule
Citation II (550)	12,700	2,753	3,441	4,588	**6,654**	**8,318**	**11,090**
Citation 560 XLS	18,700	3,917	4,896	**6,528**	**6,198**	**7,748**	**10,330**
Citation X	31,800	4,628	**5,785**	**7,713**	**6,700**	**8,375**	**11,167**
Citation Sovereign	27,100	3,349	4,186	**5,582**	4,400	**5,500**	**7,333**
Citation CJ3	12,750	3,539	4,424	**5,898**	4,859	**6,074**	**8,098**
Challenger 300	**33,750**	**2,727**	**3,409**	**4,545**	**5,228**	**6,535**	**8,713**
Challenger 605	38,000	2,948	3,685	4,913	4,708	**5,885**	**7,847**
Falcon 7X	62,400	3,063	3,829	**5,105**	3,523	4,404	**5,872**
Falcon 900EX	44,500	3,841	4,801	**6,402**	4,417	**5,521**	**7,362**
Falcon 2000	33,000	3,270	4,088	**5,450**	3,760	4,700	**6,267**
Falcon 50 EX	35,715	3,062	3,828	**5,103**	3,522	4,403	**5,870**
Gulfstream G280	32,700	3,401	4,251	**5,668**	3,912	4,890	**6,520**
Gulfstream G450	66,000	3,411	4,264	**5,685**	**6,392**	**7,990**	**10,653**
Gulfstream G550	**75,300**	**2,901**	**3,626**	**4,835**	**5,713**	**7,141**	**9,522**
Gulfstream G650	83,500	4,348	5,435	7,247	5,702	7,128	9,503
Global 5000	78,600	2,776	3,470	4,627	3,192	3,990	**5,320**
Global Express	78,600	2,776	3,470	4,627	3,192	3,990	**5,320**
Hawker 800XP	23,350	2,785	3,481	4,642	4,345	**5,431**	**7,242**
Hawker 900 XP	23,350	2,785	3,481	4,642	4,337	**5,421**	**7,228**
Hawker 4000	33,500	3,621	4,526	**6,035**	4,164	**5,205**	**6,940**
King Air 350	15,000	2,742	3,428	4,570	**No Data**	**No Data**	**No Data**
King Air C90B	9,600	1,351	1,689	2,252	**No Data**	**No Data**	**No Data**
Lear 40	19,200	3,086	3,858	**5,143**	4,027	**5,034**	**6,712**
Lear 55	18,000	3,603	4,504	**6,005**	**5,765**	**7,206**	**9,608**
Lear 60	19,500	3,898	4,873	**6,497**	**5,357**	**6,696**	**8,928**
Phenom 300	17,273	2,800	3,500	4,667	3,220	4,025	**5,367**
Pilatus PC-12	9,921	2,088	2,610	3,480	**No Data**	**No Data**	**No Data**

Notes:
Red figures are greater than 5,000 feet (length of the primary runway at VGT).
Runway length calculation assumptions: 2,205' MSL field elevation; 104.3°F ambient temperature; 0.84% runway grade
MLW = maximum landing weight
No Data = turboprop aircraft landing lengths are not adjusted for wet runway conditions
Challenger 300 = existing critical aircraft
Gulfstream G550 = ultimate critical aircraft

Source: UltraNav software

The landing length analysis shows that most business jets are capable of landing at VGT during dry runway conditions under the 80 percent rule; however, additional length is needed for most business jets during wet runway conditions and to satisfy the 60 percent rule in both dry and wet conditions.

Runway Width

Each runway at VGT is currently 75 feet wide. The RDC B-II-5000 design standard is 75 feet wide, so each runway currently meets this design standard. The RDC C-II-5000 and D-III-4000 design standard is 100 feet wide. The alternatives chapter will present options for widening one of the parallel runways to meet this standard. Runway 7-25 is planned to continue to meet RDC B-II-VIS standards through the planning period and therefore should maintain its current 75-foot width.

Runway Shoulders

Runway shoulders provide resistance to soil erosion, decrease the likelihood of engine ingestion of foreign objects, and accommodate the passage of maintenance and emergency equipment, as well as the occasional passage of aircraft deviating from the runway. Like design standards for runway width, runway shoulder width is determined by the RDC. Paved shoulders are required for ADG IV and higher aircraft and are recommended for ADG III aircraft. Turf, aggregate-turf, soil cement, or lime or bituminous stabilized soil are recommended adjacent to runways accommodating ADG I and ADG II aircraft.

The runway shoulder design standard for each runway at VGT currently is set at 10 feet. Each runway currently meets this standard, with 10 feet of unpaved shoulder available. This design standard increases to 20-foot-wide shoulders in the ultimate RDC D-III-4000 condition. The ultimate condition also recommends paved runway shoulders; therefore, the alternatives will consider adding 20 feet of paved shoulder to one of the parallel runways to meet this ultimate condition. Runway 7-25 should continue to meet the 10-foot-wide unpaved shoulder standard.

Runway Blast Pads

Blast pads are paved surfaces adjacent to the ends of runways that provide erosion protection from jet blast and propeller wash. According to the FAA, blast pads must always be paved; must extend across the full width of the runway plus the shoulders; and must be able to support the occasional passage of the most demanding aircraft, as well as maintenance and emergency response vehicles. Blast pad dimensions are detailed in FAA AC 150/5300-13B and are determined by the RDC of the critical design aircraft ARC.

The parallel runways at VGT are equipped with blast pads measuring 150 feet long and 95 feet wide, which meets the RDC B-II-5000 design standard. RDC C-II-5000 design standards require blast pads to be 120 feet wide. In the ultimate RDC D-III-4000 condition, the blast pad width requirement increases to 140 feet and the length requirement extends to 200 feet. The alternatives analysis will consider applying the ultimate design standard to one of the parallel runways.

Runway 7-25 also has blast pads measuring 95 feet wide and extending 300 feet long, which is twice as long as the standard. The existing blast pads are planned to be maintained through the planning period.

Runway Orientation

A runway's designation is based on its magnetic headings, which are determined by the magnetic declination for the area. The magnetic declination in the area of VGT is 11° 9'E. The parallel runways are oriented northeast-southwest and have true headings of 134°/314°. Adjusting for the magnetic declination, the current magnetic headings of the parallel runways are 133.85° and 302.85°. As such, the current designation for the parallel runways at VGT is appropriate and is not anticipated to change throughout the planning period.

Runway 7-25 is the crosswind runway at VGT and is oriented east-west with a true heading of 88°/268°. Adjusting for magnetic declination, the current magnetic heading of the runway is 76.85°/256.85°; therefore, the designation for this crosswind runway should be changed to Runway 8-26.

According to FAA Order 5100.38D, *Airport Improvement Handbook*, only one runway at any NPIAS airport is eligible for ongoing maintenance and rehabilitation funding, unless the FAA Airports District Office (ADO) has made a specific determination that a crosswind or secondary runway is justified. A runway that is not a primary runway, crosswind runway, or secondary runway is an *additional* runway, which is not eligible for FAA funding. It is not unusual for a two-runway airport to have a primary runway and an additional runway, and no crosswind or secondary runway. **Table 3.12** presents the eligibility requirements for runway types.

Table 3.12 | Runway Eligibility

The following runway type…	Must meet all of the following criteria…	And is…
Primary Runway	1. A single runway at an airport is eligible for development consistent with FAA design and engineering standards.	Eligible
Crosswind Runway	1. The wind coverage on the primary runway is less than 95%.	Eligible if justified
Secondary Runway	1. There is more than one runway at the airport. 2. The non-primary runway is not a crosswind runway. 3. Either of the following: a) The primary runway is operating at 60% or more of its annual capacity. b) The FAA has made a specific determination that the runway is required.	Eligible if justified
Additional Runway	1. There is more than one runway at the airport. 2. The non-primary runway is not a crosswind runway. 3. The non-primary runway is not a secondary runway.	Ineligible

Source: FAA Order 5100.38D, AIP Handbook

FAA AC 150/5300-13B recommends a crosswind runway when the primary runway orientation provides for less than 95 percent wind coverage for specific crosswind components. The 95 percent wind coverage is computed based on wind not exceeding a 10.5-knot (12 miles per hour [mph]) component for runway design code (RDC) A-I and B-I; 13-knot (15 mph) component for RDC A-II and B-II; 16-knot (18 mph) component for RDC A-III, B-III, C-I through C-III, and D-I through D-III; and 20-knot component for wider wingspans.

It is preferable to analyze weather data that is local to the airport being studied. The automated surface observing system (ASOS) weather sensor currently located at VGT is connected to the National Oceanic and Atmospheric Administration (NOAA) and its data are therefore available for analysis.

According to FAA guidelines, the most recent 10 years of wind data should be analyzed to determine various facility requirements, including the appropriate runway configuration. Wind data specific to VGT are summarized on the wind rose exhibit (Figure 1.10 in Chapter One). The table at the top of the wind rose indicates the percent of wind coverage for each runway at specific wind intensities.

The parallel runways provide 90.18 percent wind coverage at 10.5 knots and 94.02 percent wind coverage at 13 knots, while exceeding 95 percent wind coverage at 16 and 20 knots. Runway 7-25 provides 85.39 and 90.80 percent wind coverage at 10.5 and 13 knots, respectively. Combined, the parallel runways and the crosswind runway provide 94.19 percent crosswind wind coverage at 10.5 knots and greater than 95 percent at 13 knots and above. Because the parallel runway configuration provides less than 95 percent wind coverage in the 13-knot condition, a crosswind runway is justified and is eligible for FAA funding up to the ARC B-II design standard. The crosswind runway is currently designed to RDC B-II-VIS standards.

For VGT to qualify for maintenance of a parallel runway, the airfield must be operating at 60 percent or greater of its ASV. As stated previously, VGT is already operating at approximately 74 percent of its ASV and operation levels are only anticipated to increase over the planning period; therefore, VGT meets the threshold for maintaining a secondary (parallel) runway, which is eligible for FAA funding.

Runway Holding Position Lines

Runway holding position lines indicate the position beyond which aircraft require airport traffic control tower (ATCT) authorization before proceeding on or across a runway. When specifically instructed by the ATCT, aircraft must stop so that no part of the aircraft extends beyond the holding position marking. These markings are used where it is necessary to hold an aircraft on a taxiway that intersects a runway so that the aircraft does not interfere with runway operations. Design standards for runway hold lines are published in FAA AC 150/5300-13B and are measured in terms of distance from the runway centerline in feet.

All holding position markings at VGT are currently set at 200 feet from each runway centerline. This separation distance meets RDC B-II-5000 design standards. RDC C-II-5000 design standards call for holding position markings to be located 250 feet from the runway centerline. In the ultimate RDC D-III-4000 condition, the holding position separation standard is established at a base separation of 250 feet plus one foot per 100 feet of airport elevation above sea level. VGT's elevation of 2,205 feet above sea level adds 22 feet to the separation standard, which results in a standard separation distance of 272 feet. The alternatives analysis will consider options for relocating the holding position markings and associated runway hold signs to the ultimate standard separation.

Runway Safety Areas

The runway safety area (RSA) is a two-dimensional designated surface on the ground surrounding a runway to reduce the risk of damage to an aircraft in the event of an undershoot, overshoot, or excursion from the runway. The RSA must be cleared and graded, have no hazardous surface variations, and be free of all objects, except those needed for air navigation or aircraft ground maneuvering. While it is

desirable not to have any objects in RSAs, it has been determined that the location of some NAVAIDs is critical for proper functioning. In this case, a fixed-by-function designation is given to certain NAVAIDs and allows them to be located within RSAs.

The RSA must be cleared and graded, have no hazardous surface variations, and be free of all objects to protect aircraft in the event of a runway undershoot, overshoot, or excursion from the runway. RSA design standards are published in FAA AC 150/5300-13B and are a function of the RDC. These standards cannot be modified through a modification of standards (MOS) process and should be continually evaluated for all practicable alternatives to improve any substandard RSAs.

The RDC B-II-5000 RSA design standard calls for dimensions of 150 feet wide, centered on the runway and extending 300 feet beyond the ends of the runway. RDC C-II-5000 RSA design standards call for dimensions of 500 feet wide and extending 1,000 feet beyond the runway ends. The RSAs as they currently exist at VGT are depicted on **Figure 3.4**.

	Runways		
	12R-30L	12L-30R	7-25
Runway Design Code	C-II-5000	B-II-5000	B-II-VIS
Runway Safety Area (RSA)	500' wide x 1,000' beyond runway end	150' wide x 300' beyond runway end	
Runway Object Free Area (ROFA)	800' wide x 1,000' beyond runway end	500' wide x 300' beyond runway end	
Runway Obstable Free Zone (ROFZ)	400' wide x 200' beyond runway end	400' wide x 200' beyond runway end	
Runway Protection Zones			
Approach (inner width x outer width x length)	500' x 1,010' x 1,700'	500' x 700' x 1,000'	500' x 700' x 1,000'
Departure (inner width x outer width x length)			

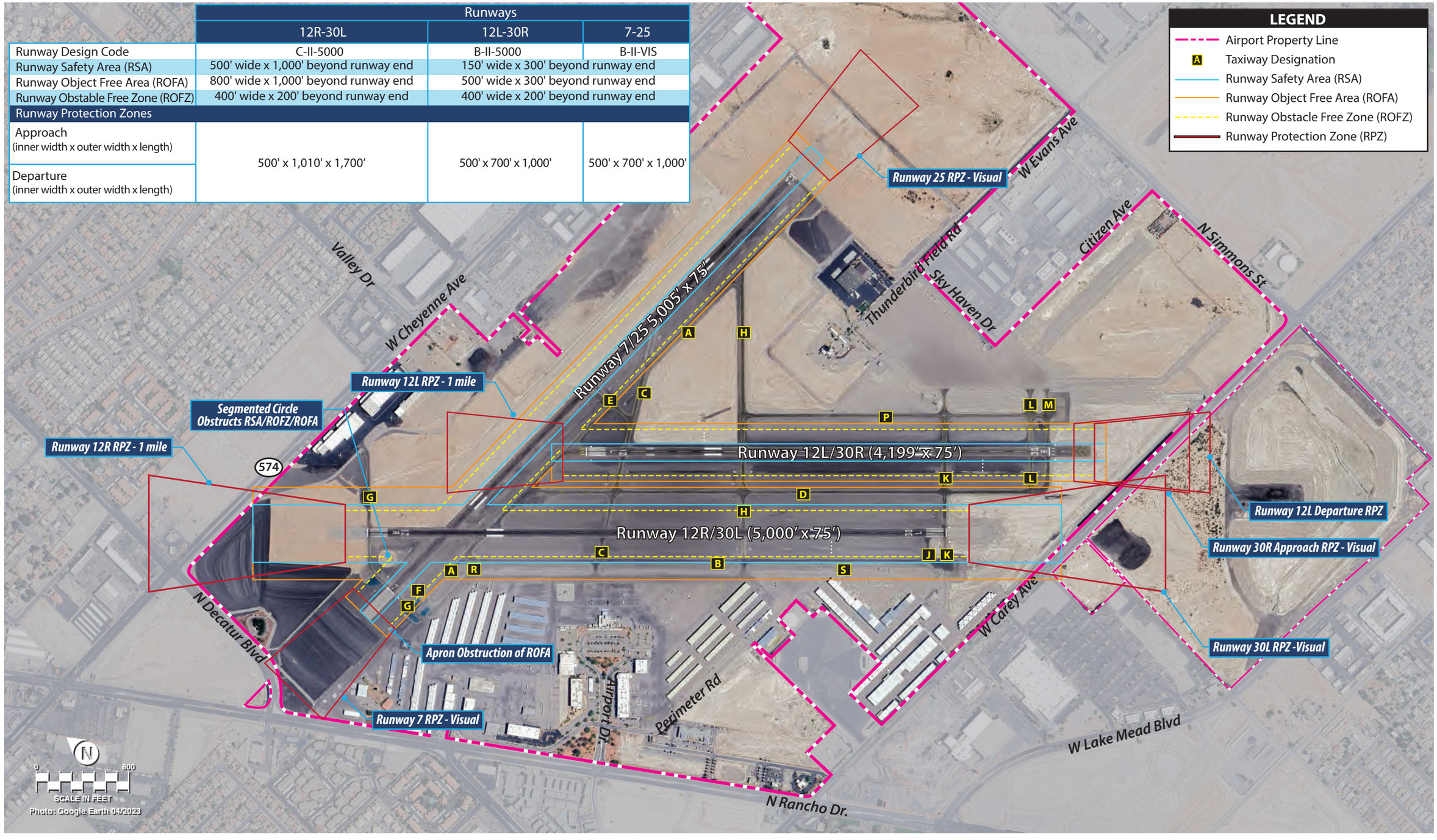


Figure 3.4
EXISTING SAFETY AREAS

This page intentionally left blank

There are no known incompatibilities within the RSAs associated with Runways 12L-30R or 7-25. Because of the recent change in design standards for Runway 12R-30L, the larger RSA dimensions result in incompatibilities including perimeter fencing, the perimeter road, and West Carey Avenue to the south. The entirety of Taxiway B is also located within the wider RSA.

Ultimate RDC D-III-4000 RSA standards call for a 500-foot width, extending 1,000 feet beyond the runway end with no allowance for narrower widths. The alternatives analysis will evaluate how the airfield can be improved to meet C-II-5000 and D-III-4000 RSA design standards.

Runway Gradient

As the AAC increases, the requirements for longitudinal and traverse gradients become more stringent. It is also important to note that FAA standards have also evolved over time. Ideally, runways are crowned, enabling water to flow off the runway pavement and towards airfield drainage facilities placed in the infields. The runway grading standards published in FAA AC 150/5300-13B are summarized in **Table 3.13**.

Table 3.13 | Runway Grading Requirements

FAA Standards	AACs: A and B	AACs: C, D, and E
Maximum Longitudinal Grade	±2.0%	±1.5%
Other Longitudinal Grade Standards	Vertical curves for longitudinal grade changes are parabolic. The length of the vertical curve is a minimum of 300 feet for each 1.0% of change.	Longitudinal grades may not exceed ±0.80% in the first and last quarter, or first and last 2,500 feet – whichever is less – of the runway length.
Maximum Allowable Grade Change	±2.0%	±1.5%
Other Grade Change Standards	–	No grade changes are allowed in the first and last quarter of the runway length.
Transverse Gradients	Between 1.0% and 2.0%	Between 1.0% and 1.5%

Source: FAA AC 150/5300-13B, Airport Design

The full-length longitudinal grade changes for each runway are as follows: 0.83 percent (12R-30L), 1.03 percent (12L-30R), and 0.63 percent (7-25); therefore, each runway at VGT currently meets AAC A/B longitudinal grading standards. These grades are also under the maximum allowable longitudinal grade for AAC C, D, and E runways; however, Runways 12L-30R and 12R-30L have grade changes within the first and last quarter of the runway. In the ultimate condition, if one of the parallel runways is improved to meet the higher design standard, portions of the runway will need to be reconstructed to remove grade changes within the first/last quarter of the runway pavement.

Runway Line-of-Sight

Because each runway at VGT has a full-length parallel taxiway, the runway line-of-sight requirement is that any point five feet above the runway centerline must be mutually visible with any other point five feet above the runway centerline that is located at a distance less than one half the length of the runway. A review of the topographic data reveals that line-of-sight requirements are met for each runway.

Runway Obstacle Free Zones

The runway obstacle free zone (ROFZ) is a volume of airspace that is centered above the runway centerline, above a surface with an elevation that at any point is the same as the elevation of the nearest point on the runway centerline and extends up to 150 feet above the airport elevation. In the case of VGT, the ROFZ for each runway extends to 2,355 feet MSL. Additionally, each runway's ROFZ extends 200 feet beyond the runway ends and is 400 feet wide in both the existing and ultimate conditions. The ROFZ must be kept clear during aircraft operations, except for specific NAVAIDs that need to be in the ROFZ because of their functions. Like RSAs, the modification to standards process does not apply to ROFZs.

The segmented circle, which is a system of visual indicators designed to provide traffic pattern information to pilots, currently obstructs the ROFZ for both Runway 12R-30L and 7-25. The alternatives will consider options for relocating the segmented circle outside the ROFZ. Navigational aid equipment – including precision approach path indicators (PAPIs) and runway end identifier lights (REILs) associated with each runway end – are located inside the ROFZ but are permissible due to their functions.

Runway Object Free Areas

The runway object free area (ROFA) is an area centered on the runway centerline and should not include any aboveground objects protruding above the nearest point of the RSA, including parked aircraft, agricultural operations, and other fixed objects. ROFA dimensions are determined based on the runway's RDC. Like the RSA, objects that are fixed by function, such as NAVAIDs, are to be frangible and are permitted inside the ROFA.

RDC B-II-5000 design standards call for the ROFA to be 500 feet wide and extend 300 feet beyond the end of the runway. This applies to Runways 12L-30R and 7-25 at VGT in the current condition. RDC C-II-5000 design standards, which apply to Runway 12R-30L call for the ROFA to be 800 feet wide and extend 1,000 feet beyond the runway end. Currently, the segmented circle and a portion of apron pavement obstruct the Runway 7-25 ROFA. Runway 12R-30L ROFA obstructions include the segmented circle and lighted wind cone, West Cheyenne Avenue, the perimeter road, and security fencing to the north, and the perimeter road, security fencing, and West Carey Avenue to the south. The alternatives analysis will consider options to mitigate these ROFA obstructions.

Ultimate RDC D-III-4000 design standards call for the ROFA to be 800 feet wide and extend 1,000 feet beyond the end of the runway. The alternatives analysis will evaluate how one of the parallel runways can be improved to meet ultimate ROFA design standards.

Runway Protection Zones

The runway protection zone (RPZ) is a trapezoidal area centered on the runway, typically beginning 200 feet beyond the runway end. When an RPZ begins at a location other than 200 feet beyond the end of a runway, two RPZs are required (i.e., a departure RPZ and an approach RPZ). The RPZ has been established by the FAA to provide an area clear of obstructions and incompatible land uses to enhance the protection of people and property on the ground.

The FAA published AC 150/5190-4B, *Airport Land Use Compatibility Planning*, on September 16, 2022. This AC represented a significant effort to address RPZ land use compatibility. Airport-compatible land uses are those that can coexist with a nearby airport without constraining the safe and efficient operations of the airport. Assuring compatible land uses within the RPZ is best achieved through:

1. Airport ownership of the RPZ property;
2. Possessing sufficient interest in the RPZ property through easements, deed restrictions, etc.;
3. Possessing sufficient land use control authority to regulate land use in the jurisdiction that contains the RPZ;
4. Possessing and exercising the power of eminent domain over the RPZ property; or
5. Possessing and exercising permitting authority over proponents of development within the RPZ.

Expectations of Airport Sponsors

The FAA requires all federally obligated airport sponsors to comply with FAA grant assurances. These include (but are not limited to) Assurance 21, *Compatible Land Use*. Sponsors should take appropriate measures to protect against, remove, or mitigate land uses that introduce incompatible development within RPZs. For projects proposed by the sponsor (such as runway extensions or new runways) that would result in moving the RPZ into an area that has incompatible land uses, the FAA expects the sponsor to have or secure sufficient control of the RPZ, ideally through fee simple ownership, including any off-airport property within the RPZ.

Existing Incompatible Land Uses

The FAA expects airport sponsors to seek all possible opportunities to eliminate, reduce, or mitigate existing incompatible land uses. Examples may include land acquisition, land exchanges, right-of-first-refusal to purchase, agreements with property owners on land uses, easements, or other such measures. The FAA also expects sponsors to actively consider and evaluate available options any time there is an ALP update or master plan update, and to be vigilant for any other opportunities – especially opportunities to purchase land – to eliminate or minimize existing incompatibilities. The FAA expects airport sponsors to document their efforts to demonstrate that they are complying with relevant FAA grant assurances. **Table 3.14** summarizes FAA expectations regarding existing incompatible land uses within an RPZ.

Table 3.14 | Expectations of Airport Sponsors – Existing Incompatible Land Uses

Type of Land Use Control	Expectations of Airport Sponsors
The airport sponsor owns the land.	Because the sponsor has total land use control, the FAA considers it a reasonable expectation that the sponsor will establish and enforce the necessary zoning controls or lease terms to enable it to address existing incompatible land uses when the opportunity arises.
The property is off airport, but the sponsor has land use authority, or the local jurisdiction and land use regulatory authority are owned by the same governing body.	Because the sponsor has at least some influence over land use control, the FAA considers it a reasonable expectation that the sponsor will seek to establish the necessary zoning controls to enable it to address existing incompatible land uses when the opportunity arises.
The sponsor has no land use control (i.e., the RPZ land falls in another jurisdiction).	Even though the sponsor has no land use control, the FAA still considers it a reasonable expectation that the sponsor will actively seek opportunities to establish the necessary zoning controls to enable it to address existing incompatible land uses when the opportunity arises. The FAA will consider financial assistance to public-sector airport sponsors for land acquisition even if the airport sponsor has no land use control, but only if the airport sponsor demonstrates that the sponsor is taking all appropriate steps available to enhance control and mitigate existing risks.

Source: FAA AC 150/5190-4B, Airport Land Use Compatibility Planning

Proposed Incompatible Land Uses

Regardless of the funding source(s) involved, the FAA expects the airport sponsor to take active steps to prevent or mitigate proposed incompatible land uses; to actively seek opportunities to prevent or mitigate risks associated with proposed incompatible land uses within the RPZ; and to secure control of land within the RPZ if a sponsor-initiated project results in incompatible land use within the newly defined RPZ. Sponsors should actively monitor conditions and publicly object to proposed incompatible land uses and should make it a high priority (financially or otherwise) to acquire land or otherwise establish land use controls that prevent incompatible uses. The FAA expects airport sponsors to document their efforts so they can demonstrate that the airport is complying with FAA grant assurances. **Table 3.15** summarizes FAA expectations regarding proposals for introducing new incompatible land uses within an RPZ.

Table 3.15 | Expectations of Airport Sponsors – New Incompatible Land Uses

Type of Land Use Control	Expectations of Airport Sponsors
The airport sponsor owns the land.	Because the sponsor has total land use control, the FAA expects that the sponsor will establish all necessary protections to prevent new incompatible land uses.
The property is off airport, but the sponsor has land use authority, or the local jurisdiction and land use regulatory authority are owned by the same governing body.	The FAA expects the sponsor to take all appropriate steps available to establish and exercise zoning controls necessary to prevent any new incompatible land uses. The FAA recognizes that the standard of "appropriate action, to the extent reasonable" does not mean, in this case, that the sponsor can always prevail; rather, the FAA expects the sponsor to demonstrate and document a reasonable effort.
The sponsor has no land use control (i.e., the RPZ land falls within another jurisdiction).	Even though the sponsor has no land use control, the FAA still expects the sponsor to actively pursue and consider all possible steps to secure land necessary to prevent any new incompatible land uses. The FAA recognizes that the standard of "appropriate action, to the extent reasonable" may not succeed. Even so, the FAA expects the sponsor to demonstrate and document a reasonable effort. The FAA expects the airport sponsor to adopt a strong public stance; to oppose incompatible land uses; to communicate the purpose of the RPZ and associated risks to the proponent; and to actively consider measures such as land acquisition, land exchanges, right-of-first-refusal to purchase, agreements with property owners regarding land uses, or other such measures.

Source: FAA AC 150/5190-4B, Airport Land Use Compatibility Planning

Potential new incompatible land uses within an RPZ might be caused by one or more circumstances. Some of these circumstances may result from airport sponsor-proposed projects, including (but not limited to):

- An airfield project (e.g., runway extension, runway shift);
- A change in the critical design aircraft that increases the RPZ dimensions;
- A new or revised instrument approach procedure that increases the size of the RPZ; or
- A local development proposal in the RPZ (either new or reconfigured), which can include roadway construction, relocation, or improvements.

The FAA has higher expectations for the airport sponsor to mitigate potential incompatible land uses within the RPZs when the introduction of the incompatible land use is the result of an airport sponsor-initiated project (regardless of funding source). The sponsor should submit an alternatives evaluation to the FAA, unless the land use is permissible. These are the permissible land uses requiring no further evaluation:

- Farming that meets airport design clearance standards in FAA AC 150/5300-13 and guidance outlined in AC 150/5200-33;
- Irrigation channels that meet the standards of AC 150/5200-33 and the FAA/USDA manual, *Wildlife Hazard Management at Airports*;

- Airport service roads, as long as they are not public roads and are directly controlled by the airport operator;
- Underground facilities, as long as they meet other design criteria (such as RSA standards), as applicable;
- NAVAIDs and aviation facilities, such as equipment for airport facilities considered fixed-by-function in regard to the RPZ; and
- Aboveground fuel tanks associated with backup generators for unstaffed NAVAIDs.

The existing RPZs for each runway at VGT are depicted on **Figure 3.4**. Because Runway 12R-30L and 7-25 have 1-mile or greater visibility minimums and no threshold displacements, the approach and departure RPZs coincide. The Runway 30R approach and departure RPZs are offset due to the 199-foot threshold displacement.

There are existing incompatible land uses within the RPZs. Public roads pass through the 12R, 30L, and 30R RPZs. Several commercial buildings north of West Cheyenne Avenue are within the 12R RPZ. It should be noted that FAA guidance on land use compatibility within RPZs has changed over time. In recent years, the FAA has placed a greater emphasis on land use compatibility within RPZs. While public roads are now considered incompatible land use within the RPZ, addressing this type of incompatibility was not previously emphasized the way it is now. The alternatives chapter of this master plan will detail opportunities to reduce or eliminate incompatible land uses within the RPZs.

3.4.2 TAXIWAY REQUIREMENTS

Taxiway requirements for VGT are presented in the following sections. These include safety areas, separation standards, and a review of the existing taxiway layout against current taxiway design principles found in AC 150/5300-13B.

Parallel Taxiway Separation

Each runway at VGT is equipped with a full-length parallel taxiway. Taxiway A serves Runway 7-25, Taxiway B serves Runway 12R-30L, Taxiway P serves Runway 12L-30R, and Taxiway D is located between the parallel runways. Taxiways A and B are both separated from the runway by 240 feet (runway centerline to taxiway centerline), which meets RDC B-II-5000 design standards. Taxiway P is located at a separation distance of 310 feet from Runway 12L-30R and Taxiway D is located 350 feet from the centerlines of both parallel runways. To meet RDC C-II-5000 requirements, a 300-foot runway/taxiway separation standard is required. For ultimate RDC D-III-4000 requirements, 400 feet of runway/taxiway separation is required. Alternatives to meet these requirements will be evaluated in the alternatives chapter.

Feedback from air traffic controllers at VGT is that Taxiway A is the only access point to the runway end when Runway 25 is in use; therefore, the alternatives will consider the addition of a parallel taxiway on the north side of Runway 7-25 to enhance taxiway capacity and efficiency.

Taxiway and Taxilane Safety Areas

As noted earlier, the taxiway system at VGT should meet ADG II and TDG 2A design standards in the existing condition. In the ultimate condition, ADG III and TDG 2B standards will apply; however, these standards can apply only to the portions of the airfield that accommodate the largest aircraft operating at the airport. For portions of the airfield that will continue to be utilized primarily by small aircraft and up to small business jets, the existing taxiway design standards will still apply.

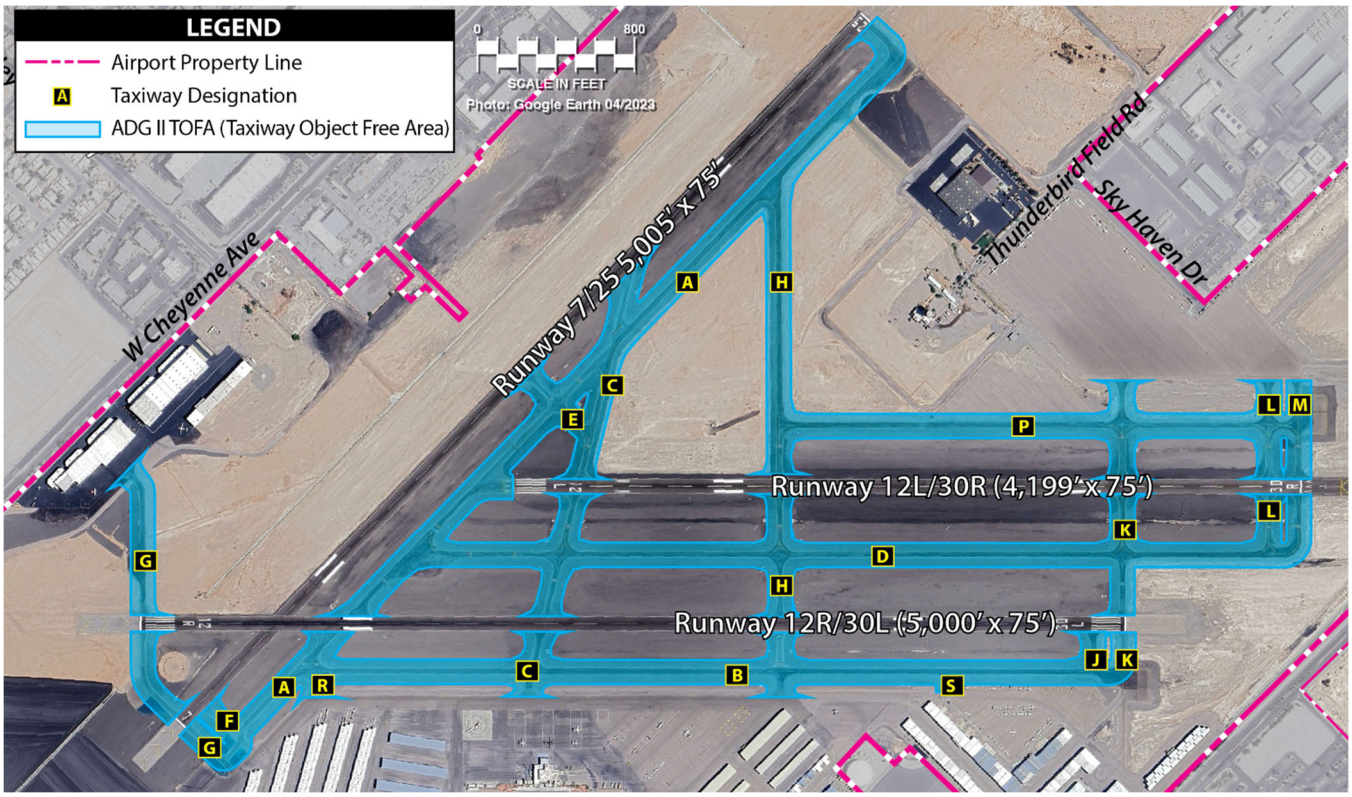
Taxiway safety areas (TSAs) for ADG II aircraft are 79 feet wide, centered on the taxiway centerline. ADG III TSAs are 118 feet wide. A review of the taxiways at VGT against topographic mapping and aerial imagery shows no penetrations to the TSAs. Taxilanes – which are considered non-movement areas on aprons and in hangar areas – also have safety areas that are the same dimensions as the TSA. The apron edge taxilane running parallel to Taxiway B serves as the primary taxilane for the terminal and apron area and is capable of accommodating ADG II aircraft between Taxiways R and H. ADG I aircraft can be accommodated in areas near hangars (Taxiways F and G and H and S). The alternatives will consider appropriate taxiway and taxilane safety area dimensions to accommodate the type of aircraft being served in any given area.

Taxiway and Taxilane Object Free Areas

Taxiway object free areas (TOFAs) also are centered on the taxiway and are 124 feet wide and 171 feet wide for ADG II and ADG III aircraft, respectively. **Figure 3.5** depicts the existing TOFAs, which are based on ADG II standards. The TOFA should be cleared of objects and parked aircraft, except for objects needed for air navigation or aircraft ground maneuvering purposes. The TOFAs throughout the taxiway system at VGT are clear of obstructions.

Taxilane object free areas (TLOFAs) are slightly smaller in size than TOFAs because aircraft operate at lower speeds on taxilanes. ADG II TLOFAs are 115 feet wide and ADG III TLOFAs are 162 feet wide. The main north/south taxilane on the eastern edge of the apron areas has sufficient clearance to accommodate an ADG III TLOFA.

Figure 3.5 – *Taxiway Object Free Areas*



Runway Exit Taxiways

Taxiways that intersect with the runway function as exit taxiways. Exit taxiways should be located so that they provide an efficient means for arriving aircraft to exit the runway. Well-placed runway exits can benefit the overall capacity of the runway. A factor in runway exit placement is the aircraft fleet mix anticipated to use the runway. Smaller, slower, and lighter aircraft can slow faster from landing than larger, faster, and heavier aircraft.

The number of exits for each runway was compared against exit factors described in FAA AC 150/5060-5, *Airport Capacity and Delay*, to determine if additional exits may further increase the capacity of the airport. For the runway configuration at VGT, the AC identifies a target exit range between 2,000 feet and 4,000 feet from the landing threshold. Exits within this target range should be spaced a minimum of 750 feet from each other to be counted as separate exits. Each runway threshold at VGT has two exits in the target range, except Runway 25, which only has one. It should also be noted that one of the two exits for Runway 7 is Taxiway C, which intersects with the runway at an acute angle and requires a 330-degree turn for aircraft to exit. Aircraft taking this exit are forced to reduce to slower speeds to take this exit than if the exit was oriented at a 90-degree angle, thus increasing runway occupancy times.

The Transportation Research Board (TRB) ACRP Project 3-17, which was used in modeling the airport's airfield capacity, states that runways with at least four exits in the target exit range will have higher capacity estimates; therefore, each runway at VGT should be considered for additional exits to help improve capacity. The alternatives analysis will examine locations for new exits for each runway.

Hot Spots

There are currently four[1] FAA-designated hot spots on the airfield. Each is identified and described on **Figure 3.6**. During a master plan study, a full analysis of options to mitigate hot spots is required to be undertaken. That analysis will be documented in the next chapter.

[1] Since the original publishing of this chapter, the FAA has eliminated hot spots 5 and 6 resulting in four total hot spots at VGT.

This page intentionally left blank

Hot Spot Descriptions

Hot Spot 1 -Encompasses the area around the intersections of Taxiways F and G with the Runway 7 end. The hold lines on Taxiways F and G are in close proximity to the edge of a large paved area, and pilots often cross the Runway 7 hold line on Taxiway G without ATC authorization.

Hot Spot 2 -Is the result of pilots sometimes entering or crossing Runway 12R without authorization.

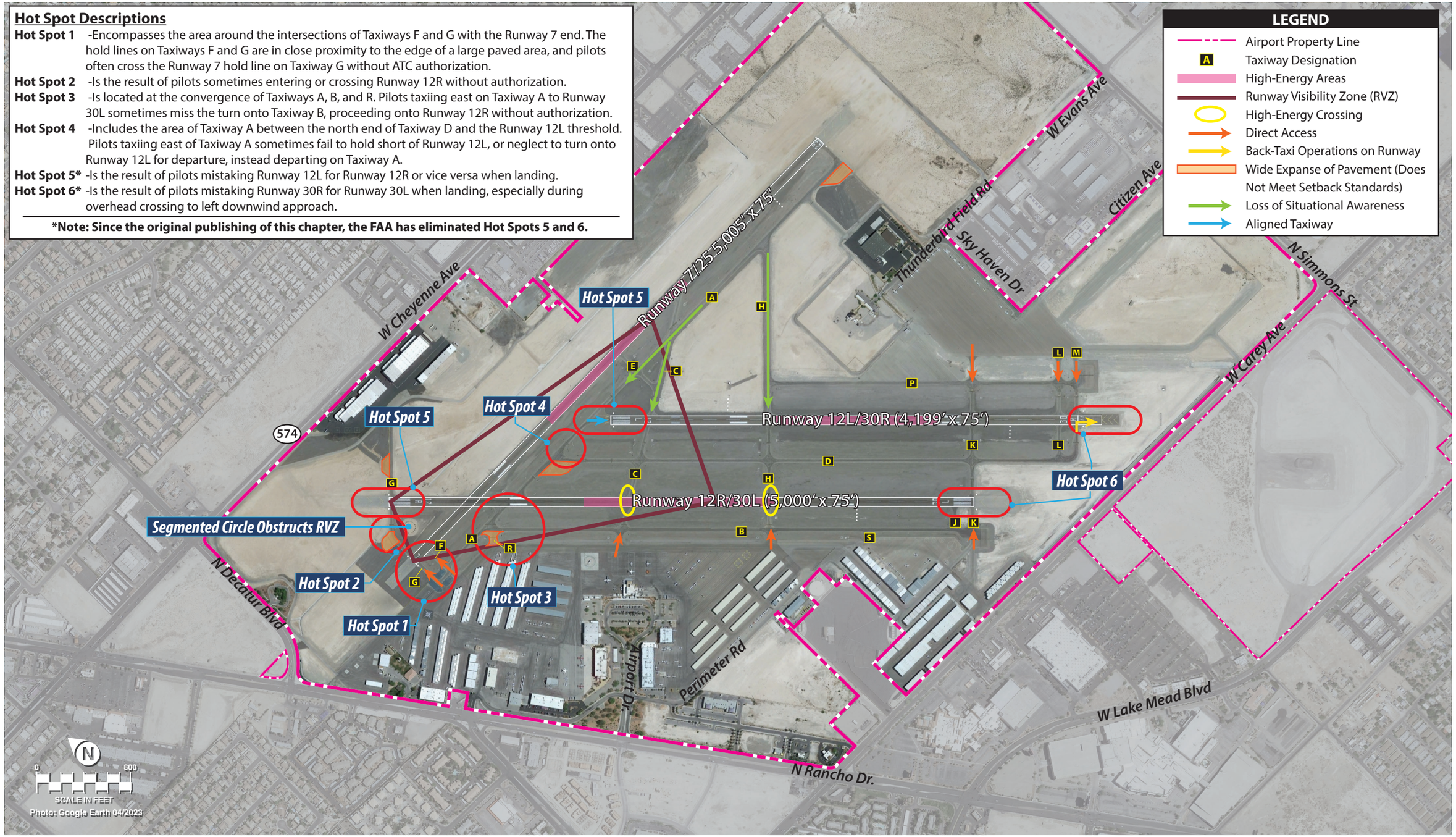
Hot Spot 3 -Is located at the convergence of Taxiways A, B, and R. Pilots taxiing east on Taxiway A to Runway 30L sometimes miss the turn onto Taxiway B, proceeding onto Runway 12R without authorization.

Hot Spot 4 -Includes the area of Taxiway A between the north end of Taxiway D and the Runway 12L threshold. Pilots taxiing east of Taxiway A sometimes fail to hold short of Runway 12L, or neglect to turn onto Runway 12L for departure, instead departing on Taxiway A.

Hot Spot 5* -Is the result of pilots mistaking Runway 12L for Runway 12R or vice versa when landing.

Hot Spot 6* -Is the result of pilots mistaking Runway 30R for Runway 30L when landing, especially during overhead crossing to left downwind approach.

***Note: Since the original publishing of this chapter, the FAA has eliminated Hot Spots 5 and 6.**



Source: North Las Vegas Airport (VGT) Runway Incursion Mitigation Study, 2020

Figure 3.6
AIRFIELD GEOMETRY REVIEW

This page intentionally left blank

Review of Taxiway Geometry

In 2020, the CCDOA completed a runway incursion mitigation (RIM) study for VGT. A summary of existing non-standard airfield geometry conditions identified in that study is described below. It should be noted that the FAA's taxiway geometry requirements have changed over time, with most of the requirements being incorporated into the FAA's *Airport Design* advisory circular in 2012. Many of the existing conditions are common at many airports and have only recently been identified as non-standard.

- *High-Energy Runway Crossings* | The high-energy portion of a runway consists of the middle third of the runway. When aircraft are permitted to cross through this portion of the runway, it increases the potential for substantial aircraft damage if an aircraft incident occurs because the aircraft on the runway tend to be operating at a higher rate of speed. There are two high-energy runway crossings at the following locations:
    - Taxiway C crossing Runway 12R-30L
    - Taxiway H crossing Runway 12R-30L
- *Direct Access* | The FAA discourages airport design where a taxiway permits aircraft to taxi directly from an apron to a runway environment without requiring a turn. Direct access increases the potential for runway incursions (RIs). There are eight locations with direct runway access from an apron, including the following:
    - Taxiway M at Runway 12L-30R
    - Taxiway L at Runway 12L-30R
    - Taxiway K at Runway 12L-30R and 12R-30L
    - Taxiway H at Runway 12R-30L
    - Taxiway C at Runway 12R-30L
    - Taxiway F at Runway 7-25
    - Taxiway G at Runway 7-25
- *Wide Expanse of Pavement* | Wide expanses of pavement can cause pilot confusion while taxiing around an airfield. Wide expanses of pavement can also put airfield signage in inconvenient locations and make it difficult for pilots to navigate. There are very few wide expanses of pavement at VGT; however, the run-up pads around the airfield need to be reconfigured to meet current standards. There are five wide expanses of pavement at the following locations:
    - The intersection of Taxiways A, B, and R, encompassing Hot Spot 3
    - Run-up pad on Taxiway G between the Runway 12R end and Cheyenne Air Center
    - Run-up pad on Taxiway G between the Runway 12R end and Runway 7 end
    - Run-up pad on the Taxiway A/D intersection between the Runway 12R end and Runway 12L end
    - Run-up pad on Taxiway A adjacent to the Runway 25 end

- *Aligned Taxiway* | Aligned taxiways are discouraged by the FAA because it is desirable for aircraft to enter the runway environment perpendicular to the runway, as opposed to underneath an approach end. There is one aligned taxiway located at the Runway 12L end. The length of the straight portion of the aligned taxiway centerline is approximately 180 feet to the southern edge of Taxiway A. This aligned taxiway does not have a taxiway designation and was formerly dedicated as displaced arrival threshold pavement as a way to lower the likelihood of a runway incursion. This area is identified as Hot Spot 4.

- *Loss of Situational Awareness* | When a pilot taxis for a substantial distance without a turn, situational awareness can become a concern. When considering situational awareness leading up towards a runway environment, there is an increased potential for runway incursions. Three existing taxiways have long, straight taxiing operations leading to a runway: Taxiways A, C, and H. Conversely, pilots who encounter a runway environment very quickly after entering the movement area can also experience loss of situational awareness because of the multiple markings, hold bars, ATCT directions, and traffic in a dense area. This is evident at the intersection of Taxiways F and G at Runway 7, which is denoted as Hot Spot 1.

- *Dual Use of Pavement* | Dual use of pavement consists of aircraft utilizing a runway as a taxiway. This type of operation is not desirable, as it increases the potential for significant aircraft accidents and can be confusing to pilots. Runway 30R departures need to back-taxi on the runway to depart using the full-length, due to the lack of a parallel taxiway serving either side of the displaced threshold; however, it should be noted that full-length Runway 30R departures are seldom requested and authorized by VGT ATCT.

- *Misaligned Approach Thresholds* | The approach thresholds to Runways 12L and 12R are staggered and not aligned. The FAA Runway Safety Office has found that misaligned thresholds can lead to wrong surface landings at airports across the country. In discussions with local stakeholders, including the VGT ATCT, they generally prefer to have the thresholds staggered so that they can better tell which runway an aircraft is lined up to, which is more obvious when one aircraft is at a higher altitude than another. This helps provide enhanced situational awareness for ATCT personnel in an area where it is challenging to obtain visual contact with aircraft.

All of these items are illustrated on **Figure 3.6**.

3.4.3 NAVIGATIONAL AIDS

Visual and electronic NAVAIDs are available on each runway at VGT, including PAPIs and REILs. Runway 12L is also equipped with instrument landing system (ILS) glideslope and localizer equipment. These NAVAIDs are sufficient to support operations at the airport and there is no anticipated need for additional equipment through the planning period.

It is important to note that the Las Vegas VORTAC – which is used by the existing ILS or localizer (LOC) instrument flight procedures into Runway 12L – is located off-airport. This NAVAID, as well as the other en-route and transition VORs/ VORTACs, appears to be sufficient to continue supporting the current instrument flight procedures.

3.4.4 AIRFIELD LIGHTING AND MARKING REQUIREMENTS

Airfield Lighting

Each runway at VGT is equipped with medium intensity runway lights (MIRLs). All taxiways are lit with medium intensity taxiway edge lights (MITLs). Each runway end also has threshold lights.

Existing airfield lighting meets the requirements noted in FAA AC 150/5340-30J, *Design and Installation Details for Airport Visual Aids*. Airfield lighting requires periodic inspection and maintenance that is accomplished through airport operations and maintenance functions.

Runway Markings

Runway 12L is marked with precision approach markings, which consist of the landing designator (runway number), runway centerline, threshold markings, touchdown zone markings, and pavement edge markings. Runways 12R and 30L are marked with non-precision approach markings, which consist of the landing designator, runway centerline, and threshold markings. Runways 30R, 7, and 25 are marked with basic markings, which consist of the landing designator and runway centerline. All runway ends also include aiming points. All runway markings are white in color and are listed as being in good condition on the Airport Master Record.

Runway markings meet the requirements in FAA AC 150/5340-1M, *Standards for Airport Markings*. Runway markings require regular maintenance and refreshing, which is accomplished through airport operations and maintenance functions.

Taxiway Markings

The existing taxiways at VGT are marked with taxiway centerlines. Taxiway centerlines provide pilots with continuous visual guidance to permit taxiing along the designated path. All taxiways at VGT have enhanced taxiway centerline markings. These markings precede runway hold lines, are typically 150 feet long, and consist of yellow dashed lines on both sides of the taxiway centerline. Taxiway markings are yellow in color.

Runway holding position markings and surface-painted hold signs are present on all taxiways that intersect with the runways. These markings are painted on the taxiway surface. Further information about the locations of the holding position markings was presented above.

Taxiway markings meet the requirements in FAA AC 150/5340-1M, *Standards for Airport Markings*. Taxiway markings require regular maintenance and refreshing, which is accomplished through airport operations and maintenance functions.

3.4.5 AIRFIELD PAVEMENT

Each runway at VGT is constructed of asphalt. A summary of runway pavement strength ratings is provided in **Table 3.16**.

Table 3.16 | Runway Pavement Strength

Main Landing Gear Configuration	Runway 12R-30L	Runway 12L-30R	Runway 7-25
Single Wheel Loading (S)	116,000	40,000	116,000
Dual Wheel Loading (D)	165,000	60,000	199,000
Dual Tandem Wheel Loading (2D)	270,000	110,000	320,000
Double Dual Tandem Wheel Loading (2D/2D2)	670,000	N/A	762,000

Source: 2016 VGT Pavement Condition Index Report

The available strength ratings for Runway 12R-30L and Runway 7-25 are sufficient to meet the needs of existing and ultimate users of the airport. Runway 12L-30R's current strength rating is sufficient to accommodate a 27 percent useful load of the ultimate critical aircraft (Gulfstream G550). As such, the runway should be considered for strengthening up to 100,000 pounds dual wheel loading, which would accommodate the G550 at maximum takeoff weight. Runway pavement strengthening will be considered as part of the alternatives analysis.

As noted in Chapter 1 (see Figure 1.11), the 2022 Airfield Pavement Management Program Services Pavement Condition Index report for VGT reported the majority of airfield pavement at VGT as generally in good to fair condition. Pavements in poor condition include the full length of Taxiway B, portions of Taxiway A and Taxiway C, the Runway 12L holding bay, and a few minimal ramp areas. Very poor pavement was indicated at the Taxiway A/G/F intersection, Taxiway B/K intersection, and a few minimal ramp areas.

3.4.6 HELICOPTER LANDING AREAS AND ADVANCED AIR MOBILITY

VGT has 18 helipads and helicopter parking spaces on the main GA apron and three helipads on the Cheyenne apron. Each is constructed of asphalt, except for five concrete helipads near the inter-agency hangars. Most helicopter operations arrive or depart from one of these helipads or aprons adjacent to the operator's facility. VGT experiences significant helicopter traffic, so the alternatives analysis will consider opportunities for expanded helicopter facilities.

Feedback from air traffic controllers at VGT is that more room is needed for helicopter training patterns. Taxiway P is currently used for helicopter training activities and its 310-foot separation from Runway 12R-30L can cause a parallax effect for controllers. Parallax is a type of visual illusion in which the position and motion of aircraft are difficult to discern by an observer (air traffic controllers). One remedy could be to add height to the ATCT. This and other options will be considered in the alternatives analysis.

Advanced Air Mobility

Private companies have been developing and testing advanced air mobility (AAM) technologies since the turn of the decade. AAM, which may also be called urban air mobility (UAM), is a new concept of air transportation using electric vertical takeoff and landing (eVTOL) aircraft to move people and cargo between places that are not easily or currently served by surface or air modes. A common example is the air taxi, in which a person or small group of people could travel within or between metropolitan areas, including airports, using small eVTOL aircraft. Development of infrastructure in support of AAM is currently underway in test cities across the county, with AAM expected to become a key component of the nation's air transportation network. Images are provided below of several different AAM/eVTOL aircraft currently in development that would use a vertiport, such as the one proposed in these recommendations.



Various eVTOL Aircraft in Development (Courtesy of VoloCopter, Joby, and Lilium)

Guidelines for Vertiport Facilities

This section reviews applicable guidelines established by the FAA regarding the design of vertiports for eVTOL aircraft. A vertiport is defined as an aviation facility with the primary purpose of supporting eVTOL aircraft. As previously stated, AAM is still a developing technology. The FAA Office of Airports and Technical Center recently solicited aircraft design information from AAM developers. Nine companies responded to the inquiry with varying levels of cooperation, including aircraft design and specifications; operational concepts; infrastructure design; and takeoff and landing profiles. As a result of the feedback, the FAA was able to develop an interim document on the design of vertiports, titled Engineering Brief (EB) 105, *Vertiport Design*.

Reference Aircraft

The design criteria established in *Vertiport Design* are intended for eVTOL aircraft that meet the performance criteria and design characteristics of the Reference Aircraft. The Reference Aircraft denotes an eVTOL aircraft that integrates certain performance and design features of the nine previously mentioned emerging aircraft. These aircraft models are evolving rapidly, and manufacturers are approaching aircraft certification with a wide range of designs. Furthermore, new eVTOL aircraft have not yet received FAA airworthiness certification and do not have established safety records. This makes it impractical for the FAA to categorize these aircraft the way fixed-wing and helicopter aircraft have been categorized; however, the feedback from eVTOL manufacturers revealed common characteristics,

which the FAA used to produce *Vertiport Design*. These preliminary design characteristics, expected performance capabilities, and assumptions regarding takeoff and landing area design for eVTOL aircraft are summarized in **Table 3.17** and on **Figure 3.7**.

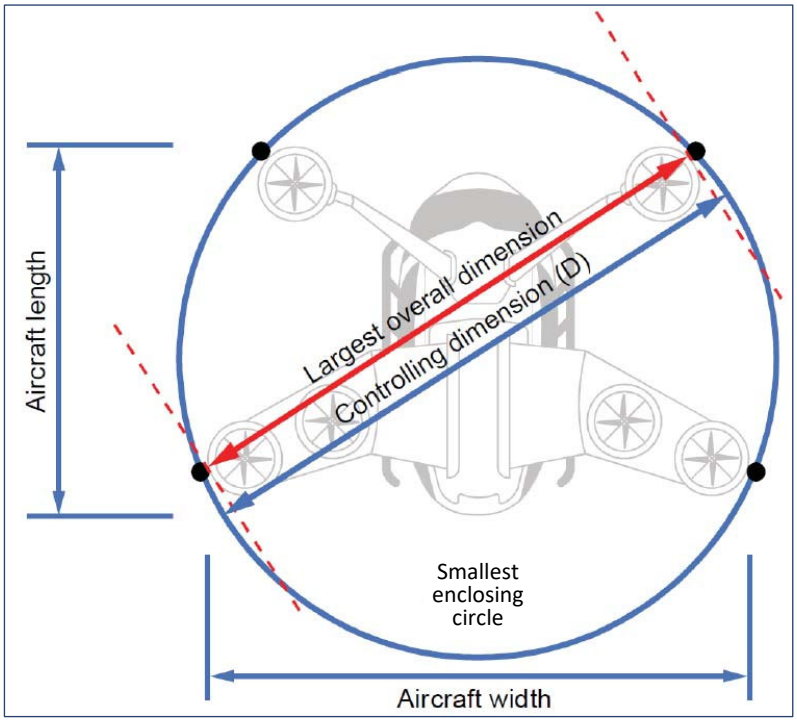
Table 3.17 | Reference Aircraft

Design Characteristics	Criteria
Propulsion	Electric battery driven, utilizing distributed electric propulsion
Propulsive Units	Two or more
Battery Systems	Two or more
Maximum Takeoff Weight (MTOW)	12,500 pounds (5,670 kg) or less
Aircraft Length	50 feet (15.2 m) or less
Aircraft Width	50 feet (15.2 m) or less
Operating Conditions	
Operation Location	Land-based (ground or elevated) – no amphibian or float operations
Pilot	Onboard
Flight Conditions	VFR
Performance	
Hover	Hover out of ground effect (HOGE) in normal operations
Takeoff	Vertical
Landing	Vertical
Downwash/Outwash	Must be considered in TLOF/FATO sizing and ingress/egress areas to ensure no endangerment to people/property in the vicinity and no impact to safety critical navigational aids and surfaces, supporting equipment, nearby aircraft, and overall safety

TLOF = touchdown and liftoff area
FATO = final approach and takeoff area

Source: FAA Engineering Brief 105, Vertiport Design

Figure 3.7 – *Reference Aircraft Controlling Dimensions*



Design Standards for Vertiports

Once the reference aircraft is determined, the design dimensions for the vertiport can be established. A vertiport may consist of several facilities, including aircraft charging and storage, passenger terminal, and takeoff and landing areas. The support facilities of a vertiport will be specific to and determined by the unique AAM company that chooses to establish a presence in the study area. The airfield facilities are the focus of EB 105. The takeoff and landing area design and geometry contained in *Vertiport Design* include the TLOF, the FATO, and the Safety Area, which are defined in detail below.

- *Final Approach and Takeoff Area (FATO)* | The FATO is a defined, load-bearing area over which the aircraft completes the final phase of the approach to a hover or landing, and from which the aircraft initiates takeoff. The FATO is similar to the total surface of a helipad.

- *Touchdown and Liftoff Area (TLOF)* | The TLOF is a load-bearing, generally paved area centered in a FATO on which the aircraft performs a touchdown or liftoff, and is analogous to the center "H" of a helipad.

- *Safety Area* | The safety area is a defined area surrounding the FATO that is intended to reduce the risk of damage to aircraft accidentally diverging from the FATO. The vertiport safety area is identical in purpose to a runway or taxiway safety area.

The dimensions for these areas were presented in **Table 3.17** and are based on the controlling dimension — designated "D" — of the design eVTOL aircraft, as defined for the vertiport facility. "D" is the diameter of the smallest circle enclosing the aircraft on a horizontal plane while the aircraft is in the takeoff or landing configuration, with rotors turning (if applicable). The controlling dimension may be calculated as the largest overall dimension, which is the hypotenuse of a triangle with base legs of the aircraft width and length. The maximum size of each element is presented in **Table 3.18**, based on the maximum design characteristics shown in **Table 3.17**.

Table 3.18 | Takeoff and Landing Area Dimensions

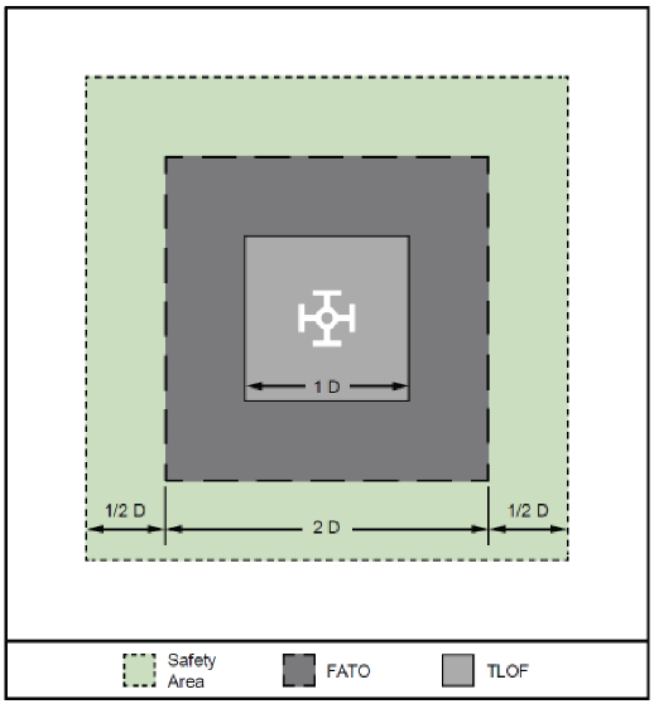
Element	Length	Value (ft)	Maximum Size (sf)
TLOF	1 × D	71	5,041
FATO	2 × D	142	20,164
Safety Area	3 × D	213	45,369

FATO = final approach and takeoff area
TLOF = touchdown and liftoff area

Source: FAA EB 105, Vertiport Design (Table 2-1); Coffman Associates analysis

Each element is centered within the subsequent element: the TLOF is located in the center of the FATO, which is centered within the safety area, as shown by **Figure 3.8**. The "broken wheel symbol" should be used and located in the center of the TLOF to identify the site as a vertiport, as opposed to a heliport. Both the TLOF and FATO are expected to be located on level terrain or a structure, be clear of penetrations and obstructions, and support the weight of the design eVTOL aircraft. The TLOF may be circular, square, or rectangular in shape. Regardless of the shape, the FATO and safety area will have the same shape.

Figure 3.8 – *Takeoff and Landing Area*



Source: FAA EB 105, Vertiport Design

Approach Profiles

The imaginary surfaces defined for heliports in Title 14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, are applicable to vertiports and include the primary surface, approach surface, and transitional surface. Section 77.23 defines these surfaces for heliports, and they have been adopted for use and presented in *Vertiport Design*.

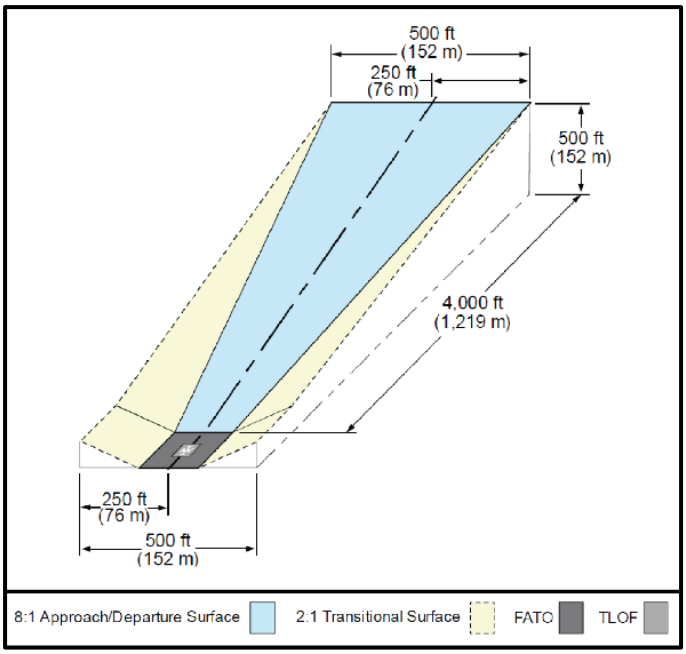
- *Primary Surface* | The primary surface is the same size and shape as the FATO. This surface is a horizontal plane at the established vertiport elevation.

- *Approach Surface* | This surface begins at each end of the vertiport's primary surface, has the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet, where its width is 500 feet. The slope of this surface is 8:1 and it doubles as the departure surface.

- *Transitional Surface* | The transitional surface extends outward and upward from the lateral boundaries of the primary and approach surfaces at a slope of 2:1 for 250 feet horizontally from the centerline of the primary and approach surfaces.

The primary, approach, and transitional surfaces should remain clear of penetrations whenever possible, unless an FAA analysis determines the penetrations to any Part 77 surface not to be hazardous. **Figure 3.9** is a visual representation of the imaginary surfaces as they apply to vertiports.

Figure 3.9 – *Vertiport Imaginary Surfaces*



Electrical Requirements

Electrical infrastructure will also be needed to support vertiports, to provide power and recharging capabilities for the aircraft. Initial estimates from manufacturers range between 500-kilowatt (kW) to 1.0-megawatt (MW) power supply per charger. The goal is for the charging stations to provide an 80 percent charge in 15-25 minutes. This can be accomplished through expanded use of existing power grid infrastructure and/or utilization of on-site energy production methods, such as a solar farm.

AAM Summary

eVTOLs and AAM/UAM is an emerging, yet unproven, aviation market. Testing and initial adoption are likely to occur in large metropolitan areas, such as Las Vegas, and then expand to mid-sized and smaller markets. Full integration of eVTOL into the national airspace system may not occur for many more years; however, it is prudent for this planning study to consider the potential for this activity at VGT. For this reason, the alternatives analysis may consider siting options for AAM facilities.

3.4.7 AIRPORT TRAFFIC CONTROL TOWER

One of the key recommendations from the 2020 RIM study for VGT was that an ATCT siting study should be conducted to determine the optimum height of the ATCT to provide the highest visibility to the entire airfield. A study conducted by LEAN Technology Corporation, which evaluated the ATCT vantage point, noted that the VGT ATCT sits relatively low to the surface of the runways and has poor vantage when visually attempting to differentiate when an aircraft arriving from the north is landing on either Runway 12L or 12R until they are relatively close to the runway threshold. A solution proposed by LEAN to improve

VGT ATCT capabilities is to increase the height of the ATCT to at least 150 feet above ground level (AGL). At this height, controllers would be better positioned to visually differentiate aircraft arriving to Runways 12L/12R and have a better opportunity to determine if aircraft are lining up to the correct runways when on approach from the south.

3.4.8 RUN-UP APRONS

The airport has five run-up aprons located throughout the airfield. Three of those run-up pads were identified in the 2020 RIM study as not meeting standards. New standards are set to allow aircraft to hold in the run-up apron while allowing another aircraft to pass by on the adjoining taxiway. To meet ADG II TOFA standards, the markings which designate the location on the apron where aircraft can park temporarily to conduct pre-flight engine checks should be located at least 62 feet from the adjacent taxiway centerline.

Feedback from air traffic controllers at VGT is that the run-up apron near the Runway 25 threshold is undersized and can cause backups and delays when Runway 25 is in heavy use. The alternatives will consider options for improving the run-up aprons throughout the airfield to provide more capacity and efficiency.

3.4.9 AIRSPACE PROTECTION

In September 2021, the FAA completed a redesign of the Las Vegas airspace and instrument flight procedures to introduce new performance-based navigation (PBN) procedures and make use of time-based flow management (TBFM) to improve airspace efficiency within the Las Vegas Metroplex. VGT was included in that effort. Conceptual procedures developed for VGT as part of this process included four Area navigation (RNAV) standard instrument departures (SIDs) and four standard terminal arrival routes (STARs). These new procedures are intended to provide more direct routes that are automatically separated from each other and to provide efficient climb and descent profiles. More information regarding this effort can be found at https://www.faa.gov/air_traffic/community_engagement/las.

For airspace protection, the FAA has established imaginary surfaces around and over airports, to be used for identifying obstacles to air navigation and preventing the development of obstacles that could adversely impact aircraft operations. These surfaces define the limits of obstacle heights on and around the airport. For the purposes of this master plan, the airspace requirements encompass the civil airport imaginary surfaces defined in 14 CFR Part 77 (Part 77), *Objects Affecting Navigable Airspace*; obstacle clearance surfaces (OCS), as defined in U.S. Standard for Terminal Instrument Procedures (TERPS); and departure surface criteria found in FAA AC 150/5300-13B.

Part 77 Requirements

Part 77 establishes civil airport imaginary surfaces in relation to the airport and to each runway. The size of each imaginary surface is based on the category of each runway, according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end.

Runways 30R, 30L, 7, and 25 are each classified as B (V) – Visual Approach runways. Runway 12L and 12R are non-precision B (C) runways with visibility minimums greater than ¾-mile. The Part 77 surfaces are described below.

- The primary surface is a surface longitudinally centered on a runway. It extends 200 feet beyond each end of the runway; the elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of a primary surface is 500 feet for each runway at VGT.

- The approach surface is a surface longitudinally centered on the extended runway centerline, extending outward and upward from each end of the primary surface. The inner edge of the approach surface is the same width as the primary surface (500 feet). For visual runways, the approach surface expands uniformly to a width of 1,500 feet and the surface extends for a horizontal distance of 5,000 feet at a slope of 20:1. For non-precision runways, the approach surface expands to a width of 3,500 feet and extends for a horizontal distance of 10,000 feet at a slope of 34:1.

- The transitional surface extends outward and upward at right angles to the runway centerline and the runway centerline extended, at a slope of 7:1, from the sides of the primary surface and from the sides of the approach surfaces.

- The horizontal surface consists of a horizontal plane 150 feet above the established airport elevation. The established airport elevation at VGT is 2,205 feet above MSL; thus, the horizontal surface is 2,355 feet.

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

There are no anticipated changes to the Part 77 civil airport imaginary surface requirements (i.e., slopes and dimensions) applicable to VGT; however, should the runway threshold locations change in the ultimate runway configuration, the Part 77 surfaces would subsequently need to be modified to reflect any new runway configuration or lengths.

TERPS

VGT is served by two instrument approach procedures: ILS or LOC for Runway 12L and RNAV (GPS) for Runway 12R. For each procedure, the following airspace is required to be protected: the final approach segment, the missed approach segment (especially those portions of the missed approach segment closer to the runway), and circling approach protected areas, which have varying radii based on the respective category of aircraft approach speed.

The ILS or LOC procedure on Runway 12L is currently limited to AAC A and B aircraft approach speeds and does not provide support for AAC C or D, which larger business jets and regional aircraft require for instrument operations. The RNAV (GPS) approach to Runway 12R does support operations by AAC A, B, C, and D aircraft. As part of a separate airspace analysis and modeling effort within this master plan, consideration could be given to enhancing the ILS or LOC procedure to make it available to AAC C and D aircraft and to explore other procedures to improve the accessibility of VGT during periods of poor visibility.

Departure Surface

FAA AC 150/5300-13B includes dimensional criteria for the 40:1 instrument departure surface. The departure surface is broken into two sections. Section 1 starts at the departure end of the runway end elevation and matches the width of the usable runway (75 feet wide). It then projects outward from the runway end at a 40:1 slope. From the edge of the usable runway, Section 2 rises upward to 150 feet above the runway end elevation at a point 500 feet on either side of the runway centerline. It also rises upward along the extended runway centerline at a 40:1 slope until it reaches 304 feet above the runway end elevation. Upon reaching 304 feet, the surface levels out until the end of the departure surface. An airspace evaluation will be performed as part of developing an updated airport layout plan (ALP) drawing set associated with this master plan and will identify existing and ultimate obstructions to the departures surfaces for each runway and will propose action to be taken, if any.

3.4.10 AIRCRAFT STORAGE HANGAR REQUIREMENTS

The demand for hangar space is based on the forecast number and mix of aircraft expected to be based at the airport in the future. Most based aircraft are stored in either individual hangars or shared conventional hangars. It is estimated that 80 percent of small piston aircraft are stored in hangars, while turboprops, jets, and helicopters are all anticipated to be stored in hangars. This percentage is carried forward to future years.

Currently, there is approximately 1,153,400 square feet (sf) of hangar space at the airport. For simplicity, shade structure spaces have been combined with T-hangar spaces, and executive hangar space has been combined with box hangar spaces. Through the long-term planning period, the forecast indicates the addition of up to 247 more based aircraft. The mix of based aircraft is anticipated to continue to include primarily small single-engine piston aircraft, but also a growing number of more sophisticated aircraft (jets, turboprops, and helicopters). For planning purposes, future hangar space needs are a function of providing 1,400 sf for T-hangars, 2,200 sf for individual or connected box hangars, and 3,000 sf for conventional hangars. The future mix of aircraft is then distributed to these hangar types. Over the next 20 years, the hangar space model (**Table 3.19**) shows a need for an additional 455,134 sf of hangar space. Hangar demand projections factor into current hangar vacancies at VGT, including approximately 5,100 sf of T-hangar space and 23,550 sf of executive hangar area that is available. The projection assumes these vacancies will be filled at some point within the next five years.

The hangar need model is based on current and future based aircraft and an estimate of the space needed for each aircraft. Hangars are also used by airport businesses, which make investments based on their business plans and/or the economic conditions to run an aviation business. Airports like VGT may attract aviation businesses that cater to aircraft owners around the country, so the based aircraft model for determining hangar needs is only one consideration. The business model of a developer could show a demand for far more hangars than the based aircraft model.

Table 3.19 | Hangar Needs

	Current	2028	2033	2038	2043
Based Aircraft	511	584	638	696	758
Aircraft to be Hangared	420	481	527	578	632
• Single- and Multi-Engine Piston	363	411	442	473	504
• Turboprops, Jets, and Helicopters	57	70	85	105	128
Hangar Area Requirements					
T-Hangar Area	425,200	487,284	530,684	572,684	659,484
Executive Hangar Area	354,900	346,750	364,350	386,350	434,750
Conventional Hangar Area	373,300	394,300	418,300	448,300	514,300
Total Storage Area (sf):	**1,153,400**	**1,228,334**	**1,313,334**	**1,407,334**	**1,608,534**
New Hangar Area Needed (sf):	**–**	**74,934**	**85,000**	**94,000**	**201,200**

Notes:
Future T-hangar area is estimated at 1,400 sf per aircraft storage space.
Future box hangars are estimated at 2,200 sf per aircraft storage space.
Future conventional hangar area is estimated at 3,000 sf per aircraft storage space.

Source: Coffman Associates analysis

3.4.11 AIRCRAFT PARKING APRON AND TIEDOWN REQUIREMENTS

Aircraft parking aprons should provide for the locally based aircraft that are not stored in hangars; transient aircraft; and apron areas used for maintenance functions, such as temporary ramp space when moving aircraft around. The aprons at VGT are multi-use, meaning local and itinerant aircraft will both use the aprons – typically at the direction of the fixed base operator (FBO) line services – to maximize apron utilization. There is approximately 489,000 square yards (sy) of apron pavement at VGT; however, that total apron area includes taxilanes in hangar areas and other surfaces not used for aircraft parking. Counting only apron areas that are used for aircraft parking, there is approximately 275,800 sy of apron space available for aircraft parking at VGT, including 238 individual aircraft tiedowns for both locally based aircraft and transient aircraft. The apron area in the vicinity of the terminal building is used primarily for transient aircraft, while other aircraft parking areas on the west side of the airfield are used primarily by locally based aircraft. The east side of the airfield also has two large apron areas adjacent to the ATCT, which are used primarily for transient aircraft during peak periods.

Table 3.20 presents the forecasted apron area needs based on standard industry models. Local tiedown positions are estimated as 20 percent of based small single- and multi-engine piston aircraft, plus 10 more positions to address any intermittent spike in utilization. The area needed for local positions is estimated at 1,000 sy per aircraft (typically, single-engine aircraft parking space plus movement space).

Table 3.20 | Aircraft Apron Requirements

	Current	FORECAST			
		2028	2033	2038	2043
Local Apron Positions	–	113	121	128	136
Local Apron Area (sy)	–	112,800	120,600	128,200	136,000
Transient Apron Positions	–	136	144	152	160
Piston Transient Positions	–	102	105	108	109
Turbine Transient Positions	–	34	39	44	51
Transient Apron Area (sy)	–	176,800	190,800	204,800	221,200
Total Apron Area (sy):	**275,800**	**289,600**	**311,400**	**333,000**	**357,200**
New Apron Needed (sy):	**–**	**13,800**	**21,800**	**21,600**	**24,200**

Source: Coffman Associates analysis

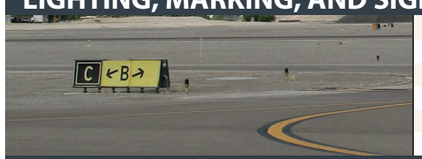
Transient apron needs are a function of design day itinerant operations and the assumption that up to 30 percent of those aircraft would need apron parking space at any one time. Transient apron space is estimated for both small aircraft (1,000 sy) and larger turboprops and business jets (2,200 sy). The model then assumes that, over time, a higher percentage of the aircraft using transient apron space will be large aircraft.

The apron model results in a long-term need for a total of 357,200 sy of apron space to meet the needs of both local based aircraft and transient aircraft.

This apron model is based off design day activity, which does not account for peak periods throughout the year when apron needs spike. These are usually centered around large events, such as Formula One (F1) races, National Football League (NFL) football games, or major concerts and events.

3.4.12 AIRSIDE FACILITY REQUIREMENTS SUMMARY

Figure 3.10 provides a summary of airside facility requirements identified in the previous sections. Requirements are summarized for the ultimate condition. The ultimate condition refers to the 20-year planning period.

	AVAILABLE	ULTIMATE CONDITION
RUNWAYS		
	**Runway 12R-30L**	
	RDC C-II-5000	Consider RDC D-III-5000
	5,000' x 75'	Consider extension to 6,000'+ and widen to 100'
	160,000 lbs S | 165,000 lbs D | 270,000 lbs 2D | 670,000 lbs 2D/2D2	Maintain
	Runway 12L-30R	
	RDC B-II-5000	Consider RDC D-III-5000
	4,199' x 75'	Consider extension to 6,000'+ and widen to 100'
	40,000 lbs S | 60,000 lbs D | 110,000 lbs 2D	Strengthen to 100,000 lbs D
	Runway 7-25	
	RDC B-II-VIS	RDC B-II-VIS
	5,005' x 75'	Maintain
	160,000 lbs S | 199,000 lbs D | 320,000 lbs 2D | 762,000 lbs 2D/2D2	Maintain
SAFETY AREAS		
	B-II RSA standards met on 12L-30R/7-25; C-II RSA (12R-30L) obstructed by Taxiway B, perimeter road/fencing, and West Carey Ave.	Meet D-III RSA standards
	B-II ROFA - Segmented circle and apron pavement obstruct the 7-25 ROFA; C-II ROFA (12R-30L) obstructed by West Cheyenne Ave., perimeter road/fencing, and public roads	Meet D-III ROFA standards
	ROFZ - Segmented circle obstructs 12R-30L & 7-25 ROFZ	Relocated segmented circle
	RPZs - public roads and buildings in existing RPZs	Meet D-III-5000 RPZ standards
TAXIWAYS		
	ADG II and TDG 2A for all taxiways	Improve to TDG 2B standards
	All taxiways at least 35' wide	Maintain
	Parallel taxiways available for each runway; minimum 240' separation from runway centerline	Consider adding north parallel taxiway for 7-25; increase separation to 400' for D-III runway
	2 exit taxiways per runway in target areas	Consider additional exits to enhance airfield capacity
	Hot Spots 1-4*	Implement corrective measures
	8 direct access points	Implement corrective measures
	2 high-energy runway crossings	Implement corrective measures
	5 wide expansive pavement areas	Implement corrective measures
	1 aligned taxiway	Implement corrective measures
	5 run up aprons; 3 do not meet TOFA standards	Improve/expand run up aprons and consider new run up aprons to compliment runway expansions
NAVIGATIONAL AND APPROACH AIDS		
	ILS or LOC - Runway 12L (ADG A/B only) | RNAV-GPS - Runway 12R (ADG A-D)	Consider adding ADG C/D capability to ILS or LOC
	ASOS	Maintain
	ATCT	Consider increasing height to a minimum of 150 feet AGL
	Lighted windcone/segmented circle	Relocate outside ROFA/ROFZs
	PAPI-4s - all runways	Maintain
	REILs - all runways	Maintain
LIGHTING, MARKING, AND SIGNAGE		
	Precision markings - Runway 12L	Maintain
	Non-precision markings - Runways 12R, 30L	Maintain
	Basic markings - Runways 7, 25, 30R	Maintain
	MIRL - all runways	Consider gradual replacement with LED fixtures
	MITL - all taxiways	Consider gradual replacement with LED fixtures
	Holding position markings - 200' from all runway centerlines	Increase separation to 272 feet for D-III runway
HANGAR/APRON & OTHER		
	1,153,000 sf of storage hangar capacity	Increase capacity to 1,608,500 sf
	275,800 sy of apron	Increase capacity to 357,200 sy
	18 helicopter helipads/parking spaces	Consider locations for vertiport development and supporting solar farm

*Note: Since the original publishing of this chapter, the FAA has eliminated hot spots 5 and 6 resulting in four total hot spots at VGT.

KEY

ADG - Airplane Design Group
AGL - Above Ground Level
ASOS - Automated Surface Observing System
ATCT - Airport Traffic Control Tower
MIRL/HIRL - Medium/High Intensity Runway Lighting
MITL - Medium Intensity Taxiway Lighting
PAPI - Precision Approach Path Indicator
RDC - Runway Design Code
REIL - Runway End Identification Lights
ROFA - Runway Object Free Area
ROFZ - Runway Obstacle Free Zone
RPZ - Runway Protection Zone
RSA - Runway Safety Area
TDG - Taxiway Design Group
VIS - Visual

Figure 3.10
AIRSIDE FACILITY REQUIREMENTS SUMMARY

This page intentionally left blank

3.5 LANDSIDE FACILITIES

The following is an evaluation of landside facilities, including the GA terminal building, vehicle access, and parking. The requirements found in these subsections are based on the forecasted total and peak hour demands. Further refinements may be required to account for the unique circumstances at VGT – specifically, the large number of special events that increase itinerant demand in the Las Vegas area and at the airport.

3.5.1 GENERAL AVIATION TERMINAL BUILDING

VGT's terminal building is a two-level structure encompassing approximately 20,612 sf. The building was originally constructed in 1992 and renovated in 2019 and is located at the center of the west apron. The building houses VGT airport staff offices, FBO services, rental car agencies, restrooms, a lobby, a pilot lounge, a vending area, rental conference rooms, an observation deck, and a restaurant.

The methodology used in estimating GA terminal facility needs is based on the number of airport users expected to utilize these facilities during the design hour. GA space requirements are based on providing 125 sf per design hour itinerant passenger. Design hour itinerant passengers are determined by multiplying design hour itinerant operations by the estimated number of passengers on the aircraft (estimated to range between 2.0 and 3.5 passengers over the planning period).

The long-term projected terminal facility need is approximately 16,300 sf, which is less than the current capacity; however, feedback from the planning committee for the master plan indicated that additional services are needed in the terminal, including expanded pilot facilities (including showers). Consideration should be given to providing those facilities in future renovations of the building.

The terminal building is in the ideal location, central to the runway system and fronted by a large transient apron. Because the terminal building serves as the first introduction travelers may have to the region, it should be maintained as necessary.

3.5.2 SURFACE TRANSPORTATION

The following subsections summarize airport access, roadway network considerations, and vehicle parking requirements.

Airport Access Roadways

On-airport circulation roadways (Airport Drive and Perimeter Road) are anticipated to adequately serve development on the west side of the airport through the planning period. The combination of Citizen Avenue, Sky Haven Drive, and Thunderbird Field Road – which provide access to facilities on the east side of the airfield – currently provide adequate access but may need to be expanded as new developments occur in this area. Additionally, any future airport development should review the *City of North Las Vegas Comprehensive Plan* and any recent traffic impact studies in the vicinity of the airport and consider any planned roadway or intersection improvements.

Airport Parking

Airport planners should be cognizant of the need for vehicle parking space on GA airports. At the same time, parking needs are generally determined by hangar owners' needs. Those operating businesses may have a need for more parking, while private hangar owners may not have a need for any dedicated parking if they park in their hangars when utilizing their aircraft. This makes it inherently challenging to estimate future hangar vehicle parking needs.

Parking needs can be divided between transient airport users and locally based users. Transient users include visitors and those employed at the airport, while locally based users primarily include those attending their based aircraft. Ideally, both user types would have access to dedicated vehicle parking outside the fence; however, at GA airports, it is common for locally based aircraft owners to park in their hangars. Rather than attempt to determine a specific number of vehicle positions needed in the future, developers should include vehicle parking in their development plans, where necessary.

There are 248 publicly accessible vehicle parking spaces available at the terminal building. Projected vehicle parking space needs are based on accommodating design hour itinerant passengers; an estimated number of employees of the businesses located within the terminal; and a certain number for locally based pilots that may be visiting the terminal for FBO-related services. The existing number of vehicle parking spaces should be adequate through the long-term planning period; however, any new hangars should account for adequate parking in proximity to the facility.

3.5.3 LANDSIDE FACILITY REQUIREMENTS SUMMARY

Table 3.21 summarizes the landside requirements identified in the previous sections. As described in the sections above, the existing terminal building and associated vehicle parking lots exceed the projected long-term requirements; however, additional terminal services and renovations will be needed over the course of the planning period and new vehicle parking spaces should be added as new developments occur at the airport.

Table 3.21 | Landside Facility Requirements Summary

	Available	2028	2033	2038	2043
Terminal (sf)	20,612	7,900	10,500	13,300	16,300
Vehicle Parking Spaces	248	52	62	73	85

Source: Coffman Associates analysis

3.6 SUPPORT FACILITIES

The following describes the requirements for the airport's support facilities, including aviation fuel storage, maintenance and storage, and utilities.

3.6.1 AVIATION FUEL STORAGE

Fuel sales are managed by the CCDOA, which operates the FBO at VGT. The CCDOA maintains a fuel farm consisting of 50,000 gallons of Jet A storage and 40,000 gallons of 100LL (Avgas) fuel storage. Additional fuel storage capacity should be planned if the FBO is unable to maintain an adequate supply and reserve. An ideal reserve is typically 14 days for GA airports. For busier reliever airports with significant levels of turbine engine activity, a seven-day Jet A fuel supply may be adequate.

Based on fuel sales records, a volume of nearly 1,390,346 gallons of Jet A fuel was sold in 2023. This works out to approximately 150 gallons sold for every turbine engine operation. By applying a modest growth rate to the forecast years to account for increasing activity by larger jets with higher fuel capacities, the airport is projected to sell 5.9 million gallons of Jet A fuel within the 20-year planning horizon. By the short-term planning period (the next five years), the airport is projected to begin realizing a constraint on fuel storage capacity, if maintaining a seven-day reserve. By the long-term planning period, the airport would need an additional 64,000 gallons of Jet A capacity. Avgas storage needs are based on an average of 3.5 gallons sold per piston operation. This ratio is kept constant through the planning period. The results show available Avgas capacity is sufficient through the planning period. **Table 3.22** documents the fuel storage capacity analysis.

Table 3.22 | Fuel Storage Requirements

	Current Capacity	FORECAST			
		2028	2033	2038	2043
Jet A Gallons per Operation[1]	**50,000 gal**	**150 gal/op**	**155 gal/op**	**160 gal/op**	**170 gal/op**
Annual Usage (gal)		2,696,300	3,429,700	4,381,300	5,943,200
Daily Usage (gal)		7,387	9,396	12,004	16,283
7-Day Storage (gal)		51,700	65,800	84,000	114,000
Avgas Gallons per Operation[1]	**40,000 gal**	**3.5 gal/op**	**3.5 gal/op**	**3.5 gal/op**	**3.5 gal/op**
Annual Usage (gal)		631,300	670,100	710,900	751,600
Daily Usage (gal)		1,730	1,836	1,948	2,059
14-Day Storage (gal)		24,200	25,700	27,300	28,800

Source: [1]Coffman Associates estimate based on airport fuel flowage records

3.6.2 AIRPORT MAINTENANCE AND STORAGE

The airport's 12,500-sf maintenance building is located south of the main terminal on the perimeter road, adjacent to a water tank and the West Wind Las Vegas Drive-In. The maintenance building and adjoining 33,200-sf yard house various equipment, including sweepers, dump trucks, and lifts. These facilities should continue to adequately serve the needs of the airport through the planning period.

3.6.3 UTILITY INFRASTRUCTURE

The ability of existing utility infrastructure to accommodate future development needs to be considered for long-term planning at the airport. No field investigations were conducted to assess utility conditions for the purposes of this master plan. As developments occur on the airport, additional utility infrastructure will be required. Coordination with the CCDOA and the City of North Las Vegas is required prior to starting any development at the airport. The alternatives analysis will consider high-level utility infrastructure needs, based on proposed developments.

3.7 AIRPORT SECURITY

In cooperation with the GA community, the Transportation Security Administration (TSA) has developed guidelines to enhance security at GA airports. *Security Guidelines for General Aviation Airport Operators and Users* was released in June 2021. The guidance places a large emphasis on risk-based security by evaluating hazards/threats, vulnerabilities, and consequences. Risk-based security helps ensure resources and requirements are focused on the areas where the greatest risks are present. TSA security recommendations for various types of airport infrastructure are included in **Table 3.23**.

Table 3.23 | TSA Airport Infrastructure Security Recommendations

INFRASTRUCTURE	RECOMMENDATION
Hangars	• Hangars should be properly marked and numbered for ease of emergency response. • Install security and informational signs. • Avoid keyed hangar locks. If keyed, locks should be rekeyed with every new tenant. • Ensure proper lighting around hangar areas. • Equip hangars with electric bypass switches and/or alarm and intrusion detection systems for enhanced security.
Locks	• Combination locks – may not be suitable for outdoor use if they are exposed to precipitation or freezing temperatures. Change lock combinations frequently. • Cipher (push button) locks – limit use to controlling access in manned areas because lock codes can be given to unauthorized users and the presence of other personnel could deter the unauthorized use of the code. Change lock codes frequently. • Keyed locks – best for outdoor use. Locks should be rekeyed, replaced, or discarded when a tenant moves out. • Advanced electronic key technologies – provide airport management with the ability to immediately disable access on keys that are lost or stolen. Also provide a record of users' movements throughout the airport area. • Deadbolt locks, built-in door handle locks, or padlocks and metallic keys should be considered to secure an access point, particularly those that are perceived or presumed to be low-risk, low throughput, or significantly distant from the main areas of concern.
Key Control	• Where key-cutting codes and equipment are used, measures should be taken to protect them against loss or misuse. • Limit key issuance authority to as few personnel as possible to minimize improper distribution. • Issue keys to personnel based on operational need and not as a convenience. • Retrieve keys when personnel leave the airport by transfer, dismissal, resignation, or lease expiration. • Lost keys should be reported promptly to the appropriate airport personnel. • Unissued locks and keys should be properly safeguarded. • Keys should be stamped or engraved with "Do Not Duplicate." • The key issuance system should be periodically (at least annually) audited to ensure accountability for all keys.

(Continues on next page)

Table 3.23 | TSA Airport Infrastructure Security Recommendations (continued)

INFRASTRUCTURE	RECOMMENDATION
Perimeter Security	• Physical barriers (fencing, walls, electronic boundaries) can be used to deter and delay access of unauthorized persons into sensitive areas.
CCTV (Closed Circuit Television)	• Monitored CCTV systems are an effective method of perimeter security and – in conjunction with security fencing – can deter security breaches. • Consider outdoor security lighting and cameras to improve security of aircraft parking and hangar areas, fuel storage areas and fuel trucks, airport access control points, vehicle parking lots, fences, or obstructed areas.
IDS (Intrusion Detection Systems)	• Can replace the need for physical security personnel to patrol an entire facility or perimeter. • Monitored by a contracted company that notifies police, fire, and/or airport management in the event of an intrusion.
Fencing	• Most common means of securing a perimeter. • Low maintenance; provides clear visibility for patrols; deters animals from the airfield; and can be installed in almost any environment. • For best value, fencing should be used in conjunction with a "challenge" system or airport watch program.
Access Points	• The number of access points on perimeter controls should be minimized and their use and conditions should be regularly monitored. • Should control/prevent access, but also differentiate between an authorized and unauthorized user. • If an access point is not user-friendly, it may be abused, disregarded, or subverted and thus pose a security risk.
Gates	• Should have self-closures and be equipped so they can be secured, should enhanced security conditions require it. • All gates should be sufficiently lighted. • Should have no more than 4-6 inches of ground clearance beneath the gate and minimal gaps on both sides.
Vehicle Gates	• The chief concern with vehicle gates is tailgating. It is the responsibility of each authorized person to prevent tailgating in a safe and non-confrontational manner. Where prevention is not practical or safe, suspected unauthorized access should be reported. • Include signage to remind vehicle operators to confirm gate closure.
Lighting	• Security lighting should be connected to an emergency power source, if available. • Ensure lighting does not interfere with aircraft operations.
Signage	• Wording may include, but is not limited to, warnings against trespassing, unauthorized use of aircraft and tampering with aircraft, and reporting of suspicious activity. • Use concise language and include phone numbers of the nearest responding law enforcement agency, 9-1-1, or TSA's 1-866-GA-SECUR, as appropriate.

Source: Security Guidelines for General Aviation Airport Operators and Users, June 2021

VGT is secured with a six-foot perimeter fence topped with three-strand barbed wire. There are six RFID card reader access gates located along the perimeter fence around the airport. There are 61 combined pedestrian and vehicle gates along the perimeter. As security needs change and as development occurs, the CCDOA should conduct an assessment based on current guidance and implement security measures, as appropriate.

3.8 SUMMARY

This chapter has outlined facility requirements for VGT for a 20-year planning period.

Consideration will be given in the development of various airfield alternatives to improving the airfield from RDC B-II-5000 design standards to meet higher RDC D-III-4000 design standards in the ultimate condition. Meeting higher design standards is in anticipation of increased operations by larger and faster business jets. The alternatives will need to weigh existing constraints to the airport and how they are impacted by the larger safety areas associated with the higher design standards.

The available runway dimensions at VGT can accommodate the core of small GA aircraft; however, during hot periods of the year, larger and faster business jets are weight-restricted or are unable to operate at VGT due to limited runway lengths. The runway length analysis conducted in this chapter identified a need to expand one runway at VGT to a minimum of 5,900 feet and to explore options to extend beyond 6,000 feet so that the airport can fulfill its role as a reliever to Harry Reid International Airport for larger business jets. The CCDOA system of airports is constrained and improving VGT's facilities to increase utility will minimize delays and benefit the National Airspace System.

In addition to runway improvements, the facility requirements identified a need for new aircraft storage hangar capacity and aircraft parking aprons. Major events – such as NFL football games, F1 car races, and other events attracting heavy aircraft traffic to Las Vegas – are becoming more frequent and are particularly burdensome on VGT facilities. Enhancing the airport's ability to accommodate these peak activity periods can further support the financial sustainability of the airport and relieve congestion at other CCDOA airports.

The following chapter will consider various layouts to address forecasted growth at VGT.



Chapter 4

Alternatives Analysis







Chapter 4
Alternatives Analysis

In the previous chapter, airport facilities required to satisfy the demand through the long-range planning period were identified. The next step in the planning process is to evaluate reasonable ways these facilities can be provided. There can be numerous combinations of design alternatives, but the alternatives presented here are those with the perceived greatest potential for implementation.

Any development proposed for a master plan evolves from an analysis of projected needs for a set period of time. Although the needs were determined by utilizing industry-accepted statistical methodologies, unforeseen future events could impact the timing of the needs identified. The master planning process attempts to develop a viable concept for meeting the needs caused by projected demands for the next 20 years; however, no plan of action should be developed that may be inconsistent with the future goals and objectives of the Clark County Department of Aviation (CCDOA), which has a vested interest in the development and operation of North Las Vegas Airport (VGT).

The development alternatives for the airport can be categorized into two functional areas: the **runway** and **airside (hangars, aprons, taxilanes)**. Within each of these areas, specific capabilities and facilities are required or desired. In addition, the utilization of airport property to provide revenue support and to benefit the economic development and well-being of the local area must be considered.

Each functional area interrelates and affects the development potential of the others; therefore, all areas are examined individually and then coordinated as a whole to ensure the final plan is functional, efficient, and cost effective. The total impact of all these factors on the airport must be evaluated to determine if the investment in VGT will meet the needs of the CCDOA and the users of its system of airports, both during and beyond the 20-year planning period.

The alternatives considered later in this chapter will be evaluated by a variety of methods to determine which will best fulfill local aviation needs. With this information, as well as input from various airport stakeholders, a final airport concept can evolve into a realistic development plan.

4.1 SUMMARY OF FACILITY NEEDS

This section summarizes the facility requirements described in Chapter 3 to accommodate forecast demand. **Table 4.1** presents a summary of the primary planning considerations. A detailed explanation for each issue outlined in the table is provided in Chapter Three. Alternatives developed within this master plan seek to accommodate all of these facilities, to the extent practicable.

Table 4.1 | Facility Requirements Summary

Existing Condition	Requirement	Trigger
Runways		
Runway 12R-30L • RDC C-II-5000 • 5,000' x 75' **Runway 12L-30R** • RDC B-II-4000 • 4,199' x 75'	Runway 12R-30L is not in compliance with recently applied RDC C-II-5000 design standards Consider upgrading the parallel runways to higher design standards (C-II & D-III) and extending and widening to better serve the business jet fleet	Airport operations dictate C-II standards need to be met now D-III standards apply with a change in design aircraft when annual operations by AAC D or ADG III exceed 500
Runway 7-25 • RDC B-II-VIS • 5,005' x 75'	Maintain B-II design standards; consider extension options to better serve all aircraft during high crosswind conditions	Annual operations exceeding 500 by aircraft needing an extension
Segmented circle and apron pavement obstruct the 7-25 ROFA and ROFZ	Relocate segmented circle and mitigate apron pavement	Existing condition
Public roads and buildings in existing RPZs	Mitigate RPZ incompatibilities	Existing condition
Taxiways		
Parallel taxiways available for each runway; minimum 240' separation from runway centerline	Increase separation to 300' for C-II runway; increase separation to 400' for D-III runway	Airport operations dictate C-II standards need to be met now Change in design aircraft when annual operations by AAC D or ADG III exceed 500
Two exit taxiways per runway in target areas	Add exits to each runway target area (2,000' to 4,000' from landing threshold)	Existing condition
Hot Spots 1-4[1]	Implement corrective measures	Existing condition
Eight direct access points	Implement corrective measures	Existing condition
Two high-energy runway crossings	Implement corrective measures	Existing condition
Five wide expansive pavement areas	Implement corrective measures	Existing condition
One aligned taxiway	Implement corrective measures	Existing condition
Five run-up aprons; three do not meet TOFA standards	Improve/expand run-up aprons	Existing condition

(Continues on next page)

[1] Since the original publishing of this chapter, the FAA has eliminated hot spots 5 and 6, resulting in four total hot spots at VGT.

Table 4.1 | Facility Requirements Summary (continued)

Existing Condition	Requirement	Trigger
Hangar/Apron & Other		
Airport traffic control tower (ATCT)	Consider increasing ATCT height to 150 feet above ground level	Existing condition
1,153,000 sf of storage hangar capacity	Increase capacity to 1,608,500 sf	Based on tenant/user demand
275,800 sy of apron	Increase capacity to 357,200 sy	Based on tenant/user demand
18 helicopter helipads/parking spaces	Consider locations for vertiport development	Based on tenant/user demand

Notes:
AAC = Aircraft Approach Category
ADG = Airplane Design Group
RDC = Runway Design Code
ROFA = Runway Object Free Area
ROFZ = Runway Obstacle Free Zone
RPZ = Runway Protection Zone
sf = square feet
sy = square yards
TOFA = Taxiway Object Free Area

Source: Coffman Associates

4.2 AIRPORT LAND USE PLANNING

This section documents, at a high level, the land use zoning adjacent to VGT. More detailed information regarding zoning and land uses adjacent to the airport can be found in Chapter 1. In addition to summarizing the existing agreement with the Bureau of Land Management (BLM), ongoing development activities within the City of North Las Vegas are highlighted. Adjacent land uses and zoning will be considered in the evaluation of alternatives developed within this phase of the master plan.

4.2.1 OVERVIEW

Land use planning for areas immediately adjacent to VGT is the responsibility of the City of North Las Vegas and the City of Las Vegas. The City of North Las Vegas adopted their Comprehensive Master Plan in November 2006, with an amendment made in February 2011. The plan includes three specific planning areas: residential neighborhoods, activity centers, and employment districts. VGT is bounded to the north by the Cheyenne North District and to the south by the South District, both of which are categorized as residential neighborhoods. The Cheyenne North District also includes the Cheyenne Technology Corridor, which includes mixed-use development (i.e., office, retail, services, and housing). The city's current land use plan, which was updated in February 2024, identifies the areas immediately adjacent to the airport as community commercial, resort commercial, mixed-use employment, employment, single family residential, multi-family, and mixed-use neighborhood. The City of Las Vegas, which bounds the airport on the west, adopted the 2050 Master Plan in July 2021. Specific plans for the area adjacent to VGT along Rancho Drive include mixed use center, corridor mixed use, and medium density residential.

4.2.2 BUREAU OF LAND MANAGEMENT MEMORANDUM OF UNDERSTANDING

Clark County has a Memorandum of Understanding (MOU) with the United States Department of the Interior, Bureau of Land Management (BLM), that was originally executed September 7, 1999, and then amended on September 6, 2005; June 20, 2006; and December 21, 2010. Under the MOU, BLM is granted 110 acres of undeveloped land at North Las Vegas Airport that includes Las Vegas bearpoppy habitat. In exchange, the BLM agreed to keep 102 acres of land adjacent to Henderson Executive Airport undisturbed

and undeveloped to provide a noise/safety buffer around the airport. This is a long-term agreement that will last for 30 years from the original agreement and automatically renews for a term of 10 years unless one or both parties takes a termination action, which would require a one-year advance notice.

4.2.3 RECENT DEVELOPMENTS

- Simmons Airpark is an industrial complex recently developed east of the airport on Simmons Street. The nine-acre site is seeking various tenants, including distribution centers, offices, and retail stores.

- A 144-lot, single-family subdivision is under development immediately north of the airport along Cheyenne Avenue. The site is approximately 24.3 acres in size. A portion of the Runway 12R runway protection zone (RPZ) extends over this area; however, the subdivision plan shows this area as an undeveloped lot.

- Windsor Commerce Park is an 86-acre industrial park located east of Simmons Street and north of Carey Avenue. This site includes eight logistic facilities, office space, parking, and loading docks.

4.3 OPPORTUNITIES AND CONSTRAINTS

Prior to defining potential alternatives to accommodate forecasted demand, it is important to understand the unique opportunities and constraints present at VGT. The sections below summarize some of the key opportunities and constraints associated with the physical development of the airport to accommodate forecasted demand. For additional information regarding the strengths, weaknesses, opportunities, and threats at the airport, refer to Chapter 1, Section 1.1.4.

4.3.1 OPPORTUNITIES

Las Vegas is the event capital of the world, and with that comes visitors from all over the globe. Some recent examples include Super Bowl LVIII, which was hosted in Las Vegas in February 2024, and Formula 1 races held in Las Vegas in November 2023 and 2024. These events resulted in VGT and other CCDOA airports reaching full capacity in terms of parked/serviced aircraft and operations in the days leading up to and following them. Las Vegas is becoming home to a Major League Baseball team and is in talks to become home to a National Basketball Association team. The opening of the Sphere in 2023 also furthered Las Vegas as a top destination for the biggest entertainers in the music industry. Aviation demand is closely tied to every element of the local economy and all indications are that demand will continue to grow into the future. VGT's location just a few miles north of the Las Vegas Strip makes it a valuable part of Las Vegas' transportation infrastructure. The airport has developable property sufficient to accommodate projected demand, including the introduction of emergent technologies in the aviation industry, such as advanced air mobility (AAM). VGT has every opportunity to support existing and future users and to increase and diversify revenue streams to ensure long-term financial sustainability.

4.3.2 CONSTRAINTS

Potential alternatives for VGT are limited by several physical constraints. There are multiple roadways near the airport, including Cheyenne Avenue to the north, Rancho Drive to the west, Simmons Street to the east, and Carey Avenue to the south. In addition, approximately 110 acres of airport property is designated as a bearpoppy conservation area; another approximately 77 acres of property in the southeast corner contains fissures, which cause challenges for development; and airport property located south of Carey Avenue is used primarily for a detention basin. There are also numerous residential neighborhoods in the vicinity of the airport, particularly those to the north, west, and southeast, which present constraints to development. Vicinity airspace is also a constraint due to the proximity of VGT to Harry Reid International Airport (LAS) and Nellis Air Force Base (AFB). These various constraints must be weighed as part of the alternative's evaluation process.

4.4 EVALUATION CRITERIA

Various airfield alternatives have been prepared to address the facility requirements summarized above. The details of each alternative are described below along with the alternative's associated advantages and disadvantages. Each alternative will be evaluated based on the following factors:

- **Achieved Runway Design Standards |** The forecasts established that business jets within AAC C/D and ADG III are using the airport on a much more frequent basis. Improving the airfield to meet these higher design standards is necessary to ensure VGT can continue to serve in its role as a general aviation reliever. The target design standard for the primary runway is D-III.

- **Achieved Primary Runway Length |** Similar to meeting higher runway design standards, additional runway length is also needed at VGT to serve business jets, particularly during hot weather. The evaluation will consider the full length of the primary runway and the resulting accelerate-stop distance available (ASDA) and landing distance available (LDA) based upon applied declared distances. ASDA and LDA are considered the key declared distances used by pilots when determining whether to operate at an airport and are subject to runway safety area (RSA) standards.

- **Non-standard Airfield Geometry Impacts |** Various non-standard geometry conditions were identified in the facility requirements section, including direct-access points, high-energy area intersections, wide expansive pavements, and hot spots. Each alternative will be evaluated on its ability to meet FAA airfield geometry standards. It should be noted, regarding high-energy area intersections (those occurring within the middle third of a runway), the FAA recommends avoiding these types of intersections; however, because VGT is a multi-runway airport equipped with an airport traffic control tower, mitigation of these intersections is given a lower priority as having fewer crossings or moving the intersections out of the high-energy area is not always feasible and can result in greater inefficiencies.

- **RPZ Incompatibility Impacts |** The FAA prefers that RPZs be cleared of developments that might attract large congregations of people. Each alternative will be evaluated on whether the RPZs are cleared of incompatible development.

- **Airfield Capacity Impacts |** The facility requirements identified a need to increase the number of exit taxiways within the target area (2,000 feet to 4,000 feet from the landing threshold) to provide a benefit to airfield capacity. There are currently two exits in the target area for each runway; ideally three to four would be available to provide a capacity improvement.

- **Other Impacts |** Other impacts on and off airport property are very important to the viability of a given alternative. How a configuration affects airport infrastructure, local roadways, existing businesses, future development, and land acquisition (either in fee title or through an avigation easement) are all important factors to consider.

- **Estimated Costs |** Important to any project is its cost to implement. This criterion is a comparative analysis between the various alternatives and will focus primarily on the amount of new pavement and/or development that would be required. The intention is to understand, at a high level, which alternatives will be most and least costly. Detailed cost estimates are not developed for these alternatives. The alternative that is least costly to implement would receive a '+' rating and the costliest alternative would be a '-' rating. All other alternatives would receive a score of '0'.

4.5 NO-BUILD ALTERNATIVE

The no-build alternative essentially considers making no new capital investments in the airport. Limited maintenance and upkeep would continue so that the airport remains safe for aviation activity. No new hangars or apron area would be planned to be built by the airport sponsor; however, this would not (and could not) include the prohibition of hangar construction by a private entity. The obvious result of the no-build alternative is that the airport would be unable to meet the existing and forecast demand for aviation services in the area. As previously established, based on increases in jet traffic, the airfield needs to be improved to meet C-II design standards at a minimum. Maintaining the airfield to a lower B-II design standard in a no-build scenario is not a viable option.

The primary reason a community might choose a no-build alternative is to ultimately not be bound by the grant assurances associated with the acceptance of airport development grants. Grant assurances are part of the grant package contract to which the airport sponsor commits when accepting a development grant from the Federal Aviation Administration (FAA). As such, airport sponsors are bound to maintain the useful life of the facilities developed or equipment acquired for an airport development project. Useful life is typically a term not to exceed twenty (20) years from the date of acceptance of a grant offer of federal (FAA) funds for a project. There is no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds.

The CCDOA has received almost $31.3 million in development grants since 2002. These grants represent a direct economic stimulus that has lasting and positive economic impacts. The no-build alternative means the CCDOA would forgo future grants for airport development, which would have a negative economic impact that would become more noticeable over time.

The CCDOA has a vested interest in maintaining and improving airport facilities. Without a commitment to ongoing improvement of the airport, users of the airport will be constrained from taking full advantage of its air transportation capabilities. The unavoidable consequence of the no-build alternative is that the capability of the airport would diminish over time as its ability to serve in its role as a general aviation reliever would deteriorate. This would lead to diminished activity levels and would ultimately negatively impact the local and regional economy. Safety concerns would also arise – especially if necessary, routine maintenance was deferred – and the liability for damage to aircraft or accidents would increase. The long-term consequences of the no-build alternative would be to reduce the quality of the existing airport facilities over time, producing undesirable results. Therefore, the no-build alternative is not a viable development strategy and is not recommended for VGT. It is included in this analysis to serve as a baseline for future environmental study.

4.6 RUNWAY ALTERNATIVES

Runway Configuration Alternative 1 – Figure 4.1

This alternative is a slight modification of the preferred alternative from the 2020 VGT *Runway Incursion Mitigation (RIM) Study*.

- Runway 12R-30L is improved to C-II design standards and extended by 755 feet north and 580 feet south for a full length of 6,336 feet and a width of 100 feet. The difference between this alternative from the 2020 RIM study is that the Runway 12R threshold would be displaced by 1,825 feet in order to shift the RPZ onto airport property and prevent it from extending over Cheyenne Avenue.

- Runway 12L-30R is maintained at B-II design standards and extended to a full-length of 4,408 feet by converting the aligned taxiway beyond the 12L threshold to displaced runway pavement.

- Runway 7-25 is maintained at B-II design standards. No extension is shown for this runway.

- Taxiway B is shifted west to meet the C-II 300-foot separation standard between a runway and parallel taxiway centerline. Several new connecting stub taxiways from Taxiway B to the apron are shown in an offset orientation to eliminate direct access points.

- Taxiway H is shifted south between Taxiway P and Taxiway B to eliminate the taxiway intersection within the middle third of the runway.

- New entrance and bypass taxiways are shown at the end of Runway 12R and 30L, as well as new entrance taxiways at the end of Runway 30R to mitigate the need for aircraft to back-taxi on the runway to use the full length for takeoff. Bypass taxiways allow tower controllers to re-sequence aircraft waiting for departure, which can improve airfield efficiency.

- Hot spot 1 is mitigated by removing Taxiway F and reconstructing Taxiway G with an offset connector to the apron to eliminate the direct access point.

This page intentionally left blank

Runway Data						
	12R	30L	12L	30R	7	25
RDC	C-II-5000		B-II-5000		B-II-VIS	
Runway Length	6,336′		4,408′		5,005′	
Displaced Threshold	1,825′	580′	205′	199′	0′	0′
TORA	6,336′	4,511′	4,408′	4,408′	5,005′	5,005′
TODA	6,336′	6,336′	4,408′	4,408′	5,005′	5,005′
ASDA	5,412′	5,429′	4,408′	4,408′	5,005′	5,005′
LDA	3,587′	4,849′	4,203′	4,209′	5,005′	5,005′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND
- Airport Property Line
- A Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Pavement Removal
- Bearpoppy Conservation Area

Convert 205-foot Aligned Taxiway to Displaced Runway
Runway 7/25 5,005′ x 75′
Runway 12L/30R (4,408′ x 75′)
Runway 12R/30L (6,336′ x 100′)
240′
300′
755′ Runway Extension
580′ Runway Extension
Valley Dr
W Cheyenne Ave
Thunderbird Field Rd
Sky Haven Dr
W Evans Ave
Citizen Ave
N Simmons St
W Carey Ave
574
N Decatur Blvd
N Rancho Dr.
Airport Dr
Perimeter Rd
W Lake Mead Blvd
SCALE IN FEET 0 800
Photo: Google Earth 04/2023

Figure 4.1
RUNWAY CONFIGURATION ALTERNATIVE 1

This page intentionally left blank

- Hot spot 2 is mitigated by the extension of Runway 12R to the north, which helps address the hot spot by shifting the 12R away from the intersection with Taxiway G.
- Hot spot 3 is mitigated by removing Taxiway R, which eliminates the confusing intersection.
- Taxiway E is removed between Runway 7-25 and Taxiway C where it creates a non-standard intersection angle near the holdbars for Runway 12L.
- A new partial-parallel taxiway is added 240 feet north from the Runway 7-25 centerline, which improves circulation and access/egress for the Runway 25 end.
- Hot spot 4 is mitigated by removing the holding bay located at the intersection of Taxiways D and A between the parallel runways and replacing it with a new holding bay that is shifted south along Taxiway D away from the taxiway intersections.
- New holding bay designs are also included at the north and south ends of Taxiway B.

From a cost perspective, this alternative has the least amount of new runway/taxiway pavement, which makes it the least costly runway alternative. Some pros/cons of this alternative from an engineering and constructability perspective include:

Pros
• Minimal grading is required for the Runway 12R extension. • Runway 12R-30L ADG remains the same, which reduces the need for a full width pavement strengthening/reconstruction. • No impacts to the detention basin.
Cons
• Does not meet the recommended RDC D-III-5000 design standards. • Runway 12R-30L length is the shortest of each alternative considered, providing the least amount of utility. • The Runway 12R displaced threshold results in a reduced landing distance available compared to what is currently available. • Realignment/relocation of Taxiway B would include the need for a new parallel storm drain system. • Approximately 15,000 cubic yards (cy) of fill would be needed for the extension of Runway 30L.

Runway Configuration Alternative 2 – Figure 4.2

This alternative considers the following:

- Runway 12L-30R is improved to RDC D-III-4000 design standards. The runway is extended by 1,932 feet south and the aligned taxiway converted to usable displaced threshold to achieve a full length of 6,336 feet. The runway is also widened to 100 feet to meet the higher design standard. To maximize runway length, this alternative applies an engineered material arresting system (EMAS) bed to the 30R end. EMAS is a crushable material that decelerates aircraft during an excursion incident without damaging the landing gears. The implementation of an EMAS bed reduces the C/D-II/III RSA/ROFA beyond the end of the runway requirement from 1,000 feet to 600 feet. The EMAS bed shown in the alternative is 300 feet long and is set back from the end of the runway with a 300-foot blast pad in between. The 30R threshold is displaced by 1,343 feet to keep the RPZ from extending over a neighboring residential neighborhood.

- The Runway 12L-30R south extension crosses Carey Avenue, which requires the road to be closed between Simmons Drive and the entrance to the Walmart parking lot. A new connector road between Carey Avenue and Lake Meade Boulevard is shown on airport property and is intended to improve circulation in that area because of the closure of a portion of Carey Avenue. The extension also impacts the detention basin on airport property.

- Runways 12R-30L and 7-25 are maintained at their current length, width, and design standards.

- Taxiways P and D are relocated to a 400-foot separation distance from Runway 12L-30R to meet D-III standards. Several new exit taxiways are added to both parallel runways to increase exit factors for the runways, allowing aircraft to exit the runways faster, reducing runway occupancy times, and improving capacity.

- Exit taxiways that intersect in the middle third of each runway are offset to mitigate intersections within the high energy area of the runways. As mentioned previously, the elimination of high energy area intersections is recommended by the FAA, but is not required.

- Portions of Taxiways C, F, and H are removed to mitigate direct access points. No-taxi islands are applied prior to Taxiways K, L, and M to mitigate direct access points on the east apron.

- Portions of Taxiway E and C are removed where they intersect with Taxiway A and P to address non-standard intersection angles.

- Hot spot 1 is mitigated by reconfiguring Taxiways G and F and adding new Taxiway A pavement connecting the two. The direct access point is eliminated as well.

- Hot spot 3 is mitigated by removing Taxiway A pavement between the intersection with Taxiway B and Taxiway D.

Runway Data						
	12R	30L	12L	30R	7	25
RDC	B-II-5000		D-III-5000		B-II-VIS	
Runway Length	5,000′		6,336′		5,005′	
Displaced Threshold	0′	0′	205′	1,343′	0′	0′
TORA	5,000′	5,000′	4,993′	6,131′	5,005′	5,005′
TODA	5,000′	5,000′	6,336′	6,336′	5,005′	5,005′
ASDA	5,000′	5,000′	6,336′	6,336′	5,005′	5,005′
LDA	5,000′	5,000′	6,131′	4,993′	5,005′	5,005′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND
- Airport Property Line
- Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Roads/Parking
- Ultimate Pavement Removal
- Bearpoppy Conservation Area

Convert 205-foot Aligned Taxiway to Displaced Runway
Relocated Segmented Circle Lighted Wind Cone
W Carey Avenue Closure
Blast Pad
EMAS Bed
1,932′ Runway Extension
Proposed Realignment for Carey Ave.
Runway 7/25 5,005′ x 75′
Runway 12L/30R (6,336′ x 100′)
Runway 12R/30L (5,000′ x 75′)
400′
400′
W Evans Ave
N Simmons St
Citizen Ave
Thunderbird Field Rd
Sky Haven Dr
Valley Dr
W Cheyenne Ave
574
N Decatur Blvd
N Rancho Dr.
Airport Dr
Perimeter Rd
W Carey Ave
W Lake Mead Blvd
0
800
SCALE IN FEET
Photo: Google Earth 04/2023

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 4.2
RUNWAY CONFIGURATION ALTERNATIVE 2

This page intentionally left blank

- Hot spot 4 is mitigated by eliminating the holding bay at the intersection of Taxiway A and D. A new holding bay in this area is not proposed.

- New holding bays are added at the south end of Taxiways D and P (near the ultimate end of Runway 30R), as well as at the east end of Runway 25.

Cost considerations for this alternative are that it includes more pavement construction than the first alternative but still less than others, so it would have low to mid-level costs compared to the other alternatives. Some pros/cons of this alternative from an engineering and constructability perspective include:

Pros
• Minimal grading is required for the Runway 12L extension. • Minimal construction impacts to Runway 12R-30L, Taxiway B, and west development.
Cons
• Requires relocation of detention basin and drainage culverts. • Realignment/relocation of Taxiways P and D would require a new parallel storm drain system. • Approximately 225,000 CY of fill is required for the Runway 30R extension. • Requires realignment of Carey Avenue and cover/depression of adjacent culvert. • Requires relocation of the Runway 12L localizer. • Full reconstruction of Runway 12L-30R and associated taxiway pavements for ADG III aircraft loads.

Runway Configuration Alternative 3 – Figure 4.3

This alternative considers the following:

- Improving both parallel runways to higher design standards. Runway 12R-30L meets C-II standards and Runway 12L-30R meets D-III standards. Having two runways capable of accommodating larger/faster business jets on a regular basis would greatly expand the utility of the airport and relieve congestion at other county airports, especially during high activity events.

- Runway 12R-30L is extended 286 feet north and 2,620 feet south for a full length of 7,906 feet and a width of 100 feet. EMAS beds are applied to both ends of the runway to reduce the RSA/ROFA requirement beyond the end of the runway from 1,000 feet to 600 feet. Both thresholds are displaced to keep the RPZs from extending beyond airport property.

- Runway 12L-30R is extended 1,932 feet south and 205 feet north (via the conversion of the aligned taxiway to usable displaced threshold) for a full length of 6,336 feet and width of 100 feet. The 12L threshold is displaced a total of 800 feet to shift the RPZ off the Cheyenne hangar complex, and the 30R threshold is displaced 1,343 feet to keep the RPZ from extending off airport property. An EMAS bed is applied to the 30R end to maximize the length potential of the alternative.

- The extension of both runways results in the closure of a portion of Carey Avenue and impacts the detention basin on airport property.

- Runway 7-25 maintains B-II design standards but is extended by 400 feet east and 800 feet west for a full length of 6,205 feet. The added length provides more utility for the airport during high crosswind conditions. The entirety of the 800-foot extension to the west is a displaced threshold to keep the RPZ on airport property.

- Taxiways D and P are relocated to a 400-foot separation distance from the Runway 12L-30R centerline in order to meet D-III standards.

- Taxiway B is also relocated to a 300-foot separation distance from the Runway 12R-30L centerline to meet C-II standards.

- A dual-parallel taxiway is added to mirror Taxiway B between Taxiways G and K in the terminal area. Dual-parallel taxiways improve circulation efficiency in high activity areas. The application of the dual-parallel taxiway results in several existing facilities and a significant amount of apron pavement obstructing the taxiway object free area (TOFA). Obstructing facilities and apron pavement are shown to be removed.

- All direct access points are eliminated by either offsetting connecting taxiways or implementing no-taxi islands.

- High-energy area taxiway intersections are maintained in this alternative. As mentioned previously, the elimination of high energy area intersections is recommended by the FAA, but is not required.

Runway Data						
	12R	30L	12L	30R	7	25
RDC	C-II-5000		D-III-5000		B-II-VIS	
Runway Length	7,906′		6,336′		6,205′	
Displaced Threshold	1,355′	1,265′	800′	1,343′	800′	0′
TORA	6,641′	6,551′	4,993′	5,536′	6,205′	5,405′
TODA	7,906′	7,906′	6,336′	6,336′	6,205′	6,205′
ASDA	7,906′	7,906′	6,336′	6,336′	6,205′	6,205′
LDA	6,551′	6,641′	5,536′	4,993′	5,405′	6,205′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND
- Airport Property Line
- Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Pavement Removal
- Bearpoppy Conservation Area
- Ultimate Facility Relocation

400′ Runway Extension
Convert 205-foot Aligned Taxiway to Displaced Runway
Runway 7/25 (6,205′ x 75′)
Relocated Segmented Circle Lighted Wind Cone
No-Taxi Island
W Carey Avenue Closure
Blast Pad
EMAS Bed
Runway 12L/30R (6,336′ x 100′)
400′
400′
Blast Pad
1,932′ Runway Extension
EMAS Bed
Runway 12R/30L(7,906′ x 100′)
286′ Runway Extension
2,620′ Runway Extension
Blast Pad
800′ Runway Extension
W Evans Ave
N Simmons St
Citizen Ave
Thunderbird Field Rd
Sky Haven Dr
Valley Dr
W Cheyenne Ave
N Decatur Blvd
574
N Rancho Dr.
Airport Dr
Perimeter Rd
W Carey Ave
W Lake Mead Blvd
SCALE IN FEET
0
800
Photo: Google Earth 04/2023

Figure 4.3
RUNWAY CONFIGURATION ALTERNATIVE 3

This page intentionally left blank

- Portions of Taxiway C and E are removed to eliminate non-standard intersection angles.
- Hot spot 1 is mitigated by reconfiguring Taxiways G and F and developing a new connection point to the apron.
- Hot spot 2 is mitigated by extending Runway 12R north, forcing pilots to make a turn onto Taxiway B to reach the ultimate end of the runway.
- Hot spot 3 is mitigated by the elimination of Taxiway A pavement between Taxiway B and the end of Runway 12L.
- Hot spot 4 is mitigated by the elimination of the holding bay along Taxiway D between the runways. A new holding bay in this area is not proposed.
- New holding bays are added at the south end of both parallel runways and at the east end of Runway 7-25.

This alternative presents the most new runway and taxiway pavement and would require the reconstruction of Runway 12L-30R to meet higher weight bearing capacity, which results in the highest cost of all the runway alternatives presented. Some pros/cons of this alternative from an engineering and constructability perspective include:

Pros
• Minimal paving/grading is required for the Runway 12L extension. • Balanced cut/fill for Runway 7-25 extensions.
Cons
• Requires relocation of detention basin and drainage culverts. • Realignment/relocation of Taxiways P, D, and B would require a new parallel storm drain system. • Approximately 678,000 CY of fill is required for the Runway 30R/30L extensions. • Requires closure of Carey Avenue and cover/depression of adjacent culvert without a realignment of the road to West Lake Meade Boulevard. • Requires relocation of the Runway 12L localizer. • Full reconstruction of Runway 12L-30R and associated taxiway pavements for ADG III aircraft loads.

Runway Configuration Alternative 4 – Figure 4.4

This alternative considers the following:

- Improving both parallel runways, like in Airfield Alternative 3 but with the difference coming from improving Runway 12R-30L to D-III standards and Runway 12L-30R to C-II standards. To accomplish this, both runways must be shifted east by approximately 160 feet. This is necessary to meet the D-III runway/taxiway centerline separation standard of 400 feet while also keeping Taxiway B and minimizing impacts to existing hangar/apron facilities. The runways must also maintain a minimum 700-foot separation from each other so that they can be used simultaneously during visual flight rule (VFR) conditions. Connected actions to shifting the runways would be the need to relocate all navigational aids, lighting systems, signage systems, and visual approach aids.

- Runway 12R-30L has a full length of 8,076 feet and width of 100 feet.

- Runway 12L-30R is 5,970 feet long and 100 feet wide.

- Thresholds for both runways are displaced to keep the RPZs from extending beyond airport property. EMAS beds are applied to the ends of 12L, 30R, and 30L to maximize runway length.

- The extension of both runways results in the closure of a portion of Carey Avenue and impacts the detention basin on airport property. A new connector road between Carey Avenue and Lake Meade Boulevard is shown on airport property and is intended to improve circulation in that area because of the closure of a portion of Carey Avenue.

- Runway 7-25 is maintained at B-II standards, but is extended 400 feet east and 800 feet west for a full length of 6,205 feet. The added length provides more utility for the airport during high crosswind conditions. The entirety of the 800-foot extension to the west is displaced threshold to keep the RPZ on airport property.

- Taxiway F is eliminated, and Taxiway G is reconfigured to force pilots to taxi around the ultimate end of Runway 7 to access Runway 12R, which is less efficient but mitigates hot spots 1 and 2.

- Taxiway A pavement is eliminated from Taxiway B to Taxiway C, which mitigates hot spots 3 and 4.

- Direct access points from the aprons are also eliminated by removing connecting taxiways and constructing new taxiways to the shifted parallel runways. No-taxi islands are applied prior to Taxiways K, L, and M to mitigate direct access points on the east apron.

- New holding bays are shown at the south end of the parallel runways and near both ends of Runway 7 and 25.

Runway Data						
	12R	30L	12L	30R	7	25
RDC	D-III-5000		C-II-5000		B-II-VIS	
Runway Length	8,076′		5,970′		6,205′	
Displaced Threshold	1,418′	1,400′	230′	1,316′	800′	0′
TORA	6,676′	6,658′	4,654′	5,740′	6,205′	5,405′
TODA	8,076′	8,076′	5,970′	5,970′	6,205′	6,205′
ASDA	8,076′	8,076′	5,970′	5,970′	6,205′	6,205′
LDA	6,658′	6,676′	5,740′	4,654′	5,405′	6,205′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND
- Airport Property Line
- A Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Roads/Parking
- Ultimate Pavement Removal
- Bearpoppy Conservation Area

400′ Runway Extension
W Evans Ave
N Simmons St
Citizen Ave
Thunderbird Field Rd
Sky Haven Dr
Valley Dr
W Cheyenne Ave
Runway 7/25 (6,205′ x 75′)
Relocated Segmented Circle Lighted Wind Cone
No-Taxi Island
W Carey Avenue Closure
Blast Pad
EMAS Bed
Runway 12L/30R (5,970′ x 100′)
300′
Runway 12R/30L(8,076′ x 100′)
400′
Blast Pad
EMAS Bed
Blast Pad
EMAS Bed
574
N Decatur Blvd
800′ Runway Extension
Airport Dr
Perimeter Rd
W Carey Ave
Proposed Realignment for Carey Ave.
N Rancho Dr.
W Lake Mead Blvd
0 800
SCALE IN FEET
Photo: Google Earth 04/2023

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 4.4
RUNWAY CONFIGURATION ALTERNATIVE 4

This page intentionally left blank

This alternative requires the construction of two new runways and a significant amount of new taxiway pavement, resulting in mid- to high-level costs compared to the other runway alternatives. Some pros/cons of this alternative from an engineering and constructability perspective include:

Pros
• Minimal paving/grading is required for the Runway 12L extension. • Balanced cut/fill for Runway 7-25 extensions.
Cons
• Requires relocation of detention basin and drainage culverts. • Realignment/relocation of Taxiways P, D, and B would require a new parallel storm drain system. • Approximately 678,000 CY of fill is required for the Runway 30R/30L extensions. • Requires realignment of Carey Avenue and cover/depression of adjacent culvert. • Requires relocation of the Runway 12L localizer. • Full reconstruction of Runway 12L-30R and associated taxiway pavements for ADG III aircraft loads.

Runway Configuration Alternative 5 – Figure 4.5

This alternative considers the following:

- A similar 160-foot shift of the parallel runways to the east as presented in Alternative 4. The shift is necessary to accomplish meeting the D-III runway/taxiway separation standard of 400 feet. Connected actions to shifting the runways would be the need to relocate all navigational aids, lighting systems, signage systems, and visual approach aids.

- Runway 12R-30L has a full length of 6,860 feet and width of 100 feet, which maximizes the length while avoiding impacts to the detention basin at the south end of airport property. EMAS beds are applied to both ends of the runway to reduce the RSA/ROFA requirement beyond the end of the runway from 1,000 feet to 600 feet.

- The Runway 12R and 30L thresholds are displaced appropriately to keep the RPZs from extending beyond airport property.

- Runway 12L-30R is constructed at 4,300 feet long and 75 feet wide, meeting B-II design standards. The Runway 12L threshold is displaced by 230 feet to provide proper approach surface clearance over the ultimate parallel taxiway north of Runway 7-25.

- Runway 7-25 is maintained at its current length and width, also meeting B-II design standards.

- Taxiway D is reconstructed and shifted 200 feet east to meet the 400-foot separation distance from Runway 12R-30L.

- A new connector road, which would be located on airport property, is intended to improve circulation between Lake Meade Boulevard and Carey Avenue because of the closure of a portion of Carey Avenue, which is needed to allow for the development of the new Runway 12R-30L.

- Taxiway P is reconstructed at a 240-foot separation distance from Runway 12L-30R.

- A portion of Taxiway H is shifted south (between Taxiway P and B) to provide an offset that forces pilots to make a turn prior to entering the runway when traveling in either direction.

- Taxiway C is removed and new 90-degree connectors are added to provide access to the Runway 12L threshold.

- Direct access points are mitigated by eliminating connectors and/or applying no-taxi islands.

- Hot spot 1 is mitigated by reconfiguring the alignment of Taxiways G and F.

- Hot spot 2 is mitigated by the extension of Taxiway B.

- Hot spots 3 and 4 are mitigated by the removal of a portion of Taxiway A pavement between Taxiway B and Taxiway C and the holding bay on Taxiway D.

Runway Data						
	12R	30L	12L	30R	7	25
RDC	D-III-5000		B-II-5000		B-II-VIS	
Runway Length	6,860′		4,300′		5,005′	
Displaced Threshold	1,418′	200′	230′	0′	0′	0′
TORA	6,660′	5,442′	4,300′	4,300′	5,005′	5,005′
TODA	6,860′	6,860′	4,300′	4,300′	5,005′	5,005′
ASDA	6,860′	6,860′	4,300′	4,300′	5,005′	5,005′
LDA	5,442′	6,660′	4,070′	4,300′	5,005′	5,005′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND
- Airport Property Line
- Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Roads/Parking
- Ultimate Pavement Removal
- Bearpoppy Conservation Area

Valley Dr
W Cheyenne Ave
Runway 7/25 (5,005′ x 75′)
Relocated Segmented Circle Lighted Wind Cone
Thunderbird Field Rd
Sky Haven Dr
W Evans Ave
N Simmons St
Citizen Ave
W Carey Avenue Closure
240′
Runway 12L/30R (4,300′ x 75′)
300′
Blast Pad
EMAS Bed
Runway 12R/30L(6,860′ x 100′)
400′
Blast Pad
EMAS Bed
574
N Decatur Blvd
N Rancho Dr.
Airport Dr
Perimeter Rd
W Carey Ave
W Lake Mead Blvd
Proposed Realignment for Carey Ave.

SCALE IN FEET
0 800
Photo: Google Earth 04/2023

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 4.5
RUNWAY CONFIGURATION ALTERNATIVE 5

This page intentionally left blank

- Taxiway E is reconfigured and extended from Runway 7-25 to Taxiway P.
- New holding bays are proposed at the south end of Taxiway P and at the east end of Runway 25.

This alternative reduces the amount of new runway/taxiway pavement compared to most of the other alternatives resulting in low to mid-level costs compared to the other runway alternatives. Some pros/cons of this alternative from an engineering and constructability perspective include:

Pros
• No improvements within the existing detention basin requiring its relocation. • Maintains the Taxiway B alignment and lessens construction impacts to existing west hangar/ apron development.
Cons
• Approximately 176,000 CY of fill is required for the Runway 30L extension. • Requires realignment of Carey Avenue and cover/depression of adjacent culvert. • Requires relocation of the Runway 12L localizer and glideslope. • Full reconstruction of Runway 12R-30L and associated taxiway pavements for ADG III aircraft loads.

4.6.1 RUNWAY CONFIGURATION ALTERNATIVES SUMMARY

The runway configuration alternatives are summarized and compared by the evaluation criteria in **Table 4.2**.

TABLE 4.2 | Runway Configuration Alternatives Summary

	ALTERNATIVES				
	1	2	3	4	5
RDC	C-II	D-III	D-III	D-III	D-III
Primary Runway Length (ft)	6,336	6,336	7,906	8,076	6,860
Accelerate Stop Distance Available (ASDA) (ft)	5,429	6,336	7,906	8,076	6,860
Landing Distance Available (LDA) (ft)	4,849	6,131	6,641	6,676	6,660
Airfield Geometry	Mitigates most issues; maintains Taxiway A acute-angled intersections and high-energy intersections	Maintains Taxiway A acute-angle intersection; high-energy intersections offset	Mitigates non-standard conditions; requires removal of hangar facilities to clear TOFA	Mitigates non-standard conditions; maintains high-energy intersections	Mitigates non-standard conditions; maintains high-energy intersections
RPZs	Cheyenne Ave and Carey Ave in RPZs	Cheyenne Ave in 12L/12R RPZs; Cheyenne hangar complex impacted	No incompatibilities	Hangar within 12L RPZ; no other incompatibilities	No incompatibilities
Capacity	2/3 exits in target area	2/3 exits in target area	3 exits in target area	3 exits in target area	3 exits in target area
Other	No impact on vicinity roads or developments	Portion of Carey Ave closed; impacts detention basin; new connecting road between Carey Ave and Lake Mead Blvd	Portion of Carey Ave closed; impacts detention basin	Portion of Carey Ave closed; impacts detention basin; new connecting road between Carey Ave and Lake Mead Blvd	Portion of Carey Ave closed; new connecting road between Carey Ave and Lake Mead Blvd
Cost Consideration	+	0	-	0	0

Source: Coffman Associates analysis

4.7 AIRSIDE ALTERNATIVES

Strategizing the development of new airside (hangars, aprons, and taxilanes) facilities is entirely dependent on how the runway and taxiway systems are improved. It is in the best interest of the airport to develop new airside facilities so that a natural segregation of users occurs. Segregating the larger business aircraft from smaller aircraft results in a safer and more efficient operating environment. The existing core airside facilities at VGT are focused primarily on the west side of the airfield, including the terminal facility, hangar developments, aprons, and specialty aviation service operator (SASO) facilities. For example, if Runway 12R-30L is improved to accommodate larger business aircraft, it would make sense for the west side of the airfield to be focused on facilities and services to accommodate business aircraft while the east side could be developed with facilities and services accommodating smaller aircraft.

The CCDOA has determined that advanced air mobility (AAM) integration will be focused on a 226-acre CCDOA-owned site south of Sloan, as opposed to the general aviation airports. For this reason, the master plan will not identify specific areas for AAM development at VGT.

4.8 ALTERNATIVES SUMMARY

The process utilized in assessing airport alternatives involved a detailed analysis of planning period facility requirements, as well as the growth potential for airport property. Current airport design standards were considered at each stage of development.

Several development alternatives have been presented. After review by the planning advisory committee (PAC), technical advisory committee (TAC), the CCDOA, and the public, a recommended concept will be presented in the next chapter. The resulting plan will represent an airport facility that fulfills safety and design standards.



Chapter 5

Recommended Development Concept







Chapter 5
Recommended Development Concept

The airport master plan for North Las Vegas Airport (VGT) has progressed through a systematic and logical process with a goal of formulating a recommended 20-year development plan. The process began with an evaluation of existing and future operational demand, which aided in creating an assessment of future facility needs. Those needs were then used to develop alternative facility plans to meet projected needs. Each step in the planning process has included the development of draft working papers, which were presented and discussed at previous planning advisory committee (PAC) and technical advisory committee (TAC) meetings and public information workshops and have been made available on the project website.

In the previous chapter, several development alternatives were analyzed to explore options for the future growth and development of VGT. The alternatives have been refined into a single recommended concept for the master plan. This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of VGT.

The master plan concept provides the ability to meet the disparate needs of various airport operators. The goal of this plan is to ensure the airport can continue (and improve) in its role of serving as a general aviation reliever to the Clark County Department of Aviation (CCDOA) system of airports. The plan has been tailored specifically to support existing and future growth in all forms of potential aviation activity as the demand materializes.

5.1 RUNWAY/TAXIWAY PLAN

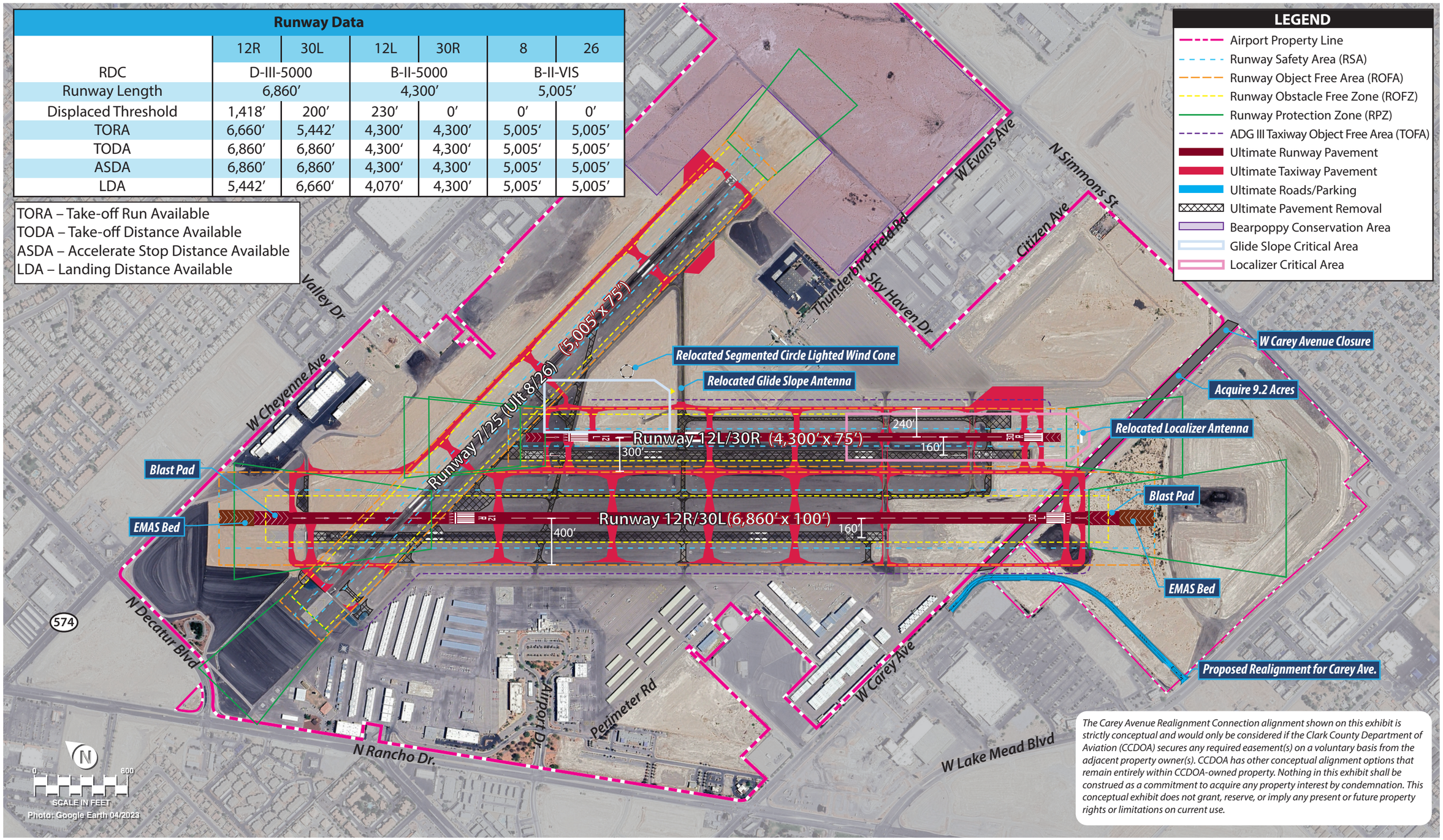
The runway/taxiway plan generally considers improvements related to the airfield system and navigational aids. The master plan concept, as shown on **Figure 5.1**, presents a long-term configuration for the airport that preserves and enhances the role of the airport while meeting Federal Aviation Administration (FAA) design standards. The phased implementation of the master plan concept will be presented in Chapter Six. The following sections describe the key details of the master plan concept.

Runway Data						
	12R	30L	12L	30R	8	26
RDC	D-III-5000		B-II-5000		B-II-VIS	
Runway Length	6,860′		4,300′		5,005′	
Displaced Threshold	1,418′	200′	230′	0′	0′	0′
TORA	6,660′	5,442′	4,300′	4,300′	5,005′	5,005′
TODA	6,860′	6,860′	4,300′	4,300′	5,005′	5,005′
ASDA	6,860′	6,860′	4,300′	4,300′	5,005′	5,005′
LDA	5,442′	6,660′	4,070′	4,300′	5,005′	5,005′

TORA – Take-off Run Available
TODA – Take-off Distance Available
ASDA – Accelerate Stop Distance Available
LDA – Landing Distance Available

LEGEND

- Airport Property Line
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- ADG III Taxiway Object Free Area (TOFA)
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Roads/Parking
- Ultimate Pavement Removal
- Bearpoppy Conservation Area
- Glide Slope Critical Area
- Localizer Critical Area



The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 5.1
MASTER PLAN CONCEPT

This page intentionally left blank

5.1.1 DESIGN STANDARDS

The FAA has established design criteria to define the physical dimensions of runways and taxiways, as well as the imaginary surfaces surrounding them, to enhance the safe operation of aircraft at airports. These design standards also define the separation criteria for the placement of hangar facilities and aircraft parking aprons.

As discussed previously, the design criteria primarily center on the airport's critical design aircraft. The critical design aircraft is the most demanding aircraft (or family of aircraft) that currently conducts, or is projected to conduct, 500 or more operations (takeoffs and landings) per year at the airport. Factors included in airport design are an aircraft's wingspan, approach speed, and tail height, as well as the instrument approach visibility minimums for each runway. The FAA has established the runway design code (RDC) to relate these design aircraft factors to airfield design standards.

While airfield elements, such as safety areas, must meet design standards associated with the applicable RDC, hangars, taxilanes, and aprons can be designed to accommodate specific categories of aircraft. For example, a taxiway must meet taxiway object free area (TOFA) standards for all aircraft types that use the taxiway, while the taxilane to a T-hangar area only needs to meet width standards for smaller single- and multi-engine piston aircraft expected to utilize the taxilane.

The applicable RDC and critical design aircraft for each runway at VGT in the existing and ultimate conditions – as established in Chapter Two – are summarized in **Table 5.1**.

TABLE 5.1 | Runway Classifications

	Runway 12R-30L		Runway 12L-30R		Runway 7-25	
	Existing	Ultimate	Existing	Ultimate	Existing	Ultimate
RDC	C-II-5000	D-III-5000	B-II-4000	B-II-5000	B-II-VIS	B-II-VIS
Critical Aircraft (Typ.)	Challenger 300	Gulfstream G550	Phenom 300	Phenom 300	Phenom 300	Phenom 300
APRC	B/II/4000	D/IV/4000 D/V/4000	B/III/4000 D/II/4000	B/II/5000	B/II/4000	B/II/4000
DPRC	B/II	D/IV D/V	B/III D/II	B/II	B/II	B/II
TDG	2A	2B	2A	2A	2A	2A

Notes:
APRC = approach reference code
DPRC = departure reference code
RDC = runway design code
TDG = taxiway design group

Source: FAA AC 150/5300-13B, Airport Design

5.1.2 RUNWAY 12R-30L

Runway Design Standards

Runway 12R-30L has historically been designed to RDC B-II-5000 standards. Based on current operational data, the airport exceeds the threshold of 500 annual operations by aircraft approach category (AAC) C aircraft and, therefore, should meet RDC C-II-5000 design standards in the existing condition. The long-term plan for Runway 12R-30L is to meet RDC D-III-5000 design standards to accommodate growing demand from larger business jets across the Las Vegas regional airports system.

Runway Designation

A runway's designation is based on its magnetic headings, which are determined by the magnetic declination for the area. The magnetic declination around VGT is 11° 9' E and changes by 0° 6' west each year. The parallel runways are oriented northwest/southeast with a true heading of 134°/314°. Adjusting for the magnetic declination, the current magnetic heading of the runway is 122°/302°. The current designation is appropriate and should remain during the life of the master plan. The Right/Left designations are consistent with FAA standards, per Advisory Circular (AC) 150/5340-1L, *Standards for Airport Markings*, and should be maintained.

Runway Dimensions

Runway 12R-30L is currently 5,000 feet long and 75 feet wide. At this length, and during hot temperatures regularly experienced during the summer, the runway can only accommodate business jets with limited useful loads (e.g., fewer passengers, fuel, cargo, etc.). Reduced fuel loads adversely affect aircraft range, meaning the aircraft must make fuel stops that it otherwise would not need. This reduces VGT's marketability and utility for jet aircraft, which is in direct opposition to its role as a reliever to Harry Reid International Airport (LAS). For this reason, it was determined that additional runway length is needed at VGT so it can better fulfill its role as a reliever airport.

The alternatives in the previous chapter considered options to improve/extend each runway at VGT. After review and discussion of the various alternatives with the PAC/TAC and airport staff, it was determined that the most effective alternative was to improve Runway 12R-30L to meet RDC D-III-5000 design standards. This is accomplished by shifting the runway 160 feet to the east to establish the standard 400-foot separation distance between the Taxiway B centerline and the ultimate runway centerline. Runway 12R-30L is planned to be constructed at a full length of 6,860 feet and a width of 100 feet. This adds 1,860 feet to the total length of the runway, thus increasing its utility for jet aircraft, particularly the existing Challenger 300 critical aircraft and ultimate Gulfstream G550 critical aircraft. Both would be capable of taking off at useful loads greater than 70 percent during the hottest periods of the summer, whereas they must take off at well below 60 percent of their useful loads in the current condition.

Declared distances would be applied to the ultimate Runway 12R-30L to ensure the runway protection zones (RPZs) off each runway end remain on airport property and do not impact incompatible land uses outside the airport. The Runway 12R threshold is displaced by 1,418 feet, which shifts the approach RPZ off W Cheyenne Road and residential properties to the north of the airport. The Runway 30L threshold is displaced by 200 feet to shift the approach RPZ off W Lake Mead Boulevard. The displacements and adjustments to the locations of the approach and departure RPZs result in adjustments to the takeoff run available (TORA) and landing distance available (LDA) measurements for both runway ends. These are shown in a table included on **Figure 5.1**.

The ultimate length of Runway 12R-30L is the maximum achievable while meeting runway safety area (RSA) and runway object free area (ROFA) design standards within the existing airport footprint while avoiding impacts to the detention basin located south of W Carey Avenue. The new runway configuration will require the closure of a portion of W Carey Avenue starting at its intersection with N Simmons Street

and extending west to the entrance of the Walmart parking lot. Access to the Walmart parking lot will be maintained and Carey Avenue will be realigned to create an intersection with W Lake Mead Boulevard to maintain circulation in the area. The proposed Carey Avenue realignment is planned to remain on existing airport property to minimize impacts to neighboring properties. A separate traffic study has been prepared by GCW to determine the effects of the W Carey Avenue closure/realignment. The results of the traffic study are discussed in a section below with the full study included as **Appendix C** in this master plan.

Engineered Materials Arresting System (EMAS) beds are planned at both ends of the runway to reduce the RSA/ROFA requirement beyond the ends of the runway from 1,000 feet to 600 feet. The EMAS beds are planned to be 300 feet long and 100 feet wide and would be set back from the ends of the runway with a 300-foot blast pad between. The EMAS bed dimensions were estimated utilizing planning charts within FAA AC 150/5200-22B, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, which is appropriate for planning purposes. Final EMAS bed design must be completed by the EMAS manufacturer and is subject to change.

Connected actions and notes regarding the ultimate Runway 12R-30L configuration are as follows:

- The visual approach aids (precision approach path indicators [PAPI-4s] and runway end identifier lights [REILs]) on both ends of the runway will need to be relocated.
- The Runway 12R area navigation (RNAV) global positioning system (GPS) approach will need to be redeveloped and revalidated.
- Blast pads measuring 140 feet wide by 300 feet long will be added to the runway ends to prevent soil erosion from jet blast and serve as a buffer between the ends of the runway and the start of the EMAS beds.
- Runway edge lighting (medium intensity runway lighting [MIRL]) will be added to all new runway pavement to be consistent with the existing system.
- New airfield signage will need to be updated to reflect new taxiway connectors associated with the ultimate runway.
- The ultimate runway configuration will require approximately 176,000 cubic yards (cy) of fill to establish an appropriately graded platform to construct the runway pavement.

Pavement Strength

The ultimate Runway 12R-30L should be planned to meet the existing pavement load-bearing capacity of 116,000 pounds for single wheel loading aircraft (S), 165,000 pounds for dual wheel loading aircraft (D), and 270,000 pounds for dual tandem wheel loading aircraft (2D). These strengths are adequate for the variety of general aviation aircraft that use the airport now and will use it in the future. This includes the largest aircraft in the fleet, such as the Gulfstream G550 and G650, which have maximum takeoff weights of approximately 91,000 pounds and 99,600 pounds, respectively, on dual wheel main landing gear.

Instrument Approach Procedures

Runway 12R is equipped with an RNAV GPS non-precision instrument approach procedure with minimums down to a 415-foot decision altitude and visibility down to one mile. Runway 30L is a visual-only runway. The plan is to maintain the RNAV GPS approach to Runway 12R and maintain the visual-only approach to Runway 30L. Implementing an approach with lower visibility minimums on either end of the runway would result in the RPZs increasing in size and requiring further displacement of the thresholds, which would limit the utility of the runway. The proximity of VGT to LAS to the south and Nellis Air Force Base (AFB) to the east are limiting factors in the potential for new instrument approach procedures to the Runway 30L end.

Property Acquisition

To accomplish the development of a new Runway 12R-30L, the property that consists of the impacted portion of W Carey Avenue must be acquired from the City of North Las Vegas. This property totals approximately 9.2 acres.

5.1.3 RUNWAY 12L-30R

Runway Design Standards

Runway 12L-30R is planned to be maintained to RDC B-II-5000 standards. This reflects its purpose as a secondary parallel runway that can be utilized by small piston-powered general aviation aircraft, up to turboprops and small jet aircraft. The only design standard change from the existing condition is raising of the Runway 12L instrument approach minimums from the current ⅞-mile to one-mile. This reduces the size of the approach RPZ from encompassing 48.978 acres to encompassing 13.77 acres. The higher minimums will have a negligible impact on operations, but the smaller RPZ will mitigate impacting existing facilities on the north side of the airport and allow for more development potential in the area.

Runway Designation

Similar to Runway 12R-30L, the current designation and the Right/Left designations are correct and should remain during the life of the master plan.

Runway Dimensions

Runway 12L-30R is currently 4,199 feet long and 75 feet wide. The plan includes shifting the runway 160 feet to the east to maintain a 700-foot separation distance from the ultimate Runway 12R-30L centerline. This separation distance is the minimum required to allow for simultaneous operations during visual flight rule (VFR) conditions and is necessary for the airport to maintain its maximum capacity level. The runway is also shifted slightly south from its current configuration to minimize safety area overlap with Runway 7-25.

The Runway 12L threshold is planned to be displaced by 230 feet to provide appropriate approach surface clearance over ultimate Taxiway F. The only impacted declared distance for this runway is a reduction of the LDA for Runway 12L at 4,070 feet. All other declared distances are the full pavement length of 4,300 feet.

Connected actions and notes regarding the ultimate Runway 12L-30R configuration are as follows:

- The visual approach aids on both ends of the runway (PAPI-4s, REILs) will need to be relocated.
- The Runway 12L instrument landing system (ILS) equipment (glideslope antenna and localizer antenna) will need to be relocated.
- The Runway 12L ILS or localizer (LOC) and RNAV GPS instrument approach procedures will need to be redeveloped and revalidated.
- Blast pads measuring 95 feet wide by 150 feet long will be added to the runway ends to prevent soil erosion from jet blast.
- Runway edge lighting (MIRL) will be added to all new runway pavement to be consistent with the existing system.
- New airfield signage will need to be updated to reflect new taxiway connectors associated with the ultimate runway.

Pavement Strength

The ultimate Runway 12L-30R should be planned to a strength rating of up to 100,000 pounds D so it can accommodate occasional operations by heavier aircraft during cooler weather periods. Planning for this type of traffic will extend the useful life of the pavement and increase the utility of the airfield during peak periods.

Instrument Approach Procedures

Runway 12L is equipped with an ILS or LOC precision instrument approach with minimums down to a 267-foot decision altitude and ⅞-mile visibility minimums. It is also equipped with an RNAV GPS non-precision instrument approach procedure with minimums down to a 415-foot decision altitude and visibility down to one mile. Runway 30R is a visual-only runway. As already discussed, the ILS/LOC precision instrument approach visibility minimums are planned to be raised to one mile. Other 12L procedures are planned to be maintained, along with the visual-only approach to Runway 30R. The proximity of VGT to LAS to the south and Nellis AFB to the east are limiting factors in the potential for new instrument approach procedures to the Runway 30R end.

Property Acquisition

No property acquisition is needed to accomplish the ultimate Runway 12L-30R configuration.

5.1.4 RUNWAY 7-25

Runway Design Standards

Runway 7-25 is planned to be maintained to RDC B-II-VIS standards. This reflects its purpose as a crosswind runway that can be utilized by small piston-powered general aviation aircraft, up to turboprops and small jet aircraft, during high crosswind conditions that render the parallel runways unsuitable, or as needed based on traffic flow, per instructions from airport traffic control.

Runway Designation

Runway 7-25 is oriented east-west with a true heading of 88°/268°. Adjusting for magnetic declination, the current magnetic heading of the runway is 76.85°/256.85°, which, when rounded, results in a need to redesignate the runway as Runway 8-26. The redesignation should be coordinated with the FAA to ensure all appropriate publications are updated to reflect the new designation. The redesignation will require the runway pavement ends to be re-marked and airfield signage to be updated to reflect the new runway designations.

Runway Dimensions

Runway 7-25 is currently 5,005 feet long and 75 feet wide. The plan is to maintain the current dimensions of the runway for the duration of the planning period. The current dimensions meet the design recommendations for the types of aircraft that utilize the runway, which include small piston-powered general aviation aircraft, turboprops, and small and mid-sized business jets.

Runway 7-25 does not have published declared distances and none are planned; therefore, the full pavement length of 5,005 feet is usable for takeoff and landing operations.

Pavement Strength

The existing pavement load-bearing capacity of Runway 7-25 (116,000 pounds S, 199,000 pounds D, and 320,000 pounds 2D) is adequate for the types of aircraft that utilize the crosswind runway. No additional pavement strength is planned for Runway 7-25.

Instrument Approach Procedures

Runway 7-25 is a visual-only runway and is planned to remain visual-only for the duration of the master plan. The surrounding Class B airspace associated with LAS and Nellis AFB airspace is a limiting factor in the potential for new instrument approach procedures for Runway 7-25.

Property Acquisition

No property acquisition is proposed as part of the ultimate plan for Runway 7-25.

5.1.5 TAXIWAY IMPROVEMENTS

The taxiway system at VGT is planned to meet airplane design group (ADG) III and taxiway design group (TDG) 2B design standards on taxiways supporting the ultimate primary runway (Runway 12R-30L). Taxiways supporting the remaining areas of the airport are planned to meet ADG II and TDG 2A standards. TDG 2A and 2B standards establish a minimum taxiway width of 35 feet, which is currently met or exceeded on all taxiways at VGT.

The master plan concept involves an almost full reconstruction of the taxiway system because of the eastward shift of the parallel runways and a need to meet separation distance requirements from the ultimate runway centerlines.

Taxiway Nomenclature

The FAA recommends using guidelines found in Engineering Brief 89, *Taxiway Nomenclature Convention*, when developing or revising airport plans, such as this master plan. Following the standards presented in the brief, the ultimate taxiway system at VGT has been given alphanumeric designations to improve both the situational awareness of pilots and the safety margins at the airport. Each parallel taxiway is designated with a single letter (Taxiways A, B, C, D, and F). Each connecting taxiway from the parallel taxiway to the associated runways is designated with a letter and number, starting with 1 at the north or west end of the taxiway (B1, B2, B3, B4, B5, etc.). High-traffic crossing taxiways, which are those that will be used frequently for aircraft crossing both parallel runways, were assigned single-letter designations (Taxiways G, H, and J). An action connected with the taxiway nomenclature update is the replacement of airfield signage and markings to reflect the new designations. For comparison, existing taxiway designations are shown on **Figure 5.2**, while the ultimate designations are shown on **Figure 5.3**.

This page intentionally left blank

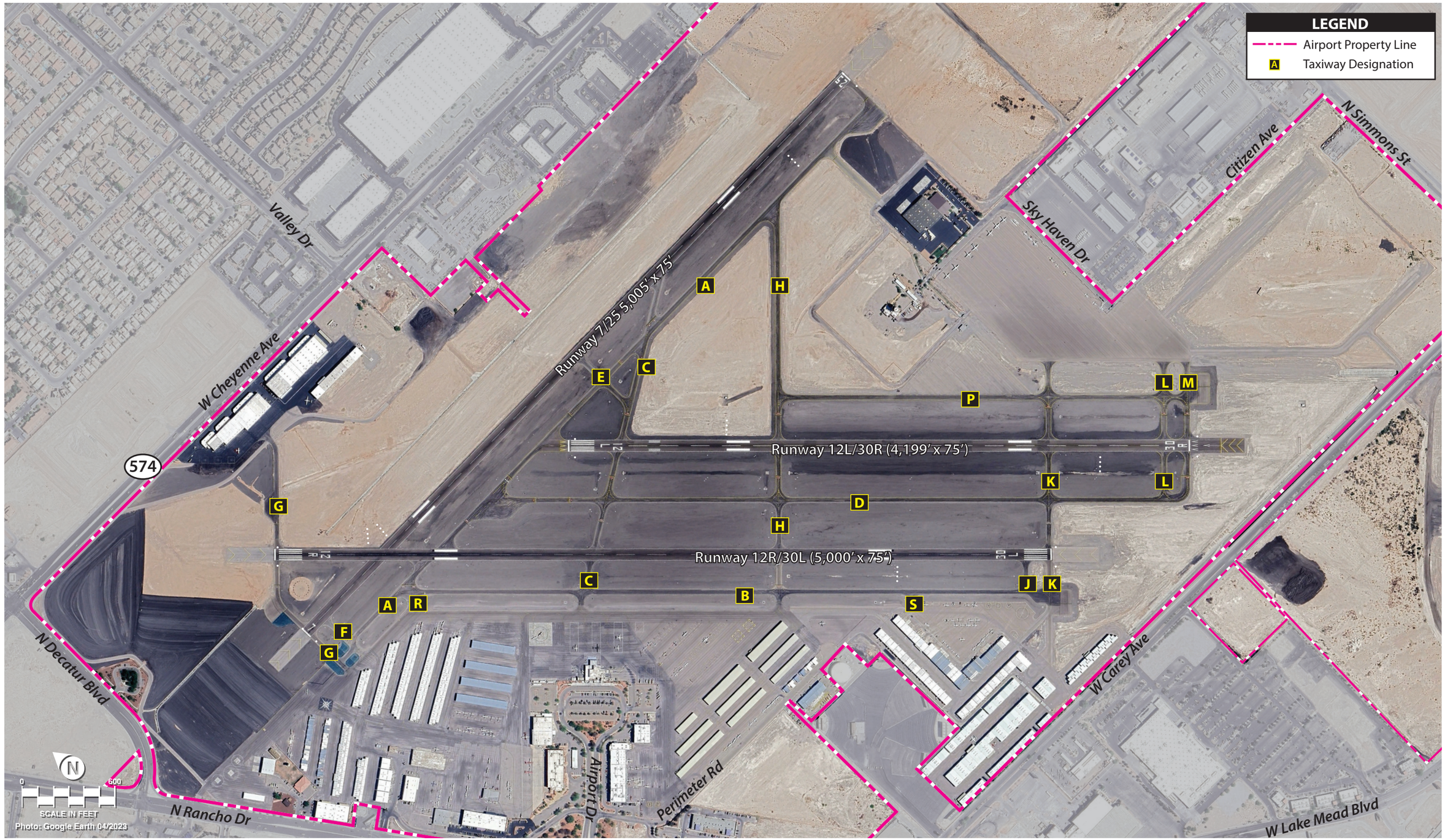


Figure 5.2
EXISTING TAXIWAY DESIGNATIONS

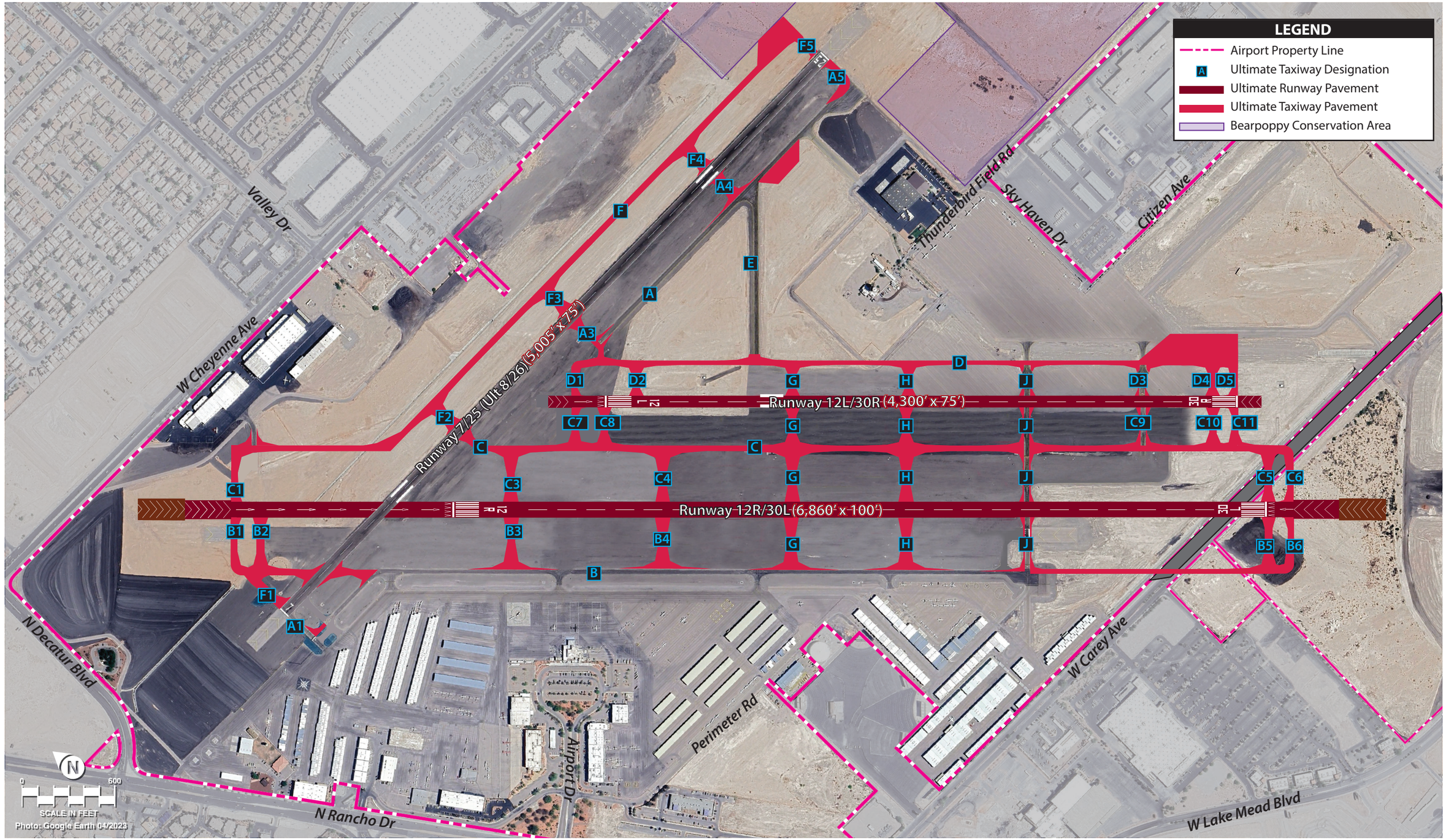


Figure 5.3
ULTIMATE TAXIWAY DESIGNATIONS

Taxiway Plans

A description of each existing and ultimate taxiway is provided in **Table 5.2**.

TABLE 5.2 | Taxiway Plan

Taxiway		Width	ADG		Plans
Existing	Ultimate	(ft)	Existing	Ultimate	
A	A	35	II	II	The portion of Taxiway A that extends from Taxiway B to ultimate Taxiway A3 is planned to be removed. The removal of this pavement mitigates two of the airport's hot spots (Hot Spots 3 and 4), as well as the aligned taxiway prior to the Runway 12L threshold. Three new runway exit taxiways (C, A3, and A4) are planned at 90-degree angles with Runway 7-25.
B	B	35	II	III	Taxiway B is planned to remain in place and be extended north through Runway 7-25 to the ultimate Runway 12R end and to the ultimate Runway 30L end. With the shift of the runways to the east, Taxiway B will ultimately have a separation distance of 400 feet from the Runway 12R-30L centerline, which meets ADG III design standards. New entrance/exit taxiways (B1, B2, B3, B4, B5, and B6) are planned and spaced appropriately to maximize airfield capacity. The new entrance taxiways (B1 and B2) are situated to mitigate Hot Spot 2. To accommodate the extension of Taxiway B to the Runway 12R end, the segmented circle and lighted wind cone are planned to be relocated to a mid-field site between Taxiways A, D, and E.
C	–	35	II	N/A	Existing Taxiway C intersects each runway at acute angles, which are non-standard. The entirety of Taxiway C is planned to be removed.
–	C	35	N/A	II/III	Ultimate Taxiway C is planned to be located between the parallel runways with separation distances of 400 feet from the Runway 12R-30L centerline and 300 feet from the Runway 12L-30R centerline. Taxiway C will provide access to the ends of both parallel runways and includes several ADG III entrance/exit taxiways (C1, C3, C4, C5, and C6) and ADG II entrance/exit taxiways (C7, C8, C9, C10, and C11), which are spaced to maximize airfield capacity.
D	–	35	II	N/A	Existing Taxiway D is planned to be removed as part of the project to shift the parallel runways to the east.
–	D	35	N/A	II	Ultimate Taxiway D is planned to be the east parallel taxiway for Runway 12L-30R. It will have a separation distance of 240 feet from the runway centerline and includes several entrance/exit taxiways (D1, D2, D3, D4, and D5).
E	–	35	II	N/A	Existing Taxiway E is planned to be removed as part of the project to shift the parallel runways to the east.
F	–	35	II	N/A	Bypass Taxiway F, which is located at the Runway 7 end, is planned to be removed to help mitigate Hot Spot 1.
–	F	35	N/A	II	Ultimate Taxiway F is a planned parallel taxiway located at a 240-foot separation distance north of Runway 7-25. This taxiway will improve circulation for aircraft using the crosswind runway and provide airfield access to new hangar developments on the north side of the airport. Several new entrance/exit taxiways (F2, F3, F4, and F5) are also planned to maximize airfield capacity.
G	A1/F1	35	II	II	Existing Taxiway G becomes ultimate Taxiways A1 and F1.

(Continues on next page)

TABLE 5.2 | Taxiway Plan (continued)

Taxiway		Width	ADG		Plans
Existing	Ultimate	(ft)	Existing	Ultimate	
–	G	35	N/A	III	Ultimate Taxiway G is a planned east/west crossing taxiway supporting the parallel runways. This taxiway is offset from existing apron access points to mitigate direct access.
H	E	35	II	II	Existing Taxiway H will become ultimate Taxiway E. The portion of Taxiway H that extends between Taxiways B and P will be removed and new offset east/west crossing taxiways will be developed to mitigate the loss of pilot situational awareness that has been reported for aircraft on Taxiway H.
–	H	35	N/A	III	Ultimate Taxiway H is a planned east/west crossing taxiway supporting the parallel runways. This taxiway is offset from existing apron access points to mitigate direct access.
J	–	35	II	N/A	Existing bypass Taxiway J, which is located at the end of Runway 30R, is planned to be removed as part of the overall shift in the parallel runways to the east and extensions of Runway 12R-30L.
K	J	35	II	III	Existing Taxiway K will become ultimate Taxiway J. Taxiway J is planned to serve as an east/west crossing taxiway supporting the parallel runways. Additional fillet pavement is planned to meet TDG 2B standards.
L	C9/D3	35	II	II	Existing Taxiway L will become entrance/exit Taxiways C9 and D3, which will connect the east apron to Taxiways C and D and Runway 12L-30R.
M	–	35	N/A	II	Existing Taxiway M is planned to be removed. A new holding apron is planned to be developed in its place.
P	–	35	N/A	II	Existing Taxiway P is planned to be removed as part of the project to shift the parallel runways to the east.
R	R	60	II	II	Taxiway R is planned to remain unchanged. The current width of Taxiway R exceeds the design standard of 35 feet. Future major rehabilitation of this taxiway pavement may only receive FAA funding support for 35 feet in width.
S	S	40	II	III	Taxiway S is planned to remain unchanged. The current width of Taxiway S exceeds the design standard of 35 feet. Future major rehabilitation of this taxiway pavement may only receive FAA funding support for 35 feet in width
W	W	35	II	II	Taxiway W is planned to remain unchanged.

N/A = not applicable

Source: Coffman Associates analysis

Holding Bays & Bypass Taxiways

Holding bays offer pilots a location to pull off the main taxiway and perform pre-flight engine run-ups without impeding taxiway traffic. Bypass taxiways are secondary entrance taxiways used to manage aircraft queuing demand. The concept includes three new holding bays (shown on **Figure 5.1**), including one at the south end of ultimate Taxiway D and two at the east ends of Taxiway A and Taxiway F. In lieu of holding bays, bypass taxiways are planned at each end of the parallel runways. These facilities will improve the overall efficiency of the taxiway system and mitigate aircraft departure delays.

5.1.6 TRAFFIC STUDY

As described previously, GCW has conducted a traffic study to understand the potential impacts of a vacation of the segment of Carey Avenue from Simmons Avenue to west of the Allen Lane alignment, and to consider possible mitigation measures in addition to the proposed Carey Avenue realignment connection to improve traffic flow with the vacation. The full study is included as **Appendix C** to this master plan. A summary of traffic study conclusions is provided below.

By the year 2050, on a regional basis, the vacation of Carey Avenue would not be expected to result in an overall collective increase in daily travel time or daily travel distance for area motorists. However, during peak periods, for many motorists, Carey Avenue would no longer be available to serve as a faster route.

Most existing and planned businesses located in the area bounded by Carey Avenue to the north, Rancho Drive to the west, Lake Mead Boulevard to the south and the Airport detention basin to the east, have access from both Carey Avenue and Lake Mead Boulevard. Therefore, accessibility for the majority of the existing and planned businesses in this area will not be substantially changed.

5.2 HANGAR/APRON DEVELOPMENT PLAN

The primary goal of hangar and apron facility planning is to provide adequate space to meet reasonably anticipated needs of a variety of users while optimizing operational efficiency and land use. Achieving these goals yields a scheme that segregates functional uses while maximizing the airport's development potential. With that aim, hangar and apron development considerations are focused on three areas of the airport: the west, north, and east sides.

- The west side of VGT houses the core terminal facilities, along with most of the airport's businesses, hangar capacity, and apron spaces.
- Existing north side development includes the Cheyenne Air Center complex.
- The east side contains a large apron area, the airport traffic control tower (ATCT), and the Las Vegas Metropolitan Police facility.

Among these areas at the airport, approximately 130 acres of property (excluding the bearpoppy conservation area) are available for aeronautical development (aviation businesses, hangars, apron). The facility requirements identified a need to expand hangar storage capacity at VGT by more than 450,000 square feet (sf) and apron capacity by more than 81,000 square yards (sy) over the course of the next 20 years. The 123 acres of developable property at VGT is sufficient to meet and exceed the long-term capacity needs for the airport.

The following sections describe a series of generalized land uses, as opposed to proposing specific facility types, sizes, and configurations. This is beneficial because a generalized land use provides flexibility for the development of a site to meet the needs of developers and their clients, while not constraining the CCDOA with predetermined layouts.

5.2.1 WEST SIDE

The west side development plan is depicted on **Figure 5.4**. The west landside area of VGT serves as the focal point for hangar and apron development. The terminal building and its associated apron, most of the existing hangar capacity and apron space, and fuel storage capacity are all on the west side. As a result, the types of facilities and operators served are diverse and intermixed. Greenfield development sites on the west side are limited to an area located between Perimeter Road, N Rancho Drive, and the West Wind Las Vegas Drive-In movie theater. This area totals approximately 18.7 acres and has been designated for future aeronautical use reserve. The plan also shows approximately 10,300 sy of new apron/tiedown space to expand aircraft parking/circulation capabilities.

A 2.9-acre parcel along N Rancho Drive is planned for future aeronautical/mixed uses that could include helicopter operations area. This area could also be assessed for non-aeronautical uses, as it is segregated from the airfield by public roads and could not be accessed by fixed-wing aircraft.

Additional west side plans include reserving approximately 1.36 acres of airport property for non-aeronautical development. These smaller parcels are located along N Rancho Drive in an area that is secluded from airfield access, which makes it useful for only non-aeronautical types of development. Several properties in the area have already been developed for commercial use.

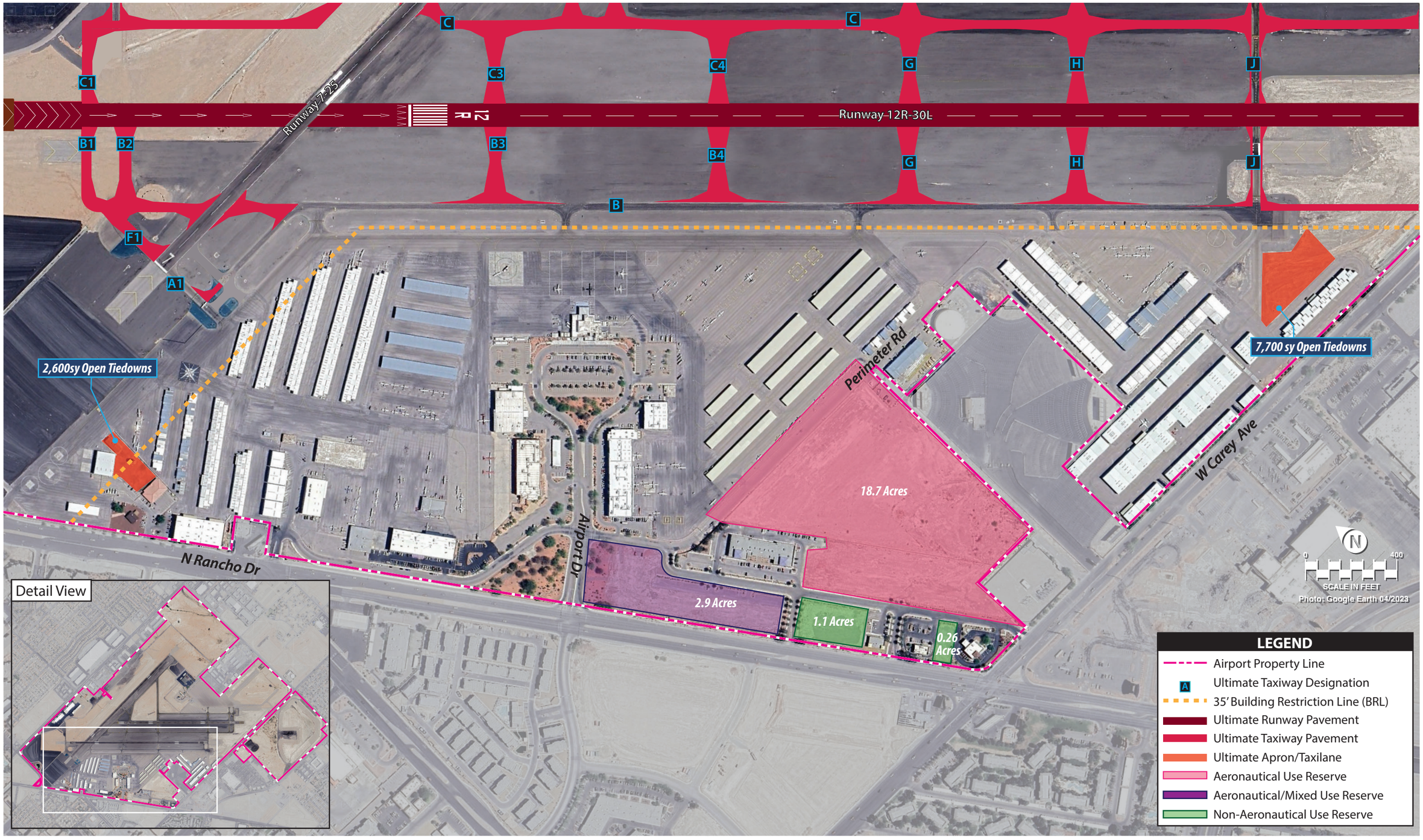


Figure 5.4
WEST SIDE DEVELOPMENT

This page intentionally left blank

5.2.2 NORTH SIDE

The north side development plan is depicted on **Figure 5.5**. The north side of the airport currently consists of the Cheyenne Air Center complex of hangars, which are located along W Cheyenne Avenue. Approximately 36.0 acres of airport property is undeveloped; however, aeronautical development of this area is limited because of the lack of accessibility to the airfield. As shown in the runway/taxiway plans, a new parallel taxiway is planned on the north side of Runway 7-25, which would provide necessary access to this property. Roadway access to this area is planned to be extended from Barnet Avenue, which intersects W Cheyenne Avenue.

This page intentionally left blank

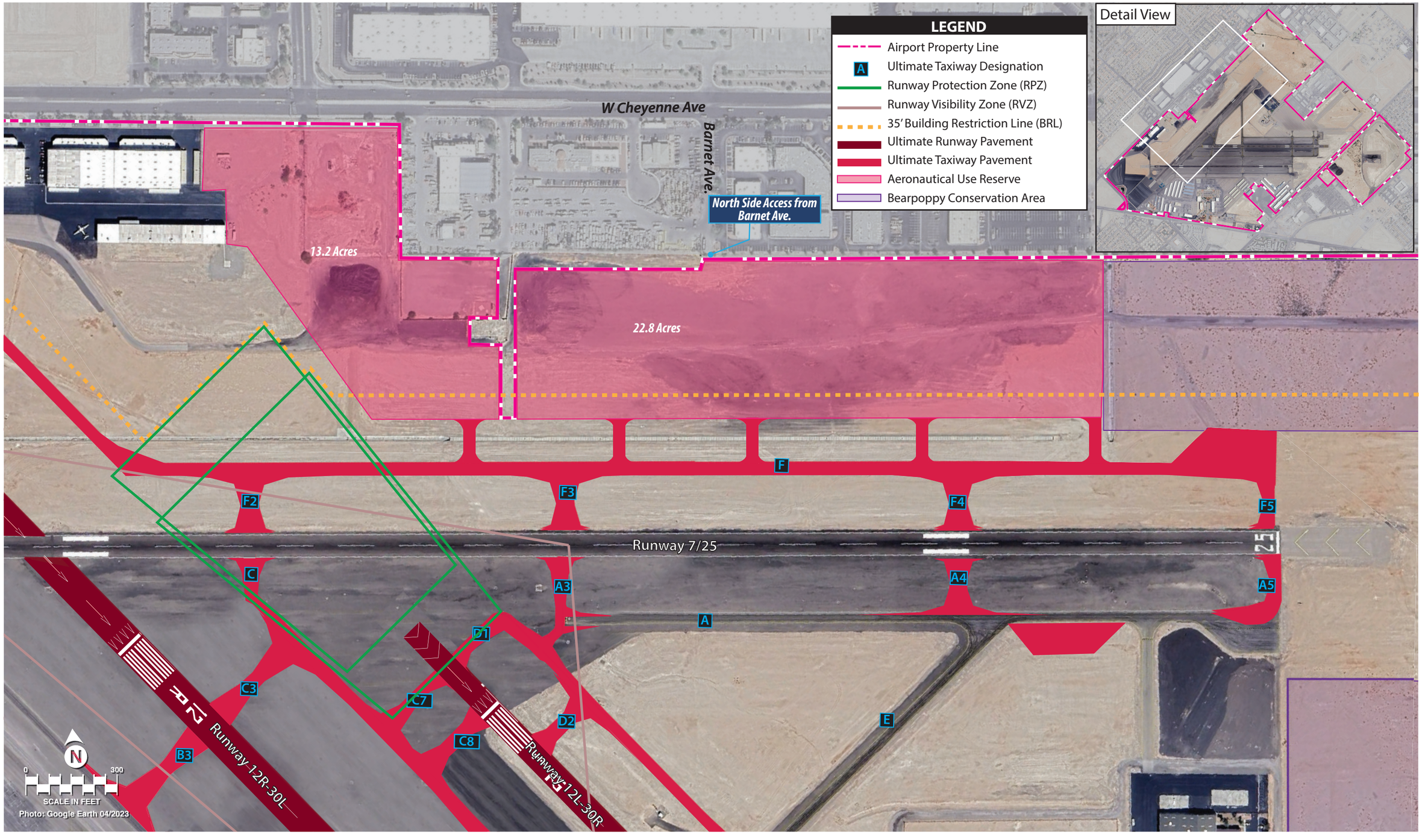


Figure 5.5
NORTH SIDE DEVELOPMENT

This page intentionally left blank

5.2.3 EAST SIDE

The east side development plan is depicted on **Figure 5.6**. The east side of VGT property is largely undeveloped. Much of the area contains unstable soils, including fissures, which may cause challenges for development. Despite the unstable soils, development has occurred on the east side, including a large apron/tiedown area, the ATCT, and the Las Vegas Metropolitan Police facility. Approximately 68.1 acres on the east side are available for aeronautical development.

To mitigate direct-access points from the east side, two no-taxi islands are identified prior to ultimate Taxiway H and the ultimate holding bay at the south end of ultimate Taxiway D. No-taxi islands can be paved (marked and lighted) or turf and are meant to channel traffic departing the apron toward appropriate connectors that do not provide direct access to the runway, thus forcing pilots to make multiple turns prior to entering the runway environment. The intent is to raise pilot situational awareness to prevent runway incursions.

This page intentionally left blank



Figure 5.6
EAST SIDE DEVELOPMENT PLAN

This page intentionally left blank

5.3 ENVIRONMENTAL OVERVIEW

An analysis of potential environmental impacts associated with proposed airport projects is an essential consideration in the airport master plan process. The primary purpose of this discussion is to review the master plan concept (**Figure 5.1**) and associated capital program at the airport to determine whether projects identified in the airport master plan could, individually or collectively, significantly impact existing environmental resources. Information contained in this section was obtained from previous studies, official internet websites, and analysis by the consultant.

The *FAA Reauthorization Act of 2024 (Act)* has introduced a variety of updated and new environmental guidelines. The primary environmental-related updates are outlined in three sections: Section 743, Section 783, and Section 788.

Section 743 acts as an amendment to Section 163 of the *FAA Reauthorization Act of 2018*. Section 743 details the FAA's authority to regulate uses of airport property. The section details the FAA's authority over projects on land acquired without federal assistance and outlines limitations imposed on non-aeronautical review. Section 743 also states that a notice of intent for proposed projects outside FAA jurisdiction should be submitted by an airport sponsor to the FAA, effectively replacing the determinations of Section 163.

Section 783 outlines that airport capacity enhancement projects, terminal development projects, and general aviation airport improvement projects will be subject to coordinated and expedited environmental review requirements. Additionally, Section 783 introduces a new process for determining which safety-related projects should be prioritized during the environmental review process.

Section 788 establishes two new *National Environmental Policy Act* (NEPA) categorical exclusions that would cover environmental projects for the following:

"(A) *Categorical Exclusion for Projects of Limited Federal Assistance*

(1) Receive less than $6 million of federal funds and do not involve extraordinary circumstances or special purpose laws or has a total anticipated cost of not more than $35 million with federal funds comprised less than 15 percent of the total estimated project cost."

"(B) *Categorical Exclusions in Emergencies*

(1) For the repair or reconstruction of any airport facility, runway, taxiway, or something similar in structure that is in operation or under construction when damaged by a State declared emergency or for an emergency declared by the President pursuant to the *Robert. T. Stafford Disaster Relief and Emergency Assistance Act*."

If the FAA retains approval authority over a project, the project is typically subject to NEPA. For projects not categorically excluded under FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an environmental assessment (EA). In instances where significant environmental impacts are expected, an environmental impact statement (EIS) may be required.

The following portion of the airport master plan is not designed to satisfy the NEPA requirements for a specific development project, but it provides a preliminary review of environmental issues that may need to be considered in more detail within the environmental review processes. It is important to note that the FAA is ultimately responsible for determining the level of environmental documentation required for airport actions.

The environmental inventory included in the first chapter of this master plan provides baseline information about the airport environs. This section provides an overview of potential impacts to existing resources that could result from the implementation of the planned improvements outlined on the recommended development concept.

Table 5.3 summarizes potential environmental concerns associated with implementation of the recommended development concept for VGT. Analysis under NEPA includes effects or impacts a proposed action or alternative may have on the human environment (see Title 40 Code of Federal Regulations [CFR] §1508.1). Effects have been recently defined in the Council of Environmental Quality guidelines as foreseeable environmental effects of the proposed action, reasonably foreseeable adverse environmental effects that cannot be avoided, and a reasonable range of alternatives to the proposed action.[1]

Table 5.3 | Summary of Potential Environmental Concerns

AIR QUALITY	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States (U.S.) Environmental Protection Agency (EPA) under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.***
Potential Environmental Concerns	**No Impact.** An increase in operations could occur over the 20+ year planning horizon of the master plan that would likely result in additional emissions. Clark County, which contains the airport, is currently in moderate nonattainment for ozone (8-hour, 2015);[A] therefore, general conformity review per the *Clean Air Act* would be required. Clark County was redesignated as a maintenance area for carbon monoxide in 2010 and particulate matter (10 micrometers or less in diameter) in 2014. For construction emissions, a qualitative or quantitative emissions inventory under NEPA may be required, depending on the type of environmental review needed for specific projects defined on the development plan concept. [A] *U.S. EPA, Greenbook, Nevada Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (https://www3.epa.gov/airquality/greenbook/anayo_nv.html), data current as of June 30, 2024*
BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat.*** *(Continues on next page)*

[1] Federal Register / Vol 88, No. 145 Monday, July 31, 2023 / Proposed Rules

Table 5.3 | Summary of Potential Environmental Concerns (continued)

FAA Order 1050.1F, Significance Threshold/ Factors to Consider (continued)	***The FAA has not established a significance threshold for non-listed species; however, factors to consider include whether an action would have the potential for:*** • ***Long-term or permanent loss of unlisted plant or wildlife species;*** • ***Adverse impacts to special status species or their habitats;*** • ***Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations; or*** • ***Adverse impacts on a species' reproductive rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.***
Potential Environmental Concerns	Federally Protected Species. **No Impact.** According to the USFWS Information for Planning and Consultation (IPaC) report, there is the potential for four endangered, threatened, and candidate species within the vicinity of the airport: yellow-billed cuckoo (threatened, bird), desert tortoise (threatened, reptile), Pahrump poolfish (endangered, fish), and monarch butterfly (candidate, insect).[B] The airport is devoid of perennial waters, flowering plants, and riparian habitat that support these species. (See **Chapter 1**, **Table 1.18** for a detailed outline of habitat required for species protected under the ESA.) Federally Designated Critical Habitat. **No Impact.** There are no designated critical habitats within airport boundaries. Non-listed Species **Potential Impact**. Non-listed species of concern include those protected by the *Migratory Bird Treaty Act* (MBTA) and the *Bald and Golden Eagle Protection Act.* According to the USFWS IPaC Report, there are no documented cases of eagles at the airport. Bird species protected by the MBTA could be adversely affected if construction occurs during the nesting and breeding seasons (January to August). Pre-construction surveys of vegetated areas at the airport are recommended for projects where ground clearing would occur, unless happening outside the nesting and breeding seasons. Other species of concern at VGT include the Las Vegas bearpoppy (*Arctomecon californica*). The Las Vegas bearpoppy is currently under review to be listed on the *Endangered Species Act* (ESA) list for federal protection[C] and is listed as a State of Nevada critically endangered species and a covered species in the Clark County Multiple Species Habitat Conservation Plan.[D] Habitat for this species has been found at the airport on a 110-acre undeveloped lot that is located south of Cheyenne Avenue and east of the approach end of Runway 25.[E] There is no proposed development within this conservation area. [B] *U.S. Fish & Wildlife Service, Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/), accessed July 2024* [C] *U.S. Fish & Wildlife Service, Environmental Conservation Online System (https://ecos.fws.gov/ecp/species/7225), accessed July 2024* [D] *Clark County Nevada, DCP Multiple Species Habitat Conservation Plan (https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/desert_conservation_program/current_mshcp.php), accessed July 2024* [E] *Memorandum of Understanding Between The United States Department of the Interior, Bureau of Land Management, Las Vegas Field Office, and Clark County, August 20, 1999*
CLIMATE	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Climate. Refer to FAA Order 1050.1F, Desk Reference, and/or the most recent FAA Aviation Emissions and Air Quality Handbook for the most up-to-date methodology for examining impacts associated with climate change.***
Potential Environmental Concerns	**Unknown.** An increase in greenhouse gas (GHG) emissions could occur over the 20+ year planning horizon of the airport master plan. A project-specific analysis may be required per FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, based on the parameters of the individual projects; however, the FAA does not have an impact threshold to use to determine significance under NEPA at this time.

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

COASTAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Coastal Resources. Factors to consider include whether an action would have the potential to:*** • ***Be inconsistent with the relevant state coastal zone management plan(s);*** • ***Impact a coastal barrier resources system unit;*** • ***Pose an impact on coral reef ecosystems;*** • ***Cause an unacceptable risk to human safety or property; or*** • ***Cause adverse impacts on the coastal environment that cannot be satisfactorily mitigated.***
Potential Environmental Concerns	**No Impact.** The airport is not located within a coastal zone. The closest National Marine Sanctuary is the Channel Islands National Marine Sanctuary, located 270 miles away.[F] [F] *National Marine Sanctuaries (https://sanctuaries.noaa.gov/)*
***DEPARTMENT OF TRANSPORTATION ACT*, SECTION 4(f)** (NOW CODIFIED IN TITLE 49 UNITED STATES CODE [USC] § 303)	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.*** ***Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from a historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.***
Potential Environmental Concerns	**No Impact.** There are no wilderness areas, public recreational facilities, or National Register of Historic Places (NRHP)-listed resources that would be impacted by proposed development at the airport.[G] The closest Section 4(f) resource is Ollie Detwiller Elementary School, located 0.15 miles south of the airport.[H] This resource is not likely to be physically used as a result of proposed airport development because it is not located on airport property. The resource is not likely to be constructively affected, as the proposed projects outlined for VGT are similar to past/present construction projects at VGT. There are several buildings that are 50 years or older (i.e., historic age) at the airport. The buildings are depicted on **Figure 1.24** and are primarily located on the western and southwestern boundary of the airport. Any building that is of historic age should be evaluated for historical significance prior to any proposed demolition or exterior renovations. [G] *NRHP (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466), accessed August 2024* [H] *Google Earth Pro, Aerial Imagery*
FARMLANDS	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The total combined score on Form AD-1006, Farmland Conversion Impact Rating, ranges between 200 and 260. (Form AD-1006 is used by the U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] to assess impacts under the Farmland Protection Policy Act [FPPA].) The FPPA applies when airport activities meet the following conditions:*** • ***Federal funds are involved;*** • ***The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses (important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land); or*** • ***None of the exemptions to the FPPA apply. These exemptions include:*** ○ ***When land is not considered "farmland" under the FPPA, such as land that is already developed or irreversibly converted; these instances include when land is designated as an urban area by the U.S. Census Bureau or the existing footprint includes rights-of-way;*** *(Continues on next page)*

Table 5.3 | Summary of Potential Environmental Concerns (continued)

FAA Order 1050.1F, Significance Threshold/ Factors to Consider (continued)	○ ***When land is already committed to urban development;*** ○ ***When land is committed to water storage;*** ○ ***Construction of non-farm structures necessary to support farming operations; and*** ○ ***Construction/land development for national defense purposes.***
Potential Environmental Concerns	**No Impact.** According to the NRCS Web Soil Survey (WSS), soils at the airport are classified as not prime farmland;[I] therefore, any proposed changes to the airside or landside portions of the airport would not convert farmlands protected by the FPPA. [I] *USDA-NRCS, Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)*
COASTAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention; however, factors to consider include whether an action would have the potential to:*** • ***Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;*** • ***Involve a contaminated site;*** • ***Produce an appreciably different quantity or type of hazardous waste;*** • ***Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal, and/or would exceed local capacity; or*** • ***Adversely affect human health and the environment.***
Potential Environmental Concerns	**No Impact.** The airport has an existing fuel farm adjacent to the north public parking lot near the main terminal, as well as nine fuel trucks. These resources provide opportunities for aircraft maintenance activities that could involve fossil fuels or other types of hazardous materials or wastes. These operations are regulated and monitored by the appropriate regulatory agencies, such as the U.S. EPA, Nevada Division of Environmental Protection, and Clark County. The construction of proposed executive hangars located on the west side of the airport would increase solid waste. No long-term impacts related to solid waste disposal are expected. The nearest solid waste landfill is the Cheyenne Transfer Station, located two miles east of the airport. See discussion on Surface Water for information on water quality pollution prevention. The proposed development concept does not anticipate land uses that will produce an appreciably different quantity or type of hazardous waste; however, should this type of land use be proposed, further NEPA review and/or permitting will be required. There are no known hazardous materials or waste contamination sites currently on airport property, but there is one brownfield located southeast of the airport boundary.[J] Currently, there are no cleanup activities listed for this brownfield.[K] [J] *U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/), accessed July 2024* [K] *U.S. EPA, EPA Home, Cleanups (https://ordspub.epa.gov/ords/cimc/f?p=CIMC:31::::Y,31,0:P31_ID:105263#basic), accessed July 2024*
HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Historical, Architectural, Archaeological, and Cultural Resources. Factors to consider include whether an action would result in a finding of "adverse effect" through the Section 106 process; however, an adverse effect finding does not automatically trigger the preparation of an EIS (i.e., a significant impact).***

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

Potential Environmental Concerns	**Potential Impact.** There are no resources listed on the NRHP within one mile of the airport. An airport-wide cultural resources survey should be completed to document any other resources at the airport. Project site-specific surveys may also be conducted on a project-by-project basis to determine the presence of potential cultural resources at the proposed project site. The FAA would then determine the level of impact airport projects would have on these historic properties under NEPA and through the *National Historic Preservation Act* Section 106 process. During project implementation, precautions may need to be taken in the event that previously unknown cultural resources are found. This typically includes procedures to be followed by the contractor that include stopping work, having a qualified archaeologist review the potential resource, and coordinating with the FAA. The closest tribal land to the airport is the Las Vegas Paiute Reservation, located approximately two miles southeast of the airport.[L] [L] *U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/)*
LAND USE	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Land Use. There are also no specific independent factors to consider. The determination that significant impacts exist is normally dependent on the significance of other impacts.***
Potential Environmental Concerns	**No Impact. Figure 5.1** primarily depicts proposed runway and taxiway improvements, including the following: • 160-foot shift of the parallel runways at VGT • Construction of EMAS beds on both ends of Runway 12R-30L • Displaced thresholds on Runways 12R and 30L to keep RPZs on airport property • Reconstruction of Taxiway D and shift 200 feet east to meet runway separation standards • Construction of a new connector road that would extend between Lake Mead Boulevard and Carey Avenue • Reconstruction of Taxiway P at a 240-foot separation distance from Runway 12L-30R • Shift of a portion of Taxiway H (between Taxiway P and B) • Removal of Taxiway C and addition of new 90-degree connectors to provide access to the Runway 12L threshold • Mitigation of direct access points through elimination of taxiway connectors and/or application of no-taxi islands • Alignment reconfiguration for Taxiways G and F • Extension of Taxiway B • Removal of a portion of Taxiway A pavement between Taxiway B and Taxiway C • Reconfiguration of Taxiway E and pavement extension from Runway 7-25 to Taxiway P • Construction of new holding bays at the south end of Taxiway P and the east end of Runway 25 The portion of W Carey Avenue to be closed may impact nearby residences who live along N Simmons Street; however, this impact is anticipated to be minimal, as the road will be realigned.
NATURAL RESOURCES AND ENERGY SUPPLY	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Natural Resources and Energy Supply; however, factors to consider include whether the action would have the potential to cause demand to exceed available or future supplies of these resources.***
Potential Environmental Concerns	**No Impact.** Planned development projects at the airport could increase demands on energy utilities, water supplies and treatment, and other natural resources during construction; however, significant long-term impacts are not anticipated. Should long-term impacts be a concern, coordination with local service providers is recommended.

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

NOISE AND NOISE-COMPATIBLE LAND USE	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action may increase day-night average sound level (DNL) noise by approximately 1.5 decibels (dB) or more for a noise-sensitive area that is exposed to noise at or above the 65-dB DNL noise exposure level, or that will be exposed at or above the 65-dB DNL due to an increase of DNL 1.5 dB or greater when compared to the no-action alternative for the same timeframe.*** ***Another factor to consider is that special consideration should be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in Title 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.***
Potential Environmental Concerns	**No Impact. Figure 5.7** shows existing and anticipated conceptual future noise contours for the airport. As shown on **Figure 5.7,** for existing conditions, the 65-dB DNL noise exposure contour extends outside airport property along N Cheyenne Avenue. In the conceptual future (2043) noise contours, the 65-dB DNL further expands outside airport property boundaries along N Cheyenne Avenue and expands outwards towards N Rancho Drive. The 65 DNL near N Rancho Drive would abut multi-family land uses; however, the ultimate development at the airport is not expected to change the overall noise environment by more than the 1.5-dB threshold. This should be confirmed as part of the NEPA documentation prior to implementing the recommended airfield improvements (parallel runway shift and Runway 12R-30L extension).

(Continues after Figure 5.7)

This page intentionally left blank

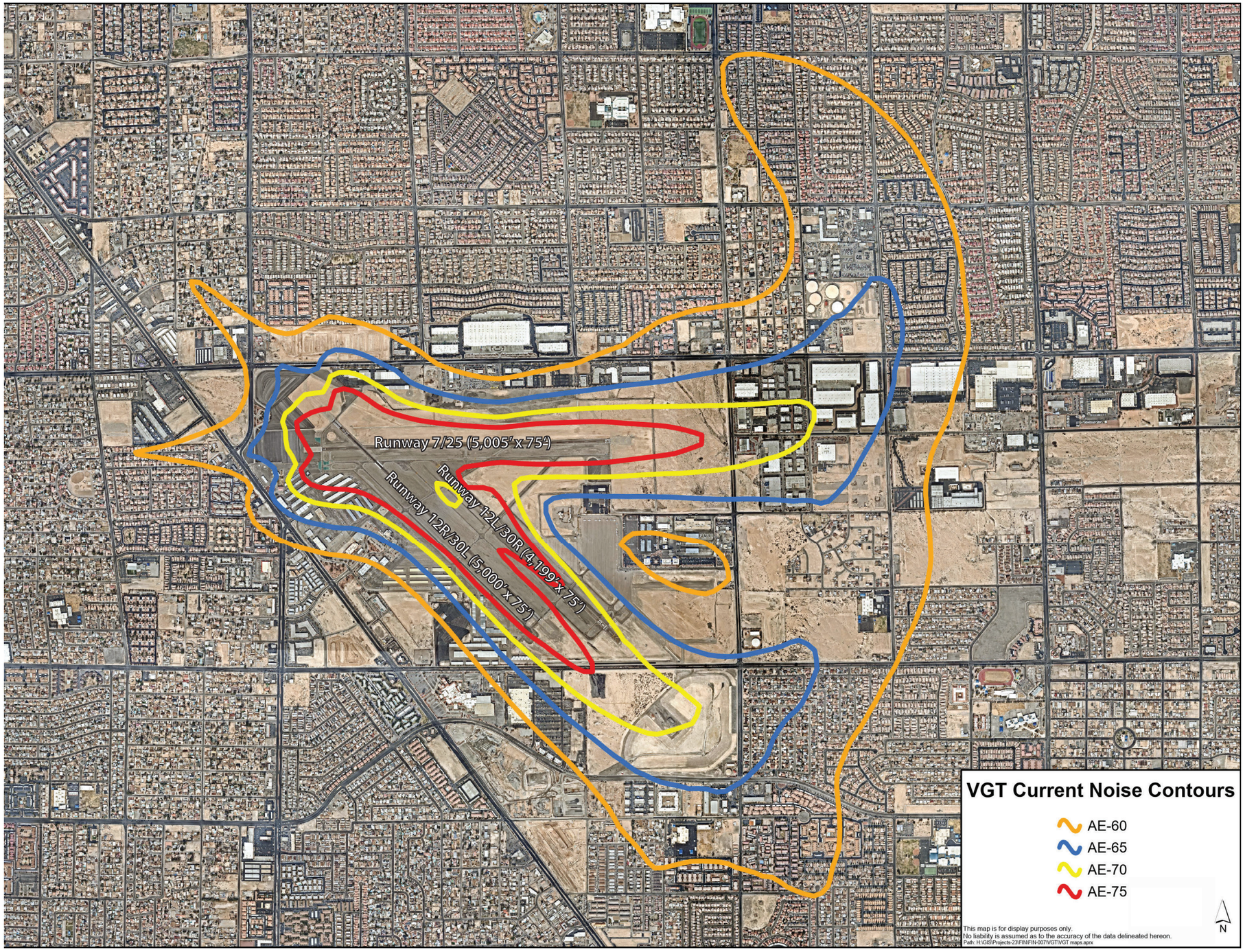


Figure 5.7
EXISTING NOISE CONTOURS

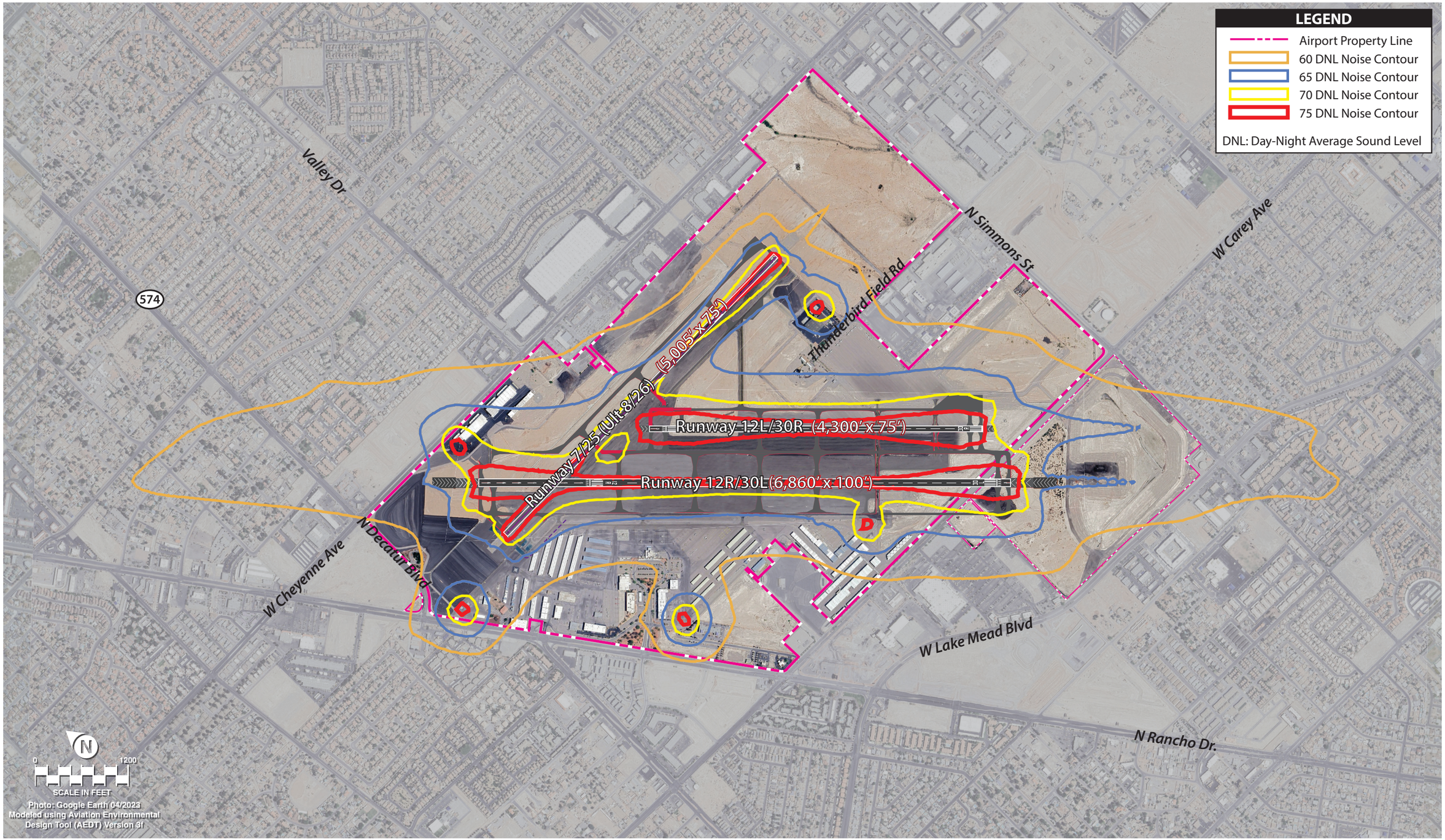


Figure 5.7 Continued
FUTURE CONCEPTUAL NOISE CONTOURS

Table 5.3 | Summary of Potential Environmental Concerns (continued)

SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS	
Socioeconomics	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Socioeconomics; however, factors to consider include whether an action would have the potential to:*** • ***Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);*** • ***Disrupt or divide the physical arrangement of an established community;*** • ***Cause extensive relocation when sufficient replacement housing is unavailable;*** • ***Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;*** • ***Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or*** • ***Produce a substantial change in the community tax base.***
Potential Environmental Concerns	**No Impact.** Proposed development would not relocate or disrupt current businesses or residents. No division of existing neighborhoods or housing or businesses relocations would occur due to proposed development on the airport. Ultimate airport projects would result in temporary disruption of local traffic patterns during construction, or once operational. The proposed development concept includes the closure of a portion of W Carey Avenue. Before the closure of W Carey Avenue occurs, this road will be realigned so that it connects to a portion of W Lake Mead Boulevard (see **Figure 5.1**). The CCDOA has conducted a traffic study to analyze potential impacts resulting from the road closure and realignment.
Environmental Justice	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Environmental Justice; however, factors to consider include whether an action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (i.e., a low-income or minority population) due to:*** • ***Significant impacts in other environmental impact categories; or*** • ***Impacts on the physical or natural environment that affect an environmental justice population in a way the FAA determines is unique to and significant to that population.***
Potential Environmental Concerns	**No Impact.** Both low-income and minority populations have been identified in the vicinity of the airport. The closest single-family residential areas are adjacent to the southeast airport boundary and west of Interstate 15, while the closest multi-family residential areas are located west of and adjacent to the airport boundary and to the west of Rancho Drive;[M] however, it is unlikely that implementation of the proposed improvements outlined in the development concept plan would affect these populations in a disproportionate or adverse manner. Executive Order (E.O.) 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations*, and the accompanying Presidential Memorandum, and Department of Transportation (DOT) Order 5610.2, *Environmental Justice*, require the FAA to provide meaningful public involvement for minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. Environmental justice impacts may be avoided or minimized through early and consistent communication with the public and allowing ample time for public consideration; therefore, disclosure of ultimate airport development to potentially affected environmental justice populations near the airport as the projects are proposed is crucial. If disproportionately high or adverse impacts are noted, mitigation and enhancement measures and offsetting benefits should be taken into consideration. [M] *Google Earth Pro, Aerial Imagery*

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

Children's Health and Safety Risks	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Children's Environmental Health and Safety Risks; however, factors to consider include whether an action would have the potential to lead to a disproportionate health or safety risk to children.***
Potential Environmental Concerns	**No Impact.** No disproportionately high or adverse impacts are anticipated to affect children living, playing, or attending school near the airport because of the proposed ultimate development. The airport is an access-controlled facility, and children will not be allowed within the fenced portions of the airport without adult supervision. All construction areas should be controlled to prevent unauthorized access.
VISUAL EFFECTS	
Light Emissions	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Light Emissions; however, a factor to consider is the degree to which an action would have the potential to:*** • ***Create annoyance or interfere with normal activities from light emissions; or*** • ***Affect the nature of the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.***
Potential Environmental Concerns	**Potential Impact.** The proposed development concept primarily focuses on airside improvements (i.e., runway and taxiway improvements). As a result, the majority of construction lighting will occur in the runway environment. Night lighting during construction phases within the runway environment is typically directed down toward the construction work area to prevent light from spilling outside the airport boundaries.
Visual Resources/Visual Character	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Visual Resources/Visual Character; however, a factor to consider is the extent to which an action would have the potential to:*** • ***Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;*** • ***Contrast with the visual resources and/or visual character in the study area; and*** • ***Block or obstruct the views of the visual resources, including whether these resources would still be viewable from other locations.***
Potential Environmental Concerns	**Potential Impact.** The proposed closure and realignment for Carey Avenue may visually alter the line of sight from nearby land uses (i.e., commercial land uses along W Lake Mead Boulevard). Additionally, the construction of the blast pads and EMAS beds off Runway 12R and Runway 30L would be seen by residents who live north of W Cheyenne Avenue and along N Simmons Street, respectively.
WATER RESOURCES	
Wetlands	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action would:*** • ***Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;*** • ***Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;*** • ***Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);*** • ***Adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;*** • ***Promote the development of secondary activities or services that would cause the circumstances listed above to occur; or*** • ***Be inconsistent with applicable state wetland strategies.***

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

Potential Environmental Concerns	**Potential Impact.** According to the USFWS National Wetlands Inventory, there are riverines that cross over the eastern and southeast portion of the airport.[N] Upon review of aerial imagery, these riverines appear to be ephemeral. Proposed taxiway pavement north of Runway 7-25 would traverse these ephemeral wetlands. During the construction of the proposed ultimate taxiway, it is recommended that mitigation measures from FAA AC 150/5370-10H, *Standard Specifications for Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, be incorporated into project design specifications to mitigate potential water quality impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of berms, fiber mats, gravels, mulches, slope drains, and other erosion control methods. [N] *National Wetlands Inventory (https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/)*
Floodplains	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.***
Potential Environmental Concerns	**Potential Impact.** The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels 32003C2155F and 32003C2160F indicate that portions of the airport that traverse Runways 12R and 30L and Runways 12L and 30R are located in an area with a 0.2 percent annual chance flood hazard, otherwise known as a 500-year floodplain.[O] Proposed airside development would occur in the 500-year floodplain. E.O. 14030, Climate-Related Financial Risk was established on May 25, 2021. Section 5(e) of E.O. 14030 reinstates E.O. 13690,[P] amends E.O. 11988,[Q] and mandates the creation of a Federal Flood Risk Management Standard (FFRMS). One of the primary purposes of the FFRMS is to expand the management of floodplains from a base flood evaluation to include a higher vertical elevation (and the corresponding floodplain) to protect against future flood risks for federally funded projects. Under E.O. 13690 and its guidelines, one of several approaches should be used to identify floodplains and their risks to critical[R] or non-critical federally funded actions: • Climate-Informed Science Approach (CISA) – the elevation and flood hazard area (i.e., 100-year floodplain) using data that integrate climate science with an emphasis on possible future effects on critical actions • Freeboard Value Approach – the elevation and flood hazard area and an additional two or three feet above the base flood elevation, depending on whether the proposed federal action is critical or non-critical • 500-Year Floodplain Approach – all areas subject to the 0.2 percent annual chance flood • Other methods resulting from updates to the FFRMS Because the airport is outside the 500-year floodplain, which is one of the methods for determining federal flood risk, no impacts related to the FFRMS are expected. [O] *FEMA Flood Map Service (https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/)* [P] *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 2015* [Q] *Floodplain Management, May 1977* [R] *Critical action is defined in E.O. 13690 and the 2015 Guidelines for Implementing E.O. 11988 as any activity for which even a slight change of flooding is too great; for example, a facility producing and/or storing highly volatile, toxic, or water-reactive materials; structures (such as schools) in which occupants may not be sufficiently mobile or have available transport capability, given the flood warning lead times available; or essential or irreplaceable resources, utilities, or other functions that could be damaged beyond repair or otherwise made unavailable.*

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

Surface Waters	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action would:*** • ***Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or*** • ***Contaminate public drinking water supply such that public health may be adversely affected.***
Potential Environmental Concerns	**Potential Impact.** The airport is located within the City of Las Vegas-Las Vegas Wash watershed. There are four waterbodies (Flamingo Wash, Las Vegas Creek, Sloan Channel, and Upper Las Vegas Wash) located within this watershed, all of which are classified as impaired.[S] These waterbodies are located east and south of the airport. An NPDES general construction permit would be required for all projects involving ground disturbance over one acre. FAA AC 150/5370-10G, *Standards for Specifying Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, should also be implemented during construction projects at the airport. [S] *U.S. EPA, How's My Waterway (https://mywaterway.epa.gov/community/north%20las%20vegas%20airport/overview)*
Groundwater	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The action would:*** • ***Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or*** • ***Contaminate an aquifer used for public water supply such that public health may be adversely affected.*** ***Factors to consider include whether a project would have the potential to:*** • ***Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;*** • ***Adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained, and such impairment cannot be avoided or satisfactorily mitigated; or*** • ***Present difficulties based on water quality impacts when obtaining a permit or authorization.***
Potential Environmental Concerns	**No Impact.** The airport property is not located near a sole source aquifer. The closest sole source aquifer is Fresno Streamflow Source Zone, located 180 miles away from the airport.[T] [T] *U.S. EPA, Sole Source Aquifers (https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b)*
Wild and Scenic Rivers	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	***The FAA has not established a significance threshold for Wild and Scenic Rivers. Factors to consider include whether an action would have an adverse impact on the values for which a river was designated (or is considered for designation) through:*** • ***Destroying or altering a river's free-flowing nature;*** • ***A direct and adverse effect on the values for which a river was designated (or is under study for designation);*** • ***Introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river's setting;*** • ***Causing the river's water quality to deteriorate;*** • ***Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or*** • ***Any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI), or a Section 5(d) river that is not included on the NRI, from being included in the Wild and Scenic River System, or causing a downgrade in its classification (e.g., from wild to recreational).***

(Continues on next page)

Table 5.3 | Summary of Potential Environmental Concerns (continued)

Potential Environmental Concerns	**No Impact.** There are no designated National Wild and Scenic Rivers in the State of Nevada. The closest designated National Wild and Scenic River to VGT is the Amargosa River, located 62 miles west of the airport in California.[U] The nearest NRI feature is the Virgin River, located 51 miles from VGT, where it leads into the northern reaches of Lake Mead.[V] Projects delineated on the proposed development concept would not have adverse effects on these rivers' outstanding remarkable values (i.e., scenery, recreation, geology, fish, wildlife, and history). [U] *National Wild and Scenic Rivers System (https://www.rivers.gov/nevada)* [V] *National Park Service, Nationwide Rivers Inventory (https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm)*

5.4 LAND USE COMPATIBILITY

Land use planning around VGT occurs through regulatory and non-regulatory means. The primary regulatory tool for directing land use is the zoning ordinance, which limits the types, sizes, and densities of land uses in various locations. Examples of land use types include residential, commercial, industrial, and agricultural. Non-regulatory means of land use controls include comprehensive or strategic land use plans. These documents can be adopted for the greater municipality or for specific areas. In most states, including Nevada, zoning ordinances are required to be created in accordance with a city or county's comprehensive plan.

It is important to note the distinction between primary land use concepts used in evaluating development within the airport environs and existing land use, comprehensive plan land use, and zoning land use. Existing land use refers to property improvements as they *exist today*, according to city records.

The comprehensive plan land use map identifies the *projected or future* land use, according to the goals and policies of the locally adopted comprehensive plan. This document guides future development within the city planning area and provides the basis for zoning designations.

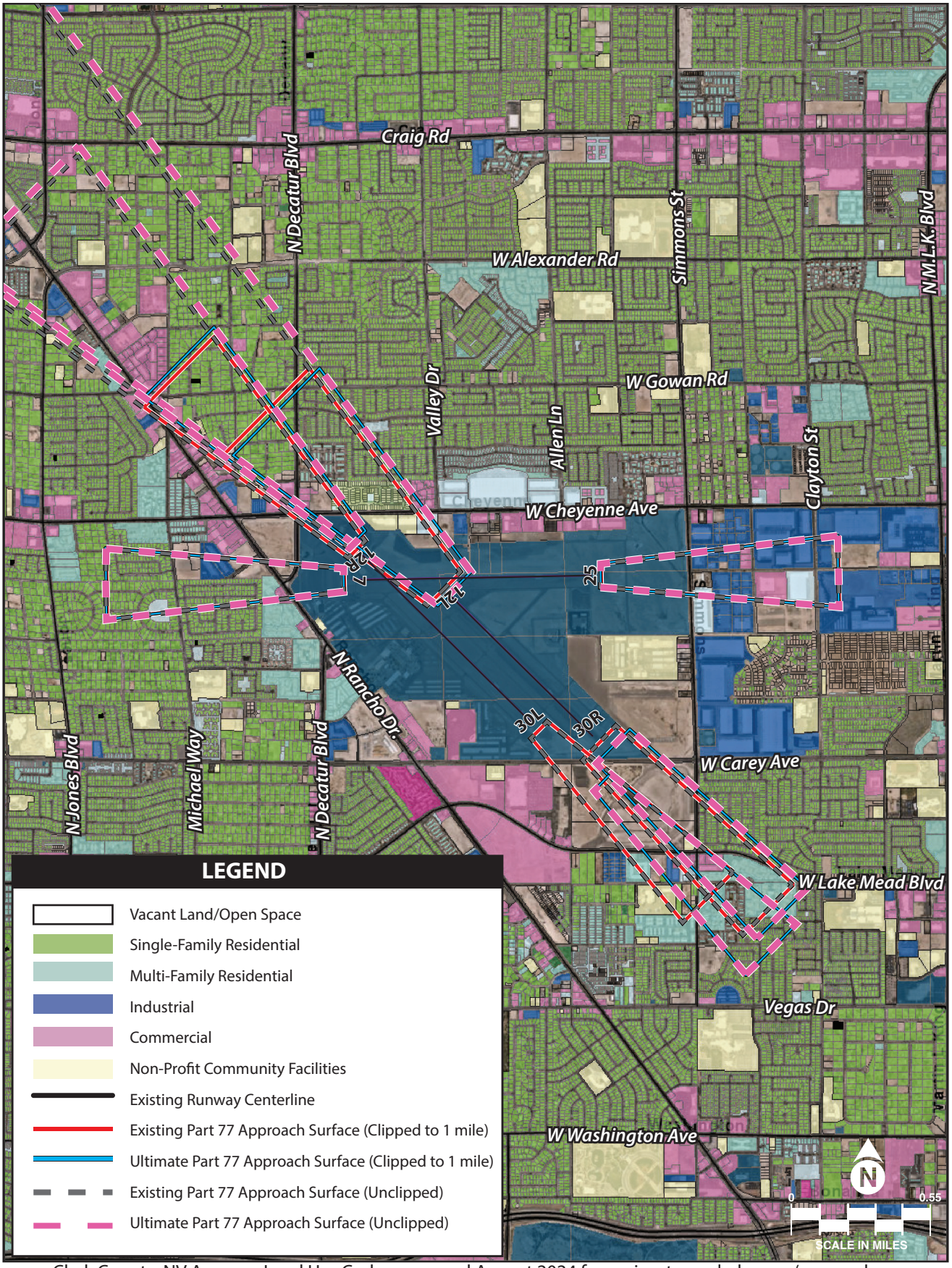
Zoning identifies the type of land use *permitted* on a given piece of property, according to city zoning ordinances and maps. Local governments are required to regulate the subdivision of all lands within their corporate limits. Zoning ordinances should be consistent with the general plan that has been prepared. In some cases, the land use prescribed in the zoning ordinance or depicted in the general plan may differ from the existing land use.

The following sections describe the applicable land use policies for the area within the vicinity of the airport. Specifically, these sections pertain to the lands within the 65- DNL contours and the FAA Title 14 CFR Part 77 approach surface restricted to one mile from the runway ends.

5.4.1 EXISTING LAND USE

As discussed in Chapter One, VGT is located within the city limits of North Las Vegas, Nevada; however, the runway approach surfaces out to one mile for the airport's three runways extend into jurisdictions outside the city limits of North Las Vegas. The approach surfaces out to one mile for Runway 12R and Runway 7 extend into the land use jurisdiction of Las Vegas, Nevada. A portion of the approach surface to Runway 7 also extends into unincorporated Clark County.

Figure 5.8 depicts existing land uses within the airport approach surfaces out to one mile for both the existing and ultimate conditions, using Clark County Assessor's Office property information. South of the airport within the approach surfaces to Runway 30L and 30R out to one mile, the following land uses are present: single-family residential, multi-family residential, industrial, commercial, and nonprofit community facilities. To the east of the airport within the approach surface to Runway 25, existing development includes a mix of industrial and commercial land uses. To the northwest of the airport within the approach surfaces to Runway 12L and 12R out to one-mile, existing land use is primarily single-family residential, with one multi-family residential development and commercial/industrial land uses located along the Highway 599 (also known as Rancho Drive) and Highway 574 (also known as Cheyenne Avenue) corridors. Similarly, the approach surface to Runway 7 to the west of the airport contains primarily single-family residential and multi-family residential land uses, as well as one area developed for industrial use.



Source: Clark County, NV Assessor Land Use Codes, accessed August 2024 from gisgate.co.clark.nv.us/openweb

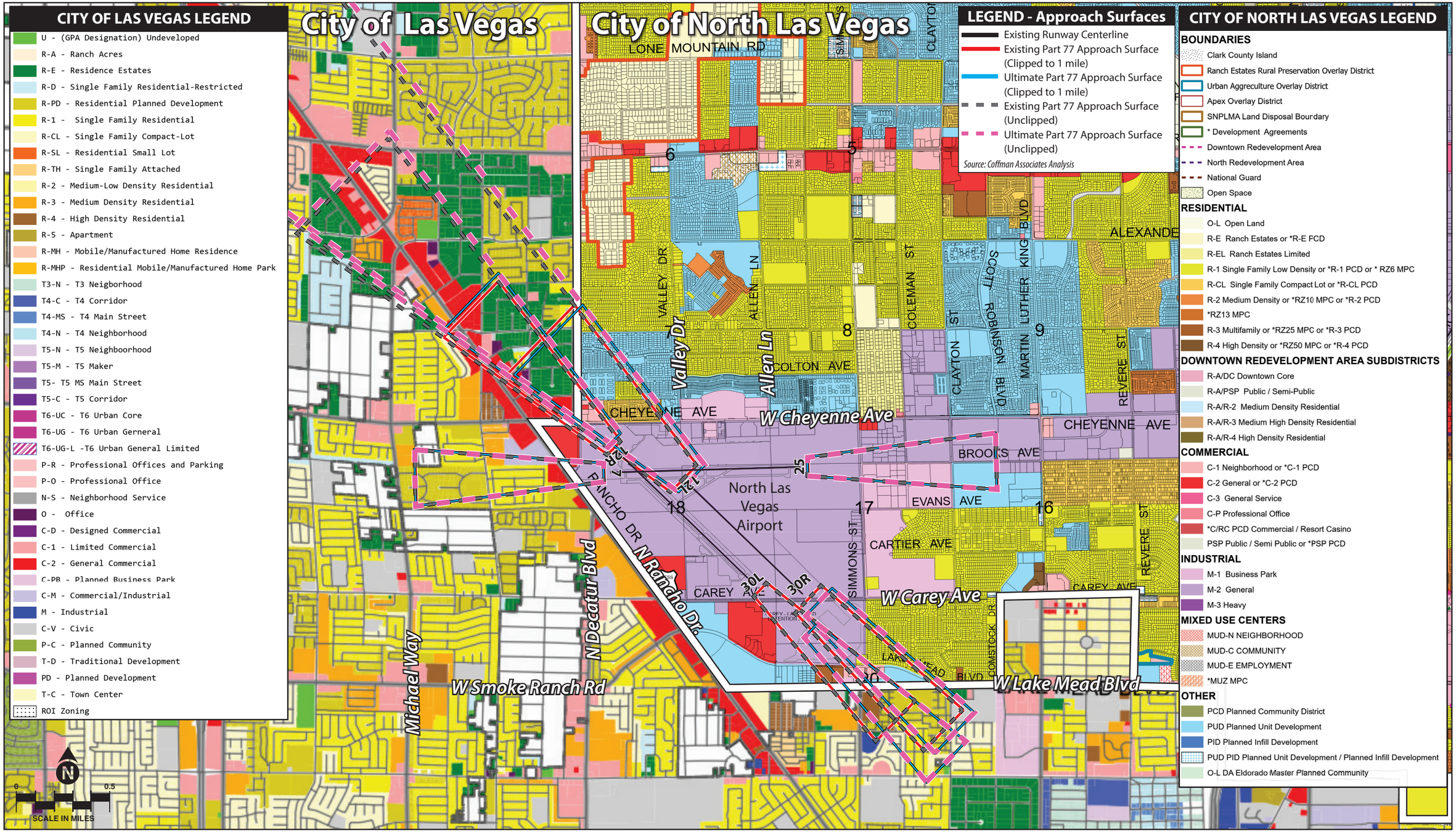
5.4.2 ZONING

Zoning regulations are used in conjunction with subdivision regulations and are an essential tool to achieve goals and policies outlined in each city's comprehensive plan. Zoning regulations divide land into districts, or zones, and regulate land use activities in those districts by specifying permitted uses, the intensity and density of each use, and the bulk sizes of each building. Traditional zoning ordinances separate land into four basic uses: residential, commercial (including office), industrial, and agricultural.

The *North Las Vegas Zoning Ordinance* was adopted on October 1, 2011, under authority granted to the City of North Las Vegas by the State of Nevada.[2] This code stipulates that enforcement, amendment, and administration of the city's zoning ordinance must be accomplished in accordance with the recommendations contained in the *North Las Vegas Comprehensive Master Plan*. The City of Las Vegas, Nevada, zoning ordinance is contained with the *City of Las Vegas Unified Development Ordinance*, which was adopted pursuant to provisions of the *Nevada Revised Statutes* (NRS), including NRS Chapter 278.

Figure 5.9 depicts the VGT approach surfaces out to one mile on the official zoning maps for the City of North Las Vegas and the City of Las Vegas. As shown on the figure, the following zoning districts are present in the approach surfaces: single-family and multi-family residential, commercial, industrial, and form-based transect neighborhood/corridor.

[2] NRS 278.010 through 278A.590, Statutes of 1986, State of Nevada



Sources: Zoning Map, City of Las Vegas Planning and Development Department (February 2023); Zoning Map, City of North Las Vegas Land Development and Community Service Department - Planning and Zoning Division (July 2024)

This page intentionally left blank

Table 5.4 summarizes the type of land use allowed in each zoning district, maximum density or maximum lot coverage, maximum allowable height, and overall minimum lot size, where applicable.

Table 5.4 | Zoning Classifications Within the Ultimate Approach Surfaces Out to One Mile

City of North Las Vegas, NV Zoning Classifications	Residential Allowed?	Maximum Density[1] or Lot Coverage[2]	Maximum Allowable Height	Minimum Lot Size
R-1 Single Family Low Density	Yes	2 DU per acre	35'	6,000 sf
R-4 High Density Residential	Yes	50 DU per acre	60'	450 sf per unit
C-1 Neighborhood Commercial	No	N/A	35'	N/A
C-2 General Commercial	No	N/A	60'	N/A
M-2 General Industrial	No	N/A	60'	N/A
M-1 Business Park Industrial	No	N/A	45'	N/A
City of Las Vegas, NV Zoning Classification	**Residential Allowed?**	**Maximum Density[1] or Lot Coverage[2]**	**Maximum Allowable Height**	**Minimum Lot Size**
R-E Residence Estates	Yes	1 DU per lot[1]	35'	18,000 sf
R-1 Single Family Residential	Yes	1 DU per lot[1]	35'	6,500 sf
R-3 Medium Density Residential	Yes	13-50 DU per acre[1]	55'	6,500 sf
R-4 High Density Residential	Yes	Unlimited[1]	10 stories or 100'	7,000 sf
C-2 General Commercial	No	50%[2]	10 stories or 100'	100' min. width
T4-N Transect Neighborhood Zone	Yes	75%[2]	3 stories	N/A
T5-N Transect Neighborhood Zone	Yes	100%[2]	5 stories	N/A
T-5C Transect Corridor Zone	Yes	95%[2]	7 stories	N/A

DU = dwelling units
sf = square feet
[1]Maximum density is listed for residential zoning classifications.
[2]Maximum lot coverage is listed for non-residential zoning classifications.

Sources: North Las Vegas Zoning Ordinance; City of Las Vegas, NV, Unified Development Code; Coffman Associates analysis

In addition to the requirements of the above-listed underlying zoning designations, the City of North Las Vegas zoning ordinance includes an Air Terminal Environs (AE) Overlay District, as discussed in Chapter One, to which district-specific regulations apply, as outlined in Chapter 17.16 of the North Las Vegas, Nevada Code of Ordinances (Code). The AE Overlay District includes five subzones around VGT, including Clear Zones (based on the RPZs for VGT) and four airport noise contour subzones (AE-60, AE-65, AE-70, and AE-75). Additional construction requirements and land use restrictions apply to the AE Overlay District, as delineated in Table 17.16-10 and Table 17.16-11 of the Code. District-specific regulations for the AE Overlay District also require a noise disclosure form to be recorded against the land by the developer of any residential property, with a copy of the disclosure and a copy of the Air Terminal Environs Overlay District map to be provided by the developer to the initial occupant. With regard to height, the Code requires Notices of Construction or Alteration to be filed with the FAA, per federal regulation, and limits construction height for structures that would 1) constitute a "hazard to air navigation," as defined by the FAA; 2) result in an increase to minimum flight altitudes during any phase of flight; or 3) otherwise be determined to pose a significant negative impact on airport or aircraft operations.[3]

[3] North Las Vegas, Nevada, Code of Ordinances, 17.16.050(K)1 (https://library.municode.com/nv/north_las_vegas/codes/code_of_ordinances?nodeId=TIT17ZOOR_CH17.16ZODI_17.16.050DIECRE)

The City of Las Vegas, Nevada, also adopted a similar Airport Overlay (A-O) District for the area surrounding VGT in July 1990, which is codified in the *City of Las Vegas Unified Development Ordinance*, Chapter 19.10.080. The North Las Vegas Airport Overlay Map depicts zones that are used to regulate building heights ranging from 35 feet to 100 feet on land that corresponds with VGT's Part 77 surfaces. The zoning ordinance also stipulates that: 1) the City of Las Vegas Planning Commission must review, approve, or waive specific construction requirements; 2) no land uses may create a hazard to air navigation or compromise public safety; and 3) structures and growth of trees in excess of the prescribed height limitations will require a Special Use Permit approved by the planning commission and city council.[4]

Clark County, Nevada, has adopted airport hazard regulations in *Title 20 – Airports* of the *Clark County, Nevada, Code of Ordinances* and *Title 30, Section 30.02.26 B – Airspace and 30.02.26C – Environs* of the *Clark County, Nevada Unified Development Code*. Airport hazard areas include all the land within the Part 77 surfaces for VGT. Requirements stipulated by this code include height limitations, avigation easements, notification of filing for FAA Notices of Construction or Alteration, additional permitting, and installation and maintenance of markers or lights on structures or trees.[5]

5.4.3 SUBDIVISION REGULATIONS

Subdivision regulations are legal devices employed to administer the process of dividing land into two or more lots, parcels, or sites for the building and location, design, and installation of supporting infrastructure. The subdivision regulations are one of two instruments commonly employed to carry out the goals and policies outlined in the comprehensive plan. The ordinance for minor subdivisions of land in North Las Vegas is codified within Chapter 16.28 of the *North Las Vegas Code of Ordinances*.[6] Subdivision regulations for the City of Las Vegas, NV, are contained within the *City of Las Vegas Unified Development Code*.[7]

Subdivision regulations can be used to specify requirements for airport-compatible land development by requiring developers to plat and develop land to minimize noise impacts or reduce noise exposure to new development. Subdivision regulations can also be used to protect the airport proprietor from later litigation for noise impacts. Easements typically authorize overflights of property, with noise levels attendant to such operations.

[4] City of Las Vegas, NC, Unified Development Code, Chapter 19.10.080 (https://online.encodeplus.com/regs/lasvegas-nv/doc-viewer.aspx#secid-526)
[5] Clark County, Nevada, Code of Ordinances, Chapter 20.13 (https://library.municode.com/nv/clark_county/codes/code_of_ordinances?nodeId=TIT20AI_CH20.13AIHARE)
[6] North Las Vegas, Nevada, Code of Ordinances, Chapter 16.28 (https://library.municode.com/nv/north_las_vegas/codes/code_of_ordinances?nodeId=TIT16DECO_CH16.28MISU)
[7] City of Las Vegas, Nevada, Unified Development Code, Chapter 19.02, Subdivision Design and Improvement Requirements (https://online.encodeplus.com/regs/lasvegas-nv/doc-viewer.aspx#secid-20)

5.4.4 BUILDING CODE

Building codes are established to provide minimum standards to safeguard life, limb, health, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures. Building codes may require the provision of sound insulation in new residential, office, and institutional buildings when warranted by existing or potential high aircraft noise levels.

The current *North Las Vegas Building Code* consists of the *International Building Code* (IBC), 2018 edition, as amended. The current building code for the City of Las Vegas is the IBC, 2021 edition, as amended. The IBC generally does not include noise attenuation requirements. Jurisdictions can pass additional regulations in their building codes for further building requirements, such as reacting to unique threats of regional natural disasters, helping to build structures correctly at the beginning of construction when it matters most, as changes can be expensive and difficult. For new construction near an airport, incorporating noise attenuation can be especially important. Noise attenuation measures can include increasing the thickness of windows or utilizing sound-absorbing building materials.

5.4.5 FUTURE LAND USE PLANS

The future land use plan is a general policy document used by a government agency to identify and describe the community's characteristics, articulate goals and policies, and explore alternative plans for future growth, which will be used to produce zoning ordinances and subdivision regulations to carry out the plan's goals. A municipality will often incorporate goals and policies for its airports in the future land use plan, typically separate from an airport master plan. Generally, the future land use plan assists local decision-makers regarding complicated issues during the development process, or maintenance issues. As discussed in Chapter One, Section 1.7.2, current planning documents of this type for the land near VGT are the *City of North Las Vegas Comprehensive Master Plan* (adopted in November 2006 and amended in February 2011) and the *City of Las Vegas 2050 Master Plan* (adopted in July 2021). Both plans are reviewed annually.

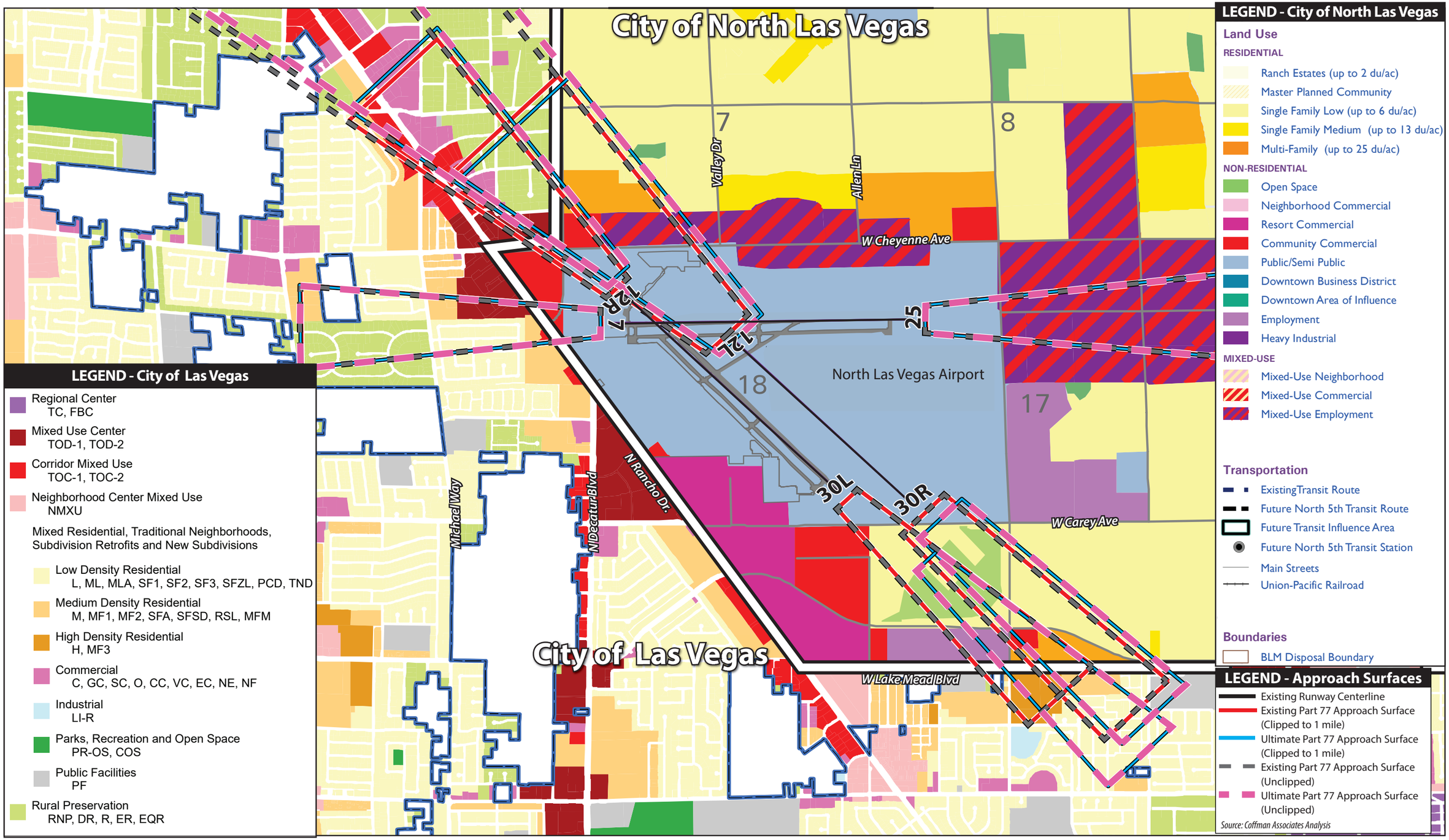
City of North Las Vegas Comprehensive Master Plan

The *City of North Las Vegas Comprehensive Master Plan* contains guiding principles, goals, and policies, which help guide future policy decisions that impact the city's development pattern, including maintaining and building quality infrastructure. Airport property is identified as public/semi-public on the City of North Las Vegas's future land use map and is surrounded by areas designated as mixed-use employment, community commercial, resort commercial, and single-family low density. Specific planning areas near the airport include two existing master-planned residential communities: Cheyenne North District to the north and South District to the south.

City of Las Vegas 2050 Master Plan

The *City of Las Vegas 2050 Master Plan* is "a comprehensive thirty-year plan prepared for the residents and businesses of Las Vegas to provide for their health, safety, prosperity, security, comfort, and general welfare." It is noted in the plan that "aviation is the economic lifeblood for the City [of Las Vegas] and the Southern Nevada region as a whole." The plan identifies the importance of the preservation of airspace through careful limitations on building heights and design in airport overlay zones for both Harry Reid International Airport and North Las Vegas Airport. Master Planned communities within the City of Las Vegas that are adjacent to VGT include Rancho to the northwest, Twin Lakes to the west, and Historic West Side to the south.

Figure 5.10 depicts the comprehensive plan land use designations within the airport's existing and ultimate Part 77 approach surfaces out to one mile. Future land uses identified within the approach surfaces out to one mile include single-family and multi-family residential, commercial, industrial, mixed-use, and open space. **Table 5.5** presents the runway approach location where each land use is planned, the purpose of each land use designation, as stated in the comprehensive plan, and the densities/intensities recommended for each designation.



Sources: City of North Las Vegas Comprehensive Plan (2006); City of Las Vegas, NV, 2050 General Plan (2023); Coffman Associates analysis.

This page intentionally left blank

Table 5.5 | Future Land Use Designations Within the Ultimate Approach Surfaces Out to One Mile

CITY OF NORTH LAS VEGAS	CITY OF LAS VEGAS
Single-Family Low Density	**Rural Preservation**
Location: Runways 12L, 30R, and 30L *Intensity:* Low (4.5 to 6 DU per acre) *Intent and Strategies:* Primary uses include conventional single-family detached residences and small-lot single-family residences. Secondary uses include parks, open space, golf courses, schools, churches, and other public or semi-public uses. This land use designation applies to developed neighborhoods throughout the city where each development maintains a consistent architectural style and scale. Infill, redevelopment, or new development projects in these areas should be consistent with the prevailing character of each neighborhood. Development at the higher range of the allowable density for this category is required to meet higher density standards pursuant to the plan's residential density evaluation criteria.	*Location:* Runways 12L, 12R, and 7 *Density:* Low *Intent and Strategies:* This designation includes neighborhoods that are designed to preserve ranch-style development; permit a greater variety of domestic animals; not require sidewalks, curbs, gutters, or streetlights; and allow more flexibility in live/work uses, with the intent of maintaining the rural character of the area.
	Low Density Residential
	Location: Runways 30R and 7 *Density:* Low (fewer than 12.5 DU per acre) *Intent and Strategies:* These areas are designated as traditional neighborhoods and contain low-density single-family housing and attached or detached homes.
Multi-Family Residential	**Medium Density Residential**
Location: Runways 12L, 12R, 30L, and 30R *Density:* Medium (up to 25 DU per acre) *Intent and Strategies:* Primary uses include residential development, such as condominiums and apartments. Secondary uses include open space areas, parks, golf courses, schools, churches, and other public or semi-public uses. These developments typically occur along major roadways and near higher intensity uses, such as commercial and employment uses. Individual developments typically have their own parking facilities and common open space areas. Infill, redevelopment, or new developments should seek to draw a strong connection to nearby uses, including employment and commercial uses, parks, and other services and amenities. Connectivity should be emphasized in site design to promote pedestrian activity and access. Where transit is planned for or available, developments should be oriented toward transit facilities to promote their use.	*Location:* Runways 30L, 30R, 12R, and 7 *Density:* Medium (15-25.5 DU per acre) *Intent and Strategies:* These areas generally accommodate multi-family units, such as plexes, townhouses, and medium-density apartments. These areas may also include higher density single-family housing developments of up to 18 dwelling units per acre.
	High Density Residential
	Location: Runways 30L and 30R *Density:* High (25 DU per acre) *Intent and Strategies:* These areas are generally intended to accommodate apartments, condominiums, townhomes, and high-rise residential uses. These areas may also include higher density single-family housing developments of up to 18 dwelling units per acre.
Community Commercial	**Commercial**
Location: Runways 12L, 30L, and 30R *Intensity:* Medium *Intent and Strategies:* Primary uses include retail and some service businesses and restaurants. Secondary uses include parks, offices, places of worship, and other public or semi-public uses. This land use category accommodates large and mid-size retail establishments that provide goods and services to the entire community.	*Location:* Runways 12L and 12R *Intensity:* Medium *Intent and Strategies:* This designation includes retail, office, or other commercial uses that serve as employment centers.

(Continues on next page)

Table 5.5 | Future Land Use Designations Within the Ultimate Approach Surfaces Out to One Mile (continued)

CITY OF NORTH LAS VEGAS	CITY OF LAS VEGAS
Mixed-Use Employment	**Mixed-Use Center**
Location: Runways 12L and 25 *Density/Intensity:* Medium to High (25-50 DU per acre) *Intent and Strategies:* Mixed-use employment areas are predominately employment areas that include light industrial, professional service, and office uses. Commercial land uses should occupy at least 75% of the ground area of any site within this category.	*Location:* Runways 12L, 12R, and 7 *Density/Intensity:* Medium (4-5 stories, 15-30 DU per acre) *Intent and Strategies:* These are areas with the greatest transit-oriented development potential, with scale and density of residential development to be determined by the type of transit added (light rail, bus rapid transit, or improved local buses). The strategies include commercial retrofit of repurposed shopping centers and transit-oriented development prioritized to support transit stops.
Open Space	**Regional Center**
Location: Runways 30L and 30R *Intensity:* Low *Intent and Strategies:* Primary uses include parks, recreation, golf courses, playing fields, and open space. Secondary uses include public recreation facilities, picnic facilities, pools, playground equipment, and open-air vending. Open space and trail linkages are also used to create community-wide pedestrian and bicycle connections.	*Location:* Runways 30L and 30R *Density/Intensity:* High (25-50+ DU per acre) *Intent and Strategies:* Regional Centers are intended to be the regional hubs of activity and are comprised of employment centers and destinations for both residents and visitors. These are the most intense of the mixed-use place types, are accessible by transit, and include shopping, services, dining, and employment, as well as residential and office, civic, and transportation land uses.
Public/Semi Public	**Corridor Mixed-Use**
Location: Airport Property and All Runways *Intensity:* Varies *Intent and Strategies:* Public/semi-public uses are distributed throughout the city and serve public needs or functions. These include public or semi-public offices, government facilities, libraries, churches, schools, colleges and universities, military uses, cemeteries, safety services, utilities, or airport uses. Secondary uses include parks and open space. These uses should work to create positive and attractive public spaces by incorporating site design elements that promote civic activity.	*Location:* Runways 12R and 7 *Density/Intensity:* High (2-5 stories, 30-40 DU per acre) *Intent and Strategies:* These are currently predominately commercial corridors intended to transition to accommodate a mixture of uses, particularly residential. This will be accomplished by improving walkability and connectivity to adjacent neighborhoods and retrofit of existing uses with residential infill.

DU = dwelling units

Sources: City of North Las Vegas Comprehensive Master Plan (2006); City of Las Vegas 2050 Master Plan (2023); Coffman Associates analysis

5.4.6 INCOMPATIBLE DEVELOPMENT ANALYSIS

In addition to evaluating areas with the potential for incompatible development based on zoning and future land use plans, the airport's noise exposure contours have been evaluated in comparison with the recommended height restrictions within the Part 77 approach surfaces out to one mile. This was accomplished by evaluating city-adopted land use plans and zoning designations for those parcels encompassed by the noise contours to determine if noise-sensitive land uses could be developed in these areas. Noise contours and height restrictions within the Part 77 approach surface area are addressed below.

Noise Exposure Contours

The standard methodology for analyzing noise conditions at airports involves the use of a computer simulation model. The purpose of the noise model is to produce noise exposure contours that are overlain on a map of the airport and vicinity to graphically represent aircraft noise conditions. When compared to land use, zoning, and general plan maps, the noise exposure contours may be used to identify areas that are currently, or have the potential to be, exposed to aircraft noise.

To achieve an accurate representation of an airport's noise conditions, the noise model uses a combination of industry-standard information and user-supplied inputs specific to the airport. The software provides noise characteristics, standard flight profiles, and manufacturer-supplied flight procedures for aircraft that commonly operate at VGT. As each aircraft has different design and operating characteristics (number and type of engines, weight, and thrust levels), each aircraft emits different noise levels. The most common way to spatially represent the noise levels emitted by an aircraft is a noise exposure contour.

Airport-specific information – including runway configuration, flight paths, aircraft fleet mix, runway use distribution, local terrain and elevation, average temperature, and numbers of daytime and nighttime operations – are also used in modeling inputs.

Based on assumptions provided by the user, the noise model calculates average 24-hour aircraft sound exposure within a grid covering the airport and surrounding areas. The grid values represent the DNL at each intersection point on the grid and signify a noise level for that geographic location. To create noise contours, an isoline similar to those on a topographic map is drawn, connecting points of the same DNL noise value. In the same way a topographic contour represents equal elevation, the noise contour identifies areas of equal noise exposure.

DNL is the metric currently accepted by the FAA, U.S. EPA, and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three agencies have identified the 65 DNL noise contour as the threshold of incompatibility. Local and state governments have the authority to adopt lower noise thresholds for land use compatibility planning purposes. Clark County, Nevada, utilizes the 60 DNL noise contour for identifying incompatible land uses surrounding VGT.

The guidelines summarized in Table 1 of 14 CFR Part 150 indicate some land uses are acceptable in areas above 65 DNL according to federal regulation.[8] At or above the 65 DNL threshold, residential uses (including RV parks and campgrounds), educational and religious facilities, health and childcare facilities, and outdoor sport, recreation, and park facilities are all incompatible. Educational, healthcare, and religious facilities are also generally considered to be incompatible with noise exposure above 65 DNL. As with residential development, communities can make policy decisions that these uses are acceptable with appropriate sound attenuation measures. Hospitals and nursing homes, places of worship, auditoriums, and concert halls are structures that are generally compatible if measures to achieve noise level reduction are incorporated into the design and construction of such structures. Outdoor music shells and amphitheaters are not compatible and should be prohibited within the 65 DNL noise contour.

[8] 14 CFR Part 150 (https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150)

Additionally, agricultural uses and livestock farming are generally considered compatible, except for related residential components of these uses, which should incorporate sound attenuation measures.

As part of this master plan, noise exposure contours were prepared for VGT for a baseline condition (2023) and a long-range condition (2043). The resulting contours are shown on **Figure 5.7**.

Height Restrictions

To analyze the potential for incompatible development of land off airport property, zoning within the Part 77 approach surface area out to one mile from the ends of the runways was evaluated. **Table 5.4** noted the maximum height limit for zoning of the underlying permitted land uses, which range from 35 feet to unlimited. Additional height restrictions are placed on the approach surfaces by the previously discussed airport hazard zoning ordinances.

5.4.7 RECOMMENDATIONS

Based on the information presented above and the incompatible development analysis, the following recommendations are provided to maintain airport land use compatibility in the vicinity of VGT. The recommendations are in accordance with the recently published FAA AC 150/5190-4B, which identifies compatible land use development tools, resources, and techniques to protect surrounding communities from adverse effects associated with airport operations.[9]

Continue Land Use Reviews and Initiatives

The CCDOA reviews thousands of land use applications annually that are submitted to Clark County, the City of Las Vegas, the City of North Las Vegas, and the City of Henderson. When needed, comments and conditions are issued addressing a variety of concerns such as potential wildlife attractants, safety and security concerns, etc., but mostly for height, noise, and deed restrictions. Height comments generally require airspace analysis. Noise comments, depending on location and noise contour, can simply be advisory, or include specific conditions, such as additional sound attenuation and noise disclosure requirements. In 2023, an updated informational noise disclosure letter and associated attachments, were provided to local elected officials, department heads, and various government officials. This information was also provided to the Nevada State Real Estate Division for electronic mass distribution to local realtors and brokers. These ongoing outreach efforts should be continued throughout the planning period.

[9] Federal Aviation Administration, Advisory Circular 150/5190-4B, Airport Land Use Compatibility Planning, September 16, 2022

Update Airport Hazard Area Zoning Ordinances and Maps

The airport hazard zoning ordinances for North Las Vegas, Las Vegas, and Clark County could be reviewed and updated to reflect the existing and ultimate conditions for VGT. The current airport hazard zoning ordinance references the primary approach, transition, horizontal, and conical zones for the airport, which may change as the Part 77 airspace drawing for the airport is updated. The hazard zoning maps for each jurisdiction could also be updated.

Implement FAA Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Tool

The city and county airport hazard zoning ordinances and/or building permit application process should be continued so that airport hazards are identified through an FAA 7460-1 airspace analysis. The FAA notice criteria tool allows users (airport sponsor, developer, and local municipality) to input location and dimensional information about a proposed development to determine if a project proponent is required to file notice with the FAA. If a notice is required, the proponent is then required to submit FAA Form 7460-1, *Notice of Construction or Alteration*, to the FAA for review as a local project review standard, pursuant to each jurisdiction's existing airport hazard ordinance.

Consult FAA Advisory Circular for Wildlife Hazard Review

Certain land uses that attract birds and other wildlife hazards should not be permitted on or near the airport, according to FAA AC 150/5200-33C.[10] Land uses that create bird strikes could be addressed more specifically in the airport hazard overlay district zoning regulations.

Special Exceptions/Conditional Uses

In its most recent circular, the FAA advises that if a community located near an airport allows some land use control through conditional uses, that community should make certain such uses do not create a hazard for the community, the airport, or the user of the subject property. North Las Vegas and the City of Las Vegas could modify their zone change requirements and/or conditional use requirements within the airport's vicinity to have a designation that triggers extraordinary review of these exceptions due to a property's location being near an airport.

Adopt Fair Disclosure Requirements for Real Estate Transactions within the Vicinity of VGT

Fair disclosure regulations in real estate transactions are intended to ensure prospective buyers of property are informed that the property is, or will be, exposed to potentially disruptive aircraft noise or overflights. Around even the busiest airports, it is not uncommon for newcomers to report having bought property without having been informed about airport noise levels. At the most formal level, fair disclosure can be implemented through a city or county ordinance requiring a deed notice for property within the vicinity, based on an existing boundary, such as the Part 77 Horizontal Imaginary Surface. The following is an example of deed notice language that would notify a property owner of the proximity of an airport and expectations for living in the vicinity of the airport:

[10] Federal Aviation Administration, Advisory Circular 15/5200-33C, Hazardous Wildlife Attractants on or near Airports, February 21, 2020

The subject property is within the vicinity of North Las Vegas Airport, located at 2730 Airport Drive, North Las Vegas, NV 89032. Properties within this area are routinely subject to overflights by aircraft using this public-use airport. As a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. Residents should also be aware that the current volume of aircraft activity may increase in response to the population and economic growth within the North Las Vegas Airport vicinity. Any subsequent deed conveying this parcel, or subdivisions thereof, shall contain a statement in substantially this form.

Airport and FAA Participation in Local and Regional Planning

The authority to develop, implement, and enforce land use programs and decisions rests predominantly with local governments; therefore, it is recommended that airport operators be involved in the preparation of city, county, and regional comprehensive plans so they can advocate for airport interests and provide their specialized expertise to the planning team. Airport coordination with local governments ensures they are routinely provided information about proposed development activity in the airport environs, allowing the airport operators the opportunity to review and comment on those proposals. This would include engagement with all jurisdictions in the airport vicinity.

5.5 AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION

5.5.1 REGULATORY GUIDELINES

FAA Modernization and Reform Act of 2012

The *FAA Modernization and Reform Act of 2012* (FMRA), which amended Title 49, United States Code (USC), included several changes to the Airport Improvement Program (AIP). Two of these changes are related to recycling, reuse, and waste reduction at airports.

- Section 132(b) of the FMRA expanded the definition of airport planning to include "developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable State and local recycling laws, including the cost of a waste audit."

- Section 133 of the FMRA added a provision that requires an airport that has or plans to prepare a master plan, and that receives AIP funding for an eligible project, to ensure that the new or updated master plan addresses issues relating to solid waste recycling at the airport, including:

    - The feasibility of solid waste recycling at the airport;
    - Minimizing the generation of solid waste at the airport;
    - Operation and maintenance requirements;
    - A review of waste management contracts; and
    - The potential for cost savings or the generation of revenue.

State of Nevada Solid Waste Management

In the State of Nevada, there are three solid waste management authorities that enforce solid waste regulations through permitting: the Southern Nevada Health District, the Washoe County Health District, and the Nevada Division of Environmental Protection (NDEP).[11] The Southern Nevada Health District oversees waste regulations (i.e., permitting and enforcement) for Clark County; however, the NDEP maintains responsibility for overseeing solid waste programs in Clark County.

5.5.2 SOLID WASTE

Typically, airport sponsors have purview over waste-handling services in facilities they own and operate, such as airport-owned hangars and maintenance facilities. Tenants of airport-owned buildings/hangars or tenants that own their own facilities are usually responsible for coordinating their own waste-handling services. While the focus of this plan is airport-operated facilities, the airport should work to incorporate facility-wide strategies that create consistency in waste diversion mechanisms. This would ultimately result in the reduction of materials sent to the landfill.

For airports, waste can generally be divided into eight categories.[12]

- **Municipal Solid Waste** (MSW) is more commonly known as trash or garbage and consists of everyday items that are used and then discarded, such as product packaging.
- **Construction and Demolition Waste** (C&D) is considered non-hazardous trash that results from land clearing and excavation, as well as demolition, renovation, or repair of structures, roads, and utilities. C&D includes concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labelled MSW.
- **Green Waste** is a form of MSW yard waste that consists of tree, shrub, and grass clippings, as well as leaves, weeds, small branches, seeds, and pods.
- **Food Waste** includes unconsumed food products or waste generated and discarded during food preparation and is also considered MSW.
- **Deplaned Waste** is waste removed from passenger aircraft. Deplaned waste includes bottles, cans, mixed paper (newspapers, napkins, paper towels), plastic cups, service ware, food waste, and food-soiled paper/packaging.
- **Lavatory Waste** is a special waste that is emptied through a hose and pumped into a lavatory service vehicle. The waste is then transported to a triturator[13] facility for pretreatment prior to discharge in the sanitary sewage system. Chemicals in lavatory waste can present environmental

[11] Nevada Division of Environmental Protection, Land, Sustainable Materials Management, Solid Waste (https://ndep.nv.gov/land/waste/solid-waste), accessed August 2024

[12] FAA, Recycling, Reuse and Waste Reduction at Airports, April 24, 2013

[13] A triturator facility turns lavatory waste into fine particulates for further processing.

and human health risks if mishandled; therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewage system prior to pretreatment.

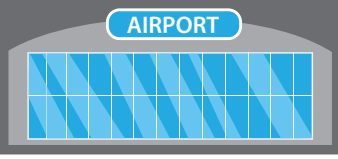
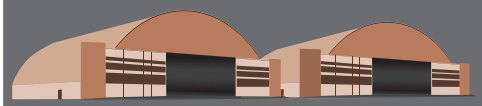
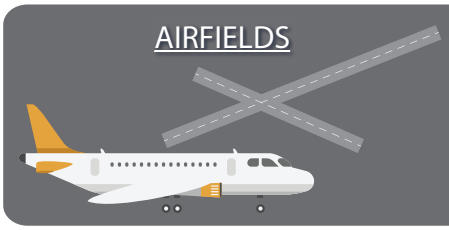
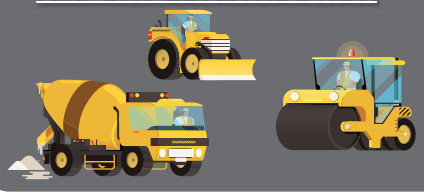
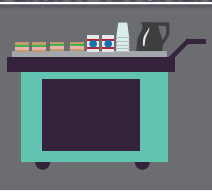
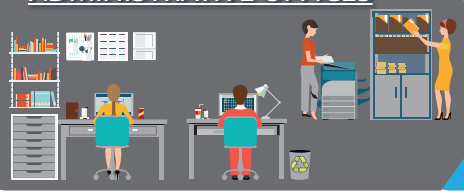
- **Spill Cleanup and Remediation Wastes** are special wastes that are generated during the cleanup of spills and/or the remediation of contamination from several types of sites on an airport.

- **Hazardous Wastes** are governed by the *Resource Conservation and Recovery Act* (RCRA), as well as regulations for certain hazardous waste, known as universal waste, described in 40 CFR Part 237, *The Universal Waste Rule.* Common sources of aviation hazardous waste include the following:

    - Solvents
    - Caustic part washes
    - Heavy metal paint waste and paint chips
    - Waste fuels and other ignitable products
    - Unusable water conditioning chemicals
    - Nickel cadmium batteries
    - Waste pesticides
    - Chemicals containing toxic constituents
    - Lead-acid batteries
    - Fluorescent light tubes

As shown on **Figure 5.11**, the airport potentially contributes to the waste stream in multiple areas, including hangars and airport construction projects. To create a comprehensive waste reduction and recycling plan for the airport, all potential input must be considered.

AIRPORT WASTE STREAMS

AIRPORT AREA	POTENTIAL INPUTS	POTENTIAL OUTPUTS
TERMINALS 	Restaurants Shops Passengers Employees	Food Waste, Paper Plastic, Aluminum Cans Trash, Grease & Oil Green Waste Deplaned Waste
HANGARS 	Goods Movements	Plastic Wood Vehicle Waste (Tires & Fluids)
AIRFIELDS 	Aircraft Operations	Runway Rubber Green Waste
AIRCRAFT 	Aircraft Ground Support Equipment (GSE)	Vehicle Waste Plastic Wastewater Hazmat
AIRPORT CONSTRUCTION 	Construction Re-Construction Demolition	Reused Concrete Reused Asphalt Vehicle Waste Soils, Building Materials Wood, General Waste
FLIGHT KITCHENS 	Aircraft Food Services	Food Waste Waste Water Plastic Wood
ADMINISTRATIVE OFFICES 	Employees	Food Waste Paper, Plastic Aluminum Cans Trash

Source: Recycling, Reuse, and Waste Reduction at Airports, FAA (April 24, 2013)

Figure 5.11
AIRPORT WASTE STREAM INPUTS

5.5.3 EXISTING SERVICES

VGT currently has an in-terminal, airfield, and hangar comingled recycling program. Additionally, the airport recycles hazardous waste (e.g., fluorescent bulbs, plane tires, and batteries). Batteries at the airport are picked up by Battery Systems for proper disposal and transfer. Other hazardous waste accumulated at the airport is transferred to Harry Reid International Airport (LAS), where the waste is picked up by Clean Harbors (contracted waste handler). VGT also recycles electronic waste (e-waste) and sends all e-waste to the Blind Center of Nevada, which has a resale shop and a materials recovery facility. See Chapter One, Section 1.9, for more sustainable practices implemented at the airport.

5.5.4 GOALS AND RECOMMENDATIONS

Solid Waste and Recycling Goals

Table 5.6 outlines objectives that could help reduce waste generation and increase recycling efforts at the airport. To increase the effectiveness of tracking progress at the airport, a baseline state of all suggested metrics should be established to provide a comparison over time.

Table 5.6 | Waste Management and Recycling Goals

Goals	Objectives
Reduce waste through green purchasing practices	• Reduce waste through controlled purchasing practices and the consumption of nonessential products
Reduce amount of solid waste generated	• Conduct a waste audit to identify the most common types of waste at the airport • Assign waste and recycling management to an individual or group

Source: Coffman Associates, Inc.

Recommendations

To increase recycling efforts at the airport, the following recommendations are made:

Objective 1: Reduce waste through controlled purchasing practices.

- *Reduce waste through controlled purchasing practices and the consumption of nonessential products* – The airport can control the amount of waste generated by prioritizing the purchase of items or supplies that are reusable, recyclable, compostable, or made from recycled materials.

Objective 2: Conduct a waste audit to identify the most common types of waste at the airport.

- *Audit the current waste management system* – The continuation of an effective program requires accurate data regarding current waste and recycling rates. There are several ways an airport can gain insight into its waste stream, such as requesting weights from the hauler, tracking the volume, or reviewing the bills; however, managing the waste system begins with a waste audit. A waste audit is an analysis of the types of waste produced and is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables (**Figure 5.12**).



After the Assessment

10 **Analyze assessment results.** Compile waste assessment results. Analyze information to meet waste assessment goals (such as current recycling levels and amount of waste that could be recycled through existing programs). Perform a quality check to minimize data errors. Summarize results into easy to understand graphs or tables.

11 **Report results to key participants and program partners**. Send waste assessment results to those involved in the assessment. Report results to recycling participants (employees, contractors). Share results, lessons learned, and best practices to others in industry.

Source: Recycling Best Practice - A Guidebook for Advancing Recycling from Aircraft Cabins, ACRP (2014)

Figure 5.12
WASTE AUDIT EXAMPLE

A waste audit should include the following actions:

- Examination of records
  - Waste hauling and disposal records and contracts
  - Supply and equipment invoices
  - Other waste management costs (commodity rebates, container costs, etc.)
  - Track waste from the point of origin
  - Establishes a baseline for metrics
- Facility walk-through conducted by the airport
  - Obtain qualitative waste information to determine major waste components and waste-generating processes
  - Identify the locations on the airport that generate waste
  - Identify what types of waste are generated by the airport to determine what can be reduced, reused, or recycled
  - Understanding waste pick-up and hauling practices
- Sort through waste
  - Provides quantitative data on total airport waste generation
  - Allows problem-solving design/enhances the recycling program for the airport

Objective 3: Encourage waste and recycling management.

- *Assign the responsibility of waste management to a dedicated individual or group* – Having one person or a group of people oversee and manage solid waste and recycling at the airport will create efficient and cost-saving solutions to solid waste management. People dedicated to this operational aspect of the airport will be familiar with processes and will help identify areas of improvement and cost-cutting measures.

5.6 SUSTAINABILITY

As part of its efforts to embrace its role in social responsibility, maximizing operational efficiencies, ensuring economic viability, and minimizing the environmental impacts of airport operations, CCDOA has adopted sustainable practices. CCDOA hired a consultant to help develop a sustainability plan for use at Harry Reid International Airport and the GA airports within CCDOA's system of airports.

The consultant identified several items that could be implemented in the short term:

- Install water bottle filling stations
- Purchase new in-terminal recycle bins

- Place “We Recycle” signage/placecarding in conspicuous locations
- Place “Water Smart” placecards in bathrooms informing use of low-flow fixtures and xeriscaping as a community partner to conserve water
- Compile metrics for Republic Services recycling, waste oil, batteries, etc.
- Develop a sustainability web page on the airport’s website (www.harryreidairport.com) and link to its Sustainability and Environmental Management System webpages
- Provide North Las Vegas Airport staff with sustainability awareness training
- Circulate the tenant questionnaire developed by the consultant

Even during the COVID-19 pandemic, CCDOA continued to implement sustainable practices, such as the utilization of carbon credit offsets provided by World Fuel Services. Several steps must be taken prior to investing a lot of resources into implementing sustainable practices, policy, and infrastructure at the airport in the future, such as:

- Additional staff to implement and monitor projects and progress
- Completion of a dashboard to automate tracking
- Establishment of sustainability goals and metrics

Any large-scale sustainability efforts will first be implemented at Harry Reid International Airport and North Las Vegas Airport would be the first GA airport in CCDOA’s system to implement a large sustainability program. In addition to the short-term items noted above:

- Private developers should seek to develop Leadership in Energy and Environmental Design (LEED)-certified facilities
- Installation of solar panels should be encouraged by tenants to the extent practicable and that it does not create a hazard to air navigation
- Construction projects should seek to recycle construction materials (e.g., using millings to reduce dust in unpaved areas of airfield)
- Retrofit fixtures as maintenance is required and more sustainable fixtures (e.g., light emitting diode [LED] lights and low flow faucets)
- Implement stormwater pollution protection plans on all construction projects
- CCDOA should continuously explore other potential grant/funding programs for sustainability efforts
- Advertise how the airport is a good and environmentally conscious neighbor

It was noted that Maverick Aviation Group has already implemented several sustainability practices and can serve as a resource to CCDOA and an example to the other tenants at the airport. Many airport tenants and operations feature the following sustainable practices:

- LED and natural lighting
- Waterless cleaning of equipment and fleet
- Fully compliant paint booth and shop
- Solvent saver recycler
- Water bottle filling station for employees and plastic water bottles for customers
- Waste oil/liquids recycling in house
- Safety record/corporate program
- Media blaster and cleaning regimen
- Recycle packaging and reuse of some items
- Recycling bins
- Corporate recognition program and local-socially responsible volunteerism activities

5.7 SUMMARY

The best way to begin implementation of the recommendations in the master plan is to recognize that planning is a continuous process that does not end with completion and approval of this document; rather, the ability to continuously monitor the existing and forecast status of airport activity must be provided and maintained. The issues upon which the master plan is based will remain valid for many years. The primary goal is for VGT to best serve the general aviation air transportation needs of the region while continuing to be economically self-sufficient.

The real value of a usable master plan is its ability to keep the issues and objectives in the minds of the airport's managers and decision-makers so they can better recognize change and its effects. In addition to adjustments in aviation demand, decisions regarding when to undertake the improvements recommended in the master plan will impact the period for which the plan remains valid. The format used in this plan is intended to reduce the need for formal and costly updates by simply adjusting timing. Updates can be performed by CCDOA staff, thereby improving the plan's effectiveness.

In summary, the planning process requires the CCDOA to consistently monitor progress in terms of aircraft operations and based aircraft. Analysis of aircraft demand is critical to the timing and need for certain airport facilities. The information obtained from continually monitoring activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.



Chapter 6

Facilities Implementation Plan







Chapter 6
Facilities Implementation Plan

Analyses documented in previous chapters of this airport master plan culminated into the Recommended Development Concept presented in Chapter Five. The Recommended Development Concept reflects a summation of improvements to be made at North Las Vegas Airport (VGT) over the course of the planning period. The focus of the phasing plan is on improving the runway and taxiway system to accommodate growing demand from larger business jets across the Las Vegas regional airports system. The FAA-approved forecasts have shown that demand is already present at VGT to justify meeting higher design standards on the runway system. The phasing schedule has been developed based on this existing demand to enhance the operational safety and efficiency of the airport in a timely manner.

It is also important to consider that the schedule of improvements proposed in this phasing plan is contingent upon the availability of federal, state, and Clark County Department of Aviation (CCDOA) funds. While improvements are scheduled for specific phases, it should be noted that the programming of the Airport Improvement Program (AIP) by the FAA will determine the timing of many projects, as will CCDOA's priorities and funding capacity across its system of airports. Development projects at the airport must be reconciled with the development priorities of other airports within the FAA region.

In summary, implementation of projects will depend on obtaining environmental clearance, the availability of funds, FAA programming, and CCDOA system priorities.

Included in this chapter is an opinion of probable costs (OPCs) for each development phase. These OPCs should be re-evaluated and updated as projects transition from high-level planning to engineering and construction.

6.1 PROJECT DESCRIPTIONS

Individual projects are defined within this airport master plan by phase to achieve the Recommended Development Concept. Projects are grouped into four phases based on a logical progression that will ensure at least one of the parallel runways will be operational at all times and to ensure taxiway routes are maintained to provide access to all runway ends. Brief descriptions of each phase are presented below. Additional project definitions and subphases may need to be added as the project transitions from planning to engineering and construction.

6.1.1 PHASE 1 – RUNWAY 12L-30R AND PARALLEL TAXIWAYS C AND D

The focus of the first phase is on relocating Runway 12L-30R and its associated parallel taxiways 160 feet to the east. These projects can be undertaken without impact to Carey Avenue, and they will set the stage for the relocation and extension of Runway 12R-30L. This phase includes the relocation of visual approach aids and the instrument landing system (ILS) equipment associated with Runway 12L. The segmented circle/lighted wind cone, which currently obstructs the runway object free area (ROFA) and runway obstacle free zone (ROFZ), will also be relocated to a mid-field site between Taxiways A, D, and E.

Key notes for this phase include:

1. The new Taxiway D and Taxiway J must be completed prior to the closure of Taxiway A to maintain a taxi route to Runway 25.

2. Taxiway nomenclature will need to be updated as projects progress. In this phase, Existing Taxiways C and D will need to be renamed due to the construction of new parallel Taxiways C and D.

Phase 1 is depicted on **Figure 6.1**. The OPC for Phase 1 is $31.0 million dollars.

NOTES

1. New Taxiway D and Taxiway J must be completed prior to closure of Taxiway A to maintain Taxi Route to Runway 25.
2. Temporarily rename existing Taxiways C and D due to construction of new parallel Taxiways C and D during this phase.

LEGEND

- A — Ultimate Taxiway Designator
- Airport Property Line
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Pavement Removal

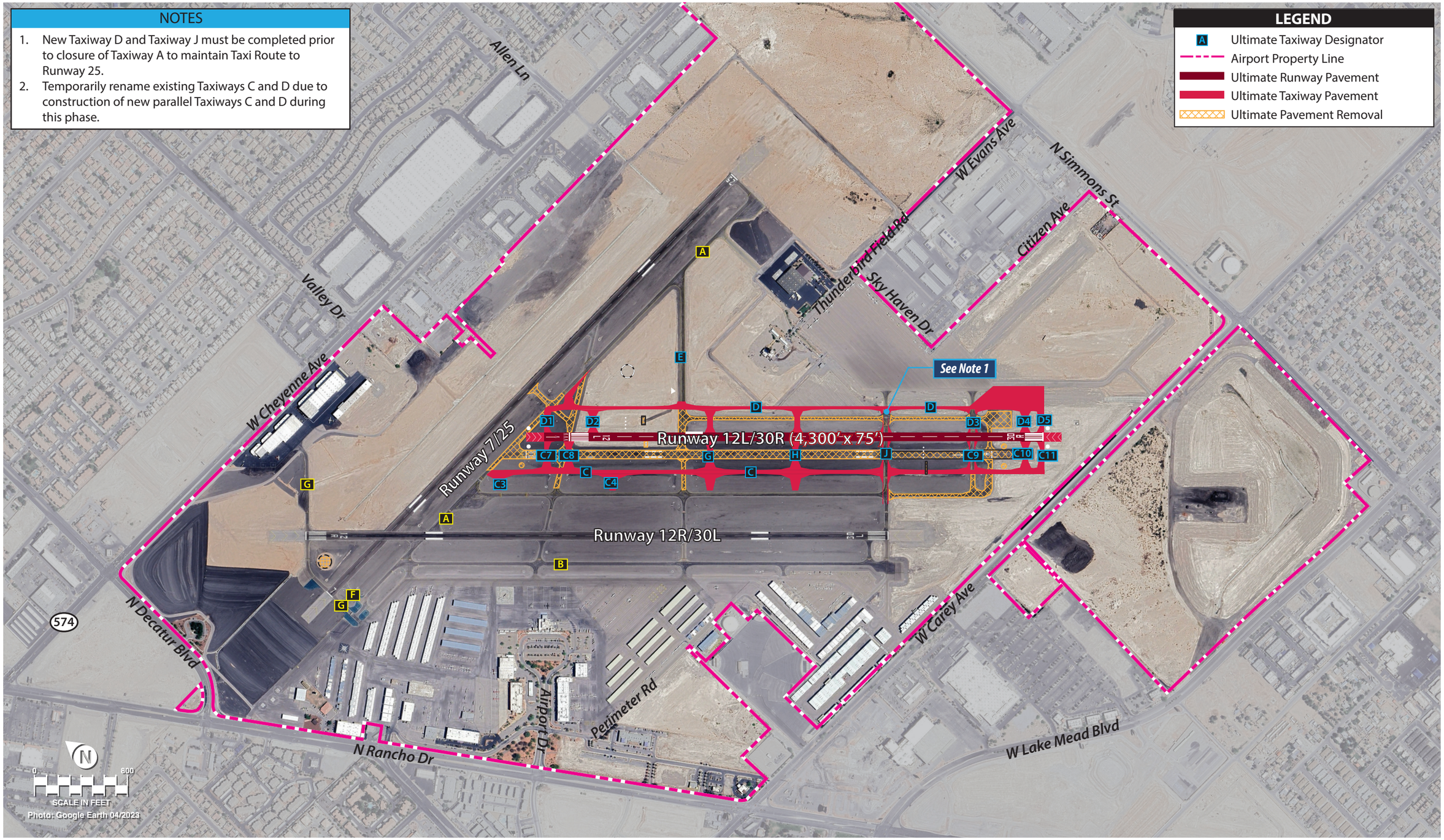


Figure 6.1
PHASE 1 - RUNWAY 12L-30R AND PARALLEL TAXIWAYS C AND D

This page intentionally left blank

6.1.2 PHASE 2 – REALIGN CAREY AVENUE

The second phase is focused entirely on realigning Carey Avenue, which will allow for the relocation of Runway 12R-30L in the next phase. Approximately 9.2 acres of existing City of North Las Vegas (CNLV) right-of-way is proposed to be vacated and purchased by the CCDOA to allow for the future runway construction and safety area protection. A new extension of Carey Avenue to Lake Mead Boulevard is also proposed to maintain circulation in the area.

The closure/demolition of Carey Avenue will also require rerouting of existing utilities. HNTB has prepared a utilities study to document the existing utilities and feasibility of rerouting this infrastructure, if necessary. The results of that study are included as **Appendix D** in this master plan. The utility study includes costs associated with relocating infrastructure for potable water, sanitary sewer, and stormwater. In total, the utility infrastructure evaluation estimates a total cost of $20.2 million.

Phase 2 is depicted on **Figure 6.2**. The OPC for this phase, which excludes the Carey Avenue right-of-way property acquisition, is $27.2 million. The price of land in the City of North Las Vegas varies widely and will be dependent on the result of a fair market value appraisal; however, for planning purposes, the base cost estimate of $27.2 million is increased by $350,000 for a total estimated cost of $27.5 million.

GCW, Inc. has prepared a traffic study for the proposed Carey Avenue re-route which includes the proposed new roadway alignment (see **Appendix C**). GCW's proposed new roadway alignment is reflected on the figures within Chapters Five and Six.

This page intentionally left blank

NOTES

1. Existing Carey Ave remains outside of the new Runway 12L-30R Runway Safety Area and Runway Object Free Area.
2. Realignment of Carey Ave must be completed prior to Runway 12R-30L construction.
3. Temporarily rename existing Taxiways C and D due to construction of new parallel Taxiways C and D in prior phase.

LEGEND

- Existing Taxiway Designator
- Ultimate Taxiway Designator
- Airport Property Line
- Ultimate Road
- Ultimate Pavement Removal

Allen Ln
Valley Dr
W Cheyenne Ave
Runway 7/25 (Ult 8/26)
Thunderbird Field Rd
Sky Haven Dr
W Evans Ave
N Simmons St
Citizen Ave
Runway 12L/30R (4,300' x 75')
Runway 12R/30L
N Decatur Blvd
574
N Rancho Dr
Airport Dr
Perimeter Rd
W Carey Ave
W Lake Mead Blvd

SCALE IN FEET
0 800
Photo: Google Earth 04/2023

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 6.2
PHASE 2 - REROUTE CAREY AVENUE

This page intentionally left blank

6.1.3 PHASE 3 – RUNWAY 12R-30L

Phase 3 begins the relocation of Runway 12R-30L and entails shifting the runway 160 feet to the east to establish a 400-foot separation distance from the existing Taxiway B centerline. This is the minimum separation distance for runway design code (RDC) D-III-5000 standards. Engineered Material Arresting System (EMAS) beds will be added at both ends of the relocated runway to provide an added operational safety buffer and to reduce safety area requirements off the ends of the runway (RSA/ROFA extends 600 feet rather than 1,000 feet). Existing Taxiway D and portions of Taxiway A will be demolished in this phase and new connectors will be constructed between Taxiway B and the ultimate Taxiway C.

Key notes for this phase include:

1. New Taxiway J connectors to Taxiway B must be completed prior to the closure of Taxiway A to maintain a taxi route to Runways 12L-30R and 25.

2. Taxiway B will need to be closed while construction of the Runway 12R-30L taxiway connectors occurs within the Taxiway B object free area (TOFA). Aircraft will need to be rerouted along the apron taxilane during this time.

3. A portion of Runway 7-25 must be closed during this phase when construction of the new Runway 12R-30L occurs within the RSA. A temporary Runway 7 threshold displacement can be put in place so that a portion of the runway can remain active during construction.

Phase 3 is depicted on **Figure 6.3**. The OPC for Phase 3 is $48.0 million dollars.

This page intentionally left blank

NOTES

1. New Taxiway J Connection to Taxiway B must be completed prior to closure of Taxiway A to maintain taxi route to Runways 12L-30R and 25.
2. Taxiway B will need to be closed while construction of Runway 12R-30L taxiway connectors are within the Taxiway B Object Free Area. Reroute aircraft along apron taxilane during this time.
3. Runway 7-25 must be closed during a portion of this phase when construction of new Runway 12R-30L is within the Runway Safety Area.

LEGEND

- Existing Taxiway Designators
- Ultimate Taxiway Designators
- Airport Property Line
- Ultimate Airport Property Line
- Ultimate Runway Pavement
- Ultimate Taxiway Pavement
- Ultimate Pavement Removal
- EMAS (Engineered Material Arresting System) Beds

Allen Ln
Valley Dr
W Cheyenne Ave
N Decatur Blvd
574
Runway 7/25 (Ult 8/26)
Runway 12L/30R (4,300' x 75')
Runway 12R/30L(6,860' x 100')
Thunderbird Field Rd
Sky Haven Dr
W Evans Ave
Citizen Ave
N Simmons St
Airport Dr
Perimeter Rd
N Rancho Dr
W Carey Ave
W Lake Mead Blvd
See Note 1
See Note 2

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

0 800
SCALE IN FEET
Photo: Google Earth 04/2023

Figure 6.3
PHASE 3 - RUNWAY 12R-30L

This page intentionally left blank

6.1.4 PHASE 4 – RUNWAY 7-25 AND TAXIWAY F

The fourth and final phase involves several taxiway improvements to correct non-standard geometry and hot spots. This includes the removal of existing taxiway pavement near the Runway 7 threshold to mitigate Hot Spot 1, removal of acute-angled connectors from Runway 7-25 to Taxiway A, and extension of Taxiway B to the ultimate Runway 12R end. Taxiway F, the ultimate north parallel taxiway serving Runway 7-25, is also planned to be constructed during this phase. New holding aprons are also planned to be established along Taxiway A and Taxiway F near the Runway 25 threshold.

Key notes for this phase include:

1. Runway 7-25 and Taxiway A will need to be closed temporarily while taxiway work occurs within the RSA/ROFA/TOFA.

Phase 4 is depicted on **Figure 6.4**. The OPC for Phase 4 is $12.0 million dollars.

This page intentionally left blank

NOTES

1. Taxiway A will be closed only during portions of this phase where taxiway work is within the Object Free Area.

LEGEND

- Existing Taxiway Designators
- Ultimate Taxiway Designators
- Airport Property Line
- Ultimate Property Line
- Ultimate Taxiway Pavement
- Ultimate Pavement Removal
- Temporarily Closed Pavement

Runway 12L/30R (4,300' x 75')

Runway 12R/30L(6,860' x 100')

Runway 7/25 (Ult 8/26) (5,005' x 75')

Allen Ln
Valley Dr
W Cheyenne Ave
N Decatur Blvd
574
N Rancho Dr
Airport Dr
Perimeter Rd
W Carey Ave
W Lake Mead Blvd
Thunderbird Field Rd
Sky Haven Dr
W Evans Ave
Citizen Ave
N Simmons St

SCALE IN FEET
0 800

Photo: Google Earth 04/2023

The Carey Avenue Realignment Connection alignment shown on this exhibit is strictly conceptual and would only be considered if the Clark County Department of Aviation (CCDOA) secures any required easement(s) on a voluntary basis from the adjacent property owner(s). CCDOA has other conceptual alignment options that remain entirely within CCDOA-owned property. Nothing in this exhibit shall be construed as a commitment to acquire any property interest by condemnation. This conceptual exhibit does not grant, reserve, or imply any present or future property rights or limitations on current use.

Figure 6.4
PHASE 4 - RUNWAY 7-25 AND TAXIWAY F

This page intentionally left blank

6.2 ENVIRONMENTAL CLEARANCE STRATEGIES

Some projects identified in the recommended development concept and Capital Improvement Program (CIP) will require environmental documentation. The level of documentation necessary for each project **must be determined** in consultation with the FAA and NDOT. There are three major levels of environmental review to be considered under the *National Environmental Policy Act* (NEPA) that include a categorical exclusion (CatEx), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Guidance on what level of documentation is required for a specific project is provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

The *FAA Reauthorization Act of 2024* has changed and expanded upon guidelines for the current environmental review process through Section 783 and Section 788. Section 783 expands environmental review requirements to include airport projects such as terminal development projects and all airport capacity projects (not just at congested airports). Section 788 establishes two NEPA categorical exclusions for: 1) projects for which the airport receives less than $6 million of federal funds and do not involve extraordinary circumstances or special purpose laws and, 2) airport projects which involve the repair or reconstruction of any airport facility, runway, taxiway or similar structure(s) that are damaged as a result of a declared disaster or emergency.

6.2.1 ENVIRONMENTAL OVERVIEW SUMMARY OF THE FOUR PROPOSED DEVELOPMENT PHASES

Table 6.1 lists the future development projects previously detailed and the most likely NEPA documentation that might be required by the FAA. The proposed improvements outlined in **Figure 6.1 - Figure 6.4** involve connected actions related to the relocation of Runway 12L-30R and Runway 12R-30L,[1] and could be evaluated in terms of NEPA compliance using a programmatic environmental assessment (EA). Ultimately, the FAA will decide what level of NEPA documentation will be required for each project.

Table 6.1 | Anticipated Environmental Review for Proposed Development Projects

Recommended Project	Suggested Initial NEPA Action	Potential Areas of Concern
Phase 1 – Proposed Projects		
Relocate Segmented Circle and Lighted Windcone	Programmatic EA	• None
Relocate Runway 12L/30R and Taxiways C and D		• Noise and Noise-Compatible Land Use • Visual Effects (Light Emissions) • Floodplains
Phase 2 – Proposed Projects		
Acquire Carey Ave Property – 9.2 acres	Programmatic EA (see Phase 1)	• Noise and Noise-Compatible Land Use
Construct Carey Ave Realignment		• Visual Resources/Visual Character

(Continues on next page)

[1] Connected actions are defined as projects that 1) automatically trigger other actions; 2) projects that cannot occur unless other actions are taken prior or simultaneously to the project; or 3) projects that are interdependent parts of a larger project and may depend on the larger project for justification of the smaller actions for the project.

Table 6.1 | Anticipated Environmental Review for Proposed Development Projects (continued)

Recommended Project	Suggested Initial NEPA Action	Potential Areas of Concern
Phase 3 – Proposed Projects		
Relocate Runway 12R/30L	Programmatic EA (see Phase 1)	• Noise and Noise-Compatible Land Use • Visual Effects (Light Emissions and Visual Resources/Character) • Floodplains
Phase 4 – Proposed Projects		
Taxiway Improvements and Hot Spot Mitigation	Programmatic EA (see Phase 1)	• Noise and Noise-Compatible Land Use • Floodplains • Wetlands
Construct Taxiway F		• Noise and Noise-Compatible Land Use • Wetlands
Construct Holding Apron on Taxiway A		• Noise and Noise-Compatible Land Use • Wetlands

Note:
The level of environmental documentation will ultimately be decided upon by the FAA.

6.3 CAPITAL IMPROVEMENT PROGRAM

Table 6.2 summarizes the airport's CIP by phase. Estimated capital expenditures total approximately $98.35 million (in 2024 dollars) for all phases combined. All projects are considered eligible for FAA Airport Improvement Program (AIP) or Bipartisan Infrastructure Law (BIL) funds. Significant FAA participation will be required to accomplish the projects proposed in this study. While all projects are considered eligible, there is no guarantee the FAA funding will be available. CCDOA will likely need to seek discretionary funding to supplement its entitlement funds. If discretionary funding is not available, the CCDOA may be required to provide more matching funds or to pool entitlement money from its system of airports to support these projects.

Future hangar area developments, which are assumed to be funded by private entities, have been excluded from the CIP costs.

Table 6.2 | Summary of Cost Estimates by Phase and Funding Sources

Project Phases	Phase Cost	FAA Grants (AIP/BIL)	Local Funding
Phase 1 – Runway 12L-30R Relocation and Parallel Taxiways C and D	$31,000,000	$27,900,000	$3,100,000
Phase 2 – Realign Carey Avenue	$27,515,000	$24,763,500	$2,751,500
Phase 3 – Runway 12R-30L Relocation and Taxiway Improvements	$48,000,000	$43,200,000	$4,800,000
Phase 4 – Runway 7-25 and Taxiway F	$12,000,000	$10,800,000	$1,200,000
Totals:	**$118,515,000**	**$106,663,500**	**$11,851,500**

Notes:
AIP = Airport Improvement Program
BIL = *Bipartisan Infrastructure Law*

Source: Cost estimates prepared by HNTB

6.4 MASTER PLAN IMPLEMENTATION

To implement the master plan recommendations, it is key to recognize that planning is a continuous process and does not end with the approval of this document. The airport should continue to monitor and measure its various demand indicators. The issues this master plan is based upon will remain valid for several years. The primary goal is for VGT to best serve the air transportation needs of the region while achieving economic self-sufficiency.

The CIP and phasing program presented will change over time. An effort has been made to identify and prioritize these projects that require federal grant funding; nevertheless, the airport and the FAA review the five-year CIP on an annual basis.

The primary value of this study lies in keeping the issues and objectives at the forefront of the minds of decision-makers. In addition to adjustments in aviation demand, decisions on when to undertake the improvements recommended in this master plan will impact how long the plan remains valid. The format of this plan reduces the need for formal and costly updates by allowing for simple adjustments to the timing of project implementation. Updates can be made by airport management, thereby improving the plan's effectiveness. Nevertheless, airports are typically encouraged to update their master plans every seven to 10 years, or sooner if significant changes occur in the interim.

In summary, the planning process requires the CCDOA to consistently monitor the progress of the airport. The information obtained from continually monitoring activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.



Appendix A

Glossary of Terms







GLOSSARY OF TERMS

A

Above Ground Level: The elevation of a point or surface above the ground.

Accelerate-Stop Distance Available (ASDA): See declared distances.

Advisory Circular: External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, guidance and information relative to a specific aviation subject.

Air Carrier: An operator which: (1) performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week, and places between which such flights are performed; or (2) transports mail by air pursuant to a current contract with the U.S. Postal Service. Certified in accordance with Federal Aviation Regulation (FAR) Parts 121 and 127.

Air Route Traffic Control Center (ARTCC): A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

Air Taxi: An air carrier certificated in accordance with FAR Part 121 and FAR Part 135 and authorized to provide, on demand, public transportation of persons and property by aircraft. Generally operates small aircraft "for hire" for specific trips.

Air Traffic Control: A service operated by an appropriate organization for the purpose of providing for the safe, orderly, and expeditious flow of air traffic.

Air Traffic Control System Command Center: A facility operated by the FAA which is responsible for the central flow control, the central altitude reservation system, the airport reservation position system, and the air traffic service contingency command for the air traffic control system.

Air Traffic Hub: A categorization of commercial service airports or group of commercial service airports in a metropolitan or urban area based upon the proportion of annual national enplanements existing at the airport or airports. The categories are large hub, medium hub, small hub, or non-hub. It forms the basis for the apportionment of entitlement funds.

Air Transport Association Of America: An organization consisting of the principal U.S. airlines that represents the interests of the airline industry on major aviation issues before federal, state, and local government bodies. It promotes air transportation safety by coordinating industry and governmental safety programs and it serves as a focal point for industry efforts to standardize practices and enhance the efficiency of the air transportation system.

Aircraft: A device that is used or intended to be used for flight in the air.

Aircraft Approach Category: A grouping of aircraft based on 1.3 times the stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

- **Category A:** Speed less than 91 knots.
- **Category B:** Speed 91 knots or more, but less than 121 knots.
- **Category C:** Speed 121 knots or more, but less than 141 knots.
- **Category D:** Speed 141 knots or more, but less than 166 knots.
- **Category E:** Speed greater than 166 knots

Aircraft Operation: The landing, takeoff, or touch-and-go procedure by an aircraft on a runway at an airport.

Aircraft Operations Area (AOA): A restricted and secure area on the airport property designed to protect all aspects related to aircraft operations.

Aircraft Owners And Pilots Association: A private organization serving the interests and needs of general aviation pilots and aircraft owners.

Aircraft Rescue And Fire Fighting: A facility located at an airport that provides emergency vehicles, extinguishing agents, and personnel responsible for minimizing the impacts of an aircraft accident or incident.

Airfield: The portion of an airport which contains the facilities necessary for the operation of aircraft.

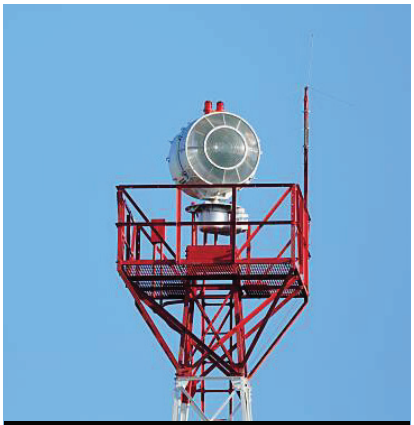
Airline Hub: An airport at which an airline concentrates a significant portion of its activity and which often has a significant amount of connecting traffic.

Airplane Design Group (ADG): A grouping of aircraft based upon wingspan. The groups are as follows:

- **Group I:** Up to but not including 49 feet.
- **Group II:** 49 feet up to but not including 79 feet.
- **Group III:** 79 feet up to but not including 118 feet.
- **Group IV:** 118 feet up to but not including 171 feet.
- **Group V:** 171 feet up to but not including 214 feet.
- **Group VI:** 214 feet or greater.

Airport Authority: A quasi-governmental public organization responsible for setting the policies governing the management and operation of an airport or system of airports under its jurisdiction.

Airport Beacon: A navigational aid located at an airport which displays a rotating light beam to identify whether an airport is lighted.



Airport Beacon

Airport Capital Improvement Plan: The planning program used by the Federal Aviation Administration to identify, prioritize, and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Airport Elevation: The highest point on the runway system at an airport expressed in feet above mean sea level (MSL).

Airport Improvement Program: A program authorized by the Airport and Airway Improvement Act of 1982 that provides funding for airport planning and development.

Airport Layout Drawing (ALD): The drawing of the airport showing the layout of existing and proposed airport facilities.

Airport Layout Plan (ALP): A scaled drawing of the existing and planned land and facilities necessary for the operation and development of the airport.

Airport Layout Plan Drawing Set: A set of technical drawings depicting the current and future airport conditions. The individual sheets comprising the set can vary with the complexities of the airport, but the FAA-required drawings include the Airport Layout Plan (sometimes referred to as the Airport Layout Drawing (ALD), the Airport Airspace Drawing, and the Inner Portion of the Approach Surface Drawing, On-Airport Land Use Drawing, and Property Map.

Airport Master Plan: A local planning document that serves as a guide for the long-term development of an airport.

Airport Movement Area Safety System: A system that provides automated alerts and warnings of potential runway incursions or other hazardous aircraft movement events.

Airport Obstruction Chart: A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads and other detail in the vicinity of an airport.

Airport Reference Code (ARC): A coding system used to relate airport design criteria to the operational (Aircraft Approach Category) to the physical characteristics (Airplane Design Group) of the airplanes intended to operate at the airport.

Airport Reference Point (ARP): The latitude and longitude of the approximate center of the airport.

Airport Sponsor: The entity that is legally responsible for the management and operation of an airport, including the fulfillment of the requirements of laws and regulations related thereto.

Airport Surface Detection Equipment: A radar system that provides air traffic controllers with a visual representation of the movement of aircraft and other vehicles on the ground on the airfield at an airport.

Airport Surveillance Radar: The primary radar located at an airport or in an air traffic control terminal area that receives a signal at an antenna and transmits the signal to air traffic control display equipment defining the location of aircraft in the air. The signal provides only the azimuth and range of aircraft from the location of the antenna.

Airport Traffic Control Tower (ATCT): A central operations facility in the terminal air traffic control system, consisting of a tower, including an associated instrument flight rule (IFR) room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of terminal air traffic.

Airside: The portion of an airport that contains the facilities necessary for the operation of aircraft.

Airspace: The volume of space above the surface of the ground that is provided for the operation of aircraft.

Alert Area: See special-use airspace.

Altitude: The vertical distance measured in feet above mean sea level.

Annual Instrument Approach (AIA): An approach to an airport with the intent to land by an aircraft in accordance with an IFR flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.

Approach Lighting System (ALS): An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on final approach and landing.


Approach Lighting System

Approach Minimums: The altitude below which an aircraft may not descend while on an IFR approach unless the pilot has the runway in sight.

Approach Surface: An imaginary obstruction limiting surface defined in FAR Part 77 which is longitudinally centered on an extended runway centerline and extends outward and upward from the primary surface at each end of a runway at a designated slope and distance based upon the type of available or planned approach by aircraft to a runway.

Apron: A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

Area Navigation: The air navigation procedure that provides the capability to establish and maintain a flight path on an arbitrary course that remains within the coverage area of navigational sources being used.

Automated Terminal Information Service (ATIS): The continuous broadcast of recorded non-control information at towered airports. Information typically includes wind speed, direction, and runway in use.

Automated Surface Observation System (ASOS): A reporting system that provides frequent airport ground surface weather observation data through digitized voice broadcasts and printed reports.

Automated Weather Observation System (AWOS): Equipment used to automatically record weather conditions (i.e., cloud height, visibility, wind speed and direction, temperature, dew point, etc.)

Automatic Dependent Surveillance–Broadcast (ADS–B): An advanced surveillance technology that combines an aircraft's positioning source, aircraft avionics, and a ground infrastructure to create an accurate surveillance interface between aircraft and ATC.

Automatic Direction Finder (ADF): An aircraft radio navigation system which senses and indicates the direction to a non-directional radio beacon (NDB) ground transmitter.

Avigation Easement: A contractual right or a property interest in land over which a right of unobstructed flight in the airspace is established.

Azimuth: Horizontal direction expressed as the angular distance between true north and the direction of a fixed point (as the observer's heading).

B

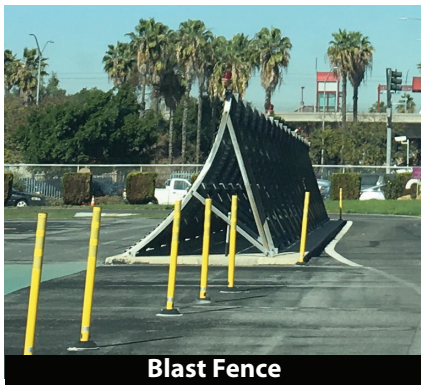
Base Leg: A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline. See "traffic pattern."

Based Aircraft: The general aviation aircraft that use a specific airport as a home base.

Bearing: The horizontal direction to or from any point, usually measured clockwise from true north or magnetic north.

Blast Fence: A barrier used to divert or dissipate jet blast or propeller wash.

Blast Pad: A prepared surface adjacent to the end of a runway for the purpose of eliminating the erosion of the ground surface by the wind forces produced by airplanes at the initiation of takeoff operations.



Blast Fence

Building Restriction Line (BRL): A line which identifies suitable building area locations on the airport.

C

Capital Improvement Plan: The planning program used by the Federal Aviation Administration to identify, prioritize, and distribute Airport Improvement Program funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Cargo Service Airport: An airport served by aircraft providing air transportation of property only, including mail, with an annual aggregate landed weight of at least 100,000,000 pounds.

Ceiling: The height above the ground surface to the location of the lowest layer of clouds which is reported as either broken or overcast.

Circling Approach: A maneuver initiated by the pilot to align the aircraft with the runway for landing when flying a predetermined circling instrument approach under IFR.

Class A Airspace: See Controlled Airspace.

Class B Airspace: See Controlled Airspace.

Class C Airspace: See Controlled Airspace.

Class D Airspace: See Controlled Airspace.

Class E Airspace: See Controlled Airspace.

Class G Airspace: See Controlled Airspace.

Clear Zone: See Runway Protection Zone.

Commercial Service Airport: A public airport providing scheduled passenger service that enplanes at least 2,500 annual passengers.

Common Traffic Advisory Frequency (CTAF): A radio frequency identified in the appropriate aeronautical chart which is designated for the purpose of transmitting airport advisory information and procedures while operating to or from an uncontrolled airport.

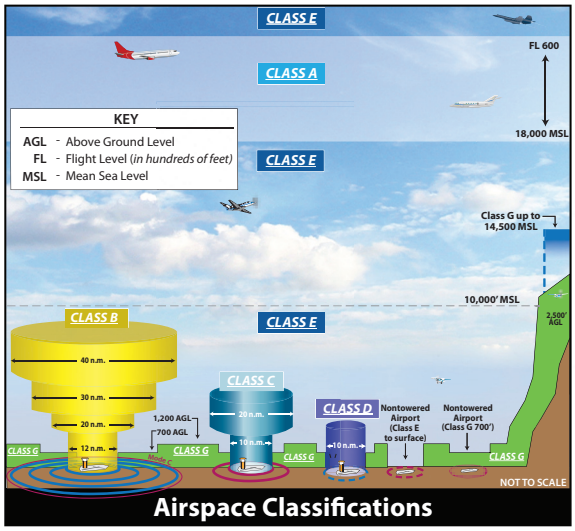
Compass Locator (LOM): A low power, low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one or two of the marker sites.

Conical Surface: An imaginary obstruction- limiting surface defined in FAR Part 77 that extends from the edge of the horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

Controlled Airport: An airport that has an operating airport traffic control tower.

Controlled Airspace: Airspace of defined dimensions within which air traffic control services are provided to instrument flight rules (IFR) and visual flight rules (VFR) flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows:

CLASS A: Generally, the airspace from 18,000 feet mean sea level (MSL) up to but not including flight level FL600. All persons must operate their aircraft under IFR.



CLASS B: Generally, the airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports. The configuration of Class B airspace is unique to each airport, but typically consists of two or more layers of air space and is designed to contain all published instrument approach procedures to the airport. An air traffic control clearance is required for all aircraft to operate in the area.

CLASS C: Generally, the airspace from the surface to 4,000 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower and radar approach control and are served by a qualifying number of IFR operations or passenger enplanements. Although individually tailored for each airport, Class C airspace typically consists of a surface area with a five nautical mile (nm) radius and an outer area with a 10 nautical mile radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Two-way radio communication is required for all aircraft.

CLASS D: Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted as MSL) surrounding those airports that have an operational control tower. Class D airspace is individually tailored and configured to encompass published instrument approach procedure. Unless otherwise authorized, all persons must establish two-way radio communication.

CLASS E: Generally, controlled airspace that is not classified as Class A, B, C, or D. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Class E airspace encompasses all Victor Airways. Only aircraft following instrument flight rules are required to establish two-way radio communication with air traffic control.

CLASS G: Generally, that airspace not classified as Class A, B, C, D, or E. Class G airspace is uncontrolled for all aircraft. Class G airspace extends from the surface to the overlying Class E airspace.

Controlled Firing Area: See special-use airspace.

Crosswind: A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

Crosswind Component: The component of wind that is at a right angle to the runway centerline or the intended flight path of an aircraft.

Crosswind Leg: A flight path at right angles to the landing runway off its upwind end. See "traffic pattern."

D

Decibel: A unit of noise representing a level relative to a reference of a sound pressure 20 micro newtons per square meter.

Decision Height/Decision Altitude: The height above the end of the runway surface at which a decision must be made by a pilot during the ILS or Precision Approach Radar approach to either continue the approach or to execute a missed approach.

Declared Distances: The distances declared available for the airplane's takeoff runway, takeoff distance, accelerate-stop distance, and landing distance requirements. The distances are:

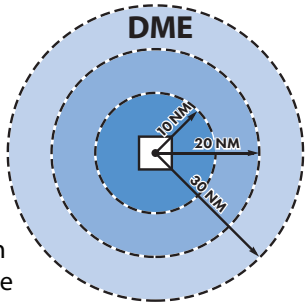
- **Takeoff Run Available (TORA):** The runway length declared available and suitable for the ground run of an airplane taking off.
- **Takeoff Distance Available (TODA):** The TORA plus the length of any remaining runway and/or clear way beyond the far end of the TORA.
- **Accelerate-stop Distance Available (ASDA):** The runway plus stopway length declared available for the acceleration and deceleration of an aircraft aborting a takeoff.
- **Landing Distance Available (LDA):** The runway length declared available and suitable for landing.

Department Of Transportation: The cabinet level federal government organization consisting of modal operating agencies, such as the Federal Aviation Administration, which was established to promote the coordination of federal transportation programs and to act as a focal point for research and development efforts in transportation.

Discretionary Funds: Federal grant funds that may be appropriated to an airport based upon designation by the Secretary of Transportation or Congress to meet a specified national priority such as enhancing capacity, safety, and security, or mitigating noise.

Displaced Threshold: A threshold that is located at a point on the runway other than the designated beginning of the runway.

Distance Measuring Equipment (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.



DNL: The 24-hour average sound level, in decibels, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. as averaged over a span of one year. It is the FAA standard metric for determining the cumulative exposure of individuals to noise.

Downwind Leg: A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg. Also see "traffic pattern."

E

Easement: The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below the property; certain air rights above the property, including view rights; and the rights to any

specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document.

Elevation: The vertical distance measured in feet above mean sea level.

Enplaned Passengers: The total number of revenue passengers boarding aircraft, including originating, stop-over, and transfer passengers, in scheduled and nonscheduled services.

Enplanement: The boarding of a passenger, cargo, freight, or mail on an aircraft at an airport.

Entitlement: Federal funds for which a commercial service airport may be eligible based upon its annual passenger enplanements.

Environmental Assessment (EA): An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.

Environmental Audit: An assessment of the current status of a party's compliance with applicable environmental requirements of a party's environmental compliance policies, practices, and controls.

Environmental Impact Statement (EIS): A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive and negative effects of a proposed action and citing alternative actions.

Essential Air Service: A federal program which guarantees air carrier service to selected small cities by providing subsidies as needed to prevent these cities from such service.

F

Federal Aviation Regulations: The general and permanent rules established by the executive departments and agencies of the Federal Government for aviation, which are published in the Federal Register. These are the aviation subset of the Code of Federal Regulations.

Federal Inspection Services: The provision of customs and immigration services including passport inspection, inspection of baggage, the collection of duties on certain imported items, and the inspections for agricultural products, illegal drugs, or other restricted items.

Final Approach: A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway. See "traffic pattern."

Final Approach and Takeoff Area (FATO): A defined area over which the final phase of the helicopter approach to a hover, or a landing is completed and from which the takeoff is initiated.

Final Approach Fix: The designated point at which the final approach segment for an aircraft landing on a runway begins for a non-precision approach.

Finding Of No Significant Impact (FONSI): A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

Fixed Base Operator (FBO): A provider of services to users of an airport. Such services include, but are not limited to, hangaring, fueling, flight training, repair, and maintenance.

Flight Level: A measure of altitude used by aircraft flying above 18,000 feet. Flight levels are indicated by three digits representing the pressure altitude in hundreds of feet. An airplane flying at flight level 360 is flying at a pressure altitude of 36,000 feet. This is expressed as FL 360.

Flight Service Station (FSS): An operations facility in the national flight advisory system which utilizes data interchange facilities for the collection and dissemination of Notices to Airmen, weather, and administrative data and which provides preflight and in-flight advisory services to pilots through air and ground based communication facilities.

Frangible Navaid: A navigational aid which retains its structural integrity and stiffness up to a designated maximum load, but on impact from a greater load, breaks, distorts, or yields in such a manner as to present the minimum hazard to aircraft.

G

General Aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of convenience and necessity, and large aircraft commercial operators.

General Aviation Airport: An airport that provides air service to only general aviation.

Glideslope (GS): Provides vertical guidance for aircraft during approach and landing. The glideslope consists of the following:

- Electronic components emitting signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as ILS; or
- Visual ground aids, such as PAPI, which provide vertical guidance for VFR approach or for the visual portion of an instrument approach and landing.

Global Positioning System (GPS): A system of satellites used as reference points to enable navigators equipped with GPS receivers to determine their latitude, longitude, and altitude.

Ground Access: The transportation system on and around the airport that provides access to and from the airport by ground transportation vehicles for passengers, employees, cargo, freight, and airport services.

Ground Based Augmentation System (GBAS): A program that augments the existing GPS system by providing corrections to aircraft in the vicinity of an airport in order to improve the accuracy of these aircrafts' GPS navigational position

H

Helipad: A designated area for the takeoff, landing, and parking of helicopters.

High Intensity Runway Lights (HIRL): The highest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

High-speed Exit Taxiway: An acute-angled exit taxiway forming a 30 degree angle with the runway centerline, designed to allow an aircraft to exit a runway without having to decelerate to typical taxi speed.

Horizontal Surface: An imaginary obstruction-limiting surface defined in FAR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are **a** function of the types of approaches existing or planned for the runway.

Hot Spot: A location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

I

Initial Approach Fix: The designated point at which the initial approach segment begins for an instrument approach to a runway.

Instrument Approach Procedure: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often also used to define weather conditions **and the type of flight plan under which an aircraft is operating.**

Instrument Landing System (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids:

1. Localizer
2. Glide Slope
3. Outer Marker
4. Middle Marker
5. Approach Lights

Instrument Meteorological Conditions: Meteorological conditions expressed in terms of specific visibility and ceiling conditions that are less than the minimums specified for visual meteorological conditions.

Itinerant Operations: Operations by aircraft that are arriving from outside the traffic pattern or departing the airport traffic pattern.

K

Knots: A unit of speed length used in navigation that is equivalent to the number of nautical miles traveled in one hour.

L

Landside: The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.

Landing Distance Available (LDA): See declared distances.

Large Airplane: An airplane that has a maximum certified takeoff weight in excess of 12,500 pounds.

Local Operations: Aircraft operations performed by aircraft that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport. Typically, this includes touch and-go training operations.

Localizer: The component of an ILS which provides course guidance to the runway.

Localizer Type Directional Aid (LDA): A facility of comparable utility and accuracy to a localizer but is not part of a complete ILS and is not aligned with the runway.



Localizer

Low Intensity Runway Lights: The lowest classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

M

Medium Intensity Runway Lights: The middle classification in terms of intensity or brightness for lights designated for use in delineating the sides of a runway.

Military Operations: Aircraft operations that are performed in military aircraft.

Military Operations Area (MOA): See special-use airspace

Military Training Route: An air route depicted on aeronautical charts for the conduct of military flight training at speeds above 250 knots.

Missed Approach Course (MAC): The flight route to be followed if, after an instrument approach, a landing is not affected, and occurring normally:

- When the aircraft has descended to the decision height and has not established visual contact; or
- When directed by air traffic control to pull up or to go around again.

Movement Area: The runways, taxiways, and other areas of an airport which are utilized for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports with a tower, air traffic control clearance is required for entry onto the movement area.

N

National Airspace System (NAS): The network of air traffic control facilities, air traffic control areas, and navigational facilities through the U.S.

National Plan Of Integrated Airport Systems (NPIAS): The national airport system plan developed by the Secretary of Transportation on a biannual basis for the development of public use airports to meet national air transportation needs.

National Transportation Safety Board: A federal government organization established to investigate and determine the probable cause of transportation accidents, to recommend equipment and procedures to enhance transportation safety, and to review on appeal the suspension or revocation of any certificates or licenses issued by the Secretary of Transportation.

Nautical Mile: A unit of length used in navigation which is equivalent to the distance spanned by one minute of arc in latitude, that is, 1,852 meters or 6,076 feet. It is equivalent to approximately 1.15 statute mile.

Navaid: A term used to describe any electrical or visual air navigational aids, lights, signs, and associated supporting equipment (i.e., PAPI, VASI, ILS, etc.)

Navigational Aid: A facility used as, available for use as, or designed for use as an aid to air navigation.

Noise Contour: A continuous line on a map of the airport vicinity connecting all points of the same noise exposure level.

Non-directional Beacon (NDB): A beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine their bearing to and from the radio beacon and home on, or track to, the station. When the radio beacon is installed in conjunction with the Instrument Landing System marker, it is normally called a Compass Locator.


NDB

Non-precision Approach Procedure: A standard instrument approach procedure in which no electronic glide slope is provided, such as VOR, TACAN, NDB, or LOC.

Notice To Air Missions (NOTAM): A notice containing information concerning the establishment, condition, or change in any component of or hazard in the National Airspace System, the timely knowledge of which is considered essential to personnel concerned with flight operations.

O

Object Free Area (OFA): An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle Free Zone (OFZ): The airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be kept clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance for aircraft landing or taking off from the runway, and for missed approaches.

Operation: The take-off, landing, or touch-and-go procedure by an aircraft on a runway at an airport.

Outer Marker (OM): An ILS navigation facility in the terminal area navigation system located four to seven miles from the runway edge on the extended centerline, indicating to the pilot that he/she is passing over the facility and can begin final approach.

P

Pilot-controlled Lighting: Runway lighting systems at an airport that are controlled by activating the microphone of a pilot on a specified radio frequency.

Precision Approach: A standard instrument approach procedure which provides runway alignment and glide slope (descent) information. It is categorized as follows:

- **CATEGORY I (CAT I):** A precision approach which provides for approaches with a decision height of not less than 200 feet and visibility not less than 1/2 mile or Runway Visual Range (RVR) 2400 (RVR 1800) with operative touchdown zone and runway centerline lights.
- **CATEGORY II (CAT II):** A precision approach which provides for approaches with a decision height of not less than 100 feet and visibility not less than 1200 feet RVR.
- **CATEGORY III (CAT III):** A precision approach which provides for approaches with minimal less than Category II.

Precision Approach Path Indicator (PAPI): A lighting system providing visual approach slope guidance to aircraft during a landing approach. A PAPI normally consists of four light units but an abbreviated system of two lights is acceptable for some categories of aircraft.


Precision Approach Path Indicator

Precision Approach Radar: A radar facility in the terminal air traffic control system used to detect and display with a high degree of accuracy the direction, range, and elevation of an aircraft on the final approach to a runway.

Precision Object Free Zone (POFZ): An area centered on the extended runway centerline, beginning at the runway threshold and extending behind the runway threshold that is 200 feet long by 800 feet wide. The POFZ is a clearing standard which requires the POFZ to be kept clear of above ground objects protruding above the runway safety area edge elevation (except for frangible NAVAIDS). The POFA is only in effect when the approach includes vertical guidance, the reported ceiling is below 250 feet, and an aircraft is on final approach within two miles of the runway threshold.

Primary Airport: A commercial service airport that enplanes at least 10,000 annual passengers.

Primary Surface: An imaginary obstruction limiting surface defined in FAR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway.

Prohibited Area: See special-use airspace.

PVC: Poor visibility and ceiling. Used in determining Annual Service Volume. PVC conditions exist when the cloud ceiling is less than 500 feet and visibility is less than one mile.

R

Radial: A navigational signal generated by a Very High Frequency Omni-directional Range or VORTAC station that is measured as an azimuth from the station.

Regression Analysis: A statistical technique that seeks to identify and quantify the relationships between factors associated with a forecast.

Remote Communications Outlet (RCO): An unstaffed transmitter receiver/facility remotely controlled by air traffic personnel. RCOs serve flight service stations (FSSs). RCOs were established to provide ground-to-ground communications between air traffic control specialists and pilots at satellite airports for delivering enroute clearances, issuing departure authorizations, and acknowledging instrument flight rules cancellations or departure/landing times.

Remote Transmitter/receiver (RTR): See remote communications outlet. RTRs serve ARTCCs.

Remotely Piloted Unmanned Aircraft System (RPAS): A set of configurable elements consisting of a remotely-piloted aircraft, its associated remote pilot station(s), the required command and control links and any other system elements as may be required, at any point during flight operation.

Reliever Airport: An airport to serve general aviation aircraft which might otherwise use a congested air-carrier served airport.

Restricted Area: See special-use airspace.

RNAV: Area navigation - airborne equipment which permits flights over determined tracks within prescribed accuracy tolerances without the need to overfly ground-based navigation facilities. Used enroute and for approaches to an airport.

Runway: A defined rectangular area on an airport prepared for aircraft landing and takeoff. Runways are normally numbered in relation to their magnetic direction, rounded off to the nearest 10 degrees. For example, a runway with a magnetic heading of 180 would be designated Runway 18. The runway heading on the opposite end of the runway is 180 degrees from that runway end. For example, the opposite runway heading for Runway 18 would be Runway 36 (magnetic heading of 360). Aircraft can takeoff or land from either end of a runway, depending upon wind direction.

Runway Alignment Indicator Light (RAIL): A series of high intensity sequentially flashing lights installed on the extended centerline of the runway usually in conjunction with an approach lighting system.

Runway Design Code: A code signifying the FAA design standards to which the runway is to be built.

Runway End Identification Lighting (REIL): Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.



REIL

Runway Gradient: The average slope, measured in percent, between the two ends of a runway.

Runway Protection Zone (RPZ): An area off the runway end to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape. Its dimensions are determined by the aircraft approach speed and runway approach type and minimal.

Runway Reference Code: A code signifying the current operational capabilities of a runway and taxiway.

Runway Safety Area (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Runway Visibility Zone (RVZ): An area on the airport to be kept clear of permanent objects so that there is an unobstructed line of sight from any point five feet above the runway centerline to any point five feet above an intersecting runway centerline.

Runway Visual Range (RVR): An instrumentally derived value, in feet, representing the horizontal distance a pilot can see down the runway from the runway end.

S

Scope: The document that identifies and defines the tasks, emphasis, and level of effort associated with a project or study.

Segmented Circle: A system of visual indicators designed to provide traffic pattern information at airports without operating control towers, often co-located with a wind cone.

Shoulder: An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface; support for aircraft running off the pavement; enhanced drainage; and blast protection. The shoulder Does Not Necessarily Need To Be Paved.

Slant-range Distance: The straight line distance between an aircraft and a point on the ground.

Small Aircraft: An aircraft that has a maximum certified takeoff weight of up to 12,500 pounds.

Special-use Airspace: Airspace of defined dimensions identified by a surface area wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. Special-use airspace classifications include:

- **ALERT AREA:** Airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft.
- **CONTROLLED FIRING AREA:** Airspace wherein activities are conducted under conditions so controlled as to eliminate hazards to nonparticipating aircraft and to ensure the safety of persons or property on the ground.
- **MILITARY OPERATIONS AREA (MOA):** Designated airspace with defined vertical and lateral dimensions established outside Class A airspace to separate/segregate certain military activities from instrument flight rule (IFR) traffic and to identify for visual flight rule (VFR) traffic where these activities are conducted.
- **PROHIBITED AREA:** Designated airspace within which the flight of aircraft is prohibited.
- **RESTRICTED AREA:** Airspace designated under Federal Aviation Regulation (FAR) 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated joint use. When not in use by the using agency, IFR/VFR operations can be authorized by the controlling air traffic control facility.
- **WARNING AREA:** Airspace which may contain hazards to nonparticipating aircraft.

Standard Instrument Departure (SID): A preplanned coded air traffic control IFR departure routing, preprinted for pilot use in graphic and textual form only.

Standard Instrument Departure Procedures: A published standard flight procedure to be utilized following takeoff to provide a transition between the airport and the terminal area or enroute airspace.

Standard Terminal Arrival Route (STAR): A preplanned coded air traffic control IFR arrival routing, preprinted for pilot use in graphic and textual or textual form only.

Stop-and-go: A procedure wherein an aircraft will land, make a complete stop on the runway, and then commence a takeoff from that point. A stop-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

Stopway: An area beyond the end of a takeoff runway that is designed to support an aircraft during an aborted takeoff without causing structural damage to the aircraft. It is not to be used for takeoff, landing, or taxiing by aircraft.

Straight-in Landing/approach: A landing made on a runway aligned within 30 degrees of the final approach course following completion of an instrument approach.

T

Tactical Air Navigation (TACAN):
An ultrahigh frequency electronic air navigation system which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN **station.**

Takeoff Runway Available (TORA):
See declared distances.

Takeoff Distance Available (TODA):
See declared distances.

Taxilane: A taxiway designed for low speed and precise taxiing. Taxilanes are usually, but not always, located outside the movement area and provide access to from taxiways to aircraft parking positions and other terminal areas.

Taxiway: A defined path established for the taxiing of aircraft from one part of an airport to another.

Taxiway Design Group: A classification of airplanes based on outer to outer Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance.

Taxiway Safety Area (TSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

Terminal Instrument Procedures: Published flight procedures for conducting instrument approaches to runways under instrument meteorological conditions.

Terminal Radar Approach Control:
An element of the air traffic control system responsible for monitoring the enroute and terminal segment of air traffic in the airspace surrounding airports with moderate to high levels of air traffic.

Tetrahedron: A device used as a landing direction indicator. The small end of the tetrahedron points in the direction of landing.


Tetrahedron

Threshold: The beginning of that portion of the runway available for landing. In some instances, the threshold may be displaced.

Touch-and-go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is recorded as two operations: one operation for the landing and one operation for the takeoff.

Touchdown: The point at which a landing aircraft makes contact with the runway surface.

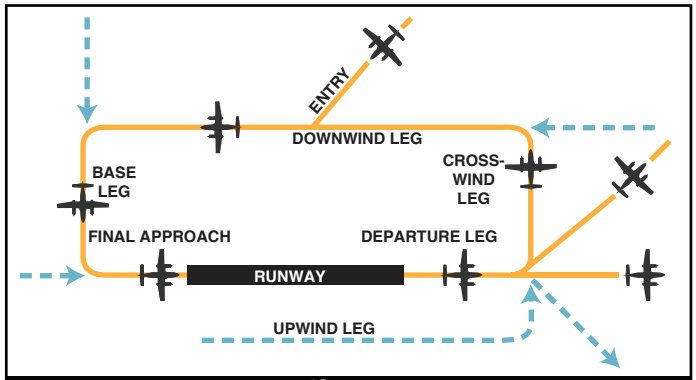
Touchdown and Lift-off Area (TLOF):
A load bearing, generally paved area, normally centered in the FATO, on which a helicopter lands or takes off.

Touchdown Zone (TDZ): The first 3,000 feet of the runway beginning at the threshold.

Touchdown Zone Elevation (TDZE):
The highest elevation in the touchdown zone.

Touchdown Zone Lighting: Two rows of transverse light bars located symmetrically about the runway centerline normally at 100-foot intervals. The basic system extends 3,000 feet along the runway.

Traffic Pattern: The traffic flow that is prescribed for aircraft landing at or taking off from an airport. The components of a typical traffic pattern are the upwind leg, crosswind leg, downwind leg, base leg, and final approach.



Traffic Pattern

U

Uncontrolled Airport: An airport without an airport traffic control tower at which the control of Visual Flight Rules traffic is not exercised.

Uncontrolled Airspace: Airspace within which aircraft are not subject to air traffic control.

Universal Communication (UNICOM): A non-government communication facility which may provide airport information at certain airports. Locations and frequencies of UNICOMs are shown on aeronautical charts and publications.

Unmanned Aircraft System (UAS): An unmanned aircraft and the equipment necessary for the safe and efficient operation of that aircraft. An unmanned aircraft is a component of a UAS. It is defined by statute as an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft (Public Law 112-95, Section 331(8)).

Upwind Leg: A flight path parallel to the landing runway in the direction of landing. See "traffic pattern."

V

Vector: A heading issued to an aircraft to provide navigational guidance by radar.

Very High Frequency Omni-directional Range (VOR): A ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

Very High Frequency Omni-directional Range/Tactical Air Navigation (VORTAC): A navigation aid providing VOR azimuth, TACAN azimuth, and TACAN distance-measuring equipment (DME) at one site.

Victor Airway: A system of established routes that run along specified VOR radials, from one VOR station to another.

Visual Approach: An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic control facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

Visual Approach Slope Indicator (VASI): An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing. The VASI is now obsolete and is being replaced with the PAPI.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

Visual Meteorological Conditions: Meteorological conditions expressed in terms of specific visibility and ceiling conditions which are equal to or greater than the threshold values for instrument meteorological conditions.

Visual Runway: A runway without an existing or planned instrument approach.

VOR: See "Very High Frequency Omni-directional Range."

VORTAC: See "Very High Frequency Omni-directional Range/Tactical Air Navigation."

W

Warning Area: See special-use airspace.

Wide Area Augmentation System: An enhancement of the Global Positioning System that includes integrity broadcasts, differential corrections, and additional ranging signals for the purpose of providing the accuracy, integrity, availability, and continuity required to support all phases of flight.

Windsock/Windcone: A visual aid that indicates the prevailing wind direction and intensity at a particular location.



Windsock/Windcone

Abbreviations

AAM: advanced air mobility

AC: advisory circular

ACIP: airport capital improvement program

ADF: automatic direction finder

ADG: airplane design group

ADS-B: automatic dependent surveillance-broadcast

AFSS: automated flight service station

AGL: above ground level

AIA: annual instrument approach

AIP: Airport Improvement Program

AIR-21: Wendell H. Ford Aviation Investment and Reform Act for the 21st Century

ALS: approach lighting system

ALSF-1: standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT I configuration)

ALSF-2: standard 2,400-foot high intensity approach lighting system with sequenced flashers (CAT II configuration)

AOA: Aircraft Operation Area

APRC: approach reference code

APV: instrument approach procedure with vertical guidance

ARC: airport reference code

ARFF: aircraft rescue and fire fighting

ARP: airport reference point

ARTCC: air route traffic control center

ASDA: accelerate-stop distance available

ASR: airport surveillance radar

ASOS: automated surface observation station

ASV: annual service volume

ATC: airport traffic control

ATCT: airport traffic control tower

ATIS: automated terminal information service

AVGAS: aviation gasoline - typically 100 low lead (100LL)

AWOS: automated weather observation station

BRL: building restriction line

CFR: Code of Federal Regulation

CIP: capital improvement program

DME: distance measuring equipment

DNL: day-night noise level

DPRC: departure reference code

DWL: runway weight bearing capacity of aircraft with dual-wheel type landing gear

DTWL: runway weight bearing capacity of aircraft with dual-tandem type landing gear

eVTOL: electric vertical takeoff and landing aircraft

FAA: Federal Aviation Administration

FAR: Federal Aviation Regulation

FBO: fixed base operator

FY: fiscal year

GA: general aviation

GPS: global positioning system

GS: glide slope

HIRL: high intensity runway edge lighting

IFR: instrument flight rules (FAR Part 91)

ILS: instrument landing system

IM: inner marker

LDA: localizer type directional aid

LDA: landing distance available

LIRL: low intensity runway edge lighting

LMM: compass locator at middle marker

LNAV: lateral navigation

LOC: localizer

LOM: compass locator at outer marker

LP: localizer performance

LPV: localizer performance with vertical guidance

MALS: medium intensity approach lighting system

MALSR: MALS with runway alignment indicator lights

MALSF: MALS with sequenced flashers

MIRL: medium intensity runway edge lighting

MITL: medium intensity taxiway edge lighting

MLS: microwave landing system

MM: middle marker

MOA: military operations area

MSL: mean sea level

MTOW: maximum takeoff weight

NAVAID: navigational aid

NDB: non-directional radio beacon

NEPA: National Environmental Policy Act

NM: nautical mile (6,076.1 feet)

NPDES: National Pollutant Discharge Elimination System

NPIAS: National Plan of Integrated Airport Systems

NPRM: notice of proposed rule making

ODALS: omni-directional approach lighting system

OFA: object free area

OFZ: obstacle free zone

OM: outer marker

PAPI: precision approach path indicator

PFC: porous friction course

PFC: passenger facility charge

PCI: pavement condition index

PCL: pilot-controlled lighting

PIW: public information workshop

POFZ: precision object free zone

PVC: poor visibility and ceiling

RCO: remote communications outlet

RDC: runway design code

REIL: runway end identification lighting

RNAV: area navigation

RPAS: remotely piloted aircraft system

RPZ: runway protection zone

RSA: runway safety area

RTR: remote transmitter/receiver

RVR: runway visibility range

RVZ: runway visibility zone

SALS: short approach lighting system

SASP: state aviation system plan

SEL: sound exposure level

SID: standard instrument departure

SM: statute mile (5,280 feet)

SRE: snow removal equipment

SSALF: simplified short approach lighting system with runway alignment indicator lights

STAR: standard terminal arrival route

SWL: runway weight bearing capacity for aircraft with single-wheel tandem type landing gear

TACAN: tactical air navigational aid

TAF: Federal Aviation Administration (FAA) Terminal Area Forecast

TDG: taxiway design group

TLOF: Touchdown and lift-off

TDZ: touchdown zone

TDZE: touchdown zone elevation

TODA: takeoff distance available

TORA: takeoff runway available

TRACON: terminal radar approach control

UAS: unmanned aircraft system

VASI: visual approach slope indicator

VFR: visual flight rules (FAR Part 91)

VHF: very high frequency

VOR: very high frequency omni-directional range

VORTAC: very high frequency omni-directional range/tactical air navigation

WAAS: wide area augmentation system



Appendix B

FAA Forecast Approval Letter





U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Office of Airports
Phoenix Airports District Office

3800 N. Central Avenue
Suite 1025, 10th Floor
Phoenix, AZ 85012

September 12, 2024

Rosemary Vassiliadis
Director, Department of Aviation
P.O. Box 11005
Las Vegas, NV 89111-1005

Re: North Las Vegas (VGT) Master Plan Forecast

Dear Ms. Vassiliadis:

The Federal Aviation Administration (FAA) approves the baseline scenario through year ten in the North Las Vegas (VGT) forecast, submitted on June 20, 2024 for use in the VGT Airport Master Plan Update. We found the forecast to be generally consistent with the current 2023 TAF. It uses current data and is supported by generally accepted forecasting methodologies.

The existing critical aircraft is determined to be the C-II. The future or ultimate critical aircraft is expected to be the D-III.

The approval of the forecast does not automatically constitute a commitment on the part of the United States to participate in any development recommended in the VGT Airport Master Plan Update or shown on the ALP. FAA approval does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development, in accordance with criteria in FAA Orders 5090.5 and 5100.38. Documentation of actual activity levels meeting planning activity levels will be necessary to justify AIP funding for eligible projects. Further, the approved forecast may be subject to additional analyses if the fundamental rationale of the forecast or the critical aircraft changes materially.

Sincerely,

ANTHONY
ROBERT
BIANCHI

Digitally signed by
ANTHONY ROBERT
BIANCHI
Date: 2024.09.12 10:38:12
-07'00'

Anthony Bianchi
Program Manager- Planner, PHX-610
Phoenix Airports District Office

Attachment: Submitted VGT Master Plan Update Forecast (Figure 2.9)

Figure 2.9 - *FAA Template for Comparing Airport Planning and TAF Forecasts*

APPENDIX C

Template for Comparing Airport Planning and TAF Forecasts (1)

	Year	VGT Forecast	TAF	VGT/TAF (% Difference)
Based Aircraft				
Base yr.	2023	511	499	2.38%
Base yr. + 5yrs.	2028	584	545	6.83%
Base yr. + 10yrs.	2033	638	590	7.75%
Base yr. + 15yrs.	2038	696	639	8.57%
Itinerant Operations				
Base yr.	2023	79,143	83,321	5.1%
Base yr. + 5yrs.	2028	91,266	84,160	8.1%
Base yr. + 10yrs.	2033	94,000	85,009	10.0%
Base yr. + 15yrs.	2038	96,830	85,869	12.0%
Local Operations				
Base yr.	2023	85,638	86,599	1.1%
Base yr. + 5yrs.	2028	107,138	125,826	16.0%
Base yr. + 10yrs.	2033	119,637	127,090	6.0%
Base yr. + 15yrs.	2038	133,717	128,366	4.1%
Total Operations				
Base yr.	2023	164,781	169,920	3.07%
Base yr. + 5yrs.	2028	198,404	209,986	5.67%
Base yr. + 10yrs.	2033	213,637	212,099	0.72%
Base yr. + 15yrs.	2038	230,547	214,235	7.33%

NOTES: TAF data is on a U.S. Government fiscal year basis (October through September).

(1) Table is developed from Appendix C in the FAA Report, "Forecasting Aviation Activity by Airport."



Appendix C

Traffic Study





GCW
ENGINEERS \ SURVEYORS

NORTH LAS VEGAS AIRPORT

CAREY AVENUE REALIGNMENT TRAFFIC STUDY

501-540

September 2025

Prepared for:
Clark County Department of Aviation
1845 E Russell Road, Third Floor
Las Vegas, NV 89119

Prepared by GCW, Inc., subconsultant to Coffman Associates, Inc.

1555 South Rainbow Blvd
Las Vegas, NV 89146

P: 702.804.2000
F: 702.804.2298

info@gcwengineering.com
www.gcwengineering.com

Table of Contents

I. INTRODUCTION 1
II. EXISTING TRAFFIC NETWORK 1
III. TRAFFIC DATA COLLECTION 3
A. Turning Movement Counts 3
B. Mechanical Counts 3
IV. CURRENT (2024) TRAFFIC OPERATIONS IN THE STUDY AREA 3
V. CHANGES TO THE STREET NETWORK WITH THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE WEST OF SIMMONS STREET 7
VI. PREDICTED FUTURE TRAFFIC IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF CAREY AVENUE 8
A. Predicted Future Daily Traffic in the Study Area With and Without the Vacation and Realignment of Carey Avenue 9
VII. FUTURE YEAR 2050 TRAFFIC OPERATIONS IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE 11
A. LOS Analyses 11
B. Left-turn Queue Storage Analyses 16
C. Changes in Travel Time and Travel Distance with the Vacation and Realignment of Carey Avenue 18
VIII. CONCLUSIONS AND PROPOSED MITIGATION 20

Appendix

Appendix 1. Carrey Avenue Realignment Connection Alternatives
Appendix 2. Area Grocery Stores
Appendix 3. Area Elementary, Middle, and High Schools

List of Tables

Table 1. Summary of 2024 Peak Hour Level of Service (LOS) Analyses 7
Table 2. 2024 Existing Daily Traffic Volumes and Forecast 2050 No-Build and 2050 Build Daily Traffic Volumes in the Study Area 9
Table 3. Summary of 2050 Level of Service (LOS) Analyses With and Without Vacation of Carey Avenue 15
Table 4. Left-Turn Queue Storage Analyses With and Without Vacation of Carey Avenue 17
Table 5. Increase or (Decrease) in year 2050 Vehicle Hours of Travel (VHT) and Vehicle Miles of Travel (VMT) with the Vacation and Realignment of Carey Avenue (with the Build Alternative) compared to the No-Build Alternative 20

List of Figures

Figure 1. Study Area 2
Figure 2. November 12, 2024 Peak Hour Traffic Counts 4
Figure 3. November 12, 2024 Peak Hour Traffic Counts 5
Figure 4. November 12-14, 2024 Mid-Week Daily Traffic Counts 6
Figure 5. Estimated Year 2050 Daily Build and No-Build Traffic Volumes 10
Figure 6. 2050 No-Build Peak Hour Traffic Volumes 12
Figure 7. 2050 Build Peak Hour Traffic Volumes 13
Figure 8. Increase/Decrease in Peak Hour Traffic Volumes with 2050 Build Alternative 14
Figure 9. Recommended Turn Lane Improvements for the Build Alternative 19

I. INTRODUCTION

The Clark County Department of Aviation (CCDOA) proposes to lengthen Runways 12L-30R and 12R-30L at the North Las Vegas Airport by extending them southward, and the vacation and realignment a segment of Carey Avenue is required to facilitate the proposed runway extensions.

Carey Avenue is a City of North Las Vegas four-lane minor arterial street with shoulder lanes within a 100-foot right-of-way that is operated and maintained by the Department of Public Works. For the CCDOA to lengthen the runways, the segment of Carey Avenue to be vacated and realigned would extend from Simmons Street on the east to approximately the Allen Lane alignment on the west, a length of about one-half mile. The vacated segment of Carey Avenue would be incorporated into the contiguous area of the North Las Vegas Airport.

Along with the vacation of a segment of Carey Avenue, a realigned Carey Avenue roadway connection would be constructed on CCDOA property from approximately the Allen Lane alignment to Lake Mead Boulevard. With this connection, Carey Avenue traffic could be rerouted around the southern perimeter of the extended runways via Simmons Street, Lake Mead Boulevard and the new Carey Avenue Realignment Connection. The new roadway connection would also maintain access and circulation for the existing and planned commercial properties located between Carey Avenue and Lake Mead Boulevard east of Rancho Drive.

The purpose of this study is to evaluate the potential traffic impacts of a vacation and realignment of a segment of Carey Avenue from Simmons Avenue to west of the Allen Lane alignment, and to consider possible mitigation measures in addition to the proposed Carey Avenue Realignment Connection to improve traffic flow with the vacation and realignment.

The study area, as shown in Figure 1, includes the street network in the vicinity of the North Las Vegas Airport which could be affected by the vacation and realignment of a segment of Carey Avenue. This street network serves both the North Las Vegas Airport and the suburban community in the vicinity of the Airport, including many Airport related businesses.

For purposes of this study, two alternatives are evaluated for comparison:

- The No-Build Alternative assumes that the segment of Carey Avenue west of Simmons Avenue would not be vacated, so that Carey Avenue continues to operate as it currently does, and
- The Build Alternative assumes that the segment of Carey Avenue west of Simmons Avenue would be vacated with a realignment connection to Lake Mead Boulevard near Allen Lane. This would result in east-west travel on Carey Avenue being discontinuous on the south side of the Airport.

II. EXISTING TRAFFIC NETWORK

The North Las Vegas Airport is located within a developed suburban area of the City of North Las Vegas. The existing street network, comprised of arterial streets and collector streets, is laid out in a north-south/east-west grid pattern, with Rancho Drive cutting diagonally through the area in a northwest to southeast direction. Rancho Drive forms the western boundary of the Airport.

East-west arterial streets include Carey Avenue on the south side of the Airport, Cheyenne Avenue on the north side of the Airport (located one-mile north of Carey Avenue), and Lake Mead Boulevard (located one-half mile south of Carey Avenue). North-south arterial streets include Decatur Boulevard west of the Airport, and Simmons Street east of the Airport.

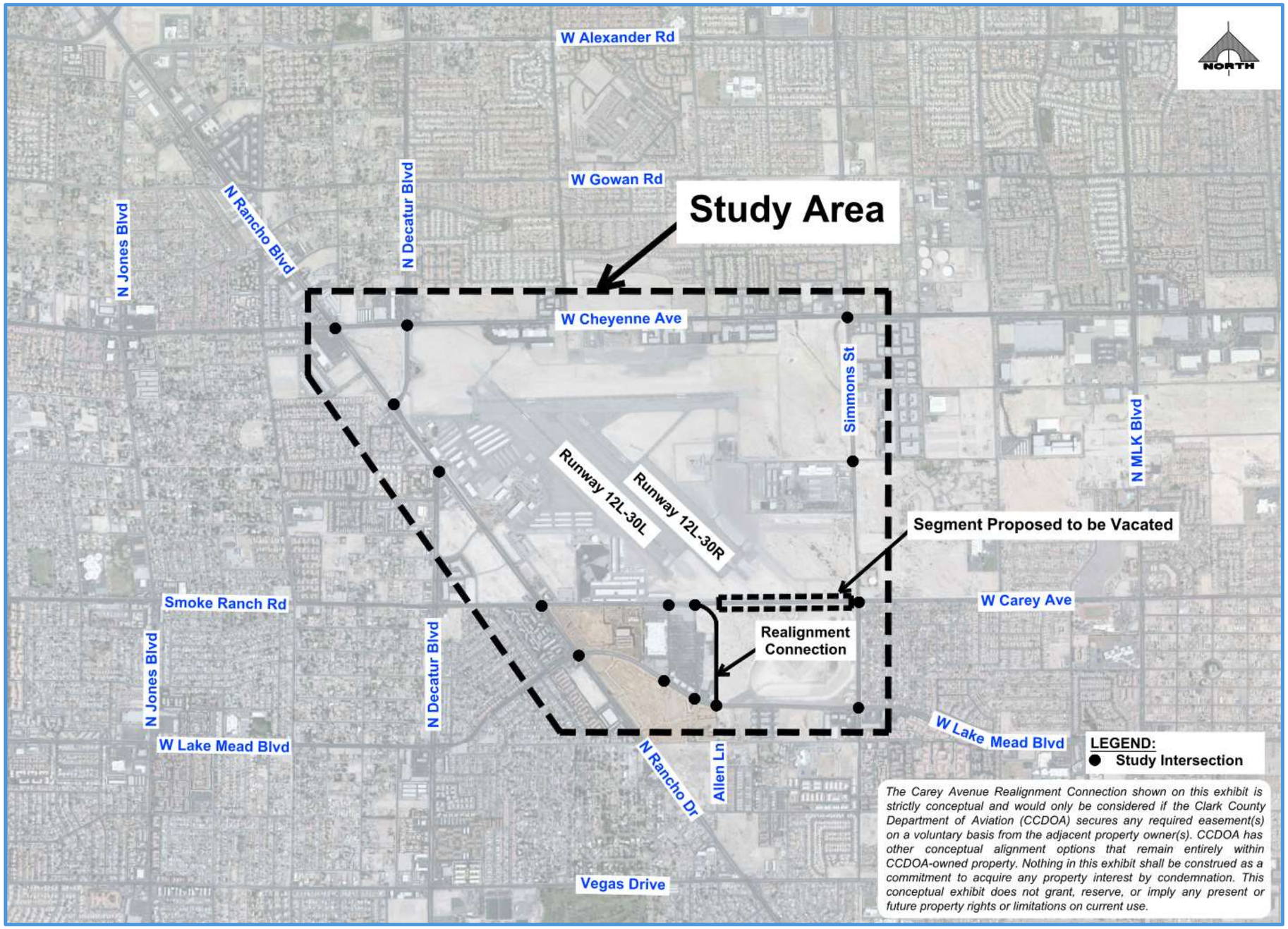


Figure 1. Study Area

III. TRAFFIC DATA COLLECTION

To evaluate existing traffic conditions on the roadway network in the study area, traffic counts on the existing street network were taken from 11/12/2024 to 11/16/2024, which consisted of the following:

A. Turning Movement Counts

Peak period turning movement traffic counts (7-9:00 am and 4-6:00 pm) taken on 11/12/2024, during a typical weekday, at the following fifteen (15) study intersections.

- Cheyenne Avenue/Rancho Drive
- Cheyenne Avenue/Decatur Boulevard
- Cheyenne Avenue/Simmons Street
- Rancho Drive/Decatur Boulevard North
- Ranch Drive/Decatur Boulevard South
- Carey Avenue/Rancho Drive
- Carey Avenue/West Walmart Driveway
- Carey Avenue/ East Walmart Driveway
- Carey Avenue/ Simmons Street
- Lake Mead Boulevard/Rancho Drive
- Lake Mead Boulevard/ West Walmart Driveway
- Lake Mead Boulevard/ East Walmart Driveway
- Lake Mead Boulevard/Allen Lane
- Lake Mead Boulevard/Simmons Street
- Simmons Street/Evans Avenue

Existing peak hour traffic counts are shown in Figures 2 and 3.

B. Mechanical Counts

Seven-day 24-hour directional mechanical counts in 15-minute increments were taken on the following street segments.

- Rancho Drive south of Cheyenne Avenue
- Rancho Drive north of Carey Avenue
- Cheyenne Avenue west of Simmons Street
- Simmons Street north of Carey Avenue
- Carey Avenue west of Simmons Street
- Lake Mead Boulevard west of Simmons Street

Mid-week, 24-Hour (Daily) traffic counts are shown in Figure 4.

IV. CURRENT (2024) TRAFFIC OPERATIONS IN THE STUDY AREA

Table 1 presents a summary of current (2024) peak hour level-of-service analyses at major signalized intersections within the study area. At present, all of the intersections in the study area are operating at level of service (LOS) D or better during both the AM peak hour and the PM peak hour. LOS D is considered an acceptable average delay in a suburban setting. Additionally, intersections are operating at volume-to-capacity (v/c) ratios less than 70 percent, with the exception of Decatur/Cheyenne which is operating at a v/c of 74 percent in the PM peak hour.

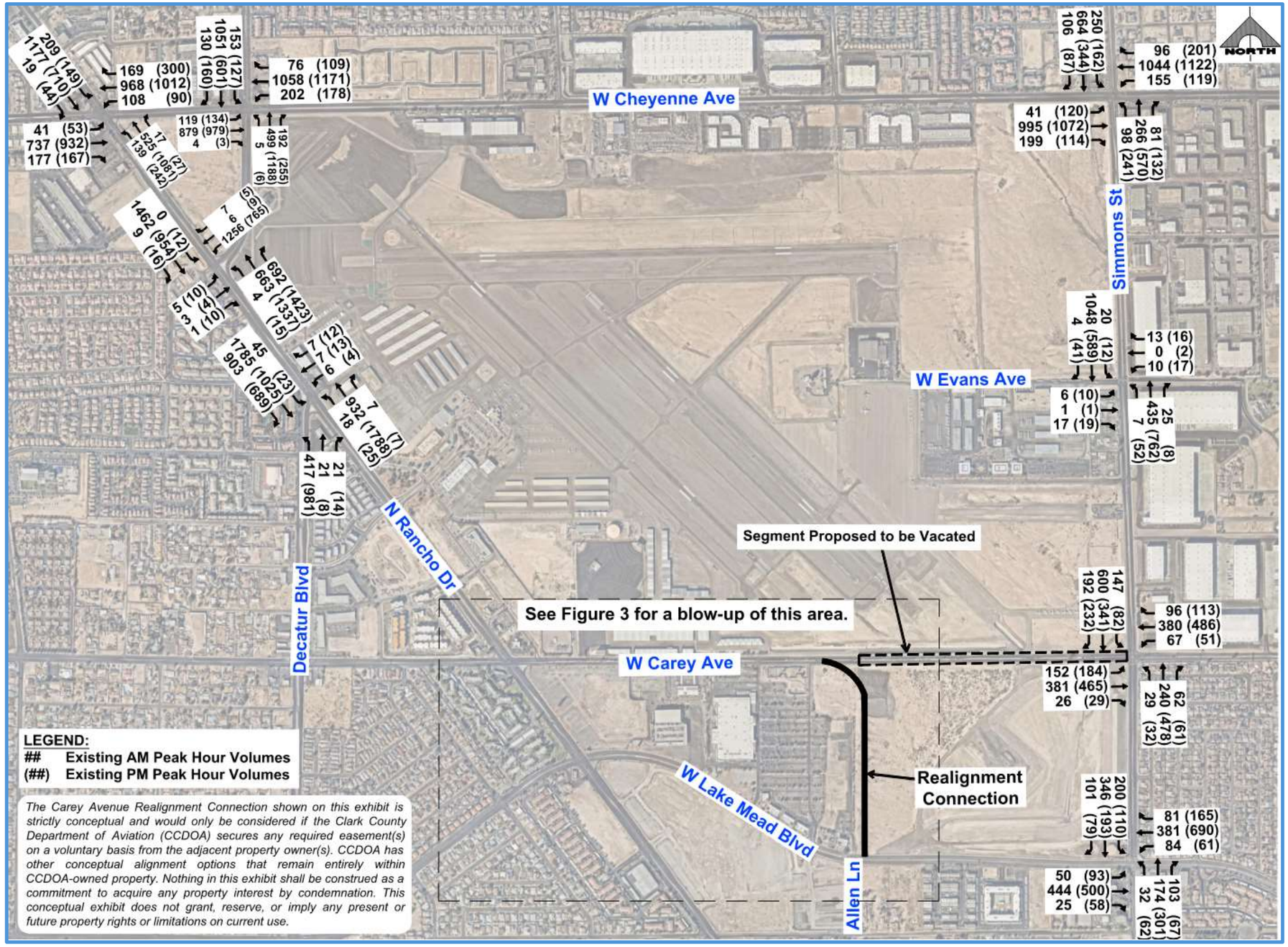


Figure 2. November 12, 2024 Peak Hour Traffic Counts

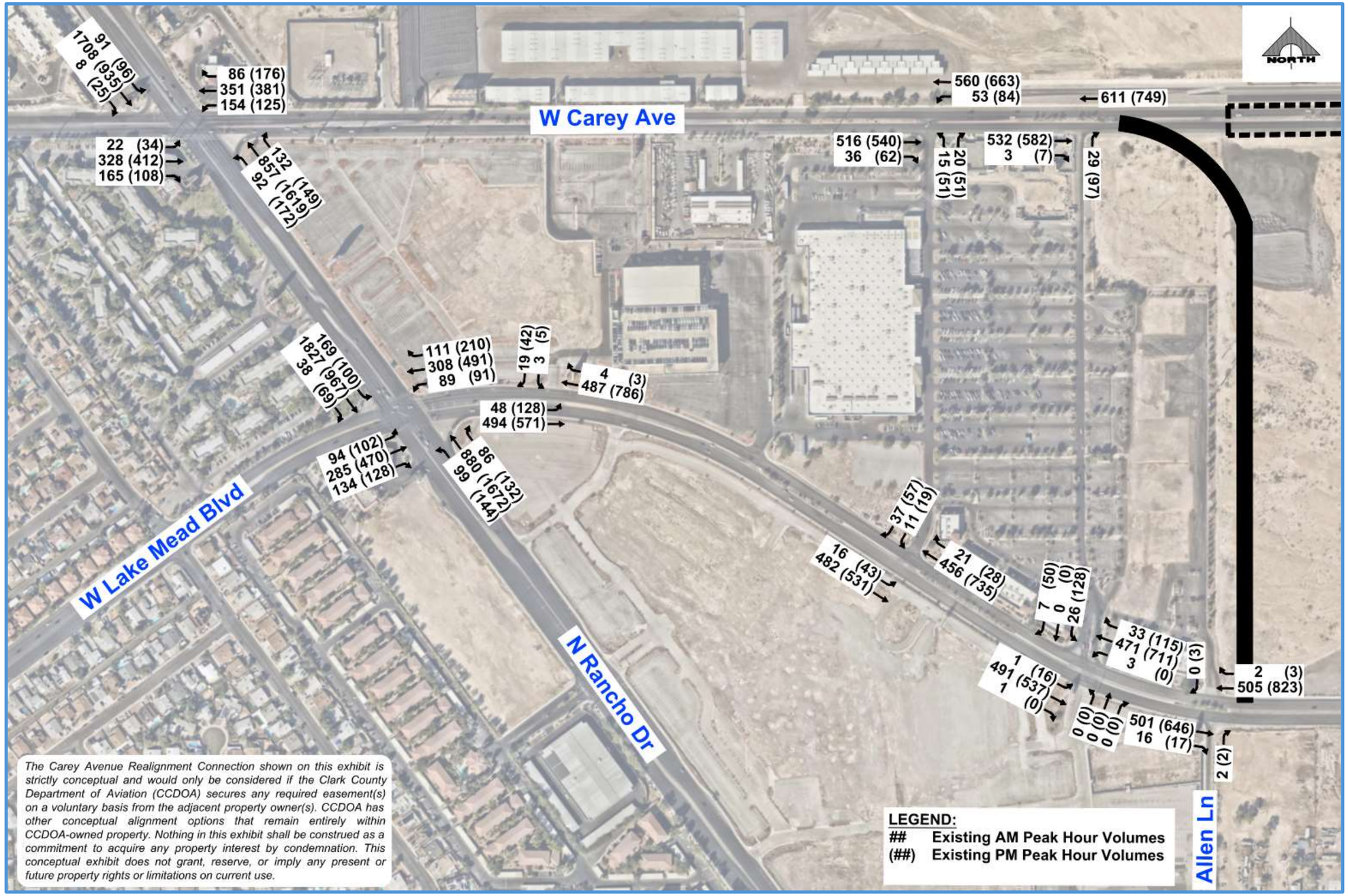


Figure 3. November 12, 2024 Peak Hour Traffic Counts

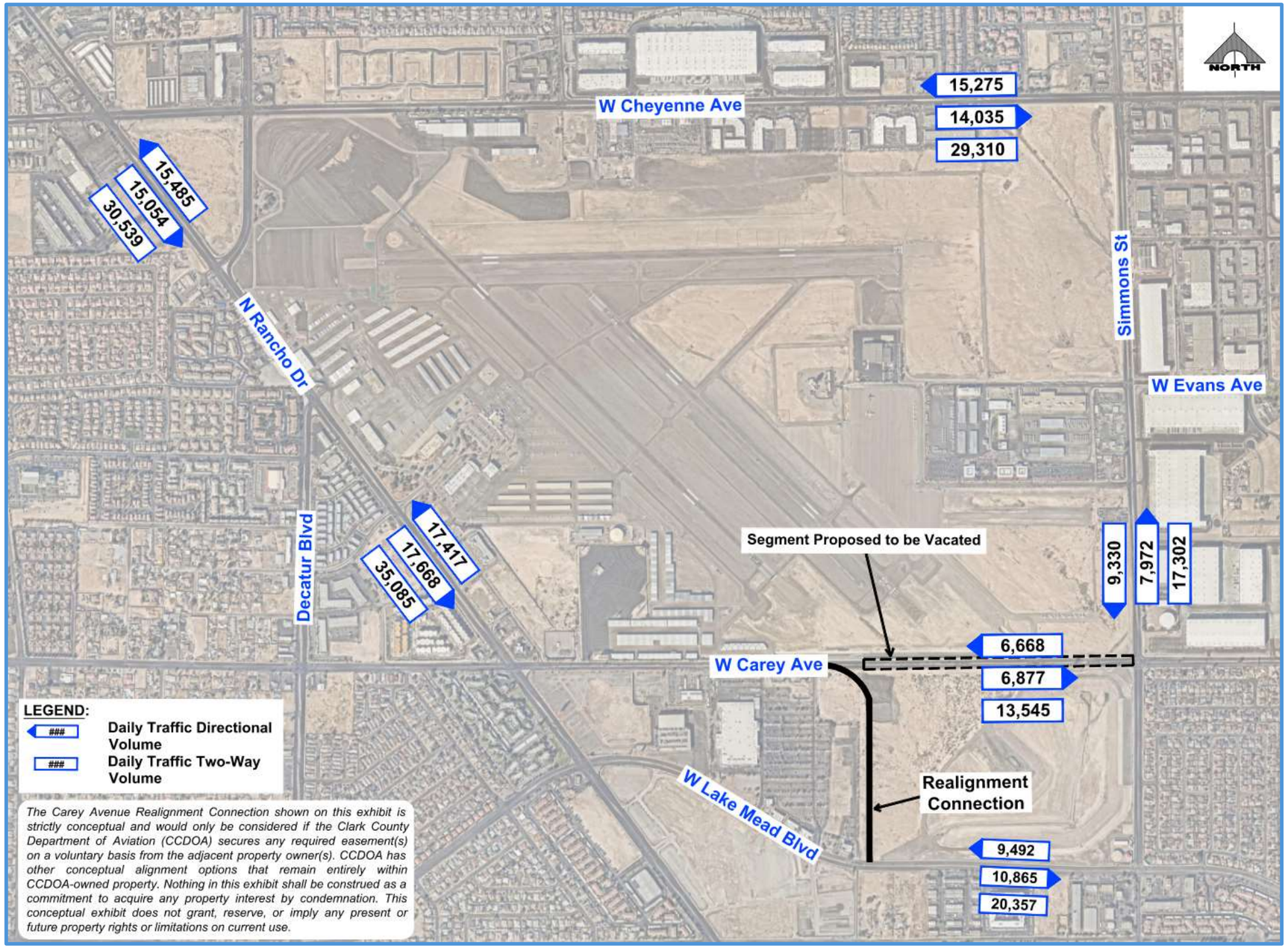


Figure 4. November 12-14, 2024 Mid-Week Daily Traffic Counts

Table 1. Summary of 2024 Peak Hour Level of Service (LOS) Analyses

ID #	Signalized Intersection	AM Peak			PM Peak		
		v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
1	Rancho/Cheyenne	0.58	45.8	D	0.62	46.0	D
2	Decatur/Cheyenne	0.62	49.0	D	0.74	50.3	D
3	Simmons/Cheyenne	0.66	44.0	D	0.63	46.4	D
4	Rancho/Decatur (N)	0.53	34.6	C	0.38	24.7	C
5	Rancho/Decatur (S)	0.51	25.5	C	0.55	38.9	D
6	Rancho/Carey	0.62	33.2	C	0.62	36.3	D
9	Carey/Simmons	0.39	36.1	D	0.43	38.6	D
10	Rancho/Lake Mead	0.63	36.2	D	0.68	41.5	D
14	Lake Mead/Simmons	0.37	32.9	C	0.40	33.6	C

V/C - Volume-to-capacity ratio
Delay - seconds/vehicle

The intersections on Cheyenne Avenue currently experience moderately higher delays during peak hours than the other intersections, but within an acceptable range.

As shown in Figure 4, at present Carey Avenue, west of Simmons Avenue, carries an average of 13,545 vehicles per day, mid-week (Tuesdays, Wednesdays, and Thursdays). This includes an average of 6,877 vehicles per day eastbound on Carey Avenue and 6,668 vehicles per day westbound on Carey Avenue.

At present, Lake Mead Boulevard and Cheyenne Avenue carry an average of 20,357 vehicles per day and 29,310 vehicles per day, mid-week, respectively.

Simmons Avenue, north of Carey Avenue, carries an average of 17,302 vehicles per day, mid-week.

Rancho Drive carries an average of 35,085 vehicles per day north of Carey Avenue and 30,539 vehicles per day south of Cheyenne Avenue, mid-week.

V. CHANGES TO THE STREET NETWORK WITH THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE WEST OF SIMMONS STREET

Proposed changes to the street network with the proposed vacation of a segment of Carey Avenue include the following:

- Closure and removal of the segment of Carey Avenue from Simmons Street to west of the Allen Street alignment.
- Conversion of the existing 4-legged intersection of Carey Avenue/Simmons Street to a 3-legged “T” intersection. The westbound approach would be converted from one left-turn lane, two thru lanes, and one right-turn lane to two left-turn lanes and one right-turn lane.
- Construction of a realignment connection west of the extended runways, from Carey Avenue to Lake Mead Boulevard just east of Allen Lane
- Reconfiguration of the EB approach to Lake Mead Boulevard/Simmons Street from three through lanes and one left-turn lane to two through lanes and two left-turn lanes.

Construction of the Carey Avenue realignment connection to Lake Mead Boulevard is proposed to provide an alternate route for some through traffic as well as access and circulation for the Walmart Supercenter and

other businesses on Carey Avenue between the vacated segment of Carey Avenue and Rancho Drive. The realignment connection has been modeled as a four-lane street.

VI. PREDICTED FUTURE TRAFFIC IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF CAREY AVENUE

The Regional Transportation Commission of Southern Nevada (RTC) maintains the TransCad traffic forecasting model for the Las Vegas Valley roadway network. The currently adopted model includes:

- A Year 2020 Baseline Model, and
- A Year 2050 Traffic Forecast Model.

The RTC's TransCad model was used to predict year 2050 traffic volumes in the study area without the vacation and realignment of a segment of Carey Avenue (the No-Build Alternative), and with the vacation and realignment of a segment of Carey Avenue (the Build Alternative).

Before running the 2050 TransCad Model, the model was reviewed to see if traffic generation in the model adequately represented planned development in the study area. In particular, two planned developments are proposed near the North Las Vegas Airport:

- Windsor Commerce Park is proposed for development on Simmons Avenue east of the Airport, and
- Hylo Park is proposed for development in two parts. Hylo Park North is proposed for development on Rancho Drive between Carey Avenue and Lake Mead Boulevard and Hylo Park South is proposed for development on Rancho Drive from Lake Mead Boulevard to Coran Lane.

Reviewing the traffic studies for these proposed developments, the traffic analysis zones in the 2050 TransCad model which include Windsor Commerce Park and Hylo Park North, adequately include the level of land use and traffic generation anticipated for these developments. However, the 2050 TransCad model does not include, in the traffic analysis zone which includes Hylo Park South, the density of development envisioned. Therefore, before running the 2050 TransCad model, the commercial and residential land use, and corresponding traffic generation, were increased to properly reflect the proposed development of Hylo Park South into the 2050 No-Build and Build models. In this way, the 2050 Build and No-Build TransCad forecasts include known, planned developments in the study area.

The area south of Carey Avenue proposed for runway expansion is currently the site of a detention basin. Accordingly, no change in traffic generation would be expected with or without the vacation and realignment of Carey Avenue.

It should be noted that the RTC 2050 TransCad model for the study area includes two planned improvements to the local roadway network as described below:

- Simmons Street is planned to be widened from four lanes to six lanes from Lake Mead Boulevard to Cheyenne Avenue. Accordingly, at the Simmons/Cheyenne and Simmons /Carey intersections, the right-turn lanes on both the northbound and southbound approaches are assumed to be converted to combined thru/right-turn lanes.
- Lake Mead Boulevard is planned to be widened from four lanes to six lanes west of Rancho Drive. Accordingly, at the Lake Mead/Rancho intersection, the right-turn lanes on both the eastbound and westbound approaches are assumed to be converted to combined thru/right-turn lanes.

The year 2050 TransCad No-Build Traffic Forecast does not include any changes to the roadway network.

To evaluate the possible effect of vacating and realigning a segment of Carey Avenue west of Simmons Street, the RTC's Year 2050 Traffic Forecast Model was run with the segment of Carey Avenue from Simmons Avenue to west of the Allen Lane excluded from the model. Model changes included:

- Elimination of the vacated segment of Carey Avenue from the 2050 TransCad model
- Adding a realigned connection of Carey Avenue to Lake Mead Boulevard near Allen Lane.

The 2050 TransCad traffic forecast incorporating these changes is designated as the 2050 Build TransCad Traffic Forecast.

It was assumed that for the Build Alternative, the eastbound approach to Simmons Street/Lake Mead Boulevard would be reconfigured to provide two left-turn lanes and two through lanes (vs. existing single left and three through lanes).

A. Predicted Future Daily Traffic in the Study Area With and Without the Vacation and Realignment of Carey Avenue

Figure 5 shows the year 2050 TransCad model forecast of daily traffic in the study area for the No-Build and the Build Alternatives. Existing 2024 and predicted 2050 daily traffic volumes are also summarized in Table 2:

Table 2. 2024 Existing Daily Traffic Volumes and Forecast 2050 No-Build and 2050 Build Daily Traffic Volumes in the Study Area

Location	Existing 2024 Daily Traffic Volume	No-Build Alternative 2050 Daily Traffic Volume	Build Alternative 2050 Daily Traffic Volume	Increase or (Decrease) in 2050 Daily Traffic Volume with Build Alternative
Carey Ave west of Simmons Street	13,545	16,598	0	(16,598)
Lake Mead Blvd west of Simmons Street	20,357	22,939	32,743	9,804
Cheyenne Avenue west of Simmons St	29,310	53,254	55,823	2,569
Simmons Street north of Carey Ave	17,302	33,200	33,511	311
Rancho Drive north of Carey Ave	35,085	57,089	55,236	(1,853)
Rancho Drive south of Cheyenne Avenue	30,539	35,823	34,203	(1,620)

Daily traffic volumes on Carey Avenue west of Simmons Street are projected to increase by 23%, from 13,545 in 2024, to 16,598 by the year 2050, without the proposed vacation and realignment of Carey Avenue (No-Build Alternative). However, with the proposed vacation and realignment (Build Alternative), the forecast year 2050 daily traffic volume of 16,598 vehicles on Carey Avenue west of Simmons Street would necessarily be diverted to other routes. Based on TransCad model forecasts, with the vacation and realignment of a segment of Carey Avenue, it would be expected that:

- 9,804 daily vehicles, or 59% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street would use Lake Mead Boulevard,
- 2,569 daily vehicles, or 15% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street would use Cheyenne Avenue,
- The remaining 3,129 daily vehicles, or 26% of the 16,598 daily vehicles diverted from Carey Avenue west of Simmons Street, would be distributed to alternate routes outside the study area, and
- 1,096 (or 11%) of the 9,804 daily vehicles diverting to Lake Mead Boulevard would use the Carey Avenue realignment connection.

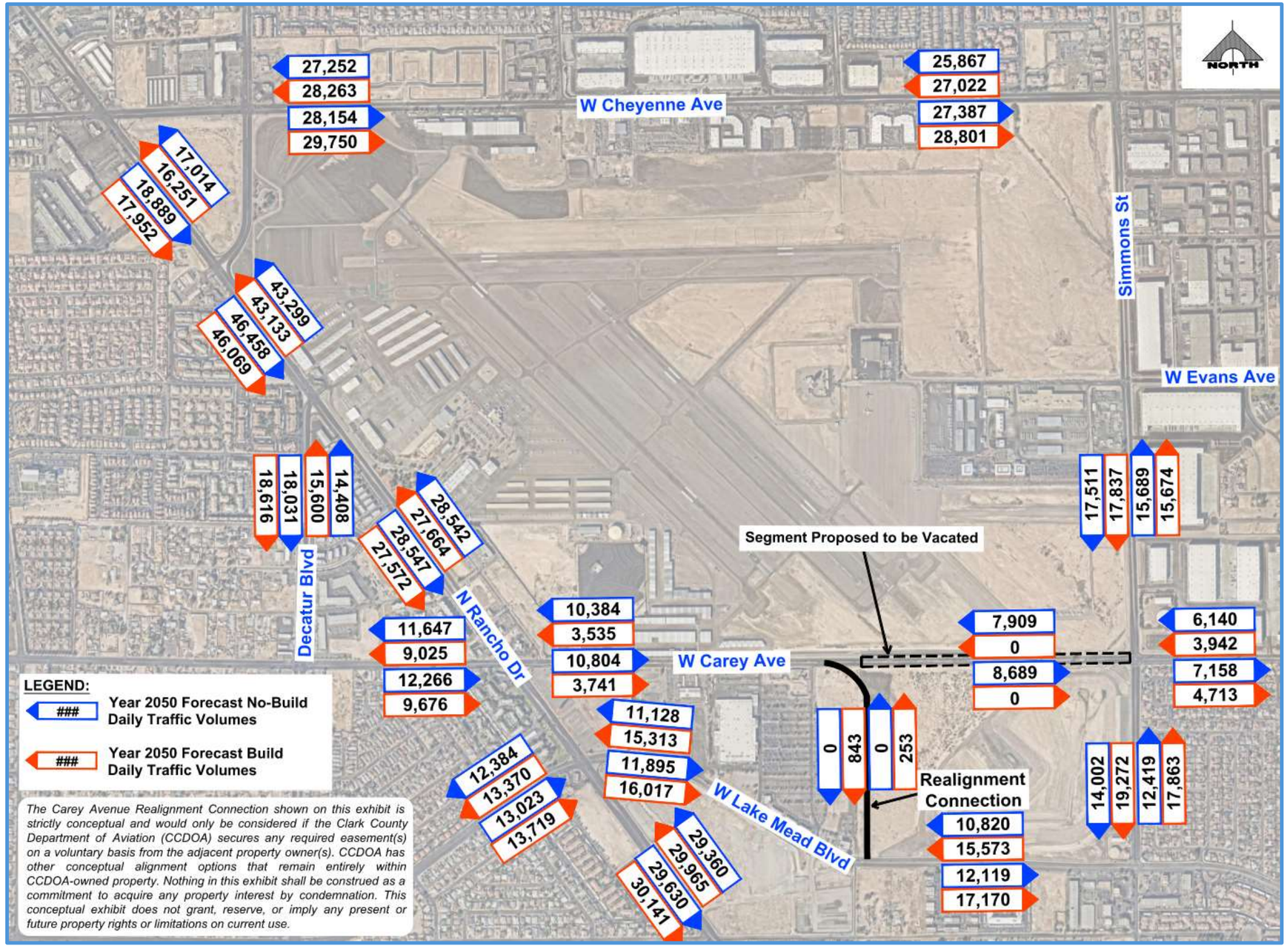


Figure 5. Estimated Year 2050 Daily Build and No-Build Traffic Volumes

Daily traffic volumes on Simmons Street are predicted to nearly double, from 17,302 daily vehicles in 2024 to 33,200 daily vehicles in 2050. The growth can be attributed to the planned widening of Simmons Avenue from 4 lanes to 6 lanes from Lake Mead Boulevard to Cheyenne Avenue that is incorporated into the RTC's 2050 TransCad model. However, there would be virtually no difference in the predicted 2050 daily traffic volumes on Simmons Street north of Carey Avenue with or without the vacation and realignment of a segment of Carey Avenue.

Daily traffic on Rancho Dive is predicted to increase by 63% north of Carey Avenue, from 35,085 in 2024 to 57,089 in 2050 without the vacation and realignment of Carey Avenue. However, the year 2050 daily traffic volume on Rancho Drive north of Carey Avenue is predicted to be slightly less in 2050, 55,236 daily vehicles, with the vacation and realignment of Carey Avenue.

Daily traffic on Rancho Dive is predicted to increase by 17% south of Cheyenne Avenue, from 30,539 in 2024 to 35,823 in 2050 without the vacation and realignment of Carey Avenue. However, the year 2050 daily traffic volume on Rancho Drive south of Cheyenne Avenue is predicted to be slightly less in 2050, 34,203 daily vehicles, with the vacation and realignment of Carey Avenue.

VII. FUTURE YEAR 2050 TRAFFIC OPERATIONS IN THE STUDY AREA WITH AND WITHOUT THE VACATION AND REALIGNMENT OF A SEGMENT OF CAREY AVENUE

To forecast the levels-of-service (LOS) at major intersections in the Year 2050 without the vacation and realignment of a segment of Carey Avenue (No-Build Alternative), the growth rates of traffic developed from the RTC TransCad 2020 Baseline Model and 2050 No-Build Traffic Forecast were applied to the current (Year 2024) peak period traffic counts to develop projected Year 2050 traffic volumes at major intersections without the vacation and realignment of a segment of Carey Avenue.

The 2050 TransCad Traffic Forecast Model was run again, excluding the segment of Carey Avenue from Simmons Street to Allen Lane, and including the Carey Avenue realignment connection to Lake Mead Boulevard, to develop a 2050 Build Traffic Forecast. For the Build Alternative, the growth rates for traffic developed from the RTC TransCad 2020 Baseline Model and 2050 Build Traffic Forecast Model were applied to the current (Year 2024) peak period traffic counts to develop projected Year 2050 traffic volumes at major intersections with the vacation and realignment of a segment of Carey Avenue.

Figure 6 shows the predicted year 2050 peak hour traffic volumes at major intersections in the study area without the vacation and realignment of a segment of Carey Avenue (2050 No-Build Traffic Forecast).

Figure 7 shows the predicted year 2050 peak hour traffic volumes at major intersections in the study area with the vacation and realignment of a segment of Carey Avenue (2050 Build Traffic Forecast).

Figure 8 shows the predicted increase or decrease in year 2050 peak hour traffic volumes at major intersections in the study area with the vacation and realignment of a segment of Carey Avenue.

A. LOS Analyses

Table 3 presents a comparative summary of 2050 peak hour LOS analyses at major signalized intersections within the study area under the No-Build and Build scenarios. Two planned Hylo Park signalized driveways on Lake Mead Boulevard, one at the existing Walmart Driveway and one farther east, are included in the analysis.

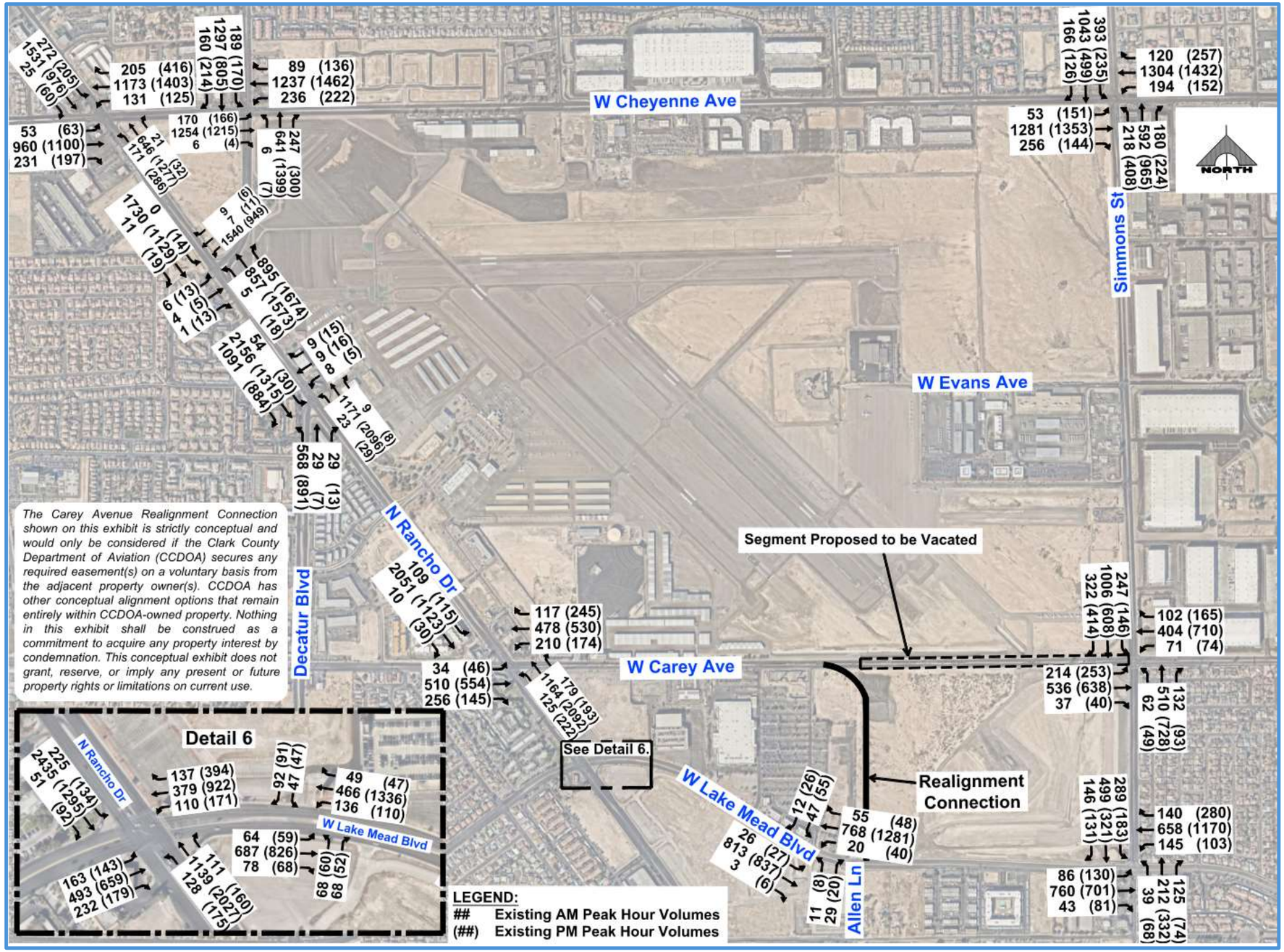


Figure 6. 2050 No-Build Peak Hour Traffic Volumes

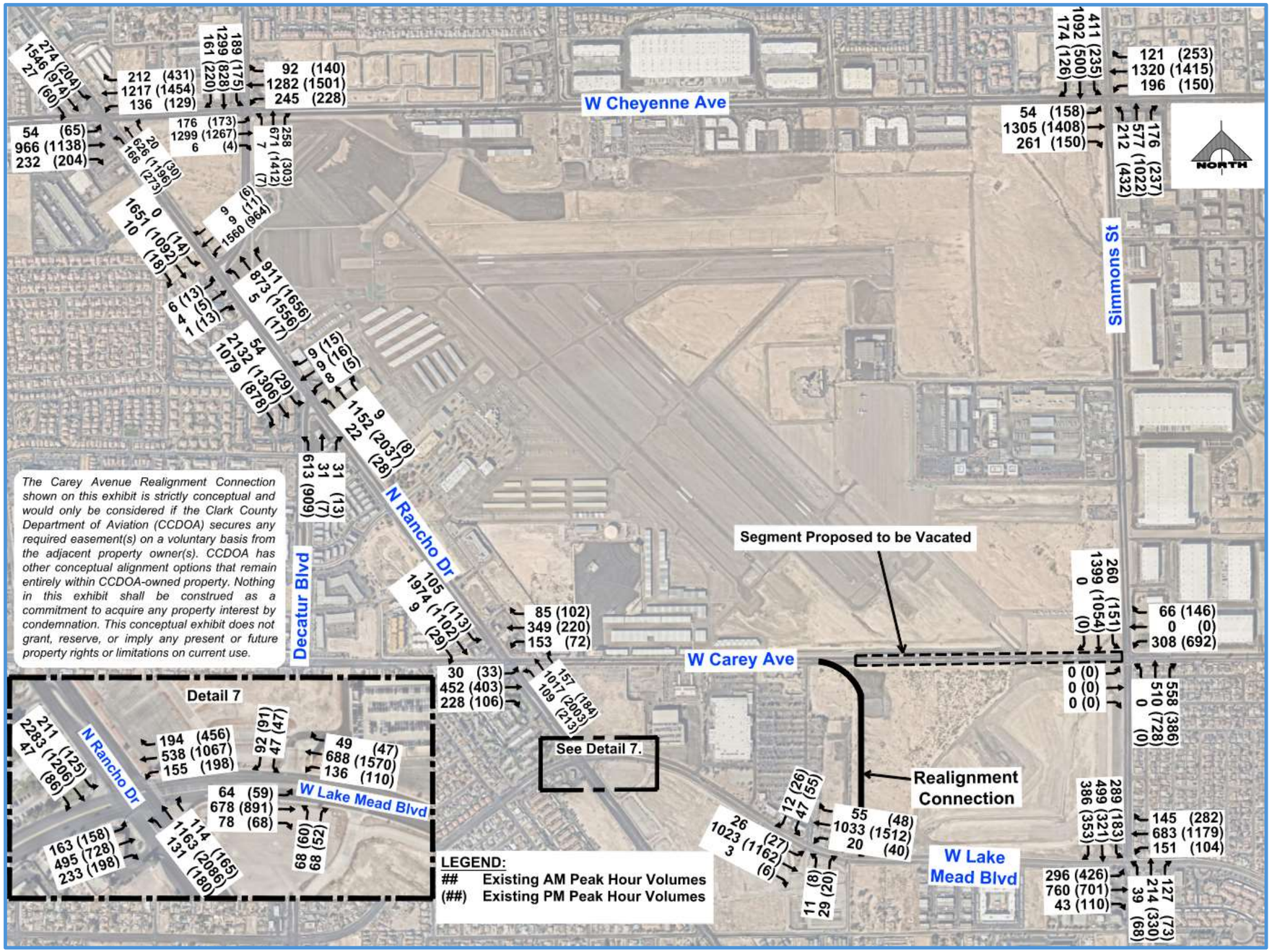


Figure 7. 2050 Build Peak Hour Traffic Volumes

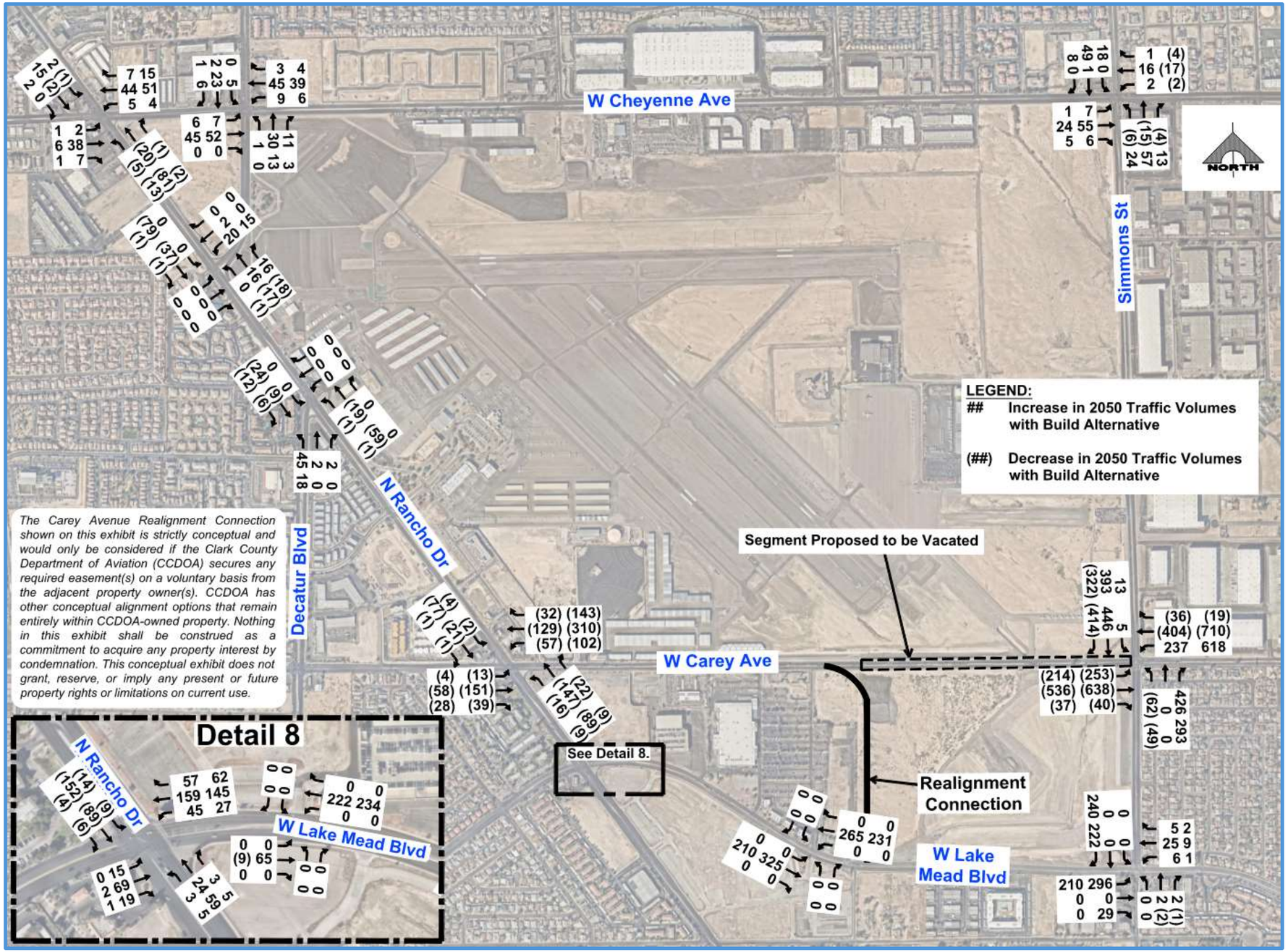


Figure 8. Increase/Decrease in Peak Hour Traffic Volumes with 2050 Build Alternative

Table 3. Summary of 2050 Level of Service (LOS) Analyses With and Without Vacation of Carey Avenue

ID #	Intersection	Control	Scenario	AM Peak			PM Peak		
				v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
1	Rancho/Cheyenne	Signalized	2050 No-Build	0.74	50.4	D	0.80	51.7	D
			2050 Build	0.74	51.0	D	0.80	51.3	D
			Build - No-Build Difference	0.01	0.6	-	0.00	-0.4	-
2	Decatur/Cheyenne	Signalized	2050 No-Build	0.79	**55.8**	**E**	**0.91**	**61.1**	**E**
			2050 Build	0.81	**57.1**	**E**	**0.93**	**62.9**	**E**
			2050 Build-Mitigation	0.81	**56.2**	**E**	0.87	**56.2**	**E**
			Build-Mit. - No Build Difference	0.02	0.4	-	-0.04	-4.9	-
3	Simmons/Cheyenne	Signalized	2050 No-Build	**0.94**	**66.3**	**E**	0.88	**63.1**	**E**
			2050 Build	**0.96**	**67.5**	**E**	**0.90**	**65.0**	**E**
			2050 Build-Mitigation	**0.82**	**55.6**	**E**	0.83	**57.1**	**E**
			Build-Mit. - No Build Difference	-0.13	-10.7	-	-0.06	-6.0	-
4	Rancho/Decatur (N)	Signalized	2050 No-Build	0.64	37.6	D	0.80	27.9	C
			2050 Build	0.63	37.5	D	0.79	28.1	C
			Build - No-Build Difference	-0.01	-0.1	-	0.00	0.2	-
5	Rancho/Decatur (S)	Signalized	2050 No-Build	0.63	29.8	C	0.59	37.2	D
			2050 Build	0.63	31.0	C	0.58	37.4	D
			Build - No-Build Difference	0.00	1.2	-	-0.01	0.2	-
6	Rancho/Carey	Signalized	2050 No-Build	0.80	40.3	D	0.81	42.1	D
			2050 Build	0.73	35.7	D	0.69	33.6	C
			Build - No-Build Difference	-0.07	-4.6	-	-0.12	-8.5	↑
9	Carey/Simmons	Signalized	2050 No-Build	0.57	45.7	D	0.67	46.5	D
			2050 Build	0.67	24.2	C	0.61	33.4	C
			Build - No-Build Difference	0.10	-21.5	↑	-0.07	-13.1	↑
10	Rancho/Lake Mead	Signalized	2050 No-Build	0.85	45.2	D	**0.95**	**58.2**	**E**
			2050 Build	0.86	48.5	D	**1.02**	**69.6**	**E**
			2050 Build-Mitigation	0.81	44.0	D	**0.92**	53.4	D
			Build-Mit. - No Build Difference	-0.04	-1.2	-	-0.03	-4.8	-
12	Lake Mead/Walmart Dwy	Signalized	2050 No-Build	0.25	15.2	B	0.34	14.9	B
			2050 Build	0.25	15.2	B	0.34	14.9	B
			Build - No-Build Difference	0.00	0.0	-	0.00	0.0	↑
14	Lake Mead/Simmons	Signalized	2050 No-Build	0.61	47.8	D	0.64	44.9	D
			2050 Build	0.65	48.3	D	0.70	45.6	D
			Build - No-Build Difference	0.05	0.5	-	0.06	0.7	-
15	Lake Mead/Hylo Park Dwy	Signalized	2050 No-Build	0.36	37.7	D	0.47	26.6	C
			2050 Build	0.36	37.7	D	0.47	26.6	C
			Build - No-Build Difference	0.00	0.00	-	0.00	0.0	-

v/c - Volume-to-capacity ratio
Delay - seconds/vehicle
Intersection #2 mitigation consists of addition of NB exclusive right-turn lane
Intersection #3 mitigation consists of addition of SB dual left-turn lanes and EB exclusive right-turn lane
Intersection #10 mitigation consists of addition of EB dual left-turn lanes and WB exclusive right-turn lane

As shown in Table 3, with the No-Build Alternative, without the vacation and realignment of Carey Avenue, the intersections of Decatur/Cheyenne, Simmons/Cheyenne and Rancho/Lake Mead are expected to deteriorate to LOS E by the year 2050. Additionally, those intersections are projected to operate at volume-to-capacity

(v/c) ratios over 90 percent in one of the two peak hours. The 2050 operations at these three intersections are projected to further deteriorate to varying degrees with the Build Alternative as noted below.

- At Decatur/Cheyenne, the Build Alternative is projected to slightly increase the PM peak hour v/c from 0.91 to 0.93, and the delay from 61.1 seconds per vehicle (s/veh) to 62.9 s/veh.
- At Simmons/Cheyenne, the Build Alternative is projected to slightly increase the AM peak hour v/c from 0.94 to 0.96, and the delay from 66.3 s/veh to 67.5 s/veh.
- At Rancho/Lake Mead, the Build Alternative is projected to increase the PM peak hour v/c more substantially from 0.95 to 1.02 (overcapacity), and the delay from 58.2 s/veh to 69.6 s/veh.

The other eight study area intersections are projected to operate at LOS D or better and at v/c ratios at or below 80 percent under both 2050 No-Build and 2050 Build Alternatives. It should be noted that this includes the planned driveways on Lake Mead Boulevard for the Hylo Park development that are expected to operate at level of service D or better in the year 2050.

It is recommended that the following improvement measures be considered to reduce intersection delays from forecast growth through the year 2050 with or without the vacation and realignment of Carey Avenue.

- At Decatur/Cheyenne, it is recommended that an exclusive NB right-turn lane be considered. This improvement is projected to result in a 2050 Build Alternative PM peak hour intersection v/c of 0.87, and delay of 56.2 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The NB right-turn lane would require right-of-way from the Airport site.
- At Simmons/Cheyenne, it is recommended that SB dual left-turn lanes and an exclusive EB right-turn lane be considered. These improvements are projected to result in a 2050 Build Alternative AM peak hour intersection v/c of 0.82, and delay of 55.6 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The SB dual lefts can be provided within existing right-of-way by narrowing lanes. The EB right-turn lane would require right-of-way from the Airport site.
- At Rancho/Lake Mead, it is recommended that EB dual left-turn lanes and an exclusive WB right-turn lane be considered. These improvements are projected to result in a 2050 Build Alternative PM peak hour intersection v/c of 0.92, and delay of 53.4 s/veh (See Table 3). These values are lower than projected 2050 No-Build metrics. The EB dual lefts can be provided within existing right-of-way by narrowing lanes. The WB right-turn lane would require right-of-way from the Hylo Park site.

While these recommended improvements should be considered to reduce delay for both the Build and No-Build Alternatives, the vacation and realignment of Carey Avenue is only a significant contributor to future congestion in the Rancho/Lake Mead Intersection. As mitigation for increasing traffic on Lake Mead Boulevard with the Build Alternative, the acquisition of right-of-way and construction of a WB right-turn Lane in the Rancho/Lake Mead Intersection is proposed. This recommended improvement could be coordinated with the planned development of Hylo North. While traffic volumes on Cheyenne Avenue are not expected to significantly increase with the vacation and realignment of a segment of Carey Avenue, dedication of Airport property for the construction of right-turn lanes on NB Decatur Boulevard at Cheyenne Avenue and on EB Cheyenne Avenue at Simmons Street is recommended, in the long term, to reduce future congestion with or without the vacation and realignment of Carey Avenue.

B. Left-turn Queue Storage Analyses

Table 4 presents a comparative summary of left-turn storage lanes analyses for existing, 2050 No-Build, and 2050 Build Alternatives.

Table 4. Left-Turn Queue Storage Analyses With and Without Vacation of Carey Avenue

ID #	Intersection	Approach	Peak Hour	Queuing Interval	Volume (vph)			Design Queue (ft)[1]			Existing Storage (ft)			Proposed 2050 Storage (ft)		
					2024 Existing	2050 No-Build	2050 Build	2024 Existing	2050 No-Build	2050 Build	Ln 1	Ln 2	Total	Ln 1	Ln 2	Total
1	Rancho/ Cheyenne	NB	PM	160	242	288	273	404	467	447	350	400	750	Same		
		SB	AM	160	209	272	274	358	445	448	350	400	750	Same		
		EB	PM	160	53	63	65	122	139	142	300		300	Same		
		WB	AM	160	108	131	136	210	245	252	300[2]		300[2]	Same		
2	Decatur/ Cheyenne	NB	PM	160	6	7	7	28	31	31	200[2]		200[2]	Same		
		SB	AM	160	153	189	189	277	329	329	325[2]	325[2]	650[2]	Same		
		EB	AM	160	134	170	176	249	302	311	375[2]		375[2]	Same		
		WB	AM	160	202	236	245	348	395	408	225		225	**500**		**500**
3	Simmons/ Cheyenne	NB	PM	160	241	408	432	402	629	660	275	350	625	**325**	**375**	**700**
		SB	AM	160	250	393	411	415	609	633	300		300	**300**	**350**	**650**
		EB	PM	160	120	151	158	228	274	285	225[2]		225[2]	Same		
		WB	AM	160	155	194	196	280	336	339	200		200	**200**	**250**	**450**
4	Rancho/ Decatur (N)	NB	PM	160	15	18	17	50	57	55	250		250	Same		
		SB	PM	160	12	14	14	43	48	48	100		100	Same		
		EB	PM	160	10	13	13	39	46	46	50		50	Same		
		WB	AM	160	1262	1547	1569	1710	2060	2087	290[2]	580[2]	870[2]	Same		
5	Rancho/ Decatur (S)	NB	PM	160	25	29	28	71	79	77	250		250	Same		
		SB	AM	160	45	54	54	108	124	124	350		350	Same		
		EB	PM	160	989	891	909	1372	1249	1272	440[2]	880[2]	1320[2]	Same		
		WB	AM	160	6	8	8	28	33	33	75		75	Same		
6	Rancho/ Carey	NB	PM	160	172	222	213	305	376	363	250	300	550	Same		
		SB	PM	160	96	115	113	192	221	218	300		300	Same		
		EB	PM	160	34	46	33	88	110	86	225[2]		225[2]	Same		
		WB	AM	160	154	210	153	279	359	277	235		235	**275**		**275**
9	Carey/ Simmons	NB	AM	160	32	62	-	85	137	-	250[2]		250[2]	Same		
		SB	AM	160	147	247	260	269	411	429	350		350	**450**		**450**
		EB	PM	160	184	214	-	322	365	-	220		220	na		
		WB	PM	160	67	74	692	145	157	997	200		200	**525**	**525**	**1050**
10	Rancho/ Lake Mead	NB	PM	160	144	175	180	264	309	316	325	375	700	Same		
		SB	AM	160	169	225	211	301	380	360	200	250	450	Same		
		EB	PM	160	102	163	163	201	292	292	400		400	**300**	**300**	**600**
		WB	AM	160	91	171	198	184	303	342	150	200	350	Same		
12	Lake Mead/ Walmart Dwy	EB	PM	160	16	27	27	52	75	75	200		200	Same		
		WB	PM	160	3	40	40	18	99	99	200		200	Same		
14	Simmons/ Lake Mead	NB	PM	160	62	68	68	137	147	147	175		175	Same		
		SB	AM	160	200	289	289	345	469	469	115[2]		115[2]	**250**	**250**	**500**
		EB	PM	160	93	130	426	187	243	652	200[2]		200[2]	**250**	**250[2]**	**500[2]**
		WB	AM	160	84	145	151	173	266	274	200[2]		200[2]	Same		
15	Lake Mead/ Walmart Dwy	EB	AM	160		64	64	0	141	141	100		100	Same		
		WB	AM	160		136	136	0	252	252	na			350		350

[1] Signalized 95th % Queue = [(vehicle/interval)+Z(vehicle/interval)^0.5]*25 ft/veh
where,
(veh/interval) = VPH/3600 sec/hr x queuing interval (cycle length),
Z = 1.645 for 95% confidence level (one-tailed test),
25 feet = assumed vehicle length.

[2] Queue may extend into drop lane or two-way left-turn lane

Note: For multiple left-turn lanes, Lane 1 is left-most turn lane and Lane 2 is right-most turn lane. If a 3rd lane exists its storage included with Lane 2

It is recommended that the following intersection left-turn storage lane improvement measures be considered to accommodate forecast traffic through the year 2050 with and/or without the vacation and realignment of Carey Avenue.

- Decatur Boulevard/Cheyenne Avenue:
  - Lengthening of the WB left-turn storage lane. There is available raised median area to accommodate the lengthening.
- Simmons Street/Cheyenne Avenue:
  - Lengthening of NB dual left-turn lanes.
  - SB dual left-turn lanes.
  - Construction of WB dual left-turn lanes. This mitigation can be provided within existing right-of-way by narrowing lanes. Lengthening of the existing single-lane left-turn pocket would require prohibition of the east-to-north left-turn to Ernest Street.
- Rancho Drive/Carey Avenue:
  - Lengthening of the WB left-turn storage lane. This improvement is needed to accommodate projected traffic from the Hylo North project.
- Carey Avenue/Simmons Street:
  - Lengthening of the SB left-turn storage lane. There is available raised median area to accommodate the lengthening.
  - With the proposed vacation of Carey Avenue west of Simmons Street, the east leg median should be reconfigured to provide dual left-turn lanes that are each 525 feet in length.
- Rancho Drive/ Lake Mead Boulevard:
  - EB dual left-turn lanes.
- Simmons Street/Lake Mead Boulevard:
  - With the proposed vacation of Carey Avenue, the reconfiguration of the SB approach to provide dual left-turn lanes. This can be provided within existing right-of-way since SB Simmons Street reduces to a single lane south of Lake Mead Boulevard.
  - With the proposed vacation of Carey Avenue, the reconfiguration of the EB approach to include two left-turn lanes and two through lanes (vs. existing single left and three through lanes).

Proposed turn lane improvements for the near term, in conjunction with the vacation and realignment of Carey Avenue, and in the long-term to accommodate growth to the year 2050 are shown schematically in Figure 9.

C. Changes in Travel Time and Travel Distance with the Vacation and Realignment of Carey Avenue

Vehicle hours of travel (VHT) and vehicle miles of travel (VMT) were calculated for the 2050 TransCad No-Build Traffic Forecast and for the 2050 TransCad Build Traffic Forecast. The increase or decrease in VHT and VMT with the Build Alternative is shown in Table 5.

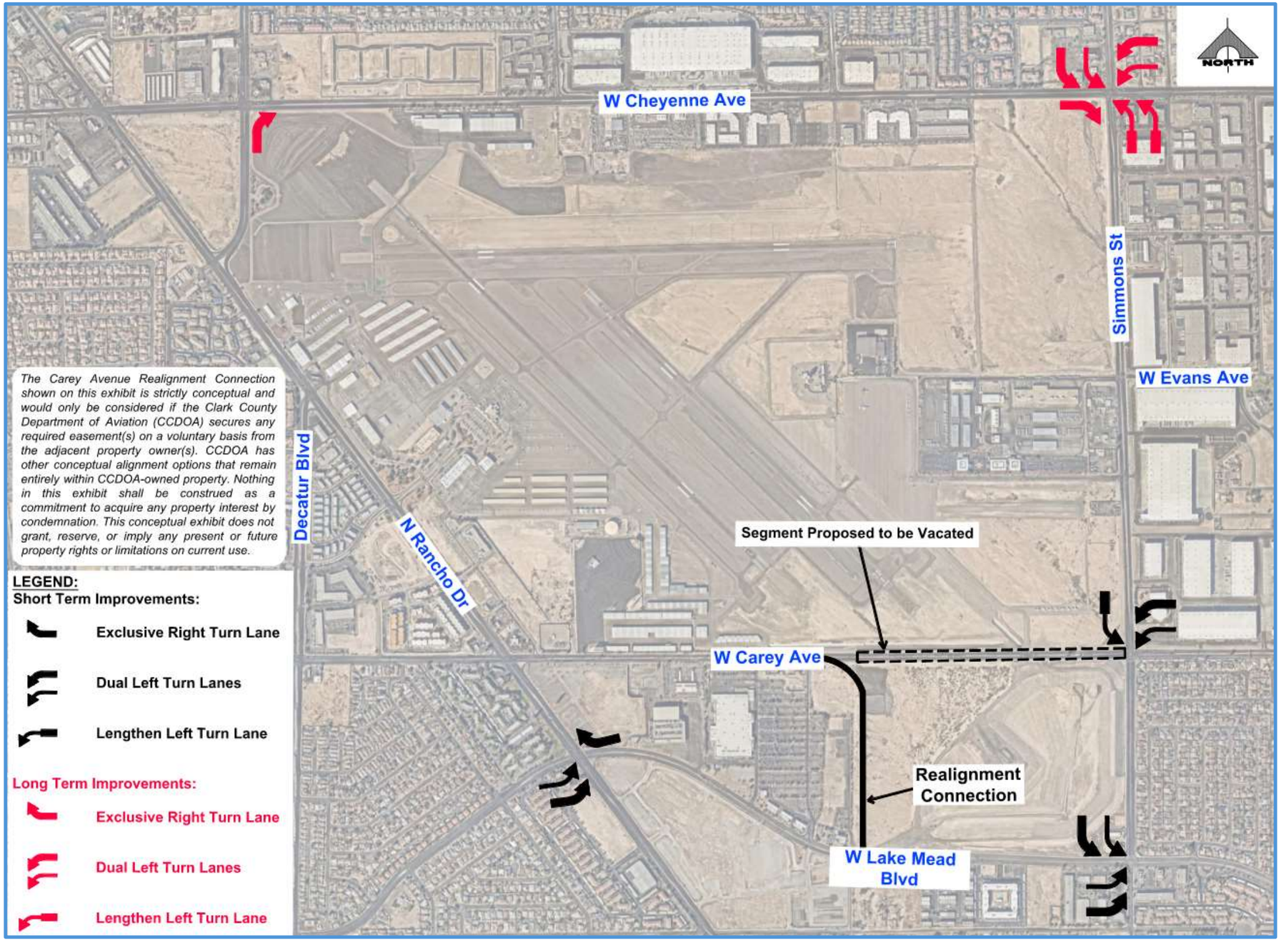


Figure 9. Recommended Turn Lane Improvements for the Build Alternative

Table 5. Increase or (Decrease) in year 2050 Vehicle Hours of Travel (VHT) and Vehicle Miles of Travel (VMT) with the Vacation and Realignment of Carey Avenue (with the Build Alternative) compared to the No-Build Alternative

Daily		AM Peak Period (7:00 – 9:00)		PM Peak Period (4:00 – 6:00)	
VHT	VMT	VHT	VMT	VHT	VMT
(18)	(2,104)	26	(142)	19	24

On a regional basis, during the PM peak period, from 4:00 to 6:00 PM, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in an additional 19 vehicle hours of travel and an additional 24 vehicle miles of travel for area motorists.

During the AM peak period, from 7:00 to 9:00 AM, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in an additional 19 vehicle hours of travel, but a decrease of 142 vehicle miles of travel.

However, regionally, on a daily basis, the vacation and realignment of Carey Avenue (Build Alternative) would be expected to result in a decrease of 18 vehicle hours of travel and a decrease of 2,104 vehicle miles of travel for area motorists.

One way to interpret the data in Table 5 is that, in the year 2050, Carey Avenue may not offer the shortest route between origins and destinations but may provide fastest travel times as the arterial street network becomes congested during peak hours.

VIII. CONCLUSIONS AND PROPOSED MITIGATION

With the vacation and realignment of a segment of Carey Avenue west of Simmons Street, an estimated 59% of the traffic on Carey Avenue would be expected to use Lake Mead Boulevard as an alternate route. While this has an adverse impact on the Lake Mead Boulevard/Rancho Drive intersection, analyses indicate that the impact can be mitigated to maintain LOS D in the intersection through the year 2050. The recommended mitigation would consist of providing eastbound dual left-turn lanes and acquiring right-of-way to provide an exclusive westbound right-turn lane, as reflected in Figure 9.

With the intersection improvements shown in Figure 9, all study area intersections are projected to operate at LOS D or better under the 2050 Build Alternative with the exception of the Decatur Boulevard/Cheyenne Avenue and Simmons Street/Cheyenne Avenue intersections. However, with the recommended improvements, these two intersections are projected to operate very near the LOS D/E threshold of 55 s/veh and at v/c ratios less that 90 percent. Additionally, they are projected to operate with lower delays and v/c ratios than under the No-Build Alternative. Proposed mitigation, needed in the long-term, would include dedicating Airport right-of-way for dedicated right-turn lanes on NB Decatur Boulevard at Cheyenne Avenue and on EB Cheyenne Avenue at Simmons Street.

In the year 2050, on a regional basis, the vacation and realignment of Carey Avenue would not be expected to result in an overall collective increase in daily travel time or daily travel distance for area motorists. However, during peak periods, for many motorists, Carey Avenue would no longer be available to serve as a faster route to avoid more congested arterials.

Most existing and planned businesses located in the area bounded by Carey Avenue to the north, Rancho Drive to the west, Lake Mead Boulevard to the south and the Airport detention basin to the east, have access from

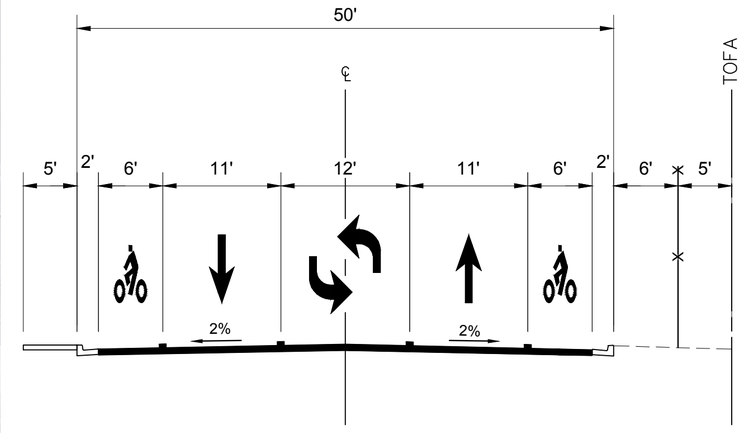
both Carey Avenue and Lake Mead Boulevard. Therefore, accessibility for the majority of the existing and planned businesses in this area will not be substantially changed.

The proposed Carey Avenue Realignment Connection from Carey Avenue to Lake Mead Boulevard near the Allen Lane alignment is recommended as mitigation to maintain access and circulation for the commercial properties located between Carey Avenue and Lake Mead Boulevard east of Rancho Drive.

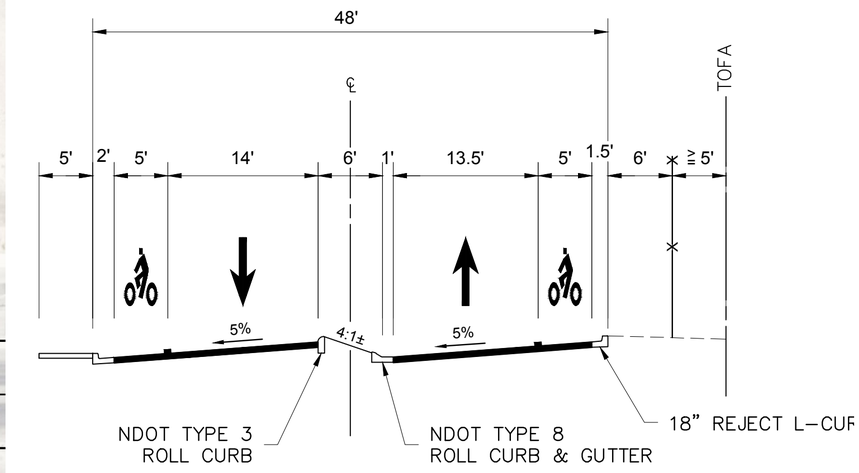
As previously noted, the Carey Avenue Realignment connection from Carey Avenue to Lake Mead Boulevard on the Allen Lane alignment was modeled for traffic analysis as a four-lane roadway. However, the network traffic volumes it is projected to attract are far below levels warranting a four-lane roadway, and it does not appear that its intersection with Lake Mead Boulevard would warrant traffic signal control. It is recommended that this connection be constructed as a two-lane street with left-turn lanes at access points. (i.e., 60-foot collector with 50-foot back-of-curb width).

It is recommended that the following features also be considered for the Carey Avenue Realignment Connection:

- Locating the Carey Avenue Realignment Connection intersection with Lake Mead Boulevard approximately 140 feet east of the Allen Lane alignment (center-to-center) so that an east-to-north left-turn lane can be provided that is 150 feet or more in length and separated from the Walmart Driveway on Lake Mead Boulevard. This turn pocket would be end-to-end with the west-to-south left-turn lane to the Lake Mead Boulevard/Walmart Driveway.
- Channelization that would keep the south leg of the Allen Lane intersection with Lake Mead Boulevard right-in right-out.
- Incorporation of underground improvements at the Carey Avenue Realignment Connection intersection with Lake Mead Boulevard to facilitate possible future traffic signal control.



SECTION A–A



SECTION B-B



DISCLAIMER:
THE CAREY AVENUE REROUTE CONNECTION ALIGNMENT SHOWN ON THIS EXHIBIT IS STRICTLY CONCEPTUAL AND WOULD ONLY BE CONSIDERED IF THE CLARK COUNTY DEPARTMENT OF AVIATION (CCDOA) SECURES ANY REQUIRED EASEMENT(S) ON A VOLUNTARY BASIS FROM THE ADJACENT PROPERTY OWNER(S). CCDOA HAS OTHER CONCEPTUAL ALIGNMENT OPTIONS THAT REMAIN ENTIRELY WITHIN CCDOA–OWNED PROPERTY. NOTHING IN THIS EXHIBIT SHALL BE CONSTRUED AS A COMMITMENT TO ACQUIRE ANY PROPERTY INTEREST BY CONDEMNATION. THIS CONCEPTUAL EXHIBIT DOES NOT GRANT, RESERVE, OR IMPLY ANY PRESENT OR FUTURE PROPERTY RIGHTS OR LIMITATIONS ON CURRENT USE.

CCDOA Project No.
CBE-1217
Date:
JULY 15, 2025
Drawing Number
EXH 2

Rev.	Date	Description

DEPARTMENT OF AVIATION
CLARK COUNTY NEVADA

CAREY AVENUE RELIGNMENT CONNECTION
(DRIVEWAY RELOCATION ALTERNATIVE 2)
Sheet Title

CAREY AVENUE VACATION TRAFFIC STUDY
Clark County Department of Aviation Project Title

DOA Approval

Consultant

GCW ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD LAS VEGAS, NV 89146
T: 702.804.2000 gcwengineering.com
A/E

PLEASE RECYCLE

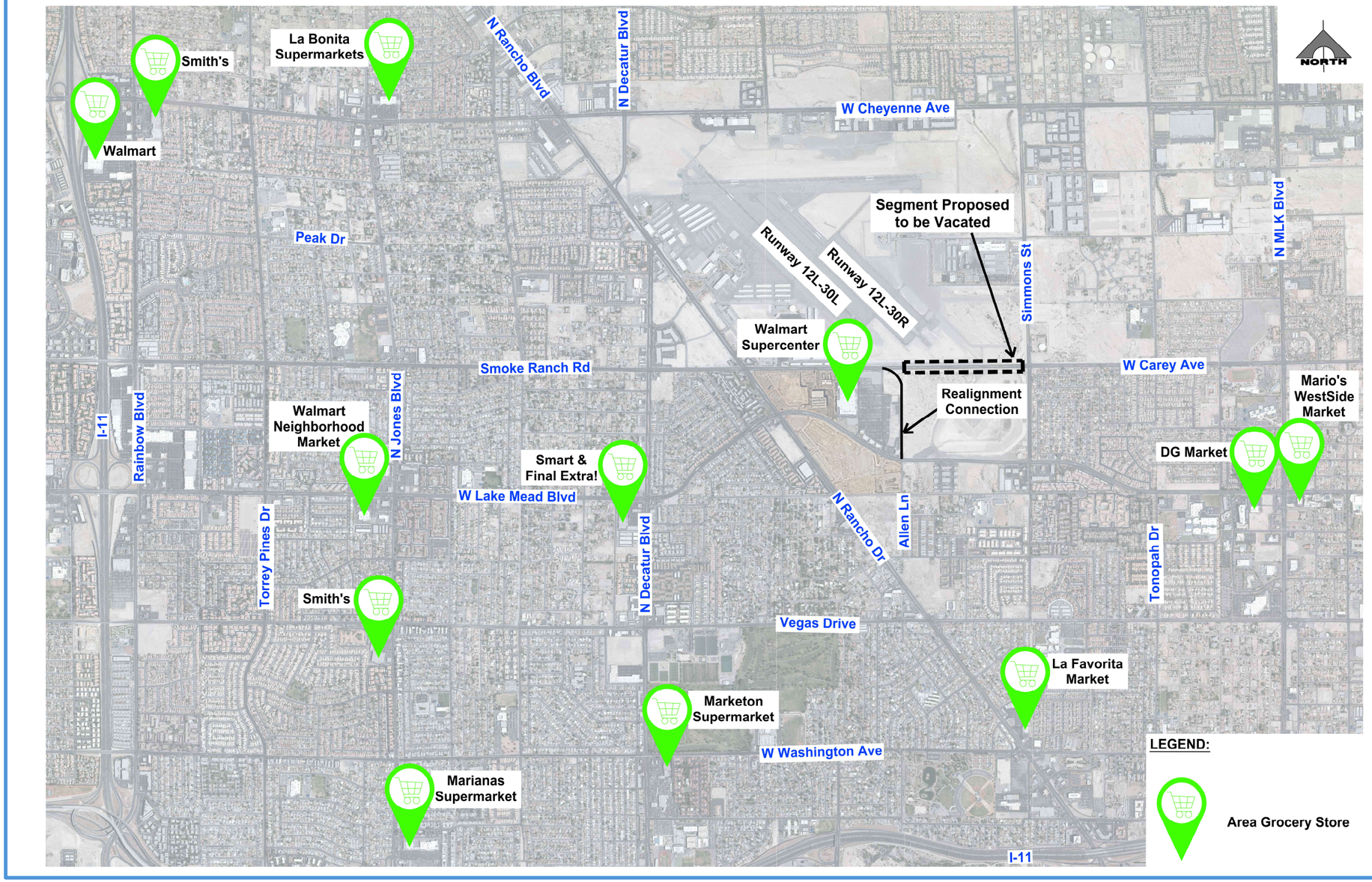


Figure A2.1 Area Grocery Stores

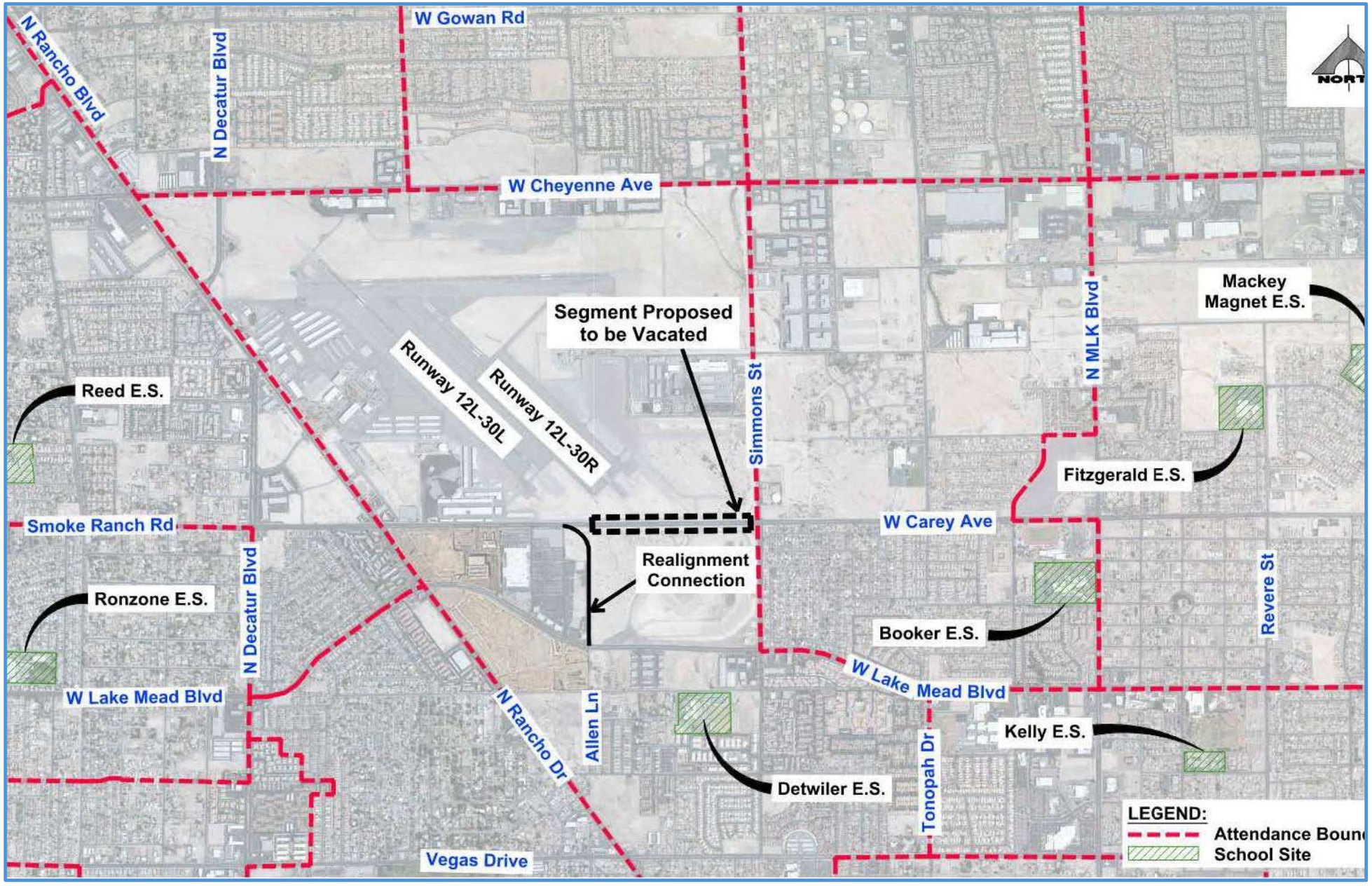


Figure A3.1 Area Elementary Schools (Walk Route Not Impacted)

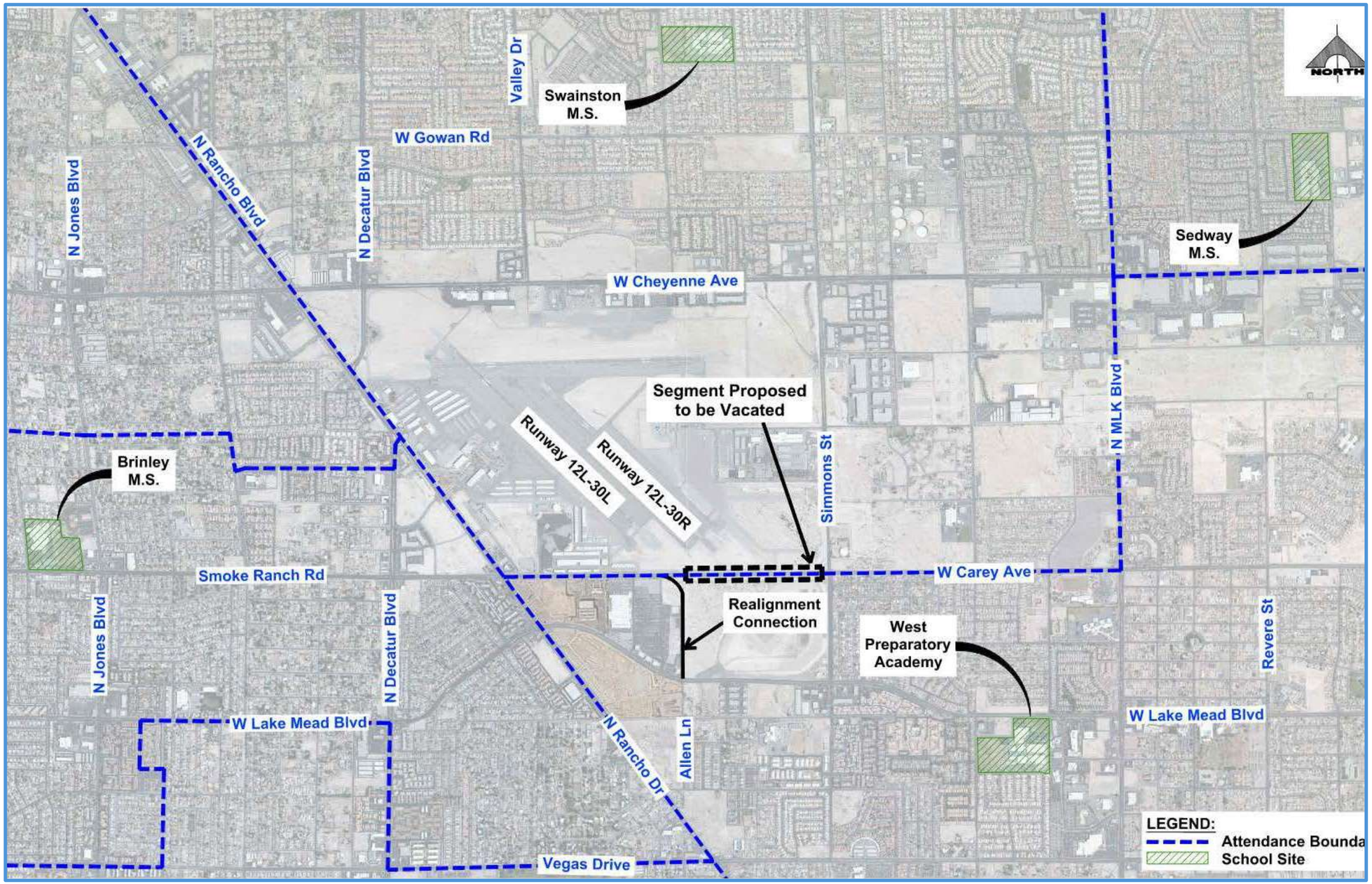


Figure A3.2 Area Middle Schools (Walk Route Not Impacted)

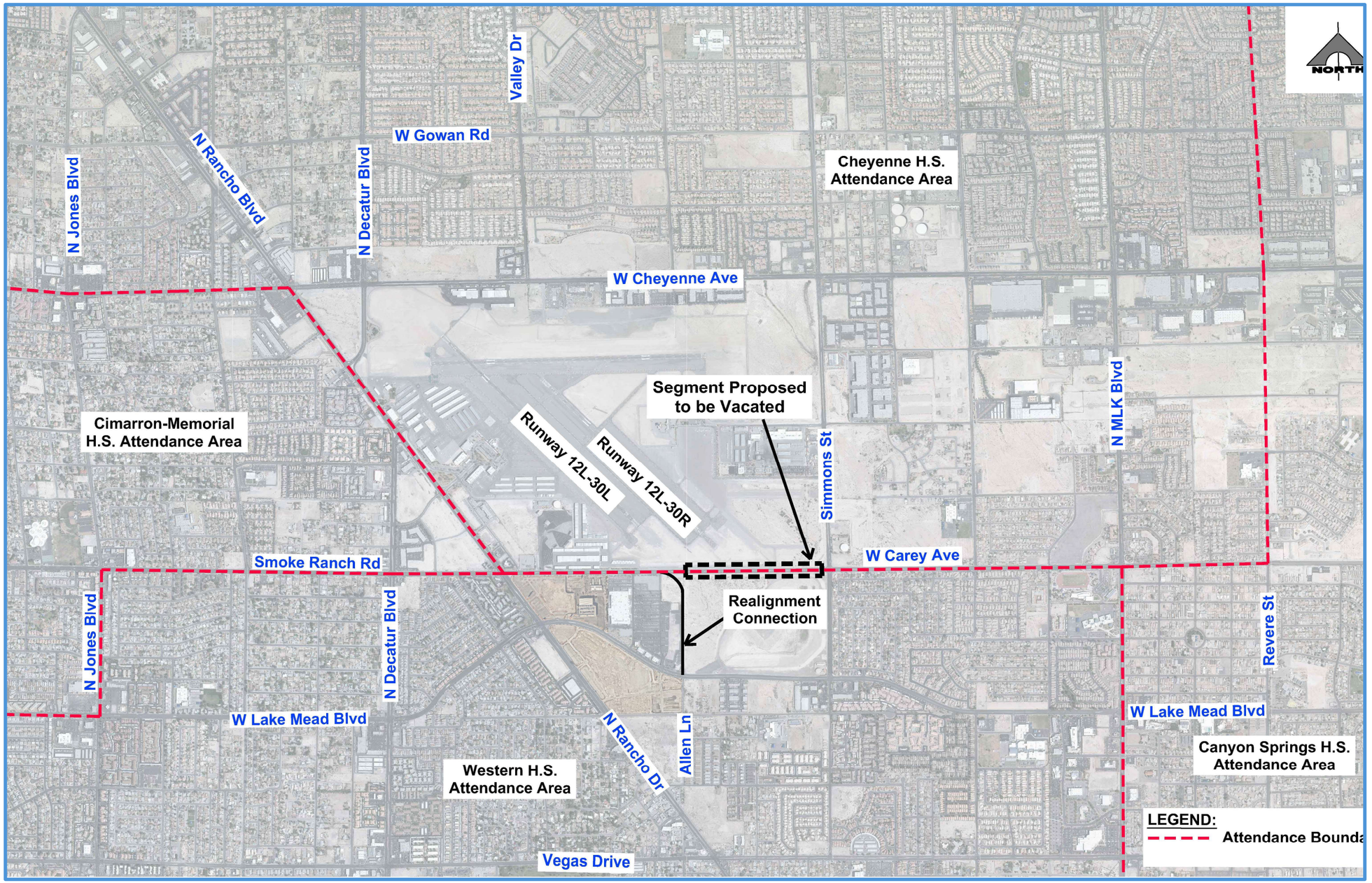


Figure A3.3 Area High Schools (Walk Route Not Impacted)



Appendix D

Utilities Plan





VGT



North Las Vegas Airport Master Plan

Utilities Plan

Prepared By: HNTB

March 2025







Utilities Plan

Background

The existing utility infrastructure locations, please see **Figure – E1,** in relation to the proposed North Las Vegas Airport improvements and partial Carey Avenue closure and vacation (the proposed "Carey re-route") are documented in this section, along with new proposed alternative alignments. Carey Avenue is a 100-foot-wide right-of-way road along the proposed Carey-re-route segment. GCW, Inc. is preparing a traffic study for the proposed Carey re-route which will include the proposed new roadway alignment for the Carey re-route. Please note that the Carey re-route alignment shown on the Overall Proposed Utilities, please see **Figure – P1,** is preliminary and does not reflect the final recommended alignment by GCW, Inc. The utility services that may be impacted by the proposed improvements include:

- Potable water
- Sanitary Sewer
- Stormwater
- Natural Gas
- Electrical
- Communications

The objectives of the utility investigations were to:

1. Identify existing utilities in the vicinity of the proposed Airport improvements to determine whether any conflicts would occur with future development and operations of the proposed improvements.
2. Determine if the existing utilities could be protected in place in the vicinity of the proposed Airport improvements.
3. Determine utility alignments to relocate existing utilities from the proposed area of Airport improvements and reroute these utilities around the future Airport improvements.
4. Prepare preliminary cost estimates for the relocation of utility services around the proposed Airport improvements.

During the review, the type of utility, the provider or source of the utility, the size of the utility, the approximate length of utility in conflict with the proposed Airport improvements were identified. Each utility provider was contacted to obtain the latest information on the existing utility infrastructure, as-builts, and the findings are documented herein.

Summary of Utilities

Utility	Owner	Size	Material	Approx. Length
Water	**SNWA**	**24-inch**	**MLCP**	**2,000 ft**
Water	**SNWA**	**24-inch**	**ACP**	**2,800 ft**
Water	**CNLV**	**24-inch**	**Steel**	**3,000 ft**
Water	**CNLV**	**16-inch**	**ACP**	**4,000 ft**
Water	**CNLV**	**12-inch**	**ACP**	**2,000 ft**
Sanitary Sewer	**CNLV**	**12-inch**	**PVC**	**2,700 ft**
Sanitary Sewer	**CNLV**	**8-inch**	**PVC**	**2,600 ft**
Storm Drain	**CNLV**	**66-inch**	**RCP**	**700 ft**
Storm Drain	**CNLV**	**60-inch**	**RCP**	**1,700 ft**
Storm Drain	**CNLV**	**54-inch**	**RCP**	**1,200 ft**
Storm Drain	**CNLV**	**24-inch**	**RCP**	**1,200 ft**
Storm Drain	**CNLV**	**18-inch**	**RCP**	**1,400 ft**
Storm Drain	**CCRFCD**	**14 ft x 8 ft**	**RCB**	**750 ft**

Utility	Owner	Size	Material	Approx. Length
Storm Drain	CCRFCD	11 ft x 11 ft	RCB	1,700 ft
Flood Channel	CCRFCD	14 ft w x 8 ft d trapezoid	Concrete Lined	2,400 ft
Gas	SW Gas	8-inch High Pressure	Steel	4,500 ft
Gas	SW Gas	4-inch	PE	6,300 ft
Gas	SW Gas	2-inch	PE	500 ft
Electrical Power	NV Energy	Overhead	Cable	5,200 ft
Electrical Power	NV Energy	Underground	Cable/Conduit	12,000 ft
CATV	Cox	Overhead	Cable	4,500 ft
CATV	Cox	Underground	Cable/Conduit	2,500 ft

Potable Water

Existing Conditions

There are several potable waterlines located in the vicinity of the North Las Vegas Airport future improvements. The potable waterlines are currently located in Carey Avenue. The City of North Las Vegas (CNLV) operates and maintains two (2) potable waterlines, a 24-inch Steel transmission waterline and a 12-inch increasing to 16-inch Asbestos Cement Pipe (ACP) distribution waterline in the northside of Carey Avenue. The Southern Nevada Water Authority (SNWA) operates and maintains a 24-inch Mortar Lined and Coated Pipe (MLCP) waterline that transitions to a 24-inch ACP waterline in southside of Carey Avenue. The existing water lines are shown on **Figure – E2**. There is existing right of way easement for the SNWA 24-inch MLCP waterline; the easement is 30 ft wide along the southside of Carey Avenue.

Proposed Conditions

From discussions with CNLV, it was determined that the city will consider allowing the 24-inch steel transmission waterline to be protected in place, provided that CNLV would have 24-hour accessibility to maintain the facility. The 12-inch increasing to 16-inch ACP distribution waterline, per CNLV will most probably need to be relocated as the waterline requires to be maintained at a more frequent interval due to the age and condition of the pipeline. If this pipeline, was not relocated then access to the line could present the possibility of requiring runway closures more frequently impacting Airport operations. Please note, the 12-inch to 16-inch ACP waterline consists of an asbestos material and will need to be handled per local and state safety guidelines and disposed of appropriately at a landfill that accepts asbestos material. This will require special permitting and standard third-party observation to confirm asbestos is handled appropriately. Any ACP material not exposed will need to be abandoned per CNLV and Uniform Design and Construction Standards for Potable Water Systems (UDACS) guidelines and requirements. The relocation of the 12-inch to 16-inch ACP waterline will consist of abandoning in place the 16- inch ACP existing waterline and realigning a new segment in the proposed reroute of Carey Avenue south along the old Allen Road alignment and connecting to Lake Mead Boulevard. In the proposed new Carey Avenue roadway alignment, a new 16-inch PVC waterline, approximately 2,000 feet in length, will need to be constructed and connected to an existing 12-inch waterline located in Lake Mead Boulevard. Please see **Figure – P2**.

Per discussion with SNWA it was determined that the existing waterline will most probably need to be relocated due to accessibility requirements. Further discussion discovered the portion of the 24-inch waterline to be ACP material, which is conflict with the proposed pavement section for airfield taxiways and runways. Special consideration will need to be taken as any exposure will require the asbestos to be mitigated and disposed at approved landfills. If ACP is exposed, it will need to be properly disposed of along with additional permitting. Any ACP material not exposed will need to be abandoned per SNWA guidelines and requirements. A relocation of the 24-inch ACP waterline would consist of abandoning in place the 24-inch ACP and 24-inch MLCP existing waterlines in Carey Avenue and Simmons Street. The new 24-inch MLCP waterline would be constructed in the reroute of Carey Avenue south along the old Allen Road

alignment, approximately 2,000 ft, then east in Lake Mead Boulevard, approximately 2,680 ft then north in Simmons Street, approximately 300 ft and connecting to the 24-inch SNWA Twin Lakes discharge pipeline. Please see **Figure – P2**. SNWA also expressed interest in replacing or relocating an additional ACP waterline not impacted by the future North Las Vegas Airport improvement project. This additional work would be funded by SNWA and not CCDOA.

Sanitary Sewer

Existing Conditions

Several sanitary sewer pipelines and manholes are in the vicinity of the North Las Vegas Airport future improvements. The sanitary sewer pipelines and manholes are currently located in Carey Avenue. The City of North Las Vegas (CNLV) operates and maintains two (2) sanitary sewer main pipelines, 8-inch and 12-inch polyvinyl chloride (PVC), and multiple 48-inch manholes in Carey Avenue. In addition, the 8-inch sewer pipeline terminates in Carey Avenue just south of Runway 12R-30L turning south to follow the old alignment of Allen Road and connecting to an existing 12-inch PVC sanitary sewer pipeline in Lake Mead Boulevard. The existing sewer lines are shown on **Figure – E3**.

Proposed Conditions

From discussion with CNLV it was determined that the 8-inch and the 12-inch PVC sanitary sewer pipelines will most probably need to be relocated as the sanitary sewer pipelines require maintenance and 24-hour access for any emergency repair. A relocation of 12-inch PVC sanitary sewer pipeline would consist of abandoning in place for approximately 2,640 ft in Carey Avenue to Simmons Street. A portion of the existing 8-inch PVC sewer pipeline, approximately 450 ft, would need to be abandoned. A new 12-inch sanitary sewer pipeline would be constructed, to replace the 8-inch and 12-inch sewer pipeline, in the reroute of Carey Avenue, beginning just south of Runway 12R-30L, south along the old Allen Road alignment, approximately 2,000 ft, then connecting to the existing 12-inch sanitary sewer pipeline in Lake Mead Boulevard. Please note: the existing 12-inch PVC sanitary sewer pipeline in Lake Mead Boulevard and in Simmons Street would need to be analyzed for capacity and possible upsizing to a 15-inch sanitary sewer pipeline due to the relocation and increased flows. Also, new 48-inch manholes would need to be constructed with the new 12-inch sanitary sewer pipeline. If it is determined that the existing12-inch sanitary sewer pipeline will need to be increased to a 15-inch pipeline for additional capacity, 60-inch manholes would need to be constructed per CNLV and the Uniform and Construction Standards for Wastewater Collection Systems (UCSWCS) Guidelines. An additional option would be to install a parallel 12-inch sewer pipeline in Lake Mead Boulevard and Simmons Street to protect the existing 12-inch sewer pipeline and prevent the need for bypass pumping of sewage effluent would be mitigated. Please see **Figure – P3**.

Storm Water

Existing Conditions

There are several stormwater facilities located in the vicinity of the North Las Vegas Airport future improvements. The stormwater facilities are located in Carey Avenue. The City of North Las Vegas (CNLV) has two (2) storm drains, a 1,400 ft long 18-inch in diameter reinforced concrete pipe (RCP) storm drain, aligned in the center median that transitions into a 1,200 ft long 24-inch RCP and a 1,700 ft long 60-inch RCP storm drain, in the southside of Carey Avenue, that transitions into a 700 ft long 66-inch RCP and also into a 1,200 ft long 54-inch RCP closer to Simmons Street. Clark County Regional Flood Control District (CCRFCD) has a 2,400 ft long 14-foot wide 8 ft deep 1.5 to 1 side slope concrete lined trapezoid channel along the north side of Carey Avenue on Airport property. The storm water conveyance facilities drain into the existing CCRFCD Carey-Lake Mead Detention Basin (facility ID no. LVLM0228). The detention basin is categorized as 607-acre-foot facility and the CCRFCD 2023 Master Plan Update (MPU) does not require additional capacity at this facility. Please see **Figure – E4**.

Proposed Conditions

The existing storm water facilities, mentioned above, are in conflict with the future North Las Vegas Airport runway extension improvements. From discussion with CNLV it was determined that the city will consider protecting in place the 2 storm drains in the Carey Avenue alignment, however CNLV would need access to maintain the facilities. At this stage of planning, it has not been determined what kind of protection is needed. With protection of the storm drains, further analysis will need to be performed to determine the loads of future aircraft and runway grading for structural integrity of the storm drain pipelines. If it is determined that the existing storm drains cannot handle the future loads, the existing storm drains would need to be replaced with higher class RCP storm drainpipe. Please see **Figure** – **P4.**

Per discussion with CCRFCD it was determined that there are alternatives for the existing concrete lined trapezoid channel. Depending on the vertical alignment and grading of the runway extension, all or portions of the 14 ft wide by 8 ft deep 1.5 to 1 side slope trapezoid channel that are in conflict can be replaced with a 14 ft by 8 ft aircraft load rated reinforced concrete box culvert (RCBC) in its current location and alignment. The next alternative is to realign and construct a new 14ft wide 8 ft deep 1.5 to 1 side slope concrete lined trapezoid channel or construct a 14 ft by 8 ft RCBC along the reroute of Carey Avenue, beginning just south of Runway12R-30L, south along the old Allen Road alignment and then directly southeast, approximately 1,500 ft in length, connecting to the existing Lake Mead detention basin through a 14 ft by 8 ft RCBC inlet structure north of Lake Mead Boulevard on future airport air operations area (AOA) property. **Please see Figure – P4**.

Natural Gas (Southwest Gas)

Existing Conditions

There are several natural pipelines are in the vicinity of the North Las Vegas Airport future improvements. The natural gas pipelines are currently located in parts of Carey Avenue and Simmons Street. Southwest Gas operates and maintains a 4-inch polyethylene (PE) pipeline in Carey Avenue. In addition, there is a 4-inch PE pipeline stub-out that terminates 50 ft west of the Carey Avenue and Simmons Street intersection and an 8-inch High Pressure steel pipeline in a north/south alignment in Simmons Street. The existing natural gas pipelines are shown on **Figure – E5**.

Proposed Conditions

In review of the as-builts, there is a low likelihood of required Southwest Gas facility relocations under proposed conditions as current existing facilities lay outside the area proposed for the North Las Vegas Airport improvements.

Electrical (NV Energy Transmission and Distribution)

Existing Conditions

Several overhead and underground electrical power lines are in the vicinity of the North Las Vegas Airport future improvements. There are overhead and underground electrical transmission and distribution power lines currently located in Carey Avenue and Simmons Street. NV Energy operates and maintains overhead electrical transmission powerlines, one in south side of Carey Avenue 500 ft west of Simmons Street and transitioning to underground cables for 2,800 ft in 2 sets of three (3) 6-inch conduits that transition back to overhead powerlines 800 ft south of Carey Avenue. The overhead electrical transmission lines then traverse northwest 1,500 ft through a Walmart parking lot to Carey Avenue, then traversing west 1,600 ft in the south side of Carey to the existing Tonopah Substation just north of Carey Avenue and East of Rancho Drive. In addition, there is also an underground distribution line for 5,800 ft in 1 set of two (2) 6-inch conduits in the north side of Carey Avenue from the Tonopah Substation that provides power to the SNWA Simmons pumping station 500 ft north of the Carey Avenue and Simmons Street intersection. There are underground distribution lines in two (2) 4-inch conduits in south side of Carey and streetlights for the entire stretch of Carey Avenue on the north and south sides from Rancho Drive to Simmons Street. Overhead distribution powerlines are located on wood poles on the east side of Simmons Street north of Carey Avenue and also located on wood poles on the west side of Simmons Street South of Carey Avenue.

NV Energy also has several switch gears, fuse cabinets, ground mounted transformers, streetlight pedestals and numerous pull boxes along the Carey Avenue alignment. The existing electrical power lines are shown on **Figure – E6**.

Proposed Conditions

In review of the as-builts from NV Energy it was determined that there will not be a need to relocate any NV Energy facilities under proposed conditions as current existing facilities lay outside the area of the proposed North Las Vegas Airport improvements. Please note: Further coordination would be needed for the underground transmission facilities due to City of North Las Vegas having jurisdiction as NV Energy is under franchise agreement with the facilities located in the City of North Las Vegas right-of -way and CCDOA desire to vacate a portion of Carey Avenue.

Communications (Cox)

Existing Conditions

There are several Cox Communications facilities in the vicinity of the North Las Vegas Airport future improvements. The Cox Communications facilities are currently located in parts of Carey Avenue and Simmons Street. Cox Communications operates and maintains an underground cable television communications line in Carey Avenue. In addition, there is an overhead cable television communications line in a north/south alignment in Simmons Street. The existing Cox Communications cable television lines are shown on **Figure – E7**.

Proposed Conditions

In review of the as-builts, there is a low likelihood of required Cox Communications facility relocations under proposed conditions as current existing facilities lay outside the area of the proposed North Las Vegas Airport improvements.

Planning Information

Coordination meetings and as-built information were used to develop the proposed alternatives for each utility system that are in conflict with the proposed North Las Vegas Airport improvements. List of as-builts includes:

- Westside Transmission System Improvements West Valley Lateral, Carollo, Black & Veatch, October 1997
- Carey Avenue Widening, Rancho Drive to Clayton Street, The Keith Companies, August 2002
- Lake Mead Boulevard, Rancho to Tonopah, VTN Nevada, September 1990
- Carey / Lake Mead Detention Basin, VTN Nevada, June 1991
- Simmons Street Improvements, Carey to Cheyenne, VTN Nevada, May 2011
- 2023 Las Vegas Valley Flood Control District Master Plan Update, Atkins Realis Westwood, July 2023

Cost Analysis

Potable Water Cost Analysis

The potable water cost analysis incorporates material and construction costs per linear foot, which varies by pipe diameter. The cost per linear foot is based on the latest bid information from recent LVVWD projects. The table below summarizes the relocation pipe costs. Please note this cost includes full installation of the pipeline to include excavation, backfill up to pavement subgrade and appurtenances.

Pipe Diameter (inches)	Pipe Length (linear feet)	Costs Per Linear Foot	Total Estimated Cost
16	6,700	$400	$2,680,000
24 CNLV	6,700	$800	$5,360,000
24 SNWA	5,000	$800	$4,000,000
		Total	$12,040,000

Sanitary Sewer Cost Analysis

The sanitary sewer cost analysis incorporates material and construction costs per linear foot, which varies by pipe diameter. The cost per linear foot is based on the latest bid information from recent Clark County Public Works projects. The table below summarizes the relocation pipe costs and upsizing for capacity. Please note this cost includes full installation of the pipeline to include excavation, backfill up to pavement subgrade and appurtenances.

Pipe Diameter (inches)	Pipe Length (linear feet)	Costs Per Linear Foot	Installed Cost of Pipe
12	2,000	$240	$480,000
15	4,500	$500	$2,250,000
		Total	$2,730,000
Manholes (diameter inches)	Number (each)	Unit Cost	Installed Cost of Manholes
48	5	$8,000	$40,000
60	5	$15,000	$75,000
		Total	$115,000

Storm Water Cost Analysis

The storm water cost analysis incorporates material and construction costs per linear foot, which varies by pipe diameter. The cost per linear foot is based on the latest bid information from recent Clark County Public Works projects. The table below summarizes the relocation pipe costs. Please note this cost includes full installation of the pipeline to include excavation, backfill up to pavement subgrade and appurtenances.

Pipe Dimensions (feet)	Pipe Length (linear feet)	Costs Per Linear Foot	Installed Cost of Pipe
14 x 8	2,200	$2,400	$5,280,000
		Total	$5,280,000

Recommendations

Potable Water Recommendations

Further coordination will be needed with CNLV and SNWA for the 24-inch transmission pipelines due to operations and schedule of construction. It will need to be determined for what duration these facilities maybe taken out of service in order to perform the relocation work and put a plan in place. New pipeline alignments will require new permanent and temporary easements for construction. Also, the asbestos material pipelines should be encountered as minimal as possible as not to become friable. It is highly recommended to reach an agreement with the utility agencies to abandon in place a majority if not all of the pipeline. The timeline for design and construction of the water pipelines is estimated to be:

- Design – 12 months
- Construction – 9 months to 1 year

Sanitary Sewer Recommendations

It is recommended to leave the 8-inch and 12-inch sanitary sewer pipelines in Carey Avenue in service, while construction of the new 12-inch relocated sewer pipeline is installed. This would mitigate the need for temporary bypass pumping of effluent for the duration of construction, however when the new 12-inch sewer pipeline is completed a connect manhole will need to be installed and temporary bypass pumping will be needed to perform the connection. Coordination will be needed with CNLV due to operations and schedule of construction. It will need to be determined for what duration these facilities maybe taken out of service in order to perform the connection. Also, it is recommended to abandon in place the existing 8-inch and 12-inch sewer pipelines and provide a cap where necessary. The timeline for design and construction of the sanitary sewer pipelines is estimated to be:

- Design – 12 months
- Construction – 9 months to 1 year

Storm Water Recommendations

It is recommended to replace portions or all of the existing CCRFCD 14 ft wide 8 ft depth 1.5 to 1 side slope concrete lined channel and replace where the runway extension, taxiway and grading are in conflict with a new aircraft load rated 14 ft x 8 ft RCBC if earthwork, runway, and taxiway elevations permit. It is also recommended to protect in place the 2 existing storm drains in Carey Avenue due to CNLV's desire not to relocate the pipelines. Coordination will be needed with CNLV and CCRFCD with the facilities having some connection with each other as well as a reevaluation of storm water flows and capacity of facilities with hydraulics and schedule of construction. Temporary flood control mitigation will need to be put in place during the installation and seasonal rainfall will also need to be considered. The timeline for design and construction of the storm water pipelines is estimated to be:

- Design – 12 months
- Construction – 1 year

Natural Gas (Southwest Gas)

It is recommended to coordinate for courtesy with Southwest Gas any improvements around the North Las Vegas Airport. The timeline for design and construction of the natural gas pipelines is estimated to be:

- Design – N/A
- Construction – N/A

Electrical (NV Energy, transmission and distribution) Recommendations

It is recommended to work with NV Energy to not relocate the existing underground transmission powerlines if possible. The existing underground transmission lines in Carey Avenue were previously aerial facilities and were relocated underground as a joint effort between CCDOA, the FAA, and NV Energy to improve safety for air travel. Protecting in place the Carey Avenue underground transmission lines is dependent on future airfield grade elevations and NV Energy pull box / fuse cabinet spacing. NV Energy is currently experiencing a high backlog of design and construction workload, so if relocations are needed to occur is it recommended to perform an early work package and prioritize the relocation first as review and acceptance times have been long duration. SNWA has several facilities in the immediate area that are powered by the local NV Energy power infrastructure and coordination with these parties together is also recommended as the SNWA facilities feed adjacent CNLV potable water facilities. The timeline for design and construction of the electrical, if required, is estimated to be:

- Design – NV Energy to determine
- Construction – NV Energy to determine

Communications (Cox Communications)

It is recommended to coordinate for courtesy with Cox Communications any improvements around the North Las Vegas Airport. The timeline for design and construction of the communication lines is estimated to be:

- Design – N/A
- Construction – N/A



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - E7

EXISTING COMMUNICATIONS UTILITIES

DRAWING LEGEND

OH ELECTRICAL LINE	ELEC
UG ELECTRICAL LINE	UE
PROPERTY LINE	

R/W 12R-30L

R/W 12L-30R

W CAREY AVE

W LAKE MEAD BLVD

RANCHO DRIVE

ALLEN RD

SIMMONS STREET

SNWA SIMMONS PS

OH

UG

ELEC

UE

N

0 400' 800'

VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

HNTB

FIGURE - E6

EXISTING ELECTRICAL UTILITIES

\\faxvol0\jobs\62812_VGT_MP\00_CAD\IE\Exhibits\Phasing\VGT_MP_Phasing.dwg Mar 14, 2025 - 9:09am



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - E5

EXISTING GAS UTILITIES

DRAWING LEGEND

- POTABLE WATER LINE — W
- SANITARY SEWER LINE — SAN
- STORM DRAIN LINE — SD
- FLOOD CHANNEL
- GAS LINE — GAS
- OH ELECTRICAL LINE — ELEC
- UG ELECTRICAL LINE — UE
- COMMS LINE — CATV
- PROPERTY LINE

R/W 12R-30L

R/W 12L-30R

W CAREY AVE

W LAKE MEAD BLVD

RANCHO DRIVE

ALLEN RD

SIMMONS STREET

VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

N

0 400' 800'

HNTB

FIGURE - E1

EXISTING OVERALL UTILITIES

\\lasvw00\jobs\2812_VGT_MP\00_CADD\Exhibits\Phasing\VGT_MP_Phasing.dwg Mar 14, 2025 - 9:09am



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - E3

EXISTING SANITARY SEWER UTILITIES



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - E4

EXISTING STORM WATER UTILITIES



VGT

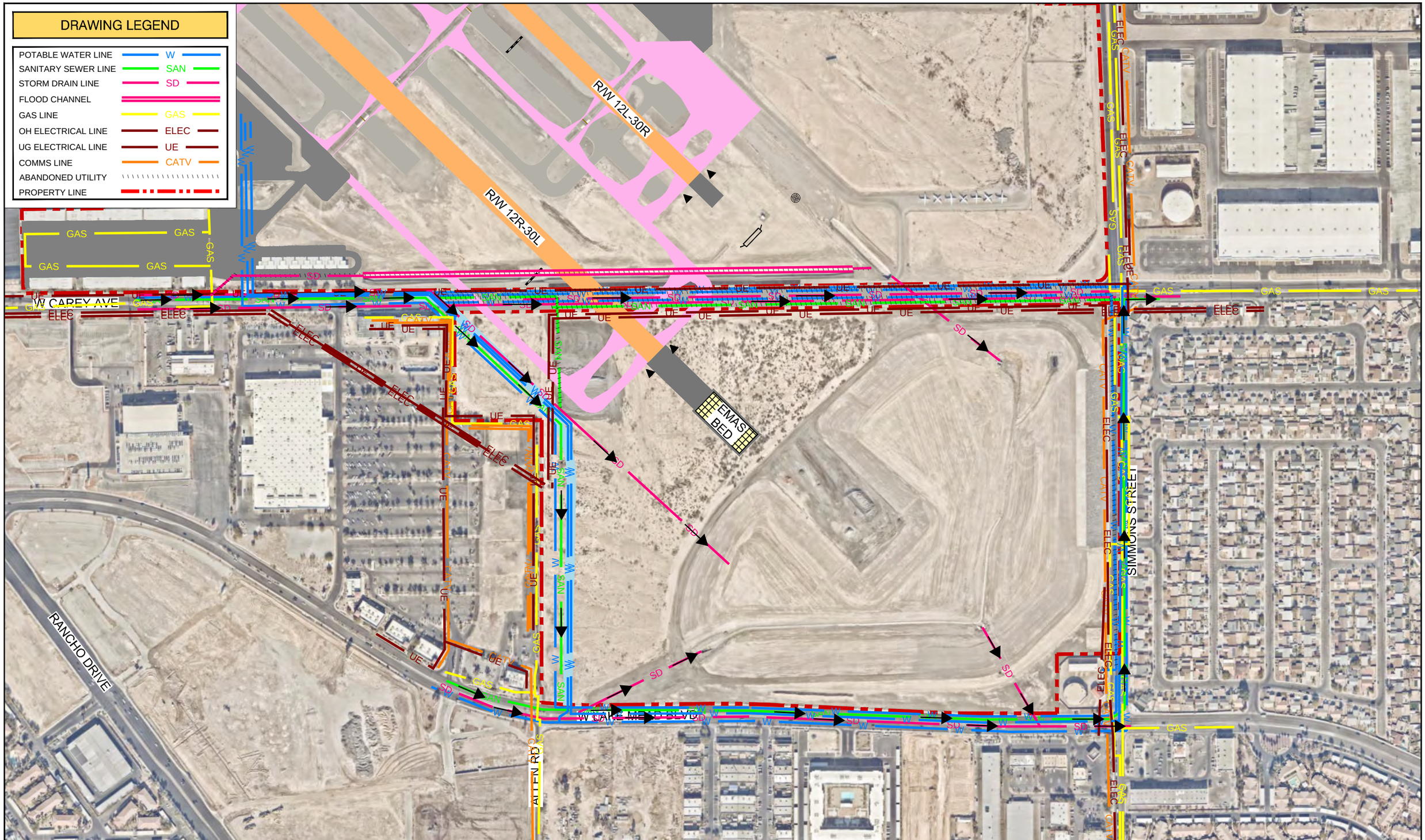
NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - E2

EXISTING POTABLE WATER UTILITIES



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

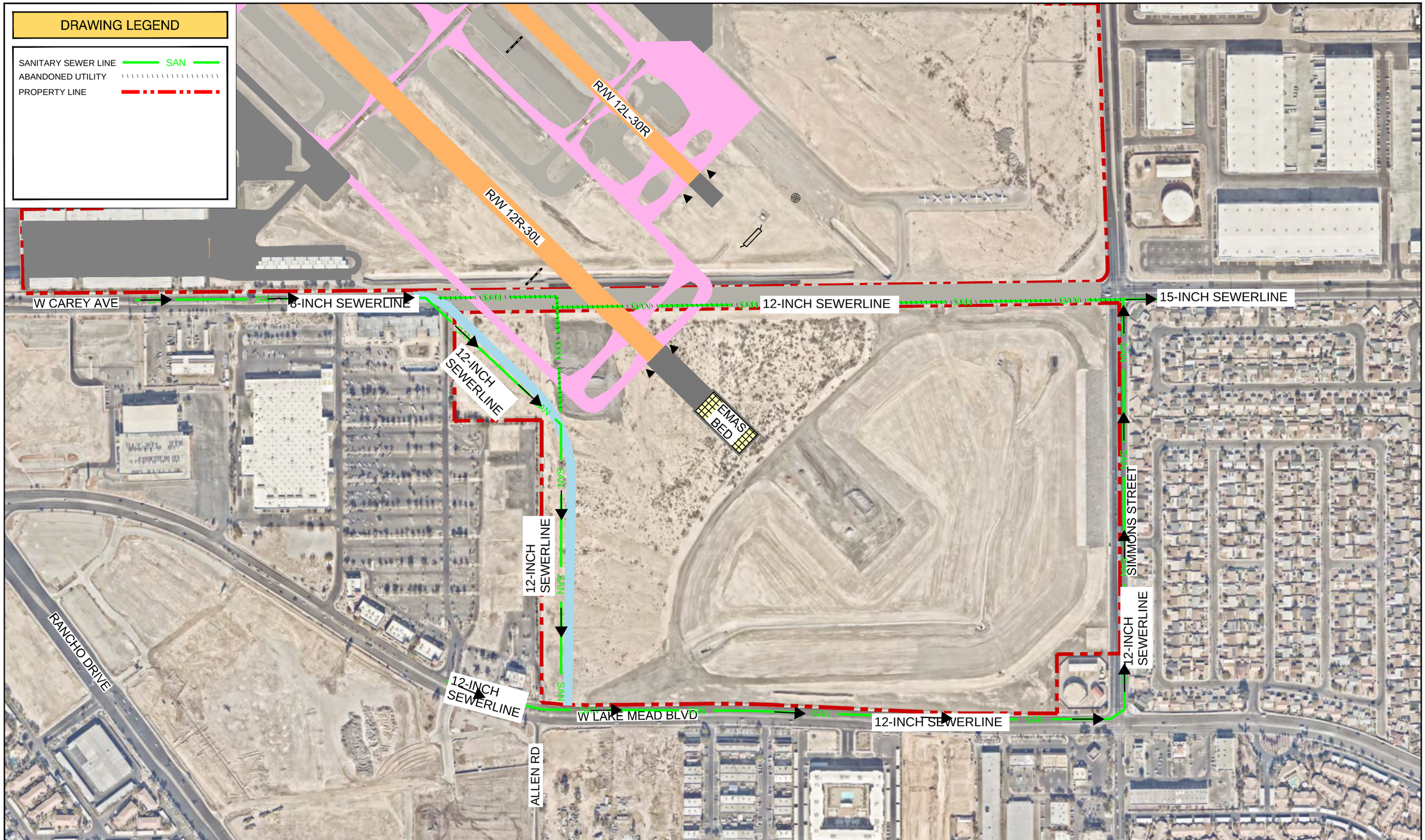
N

0 400' 800'

HNTB

FIGURE - P1

PROPOSED OVERALL UTILITIES



VGT

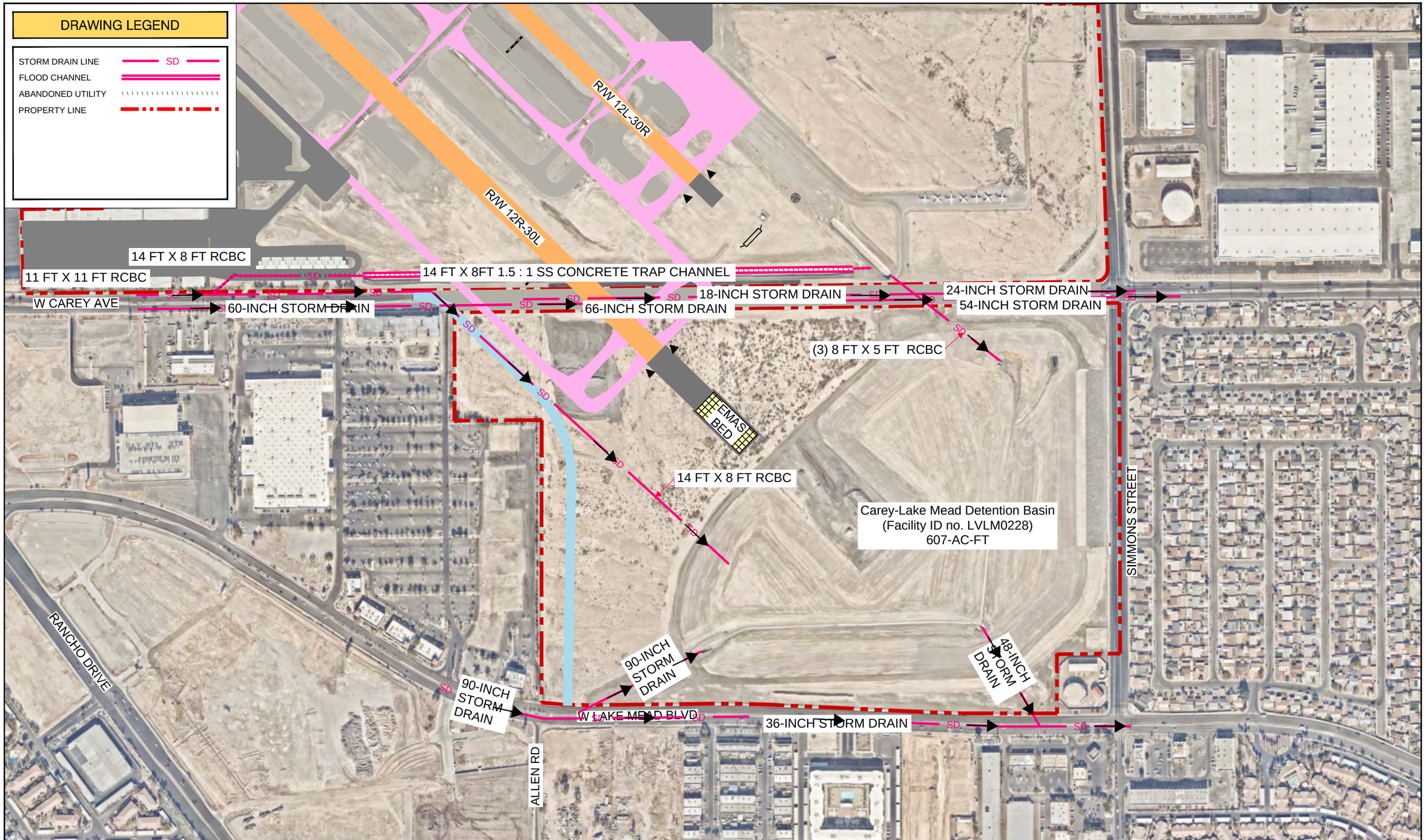
NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - P3

PROPOSED SANITARY SEWER UTILITIES



VGT

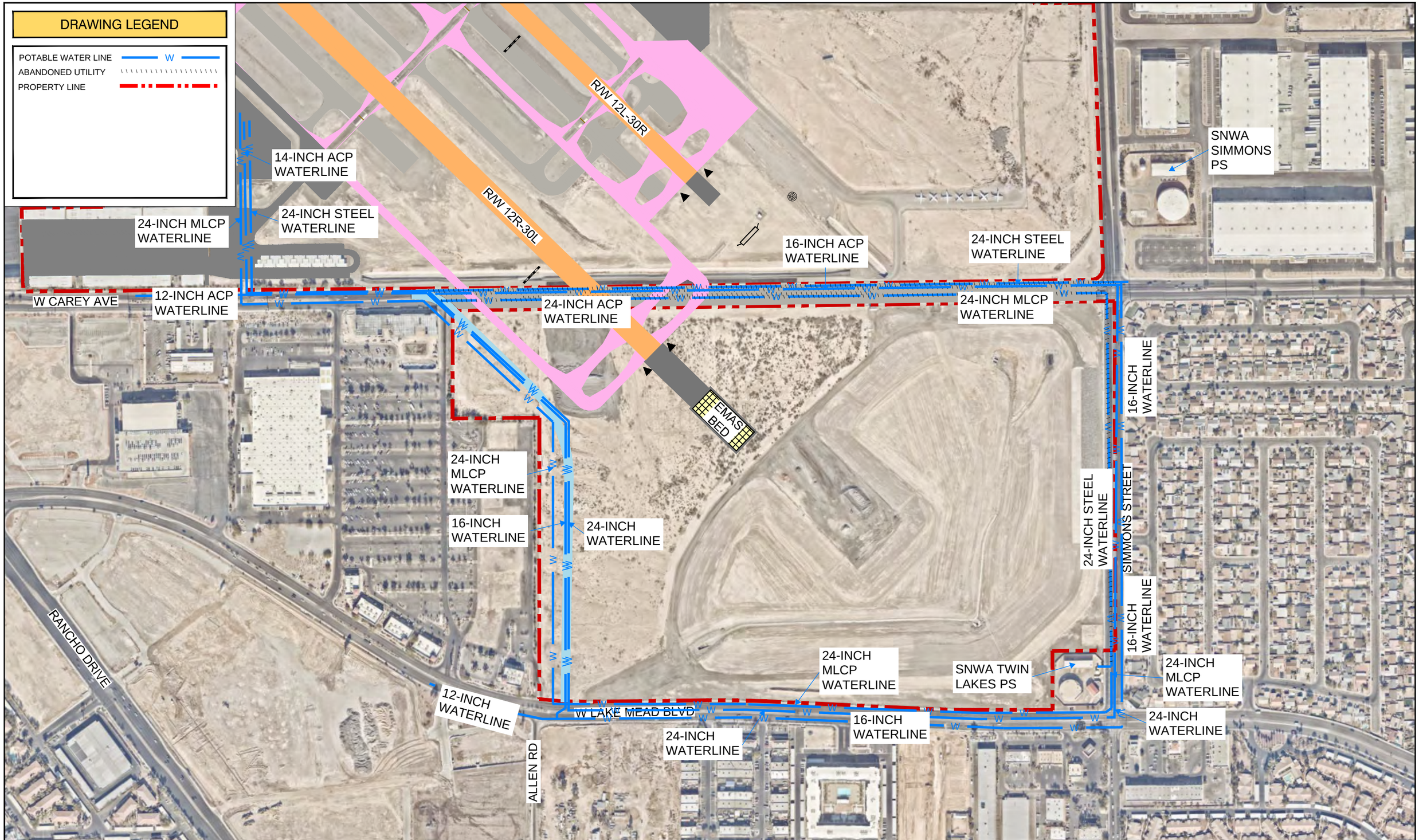
NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - P4

PROPOSED STORM WATER UTILITIES



VGT

NORTH LAS VEGAS AIRPORT
MASTER PLAN PHASING

VGT NORTH LAS VEGAS AIRPORT

HNTB

FIGURE - P2

PROPOSED POTABLE WATER UTILITIES



Appendix E

Airport Layout Plans





Appendix E
AIRPORT LAYOUT PLAN

As part of this master plan, the Federal Aviation Administration (FAA) require the development of Airport Layout Plan (ALP) drawings detailing specific parts of the airport and its environs. The ALP drawings are created on a computer-aided drafting (CAD) system and serve as the official depiction of the current and planned condition of the airport. The ALP drawings will be reviewed by the FAA to be sure all applicable federal regulations are met. The FAA will use the ALP as the basis for justification for funding decisions.

It should be noted that the FAA requires that any changes to the airfield (i.e., runway and taxiway system, navigational aids, etc.) be presented on the ALP. Landside configurations are also depicted on the ALP; however, the FAA recognizes that landside development is much more fluid and dependent on developer needs, so an updated ALP set is typically not necessary for future landside (hangar/apron) development. The ALP drawing set is not intended to provide design engineering accuracy.

The five primary functions of the ALP that define its purpose are provided in Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, as follows:

1. An ALP creates a blueprint for airport development by depicting proposed facility improvements. The ALP provides a guideline by which the airport sponsor can ensure that development maintains airport design standards and safety requirements and is consistent with airport and community land use plans.

2. The ALP is a public document that serves as a record of aeronautical requirements, both present and future, and as a reference for community deliberations on land use proposals and budget resource planning.

3. The approved ALP enables the airport sponsor and the FAA to plan for facility improvements at the airport. It also allows the FAA to anticipate budgetary and procedural needs. The approved ALP will also allow the FAA to protect the airspace required for facility or approach procedure improvements.

4. The ALP can be a working tool for the airport sponsor, including the sponsor's development and maintenance staff.

5. An approved ALP is necessary for the airport to receive financial assistance under the terms of the *Airport and Airway Improvement Act of 1982*, as amended, and to be able to impose and use Passenger Facility Charges. An airport must keep its ALP current and follow that plan as these are the grant assurance requirements of the Airport Improvement Program (AIP) and previous airport development programs, including the 1970 *Airport Development Aid Program* (ADAP) and *Federal Aid Airports Program* (FAAP) of 1946, as amended.

The ALP set developed for this master plan is consistent with the FAA's Standard Operating Procedure (SOP) No. 2.00 *Standard Procedure for FAA Review and Approval of Airport Layout Plans* (October 1, 2013).

The Exhibit A – Property Inventory Map conforms with the guidelines outlined in FAA SOP 3.00 *Standard Operating Procedure (SOP) for FAA Review of Exhibit 'A' Airport Property Inventory Maps* (October 1, 2013).

AIRPORT LAYOUT PLAN DRAWING SET

The ALP drawing set for the airport master plan includes several technical drawings that depict various aspects of the current and future layout of the airport. The following is a description of the ALP drawings included with this airport master plan.

AIRPORT LAYOUT PLAN DRAWING

An official ALP drawing has been developed for the North Las Vegas Airport (VGT), a draft of which is included in this appendix. The ALP drawing graphically presents the existing and future airport facilities and layout plan. The ALP drawing includes, but is not limited to, depictions of the physical airport features, wind data tabulation, location of airfield facilities (i.e., runways, taxiways, navigational aids), and landside development. Also presented on the ALP are the runway safety areas, airport property boundaries, and revenue support areas.

The computerized plan provides detailed information on existing and future facility layouts on multiple layers that permit the user to focus on any section of the airport at a desired scale. The plan can be used as base information for subsequent planning and design efforts and can be easily updated in the future to reflect new development and include more detail concerning existing conditions as made available through design surveys.

TERMINAL AREA PLAN DRAWING

The terminal area plan drawings present a large-scale depiction of areas with significant terminal facility development. This drawing is an enlargement of a portion of the ALP. The drawing depicts the landside facility areas as well as the supporting infrastructure, including access roads and parking facilities. The terminal area drawing also includes a list of all airport buildings and identifies the aircraft apron areas.

FAR PART 77 AIRPORT AIRSPACE DRAWING

Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, was established for use by local authorities to control the height of objects near airports. The FAR Part 77 Airport Airspace drawing included in this airport master plan is a graphic depiction of this regulatory criterion. The FAR Part 77 Airport Airspace drawing is a tool to aid local authorities in determining if proposed development could present a hazard to aircraft using the airport. The FAR Part 77 Airport Airspace drawing can be a critical tool for the airport sponsor's use in reviewing proposed development near the airport.

The FAR Part 77 Airport Airspace drawing assigns three-dimensional imaginary surfaces associated with the airport. These imaginary surfaces emanate from the runway centerline(s) and are dimensioned according to the visibility minimums associated with the approach to the runway end and size of aircraft to operate on the runway. The FAR Part 77 imaginary surfaces include the primary surface, approach surface, transitional surface, horizontal surface, and conical surface.

The airport sponsor should do all they can to protect the role of the airport by ensuring development stays below the FAR Part 77 surfaces. The drawing includes a table detailing the penetrations to any of the FAR Part 77 surfaces. A recommended action or disposition is also presented for each penetration. This drawing is based on the planned future condition of the airport.

Penetrations of the FAR Part 77 surfaces indicate an obstruction. Once an obstruction is identified, the FAA determines if the obstruction is a hazard to air navigation. When an obstruction is determined to be a hazard, a variety of actions can be taken to mitigate the hazard. The table included on the drawing presents a recommended action or disposition; however, the FAA is responsible to make the final determination as to what course of action should be taken. Potential mitigating measures include removing the hazard, lowering the hazard, adding an obstruction light, increasing instrument approach visibility minimums, or displacing runway landing thresholds. The following discussion will describe those surfaces that make up the recommended FAR Part 77 surfaces.

Table E1 provides detailed information on the Part 77 classifications for each runway and the dimensions of the primary and approach surfaces.

Table E1 – Part 77 Data Table

	Runways					
	12R	**30L**	**12L**	**30R**	**7**	**25**
Part 77 Classification – Existing/Ultimate	NP (C)	Visual (B)	P (C)	Visual (B)	Visual (B)	Visual (B)
Part 77 Approach Type – Existing/Ultimate	Non-Precision	Visual	Precision	Visual	Visual	Visual
Approach Minimums – Existing	1-Mile	>1 Mile	7/8-Mile	>1 Mile	>1 Mile	>1 Mile
Approach Minimums – Ultimate	1-Mile	>1 Mile	1-Mile	>1 Mile	>1 Mile	>1 Mile
Primary Surface Width – Existing/Ultimate	500'		1,000'		500'	
Approach Surface – Existing/Ultimate						
Inner Width	500'	500'	1,000'	500'	500'	500'
Outer Width	3,500'	1,500'	16,000'	1,500'	1,500'	1,500'
Length	10,000'	5,000'	50,000'	5,000'	5,000'	5,000'
Part 77 Approach Slope – Existing/Ultimate	34:1	20:1	50:1/40:1[a]	20:1	20:1	20:1

Notes:
[a] Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet.
NP = non-precision
P = precision
(B) = runways larger than utility
(C) = visibility minimums greater than ¾-mile

Source: Federal Aviation Regulations (FAR) Part 77 Objects Affecting Navigable Airspace

Primary Surface: The primary surface is longitudinally centered on the runways and extends 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the elevation along the nearest associated point on the runway centerline. The primary surface widths are detailed in **Table E1**.

Approach Surface: An approach surface is also established for each runway end. The approach surface begins at the end of the primary surface, extends upward and outward, and is centered along an extended runway centerline. The dimensions of the approach surface leading to each runway is based upon the type of instrument approach available (instrument or visual) or planned. Approach surface dimensions and slopes for each runway are detailed in **Table E1**.

Transitional Surface: Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface rises at a slope of 7:1, up to a height 150 feet above the highest runway elevation. At that point, the horizontal surface begins where the transitional surface ends.

Horizontal Surface: The horizontal surface is established at 150 feet above the highest elevation of the runway surface. Having no slope, the horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 5,000 feet for runways designated as utility or visual and 10,000 feet for all other runways.

Conical Surface: The conical surface begins at the outer edge of the horizontal surface. The conical surface then continues for an additional 4,000 feet horizontally at a slope of 20:1; therefore, at 4,000 feet from the horizontal surface, the elevation of the conical surface is 350 feet above the highest airport elevation.

INNER APPROACH SURFACE DRAWING

The inner approach surface drawing provides greater detail of penetrations to the approach surfaces within a few thousand feet of the runway end. Any penetrations are documented in the obstruction table. The obstruction table includes a description of the object, its top elevation, the depth of penetration, and a recommended disposition to mitigate the penetration.

DEPARTURE SURFACE DRAWING

For runways supporting instrument departures, a separate drawing depicting the departure surface is required. The departure surface, when clear, allows pilots to follow standard departure procedures. The departure surface emanates from the departure end of the runway to a distance of 10,200 feet. The inner width is 1,000 feet and the outer width is 6,466 feet. The slope of the departure surface is 40:1.

Obstacles frequently penetrate the departure surface. Where object penetrations exist, the departure procedure can be adjusted by non-standard climb rates and/or non-standard (higher) departure minimums; therefore, it is important for the airport sponsor to identify and remove departure surface obstacles whenever possible to enhance takeoff operations at the airport. The airport sponsor should also prevent any new obstacles from developing.

AIRPORT LAND USE DRAWING

The objective of the airport land use drawing is to coordinate uses of the airport property in a manner compatible with the functional design of the airport facility. Airport land use planning is important for orderly development and efficient use of available space. There are two primary considerations for airport land use planning, which are to secure those areas essential to the safe and efficient operation of the airport and to determine compatible land uses for the balance of the property which would be most advantageous to the airport and community.

EXHIBIT A – AIRPORT PROPERTY INVENTORY MAP

The airport property map provides a drawing depicting the airport property boundary, the various tracts of land that were acquired to develop the airport, the method of acquisition, and other information on the property under airport control that is subject to FAA grant assurances. The various recorded deeds that make up the airport property are listed in tabular format. The primary purpose of the drawing is to provide information for analyzing the current and future aeronautical use of land acquired with federal funds.

U.S. Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region
Airports Division
Phoenix Airports District Office

3800 N. Central Ave.
Suite 1025 10th Floor
Phoenix, AZ 85012

James C. Chrisley
Director of Aviation
Clark County Department of Aviation
P.O. Box 11005
Las Vegas, NV 89111

Sent via email: jamesc@lasairport.com

Dear Mr. Chrisley,

Subject: Federal Aviation Administration (FAA) Pen and Ink Approval of Airport Layout Plan Update; North Las Vegas (VGT) North Las Vegas, NV

The Phoenix Airports District Office (PHX-ADO) has completed the final review of the North Las Vegas (VGT) proposed Airport Layout Plan (ALP) update, dated November 18, 2025. This letter provides a depiction of the proposed changes on the ALP.

Accordingly, PHX-ADO concurs with the updates to the current FAA approved ALP Drawing Set, dated December 31, 2020.

Approval is issued for the following proposed project items:

DATA SHEET

- Depicts the existing Runway Design Code (RDC) of Runway 12R-30L from B-II-5000 to C-II-5000
- Depicts the ultimate RDC for Runway 12R-30L as D-III-5000

FUTURE ALP SHEET

- Illustrates plans to shift Runway 12R-30L and Runway 12L-30R east to meet ultimate D-III-5000 design standards, notably runway/taxiway separation of 400 feet
- Expands Runway 12R-30L from 5,000’ x 75’ to 6,860’ x 100’
- Depicts the installation of engineered material arresting system (EMAS) beds off both Runway 12R-30L ends
- Illustrates the realignment of West Carey Avenue south to West Lake Meade Boulevard
- Depicts Runway 12L-30R as 4,300’ x 75’
- Illustrates Runway 7-25 MAGVAR change to Runway 08-26
- Depicts airfield geometry enhancements including eliminating direct access from the aircraft parking apron, mitigation of FAA-identified runway incursion hot spots, and removal of wide areas of expansive pavement
- Depicts of additional new or expanded aircraft holding bays near each runway end

Any airport construction or alteration undertaken requires FAA notification and review as per

FAR Part 77. The proposed changes were reviewed via the following aeronautical studies:

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2026-AWP-159-NRA		North Las Vegas, NV	36-12-38.53N	115-11-39.99W	0	2204

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

We wish you great success in your plans for the development pf the airport. If you have any questions, please contact Ryan Spicer, Civil Engineer at 602-792-1068.

Regards,

Kyler Erhard
Acting Manager, Phoenix Airports District Office

AIRPORT LAYOUT PLAN

for the

NORTH LAS VEGAS AIRPORT (VGT)

North Las Vegas, Nevada

Clark County Department of Aviation (CCDOA)

Clark County Department of Aviation

BRYANT HOLT
Senior Director of Aviation

JAMES CHRISLEY
Director of Aviation

DOUG MCMAHAN
Senior Director of Aviation

JOE PIURKOWSKI
Chief Financial Officer

KEVIN SCHILLER
County Manager

5757 Wayne Newton Blvd.
Las Vegas, Nevada 89111

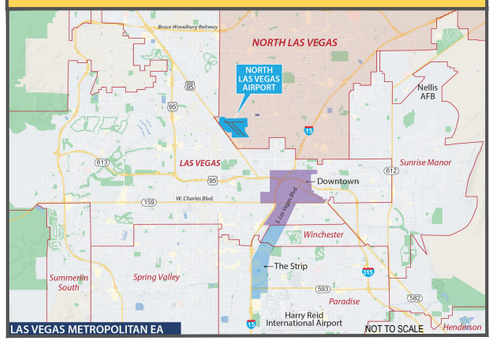
Clark County Commission

TICK SEGERBLOM
Chair

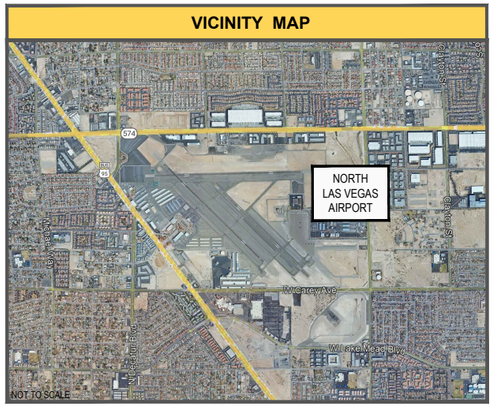
WILLIAM MCCURDY II
Vice Chair

MICHAEL NAFT
MARILYN KIRKPATRICK
APRIL BECKER
JUSTIN JONES
JAMES B. GIBSON

LOCATION MAP



VICINITY MAP



DRAWING INDEX

1 TITLE SHEET
2 AIRPORT DATA SHEET
3 EXISTING AIRPORT LAYOUT PLAN DRAWING
4 ULTIMATE AIRPORT LAYOUT PLAN DRAWING
5 AIRPORT AIRSPACE DRAWING I
6 AIRPORT AIRSPACE DRAWING II
7 AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 12L-30R
8 AIRPORT AIRSPACE APPROACH AND RUNWAY PROFILE RUNWAY 12L-30R
9 AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 12R-30L
10 AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 8-26
11 INNER PORTION OF THE APPROACH SURFACE DRAWING ULTIMATE RUNWAY 12L
12 INNER PORTION OF THE APPROACH SURFACE DRAWING ULTIMATE RUNWAY 30R
13 INNER PORTION OF THE APPROACH SURFACE DRAWING ULTIMATE RUNWAY 12R
14 INNER PORTION OF THE APPROACH SURFACE DRAWING ULTIMATE RUNWAY 30L
15 INNER PORTION OF THE APPROACH ULTIMATE RUNWAYS 12L30R AND 12R-30L OBSTRUCTION AND SIGNIFICANT OBJECT TABLES
16 INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING RUNWAY 7-25 ULTIMATE RUNWAY 8-26
17 INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING RUNWAY 12L
18 INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING RUNWAY 30R
19 INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING RUNWAY 12R
20 INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING RUNWAY 30L
21 RUNWAY 12L-30R ULTIMATE DEPARTURE SURFACE DRAWING
22 RUNWAY 12R-30L ULTIMATE DEPARTURE SURFACE DRAWING
23 RUNWAY 12L-30R EXISTING DEPARTURE SURFACE DRAWING
24 RUNWAY 12R-30L EXISTING DEPARTURE SURFACE DRAWING
25 TERMINAL AREA DRAWING I
26 TERMINAL AREA DRAWING II
27 TERMINAL AREA DRAWING III
28 LAND USE DRAWING
29 EXHIBIT 'A' AIRPORT PROPERTY INVENTORY MAP
30 EXHIBIT 'A' AIRPORT PROPERTY INVENTORY TABLE

STATE OUTLINE & COUNTY BOUNDARY



NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

TITLE SHEET

NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

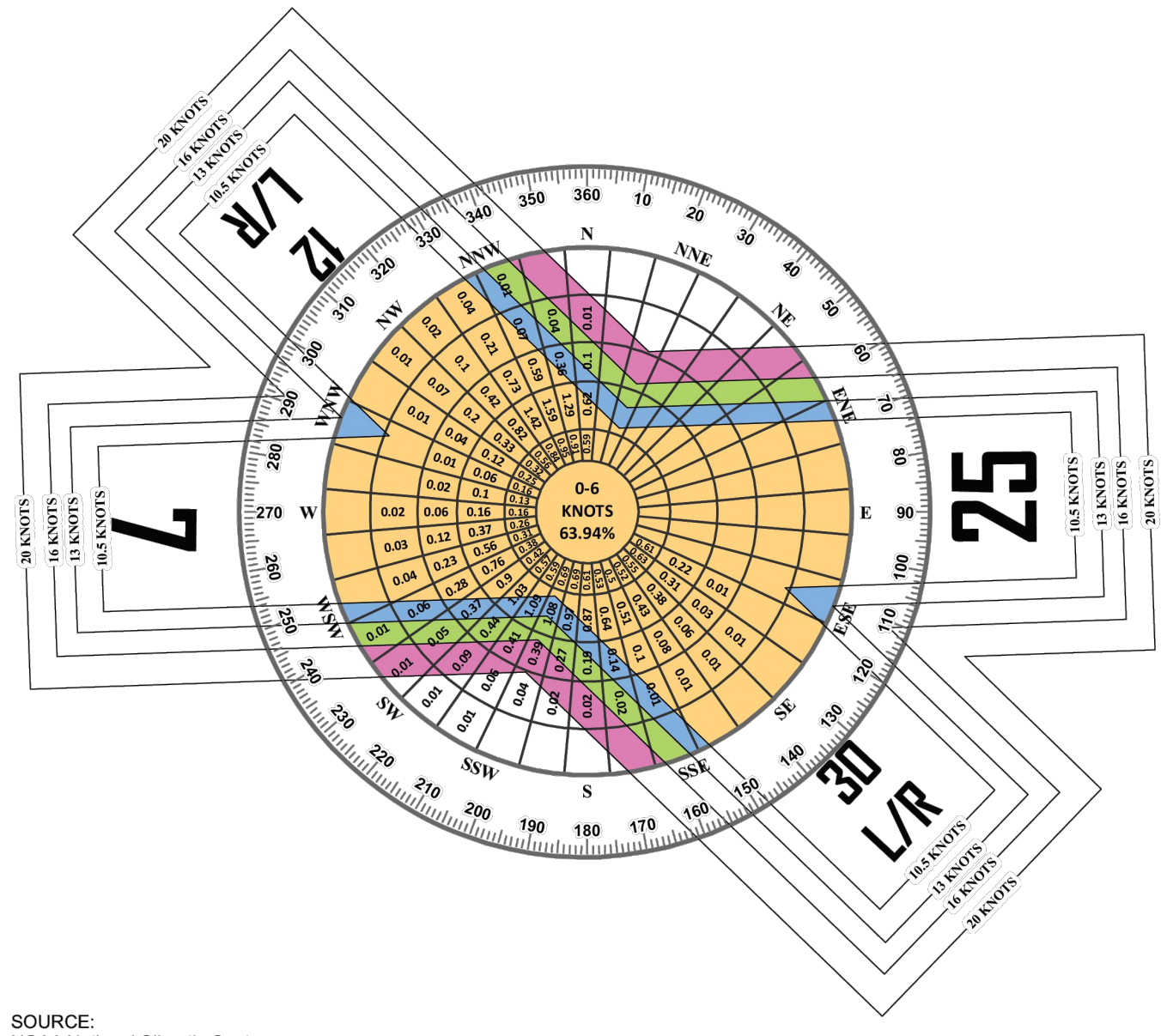
May 2026 SHEET 1 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\MP\VGT_2A\ALP\01 VGT COVER SHEET.dwg Printed Date: 6-02-26 02:15:26 PM diana

ALL WEATHER WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7/25	85.39%	90.80%	96.38%	99.12%
Runway 12LR/30LR	90.18%	94.02%	97.43%	99.28%
All Runways	94.19%	97.34%	99.10%	99.87%

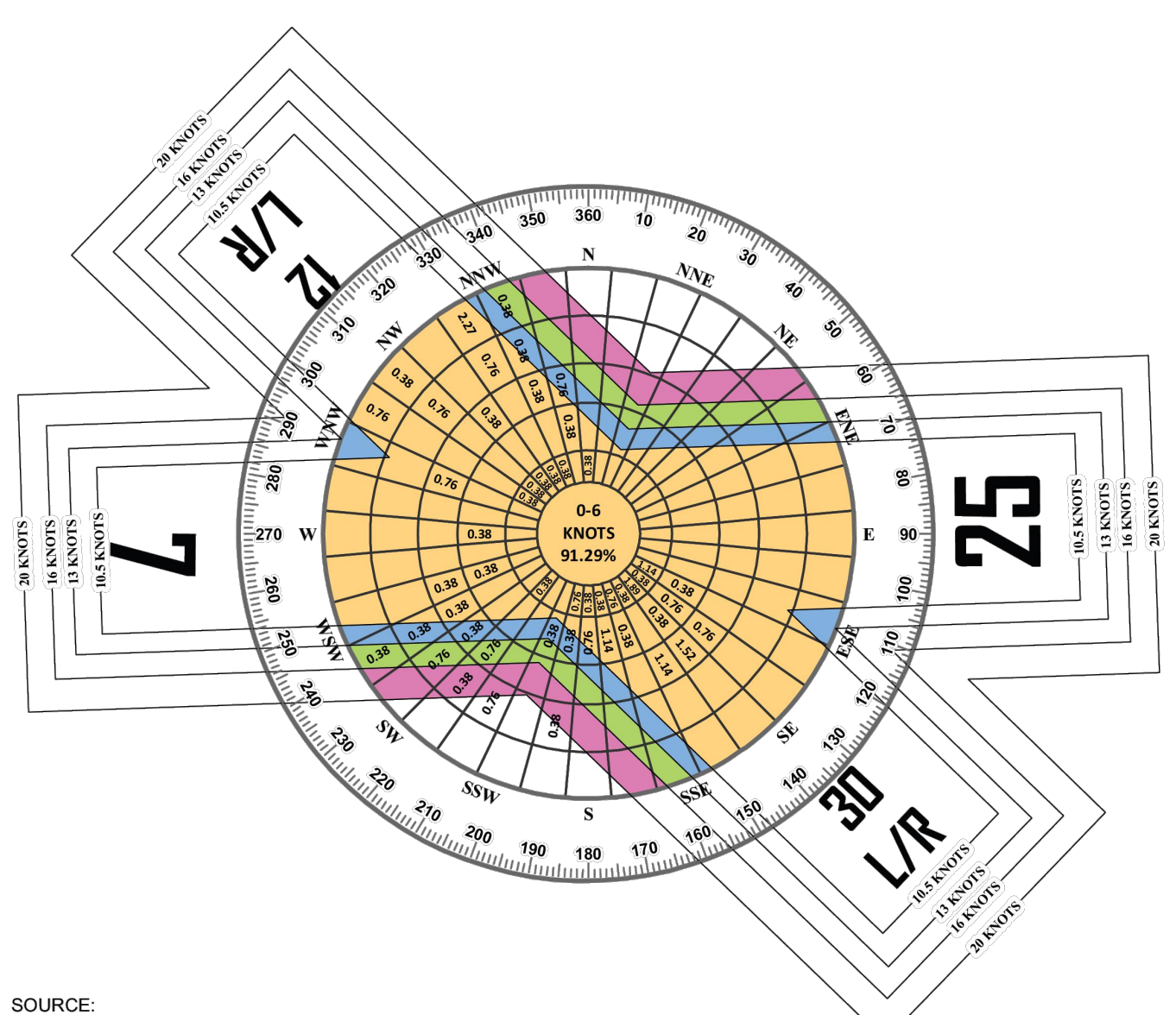


SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
North Las Vegas Airport
Las Vegas, Nevada

OBSERVATIONS:
85,176 All Weather Observations
Jan. 1, 2013 - Dec, 31 2022

IFR WIND COVERAGE

Runways	10.5 Knots	13 Knots	16 Knots	20 Knots
Runway 7/25	85.90%	87.74%	91.33%	94.23%
Runway 12LR/30LR	92.65%	94.46%	95.50%	97.18%
All Runways	94.20%	96.22%	97.89%	99.15%



SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
North Las Vegas Airport
Las Vegas, Nevada

OBSERVATIONS:
448 IFR Weather Observations
Jan. 1, 2013 - Dec, 31 2022

AIRPORT DATA

Owner: Clark County Department of Aviation		City: North Las Vegas	County: Clark
Airport Name & ID: North Las Vegas (VGT)		EXISTING	ULTIMATE
Airport Reference Code (ARC)		C-II	D-III
Mean Maximum Temperature of Hottest Month		104.3°F July	Same
Airport Elevation (NAVD 88)		2,204.97'	2,202.00'
Airport Navigational Aids		Airport Beacon, ILS or Localizer (12L), RNAV GPS (12R), PAPI-4 (12R,30L,12L,30R,7,25)	Same
Airport Reference Point (ARP) Coordinates	Latitude	36°12'38.53"	36°12'36.24"
	Longitude	115°11'39.99"	115°11'36.52"
Miscellaneous Facilities		ASOS, MIRL (12R,30L,12L,30R, 7,25), MITL, REILs (12R,30L,12L, 30R,7,25), SAWS	Same
Design Critical Aircraft		Bombardier Challenger 300	Gulfstream G550
Wingspan of Design Aircraft (Feet)		63.8	93.5
Approach Speed of Design Aircraft (Knots)		126	145
Undercarriage Width of Design Aircraft (Feet)		12.6	15.9
Magnetic Declination (Degrees)		11°9' E ± 0° 21' Changing by 0°6' per Year	
Declination Date		15-Feb-24	
Declination Source		www.ngdc.noaa.gov	
NPIAS Code		Reliever	Same
State System Plan Role		National	Same

TAXIWAY DATA TABLE

Existing/Ultimate Taxiway/Taxilane Designation	Taxiway Design Group	Width	Taxiway/Taxilane Safety Area Dimension	Taxiway Object Free Area	Taxilane Object Free Area	Taxiway/Taxilane Lighting	Taxiway & Taxilane Separation[1]	Taxiway Edge Safety Margin
A	2A/2B	35'	79'/118'	124'/171'	110'158'	MITL	62'/85.5'	7.5'/7.5'
A1-A5	2A/2B	35'	118'	171'	158'	MITL	85.5'	7.5'/7.5'
B	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
B1-B4	2A/2B	35'	118'	171'	110'/158'	MITL	85.5'	7.5'/7.5'
C	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
C1-C4	2A/2B	35'	118'	171'	158'	MITL	85.5'	7.5'/7.5'
D	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
D1-D5	2A/2B	35'	118'	171'	158'	MITL	85.5'	7.5'/7.5'
E	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
F	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
F1-F5	2A/2B	35'	118'	171'	158'	MITL	85.5'	7.5'/7.5'
G	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
H	2A/2B	35'	79'/118'	124'/171'	110'/158'	MITL	62'/85.5'	7.5'/7.5'
I	2A/2B	35'	118'	171'	158'	MITL	85.5'	7.5'/7.5'
J	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'
K	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'
L	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'
M	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'
P	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'
R	2A/2B	60'	79'	124'	110'	MITL	62'	7.5'/7.5'
S	2A/2B	40'	79/118	124'/171'	110'/158'	MITL	62'	7.5'/7.5'
W	2A/2B	35'	79'	124'	110'	MITL	62'	7.5'/7.5'

[1] Objects located inside the TSA & TOFA/Distance from object to taxiway/taxilane centerline. See Table 4-1 in AC 150/5300-13B

AIRPORT NAVAID OWNERSHIP

NAVAID	OWNER
Airport Beacon	CCDOA
Air Traffic Control Tower	FAA
ASOS	FAA
Localizer	FAA
MIRL	CCDOA
MITL	CCDOA
PAPI-4	FAA: 12R/30L and 7/25, CCDOA: 12L/30R
REILs	FAA
Segmented Circle/Lighted Wind Cone	CCDOA
Wind Cones	CCDOA
RGLs	CCDOA

RUNWAY DATA TABLE

		RUNWAY 12R-30L				RUNWAY 12L-30R				RUNWAY 7-25			
		EXISTING		ULTIMATE		EXISTING		ULTIMATE		EXISTING		ULTIMATE	
Runway Identification		12R	30L	12R	30L	12L	30R	12L	30R	7	25	8	26
Runway Design Code (RDC)		C-II-5000	C-II-VIS	D-III-5000	D-III-VIS	B-II-5000	B-II-VIS	Same	Same	B-II-VIS	B-II-VIS	Same	Same
Approach Reference Code (APRC)		B/II/4000		D/IV/4000, D/V/4000		B/III/4000, D/II/4000		B/II/4000		B/II/4000		Same	
Departure Reference Code		B/II		D/IV, D/V		B/III, D/II		B/II		B/II		Same	
Runway Surface Material		Asphalt		Same		Asphalt		Same		Asphalt		Same	
Runway Pavement Strength By Wheel Loading (in thousands of lbs.)		111 (S), 169 (D), 250 (2D)		Same		35 (S), 55 (D)		40 (D), 100(D)		111(S), 169 (D), 250 (2D)		Same	
Runway Pavement Strength by PCR		450/F/C/X/T		Same		120/F/C/X/T		Same		450/F/C/X/T		Same	
Runway Surface Treatment		None		Same		None		Same		None		Same	
Runway Effective Gradient		0.84%		0.34%		1.03%		0.93%		0.63%		Same	
Runway Percent Wind Coverage	10.5 knots	90.18%		Same		90.18%		Same		85.39%		Same	
	13 knots	94.02%		Same		94.02%		Same		90.80%		Same	
	16 knots	97.43%		Same		97.43%		Same		86.38%		Same	
	20 knots	99.28%		Same		99.28%		Same		99.12%		Same	
Runway Dimensions (L x W)		5,000' x 75'		6,860'x100'		4,199' x 75'		4,300'x75'		5,005 'x 75'		Same	
Runway End Coordinates	Latitude	36°12'52.838"	36°12'18.292"	36°12'54.906"	36°12'07.500"	36°12'44.720"	36°12'15.707"	36°12'44.762"	36°12'15.046"	36°12'47.863"	36°12'49.075"	Same	Same
	Longitude	115°12'09.597"	115°11'25.954"	115°12'09.415"	115°11'09.530"	115°11'47.109"	115°11'10.469"	115°11'44.367"	115°11'06.831"	115°12'12.146"	115°11'11.099"	Same	Same
Runway End Elevation		2,204.97'	2,163.03'	2,202.0'	2,148.0'	2,188.58'	2,145.10	2,188.0'	2,148.0	2,204.17'	2,172.45'	Same	Same
Runway Displaced Threshold Coordinates	Latitude	NA	NA	36°12'45.107"	36°12'08.882"	NA	36°12'17.080"	36°12'43.172"	NA	NA	NA	Same	Same
	Longitude	NA	NA	115°11'57.035"	115°11'11.275"	NA	115°11'12.203"	115°11'42.359"	NA	NA	NA	Same	Same
Runway Displaced Threshold Distance		None	None	1,418'	200'	None	198.4'	230'	None	NA	NA	Same	Same
Runway Displaced Threshold Elevation		NA	NA	2,197.0'	2,148.0'	N/A	2,148.22'	2,185.0'	NA	NA	NA	Same	Same
Runway Safety Area Dimensions (width x length beyond end) - Design Std.		500'x1,000'		Same		150'x300'		Same		150'x300'		Same	
Runway Safety Area Dimensions (width x length beyond end) - Actual		500'x600'		Same		150'x300'		Same		150'x300'		Same	
Runway Lighting Type		MIRL		Same		MIRL		Same		MIRL		Same	
Runway Protection Zone Dimensions		1,700'x500'x1,010'	1,700'x500'x1,010'	Same	Same	1,000'x500'x700'	1,000'x500'x700'	Same	Same	1,000'x500'x700'	1,000'x500'x700'	Same	Same
Runway Marking Type		Non-Precision	Non-Precision	Same	Same	Precision	Basic	Same	Same	Basic	Basic	Same	Same
14 CFR Part 77 Approach Slope		34:1	20:1	Same	Same	50:1/40:1	20:1	Same	Same	20:1	20:1	Same	Same
14 CFR Part 77 Approach Type		Non-Precision	Visual	Same	Same	Precision	Visual	Same	Same	Visual	Visual	Same	Same
Approach Visibility Minimums		1 Mile	> 1 Mile	Same	Same	1 Mile	> 1 Mile	1 Mile	Same	> 1 Mile	> 1 Mile	Same	Same
Type of Aeronautical Survey Required for Approach		VG	NVG	Same	Same	VG	NVG	Same	Same	None	None	Same	Same
Departure Surface (Yes or N/A)		Yes	Yes	Same	Same	Yes	Yes	Same	Same	N/A	N/A	Same	Same
Runway Object Free Area Dimensions (width x length beyond end) - Design Std.		800'x1,000'		Same		500'x300'		Same		500'x300'		Same	Same
Runway Obstacle Free Zone Dimensions (width x length beyond end)		400'x200'		Same		400'x200'		Same		400'x200'		Same	Same
13B Approach Surfaces*		4, 6	4	Same	Same	5, 6	4	Same	Same	3	3	Same	Same
Runway Visual and Instrument Navaids		RNAV GPS, PAPI-4 MIRL, REILs	PAPI-4, MIRL REILs	Same	Same	ILS, Localizer PAPI-4, MIRL, REILs	PAPI-4, MIRL, REILs	Same	Same	PAPI-4, MIRL REILs	PAPI-4, MIRL REILs	Same	Same
Touchdown Zone Elevation (TDZE)		2,204.97'	2,191.25'	2,197.00	2,182.0'	2,188.58'	2,181.04'	2,185.0'	2,179.0'	2,204.17'	2,189.65'	Same	Same
Vertical Datum		NAD 83											
Horizontal Datum		NAVD 88											

*Tables 3-2, 3-3, & 3-4 in AC 150/5300-13B Change 1

**All Existing Runway Lengths are from the FAA Published Airport Data: https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Airport_Data/

RUNWAY DECLARED DISTANCE

	EXISTING		ULTIMATE		EXISTING		ULTIMATE		EXISTING		ULTIMATE	
	12R	30L	12R	30L	12L	30R	12L	30R	7	25	8	26
Takeoff Run Available (TORA)	5,000'	5,000'	6,660'	5,442'	4,199'	4,199'	4,300'	4,300'	5,005'	5,005'	Same	Same
Takeoff Distance Available (TODA)	5,000'	5,000'	6,860'	6,860'	4,199'	4,199'	4,300'	4,300'	5,005'	5,005'	Same	Same
Accelerate-Stop Distance Available (ASDA)	5,000'	5,000'	6,860'	6,860'	4,199'	4,199'	4,300'	4,300'	5,005'	5,005'	Same	Same
Landing Distance Available (LDA)	5,000'	5,000'	5,442'	6,660'	4,199'	4,000'	4,070'	4,300'	5,005'	5,005'	Same	Same

MODIFICATIONS TO STANDARDS APPROVAL TABLE

APPROVAL DATE	AIRSPACE CASE NUMBER	STANDARD MODIFIED	DESCRIPTION
None Required			

EXISTING/ULTIMATE NONSTANDARD CONDITIONS

DESCRIPTION OF NONSTANDARD CONDITION	STANDARD	DISPOSTION
Segmented Circle/Lighted Windcone within OFZ and OFA	Clear	To Be Relocated
Segmented Circle/Lighted Windcone within RVZ	Clear	To Be Relocated
Apron Penetration to Runway 7-25	Clear of ROFA	Remove Apron Pavement
Aircraft Run-Up Area Boundaries in Edge of TSA	Clear of TSA	Remove Run-Up Area Pavement
Runway 12R-30L RSA/ROFA Incompatibilities Related to Meeting C-II-5000 Design Standards. Public Roads, Fencing in RSA/ROFA.	Clear RSA/ROFA	Shift Runway East to Provide Clear RSA/ROFA

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

AIRPORT DATA SHEET

NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 2 OF 30

Coffman Associates Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MP\VGT_24\ALP\02 VGT DATA.dwg Printed Date: 6-02-26 10:43:13 AM diana

LEGEND	
EXISTING	**DESCRIPTION**
	AIRPORT PROPERTY LINE
	BEARPOPPY CONSERVATION AREA
	SECTION CORNERS
	AIRPORT REFERENCE POINT (ARP)
	AIRPORT ROTATING BEACON
	RUNWAY PAVEMENT
	TAXIWAY AND APRON PAVEMENT
	RUNWAY TAXIWAY APRON MARKING
	RUNWAY SHOULDER
	HOLD MARKING
	TIE-DOWNS
BRL	BUILDING RESTRICTION LINE (35')
	ILS CRITICAL AREA
OFA	OBJECT FREE AREA
RSA	RUNWAY SAFETY AREA
OFZ	OBSTACLE FREE ZONE
	APPROACH RUNWAY PROTECTION ZONE
	DEPARTURE RUNWAY PROTECTION ZONE
RVZ	RUNWAY VISIBILITY ZONE
TOFA	TAXIWAY OBJECT FREE AREA
TSA	TAXIWAY SAFETY AREA
	STRUCTURES ON AIRPORT
	STRUCTURE OFF AIRPORT
	FENCE LINE
	ROADS AND PARKING PAVEMENT
DESIGNATION	SURVEY MONUMENT WITH IDENTIFIER
	RUNWAY END IDENTIFIER LIGHTS (REILs)
	PAPI-4
	WINDSOCK
	LOCALIZER
	VEGETATION
	TOPOGRAPHIC CONTOURS

GENERAL NOTES:

1. Unless Noted Otherwise All Existing Airfield Coordinates, Elevations, and Bearings From Survey Dated 04/09/2018 by Martinez Geospatial, Eagan, MN.
2. Other Data Sources Consulted Include the FAA Aeronautical Information Services, Aeronautical Data, FAA Airport Master Record Form 5010, and the FAA Airport Facility Directory.
3. Horizontal Datum: North American Datum 1983 - Nad83; Vertical Datum: North American Datum 1988 - Navd88.
4. See Terminal Area Drawings, Sheets 25 through 27 for Building Lists and Dimensional Details.
5. See Inner Portion of the Approach Surface Drawings for Close-in Approach Surface Penetrations.
6. VGT is Secured With a Six-foot Perimeter Fence Topped with Three Strand Barbed Wire. In some critical areas, the fence height reaches eight feet.
7. The Runway 12L ILS or LOC instrument approach visibility minimums are currently published at 7/8-mile. The airport has requested the FAA to raise the minimums to 1-mile, which is currently in process. In the mean time, the airport has issued a NOTAM for increasing the visibility minimums from 7/8-mile to 1-mile minimums as the existing and ultimate condition for Runway 12L.

Approved Conditionally June 1, 2026

Subject to comments contained in our letter dated June 1, 2026

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By KYLER T ERHARD Digitally signed by KYLER T ERHARD Date: 2026.06.01 08:39:10 -07'00'

Kyler Erhard — Date

FOR APPROVAL BY

Clark County Department of Aviation

James C. Chrisley, Director of Aviation — 05/27/2026 Date

See Sheet 16 of 30 for Runway 25 End 150/5300-13B Approach Surface Penetrations: Existing Surface 3

Existing Part 77 20:1 Visual Approach (500'x1500'x5000')

Existing Approach Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Existing Runway 25 End/Low Point EL 2172.45 36°12'49.075" N 115°11'11.099" W

BEARPOPPY CONSERVATION AREA

See Sheet 11 of 30 for Runway 12L End 150/5300-13B Approach Surface Penetrations: Existing Surface 5, 6

Existing Part 77 50:1/40:1 Precision Approach 1Mile Visibility (1000'x16000'x50000')

Existing Approach Runway Protection Zone 1000'x500'x700' Owned in Fee

Existing Runway 12L End/TDZ/High Point EL 2188.58 36°12'44.720" N 115°11'47.109" W

TRUE BEARING 89.37°

Existing Runway 12R End/TDZ/High Point EL 2204.97 36°12'52.838" N 115°12'09.597" W

Existing Approach Runway Protection Zone 1700'x500'x1010' Partially Owned in Fee

EX RUNWAY 7-25 5005' x 75'

EX RUNWAY 12L-30R 4199' x 75'

TRUE BEARING 134.11°

EX RUNWAY 12R-30L 5000' x 75'

TRUE BEARING 134.10°

Existing Part 77 34:1 Non-Precision Approach 1 Mile Visibility (500'x3500'x10000')

See Sheet 13 of 30 for Runway 12R End 150/5300-13B Approach Surface Penetrations: Existing Surface 4, 6

Existing Runway 7 End/TDZ/High Point EL 2204.17 36°12'47.863" N 115°12'12.146" W

Existing Approach Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Existing Part 77 20:1 Visual Approach (500'x1500'x5000')

See Sheet 16 of 30 for Runway 7 End 150/5300-13B Approach Surface Penetrations: Existing Surface 3

Existing Runway 30R End/Low Point EL 2145.10 36°12'15.707" N 115°11'10.469" W

Existing Runway 30R Dsp'd Thld EL 2148.22 36°12'17.080" N 115°11'12.203" W

Existing Approach Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

See Sheet 18 of 30 for Runway 30R 150/5300-13B Approach Surface Penetrations: Existing Surface 5,6

Existing Part 77 20:1 Visual Approach (1000'x1500'x5000')

Existing Departure Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Existing Runway 30L End/Low Point EL 2163.03 36°12'18.292" N 115°11'25.954" W

Existing Approach Runway Protection Zone 1700'x500'x1010' Partially Owned in Fee

Existing AOA Perimeter Fence

Existing Part 77 20:1 Visual Approach (500'x1500'x5000')

See Sheet 20 of 30 for Runway 30L 150/5300-13B Approach Surface Penetrations: Existing Surface 4, 6

See Sheets 25-27 for Close-In Dimensional Details

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 400 800
SCALE IN FEET

PACS & SACS

DESIGNATION	PERMANENT IDENTIFER	LATITUDE	LONGITUDE
FAA VGT A	AA3453	36°12'36.748"	115°11'54.426"
FAA VGT B	AC7751	36°12'45.754"	115°11'36.506"
FAA VGT C	AC7752	36°12'51.441"	115°12'13.496"

NO.	REVISIONS	DATE	BY	APP'D

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

EXISTING AIRPORT LAYOUT DRAWING

NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 3 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ep_CAD (1)\MP\VGT_24\ALP\03 VGT ALD Ex.dwg Printed Date: 6-02-26 10:43:22 AM diana

GENERAL NOTES:

1. Unless Noted Otherwise All Existing Airfield Coordinates, Elevations, and Bearings From Survey Dated 04/08/2018 by Martinez Geospatial, Eagan, MN.
2. Other Data Sources Consulted Include the FAA Aeronautical Information Services, Aeronautical Data, FAA Airport Master Record Form 5010, and the FAA Airport Facility Directory.
3. Horizontal Datum: North American Datum 1983 - Nad83; Vertical Datum: North American Datum 1988 - Navd88.
4. The Maximum Vegetation Height Allowed within a 100 Foot Radius of the Visibility Sensor is 10 Inches. The Wind Sensor must be 15 Feet above any Obstruction within 500 Feet of the Sensor. The Wind Sensor must be 10 Feet above any Obstruction within 1000 Feet of the Sensor.
5. No Air Traffic Control Tower (ATCT) Line of Sight/shadow Study Per FAA Order 6480.4 was Conducted for this ALP.
6. See Terminal Area Drawings, Sheets 25 through 27 for Building Lists and Dimensional Details.
7. See Inner Portion of the Approach Surface Drawings for Close-in Approach Surface Penetrations.
8. VGT is Secured With a Six-foot Perimeter Fence Topped with Three Strand Barbed Wire. In critical areas, the perimeter fence reaches eight feet in height. The airport has a multi-year plan for a full perimeter fence upgrade.
9. The Carey Avenue Realignment Connection Alignment Depicted is Strictly Conceptual and would only be Considered if the Clark County Department of Aviation (CCDOA) Secures any Required Easement(s) on a Voluntary Basis from the Adjacent Property Owner(s). CCDOA has Other Conceptual Alignment Options that Remain Entirely within CCDOA-Owned Property. Nothing in this ALP hall be Construed as a Commitment to Acquire any Property Interest by Condemnation. This Conceptual ALP does not Grant, Reserve, or Imply any Present or Future Property Rights or Limitations on Current Use.

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		BEARPOPPY CONSERVATION AREA
		SECTION CORNERS
	SAME	AIRPORT REFERENCE POINT (ARP)
	SAME	AIRPORT ROTATING BEACON
BRL		BUILDING RESTRICTION LINE (35')
		RUNWAY PAVEMENT
		TAXIWAY, APRON PAVEMENT
	N/A	RUNWAY SHOULDER
N/A		ABANDON/REMOVE PAVEMENT
		RUNWAY TAXIWAY APRON MARKING
		HOLD MARKING
N/A		ILS CRITICAL AREA
N/A	OFA(C)	OBJECT FREE AREA
N/A	RSA(C)	RUNWAY SAFETY AREA
N/A	OFZ(C)	OBSTACLE FREE ZONE
N/A		RUNWAY PROTECTION ZONE
N/A	RVZ(C)	RUNWAY VISIBILITY ZONE
N/A	TOFA (C)	TAXIWAY OBJECT FREE AREA
N/A	TSA (C)	TAXIWAY SAFETY AREA
N/A		EMAS BED
		STRUCTURES ON AIRPORT
		STRUCTURE OFF AIRPORT
		FENCE LINE
		ROADS AND PARKING PAVEMENT
	DESIGNATION	SURVEY MONUMENT WITH IDENTIFIER
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		TIE-DOWNS
		PAPI-4
		WINDSOCK
		LOCALIZER
	SAME	VEGETATION
		TOPOGRAPHIC CONTOURS

EXISTING CONDITION FEATURES NOT SHOWN HERE ARE DEPICTED ON SHEET 3

Approved Conditionally June 1, 2026

Subject to comments contained in our letter dated June 1, 2026

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By KYLER T ERHARD Digitally signed by KYLER T ERHARD Date: 2026.06.01 09:52:41 -07'00'

Kyler Erhard — Date

FOR APPROVAL BY

Clark County Department of Aviation

05/27/2026

James C. Chrisley, Director of Aviation — Date

See Sheet 16 of 30 for Runway 26 End 150/5300-13B Approach Surface Penetrations: Ultimate Surface 3

See Sheet 17 of 30 for Runway 12L End 150/5300-13B Approach Surface Penetrations: Ultimate Surface 5, 6

See Sheet 18 of 30 for Runway 30R 150/5300-13B Approach Surface Penetrations: Ultimate Surface 4

See Sheet 19 of 30 for Runway 12R 150/5300-13B Approach Surface Penetrations: Ultimate Surfaces 4, 6

See Sheet 20 of 30 for Runway 30L 150/5300-13B Approach Surface Penetrations: Ultimate Surface 4

See Sheet 16 of 30 for Runway 8 End 150/5300-13B Approach Surface Penetrations: Existing Surface 3

See Sheet 27 for Close-In Dimensional Details

See Sheets 25 through 27 for Close-In Dimensional Details

Ultimate Part 77 50:1/40:1 Precision Approach 1 Mile Visibility (1000'x16000'x50000')

Ultimate Part 77 34:1 Non-Precision Approach 1 Mile Visibility (500'x3500'x10000')

Ultimate Part 77 20:1 Visual Approach (500'x1500'x5000')

Existing/Ultimate Part 77 20:1 Visual Approach (1000'x1500'x5000')

Existing/Ultimate Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Ultimate Approach Runway Protection Zone 1000'x500'x700' Owned in Fee

Ultimate Approach Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Ultimate Departure Runway Protection Zone 1000'x500'x700' Owned in Fee

Ultimate Departure Runway Protection Zone 1000'x250'x450' Partially Owned in Fee

Ultimate Approach/Departure Runway Protection Zone 1700'x500'x1010' Owned in Fee

Ultimate Approach/Departure Runway Protection Zone 1700'x500'x1010' Owned in Fee

Existing Runway 25/ Ultimate Runway 26 End/Low Point EL 2172.45 36°12'49.075" N 115°11'11.099" W

Ultimate Runway 12L End EL 2188.00 36°12'44.762" N 115°11'44.367" W

Ultimate Runway 12L Dsp'd Thld/TDZ EL 2185.00 36°12'43.172" N 115°11'42.359" W

Ultimate Runway 12R Dsp'd Thld/TDZ EL 2197.00 36°12'45.107" N 115°11'57.035" W

Existing Runway7/ Ultimate Runway 8 End/TDZ/High Point EL 2204.17 36°12'47.863" N 115°12'12.146" W

Ultimate Runway 12R End/High Point EL 2202.00 36°12'54.906" N 115°12'09.415" W

Existing/Ultimate Runway Protection Zone 1000'x500'x700' Partially Owned in Fee

Ultimate Runway 30R End/Low Point EL 2148.00 36°12'15.046" N 115°11'06.831" W

Ultimate Runway 30L End/Low Point EL 2148.00 36°12'07.500" N 115°11'09.530" W

Ultimate Runway 30L Dsp'd Thld EL 2148.00 36°12'08.882" N 115°11'11.275" W

BEARPOPPY CONSERVATION AREA

Aeronautical Use Reserve 25.3 Acres

Aeronautical Use Reserve 34.2 Acres

Aeronautical Use Reserve ≈ 52.1 Acres

Aeronautical Use Reserve 18.7 Acres

Aeronautical/Mixed Use Reserve 2.9 Acres

Non-Aeronautical Use Reserve 1.1 Acres

Non-Aeronautical Use Reserve 0.26 Acres

ULT RUNWAY 12L-30R 4300'x75' TRUE BEARING 134.10°

ULT RUNWAY 12R-30L 6860' x 100' TRUE BEARING 134.10°

ULT RUNWAY 7-25 4300' x 75' TRUE BEARING 88.37°

ULT ARP 36°12'36.24" N 115°11'36.52" W

East Apron ≈824,340ft²

Apron Area ≈4,071,212 ft²

Ult Apron ≈73745 ft²

Self-Service Fuel Island

Tie-Down Area

Ultimate Tie-Down Area

Airport Viewing Area

Compass Rose

ATCT and Rotating Beacon

Fuel Tank

Ex Windcone

Relocated ASOS. See General Note 4.

Relocated Segmented Circle/ Lighted Wind Cone

Relocated Glide Slope Antenna

Relocated Stand Alone Weather Sensor (SAWS) Wind Sensor Tower

Regional Transportation Commision

Carey-Lake Meade Detention Basin

Ultimate Perimeter Road

Ultimate Perimeter Fencing

Ultimate AOA Perimeter Fencing Acquire 9.2 Acres

AOA Perimeter Fencing

Ultimate Localizer Critical Area

Ultimate Localizer

Runway Intersection EL 2197.48

Auto Parking

Ultimate Gate

See General Note #8

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 400 800
SCALE IN FEET

PACS & SACS

DESIGNATION	PERMANENT IDENTIFER	LATITUDE	LONGITUDE
FAA VGT A	AA3453	36°12'36.748"	115°11'54.426"
FAA VGT B	AC7751	36°12'45.754"	115°11'36.506"
FAA VGT C	AC7752	36°12'51.441"	115°12'13.496"

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

ULTIMATE AIRPORT LAYOUT DRAWING

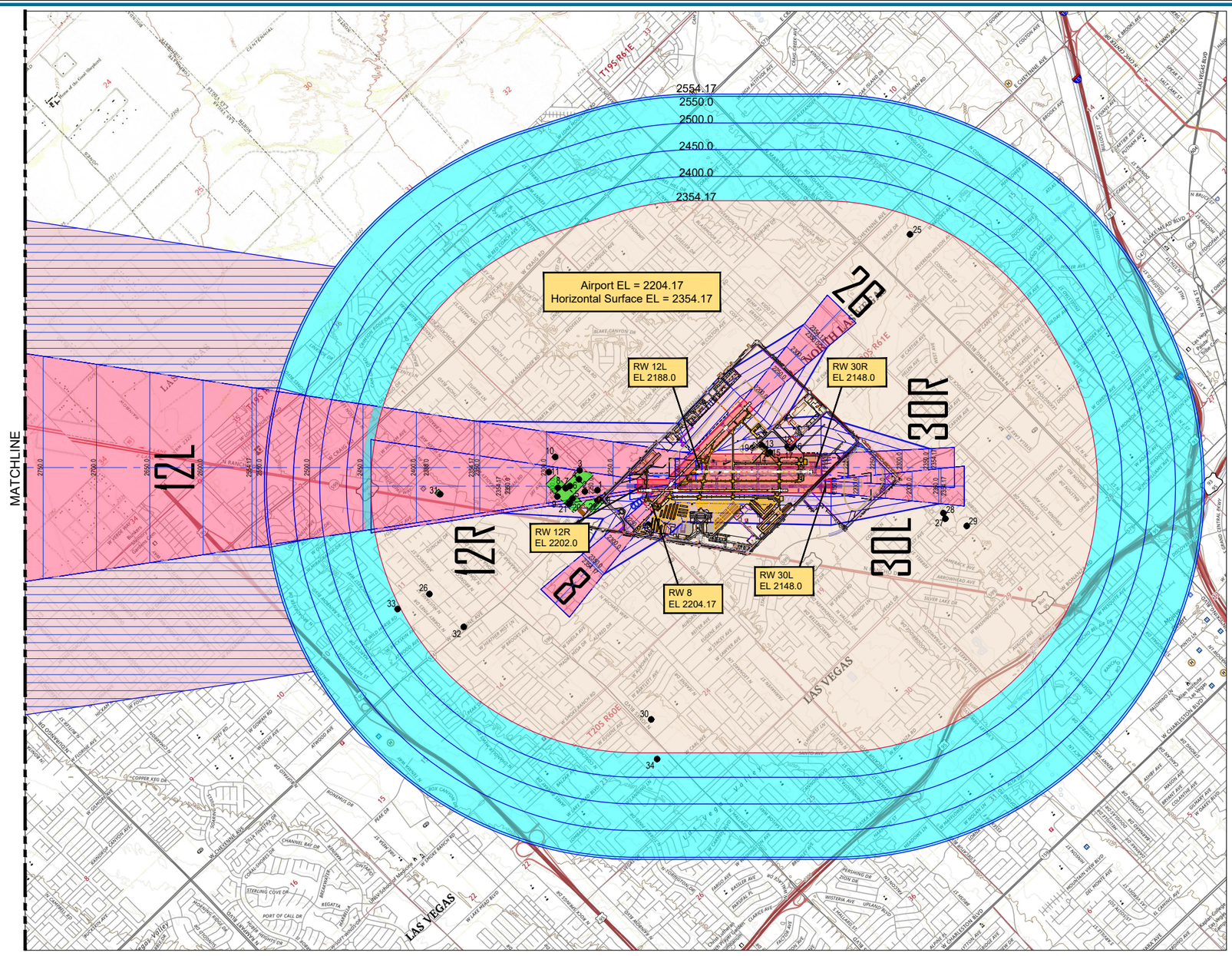
NORTH LAS VEGAS, NEVADA

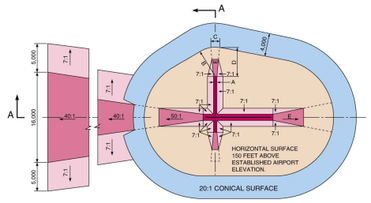
PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 — SHEET 4 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

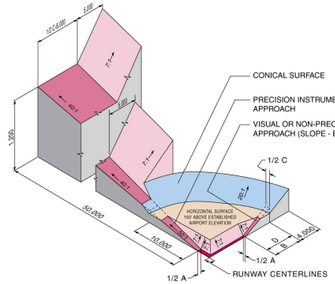
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (11MP)\VGT_24ALP\04 VGT ALD ULT.dwg Printed Date: 6-02-26 10:43:33 AM diana





DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION 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		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		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 AN ADDITIONAL 40,000 FEET



ISOMETRIC VIEW OF SECTION A-A

SOURCE: FAA Order JO 7400.2J, Figure 6-3-3

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 2000 4000
SCALE IN FEET

GENERAL NOTES:

1. THE PART 77 AIRSPACE SURFACES SHOWN ARE BASED ON FUTURE CONDITIONS PER FAA SOP NO. 2.00, A.5. AIRPORT AIRSPACE DRAWING, ITEM B.
2. UNLESS NOTED OTHERWISE, ALL EXISTING AIRFIELD COORDINATES, ELEVATION, AND BEARINGS FROM SURVEY DATED 04/09/2018 BY MARTINEZ GEOSPATIAL, EAGAN, MN.
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
4. SEE SHEET 6 FOR OBSTRUCTION TABULAR DATA.
5. OBSTRUCTIONS WITHIN GRIDS REPRESENT TALLEST MANMADE AND/OR NATURAL AND/OR TERRAIN FEATURE.
6. AIRPORT PROTECTION HEIGHT LIMITS ARE ESTABLISHED PER THE CITY OF NORTH LAS VEGAS CODE OF ORDINANCES, SECTION 17.16.050.K (ORD. 2591, 6-15-2011, EFF. 10-1-2011). THE ORDINANCE LIMITS CONSTRUCTION HEIGHT FOR STRUCTURES THAT WOULD CONSTITUTE A "HAZARD TO AIR NAVIGATION' AS DEFINED BY THE FAA.
7. SEE AIRPORT AIRSPACE PROFILE SHEETS 7 THROUGH 10 FOR PROFILE VIEW ARP FAA SOP 2.00 CHECKLIST ITEMS.
8. SEE THE INNER PORTION OF THE APPROACH SURFACE DRAWINGS FOR CLOSE-IN APPROACH DETAILS.
9. THE FOLLOWING USGS 7.5 QUAD MAPS OF THE STATE OF NEVADA WERE APPLIED AS BACKGROUND: BLUE DIAMOND NE, GASS PEAK SW, LAS VEGAS NE, LAS VEGAS NW, TULE SPRINGS PARK, AND VALLEY.

LEGEND

OBSTRUCTION IDENTIFIER

OBSTRUCTION AREA GROUPING

NO.	REVISIONS	DATE	BY	APP'D

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

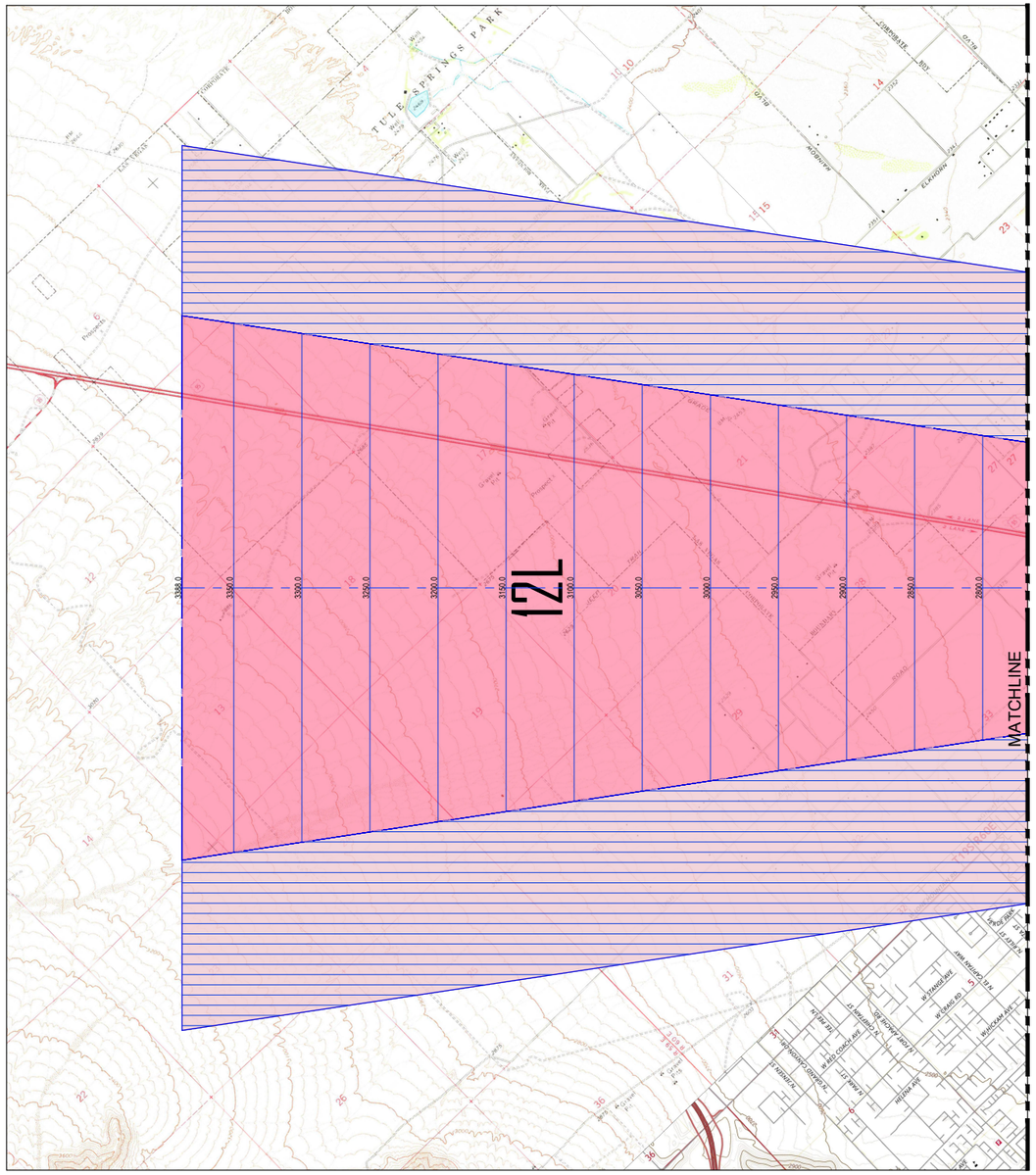
ULTIMATE AIRPORT AIRSPACE DRAWING I

NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 5 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ftp_CAD (1)\APP\VGT_24\ALP\05 06 VGT AIRS.dwg Printed Date: 6-02-26 10:43:52 AM diana



Part 77 Obstructions

ID	Feature	Latitude	Longitude	Source	Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl)	AGL (ft.)	Top Elevation (ft. msl.)	Surface Obstructed	Penetration Value (ft.)	Remediation
1	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,219.60	48.60	2,268.20	Ultimate 12L Inner-Approach	6.46	Remove Tree
2	Building	36° 13' 8.500" N	115° 12' 30.100" W	ADIP	1A	32-000344	2021-AWP-5404-OE	2,223.00	50.00	2,273.00	Ultimate 12L Inner-Approach	1.84	Object Has Red Obstruction Lighting
3	Tree	36° 13' 15.500" N	115° 12' 25.030" W	ADIP	1A	32-033195	N/A	No Data	No Data	2,276.00	Ultimate 12L Inner-Approach	0.89	Remove Tree
4	Tree	36° 13' 13.289" N	115° 12' 28.150" W	MTZ	H20/V3	N/A	N/A	2,229.10	48.00	2,277.10	Ultimate 12L Inner-Approach	1.46	Remove Tree
5	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,240.20	48.70	2,288.90	Ultimate 12L Inner-Approach	8.46	Remove Tree
6	Tree	36° 13' 13.839" N	115° 12' 33.229" W	MTZ	H20/V3	N/A	N/A	2,237.00	46.50	2,283.50	Ultimate 12L Inner-Approach	1.13	Remove Tree
7	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,238.30	58.80	2,297.10	Ultimate 12L Inner-Approach	11.49	Remove Tree
8	Tree	36° 13' 16.489" N	115° 12' 37.756" W	MTZ	H20/V3	N/A	N/A	2,240.20	57.70	2,297.90	Ultimate 12L Inner-Approach	6.48	Remove Tree
9	Tree	36° 13' 14.304" N	115° 12' 40.727" W	MTZ	H20/V3	N/A	N/A	2,243.00	49.50	2,292.50	Ultimate 12L Inner-Approach	0.68	Remove Tree
10	Tree	36° 13' 25.371" N	115° 12' 28.757" W	MTZ	H20/V3	N/A	N/A	2,229.10	67.10	2,296.20	Ultimate 12L Inner-Approach	2.78	Remove Tree
11	Tree	36° 13' 23.010" N	115° 12' 35.700" W	ADIP	1A	32-032730	N/A	No Data	No Data	2,299.00	Ultimate 12L Inner-Approach	0.77	Remove Tree
12	Light Pole	36° 12' 34.854" N	115° 11' 17.532" W	MTZ	H20/V3	N/A	N/A	2,164.80	74.30	2,239.10	Ultimate 12L/30R Transitional	23.50	Lower/Relocate
13	Light Pole	36° 12' 33.247" N	115° 11' 17.455" W	MTZ	H20/V3	N/A	N/A	2,163.20	74.70	2,237.90	Ultimate 12L/30R Transitional	39.24	Lower/Relocate
14	Light Pole	36° 12' 31.110" N	115° 11' 18.187" W	MTZ	H20/V3	N/A	N/A	2,162.30	57.70	2,220.00	Ultimate 12L/30R Transitional	50.29	Lower/Relocate
15	Light Pole	36° 12' 30.917" N	115° 11' 17.069" W	MTZ	H20/V3	N/A	N/A	2,162.20	74.80	2,237.00	Ultimate 12L/30R Transitional	60.82	Lower/Relocate
16	Light Pole	36° 12' 26.701" N	115° 11' 8.127" W	MTZ	H20/V3	N/A	N/A	2,155.60	73.50	2,229.10	Ultimate 12L/30R Transitional	30.37	Lower/Relocate
17	Light Pole	36° 12' 26.704" N	115° 11' 9.117" W	MTZ	H20/V3	N/A	N/A	2,156.60	72.60	2,229.20	Ultimate 12L/30R Transitional	38.02	Lower/Relocate
18	Light Pole	36° 12' 27.901" N	115° 11' 9.365" W	MTZ	H20/V3	N/A	N/A	2,156.30	73.20	2,229.50	Ultimate 12L/30R Transitional	27.17	Lower/Relocate
19	Utility On Building	36° 12' 36.630" N	115° 11' 21.144" W	MTZ	H20/V3	N/A	N/A	2,167.60	91.90	2,259.50	Ultimate 12L/30R Transitional	52.21	Add Obstruction Lighting
20	Utility Pole	36° 13' 9.266" N	115° 12' 38.856" W	MTZ	H20/V3	N/A	N/A	2,242.80	38.50	2,281.30	Ultimate 12L/30R Transitional	0.58	Lower/Relocate
21	Tree	36° 13' 9.308" N	115° 12' 39.244" W	MTZ	H20/V3	N/A	N/A	2,243.80	52.70	2,296.50	Ultimate 12L/30R Transitional	12.84	Remove Tree
22	Sign	36° 13' 2.845" N	115° 12' 28.865" W	MTZ	H20/V3	N/A	N/A	2,222.50	43.60	2,266.10	Ultimate 12L/30R Transitional	9.41	Add Obstruction Lighting
23	Light Pole	36° 13' 2.692" N	115° 12' 27.815" W	MTZ	H20/V3	N/A	N/A	2,215.60	41.90	2,257.50	Ultimate 12L/30R Transitional	8.42	Lower/Relocate
24	Tree	36° 12' 43.314" N	115° 12' 19.986" W	MTZ	H20/V3	N/A	N/A	2,208.00	48.30	2,256.30	Existing/Ultimate 09/27 Transitional	2.42	Remove Tree
25	Antenna	36° 12' 52.420" N	115° 9' 21.420" W	ADIP	1B	32-038279	N/A	2,093.00	264.00	2,357.00	Horizontal Surface	2.30	Add Obstruction Lighting
26	Tree	36° 13' 21.600" N	115° 13' 53.810" W	ADIP	1B	32-024609	N/A	No Data	No Data	2,355.00	Horizontal Surface	0.30	Remove Tree
27	Antenna	36° 11' 27.832" N	115° 10' 40.803" W	MTZ	H20/V3	N/A	N/A	2,094.90	273.00	2,367.90	Horizontal Surface	13.20	Add Obstruction Lighting
28	Antenna	36° 11' 29.838" N	115° 10' 39.650" W	MTZ	H20/V3	32-000129	1984-AWP-150-OE	2,093.70	272.60	2,366.30	Horizontal Surface	11.60	Add Obstruction Lighting
29	Antenna	36° 11' 20.377" N	115° 10' 36.090" W	MTZ	H20/V3	32-000143	1984-AWP-150-OE	2,092.20	274.20	2,366.40	Horizontal Surface	11.70	Object Has Red Obstruction Lighting
30	Antenna	36° 11' 50.853" N	115° 13' 21.279" W	MTZ	H20/V3	N/A	N/A	No Data	No Data	2,376.50	Horizontal Surface	21.80	Add Obstruction Lighting
31	Antenna	36° 13' 45.317" N	115° 13' 18.368" W	MTZ	H20/V3	N/A	2001-AWP-327-OE	No Data	No Data	2,358.30	Horizontal Surface	3.60	Add Obstruction Lighting
32	Spire/Steeple	36° 13' 3.971" N	115° 13' 53.071" W	MTZ	H20/V3	N/A	N/A	No Data	No Data	2,355.60	Horizontal Surface	0.90	Add Obstruction Lighting
33	Pole	36° 13' 25.860" N	115° 14' 9.040" W	ADIP	1B	32-073936	N/A	2,293.00	69.00	2,362.00	Conical Surface	1.77	Lower/Relocate
34	Tower	36° 11' 38.800" N	115° 13' 32.000" W	ADIP	4D	32-070596	2018-AWP-10844-OE	2,286.00	82.00	2,368.00	Conical Surface	1.59	Add Obstruction Lighting



Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 2000 4000
SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

ULTIMATE AIRPORT AIRSPACE DRAWING II

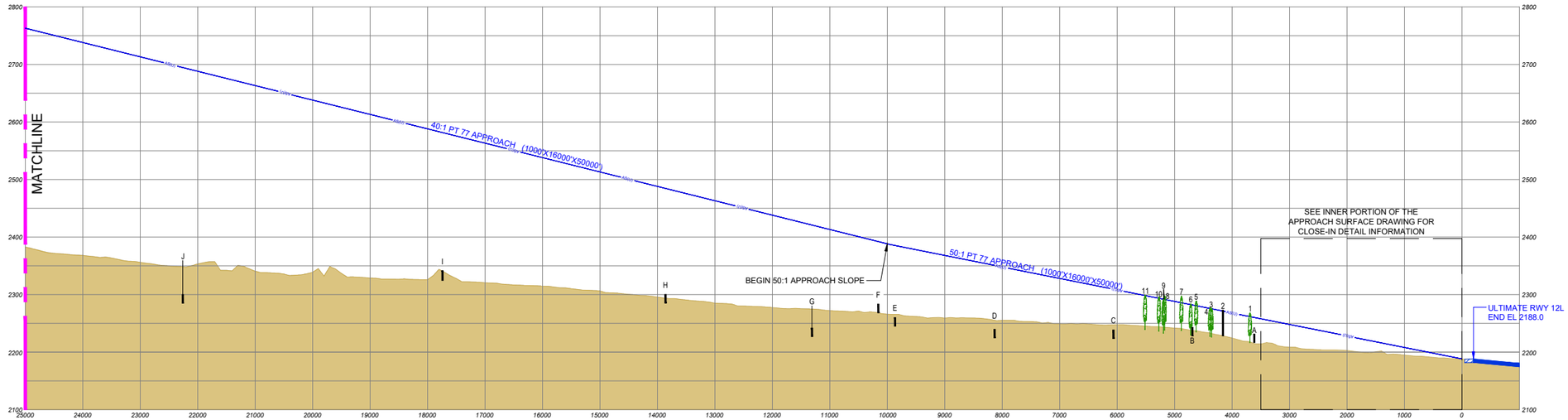
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 6 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1\MP\VGT_24ALP\05 06 \VGT AIRS.dwg Printed Date: 6-02-26 10:44:00 AM diana



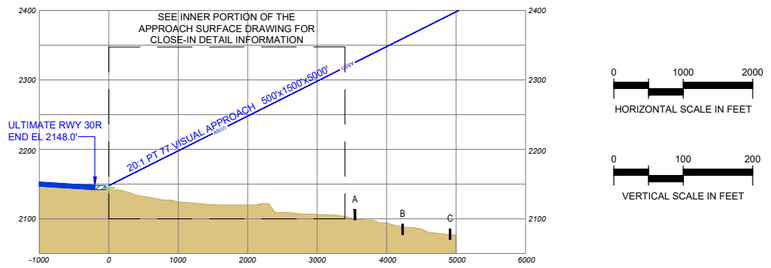
RUNWAY 12L PROFILE

Ultimate Runway 12L Outer-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,219.60	48.60	2,268.20	6.46	Remove Tree
2	Building	36° 13' 8.500" N	115° 12' 30.100" W	ADIP	1A	32-000344	2021-AWP-5404-OE	2,223.00	50.00	2,273.00	1.84	Structure Has Red Obstruction Lighting
3	Tree	36° 13' 15.500" N	115° 12' 25.030" W	ADIP	1A	32-033195	N/A	2,276.00	0.00	2,276.00	0.89	Remove Tree
4	Tree	36° 13' 13.289" N	115° 12' 28.150" W	MTZ	H20/V3	N/A	N/A	2,229.10	48.00	2,277.10	1.46	Remove Tree
5	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,240.20	48.70	2,288.90	8.46	Remove Tree
6	Tree	36° 13' 13.839" N	115° 12' 33.229" W	MTZ	H20/V3	N/A	N/A	2,237.00	46.50	2,283.50	1.13	Remove Tree
7	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,238.30	58.80	2,297.10	11.49	Remove Tree
8	Tree	36° 13' 16.489" N	115° 12' 37.756" W	MTZ	H20/V3	N/A	N/A	2,240.20	57.70	2,297.90	6.48	Remove Tree
9	Tree	36° 13' 14.304" N	115° 12' 40.727" W	MTZ	H20/V3	N/A	N/A	2,243.00	49.50	2,292.50	0.68	Remove Tree
10	Tree	36° 13' 25.371" N	115° 12' 28.757" W	MTZ	H20/V3	N/A	N/A	2,229.10	67.10	2,296.20	2.78	Remove Tree
11	Tree	36° 13' 23.010" N	115° 12' 35.700" W	ADIP	1A	32-032730	N/A	2,299.00	0.00	2,299.00	0.77	Remove Tree

Ultimate Runway 12L Outer-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	N Decatur Blvd	2,216.45	15.00	2,231.45	28.81
B	N Decatur Blvd	2,227.91	15.00	2,242.91	38.90
C	N Decatur Blvd	2,223.47	15.00	2,238.47	70.80
D	W Alexander Rd	2,224.72	15.00	2,239.72	110.93
E	W Alexander Rd	2,244.95	15.00	2,259.95	125.36
F	N Jones Blvd	2,268.24	15.00	2,283.24	108.64
G	W Craig Rd	2,226.76	15.00	2,241.76	179.02
H	Connecting Road	2,285.12	15.00	2,300.12	184.35
I	Us Hwy 95	2,324.38	17.00	2,341.38	240.13
J	W Ann Rd	2,322.15	15.00	2,337.15	357.35



RUNWAY 30R PROFILE

Ultimate Runway 30R Outer-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
No Obstructions												

Ultimate Runway 30R Outer-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Coran Ln	2,098.53	15.00	2,113.53	211.69
B	Coran Ln	2,077.53	15.00	2,092.53	267.01
C	State Hwy 147	2,070.53	15.00	2,085.53	308.17

GENERAL NOTES:

1. THE PART 77 AIRSPACE SURFACES SHOWN ARE BASED ON FUTURE CONDITIONS PER FAA SOP NO. 2, A.5. AIRPORT AIRSPACE DRAWING, ITEM B.
2. UNLESS NOTED OTHERWISE, ALL EXISTING AIRFIELD COORDINATES, ELEVATION, AND BEARINGS FROM SURVEY DATED 04/09/2018 BY MARTINEZ GEOSPATIAL, EAGAN, MN.
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
4. AIRPORT PROTECTION HEIGHT LIMITS ARE ESTABLISHED PER THE CITY OF NORTH LAS VEGAS CODE OF ORDINANCES, SECTION 17.16.050.K (ORD. 2591, 6-15-2011, EFF. 10-1-2011). THE ORDINANCE LIMITS CONSTRUCTION HEIGHT FOR STRUCTURES THAT WOULD CONSTITUTE A "HAZARD TO AIR NAVIGATION" AS DEFINED BY THE FAA.
5. SEE THE INNER PORTION OF THE APPROACH SURFACE DRAWINGS, SHEETS 11 THROUGH 15 FOR CLOSE-IN APPROACH DETAILS.

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

ULTIMATE AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 12L-30R

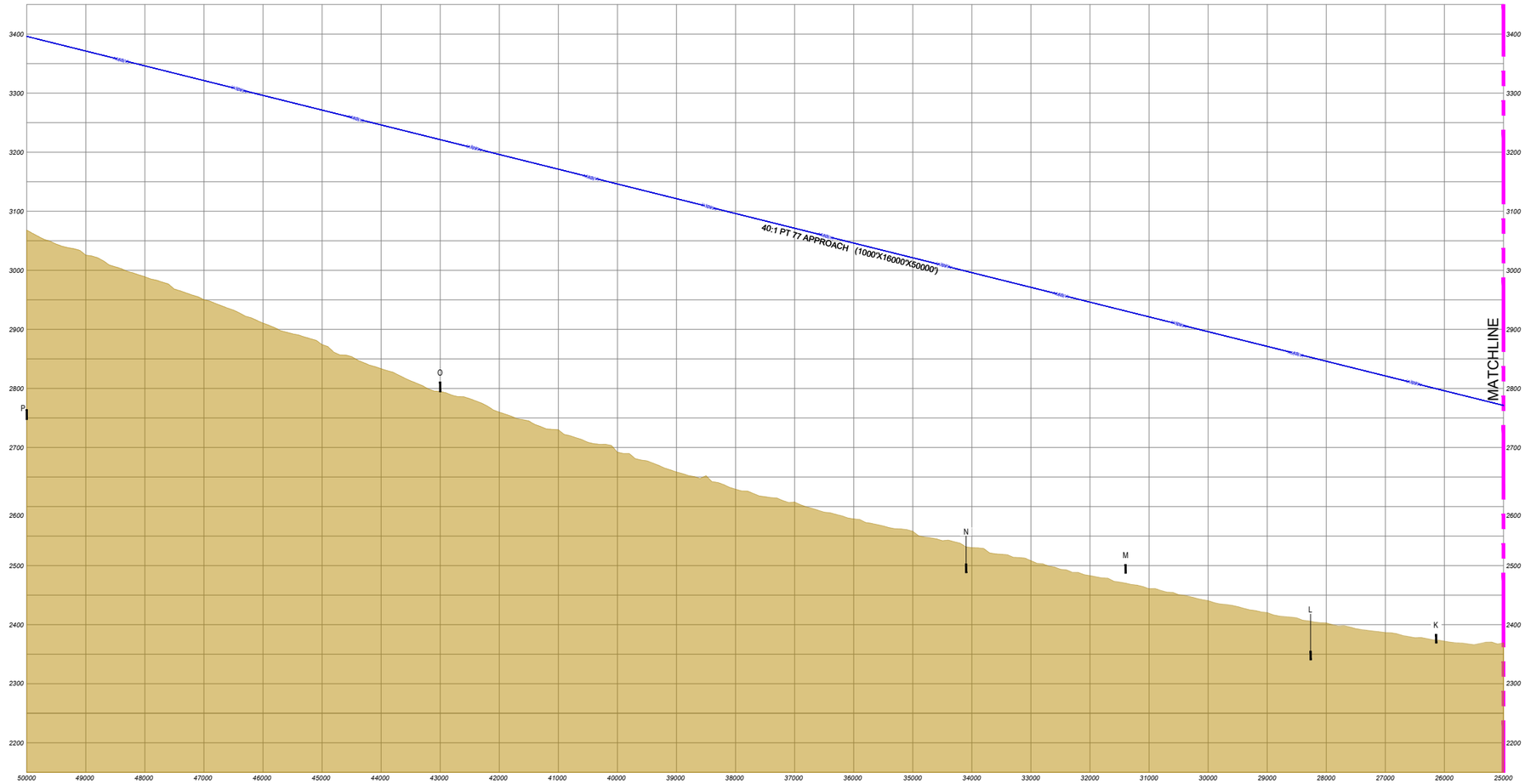
NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 | SHEET 7 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

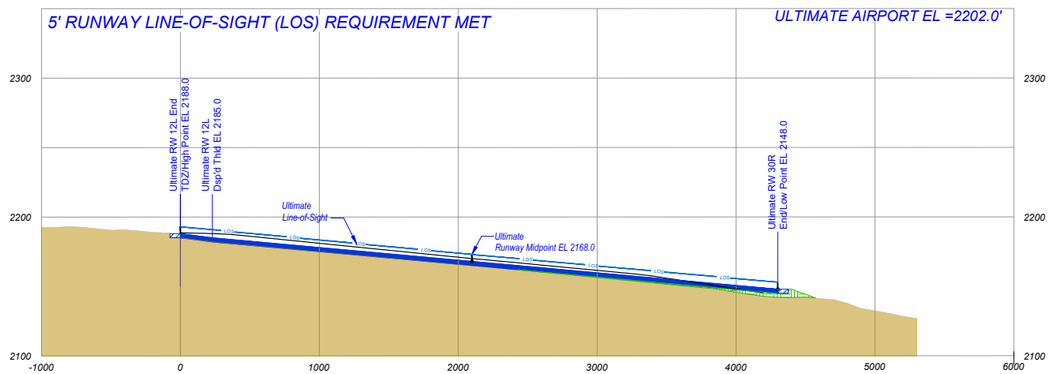
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MPV\GT_24\ALP\07 VGT AIRS PROFS 12L30R.dwg Printed Date: 6-02-26 10:44:10 AM diana



RUNWAY 12L PROFILE

Ultimate Runway 12L Outer-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
K	W Ann Rd	2,368.55	15.00	2,383.55	407.94
L	State Hwy 215	2,338.14	17.00	2,355.14	489.48
M	W Ann Rd	2,486.70	15.00	2,501.70	421.22
N	State Hwy 215	2,487.73	15.00	2,502.73	487.67
O	County Hwy 215	2,793.99	17.00	2,810.99	402.02
P	Us Hwy 95	2,747.16	17.00	2,764.16	623.84



RUNWAY 12L-30R PROFILE

0 500 1000
HORIZONTAL SCALE IN FEET

0 50 100
VERTICAL SCALE IN FEET

0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

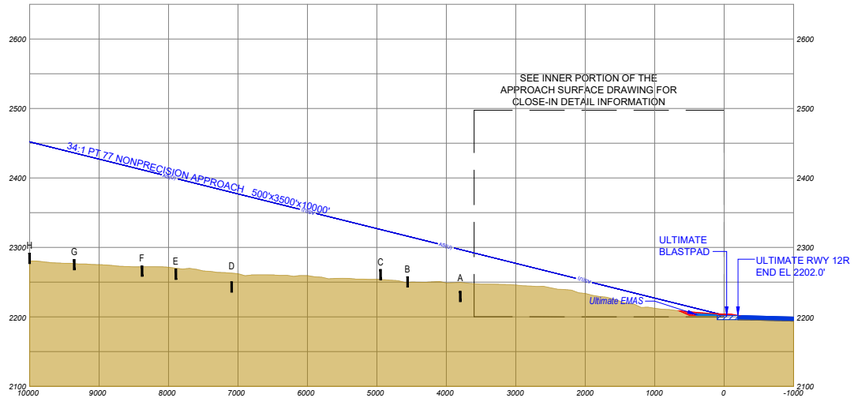
NORTH LAS VEGAS AIRPORT
ULTIMATE AIRPORT AIRSPACE APPROACH AND RUNWAY PROFILE RUNWAY 12L-30R
NORTH LAS VEGAS, NEVADA

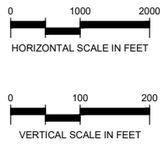
PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

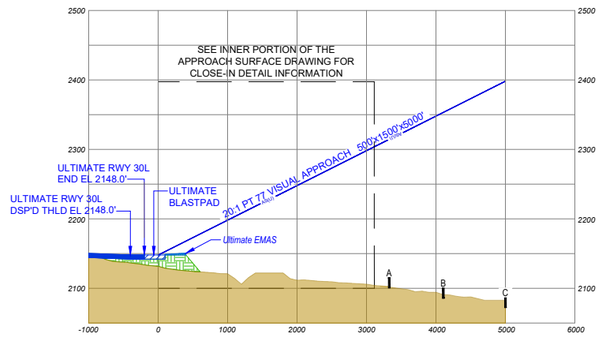
May 2026 SHEET 8 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\APV\GIT_24\ALP\08 VGT AIRS PROF 12L RW PROF 12L-30R.dwg Printed Date: 6-02-26 10:44:21 AM diana







Ultimate Runway 12R Outer-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
No Obstructions												

Ultimate Runway 30L Outer-Approach Obstructions

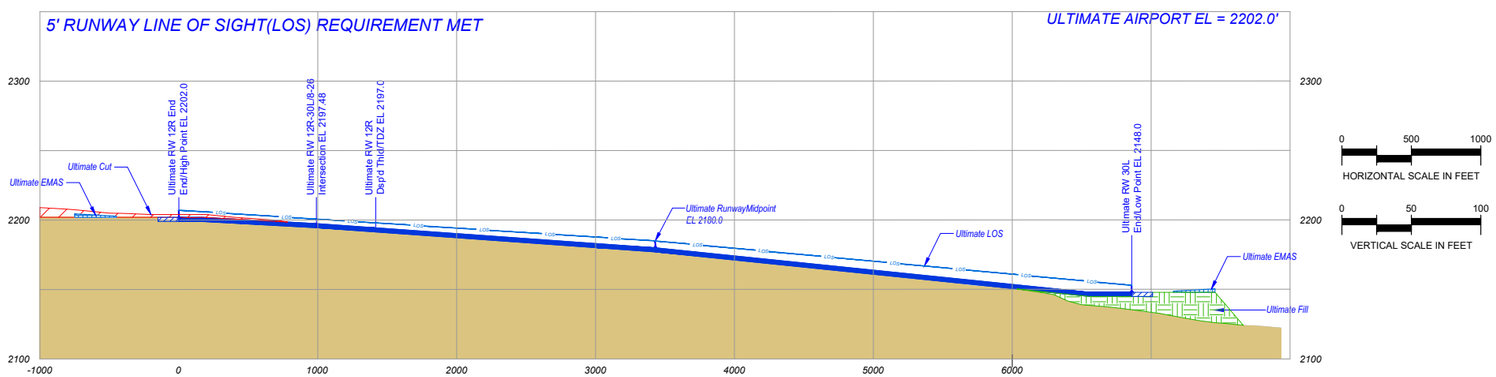
ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
No Obstructions												

Ultimate Runway 12R Outer-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Gowan Rd	2,236.76	15.00	2,251.76	61.94
B	W Gowan Rd	2,242.88	15.00	2,257.88	78.14
C	N Rancho Dr	2,253.22	15.00	2,268.22	79.25
D	W Alexander Rd	2,235.44	15.00	2,250.44	160.06
E	W Gilmore Ave	2,268.84	15.00	2,283.84	150.29
F	W Alexander Rd	2,258.38	15.00	2,273.38	175.10
G	N Jones Blvd	2,267.70	15.00	2,282.70	194.49
H	W Alexander Rd	2,276.56	15.00	2,291.56	204.55

Ultimate Runway 30L Outer-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Simmons St	2,100.48	15.00	2,115.48	229.85
B	Perryville Ave	2,085.39	15.00	2,100.39	283.85
C	Saxton Hill Ave	2,072.21	15.00	2,087.21	341.79



RUNWAY 12R-30L PROFILE

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

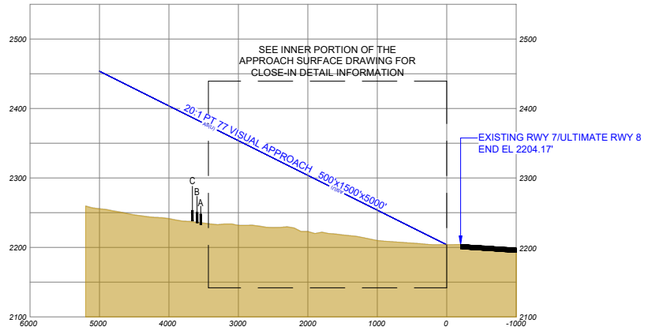
ULTIMATE AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 12R-30L

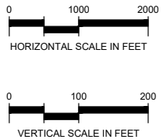
NORTH LAS VEGAS, NEVADA

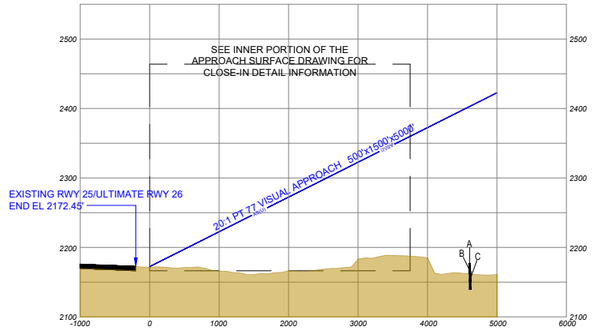
PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 9 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\dlana\Coffman Associates Inc\Coffman - tp_CAD (1)\MP\VGT_24\ALP\09 VGT A ARS PROF 12R-30L.dwg Printed Date: 6-02-26 10:44:39 AM dlana







Existing Runway 7/Ultimate Runway 8 Outer-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 25/Ultimate Runway 26 Outer-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 7/Ultimate Runway 8 Outer-Approach Significant Objects

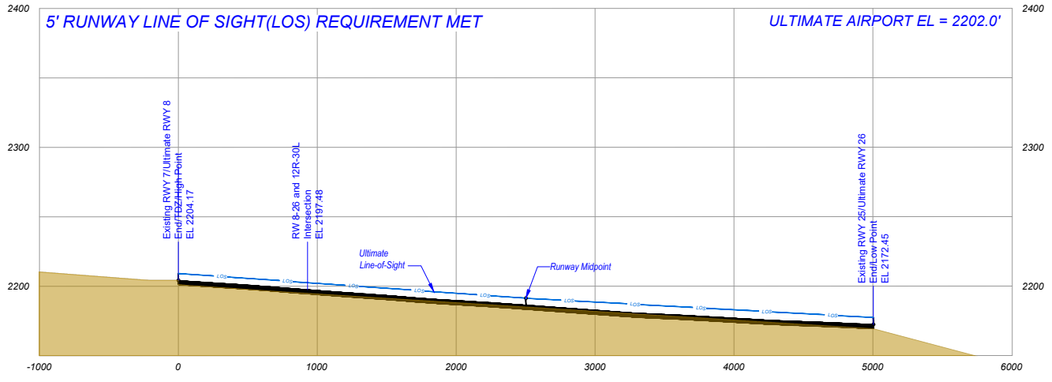
ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	N Michael Way	2,232.84	15.00	2,247.84	133.36
B	N Michael Way	2,235.39	15.00	2,250.39	133.46
C	N Michael Way	2,238.06	15.00	2,253.06	134.17

Existing Runway 25/Ultimate Runway 26 Outer-Approach Significant Objects

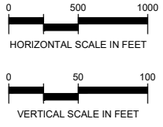
ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Clayton St	2,161.98	15.00	2,176.98	225.85
B	Clayton St	2,150.43	15.00	2,165.43	237.83
C	Clayton St	2,138.14	15.00	2,153.14	250.07

GENERAL NOTE:

1. ALL REFERENCES TO ULTIMATE CONDITION PERTAIN TO UPDATING THE RUNWAY DESIGNATION FROM 7-25 TO 8-26 TRIGGERED BY REEVALUATION OF RUNWAY'S MAGNETIC HEADING



RUNWAY 8-26 PROFILE



NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

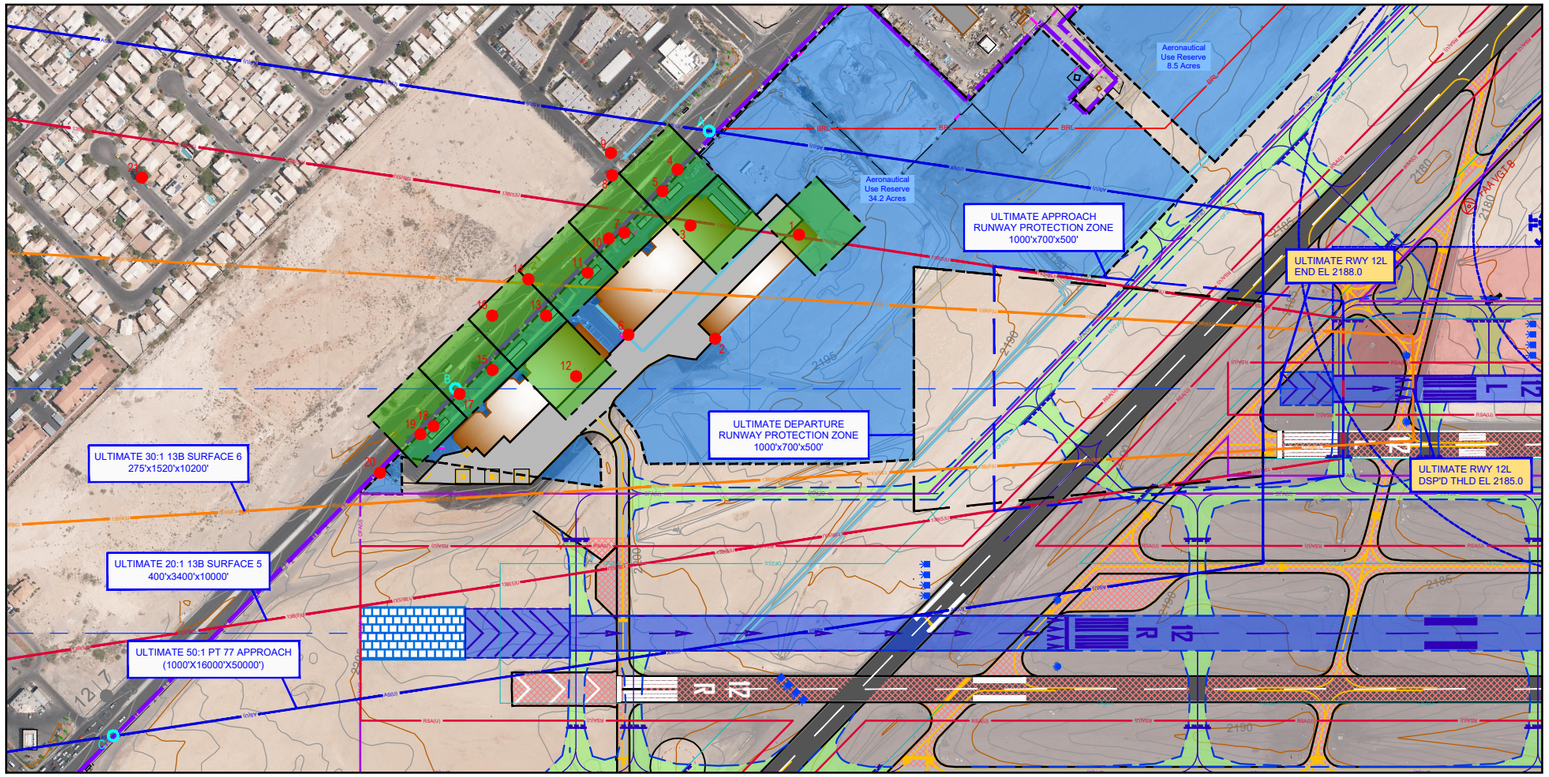
ULTIMATE AIRPORT AIRSPACE APPROACH PROFILE RUNWAY 8-26

NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 10 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - 9_CAD (1\APP\VGT_24ALP10 VGT AIRS PROF 8-26.dwg Printed Date: 6-02-26 10:44:39 AM diana

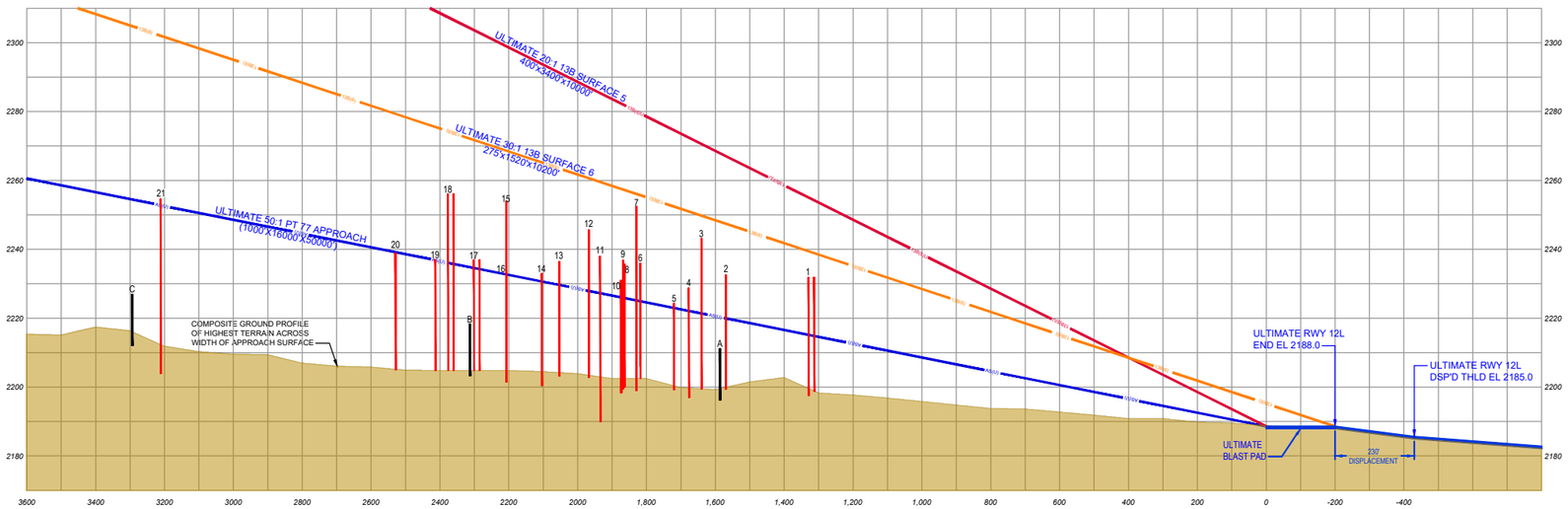


GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. SEE SHEET 15 FOR RUNWAY 12L-30R OBSTRUCTION AND SIGNIFICANT OBJECT TABLES.
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
4. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
5. OBSTRUCTIONS WITHIN GRIDS REPRESENT TALLEST NATURAL AND/OR MANMADE FEATURE.
6. TERRAIN TO BE CLEARED AND GRADED TO MEET FAA STANDARDS.

LEGEND

- OBSTRUCTION GROUPING
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT





Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

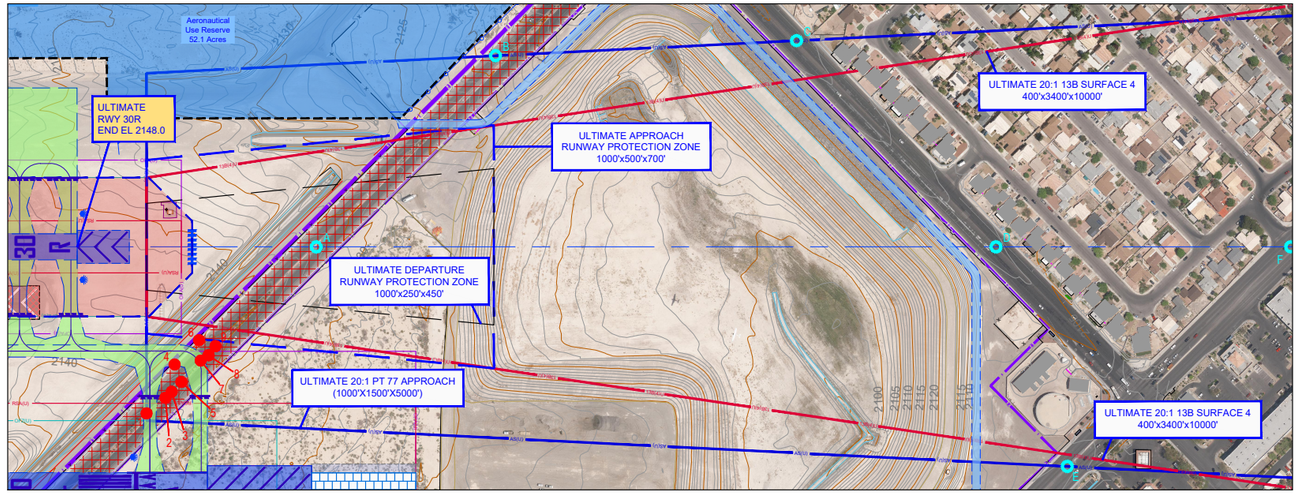
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE
APPROACH SURFACE DRAWING
ULTIMATE RUNWAY 12L
NORTH LAS VEGAS, NEVADA

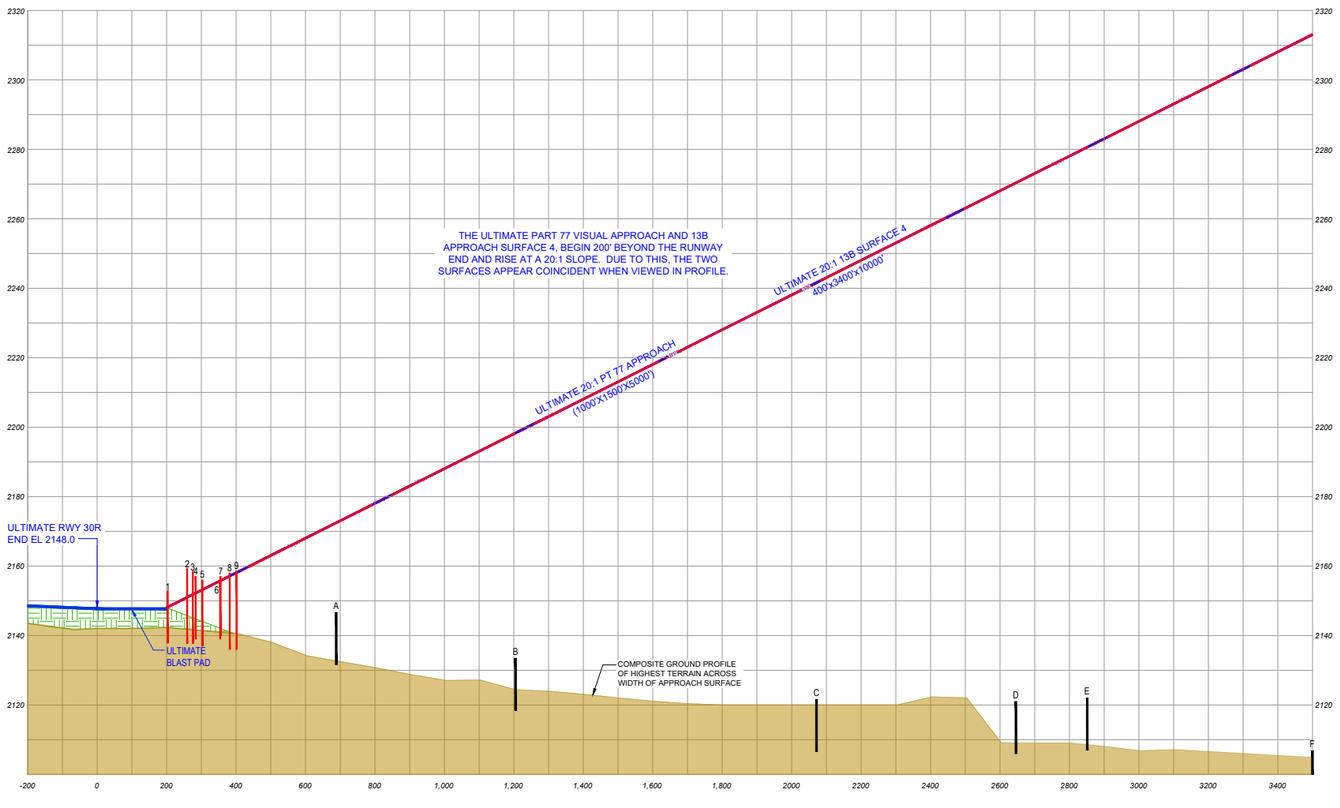
PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 11 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MP\VGT_24\ALP\11 VGT U 12L IPASD.dwg Printed Date: 6-02-26 10:44:52 AM diana





GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. SEE SHEET 15 FOR RUNWAY 12L-30R OBSTRUCTION AND SIGNIFICANT OBJECT TABLES.
4. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
5. TERRAIN TO BE CLEARED AND GRADED TO MEET FAA STANDARDS.

LEGEND

- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT
- FILL AND GRADE



Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

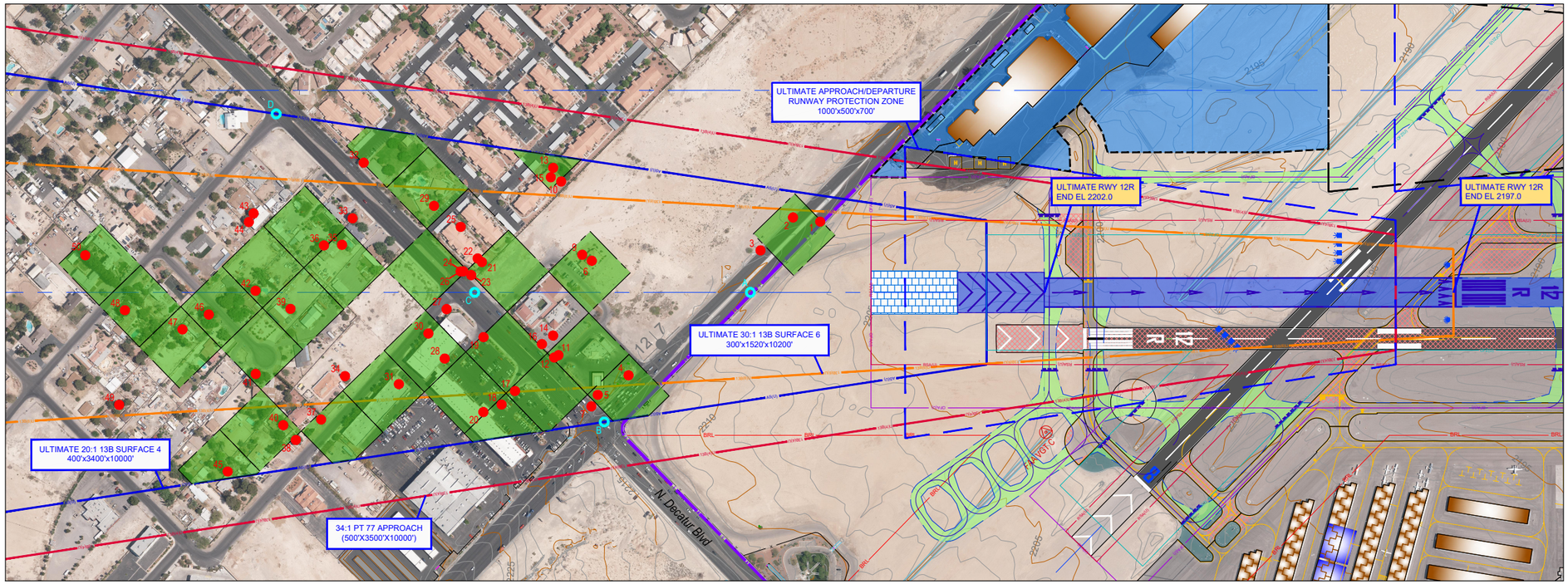
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE
APPROACH SURFACE DRAWING
ULTIMATE RUNWAY 30R
NORTH LAS VEGAS, NEVADA

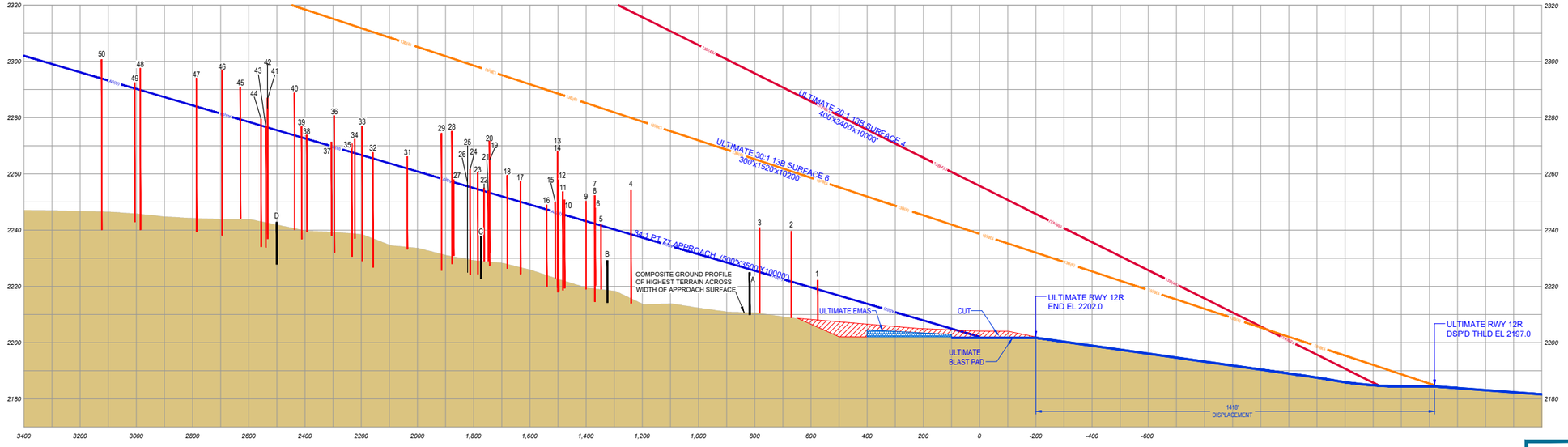
PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 12 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - 99_CAD (1)\MPR\VGT_24\ALP\12 VGT U 30R IPASD.dwg Printed Date: 6-22-26 10:45:15 AM diana





GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. SEE SHEET 15 FOR RUNWAY 12R-30L OBSTRUCTION AND SIGNIFICANT OBJECT TABLES.
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83; VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
4. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
5. OBSTRUCTIONS WITHIN GRIDS REPRESENT TALLEST NATURAL AND/OR MANMADE FEATURE.
6. TERRAIN TO BE CLEARED AND GRADED TO MEET FAA STANDARDS.

LEGEND

- OBSTRUCTION GROUPING
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

HORIZONTAL SCALE IN FEET: 0 200 400

VERTICAL SCALE IN FEET: 0 20 40

NO.	REVISIONS	DATE	BY	APP'D.

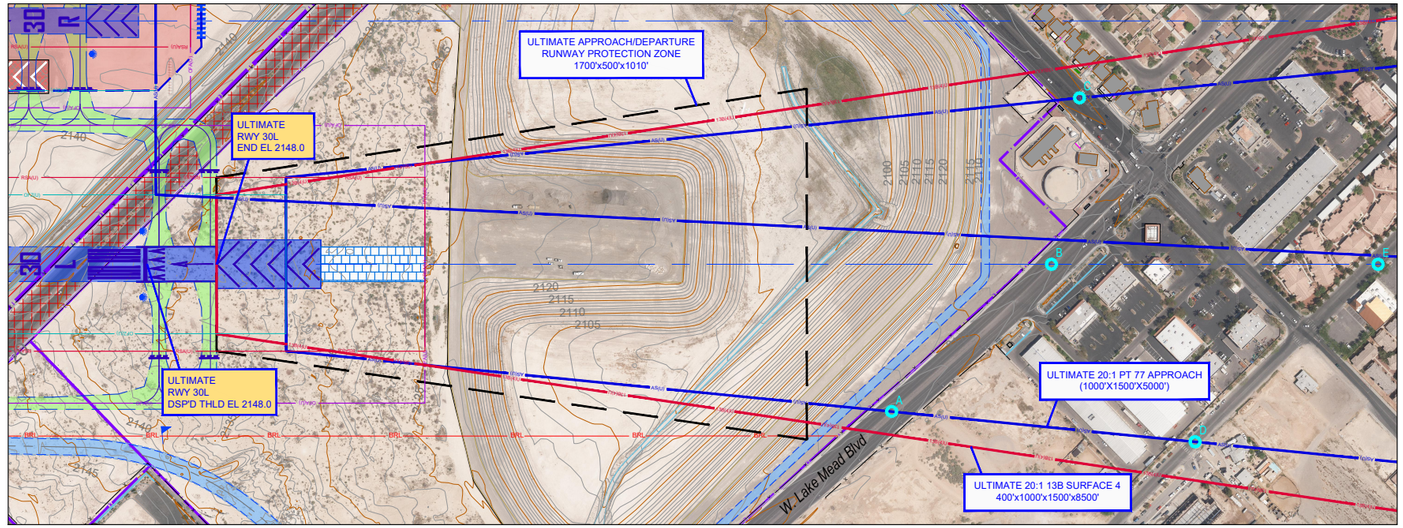
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

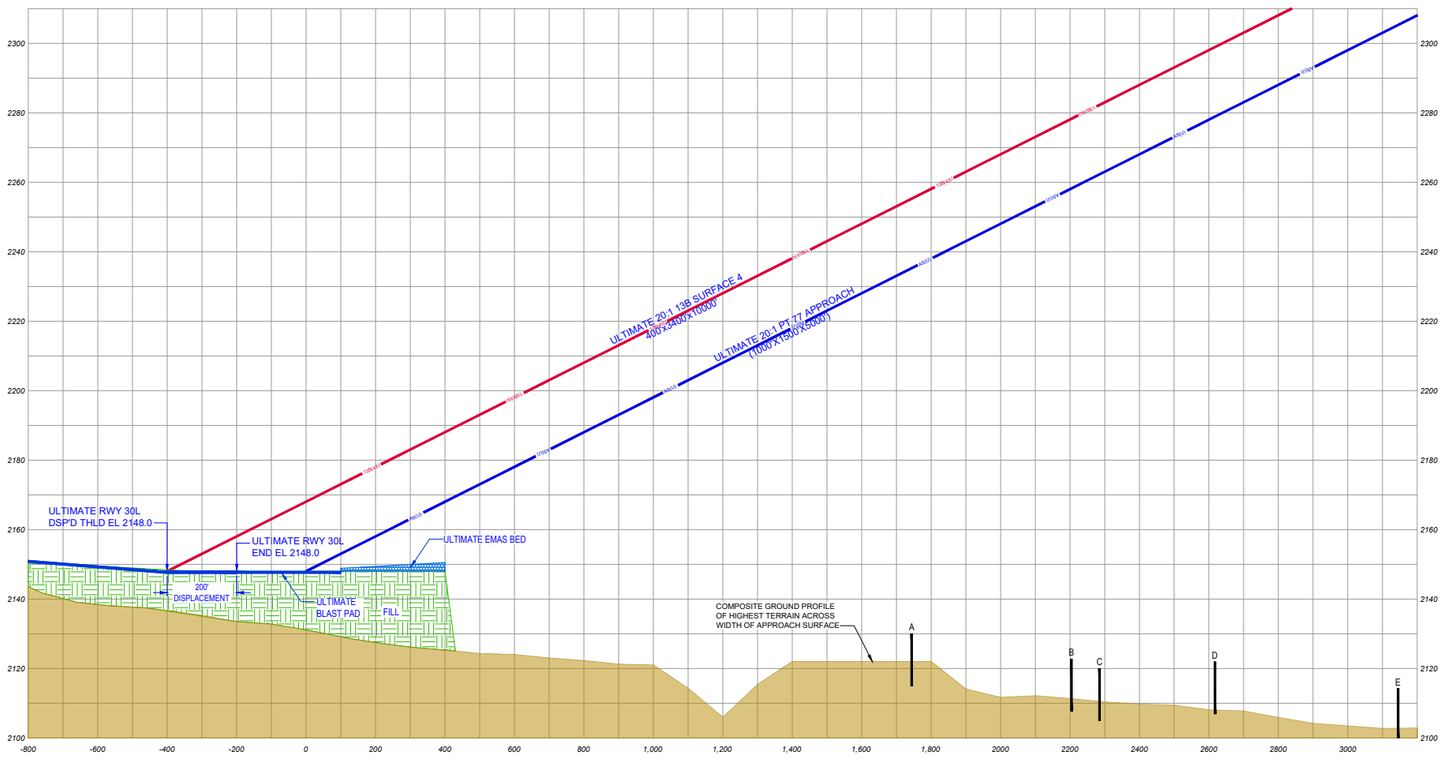
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE
APPROACH SURFACE DRAWING
ULTIMATE RUNWAY 12R
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 13 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - 99_CAD (1\MPV\GT_24\ALP\13 VGT U 12R IPASD.dwg Printed Date: 6-02-26 10:45:17 AM diana





GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. SEE SHEET 15 FOR RUNWAY 12R-30L OBSTRUCTION AND SIGNIFICANT OBJECT TABLES.
4. OBJECTS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
5. TERRAIN TO BE CLEARED AND GRADED TO MEET FAA STANDARDS.

LEGEND

SIGNIFICANT OBJECT

FILL AND GRADE



Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE
APPROACH SURFACE DRAWING ULTIMATE
RUNWAY 30L
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 14 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\MPR\VGT_24\ALP\14 VGT U 30L IPASD.dwg Printed Date: 6-02-26 10:46:01 AM diana

Ultimate Runway 12L Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Ultimate Part 77 Surface Penetration Value (ft)	Remediation
1	Utility On Building	36° 12' 58.451" N	115° 11' 53.952" W	MTZ	H20/V3	32-022121	N/A	2,231.90	2,198.70	33.20	17.32	Add Obstruction Lighting
2	Railing On Building	36° 12' 58.006" N	115° 11' 58.588" W	MTZ	H20/V3	32-022124	N/A	2,232.60	2,199.40	33.20	13.21	Add Obstruction Lighting
3	Vent On Building	36° 13' 0.786" N	115° 11' 56.445" W	MTZ	H20/V3	32-022122	N/A	2,243.20	2,199.70	43.50	22.40	Add Obstruction Lighting
4	Light Pole	36° 13' 2.178" N	115° 11' 55.393" W	MTZ	H20/V3	N/A	N/A	2,228.80	2,197.00	31.80	7.26	Lower/Relocate
5	Tree	36° 13' 2.037" N	115° 11' 56.296" W	MTZ	H20/V3	N/A	N/A	2,224.30	2,199.20	25.10	1.90	Remove Tree
6	Building	36° 12' 59.800" N	115° 12' 0.660" W	ADIP	1A	32-022125	N/A	2,236.00	2,206.00	30.00	11.65	Add Obstruction Lighting
7	Tree	36° 13' 1.949" N	115° 11' 58.268" W	MTZ	H20/V3	N/A	N/A	2,252.50	2,199.00	53.50	27.91	Remove Tree
8	Tree	36° 13' 3.356" N	115° 11' 57.169" W	MTZ	H20/V3	N/A	N/A	2,235.70	2,200.00	35.70	10.41	Remove Tree
9	Tree	36° 13' 3.832" N	115° 11' 56.661" W	MTZ	H20/V3	N/A	N/A	2,236.90	2,199.50	37.40	11.54	Remove Tree
10	Light Pole	36° 13' 2.140" N	115° 11' 58.799" W	MTZ	H20/V3	N/A	N/A	2,231.10	2,198.40	32.70	5.62	Lower/Relocate
11	Tree	36° 13' 1.863" N	115° 12' 0.166" W	MTZ	H20/V3	N/A	N/A	2,238.00	2,238.00	0.00	11.31	Remove Tree
12	Satellite Dish	36° 13' 0.000" N	115° 12' 2.981" W	MTZ	H20/V3	32-073679	N/A	2,245.70	2,202.80	42.90	18.35	Add Obstruction Lighting
13	Tree	36° 13' 1.814" N	115° 12' 2.254" W	MTZ	H20/V3	N/A	N/A	2,236.50	2,203.20	33.30	7.43	Remove Tree
14	Light Pole	36° 13' 2.906" N	115° 12' 1.805" W	MTZ	H20/V3	N/A	N/A	2,233.00	2,200.50	32.50	2.92	Lower/Relocate
15	Tree	36° 13' 1.779" N	115° 12' 4.924" W	MTZ	H20/V3	N/A	N/A	2,254.00	2,203.30	50.70	21.85	Remove Tree
16	Light Pole	36° 13' 2.884" N	115° 12' 3.598" W	MTZ	H20/V3	N/A	N/A	2,233.50	2,201.50	32.00	1.35	Lower/Relocate
17	Pole	36° 13' 1.940" N	115° 12' 6.330" W	ADIP	1A	32-021774	N/A	2,237.00	2,210.00	27.00	2.98	Lower/Relocate
18	Tree	36° 13' 1.811" N	115° 12' 7.767" W	MTZ	H20/V3	N/A	N/A	2,256.20	2,205.20	51.00	20.67	Remove Tree
19	Pole	36° 13' 1.900" N	115° 12' 8.290" W	ADIP	1A	32-021776	N/A	2,237.00	2,211.00	26.00	0.74	Lower/Relocate
20	Pole	36° 13' 1.920" N	115° 12' 10.240" W	ADIP	1A	32-021779	N/A	2,239.00	2,212.00	27.00	0.42	Lower/Relocate
21	Tree	36° 13' 12.619" N	115° 12' 8.985" W	MTZ	H20/V3	N/A	N/A	2,254.70	2,204.00	50.70	2.47	Remove Tree

Ultimate Runway 30R Inner-Approach Obstructions

	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Ultimate Part 77 Surface Penetration Value (ft)	Remediation
1	W Carey Ave	36° 12' 10.272" N	115° 11' 9.175" W	Combined DEM	N/A	N/A	N/A	2,152.81	2,216.90	15.00	4.81	To Remain
2	Tree	36° 12' 10.228" N	115° 11' 8.269" W	MTZ	H20/V3	N/A	N/A	2,159.30	2,211.00	21.60	8.49	Remove Tree
3	Tree	36° 12' 10.212" N	115° 11' 8.012" W	MTZ	H20/V3	N/A	N/A	2,158.50	2,222.40	20.80	6.88	Remove Tree
4	Pole	36° 12' 10.710" N	115° 11' 7.270" W	ADIP	1A	32-021851	N/A	2,157.00	2,210.80	18.00	4.96	Lower/Relocate
5	Tree	36° 12' 10.220" N	115° 11' 7.530" W	ADIP	1A	32-032722	N/A	2,156.00	2,205.30	19.00	2.99	Remove Tree
6	Pole	36° 12' 10.720" N	115° 11' 6.060" W	ADIP	1A	32-021850	N/A	2,156.00	2,219.00	17.00	0.45	Lower/Relocate
7	Tree	36° 12' 10.270" N	115° 11' 6.520" W	ADIP	1A	32-032711	N/A	2,157.00	2,157.00	0.00	1.21	Remove Tree
8	Tree	36° 12' 10.220" N	115° 11' 6.190" W	ADIP	1A	32-065991	N/A	2,158.00	2,213.70	22.00	1.07	Remove Tree
9	Tree	36° 12' 10.270" N	115° 11' 5.790" W	ADIP	1A	32-032710	N/A	2,158.00	2,214.90	22.00	0.07	Remove Tree

Ultimate Runway 12L Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,196.20	15.00	2,211.20	8.53
B	W Cheyenne Ave	2,203.28	15.00	2,218.28	15.98
C	W Cheyenne Ave	2,212.00	15.00	2,227.00	26.87

Ultimate Runway 30R Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Carey Ave	2,131.63	15.00	2,146.63	25.80
B	W Carey Ave	2,118.41	15.00	2,133.41	64.84
C	Simmons St	2,109.31	15.00	2,124.31	117.28
D	Simmons St	2,106.00	15.00	2,121.00	149.29
E	W Lake Mead Blvd	2,107.00	15.00	2,122.00	158.56
F	State Hwy 147	2,091.15	15.00	2,106.15	206.80

Ultimate Runway 12R Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Existing Part 77 Surface Penetration Value (ft)	Remediation
1	W Cheyenne Ave	36° 13' 2.009" N	115° 12' 14.100" W	Combined DEM	N/A	N/A	N/A	2,222.17	2,207.17	15.00	3.21	To Remain
2	Light Pole	36° 13' 2.762" N	115° 12' 14.799" W	MTZ	H20/V3	32-021845	N/A	2,239.60	2,207.80	31.80	17.87	Lower/Relocate
3	Light Pole	36° 13' 2.733" N	115° 12' 16.755" W	MTZ	H20/V3	32-021844	N/A	2,240.90	2,208.80	32.10	15.86	Lower/Relocate
4	Tree	36° 13' 2.830" N	115° 12' 24.442" W	MTZ	H20/V3	N/A	N/A	2,254.10	2,214.00	40.10	15.61	Remove Tree
5	Sign	36° 13' 3.090" N	115° 12' 25.950" W	ADIP	1A	32-021893	N/A	2,242.00	2,226.00	16.00	0.37	Add Obstruction Lighting
6	Building	36° 13' 6.520" N	115° 12' 22.168" W	MTZ	H20/V3	N/A	N/A	2,250.80	2,220.30	30.50	8.56	Add Obstruction Lighting
7	Light Pole	36° 13' 2.959" N	115° 12' 26.484" W	MTZ	H20/V3	N/A	N/A	2,252.30	2,214.60	37.70	10.02	Lower/Relocate
8	Light Pole	36° 13' 2.959" N	115° 12' 26.484" W	MTZ	H20/V3	N/A	N/A	2,252.30	2,214.60	37.70	10.02	Lower/Relocate
9	Tree	36° 13' 6.894" N	115° 12' 22.277" W	MTZ	H20/V3	N/A	N/A	2,250.30	2,219.00	31.30	7.09	Remove Tree
10	Tree	36° 13' 9.220" N	115° 12' 20.775" W	MTZ	H20/V3	N/A	N/A	2,250.80	2,219.40	31.40	5.35	Remove Tree
11	Sign	36° 13' 5.002" N	115° 12' 25.964" W	MTZ	H20/V3	N/A	N/A	2,253.70	2,218.70	35.00	8.07	Add Obstruction Lighting
12	Tree	36° 13' 5.048" N	115° 12' 26.166" W	MTZ	H20/V3	N/A	N/A	2,260.80	2,218.30	42.50	14.73	Remove Tree
13	Tree	36° 13' 9.722" N	115° 12' 20.587" W	MTZ	H20/V3	N/A	N/A	2,253.10	2,218.00	35.10	6.93	Remove Tree
14	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,268.20	2,219.60	48.60	22.02	Remove Tree
15	Building	36° 13' 9.550" N	115° 12' 20.940" W	ADIP	1A	32-022108	N/A	2,250.00	2,224.00	26.00	3.58	Add Obstruction Lighting
16	Pole	36° 13' 5.670" N	115° 12' 26.140" W	ADIP	1A	32-073267	N/A	2,249.00	2,220.00	29.00	1.68	Lower/Relocate
17	Light Pole	36° 13' 5.164" N	115° 12' 28.339" W	MTZ	H20/V3	N/A	N/A	2,257.30	2,224.40	32.90	7.24	Lower/Relocate
18	Light Pole	36° 13' 5.153" N	115° 12' 29.146" W	MTZ	H20/V3	N/A	N/A	2,259.50	2,226.40	33.10	8.07	Lower/Relocate
19	Pole	36° 13' 7.240" N	115° 12' 27.700" W	ADIP	1A	32-021921	N/A	2,265.00	2,232.00	33.00	11.73	Lower/Relocate
20	Antenna	36° 13' 5.406" N	115° 12' 29.919" W	MTZ	H20/V3	N/A	N/A	2,271.70	2,227.50	44.20	18.41	Add Obstruction Lighting
21	Building	36° 13' 9.120" N	115° 12' 25.530" W	ADIP	1A	32-022105	N/A	2,254.00	2,229.00	25.00	0.56	Add Obstruction Lighting
22	Building	36° 13' 9.310" N	115° 12' 25.550" W	ADIP	1A	32-022104	N/A	2,255.00	2,229.00	26.00	1.13	Add Obstruction Lighting
23	Tree	36° 13' 9.056" N	115° 12' 26.239" W	MTZ	H20/V3	32-040795	N/A	2,260.50	2,224.40	36.10	5.97	Remove Tree
24	Tree	36° 13' 9.337" N	115° 12' 26.365" W	MTZ	H20/V3	N/A	N/A	2,261.70	2,224.10	37.60	6.37	Remove Tree
25	Tree	36° 13' 10.490" N	115° 12' 25.130" W	ADIP	1A	32-073790	N/A	2,257.00	2,225.00	32.00	1.40	Remove Tree
26	Pole	36° 13' 9.400" N	115° 12' 26.450" W	ADIP	1A	32-021930	N/A	2,257.00	2,230.00	27.00	1.39	Lower/Relocate
27	Pole	36° 13' 8.810" N	115° 12' 27.990" W	ADIP	1A	32-021919	N/A	2,258.00	2,231.00	27.00	0.96	Lower/Relocate
28	Antenna On Building	36° 13' 7.643" N	115° 12' 29.508" W	MTZ	H20/V3	32-000344	2021-AWP-5404-OE	2,275.20	2,228.10	47.10	17.97	Object Has Red Obstruction Lighting
29	Tree	36° 13' 11.645" N	115° 12' 25.315" W	MTZ	H20/V3	N/A	N/A	2,274.50	2,225.70	48.80	16.18	Remove Tree
30	Tree	36° 13' 8.650" N	115° 12' 29.260" W	ADIP	1A	32-032705	N/A	2,266.00	2,266.00	0.00	7.11	Remove Tree
31	Antenna	36° 13' 8.114" N	115° 12' 31.651" W	MTZ	H20/V3	32-073539	N/A	2,266.20	2,233.30	32.90	4.30	Add Obstruction Lighting
32	Tree	36° 13' 14.389" N	115° 12' 26.168" W	MTZ	H20/V3	N/A	N/A	2,267.70	2,226.80	40.90	2.21	Remove Tree
33	Tree	36° 13' 13.289" N	115° 12' 28.150" W	MTZ	H20/V3	N/A	N/A	2,277.10	2,229.10	48.00	10.48	Remove Tree
34	Tree	36° 13' 9.600" N	115° 12' 33.045" W	MTZ	H20/V3	32-031440	N/A	2,272.40	2,237.10	35.30	5.01	Remove Tree
35	Tree	36° 13' 12.892" N	115° 12' 29.252" W	MTZ	H20/V3	N/A	N/A	2,270.80	2,230.70	40.10	3.11	Remove Tree
36	Tree	36° 13' 13.309" N	115° 12' 29.818" W	MTZ	H20/V3	N/A	N/A	2,280.80	2,232.10	48.70	11.26	Remove Tree
37	Tree	36° 13' 9.109" N	115° 12' 35.050" W	MTZ	H20/V3	N/A	N/A	2,271.40	2,238.10	33.30	1.57	Remove Tree
38	Tree	36° 13' 9.213" N	115° 12' 36.420" W	MTZ	H20/V3	N/A	N/A	2,273.90	2,239.50	34.40	1.49	Remove Tree
39	Tree	36° 13' 12.557" N	115° 12' 32.705" W	MTZ	H20/V3	N/A	N/A	2,276.90	2,236.90	40.00	3.95	Remove Tree
40	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,288.90	2,240.20	48.70	15.22	Remove Tree
41	Tree	36° 13' 11.792" N	115° 12' 35.682" W	MTZ	H20/V3	N/A	N/A	2,287.10	2,238.70	48.40	10.61	Remove Tree
42	Tree	36° 13' 13.839" N	115° 12' 33.229" W	MTZ	H20/V3	N/A	N/A	2,283.50	2,237.00	46.50	6.98	Remove Tree
43	Tree	36° 13' 15.780" N	115° 12' 31.000" W	ADIP	1A	32-067044	N/A	2,277.00	2,234.00	43.00	0.29	Remove Tree
44	Tree	36° 13' 15.684" N	115° 12' 31.399" W	MTZ	H20/V3	32-031474	N/A	2,279.60	2,234.20	45.40	2.40	Remove Tree
45	Tree	36° 13' 10.072" N	115° 12' 39.415" W	MTZ	H20/V3	32-031458	N/A	2,290.80	2,244.20	46.60	11.45	Remove Tree
46	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,297.10	2,238.30	58.80	15.82	Remove Tree
47	Tree	36° 13' 14.639" N	115° 12' 36.580" W	MTZ	H20/V3	N/A	N/A	2,294.10	2,239.50	54.60	10.14	Remove Tree
48	Tree	36° 13' 16.489" N	115° 12' 37.756" W	MTZ	H20/V3	N/A	N/A	2,297.90	2,240.20	57.70	8.07	Remove Tree
49	Tree	36° 13' 14.304" N	115° 12' 40.727" W	MTZ	H20/V3	N/A	N/A	2,292.50	2,243.00	49.50	2.09	Remove Tree
50	Tree	36° 13' 18.783" N	115° 12' 37.331" W	MTZ	H20/V3	N/A	N/A	2,300.80	2,240.20	60.60	6.94	Remove Tree

Ultimate Runway 30L Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Ultimate Runway 12R Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,209.89	15.00	2,224.89	1.18
B	N Decatur Blvd	2,214.20	15.00	2,229.20	11.76
C	N Decatur Blvd	2,222.65	15.00	2,237.65	16.53
D	Ricky Rd	2,227.82	15.00	2,242.82	31.59

Ultimate Runway 30L Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Lake Mead Blvd	2,112.00	15.00	2,127.00	139.20
B	W Lake Mead Blvd	2,107.69	15.00	2,122.69	166.52
C	Simmons St	2,105.00	15.00	2,120.00	173.25
D	Coran Ln	2,106.93	15.00	2,121.93	187.96
E	Coran Ln	2,099.23	15.00	2,114.23	222.02

NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH
ULTIMATE RUNWAYS 12L-30R AND 12R-30L
OBSTRUCTION AND SIGNIFICANT OBJECT TABLES
NORTH LAS VEGAS, NEVADA

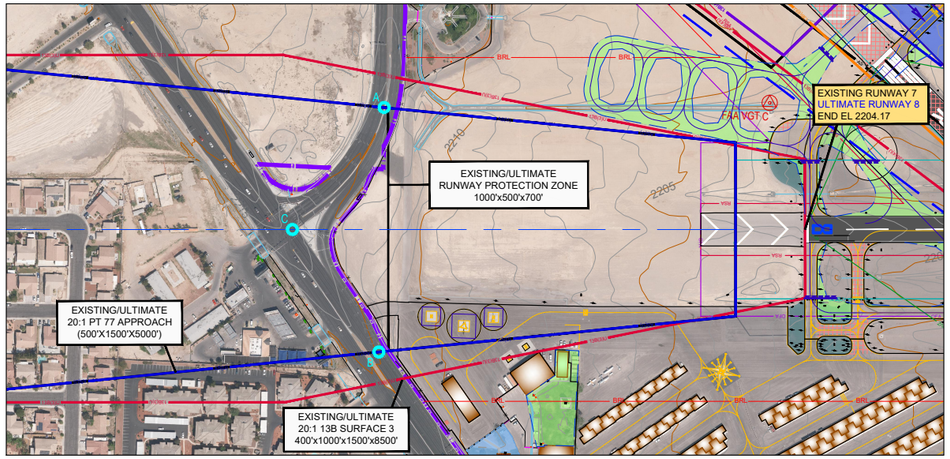
NO.	REVISIONS	DATE	BY	APP'D.

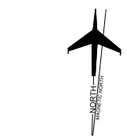
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko
May 2026
SHEET 15 OF 30

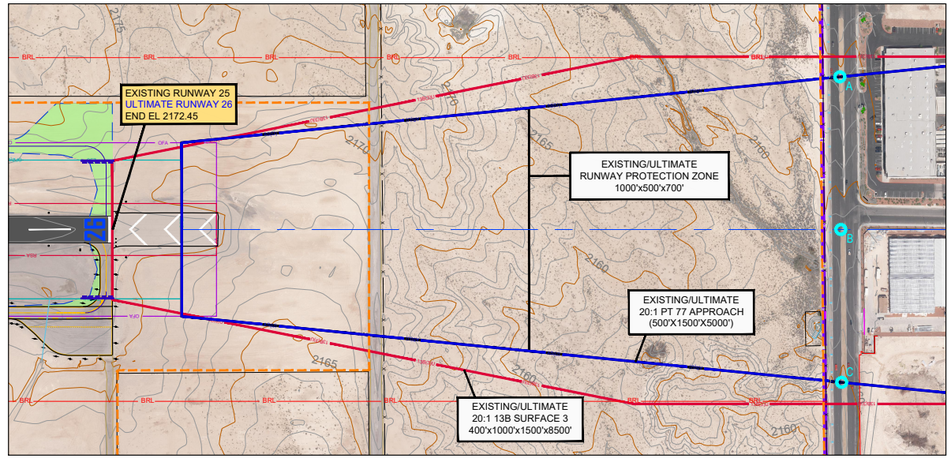
Coffman Associates
Airport Consultants
www.coffmanassociates.com

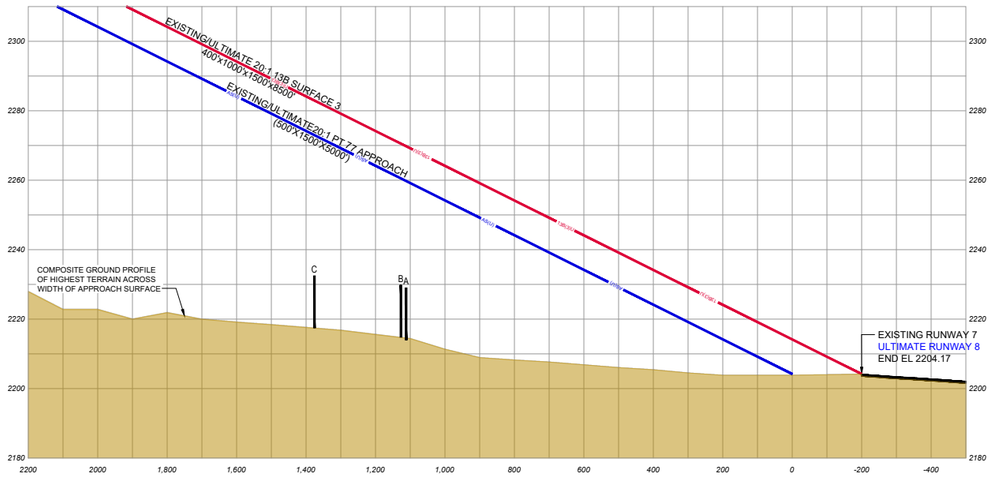
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\APV\GIT_24\ALP\15 VGT U 12L-30R IPASS OBS TABLES.dwg Printed Date: 5-02-26 10:46:08 AM diana

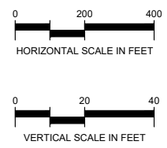


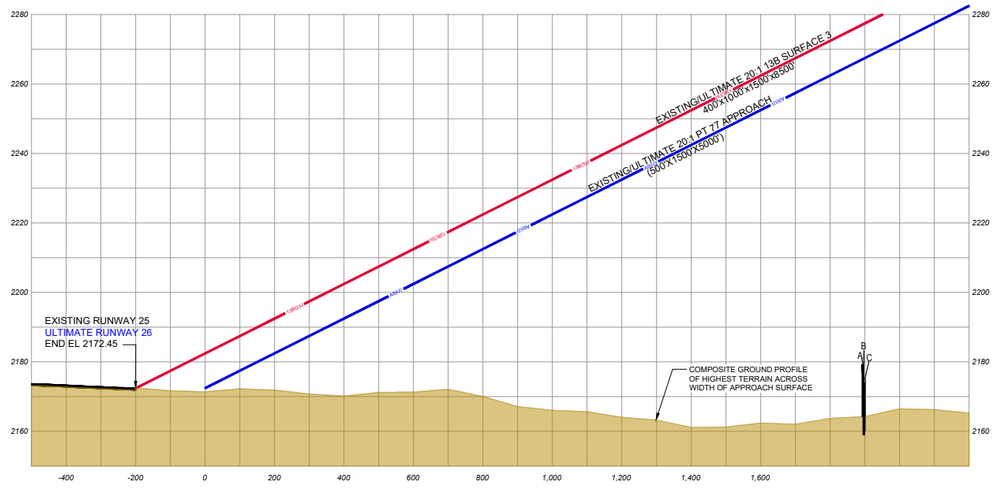


Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)









Existing Runway 7/Ultimate Runway 8 Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 25/Ultimate Runway 26 Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 7/Ultimate Runway 8 Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	N Decatur Blvd	2,214.00	15.00	2,229.00	25.77
B	N Rancho Dr	2,214.78	15.00	2,229.78	25.74
C	Us Hwy 95 Bus	2,217.47	15.00	2,232.47	35.50

Existing Runway 25/Ultimate Runway 26 Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Simmons St	2,164.21	15.00	2,179.21	88.00
B	Simmons St	2,159.00	15.00	2,174.00	93.34
C	Simmons St	2,160.09	15.00	2,175.09	92.38
D	Coleman St	2,165.05	15.00	2,180.05	154.46

LEGEND

SIGNIFICANT OBJECT

GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. OBJECTS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

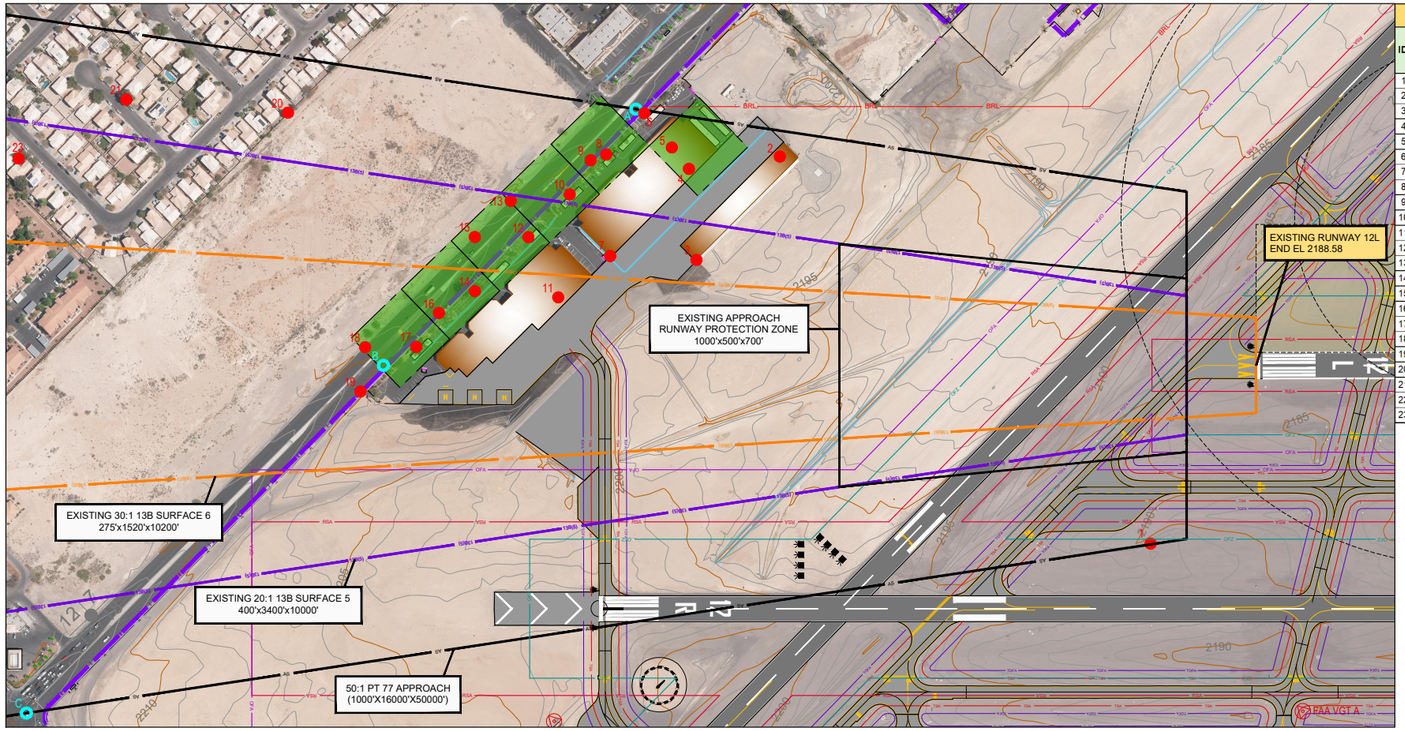
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH SURFACE DRAWING EXISTING 7-25/ULTIMATE RUNWAY 8-26
NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\MPV\GT_2A\ALP\16 VGT X 725 U 826 IPASD.dwg Printed Date: 5-02-26 10:46:22 AM diana



Existing Runway 12L Inner-Approach Obstructions

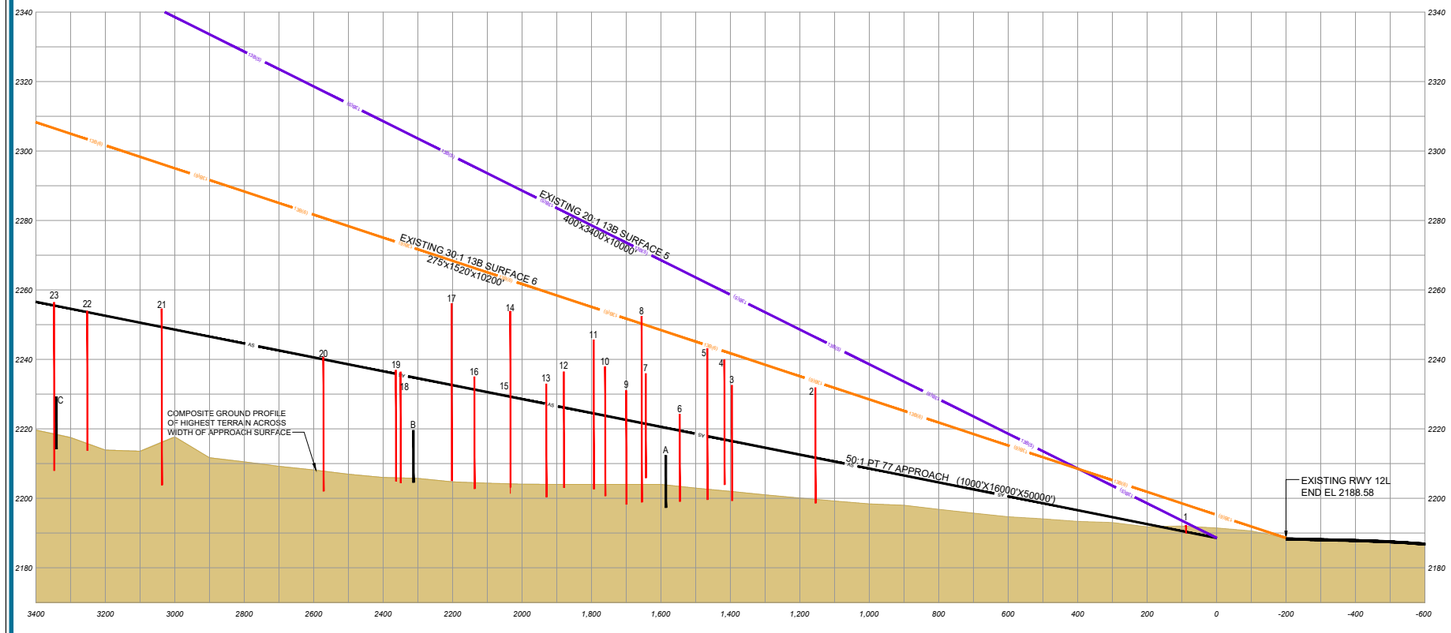
ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Existing Part 77 Surface Penetration Value (ft)	Remediation
1	Terrain	36° 12' 43.191" N	115° 11' 54.139" W	MTZ	H20/V3	N/A	N/A	2,192.20	2,192.20	0.00	1.54	Regrade
2	Utility On Building	36° 12' 58.451" N	115° 11' 53.952" W	MTZ	H20/V3	32-022121	N/A	2,231.90	2,198.70	33.20	19.89	Add Obstruciton Lighting
3	Railing On Buildng	36° 12' 58.006" N	115° 11' 58.588" W	MTZ	H20/V3	32-022124	N/A	2,232.60	2,199.40	33.20	15.79	Add Obstruciton Lighting
4	Building	36° 13' 0.010" N	115° 11' 56.540" W	ADIP	1A	32-022122	N/A	2,240.00	2,204.00	36.00	22.76	Add Obstruciton Lighting
5	Utility On Building	36° 13' 0.786" N	115° 11' 56.445" W	MTZ	H20/V3	32-022122	N/A	2,243.20	2,199.70	43.50	24.97	Add Obstruciton Lighting
6	Tree	36° 13' 2.037" N	115° 11' 56.296" W	MTZ	H20/V3	N/A	N/A	2,224.30	2,199.20	25.10	4.48	Remove Tree
7	Building	36° 12' 59.800" N	115° 12' 0.660" W	ADIP	1A	32-022125	N/A	2,236.00	2,206.00	30.00	14.22	Add Obstruciton Lighting
8	Tree	36° 13' 1.949" N	115° 11' 58.268" W	MTZ	H20/V3	32-032885	N/A	2,252.50	2,199.00	53.50	30.49	Remove Tree
9	Light Pole	36° 13' 2.140" N	115° 11' 58.799" W	MTZ	H20/V3	N/A	N/A	2,231.10	2,198.40	32.70	8.20	Lower/Relocate
10	Tree	36° 13' 1.863" N	115° 12' 0.166" W	MTZ	H20/V3	N/A	N/A	2,238.00	2,200.80	37.20	13.89	Remove Tree
11	Satellite Dish On Building	36° 13' 0.000" N	115° 12' 2.981" W	MTZ	H20/V3	32-073679	N/A	2,245.70	2,202.80	42.90	20.93	Add Obstruciton Lighting
12	Tree	36° 13' 1.814" N	115° 12' 2.254" W	MTZ	H20/V3	N/A	N/A	2,236.50	2,203.20	33.30	10.01	Remove Tree
13	Light Pole	36° 13' 2.906" N	115° 12' 1.805" W	MTZ	H20/V3	N/A	N/A	2,233.00	2,200.50	32.50	5.49	Lower/Relocate
14	Tree	36° 13' 1.779" N	115° 12' 4.924" W	MTZ	H20/V3	32-032835	N/A	2,254.00	2,203.30	50.70	24.43	Remove Tree
15	Light Pole	36° 13' 2.884" N	115° 12' 3.598" W	MTZ	H20/V3	N/A	N/A	2,233.50	2,201.50	32.00	3.92	Lower/Relocate
16	Light Pole	36° 13' 2.051" N	115° 12' 6.363" W	MTZ	H20/V3	32-021774	N/A	2,235.10	2,202.90	32.20	3.46	Lower/Relocate
17	Tree	36° 13' 1.811" N	115° 12' 7.767" W	MTZ	H20/V3	32-032837	N/A	2,256.20	2,205.20	51.00	23.25	Remove Tree
18	Light Pole	36° 13' 2.823" N	115° 12' 9.059" W	MTZ	H20/V3	32-021777	N/A	2,236.50	2,204.60	31.90	0.61	Lower/Relocate
19	Light Pole	36° 13' 2.013" N	115° 12' 10.264" W	MTZ	H20/V3	32-021779	N/A	2,237.00	2,205.10	31.90	0.84	Lower/Relocate
20	Tree	36° 13' 9.134" N	115° 12' 5.241" W	MTZ	H20/V3	N/A	N/A	2,240.80	2,202.20	38.60	0.46	Remove Tree
21	Tree	36° 13' 12.619" N	115° 12' 8.985" W	MTZ	H20/V3	N/A	N/A	2,254.70	2,204.00	50.70	5.05	Remove Tree
22	Tree	36° 13' 2.830" N	115° 12' 24.442" W	MTZ	H20/V3	N/A	N/A	2,254.10	2,214.00	40.10	0.16	Remove Tree
23	Tree	36° 13' 13.562" N	115° 12' 13.137" W	MTZ	H20/V3	N/A	N/A	2,256.60	2,208.20	48.40	0.75	Remove Tree

Existing Runway 12L Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,197.33	15.00	2,212.33	7.97
B	W Cheyenne Ave	2,204.56	15.00	2,219.56	15.28
C	N Decatur Blvd	2,214.23	15.00	2,229.23	26.17

GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. OBSTRUCTIONS WITHIN GRIDS REPRESENT TALLEST MANMADE AND/OR NATURAL AND/OR TERRAIN FEATURE.





Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

LEGEND

- OBSTRUCTION GROUPING
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT

NO.	REVISIONS	DATE	BY	APP'D.

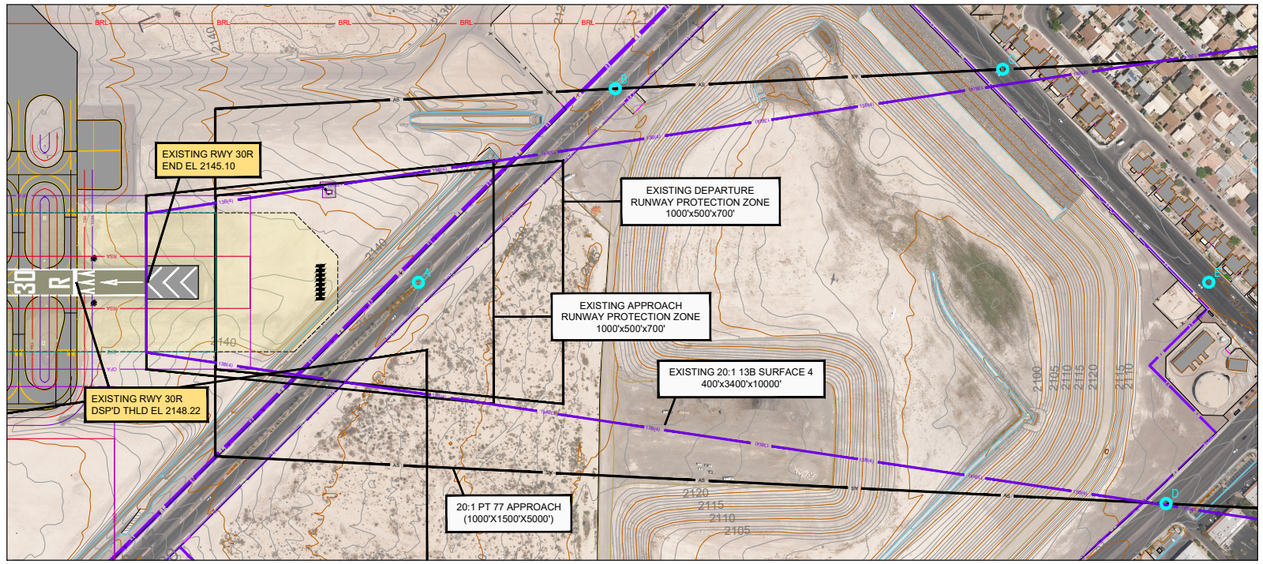
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH
SURFACE DRAWING
EXISTING RUNWAY 12L
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 17 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - 99_CAD (1)\APP\VGT_2\FALP\17 X 12L (PASD).dwg Printed Date: 6-02-26 10:46:37 AM diana



Existing Runway 30R Inner-Approach Obstructions

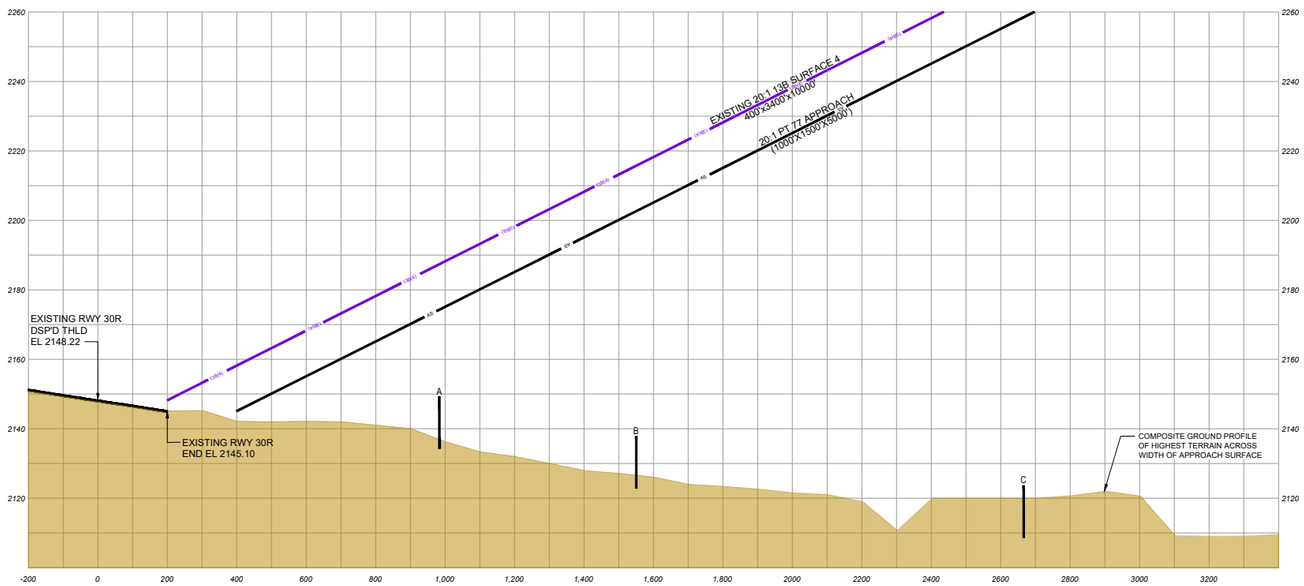
ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 30R Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Carey Ave	2,134.30	15.00	2,149.30	25.05
B	W Carey Ave	2,122.86	15.00	2,137.86	64.84
C	Simmons St	2,108.65	15.00	2,123.65	134.84
D	W Lake Mead Blvd	2,108.71	15.00	2,123.71	158.29
E	Simmons St	2,105.00	15.00	2,120.00	168.14

GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.





Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

LEGEND

SIGNIFICANT OBJECT

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

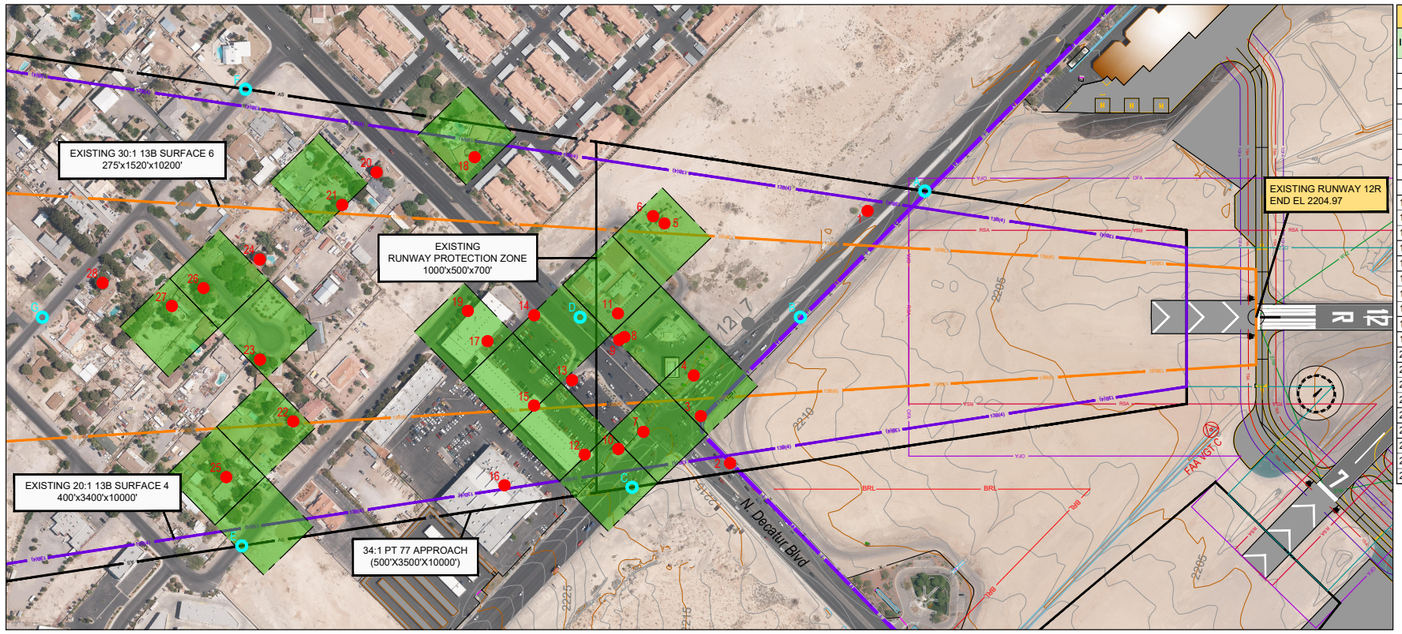
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH SURFACE DRAWING
EXISTING RUNWAY 30R
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 18 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ep_CAD (1)\MP\GT_24\ALP\18 X 30R PASD.dwg Printed Date: 6-02-26 10:46:49 AM diana

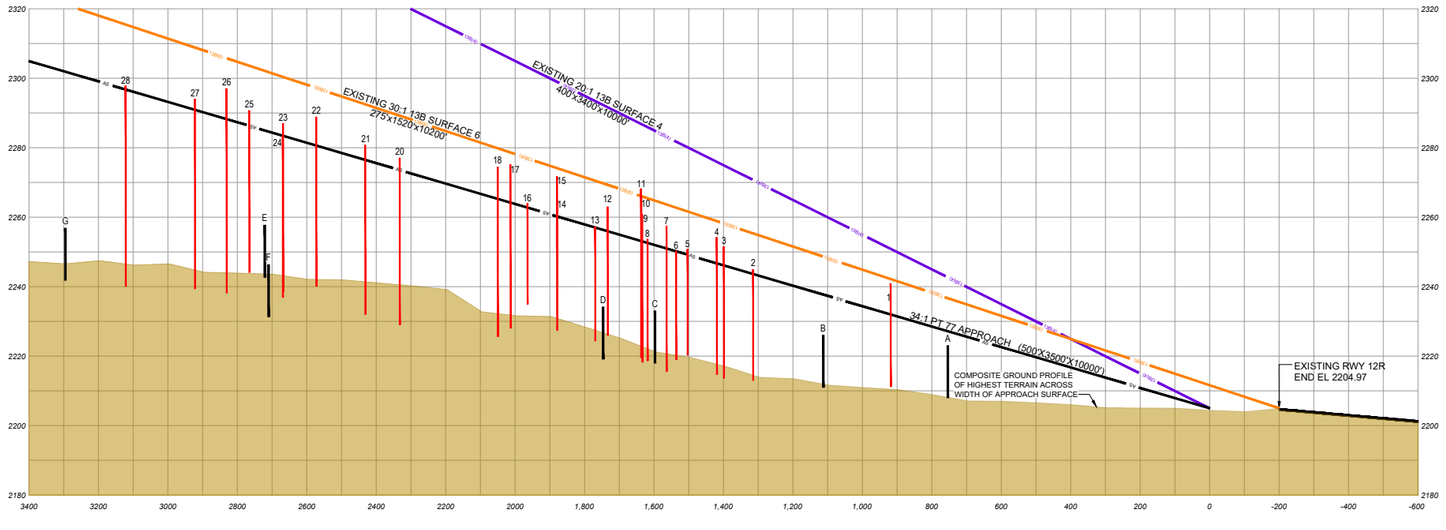


Existing Runway 12R Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Existing Part 77 Surface Penetration Value (ft)	Remediation
1	Light Pole	36° 13' 2.733" N	115° 12' 16.755" W	MTZ	H20/V3	32-021844	N/A	2,240.90	2,208.80	32.10	8.91	Lower/Relocate
2	Light Pole	36° 13' 0.333" N	115° 12' 26.404" W	MTZ	H20/V3	N/A	N/A	2,244.90	2,213.00	31.90	1.26	Lower/Relocate
3	Light Pole	36° 13' 1.872" N	115° 12' 25.984" W	MTZ	H20/V3	N/A	N/A	2,251.50	2,213.70	37.80	5.39	Lower/Relocate
4	Tree	36° 13' 2.840" N	115° 12' 25.165" W	MTZ	H20/V3	N/A	N/A	2,254.20	2,214.80	39.40	7.49	Remove Tree
5	Building	36° 13' 6.520" N	115° 12' 22.168" W	MTZ	H20/V3	N/A	N/A	2,250.80	2,220.30	30.50	1.61	Add Obstruction Lighting
6	Tree	36° 13' 6.894" N	115° 12' 22.277" W	MTZ	H20/V3	N/A	N/A	2,250.30	2,219.00	31.30	0.14	Remove Tree
7	Light Pole	36° 13' 2.692" N	115° 12' 27.815" W	MTZ	H20/V3	N/A	N/A	2,257.50	2,215.60	41.90	6.53	Lower/Relocate
8	Sign	36° 13' 5.002" N	115° 12' 25.964" W	MTZ	H20/V3	N/A	N/A	2,253.70	2,218.70	35.00	1.12	Add Obstruction Lighting
9	Tree	36° 13' 5.048" N	115° 12' 26.166" W	MTZ	H20/V3	N/A	N/A	2,260.80	2,218.30	42.50	7.77	Remove Tree
10	Sign	36° 13' 2.845" N	115° 12' 28.865" W	MTZ	H20/V3	N/A	N/A	2,266.10	2,222.50	43.60	13.00	Add Obstruction Lighting
11	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,268.20	2,219.60	48.60	15.07	Remove Tree
12	Building	36° 13' 3.400" N	115° 12' 29.850" W	ADIP	1B	32-052946	N/A	2,263.00	2,226.00	37.00	7.05	Add Obstruction Lighting
13	Light Pole	36° 13' 5.164" N	115° 12' 28.339" W	MTZ	H20/V3	N/A	N/A	2,257.30	2,224.40	32.90	0.29	Lower/Relocate
14	Pole	36° 13' 7.240" N	115° 12' 27.700" W	ADIP	1A	32-021921	N/A	2,265.00	2,232.00	33.00	4.77	Lower/Relocate
15	Antenna	36° 13' 5.406" N	115° 12' 29.919" W	MTZ	H20/V3	N/A	N/A	2,271.70	2,227.50	44.20	11.46	Add Obstruction Lighting
16	Building	36° 13' 4.370" N	115° 12' 32.620" W	ADIP	1A	32-022090	N/A	2,264.00	2,235.00	29.00	1.26	Add Obstruction Lighting
17	Antenna On Building	36° 13' 7.643" N	115° 12' 29.508" W	MTZ	H20/V3	32-073350	N/A	2,275.20	2,228.10	47.10	11.02	Add Obstruction Lighting
18	Tree	36° 13' 11.645" N	115° 12' 25.315" W	MTZ	H20/V3	N/A	N/A	2,274.50	2,225.70	48.80	9.23	Remove Tree
19	Tree	36° 13' 8.650" N	115° 12' 29.260" W	ADIP	1A	32-032705	N/A	2,266.00	2,266.00	0.00	0.16	Remove Tree
20	Tree	36° 13' 13.289" N	115° 12' 28.150" W	MTZ	H20/V3	N/A	N/A	2,277.10	2,229.10	48.00	3.53	Remove Tree
21	Tree	36° 13' 13.309" N	115° 12' 29.818" W	MTZ	H20/V3	N/A	N/A	2,280.80	2,232.10	48.70	4.31	Remove Tree
22	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,288.90	2,240.20	48.70	8.26	Remove Tree
23	Tree	36° 13' 11.792" N	115° 12' 35.682" W	MTZ	H20/V3	N/A	N/A	2,287.10	2,238.70	48.40	3.65	Remove Tree
24	Tree	36° 13' 13.839" N	115° 12' 33.229" W	MTZ	H20/V3	N/A	N/A	2,283.50	2,237.00	46.50	0.03	Remove Tree
25	Tree	36° 13' 10.072" N	115° 12' 39.415" W	MTZ	H20/V3	32-031458	N/A	2,290.80	2,244.20	46.60	4.49	Remove Tree
26	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,297.10	2,238.30	58.80	8.87	Remove Tree
27	Tree	36° 13' 14.639" N	115° 12' 36.580" W	MTZ	H20/V3	N/A	N/A	2,294.10	2,239.50	54.60	3.19	Remove Tree
28	Tree	36° 13' 16.489" N	115° 12' 37.756" W	MTZ	H20/V3	N/A	N/A	2,297.90	2,240.20	57.70	1.12	Remove Tree

Existing Runway 12R Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,208.00	15.00	2,223.00	4.14
B	W Cheyenne Ave	2,211.00	15.00	2,226.00	11.69
C	W Cheyenne Ave	2,218.00	15.00	2,233.00	18.94
D	N Decatur Blvd	2,219.13	15.00	2,234.13	22.21
E	Donnie Ave	2,242.72	15.00	2,257.72	27.27
F	Ricky Rd	2,231.34	15.00	2,246.34	38.33
G	Ricky Rd	2,241.85	15.00	2,256.85	45.03





Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

LEGEND

- OBSTRUCTION GROUPING
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT

GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. OBSTRUCTIONS WITHIN GRIDS REPRESENT TALLEST MANMADE AND/OR NATURAL AND/OR TERRAIN FEATURE.

NO.	REVISIONS	DATE	BY	APP'D

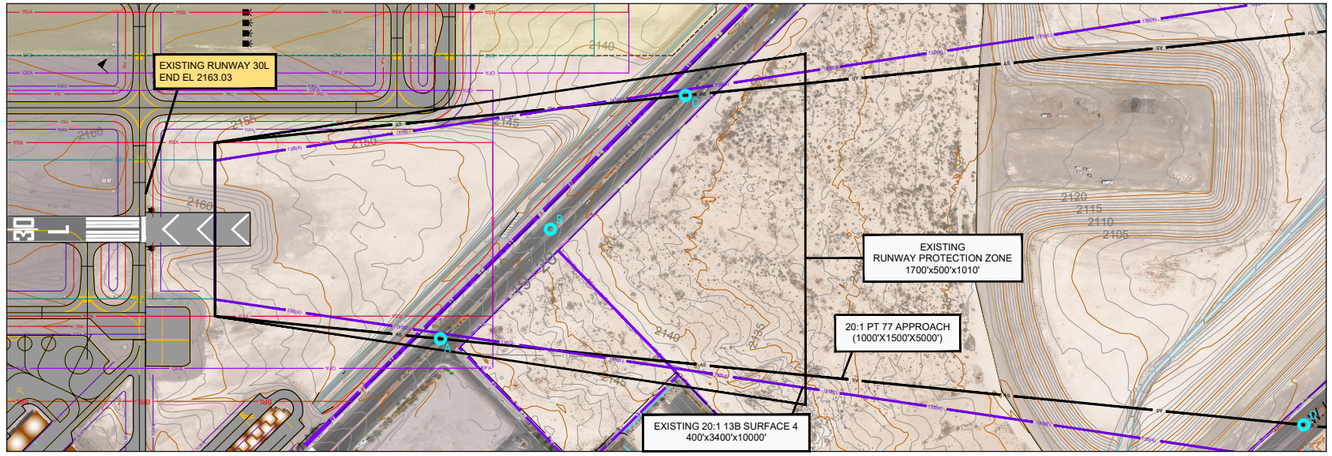
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

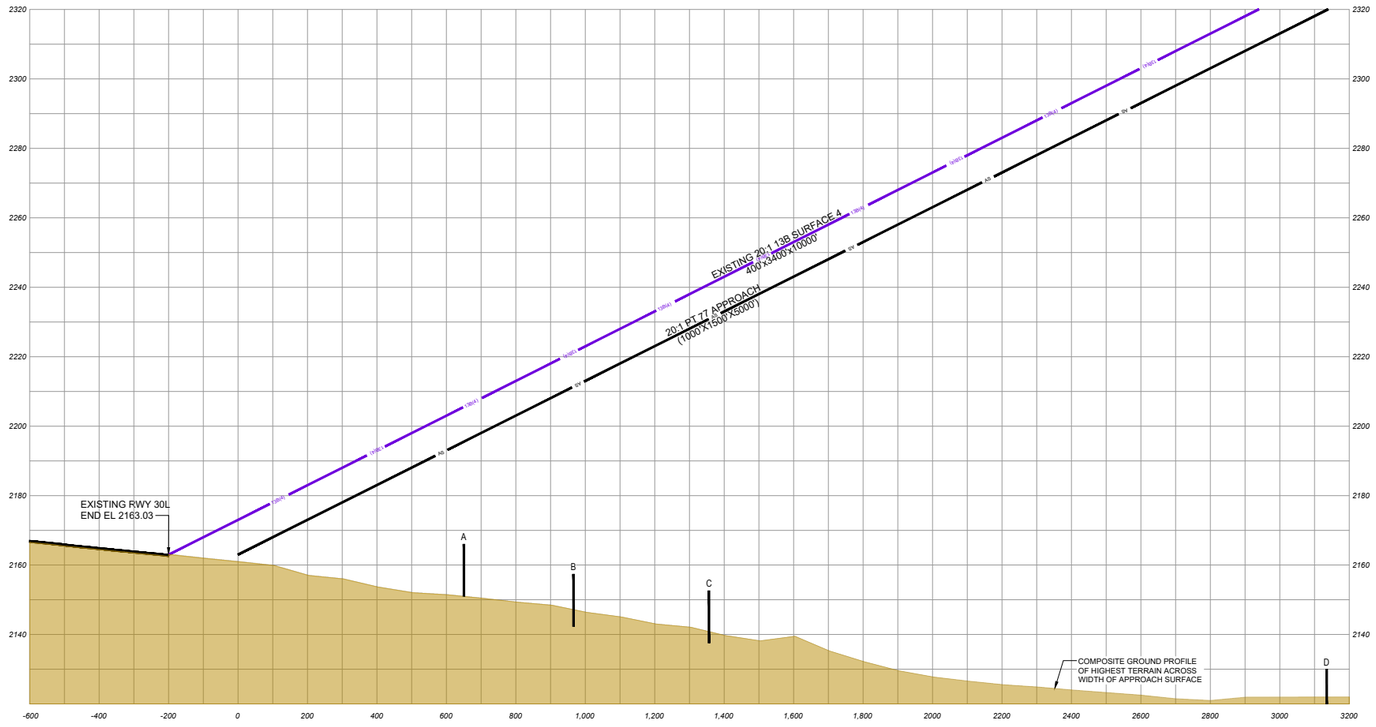
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH SURFACE DRAWING
EXISTING RUNWAY 12R
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 19 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1\APP\VGT_24\ALP\19 X 12R IPA\5D.dwg Printed Date: 6-02-26 10:47:13 AM diana





Existing Runway 30L Inner-Approach Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Top Elevation (ft. msl.)	Ground Elevation (ft. msl.)	AGL (ft.)	Penetration Value (ft)	Remediation
No Obstructions												

Existing Runway 30L Inner-Approach Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Carey Ave	2,151.00	15.00	2,166.00	39.48
B	W Carey Ave	2,142.35	15.00	2,157.35	63.99
C	W Carey Ave	2,137.59	15.00	2,152.59	88.19
D	W Lake Mead Blvd	2,115.00	15.00	2,130.00	199.78

GENERAL NOTES:

1. TRIGGERING EVENT: AIRPORT MASTER PLAN UPDATE.
2. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.



Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 200 400
HORIZONTAL SCALE IN FEET

0 20 40
VERTICAL SCALE IN FEET

LEGEND

SIGNIFICANT OBJECT

NO.	REVISIONS	DATE	BY	APP'D.

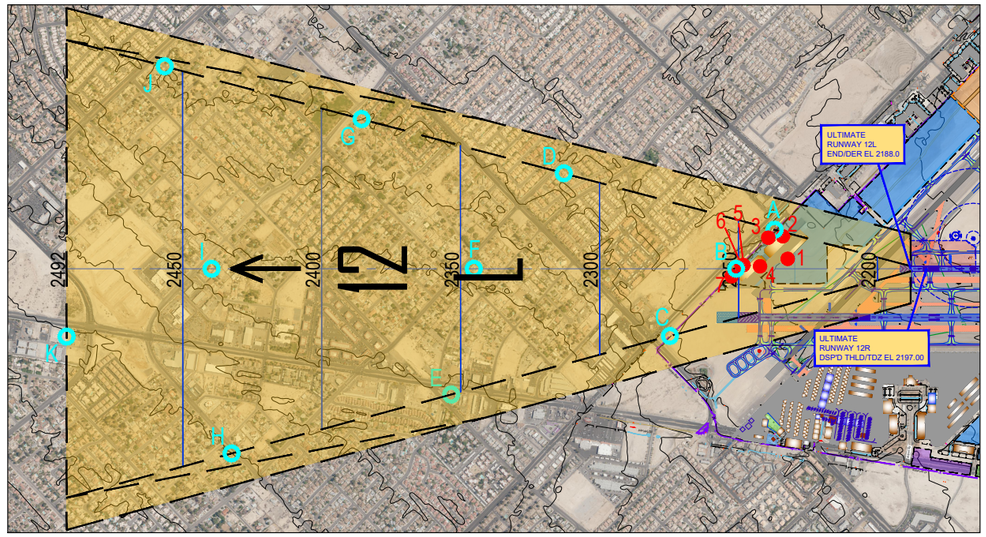
"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

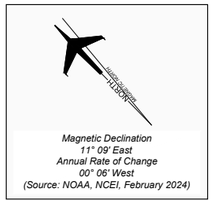
NORTH LAS VEGAS AIRPORT
INNER PORTION OF THE APPROACH SURFACE DRAWING
EXISTING RUNWAY 30L
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 20 OF 30

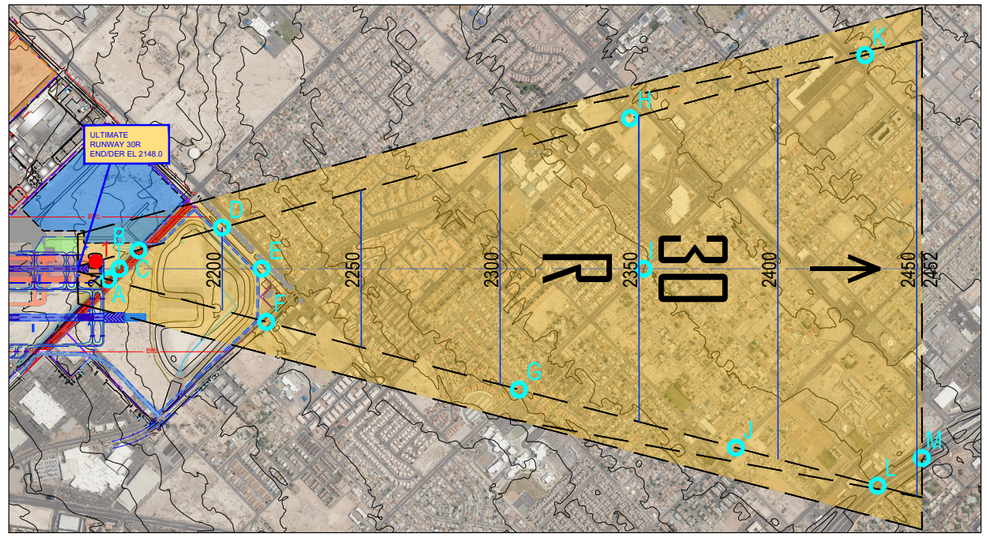
Coffman Associates
Airport Consultants
www.coffmanassociates.com

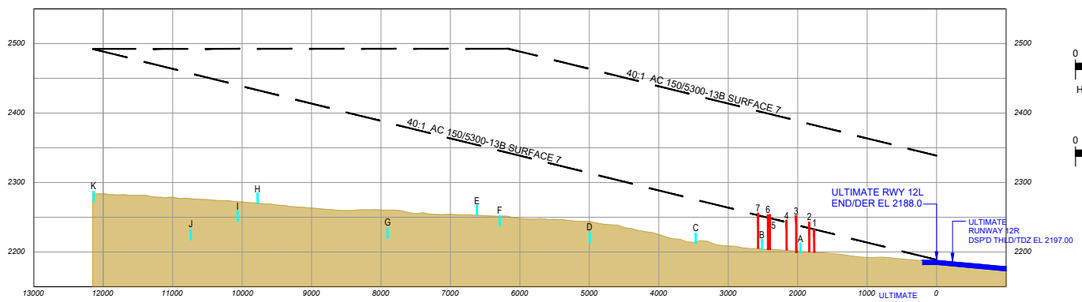
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ep_CAD (1)\MP\GT_24\ALP\20 X 30L IPASD.dwg Printed Date: 6-02-26 10:47:36 AM diana





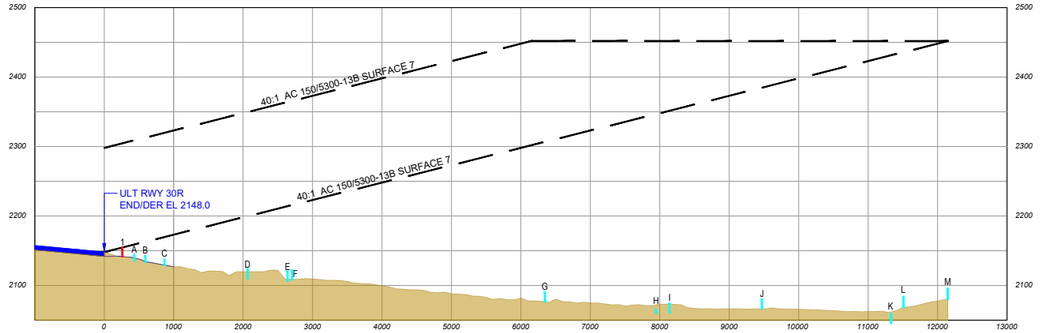
Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)





0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET



Ultimate Runway 12L End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Railing on Building	36° 12' 58.006" N	115° 11' 58.588" W	MTZ	H20/V3	32-022121	N/A	2,199.40	33.20	2,232.60	0.37	Add Obstruction Lighting
2	Utility on Building	36° 13' 0.786" N	115° 11' 56.445" W	MTZ	H20/V3	32-022122	N/A	2,199.70	43.50	2,243.20	9.20	Add Obstruction Lighting
3	Tree	36° 13' 1.949" N	115° 11' 58.268" W	MTZ	H20/V3	32-032885	N/A	2,199.00	53.50	2,252.50	13.77	Remove Tree
4	Utility on Building	36° 13' 0.000" N	115° 12' 2.981" W	MTZ	H20/V3	N/A	N/A	2,202.80	42.90	2,245.70	3.52	Add Obstruction Lighting
5	Tree	36° 13' 1.779" N	115° 12' 4.924" W	MTZ	H20/V3	N/A	N/A	2,203.30	50.70	2,254.00	5.82	Remove Tree
6	Tree	36° 13' 1.932" N	115° 12' 5.206" W	MTZ	H20/V3	32-073207	N/A	2,203.40	50.00	2,253.40	4.53	Remove Tree
7	Tree	36° 13' 1.811" N	115° 12' 7.767" W	MTZ	H20/V3	32-032837	N/A	2,205.20	51.00	2,256.20	3.79	Remove Tree

Ultimate Runway 12L End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,198.00	15.00	2,213.00	23.98
B	W Cheyenne Ave	2,203.28	15.00	2,218.28	32.54
C	W Cheyenne Ave	2,212.00	15.00	2,227.00	47.65
D	W Gowan Rd	2,213.52	15.00	2,228.52	84.32
E	N Rancho Dr	2,252.48	15.00	2,267.48	85.91
F	W Gowan Rd	2,237.90	15.00	2,252.90	92.36
G	W Alexander Rd	2,219.88	15.00	2,234.88	150.75
H	N Jones Blvd	2,270.23	15.00	2,285.23	147.20
I	W Alexander Rd	2,244.95	15.00	2,259.95	179.69
J	W Craig Rd	2,217.44	15.00	2,232.44	224.03
K	N Rancho Dr	2,272.88	15.00	2,287.88	203.92

Ultimate Runway 30R End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Navaid	36° 12' 14.020" N	115° 11' 3.680" W	ADIP	1A	32-021761	N/A	2,141.00	14.00	2,155.00	0.57	To Be Relocated

Ultimate Runway 30R End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Airport Access Rd	2,135.00	10.00	2,145.00	14.01
B	Airport Access Rd	2,133.00	10.00	2,143.00	19.97
C	Airport Access Rd	2,128.14	10.00	2,138.14	31.71
D	Simmons St	2,109.31	15.00	2,124.31	75.51
E	Simmons St	2,106.00	15.00	2,121.00	93.15
F	W Lake Mead Blvd	2,108.00	15.00	2,123.00	92.81
G	Vegas Dr	2,075.89	15.00	2,090.89	215.87
H	N Martin L King Blvd	2,051.14	15.00	2,066.14	280.67
I	Vegas Dr	2,060.15	15.00	2,075.15	276.51
J	W Washington Ave	2,065.88	15.00	2,080.88	303.99
K	W Owens Ave	2,030.04	15.00	2,045.04	386.33
L	Us Hwy 95	2,067.67	17.00	2,084.67	351.17
M	Us Hwy 95	2,079.38	17.00	2,096.38	355.41

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
2. PENETRATIONS IDENTIFIED WITHIN OBSTRUCTION GROUPINGS REFLECT THE TALLEST NATURAL, MANMADE AND/OR TERRAIN FEATURES WITHIN A REPRESENTATIVE SELECTION OF OBSTRUCTIONS.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. 50' CONTOURS SHOWN ACROSS DEPARTURE SLOPE CORRESPOND TO ULTIMATE CONDITION.
5. REFER TO FAA ADVISORY CIRCULAR 150/5300-13B, CHANGE 1, DATED 08/16/2024 FOR DEPARTURE OBSTACLE CLEARANCE SURFACE DESCRIPTION.

LEGEND

- ULTIMATE 5300-13B SURFACE 7
- EXISTING PROPERTY BOUNDARY
- ULTIMATE PROPERTY BOUNDARY
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

RUNWAY 12L-30R
ULTIMATE DEPARTURE SURFACE DRAWING

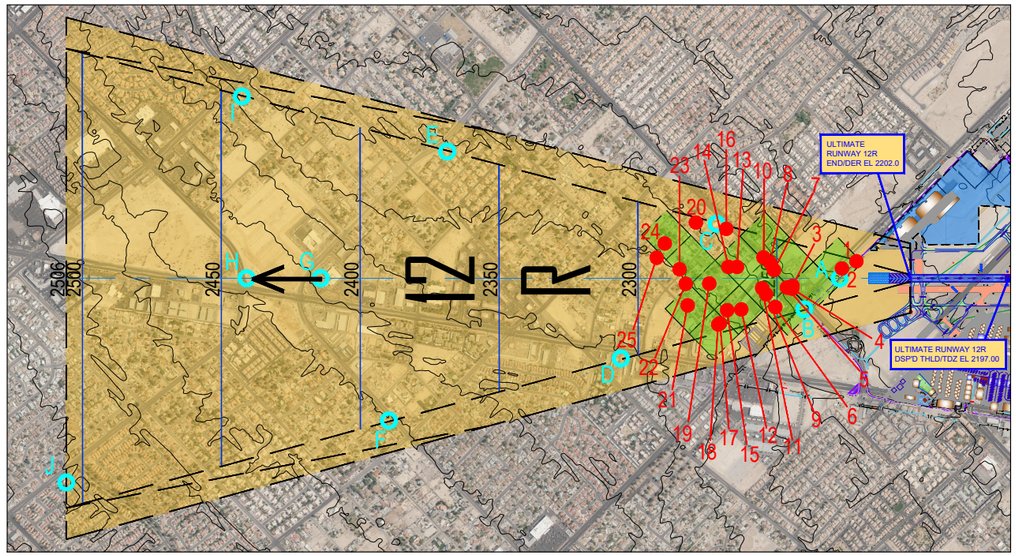
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 21 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

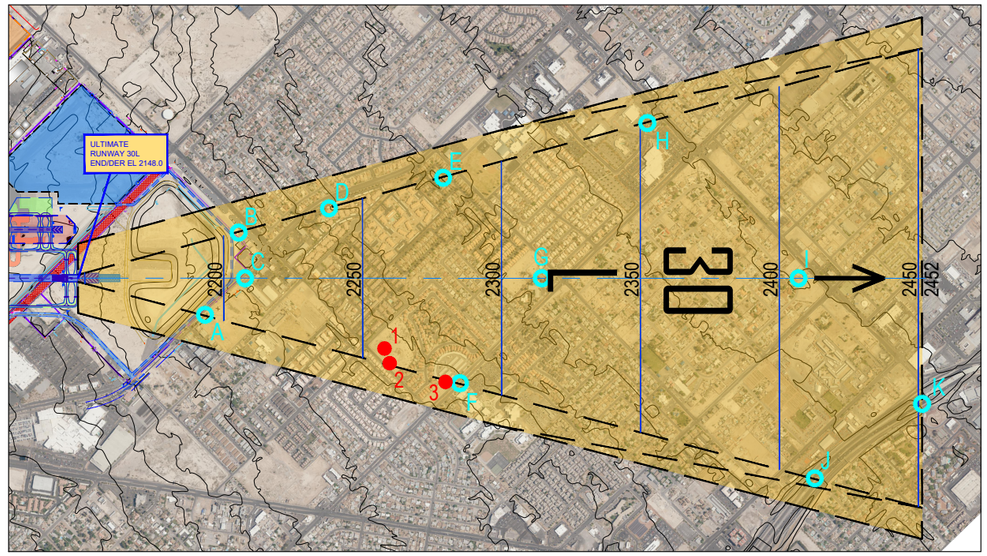
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MP\VGT_24\ALP21 VGT LU DEP 12L30R.dwg Printed Date: 5-/20-/26 10:48:06 AM diana

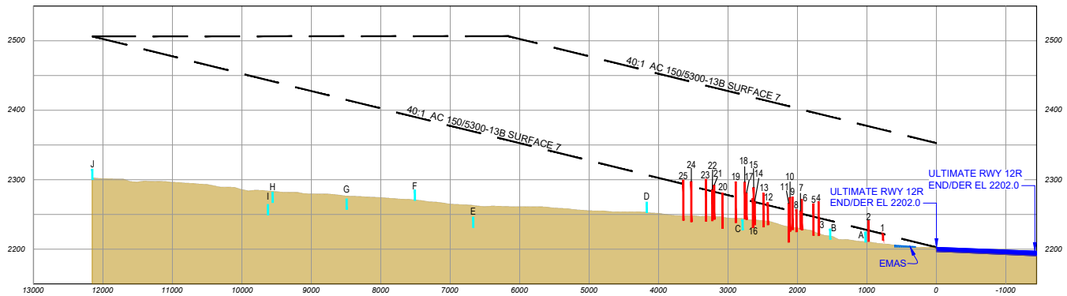


Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

LEGEND

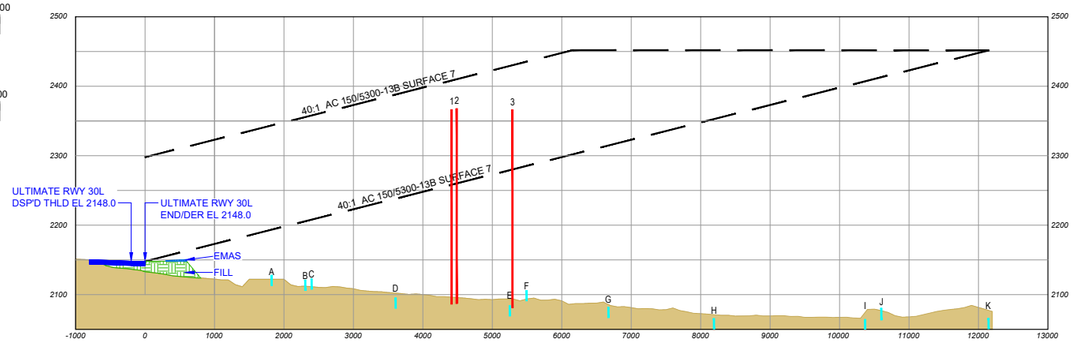
- ULTIMATE 5300-13B SURFACE 7
- ULTIMATE PROPERTY BOUNDARY
- ULTIMATE PROPERTY BOUNDARY
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT
- OBSTRUCTION GROUPING





0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET



Ultimate Runway 12R End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	W Cheyenne Ave	36° 13' 2.009" N	115° 12' 14.100" W	Combined DEM	N/A	N/A	N/A	2,207.17	15.00	2,222.17	0.76	To Remain
2	Light Pole	36° 13' 2.733" N	115° 12' 16.755" W	MTZ	H20/V3	32-021844	N/A	2,208.80	32.10	2,240.90	14.32	Lower/Relocate
3	Building	36° 13' 5.870" N	115° 12' 25.150" W	ADIP	1A	32-073288	N/A	2,221.00	25.00	2,246.00	1.57	Add Obstruction Lighting
4	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,219.60	48.60	2,268.20	23.65	Remove Tree
5	Tree	36° 13' 6.231" N	115° 12' 26.076" W	MTZ	H20/V3	N/A	N/A	2,219.90	45.50	2,265.40	18.98	Remove Tree
6	Antenna	36° 13' 5.406" N	115° 12' 29.919" W	MTZ	H20/V3	N/A	N/A	2,227.50	44.20	2,271.70	21.10	Add Obstruction Lighting
7	Building	36° 13' 9.310" N	115° 12' 25.550" W	ADIP	1A	32-022104	N/A	2,229.00	26.00	2,255.00	3.91	Add Obstruction Lighting
8	Tree	36° 13' 10.490" N	115° 12' 25.130" W	ADIP	1A	32-073790	N/A	2,225.00	32.00	2,257.00	4.44	Remove Tree
9	Antenna On Building	36° 13' 7.643" N	115° 12' 29.508" W	MTZ	H20/V3	32-000344	2021-AWP-5404-OE	2,228.10	47.10	2,275.20	21.25	Object Has Red Obstruction Lighting
10	Tree	36° 13' 11.645" N	115° 12' 25.315" W	MTZ	H20/V3	N/A	N/A	2,225.70	48.80	2,274.50	19.63	Remove Tree
11	Tree	36° 13' 8.650" N	115° 12' 29.260" W	ADIP	1A	32-032705	N/A	2,266.00	0.00	2,266.00	10.64	Remove Tree
12	Pole	36° 13' 8.550" N	115° 12' 34.480" W	ADIP	1A	32-073952	N/A	2,235.00	32.00	2,267.00	4.17	Lower/Relocate
13	Tree	36° 13' 13.309" N	115° 12' 29.818" W	MTZ	H20/V3	N/A	N/A	2,232.10	48.70	2,280.80	16.40	Remove Tree
14	Pole	36° 13' 14.190" N	115° 12' 30.900" W	ADIP	1A	32-021914	N/A	2,235.00	34.00	2,269.00	1.45	Lower/Relocate
15	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,240.20	48.70	2,288.90	20.97	Remove Tree
16	Pole	36° 13' 18.250" N	115° 12' 26.480" W	ADIP	1A	32-021855	N/A	2,231.00	42.00	2,273.00	4.76	Lower/Relocate
17	Utility Pole	36° 13' 9.266" N	115° 12' 38.856" W	MTZ	H20/V3	N/A	N/A	2,242.80	38.50	2,281.30	10.79	Lower/Relocate
18	Tree	36° 13' 9.308" N	115° 12' 39.244" W	MTZ	H20/V3	N/A	N/A	2,243.80	52.70	2,296.50	25.34	Remove Tree
19	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,238.30	58.80	2,297.10	22.72	Remove Tree
20	Tree	36° 13' 21.920" N	115° 12' 29.520" W	ADIP	1A	32-073119	N/A	2,230.00	51.00	2,281.00	1.83	Remove Tree
21	Tree	36° 13' 14.304" N	115° 12' 40.727" W	MTZ	H20/V3	N/A	N/A	2,243.00	49.50	2,292.50	10.35	Remove Tree
22	Tree	36° 13' 16.690" N	115° 12' 38.320" W	ADIP	1A	32-032633	N/A	2,241.00	45.00	2,286.00	3.16	Remove Tree
23	Tree	36° 13' 18.783" N	115° 12' 37.331" W	MTZ	H20/V3	N/A	N/A	2,240.20	60.60	2,300.80	15.72	Remove Tree
24	Tree	36° 13' 22.880" N	115° 12' 36.020" W	MTZ	H20/V3	N/A	N/A	2,239.40	58.20	2,297.60	7.21	Remove Tree
25	Tree	36° 13' 22.232" N	115° 12' 38.773" W	MTZ	H20/V3	N/A	N/A	2,241.40	58.20	2,299.60	6.31	Remove Tree

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
2. PENETRATIONS IDENTIFIED WITHIN OBSTRUCTION GROUPINGS REFLECT THE TALLEST NATURAL, MANMADE AND/OR TERRAIN FEATURES WITHIN A REPRESENTATIVE SELECTION OF OBSTRUCTIONS.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. 50' CONTOURS SHOWN ACROSS DEPARTURE SLOPE CORRESPOND TO ULTIMATE CONDITION.
5. REFER TO FAA ADVISORY CIRCULAR 150/5300-13B, CHANGE 1, DATED 08/16/2024 FOR DEPARTURE OBSTACLE CLEARANCE SURFACE DESCRIPTION.

Ultimate Runway 12R End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,209.89	15.00	2,224.89	2.57
B	N Decatur Blvd	2,214.15	15.00	2,229.15	11.02
C	N Decatur Blvd	2,227.88	15.00	2,242.88	28.85
D	N Rancho Dr	2,252.91	15.00	2,267.91	38.31
E	W Alexander Rd	2,231.48	15.00	2,246.48	122.20
F	N Jones Blvd	2,270.65	15.00	2,285.65	104.03
G	Rowland Ave	2,257.86	15.00	2,272.86	141.42
H	N Jones Blvd	2,267.70	15.00	2,282.70	158.21
I	W Craig Rd	2,237.53	15.00	2,252.53	190.10
J	W Alexander Rd	2,300.79	15.00	2,315.79	190.01

Ultimate Runway 30L End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Antenna	36° 11' 29.838" N	115° 10' 39.650" W	MTZ	H20/V3	N/A	1984-AWP-150-OE	2,093.70	272.60	2,366.30	107.98	Object Has Red Obstruction Lighting
2	Antenna	36° 11' 27.832" N	115° 10' 40.803" W	MTZ	H20/V3	N/A	N/A	2,094.90	273.00	2,367.90	107.72	Add Obstruction Lighting
3	Antenna	36° 11' 20.380" N	115° 10' 36.090" W	ADIP	1A	32-052894	1984-AWP-150-OE	2,092.00	274.00	2,366.00	77.58	Add Obstruction Lighting

Ultimate Runway 30L End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Lake Mead Blvd	2,113.00	15.00	2,128.00	96.72
B	Simmons St	2,106.00	15.00	2,121.00	115.81
C	W Lake Mead Blvd	2,107.69	15.00	2,122.69	116.42
D	W Lake Mead Blvd	2,080.34	15.00	2,095.34	174.00
E	N Tonopah Dr	2,069.32	15.00	2,084.32	226.12
F	Vegas Dr	2,091.07	15.00	2,106.07	210.40
G	N Tonopah Dr	2,066.89	15.00	2,081.89	264.04
H	N Martin L King Blvd	2,050.87	15.00	2,065.87	318.05
I	N Martin L King Blvd	2,049.50	15.00	2,064.50	373.85
J	Us Hwy 95	2,063.78	17.00	2,080.78	363.41
K	Martin L King Blvd	2,051.08	15.00	2,066.08	416.71

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

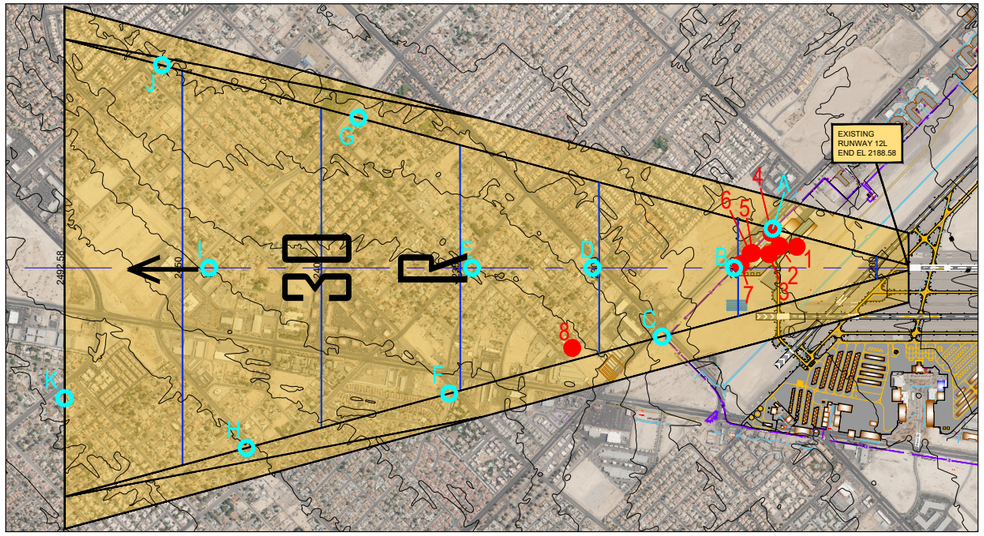
NORTH LAS VEGAS AIRPORT
RUNWAY 12R-30L
ULTIMATE DEPARTURE SURFACE DRAWING
NORTH LAS VEGAS, NEVADA

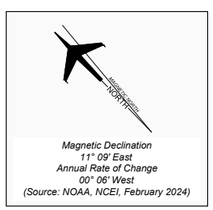
PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 | SHEET 22 OF 30

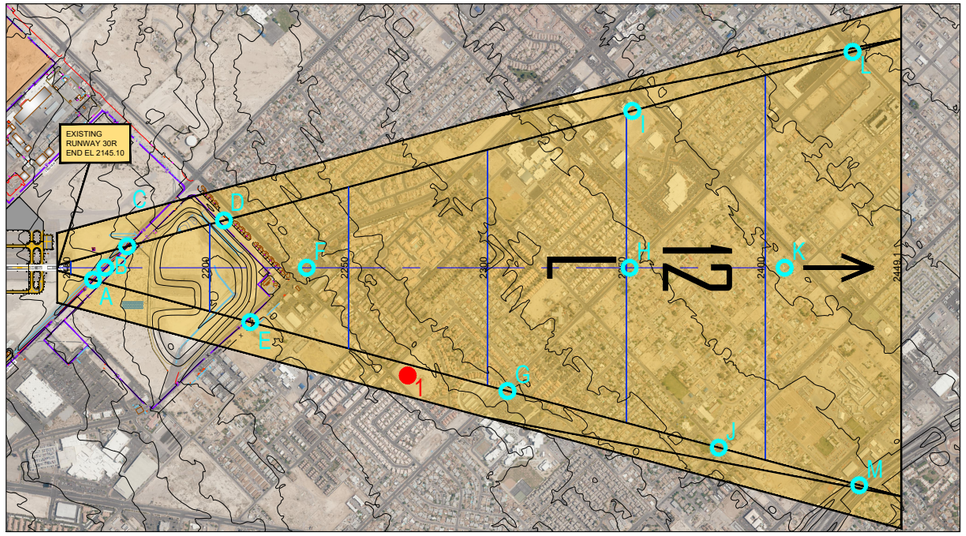
Coffman Associates
Airport Consultants
www.coffmanassociates.com

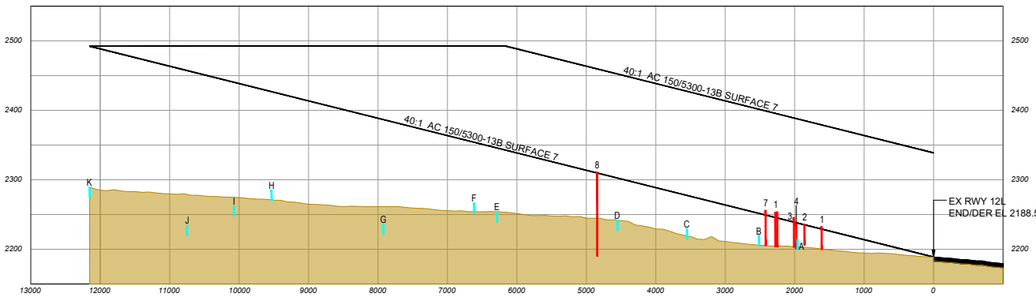
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (1)\MPV\GT_24\ALP22 \GT U DEP 12R30L.dwg Printed Date: 6-02-26 10:48:39 AM diana





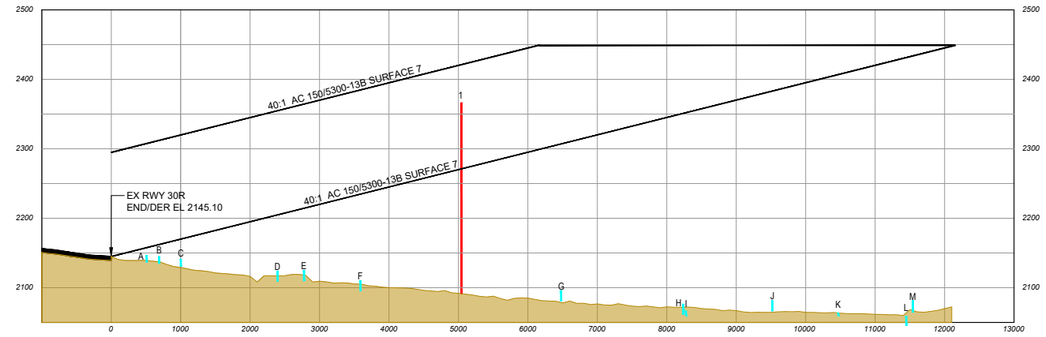
Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)





0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET



Existing Runway 12L End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Railing on Building	36° 12' 58.006" N	115° 11' 58.588" W	MTZ	H20/V3	N/A	N/A	2,199.40	33.20	2,232.60	3.73	Add Obstruction Lighting
2	Building	36° 12' 59.800" N	115° 12' 0.660" W	ADIP	1A	32-022125	N/A	2,206.00	30.00	2,236.00	0.93	Add Obstruction Lighting
3	Tree	36° 13' 1.863" N	115° 12' 0.166" W	MTZ	H20/V3	N/A	N/A	2,200.80	37.20	2,238.00	0.01	Remove Tree
4	Utility On Building	36° 13' 0.000" N	115° 12' 2.981" W	MTZ	H20/V3	N/A	N/A	2,202.80	42.90	2,245.70	6.88	Add Obstruction Lighting
5	Tree	36° 13' 1.779" N	115° 12' 4.924" W	MTZ	H20/V3	N/A	N/A	2,203.30	50.70	2,254.00	9.18	Remove Tree
6	Tree	36° 13' 1.932" N	115° 12' 5.206" W	MTZ	H20/V3	32-073207	N/A	2,203.40	50.00	2,253.40	7.90	Remove Tree
7	Tree	36° 13' 1.811" N	115° 12' 7.767" W	MTZ	H20/V3	32-032837	N/A	2,205.20	51.00	2,256.20	7.16	Remove Tree
8	Tree	36° 13' 10.030" N	115° 12' 39.220" W	ADIP	1A	32-031458	N/A	2,311.00	0.00	2,311.00	1.34	Remove Tree

Existing Runway 12L End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,199.32	15.00	2,214.32	23.23
B	W Cheyenne Ave	2,204.56	15.00	2,219.56	31.85
C	N Decatur Blvd	2,214.20	15.00	2,229.20	48.18
D	N Decatur Blvd	2,226.78	15.00	2,241.78	60.60
E	W Gowan Rd	2,239.21	15.00	2,254.21	91.51
F	N Michael Way	2,251.95	15.00	2,266.95	87.00
G	W Alexander Rd	2,221.27	15.00	2,236.27	150.36
H	N Jones Blvd	2,270.65	15.00	2,285.65	141.23
I	W Alexander Rd	2,248.15	15.00	2,263.15	177.22
J	W Craig Rd	2,220.00	15.00	2,235.00	222.34
K	W Alexander Rd	2,275.38	15.00	2,290.38	202.00

Existing Runway 30R End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Antenna	36° 11' 29.838" N	115° 10' 39.650" W	MTZ	H20/V3	N/A	N/A	2,093.70	272.60	2,366.30	41.76	Add Obstruction Lighting

Existing Runway 30R End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Airport Access Rd	2,136.63	10.00	2,146.63	11.37
B	Airport Access Rd	2,135.00	10.00	2,145.00	17.48
C	Airport Access Rd	2,131.00	10.00	2,141.00	29.31
D	Simmons St	2,108.90	15.00	2,123.90	81.26
E	W Lake Mead Blvd	2,110.00	15.00	2,125.00	89.63
F	State Hwy 147	2,095.33	15.00	2,110.33	124.63
G	Vegas Dr	2,080.98	15.00	2,095.98	211.23
H	Vegas Dr	2,061.64	15.00	2,076.64	274.52
I	N Martin L King Blvd	2,051.56	15.00	2,066.56	285.61
J	W Washington Ave	2,066.68	15.00	2,081.68	301.56
K	N Martin L King Blvd	2,048.39	15.00	2,063.39	343.60
L	W Owens Ave	2,030.84	15.00	2,045.84	385.61
M	Us Hwy 95	2,064.82	17.00	2,081.82	352.00

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
2. PENETRATIONS IDENTIFIED WITHIN OBSTRUCTION GROUPINGS REFLECT THE TALLEST NATURAL, MANMADE AND/OR TERRAIN FEATURES WITHIN A REPRESENTATIVE SELECTION OF OBSTRUCTIONS.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. 50' CONTOURS SHOWN ACROSS DEPARTURE SLOPE CORRESPOND TO ULTIMATE CONDITION.
5. REFER TO FAA ADVISORY CIRCULAR 150/5300-13B, CHANGE 1, DATED 08/16/2024 FOR DEPARTURE OBSTACLE CLEARANCE SURFACE DESCRIPTION.

LEGEND

- EXISTING 5300-13B SURFACE 7
- EXISTING PROPERTY BOUNDARY
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT IDENTIFIER
- OBSTRUCTION AREA

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

RUNWAY 12L-30R
EXISTING DEPARTURE SURFACE DRAWING

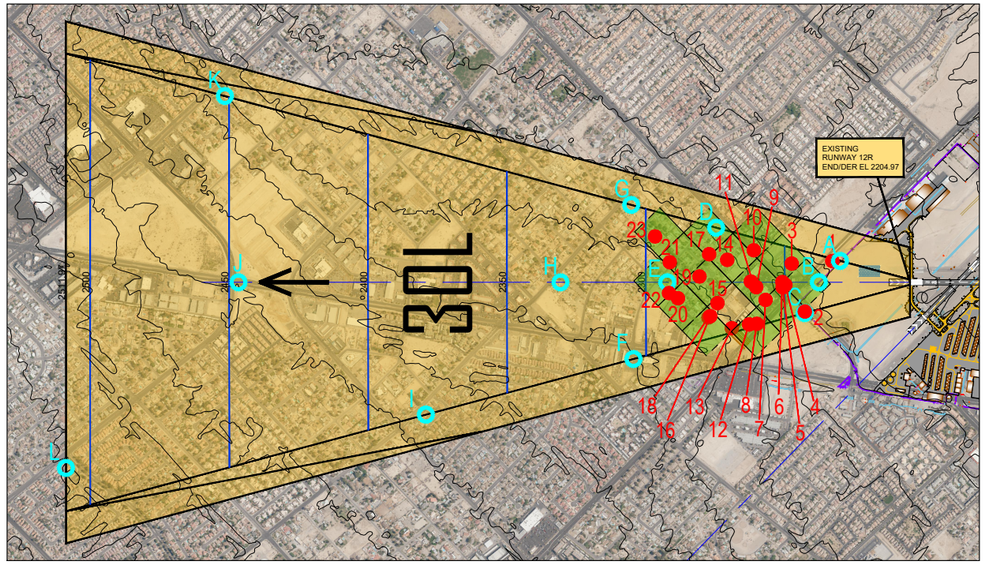
NORTH LAS VEGAS, NEVADA

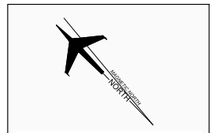
PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 23 OF 30

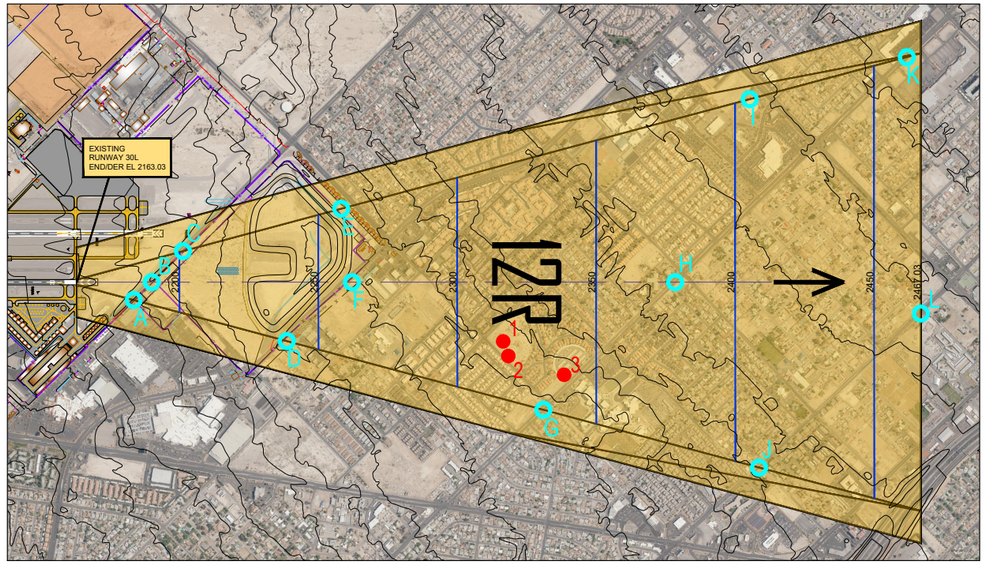
Coffman Associates
Airport Consultants
www.coffmanassociates.com

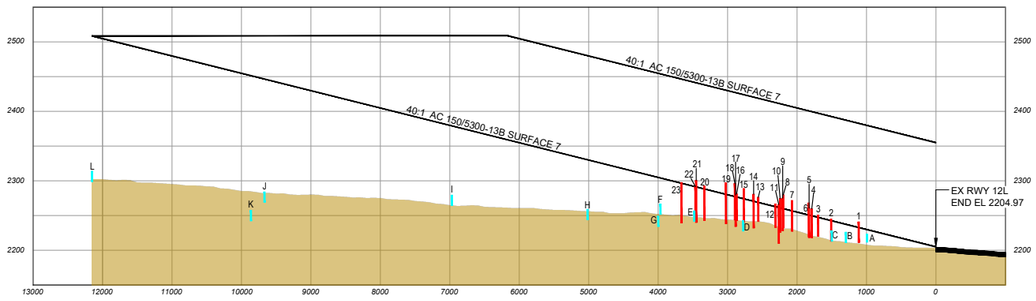
Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ep_CAD (1)\APV\GIT_24\ALP\23 VGT X DEP 12L30R.dwg Printed Date: 6-02-26 10:49:04 AM diana





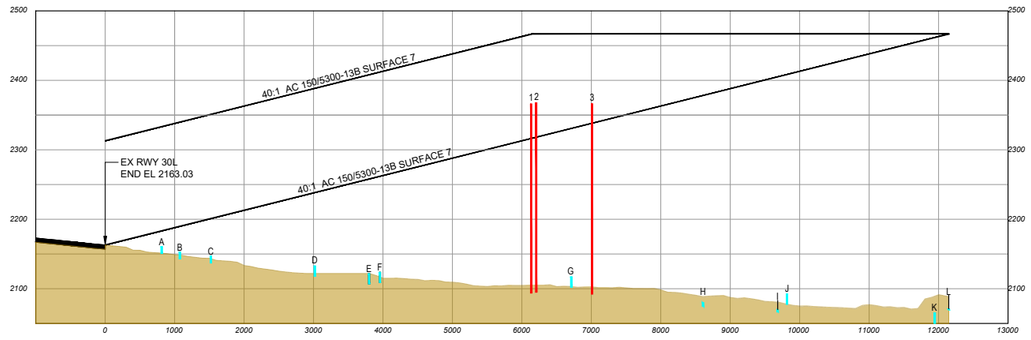
Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)





0 1000 2000
HORIZONTAL SCALE IN FEET

0 100 200
VERTICAL SCALE IN FEET



Existing Runway 12R End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Light Pole	36° 13' 2.733" N	115° 12' 16.755" W	MTZ	H20/V3	32-021844	N/A	2,208.80	32.10	2,240.90	17.00	Lower/Relocate
2	Light Pole	36° 13' 0.333" N	115° 12' 26.404" W	MTZ	H20/V3	N/A	N/A	2,213.00	31.90	2,244.90	19.00	Lower/Relocate
3	Building	36° 13' 6.520" N	115° 12' 22.168" W	MTZ	H20/V3	N/A	N/A	2,220.30	30.50	2,250.80	16.00	Add Obstruction Lighting
4	Tree	36° 13' 4.970" N	115° 12' 25.585" W	MTZ	H20/V3	N/A	N/A	2,218.10	41.70	2,259.80	14.00	Remove Tree
5	Tree	36° 13' 5.048" N	115° 12' 26.166" W	MTZ	H20/V3	N/A	N/A	2,218.30	42.50	2,260.80	15.00	Remove Tree
6	Tree	36° 13' 5.612" N	115° 12' 25.547" W	MTZ	H20/V3	N/A	N/A	2,219.60	48.60	2,268.20	12.00	Remove Tree
7	Antenna	36° 13' 5.406" N	115° 12' 29.919" W	MTZ	H20/V3	N/A	N/A	2,227.50	44.20	2,271.70	1.00	Add Obstruction Lighting
8	Antenna on Building	36° 13' 3.904" N	115° 12' 33.883" W	MTZ	H20/V3	N/A	N/A	2,232.30	47.70	2,280.00	18.00	Add Obstruction Lighting
9	Antenna on Building	36° 13' 7.643" N	115° 12' 29.508" W	MTZ	H20/V3	32-000344	2021-AWP-5404-OE	2,228.10	47.10	2,275.20	2.00	Object Has Red Obstruction Lighting
10	Tree	36° 13' 11.645" N	115° 12' 25.315" W	MTZ	H20/V3	N/A	N/A	2,225.70	48.80	2,274.50	4.00	Remove Tree
11	Tree	36° 13' 8.650" N	115° 12' 29.260" W	ADIP	1A	32-032705	N/A	2,266.00	0.00	2,266.00	0.00	Remove Tree
12	Tree	36° 13' 4.613" N	115° 12' 34.940" W	MTZ	H20/V3	N/A	N/A	2,232.70	34.00	2,266.70	22.00	Remove Tree
13	Light Pole	36° 13' 5.893" N	115° 12' 37.624" W	MTZ	H20/V3	N/A	N/A	2,241.60	34.80	2,276.40	21.00	Lower/Relocate
14	Tree	36° 13' 13.309" N	115° 12' 29.818" W	MTZ	H20/V3	N/A	N/A	2,232.10	48.70	2,280.80	11.00	Remove Tree
15	Tree	36° 13' 9.875" N	115° 12' 36.362" W	MTZ	H20/V3	N/A	N/A	2,240.20	48.70	2,288.90	13.00	Remove Tree
16	Utility Pole	36° 13' 9.266" N	115° 12' 38.856" W	MTZ	H20/V3	N/A	N/A	2,242.80	38.50	2,281.30	8.00	Lower/Relocate
17	Tree	36° 13' 15.684" N	115° 12' 31.399" W	MTZ	H20/V3	32-031474	N/A	2,234.20	45.40	2,279.60	20.00	Remove Tree
18	Tree	36° 13' 9.308" N	115° 12' 39.244" W	MTZ	H20/V3	32-033604	N/A	2,243.80	52.70	2,296.50	9.00	Remove Tree
19	Tree	36° 13' 14.374" N	115° 12' 35.345" W	MTZ	H20/V3	N/A	N/A	2,238.30	58.80	2,297.10	10.00	Remove Tree
20	Tree	36° 13' 14.304" N	115° 12' 40.727" W	MTZ	H20/V3	N/A	N/A	2,243.00	49.50	2,292.50	7.00	Remove Tree
21	Tree	36° 13' 18.783" N	115° 12' 37.331" W	MTZ	H20/V3	N/A	N/A	2,240.20	60.60	2,300.80	5.00	Remove Tree
22	Tree	36° 13' 15.725" N	115° 12' 41.212" W	MTZ	H20/V3	N/A	N/A	2,243.70	48.40	2,292.10	6.00	Remove Tree
23	Tree	36° 13' 22.880" N	115° 12' 36.020" W	MTZ	H20/V3	N/A	N/A	2,239.40	58.20	2,297.60	3.00	Remove Tree

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM 1983 - NAD83;
   VERTICAL DATUM: NORTH AMERICAN DATUM 1988 - NAVD88
2. PENETRATIONS IDENTIFIED WITHIN OBSTRUCTION GROUPINGS REFLECT THE TALLEST NATURAL, MANMADE AND/OR TERRAIN FEATURES WITHIN A REPRESENTATIVE SELECTION OF OBSTRUCTIONS.
3. OBSTRUCTIONS IDENTIFIED BY COFFMAN ASSOCIATES FROM SURVEY PROVIDED BY MARTINEZ GEOSPATIAL, DATED 04/09/2018. SUPPLEMENTAL DATA FROM THE FAA AIRPORT DATA INFORMATION PORTAL.
4. 50' CONTOURS SHOWN ACROSS DEPARTURE SLOPE CORRESPOND TO ULTIMATE CONDITION.
5. REFER TO FAA ADVISORY CIRCULAR 150/5300-13B, CHANGE 1, DATED 08/16/2024 FOR DEPARTURE OBSTACLE CLEARANCE SURFACE DESCRIPTION.

LEGEND

- EXISTING 5300-13B SURFACE 7
- EXISTING PROPERTY BOUNDARY
- OBSTRUCTION AREA
- OBSTRUCTION IDENTIFIER
- SIGNIFICANT OBJECT IDENTIFIER

Existing Runway 12R End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	W Cheyenne Ave	2,208.24	15.00	2,223.24	6.94
B	W Cheyenne Ave	2,211.00	15.00	2,226.00	11.78
C	N Decatur Blvd	2,213.07	15.00	2,228.07	14.79
D	Ricky Rd	2,227.82	15.00	2,242.82	31.93
E	Ricky Rd	2,241.85	15.00	2,256.85	35.50
F	Us Hwy 95 Bus	2,251.95	15.00	2,266.95	37.56
G	W Gowan Rd	2,234.46	15.00	2,249.46	55.86
H	W Gowan Rd	2,244.07	15.00	2,259.07	71.71
I	W Gowan Rd	2,264.75	15.00	2,279.75	99.48
J	N Jones Blvd	2,269.49	15.00	2,284.49	162.19
K	W Craig Rd	2,242.85	15.00	2,257.85	193.70
L	W Alexander Rd	2,299.58	15.00	2,314.58	194.19

Existing Runway 30L End Departure Obstructions

ID	Feature	Latitude	Longitude	Point Source	Survey Accuracy	ADIP ID#	FAA Study #	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Penetration Value (ft)	Remediation
1	Antenna	36° 11' 29.838" N	115° 10' 39.650" W	MTZ	H20/V3	32-000129	1984-AWP-150-OE	2,093.70	272.60	2,366.30	49.81	Object Has Red Obstruction Lighting
2	Antenna	36° 11' 27.832" N	115° 10' 40.803" W	MTZ	H20/V3	N/A	N/A	2,094.90	273.00	2,367.90	49.56	Add Obstruction Lighting
3	Antenna	36° 11' 20.377" N	115° 10' 36.090" W	MTZ	H20/V3	32-000143	1984-AWP-150-OE	2,092.20	274.20	2,366.40	27.98	Add Obstruction Lighting

Existing Runway 30L End Departure Significant Objects

ID	Feature	Ground Elevation (ft. msl.)	AGL (ft.)	Top Elevation (ft. msl.)	Clearance Value (ft)
A	Airport Access Rd	2,150.67	10.00	2,160.67	22.82
B	Airport Access Rd	2,143.00	10.00	2,153.00	37.02
C	Airport Access Rd	2,137.00	10.00	2,147.00	54.25
D	W Lake Mead Blvd	2,118.00	15.00	2,133.00	105.63
E	Simmons St	2,107.00	15.00	2,122.00	136.18
F	W Lake Mead Blvd	2,109.00	15.00	2,124.00	138.07
G	Vegas Dr	2,102.41	15.00	2,117.41	213.55
H	Vegas Dr	2,065.23	15.00	2,080.23	298.16
I	N Martin L King Blvd	2,051.72	15.00	2,066.72	338.53
J	W Washington Ave	2,077.85	15.00	2,092.85	315.72
K	W Owens Ave	2,035.42	15.00	2,050.42	411.37
L	W Washington Ave	2,056.33	15.00	2,071.33	395.50

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

RUNWAY 12R-30L
EXISTING DEPARTURE SURFACE DRAWING

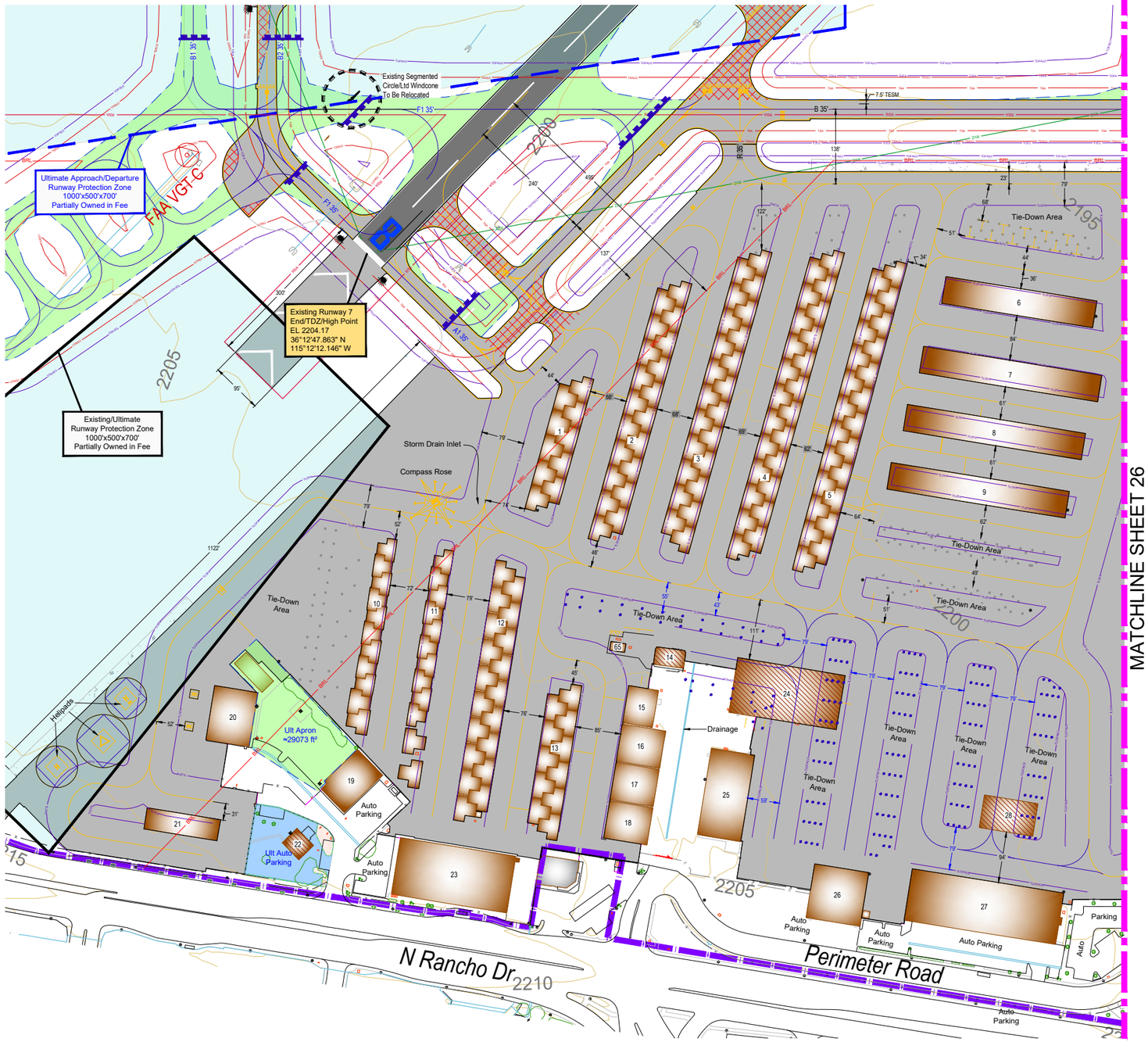
NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 24 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MP\VGT_24\ALP24 \VGT X DEP 12R30L.dwg Printed Date: 6-02-26 10:49:16 AM diana



EXISTING AIRPORT FACILITES

#	Facility Name	Top Elevation ft. msl
1	Portable Hangars	2,221.6'
2	Portable Hangars	2,223.3'
3	Portable Hangars	2,223.4'
4	Portable Hangars	2,219.5'
5	Portable Hangars	2,220.9'
6	Shade Hangars	2,214.9'
7	Shade Hangars	2,216.9'
8	Shade Hangars	2,217.5'
9	Shade Hangars	2,217.6'
10	Portable Hangars	2,223.2'
11	Portable Hangars	2,223.6'
12	Portable Hangars	2,229.3'
13	Portable Hangars	2,227.9'
14	Vacant (To Be Removed)	2,220.1'
15	Executive Hangar	2,229.8'
16	Executive Hangar	2,230.2'
17	Executive Hangar	2,230.7'
18	Executive Hangar	2,230.9'
19	Offices	2,229.1'
20	Conventional Hangar	2,231.9'
21	Box Hangars	2,228.2'
22	Vacant (To Be Removed)	2,228.5'
23	Conventional Hangar	2,236.7'
24	Vacant (To Be Removed)	2,228.2'
25	Conventional Hangar	2,240.6'
26	Conventional Hangar	2,228.2'
27	Conventional Hangar	2,236.7'
28	Vacant (To Be Removed)	2,221.9'
65	Electrical Vault (West)	2,216.1'

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
	N/A	AIRPORT PROPERTY LINE
	BRL	BUILDING RESTRICTION LINE (35')
	N/A	STRUCTURES ON AIRPORT
	N/A	RUNWAY PAVEMENT
		TAXIWAY APRON PAVEMENT
N/A		ABANDON/REMOVE PAVEMENT
	N/A	FENCE LINE
		HOLD MARKING
		RUNWAY TAXIWAY APRON MARKING
	N/A	ROADS AND PARKING PAVEMENT
	DESIGNATION	SURVEY MONUMENT WITH IDENTIFIER
	N/A	OBJECT FREE AREA
	N/A	RUNWAY SAFETY AREA
	N/A	OBSTACLE FREE ZONE
		RUNWAY PROTECTION ZONE
	N/A	RUNWAY VISIBILITY ZONE
N/A		TAXIWAY OBJECT FREE AREA
N/A		TAXIWAY SAFETY AREA
	N/A	RUNWAY END IDENTIFIER LIGHTS (REIL)
	N/A	TIE-DOWNS
	SAME	TREELINE
		TOPOGRAPHIC CONTOURS

GENERAL NOTES:

1. Unless Noted Otherwise All Existing Airfield Coordinates, Elevations, and Bearings From Survey Dated 04/09/2018 by Martinez Geospatial, Eagan, MN.
2. Other Data Sources Consulted Include FAA Airport Master Record Form 5010, the FAA Airport Facility Directory http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/, And http://webdatasheet.faa.gov/
3. Horizontal Datum: North American Datum 1983 - Nad83; Vertical Datum: North American Datum 1988 - Navd88.
4. For Clariity only Ultimate TOFA's and TSA's are Shown
5. VGT is Secured With a Six-foot Perimeter Fence Topped with Three Strand Barbed Wire.

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 100 200
SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

TERMINAL AREA DRAWING I

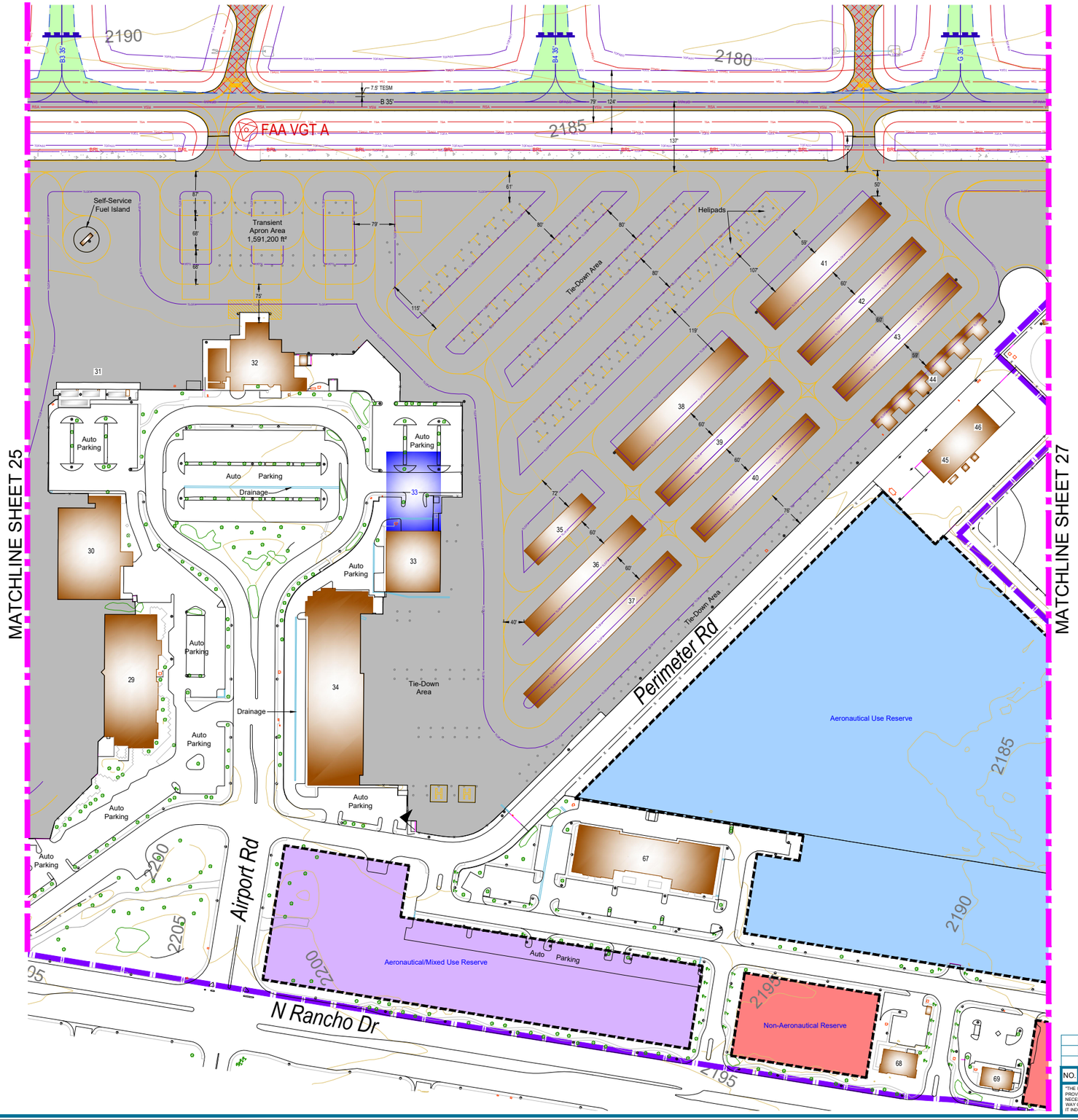
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko

May 2026 | SHEET 25 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ep_CAD (1)\NPV\GT_24\ALP\25 26 27 \GT TAD.dwg Printed Date: 5-02-26 10:49:30 AM diana



EXISTING AIRPORT FACILITES

#	Facility Name	Top Elevation ft. msl
29	Offices	2,237.5'
30	Conventional Hangar	2,232.1'
31	Fuel Tanks AVGAS/Jet A	2,215.4'
32	Main Terminal	2,227.4'
33	Conventional Hangar	2,226.3'
34	Conventional Hangar and Offices	2,230.8'
35	Shade Hangars	2,205.1'
36	Shade Hangars	2,205.7'
37	Shade Hangars	2,206.5'
38	Shade Hangars	2,206.6'
39	Shade Hangars	2,202.0'
40	Shade Hangars	2,201.8'
41	Shade Hangars	2,202.7'
42	Shade Hangars	2,198.5'
43	Shade Hangars	2,198.1'
44	Portable Hangars	2,199.0'
45	Airport Maintenance Building	2,207.3'
46	Airport Maintenance Building	2,207.3'
67	Commercial Building	2,229.9'
68	Commercial Building	2,218.6'
69	Commercial Building	2,216.3'

ULTIMATE AIRPORT FACILITIES

#	Facility Name	Top Elevation ft. msl*
33	Building Expansion	2,226.00

*Top elevation estimated based off common structure height

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		AIRPORT PROPERTY LINE
		SECTION CORNERS
BRL		BUILDING RESTRICTION LINE (35')
	N/A	STRUCTURES ON AIRPORT
N/A		ABANDON/REMOVE PAVEMENT
		RUNWAY TAXIWAY APRON PAVEMENT
		SHOULDER PAVEMENT
x x x	N/A	FENCE LINE
		HOLD MARKING
		RUNWAY TAXIWAY APRON MARKING
		ROADS AND PARKING PAVEMENT
DESIGNATION		SURVEY MONUMENT WITH IDENTIFIER
OFA	OFAUS	OBJECT FREE AREA
RSA	RSAUS	RUNWAY SAFETY AREA
OFZ	OFZUS	OBSTACLE FREE ZONE
N/A	TOFA (U)	TAXIWAY OBJECT FREE AREA
N/A	TSA (U)	TAXIWAY SAFETY AREA
	N/A	TIE-DOWNS
	SAME	VEGETATION
3660		TOPOGRAPHIC CONTOURS

GENERAL NOTES:

1. Unless Noted Otherwise All Existing Airfield Coordinates, Elevations, and Bearings From Survey Dated 04/09/2018 by Martinez Geospatial, Eagan, MN.
2. Other Data Sources Consulted Include FAA Airport Master Record Form 5010, the FAA Airport Facility Directory http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/, And http://webdatasheet.faa.gov/
3. Horizontal Datum: North American Datum 1983 - Nad83;
   Vertical Datum: North American Datum 1988 - Navd88.
4. For Clariity only Ultimate TOFA's and TSA's are Shown
5. VGT is Secured With a Six-foot Perimeter Fence Topped with Three Strand Barbed Wire.

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

0 100 200
SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

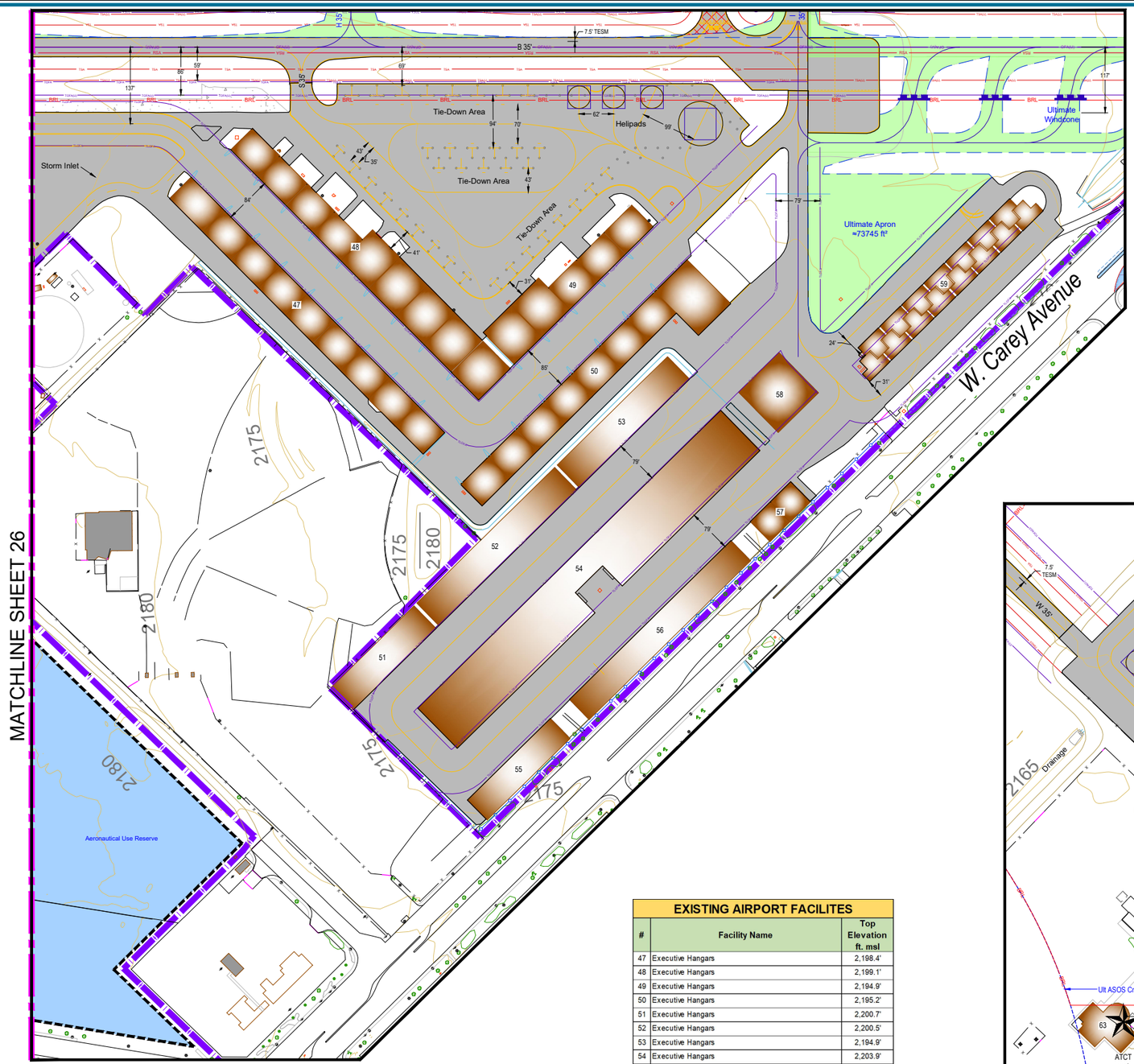
TERMINAL AREA DRAWING II

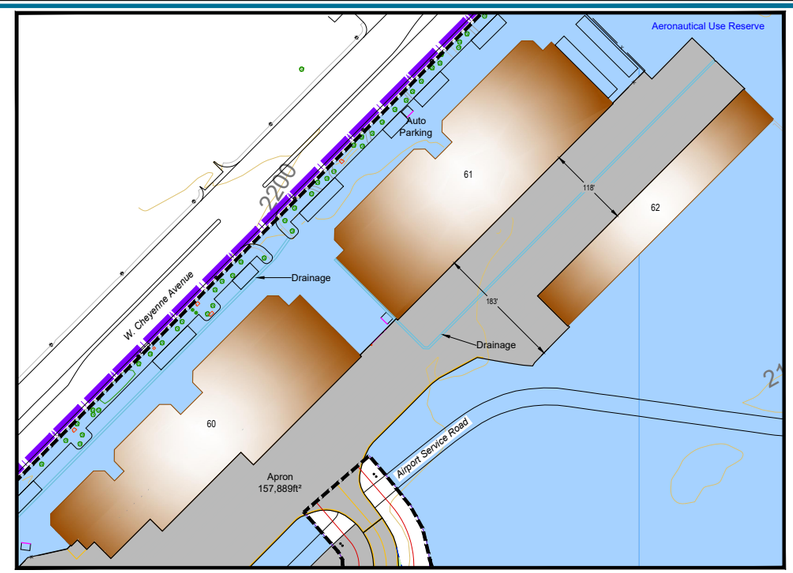
NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 26 OF 30

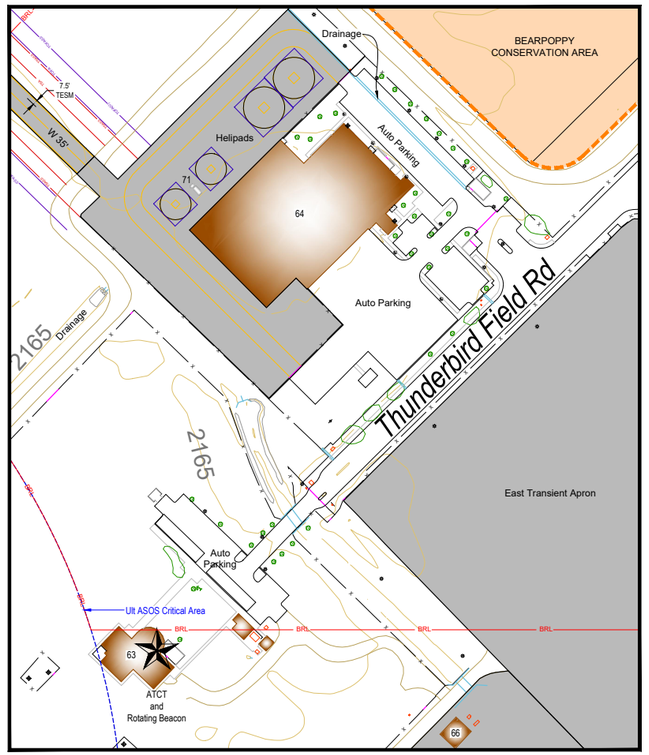
Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - Rp_CAD (1)\MP\VGT_24\ALP\25 26 27 VGT TAD.dwg, Printed Date: 6-02-26 10:49:34 AM diana





NORTHSIDE OF AIRPORT AND W. CHEYENNE AVENUE



TAXIWAY 'W' AND THUNDERBIRD ROAD

LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
	N/A	AIRPORT PROPERTY LINE
		SECTION CORNERS
★	N/A	AIRPORT ROTATING BEACON
BRL		BUILDING RESTRICTION LINE (35')
	N/A	STRUCTURES ON AIRPORT
		RUNWAY PAVEMENT
		TAXIWAY APRON PAVEMENT
N/A		ABANDON/REMOVE PAVEMENT
		SHOULDER PAVEMENT
	N/A	FENCE LINE
		HOLD MARKING
		RUNWAY TAXIWAY APRON MARKING
		ROADS AND PARKING PAVEMENT
DESIGNATION		SURVEY MONUMENT WITH IDENTIFIER
N/A	OFA(V)	OBJECT FREE AREA
N/A		RUNWAY PROTECTION ZONE
N/A	TOFA (V)	TAXIWAY OBJECT FREE AREA
N/A	TSA (V)	TAXIWAY SAFETY AREA
N/A	N/A	TIE-DOWNS
N/A		WINDSOCK
	SAME	TREELINE
3050		TOPOGRAPHIC CONTOURS

EXISTING AIRPORT FACILITES		
#	Facility Name	Top Elevation ft. msl
47	Executive Hangars	2,198.4'
48	Executive Hangars	2,199.1'
49	Executive Hangars	2,194.9'
50	Executive Hangars	2,195.2'
51	Executive Hangars	2,200.7'
52	Executive Hangars	2,200.5'
53	Executive Hangars	2,194.9'
54	Executive Hangars	2,203.9'
55	Executive Hangars	2,198.5'
56	Executive Hangars	2,195.6'
57	Executive Hangars	2,193.9'
58	Executive Hangars	2,191.4'
59	T-Hangars	2,190.5'
60	Conventional Hangar	2,252.9'
61	Conventional Hangar	2,245.1'
62	Box Hangars	2,231.9'
63	ATCT	2,260.2'
64	Las Vegas Metropolitan Police Department Air Support	2,224.7'
66	Electrical Vault (East)	2,176.5'
71	Fuel Tank	2,174.2'



Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)



GENERAL NOTES:

1. Unless Noted Otherwise All Existing Airfield Coordinates, Elevations, and Bearings From Survey Dated 04/09/2018 by Martinez Geospatial, Eagan, MN.
2. Other Data Sources Consulted Include FAA Airport Master Record Form 5010, the FAA Airport Facility Directory http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/, And http://webdatasheet.faa.gov/
3. Horizontal Datum: North American Datum 1983 - Nad83;
   Vertical Datum: North American Datum 1988 - Navd88.
4. For Clariity only Ultimate TOFA's and TSA's are Shown
5. VGT is Secured With a Six-foot Perimeter Fence Topped with Three Strand Barbed Wire.

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

TERMINAL AREA DRAWING III

NORTH LAS VEGAS, NEVADA

PLANNED BY:	E. Pfeifer
DETAILED BY:	D. Przybycien
APPROVED BY:	M. Dmyterko
May 2026	SHEET 27 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - sp_CAD (1)\MP\VGT_24\ALP\25 26 27 VGT TAD.dwg Printed Date: 6-02-26 10:49:41 AM diana

LEGEND

- Airfield Operations Area
- Aeronautical Use/Ultimate Development
- Bearpoppy Conservation Area
- Mixed Use
- Non-Aeronautical Use

GENERAL NOTES:

1. AIRPORT PROTECTION HEIGHT LIMITS ARE ESTABLISHED PER THE CITY OF NORTH LAS VEGAS CODE OF ORDINANCES, SECTION 17.16.050.K (ORD. 2591, 6-15-2011, EFF. 10-1-2011). THE ORDINANCE LIMITS CONSTRUCTION HEIGHT FOR STRUCTURES THAT WOULD CONSTITUTE A "HAZARD TO AIR NAVIGATION" AS DEFINED BY THE FAA.

Magnetic Declination
11° 09' East
Annual Rate of Change
00° 06' West
(Source: NOAA, NCEI, February 2024)

RESIDENTIAL
RESIDENTIAL
RESIDENTIAL
EX RUNWAY 25 END
ULT RUNWAY 12L END
ULT RUNWAY 12R END
ULT RUNWAY 30R END
ULT RUNWAY 30L END
EX RUNWAY 7 END
Walker Park
Gilbert Magnet Elementary School
Kermit R. Booker Elementary School
West Preparatory Academy
Ollie Detwiler Elementary School
Calvary Chapel Meadow Mesa
West Wind Las Vegas Drive-In
Hylo Park Arena
W Cheyenne Ave
E Cheyenne Ave
W Carey Ave
E Carey Ave
Pecos Rd
Lamb Blvd
Clayton Street
Hollywood Blvd
Rancho Rd Frontage
Losee Road
Bruce Woodbury Beltway
Bonanza Rd
Las Vegas Blvd
Fitzgerals St
N Rancho Dr
Pamela Road
Lamont St
W Van Buren Ave

0 500 1000
SCALE IN FEET

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

LAND USE DRAWING

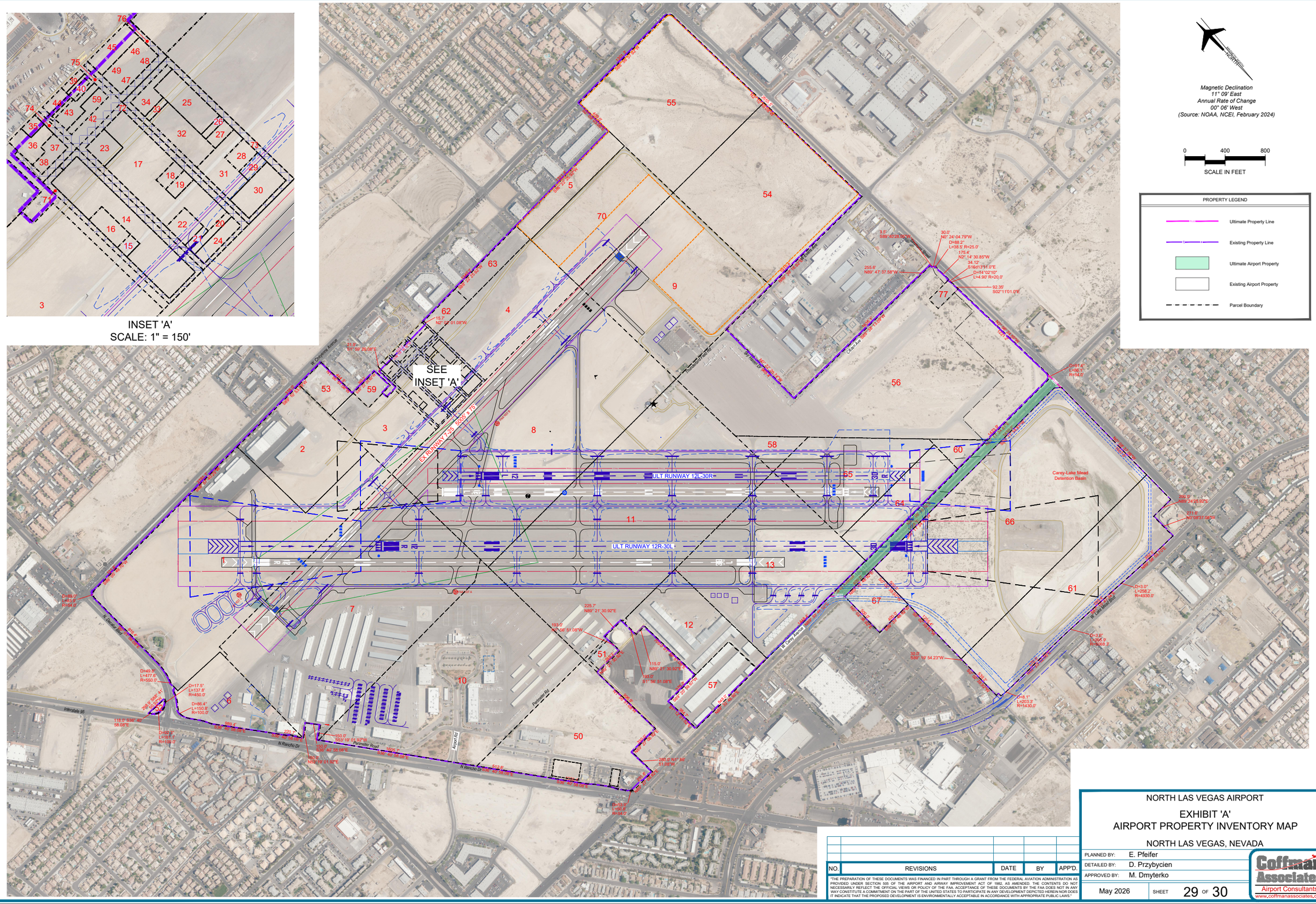
NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 28 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ftp_CAD (1)\MP\VGT_2AIALP\28 VGT LU.dwg Printed Date: 5-20-26 10:50:26 AM diana



NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

EXHIBIT 'A'
AIRPORT PROPERTY INVENTORY MAP

NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026 SHEET 29 OF 30

Coffman Associates
Airport Consultants
www.coffmanassociates.com

OWNED PROPERTY TABLE

Tract ID	Grantor	GRANTEE	Interest	Acreage	Instrument	Book/Page	Easement	FAA Grant #	Date	Purpose Of Acquisition	APN	Released	Notes
1	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	64.44	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110030001	N/A	
2	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	19	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110030002	N/A	
3	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	11	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110050004	N/A	
4	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	18.85	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110050001	N/A	
5	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	5.98	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-016	9/30/1987	AIRPORT PROPERTY	09A090001	N/A	
6	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	13.05	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110020001	N/A	
7	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	76	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110040001	N/A	
8	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	81.36	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	13918601001	N/A	
9	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	38.79	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	09A090001	N/A	
10	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	58.54	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110080001	N/A	
11	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	81.33	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	13918701001	N/A	
12	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	11.92	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110120002	N/A	
13	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	39.09	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110120001	N/A	
14	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	1.68	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110066001	N/A	
15	BILAVA, ALBERT & ELLEN	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.08	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-012	9/30/1987	AIRPORT PROPERTY	110066002	N/A	
16	CHAVEZ, ALEX	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.24	DEED	19880209:00176	N/A	A.I.P. 3-32-0010-002	2/9/1988	AIRPORT PROPERTY	110066003	N/A	
17	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	1.78	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110063001	N/A	
18	CLARK COUNTY, TRUSTEE	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890613:00580	N/A	A.I.P. 3-32-0010-012	6/13/1989	AIRPORT PROPERTY	110063004	N/A	
19	KOURY, LORRAINE	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-012	9/30/1987	AIRPORT PROPERTY	110063005	N/A	
20	CHAVEZ, ALEX	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19880209:00176	N/A	A.I.P. 3-32-0010-012	2/9/1988	AIRPORT PROPERTY	110063008	N/A	
21	KHIANI, ASHOK	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.06	DEED	19891206:00164	N/A	A.I.P. 3-32-0010-002	12/6/1989	AIRPORT PROPERTY	110063009	N/A	
22	LYNCH, GEORGE & ELODA	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.23	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-012	9/30/1987	AIRPORT PROPERTY	110063010	N/A	
23	DAWSON, WILBUR & EMELINE	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.23	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-012	9/30/1987	AIRPORT PROPERTY	110063014	N/A	
24	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.22	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110063015	N/A	
25	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.63	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110062001	N/A	
26	KHIANI, ASHOK	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.06	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062002	N/A	
27	KOURY, LORRAINE	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062003	N/A	
28	PAVELL, JOHN	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.17	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062005	N/A	
29	BELL, ANDREA	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062006	N/A	
30	BIER, MARGARET	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.45	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062007	N/A	
31	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.52	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	110062008	N/A	
32	ALNES, LAURITS & MARY	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.57	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062009	N/A	
33	MAGLEBY, CALVIN & RAISHBROOK, JOAN	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.06	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062010	N/A	
34	MEZORI, RUDOLPH & AUDREY	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.23	DEED	19890825:00411	N/A	A.I.P. 3-32-0010-002	8/25/1989	AIRPORT PROPERTY	110062011	N/A	
35	KOURY, LORRAINE	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.08	DEED	19890719:00157	N/A	A.I.P. 3-32-0010-016	07/19/1989	AIRPORT PROPERTY	110065006	N/A	
36	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.28	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-012	2/27/1989	AIRPORT PROPERTY	110065007	N/A	
37	SLOAN, LLOYD & ELEANOR	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.12	DEED	19890706:00146	N/A	A.I.P. 3-32-0010-016	7/6/1989	AIRPORT PROPERTY	110065008	N/A	
38	JARRETT FAMILY	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.08	DEED	19890623:00271	N/A	A.I.P. 3-32-0010-016	6/23/1989	AIRPORT PROPERTY	110065009	N/A	
39	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.05	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-016	2/27/1989	AIRPORT PROPERTY	110064003	N/A	
40	ANDERSON, DORA & BRUSCHI, ELIZABETH	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890519:00312	N/A	A.I.P. 3-32-0010-016	5/19/1989	AIRPORT PROPERTY	110064004	N/A	
41	ANDERSON, DORA & BRUSCHI, ELIZABETH	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.17	DEED	19890519:00312	N/A	A.I.P. 3-32-0010-016	5/19/1989	AIRPORT PROPERTY	110064006	N/A	
42	MEZORI, RUDY	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890620:00059	N/A	A.I.P. 3-32-0010-016	6/20/1989	AIRPORT PROPERTY	110064007	N/A	
43	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.23	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-016	2/27/1989	AIRPORT PROPERTY	110064008	N/A	
44	DATTGE, DERON & DOROTHY	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19890609:00469	N/A	A.I.P. 3-32-0010-016	6/9/1989	AIRPORT PROPERTY	110064009	N/A	
45	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.34	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-016	2/27/1989	AIRPORT PROPERTY	110061006	N/A	
46	LISBERG, DAVID & JANINE, et al	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19900328:00076	N/A	A.I.P. 3-32-0010-016	3/28/1990	AIRPORT PROPERTY	110061007	N/A	
47	CAYWOOD, MARION	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19881212:00102	N/A	A.I.P. 3-32-0010-016	12/12/1988	AIRPORT PROPERTY	110061008	N/A	
48	CAYWOOD, MARION	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19881212:00102	N/A	A.I.P. 3-32-0010-016	12/12/1988	AIRPORT PROPERTY	110061009	N/A	
49	COTTON, ELMER & DELORES	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.11	DEED	19910114:00729	N/A	A.I.P. 3-32-0010-016	1/14/1991	AIRPORT PROPERTY	110061010	N/A	
50	CAREY STATION HOLDINGS LLC	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	28.86	DEED	20010824:00588	N/A	A.I.P. 3-32-0010-019	8/24/2001	AIRPORT PROPERTY	13918404001	N/A	
51	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	1.1	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	13918801001	N/A	
52	MOSSMAN	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	0.2	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	13813505002	N/A	
53	NV READY MIX CORPORATION	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	3.12	DEED	19970203:00282	N/A	A.I.P. 3-32-0010-011	2/3/1997	AIRPORT PROPERTY	13918501001	N/A	
54	TORLEY LAND CO	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	40.94	DEED	19881020:00160	N/A	A.I.P. 3-32-0010-008	10/20/1988	AIRPORT PROPERTY	13917201001	N/A	
55	TORLEY LAND CO	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	39.4	DEED	19881020:00160	N/A	A.I.P. 3-32-0010-008	10/20/1988	AIRPORT PROPERTY	13917101002	N/A	
56	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	77.27	DEED	20020319:00673	N/A	A.I.P. 3-32-0010-016	3/19/2002	AIRPORT PROPERTY	13917401003	N/A	ACQ. W/ MULTIPLE AIP GRANTS (016, 017, 018, 019)
57	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	7.48	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-019	2/27/1989	AIRPORT PROPERTY	13918801005	N/A	
58	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	3.25	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-015	2/27/1989	AIRPORT PROPERTY	13917301010	N/A	
59	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	1.5	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-015	2/27/1989	AIRPORT PROPERTY	13918501003	N/A	
60	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	1.99	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-015	2/27/1989	AIRPORT PROPERTY	110160002	N/A	
61	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	33.32	DEED	19890227:00143	N/A	A.I.P. 3-32-0020-011	2/27/1989	AIRPORT PROPERTY	13920201001	N/A	
62	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	1.87	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-015	2/27/1989	AIRPORT PROPERTY	110050007	N/A	
63	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	3.72	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-016	2/27/1989	AIRPORT PROPERTY	110050007	N/A	
64	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	10.33	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-011	2/27/1989	AIRPORT PROPERTY	110160001	N/A	
65	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	20.12	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-015	2/27/1989	AIRPORT PROPERTY	110160001	N/A	
66	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	75.52	DEED	19890227:00143	N/A	A.I.P. 3-32-0020-011	2/27/1989	AIRPORT PROPERTY	13920101001	N/A	
67	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK(AVIATION)	FEE SIMPLE	4.59	DEED	19890227:00143	N/A	A.I.P. 3-32-0010-010	2/27/1989	AIRPORT PROPERTY	13919501003	N/A	
69	CITY OF NORTH LAS VEGAS	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.14	DEED	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	110050003	N/A	
70	HOWARD HUGHES PROPERTIES, LTD PARTNERSHIP	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	19.24	DEED	19870930:00046	N/A	A.I.P. 3-32-0010-002	9/30/1987	AIRPORT PROPERTY	09A040001	N/A	
71	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.74	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
72	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.81	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
73	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.81	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
74	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.26	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
75	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.31	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
76	N/A	COUNTY OF CLARK(PUBLIC WORKS)	N/A	0.3	N/A	N/A	N/A	N/A	N/A	AIRPORT PROPERTY	13918599002	N/A	VACATED ROW
77	THE ANDRADE-MORENO FAMILY TRUST	COUNTY OF CLARK (AVIATION)	FEE SIMPLE	0.84	DEED	20250109:2756	N/A	N/A	1/9/2025	AIRPORT PROPERTY	13917301011	N/A	

NO.	REVISIONS	DATE	BY	APP'D.

"THE PREPARATION OF THESE DOCUMENTS 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. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

NORTH LAS VEGAS AIRPORT

EXHIBIT 'A'
AIRPORT PROPERTY INVENTORY TABLE

NORTH LAS VEGAS, NEVADA

PLANNED BY: E. Pfeifer
DETAILED BY: D. Przybycien
APPROVED BY: M. Dmyterko

May 2026

Coffman Associates
Airport Consultants
www.coffmanassociates.com

Coffman Associates C:\Users\diana\Coffman Associates Inc\Coffman - ap_CAD (11MP)\VGT_24ALP29 30 VGT APM.dwg Printed Date: 6-02-26 10:51:36 AM diana



www.coffmanassociates.com

KANSAS CITY
(816) 524-3500

12920 Metcalf Avenue
Suite 200
Overland Park, KS 66213

PHOENIX
(602) 993-6999

4835 E. Cactus Road
Suite 235
Scottsdale, AZ 85254