



## 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.

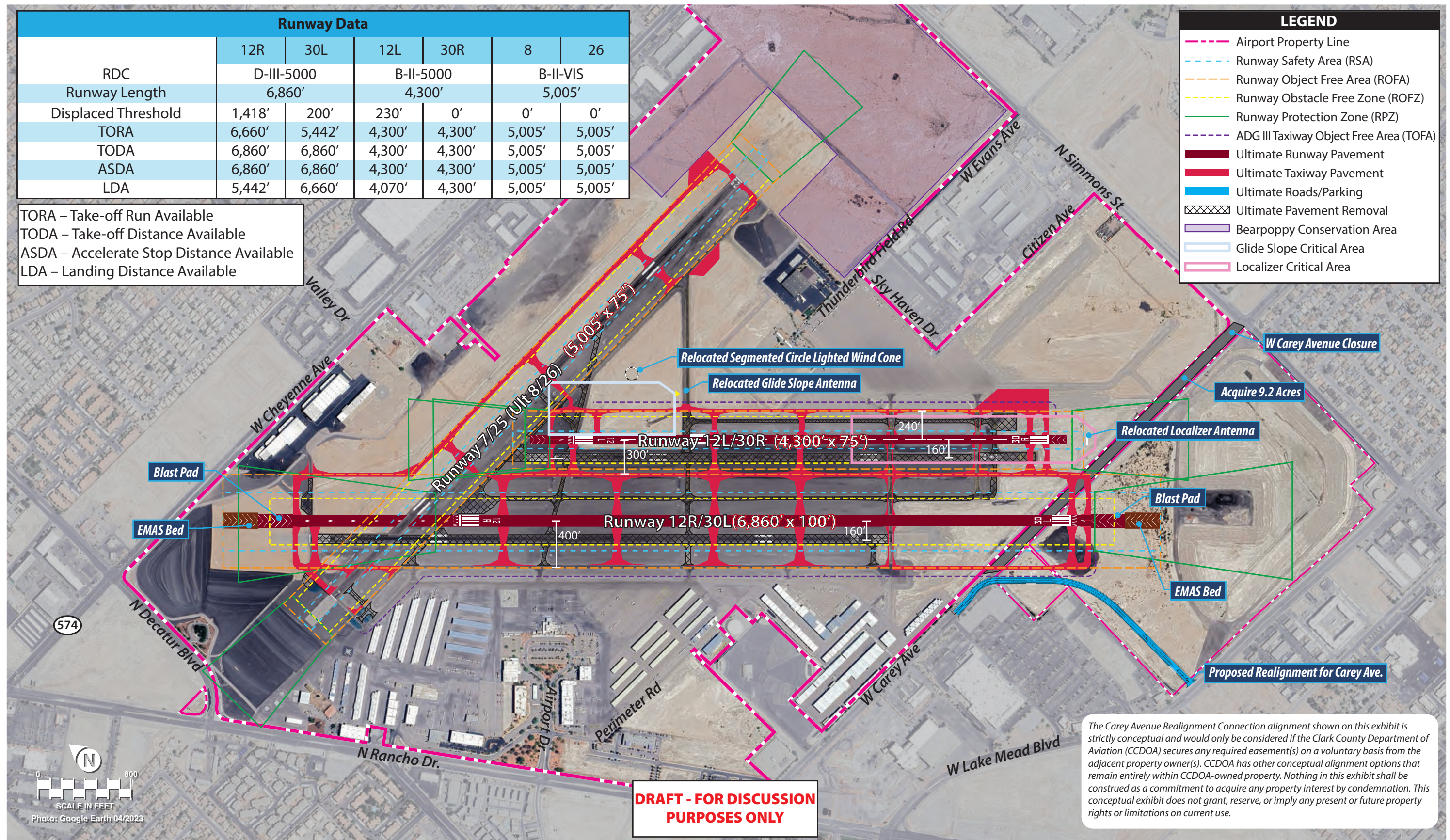
In the previous chapter, several development alternatives were analyzed to explore options for the future growth and development of VGT. The alternatives have been refined into a single recommended concept for the master plan. This chapter describes, in narrative and graphic form, the recommended direction 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.







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## 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
<b>Notes:</b> 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  $\frac{3}{8}$ -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  $\frac{3}{4}$ -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

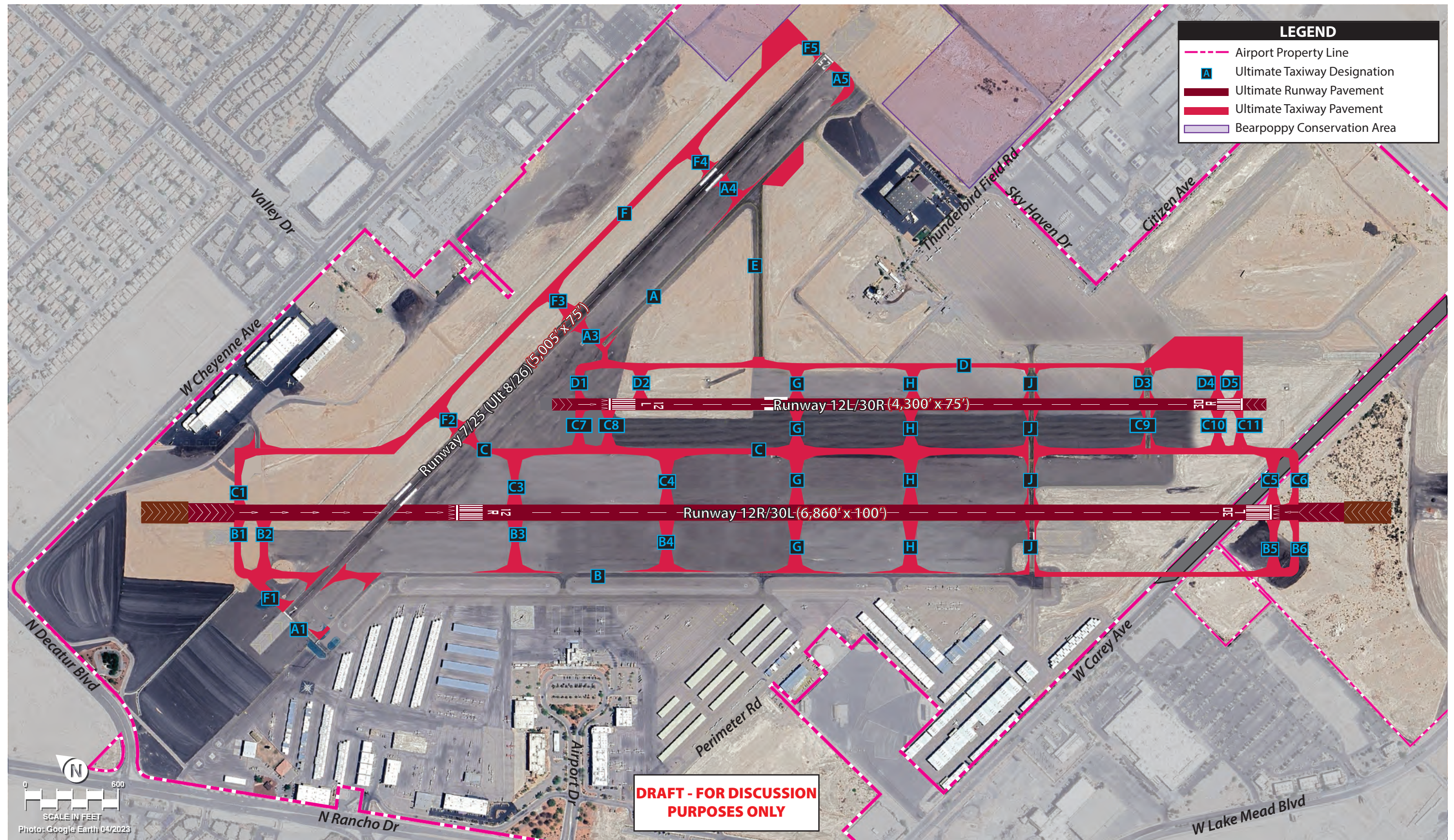
The FAA recommends using guidelines found in Engineering Brief 89, *Taxiway Nomenclature Convention*, when developing or revising airport plans, such as this master plan. Following the standards presented in the brief, the ultimate taxiway system at VGT has been given alphanumeric designations to improve 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**.

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## Taxiway Plans

A description of each existing and ultimate taxiway is provided in **Table 5.2**.

**TABLE 5.2 | Taxiway Plan**

Taxiway		Width (ft)	ADG		Plans
Existing	Ultimate		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.

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TABLE 5.2 | Taxiway Plan (continued)

Taxiway		Width (ft)	ADG		Plans
Existing	Ultimate		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.

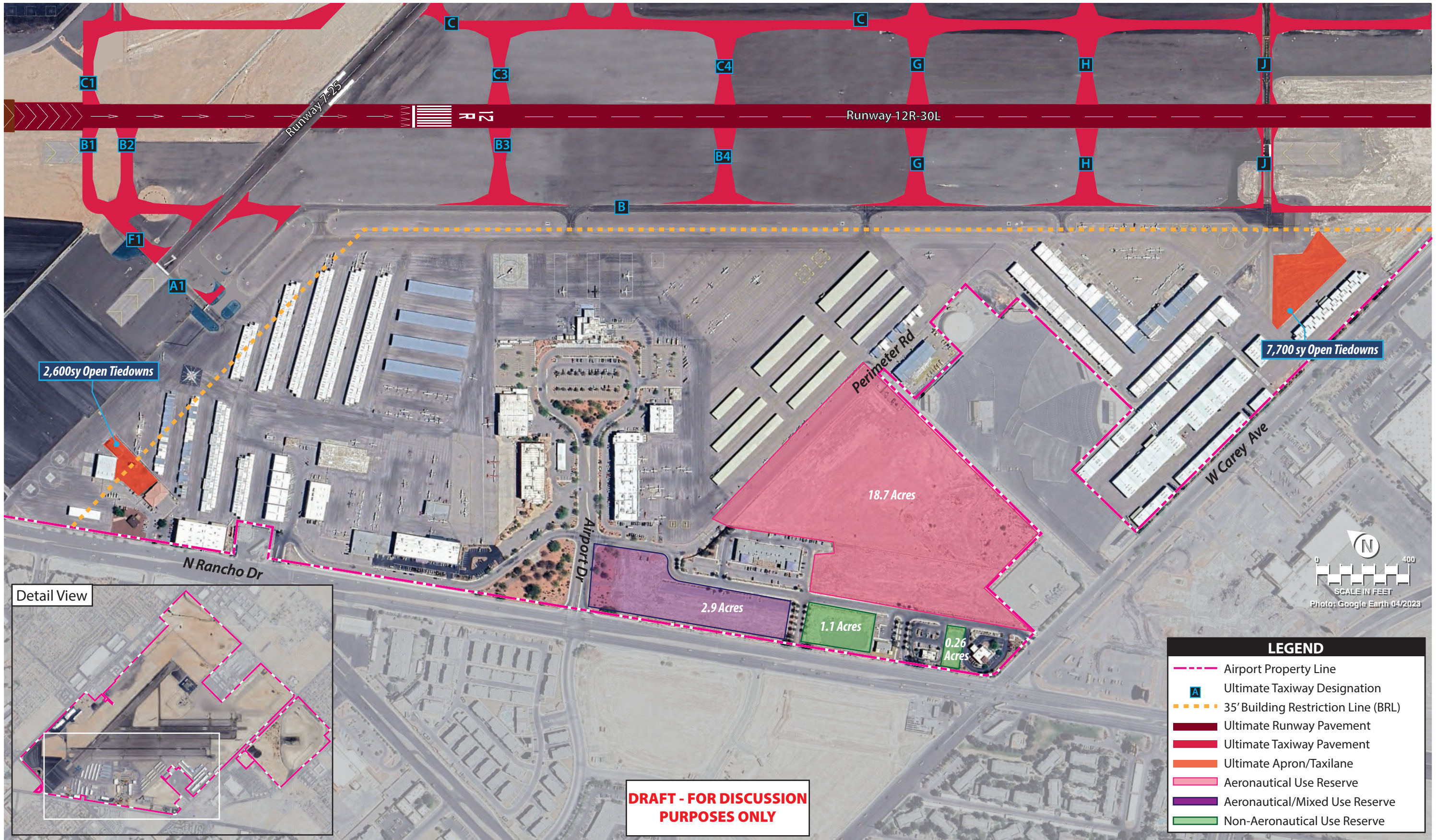
## 5.2.1 WEST SIDE

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.







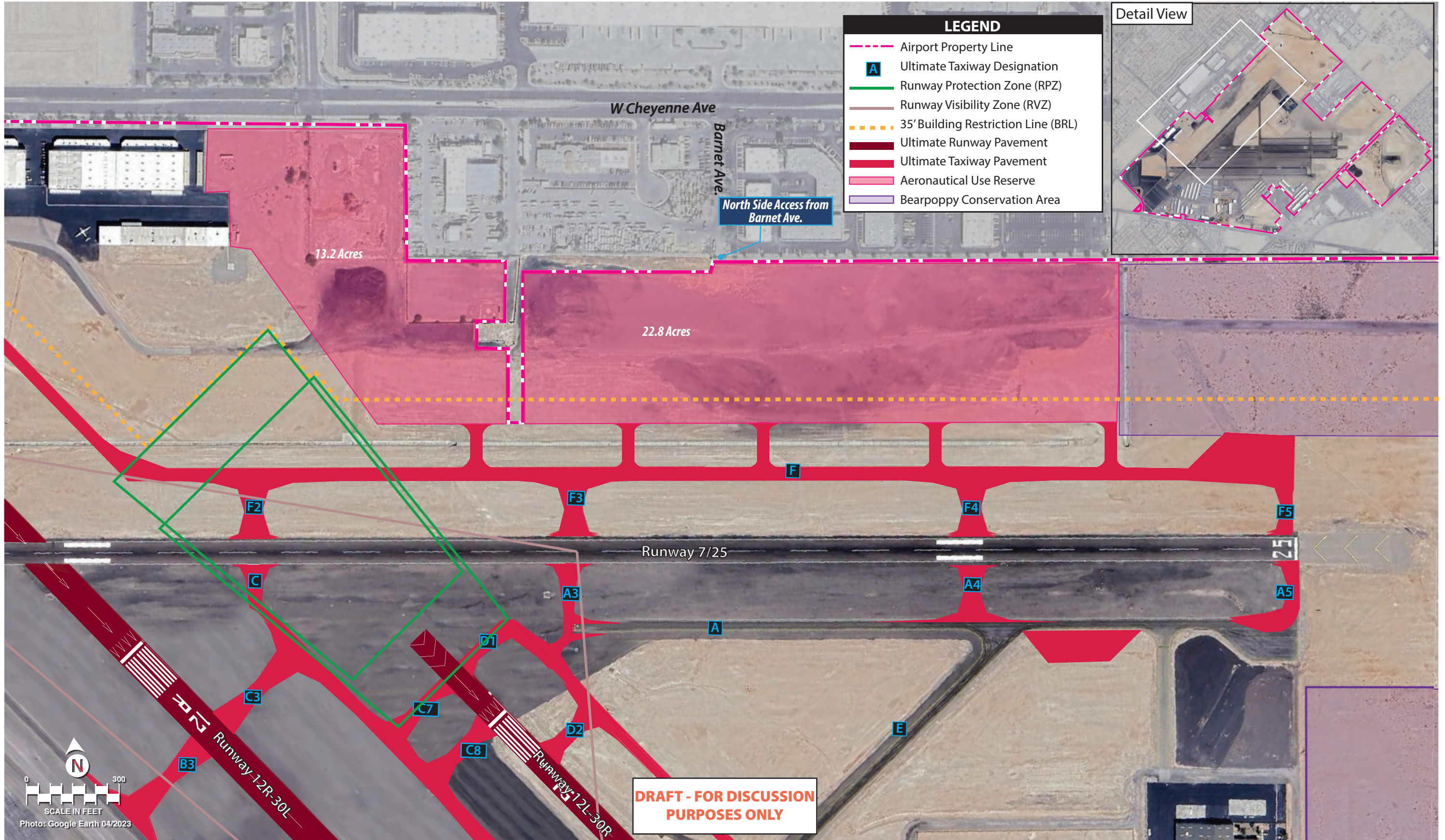
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### 5.2.2 NORTH SIDE

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.

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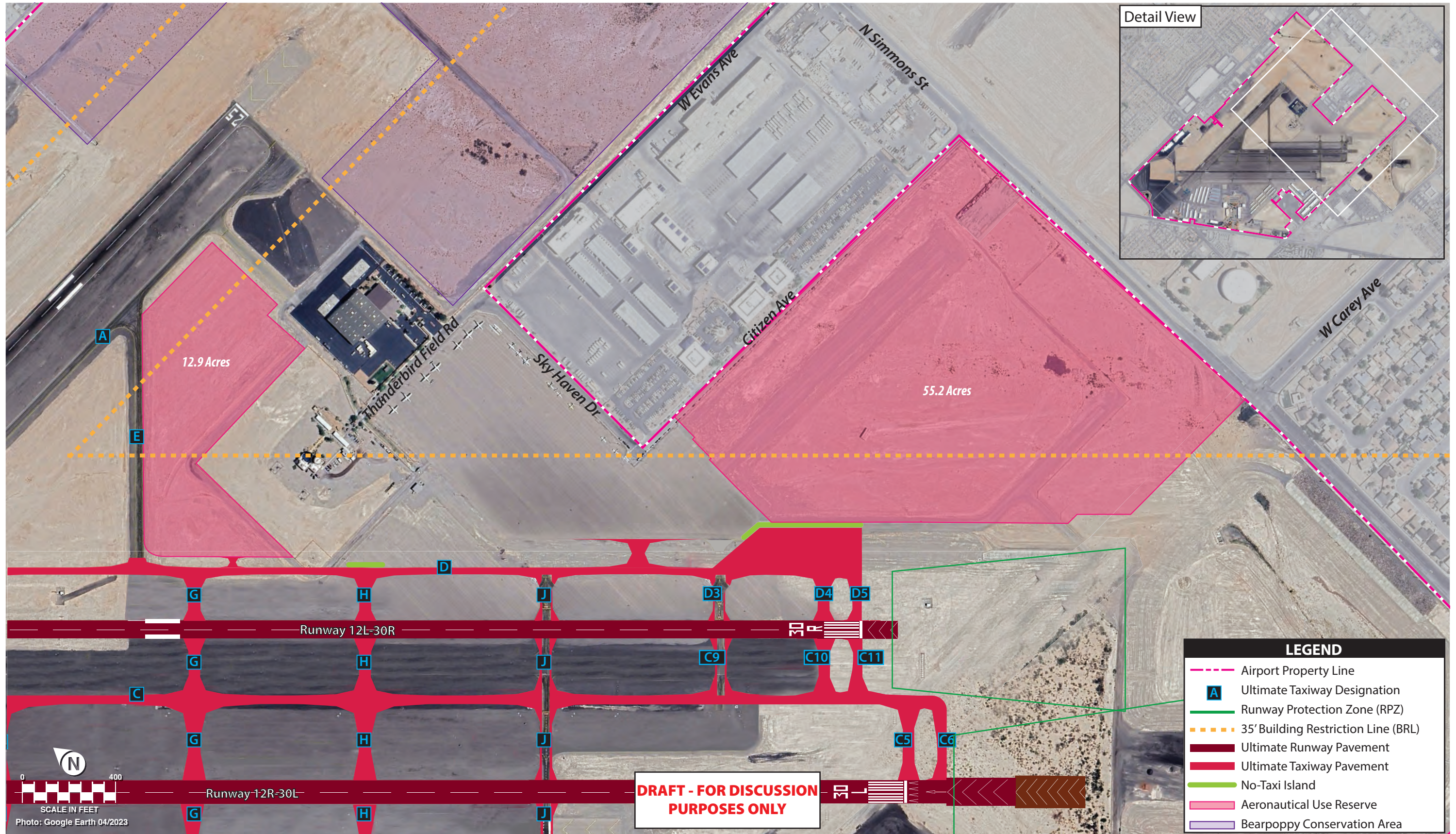
### 5.2.3 EAST SIDE

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.

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## 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.<sup>1</sup>

**Table 5.3 | Summary of Potential Environmental Concerns**

<b>AIR QUALITY</b>	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<b><i>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.</i></b>
Potential Environmental Concerns	<p><b>No Impact.</b> 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);<sup>A</sup> therefore, general conformity review per the <i>Clean Air Act</i> 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.</p> <p>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.</p> <p><sup>A</sup> U.S. EPA, Greenbook, Nevada Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (<a href="https://www3.epa.gov/airquality/greenbook/anayo_nv.html">https://www3.epa.gov/airquality/greenbook/anayo_nv.html</a>), data current as of June 30, 2024</p>
<b>BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)</b>	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<b><i>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.</i></b>

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<sup>1</sup> 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)	<p><b>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:</b></p> <ul style="list-style-type: none"> <li>• <b>Long-term or permanent loss of unlisted plant or wildlife species;</b></li> <li>• <b>Adverse impacts to special status species or their habitats;</b></li> <li>• <b>Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations; or</b></li> <li>• <b>Adverse impacts on a species' reproductive rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.</b></li> </ul>
Potential Environmental Concerns	<p><u>Federally Protected Species.</u>  <b>No Impact.</b> 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).<sup>B</sup> The airport is devoid of perennial waters, flowering plants, and riparian habitat that support these species. (See <b>Chapter 1, Table 1.18</b> for a detailed outline of habitat required for species protected under the ESA.)</p> <p><u>Federally Designated Critical Habitat.</u>  <b>No Impact.</b> There are no designated critical habitats within airport boundaries.</p> <p><u>Non-listed Species</u>  <b>Potential Impact.</b> Non-listed species of concern include those protected by the <i>Migratory Bird Treaty Act</i> (MBTA) and the <i>Bald and Golden Eagle Protection Act</i>. 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.</p> <p>Other species of concern at VGT include the Las Vegas bearpoppy (<i>Arctomecon californica</i>). The Las Vegas bearpoppy is currently under review to be listed on the <i>Endangered Species Act</i> (ESA) list for federal protection<sup>C</sup> and is listed as a State of Nevada critically endangered species and a covered species in the Clark County Multiple Species Habitat Conservation Plan.<sup>D</sup> 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.<sup>E</sup> There is no proposed development within this conservation area.</p> <p><sup>B</sup> U.S. Fish &amp; Wildlife Service, <i>Information for Planning and Consultation</i> (<a href="https://ipac.ecosphere.fws.gov/">https://ipac.ecosphere.fws.gov/</a>), accessed July 2024</p> <p><sup>C</sup> U.S. Fish &amp; Wildlife Service, <i>Environmental Conservation Online System</i> (<a href="https://ecos.fws.gov/ecp/species/7225">https://ecos.fws.gov/ecp/species/7225</a>), accessed July 2024</p> <p><sup>D</sup> Clark County Nevada, <i>DCP Multiple Species Habitat Conservation Plan</i> (<a href="https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/desert_conservation_program/current_mshcp.php">https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/desert_conservation_program/current_mshcp.php</a>), accessed July 2024</p> <p><sup>E</sup> 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</p>
<b>CLIMATE</b>	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<p><b>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.</b></p>
Potential Environmental Concerns	<p><b>Unknown.</b> 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, <i>Environmental Impacts: Policies and Procedures</i>, 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.</p>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

COASTAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><i>The FAA has not established a significance threshold for Coastal Resources. Factors to consider include whether an action would have the potential to:</i></p> <ul style="list-style-type: none"> <li>• <i>Be inconsistent with the relevant state coastal zone management plan(s);</i></li> <li>• <i>Impact a coastal barrier resources system unit;</i></li> <li>• <i>Pose an impact on coral reef ecosystems;</i></li> <li>• <i>Cause an unacceptable risk to human safety or property; or</i></li> <li>• <i>Cause adverse impacts on the coastal environment that cannot be satisfactorily mitigated.</i></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.<sup>F</sup></p> <p><sup>F</sup> National Marine Sanctuaries (<a href="https://sanctuaries.noaa.gov/">https://sanctuaries.noaa.gov/</a>)</p>
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	<p><i>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.</i></p> <p><i>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.</i></p>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.<sup>G</sup> The closest Section 4(f) resource is Ollie Detwiller Elementary School, located 0.15 miles south of the airport.<sup>H</sup> 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.</p> <p>There are several buildings that are 50 years or older (i.e., historic age) at the airport. The buildings are depicted on <b>Figure 1.24</b> 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.</p> <p><sup>G</sup> NRHP (<a href="https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466">https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466</a>), accessed August 2024</p> <p><sup>H</sup> Google Earth Pro, Aerial Imagery</p>
FARMLANDS	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><i>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:</i></p> <ul style="list-style-type: none"> <li>• <i>Federal funds are involved;</i></li> <li>• <i>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</i></li> <li>• <i>None of the exemptions to the FPPA apply. These exemptions include:</i> <ul style="list-style-type: none"> <li>○ <i>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;</i></li> </ul> </li> </ul>
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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

FAA Order 1050.1F, Significance Threshold/ Factors to Consider (continued)	<ul style="list-style-type: none"> <li>○ <i>When land is already committed to urban development;</i></li> <li>○ <i>When land is committed to water storage;</i></li> <li>○ <i>Construction of non-farm structures necessary to support farming operations; and</i></li> <li>○ <i>Construction/land development for national defense purposes.</i></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> According to the NRCS Web Soil Survey (WSS), soils at the airport are classified as not prime farmland;<sup>l</sup> therefore, any proposed changes to the airside or landside portions of the airport would not convert farmlands protected by the FPPA.</p> <p><sup>l</sup> USDA-NRCS, Web Soil Survey (<a href="https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a>)</p>
<b>COASTAL RESOURCES</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>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:</b></p> <ul style="list-style-type: none"> <li>• <i>Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;</i></li> <li>• <i>Involve a contaminated site;</i></li> <li>• <i>Produce an appreciably different quantity or type of hazardous waste;</i></li> <li>• <i>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</i></li> <li>• <i>Adversely affect human health and the environment.</i></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.</p> <p>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.</p> <p>See discussion on Surface Water for information on water quality pollution prevention.</p> <p>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.<sup>j</sup> Currently, there are no cleanup activities listed for this brownfield.<sup>k</sup></p> <p><sup>j</sup> U.S. EPA, EJScreen (<a href="https://ejscreen.epa.gov/mapper/">https://ejscreen.epa.gov/mapper/</a>), accessed July 2024</p> <p><sup>k</sup> U.S. EPA, EPA Home, Cleanups (<a href="https://ordspub.epa.gov/ords/cimc/f?p=CIMC:31:::Y,31,0:P31_ID:105263#basic">https://ordspub.epa.gov/ords/cimc/f?p=CIMC:31:::Y,31,0:P31_ID:105263#basic</a>), accessed July 2024</p>
<b>HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>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).</b></p>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

Potential Environmental Concerns	<p><b>Potential Impact.</b> There are no resources listed on the NRHP within one mile of the airport.</p> <p>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 <i>National Historic Preservation Act</i> Section 106 process.</p> <p>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.</p> <p>The closest tribal land to the airport is the Las Vegas Paiute Reservation, located approximately two miles southeast of the airport.<sup>L</sup></p> <p><sup>L</sup> U.S. EPA, EJSscreen (<a href="https://ejscreen.epa.gov/mapper/">https://ejscreen.epa.gov/mapper/</a>)</p>
<b>LAND USE</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<b>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.</b>
Potential Environmental Concerns	<p><b>No Impact.</b> Figure 5.1 primarily depicts proposed runway and taxiway improvements, including the following:</p> <ul style="list-style-type: none"> <li>• 160-foot shift of the parallel runways at VGT</li> <li>• Construction of EMAS beds on both ends of Runway 12R-30L</li> <li>• Displaced thresholds on Runways 12R and 30L to keep RPZs on airport property</li> <li>• Reconstruction of Taxiway D and shift 200 feet east to meet runway separation standards</li> <li>• Construction of a new connector road that would extend between Lake Mead Boulevard and Carey Avenue</li> <li>• Reconstruction of Taxiway P at a 240-foot separation distance from Runway 12L-30R</li> <li>• Shift of a portion of Taxiway H (between Taxiway P and B)</li> <li>• Removal of Taxiway C and addition of new 90-degree connectors to provide access to the Runway 12L threshold</li> <li>• Mitigation of direct access points through elimination of taxiway connectors and/or application of no-taxi islands</li> <li>• Alignment reconfiguration for Taxiways G and F</li> <li>• Extension of Taxiway B</li> <li>• Removal of a portion of Taxiway A pavement between Taxiway B and Taxiway C</li> <li>• Reconfiguration of Taxiway E and pavement extension from Runway 7-25 to Taxiway P</li> <li>• Construction of new holding bays at the south end of Taxiway P and the east end of Runway 25</li> </ul> <p>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.</p>
<b>NATURAL RESOURCES AND ENERGY SUPPLY</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<b>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.</b>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.</p>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

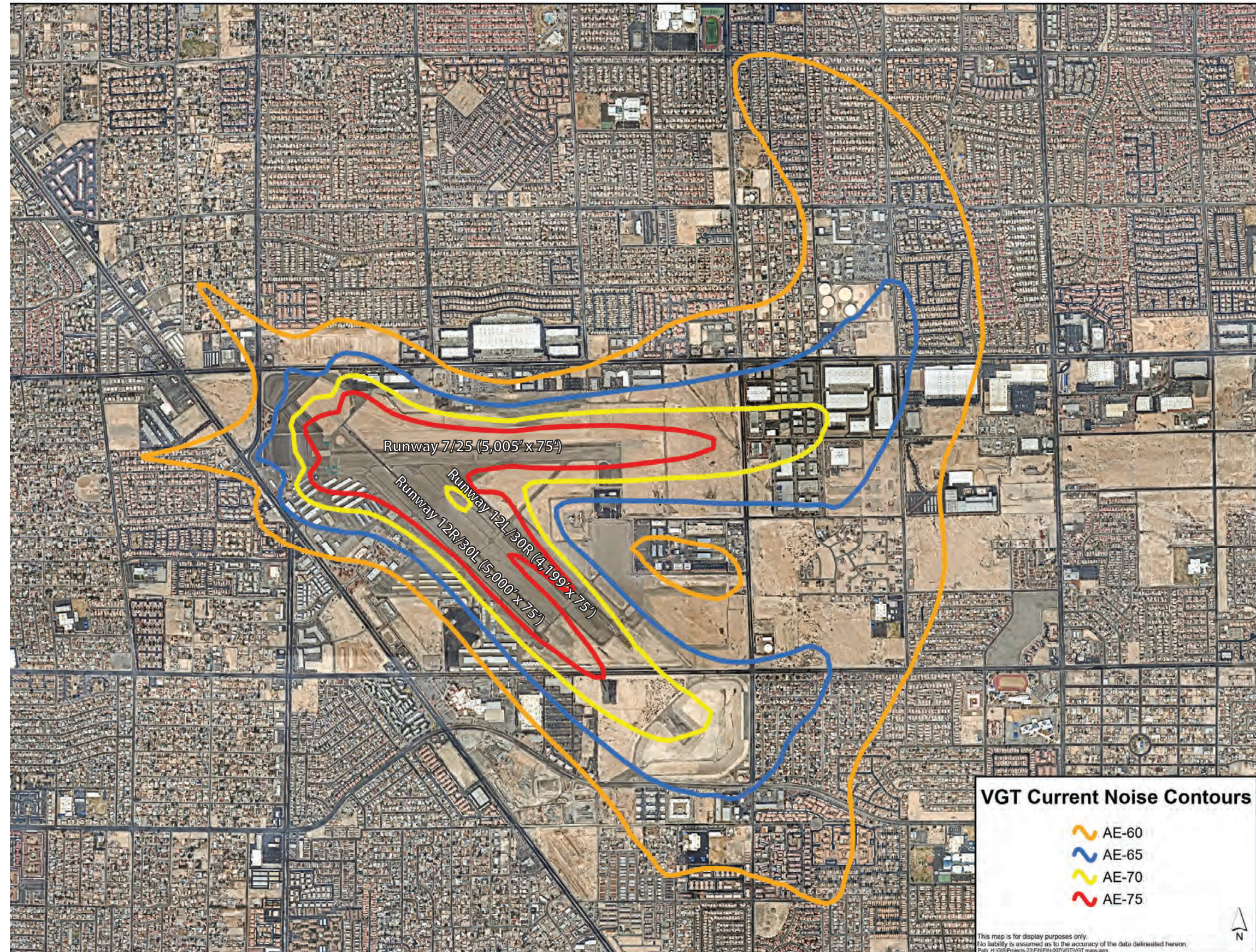
<b>NOISE AND NOISE-COMPATIBLE LAND USE</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><i>The action may increase day-night average sound level (DNL) noise by approximately 1.5 decibels (dB) or more for a noise-sensitive area that is exposed to noise at or above the 65-dB DNL noise 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.</i></p> <p><i>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.</i></p>
Potential Environmental Concerns	<p><b>No Impact.</b> 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).</p>

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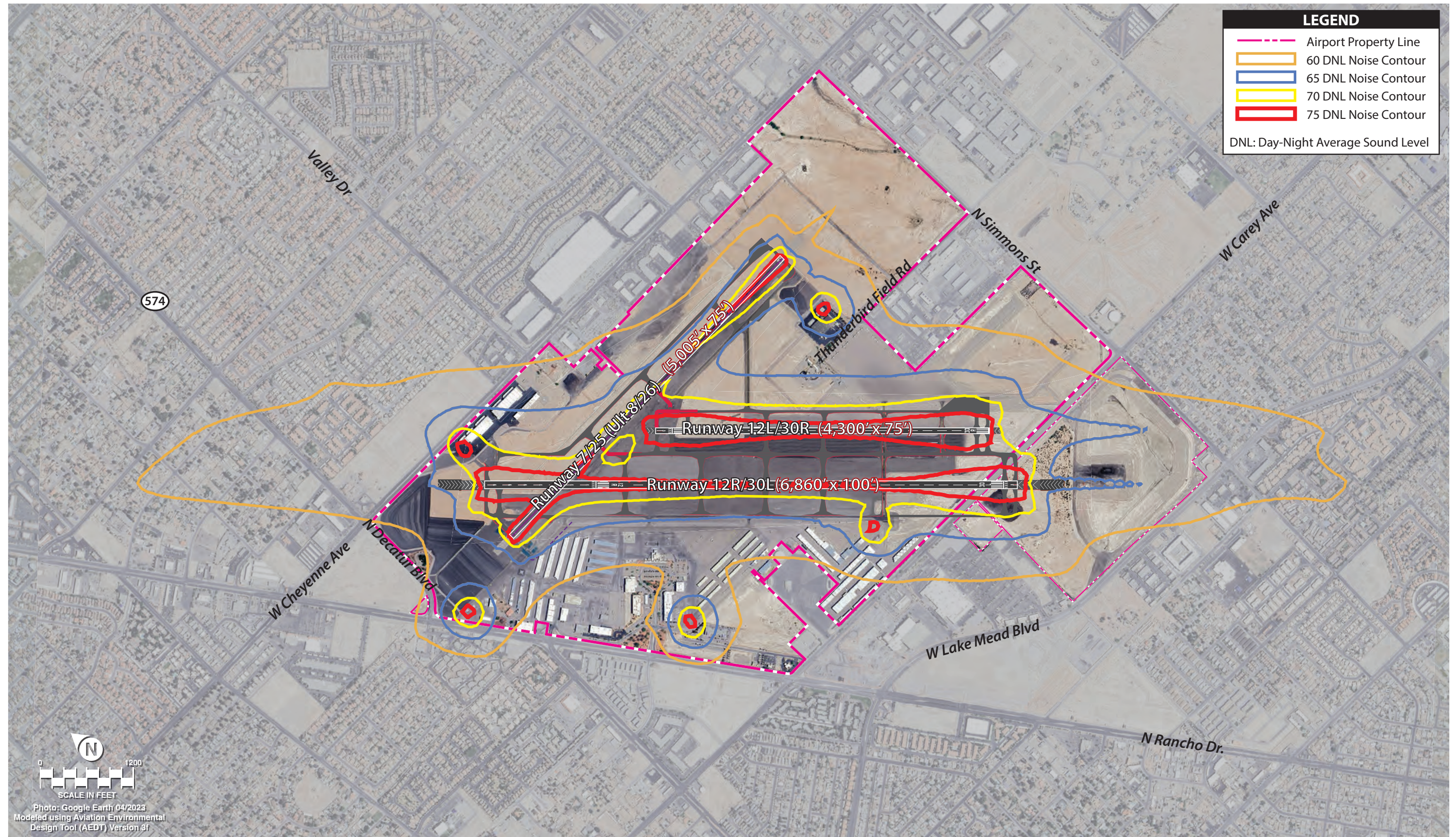


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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS	
Socioeconomics	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>The FAA has not established a significance threshold for Socioeconomics; however, factors to consider include whether an action would have the potential to:</b></p> <ul style="list-style-type: none"> <li>• <b>Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);</b></li> <li>• <b>Disrupt or divide the physical arrangement of an established community;</b></li> <li>• <b>Cause extensive relocation when sufficient replacement housing is unavailable;</b></li> <li>• <b>Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;</b></li> <li>• <b>Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or</b></li> <li>• <b>Produce a substantial change in the community tax base.</b></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.</p> <p>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 <b>Figure 5.1</b>). The CCDOA has conducted a traffic study to analyze potential impacts resulting from the road closure and realignment.</p>
Environmental Justice	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>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:</b></p> <ul style="list-style-type: none"> <li>• <b>Significant impacts in other environmental impact categories; or</b></li> <li>• <b>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.</b></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> 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;<sup>M</sup> 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.</p> <p>Executive Order (E.O.) 12898, <i>Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations</i>, and the accompanying Presidential Memorandum, and Department of Transportation (DOT) Order 5610.2, <i>Environmental Justice</i>, 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.</p> <p><sup>M</sup>Google Earth Pro, Aerial Imagery</p>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

Children's Health and Safety Risks	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<i>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.</i>
Potential Environmental Concerns	<b>No Impact.</b> 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	<i>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:</i> <ul style="list-style-type: none"> <li>• <i>Create annoyance or interfere with normal activities from light emissions; or</i></li> <li>• <i>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.</i></li> </ul>
Potential Environmental Concerns	<b>Potential Impact.</b> 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	<i>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:</i> <ul style="list-style-type: none"> <li>• <i>Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;</i></li> <li>• <i>Contrast with the visual resources and/or visual character in the study area; and</i></li> <li>• <i>Block or obstruct the views of the visual resources, including whether these resources would still be viewable from other locations.</i></li> </ul>
Potential Environmental Concerns	<b>Potential Impact.</b> 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	<i>The action would:</i> <ul style="list-style-type: none"> <li>• <i>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;</i></li> <li>• <i>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;</i></li> <li>• <i>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);</i></li> <li>• <i>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;</i></li> <li>• <i>Promote the development of secondary activities or services that would cause the circumstances listed above to occur; or</i></li> <li>• <i>Be inconsistent with applicable state wetland strategies.</i></li> </ul>

(Continues on next page)

**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

Potential Environmental Concerns	<p><b>Potential Impact.</b> According to the USFWS National Wetlands Inventory, there are riverines that cross over the eastern and southeast portion of the airport.<sup>N</sup> Upon review of aerial imagery, these riverines appear to be ephemeral.</p> <p>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, <i>Standard Specifications for Construction of Airports</i>, Item P-156, <i>Temporary Air and Water Pollution, Soil Erosion and Siltation Control</i>, 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.</p> <p><sup>N</sup> National Wetlands Inventory (<a href="https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/">https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/</a>)</p>
<b>Floodplains</b>	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>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.</b></p>
Potential Environmental Concerns	<p><b>Potential Impact.</b> 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.<sup>O</sup> Proposed airside development would occur in the 500-year floodplain.</p> <p>E.O. 14030, Climate-Related Financial Risk was established on May 25, 2021. Section 5(e) of E.O. 14030 reinstates E.O. 13690,<sup>P</sup> amends E.O. 11988,<sup>Q</sup> 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.</p> <p>Under E.O. 13690 and its guidelines, one of several approaches should be used to identify floodplains and their risks to critical<sup>R</sup> or non-critical federally funded actions:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• 500-Year Floodplain Approach – all areas subject to the 0.2 percent annual chance flood</li> <li>• Other methods resulting from updates to the FFRMS</li> </ul> <p>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.</p> <p><sup>O</sup> FEMA Flood Map Service (<a href="https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/">https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/</a>)</p> <p><sup>P</sup> Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, 2015</p> <p><sup>Q</sup> Floodplain Management, May 1977</p> <p><sup>R</sup> 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.</p>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

Surface Waters	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>The action would:</b></p> <ul style="list-style-type: none"> <li>• <i>Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or</i></li> <li>• <i>Contaminate public drinking water supply such that public health may be adversely affected.</i></li> </ul>
Potential Environmental Concerns	<p><b>Potential Impact.</b> 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.<sup>5</sup> These waterbodies are located east and south of the airport.</p> <p>An NPDES general construction permit would be required for all projects involving ground disturbance over one acre. FAA AC 150/5370-10G, <i>Standards for Specifying Construction of Airports</i>, Item P-156, <i>Temporary Air and Water Pollution, Soil Erosion and Siltation Control</i>, should also be implemented during construction projects at the airport.</p> <p><sup>5</sup> U.S. EPA, <i>How's My Waterway</i> (<a href="https://mywaterway.epa.gov/community/north%20las%20vegas%20airport/overview">https://mywaterway.epa.gov/community/north%20las%20vegas%20airport/overview</a>)</p>
Groundwater	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>The action would:</b></p> <ul style="list-style-type: none"> <li>• <i>Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or</i></li> <li>• <i>Contaminate an aquifer used for public water supply such that public health may be adversely affected.</i></li> </ul> <p><b>Factors to consider include whether a project would have the potential to:</b></p> <ul style="list-style-type: none"> <li>• <i>Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;</i></li> <li>• <i>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</i></li> <li>• <i>Present difficulties based on water quality impacts when obtaining a permit or authorization.</i></li> </ul>
Potential Environmental Concerns	<p><b>No Impact.</b> 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.<sup>T</sup></p> <p><sup>T</sup> U.S. EPA, <i>Sole Source Aquifers</i> (<a href="https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b">https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b</a>)</p>
Wild and Scenic Rivers	
FAA Order 1050.1F, Significance Threshold/ Factors to Consider	<p><b>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:</b></p> <ul style="list-style-type: none"> <li>• <i>Destroying or altering a river's free-flowing nature;</i></li> <li>• <i>A direct and adverse effect on the values for which a river was designated (or is under study for designation);</i></li> <li>• <i>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;</i></li> <li>• <i>Causing the river's water quality to deteriorate;</i></li> <li>• <i>Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or</i></li> <li>• <i>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).</i></li> </ul>

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**Table 5.3 | Summary of Potential Environmental Concerns (continued)**

Potential Environmental Concerns	<p><b>No Impact.</b> 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.<sup>U</sup> The nearest NRI feature is the Virgin River, located 51 miles from VGT, where it leads into the northern reaches of Lake Mead.<sup>V</sup></p> <p>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).</p> <p><sup>U</sup> <i>National Wild and Scenic Rivers System</i> (<a href="https://www.rivers.gov/nevada">https://www.rivers.gov/nevada</a>)</p> <p><sup>V</sup> <i>National Park Service, Nationwide Rivers Inventory</i> (<a href="https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm">https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm</a>)</p>
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## 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.

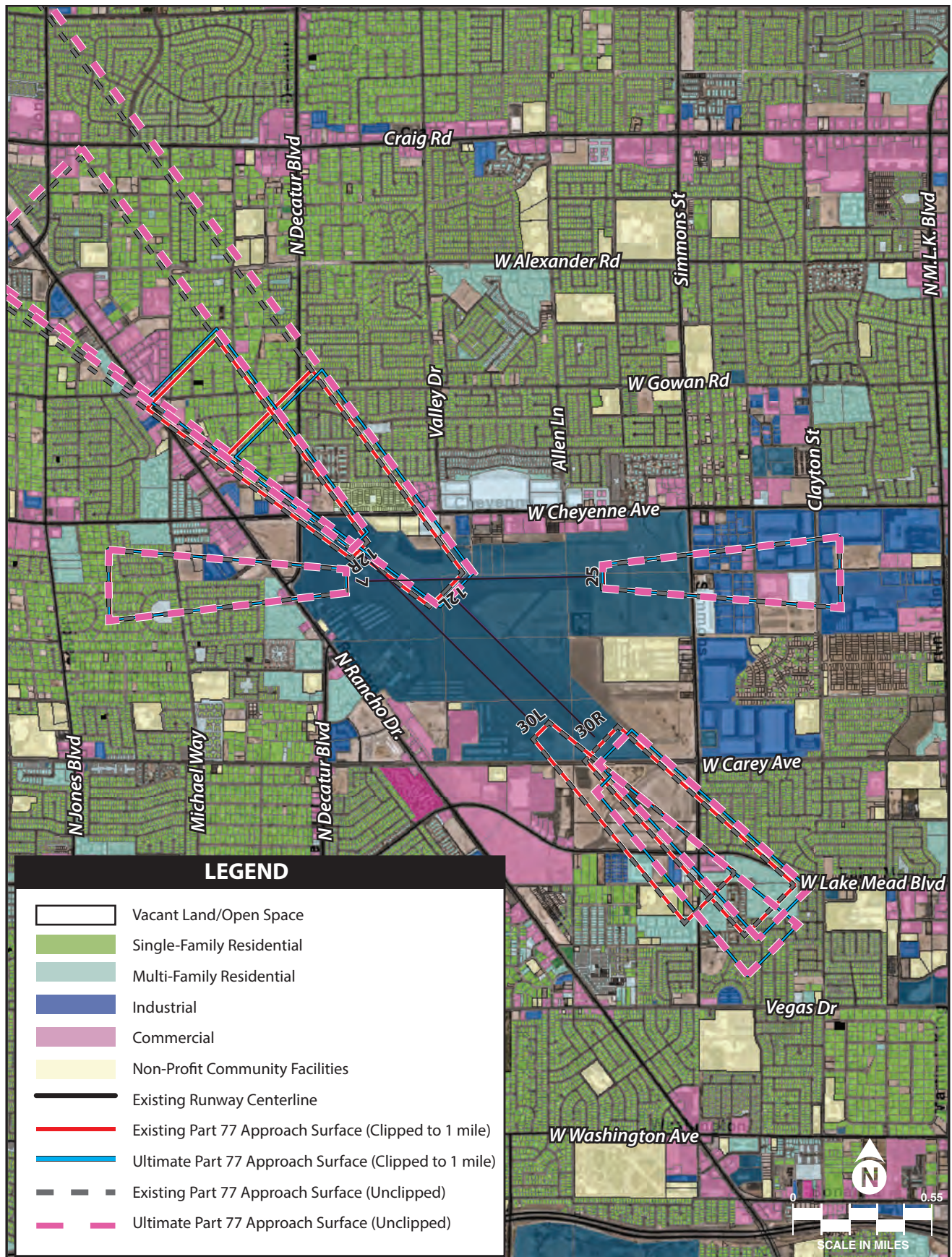
The following sections describe the applicable land use policies for the area within the vicinity of the airport. Specifically, these sections pertain to the lands within the 65- DNL contours and the FAA Title 14 CFR Part 77 approach surface restricted to one mile from the runway ends.



### 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.





## 5.4.2 ZONING

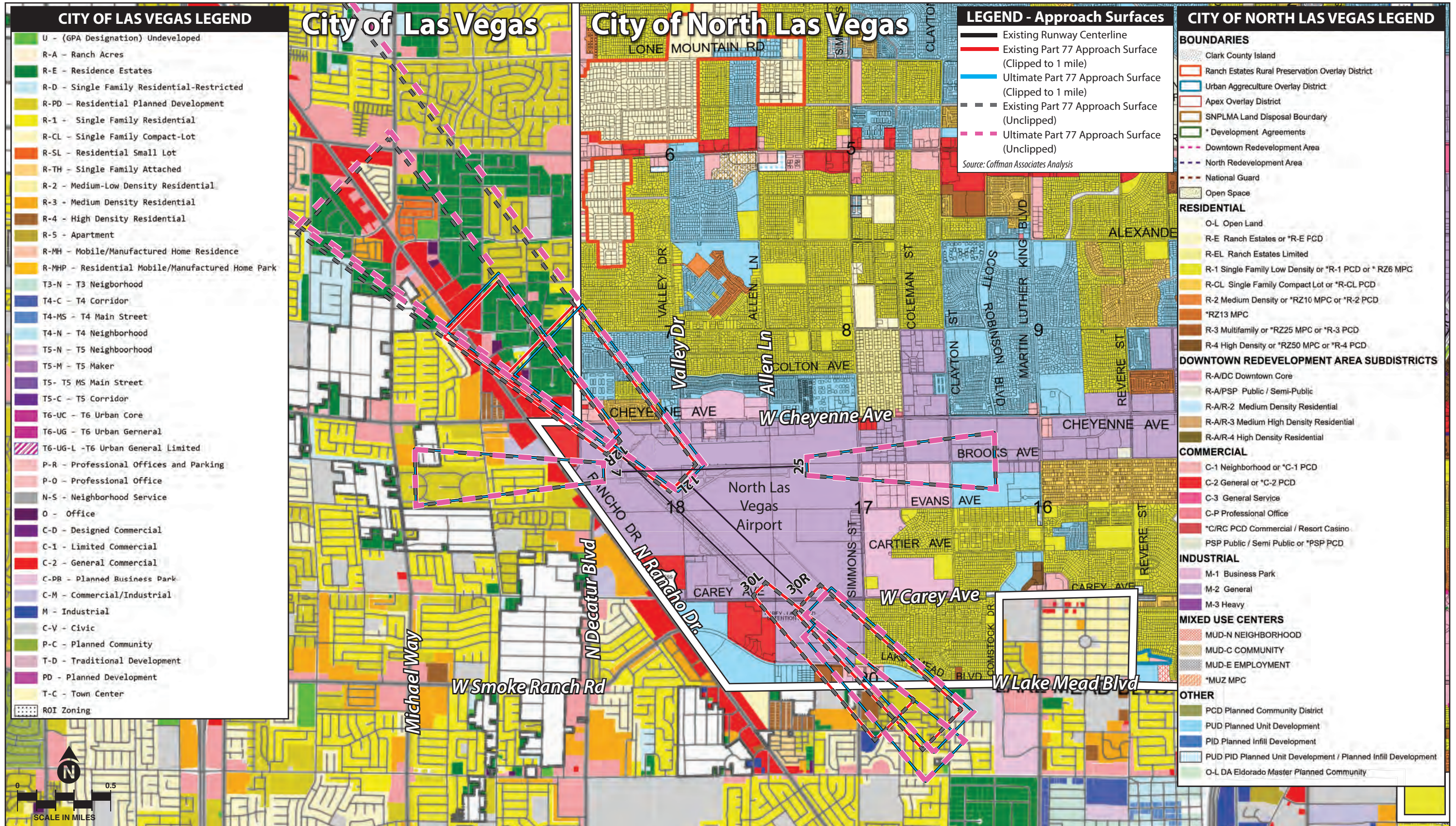
Zoning regulations are used in conjunction with subdivision regulations and are an essential tool to achieve goals and policies outlined in each city’s comprehensive plan. Zoning regulations divide land into districts, or zones, and regulate land use activities in those districts by specifying permitted 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.<sup>2</sup> 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.

<sup>2</sup> 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)



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**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 <sup>1</sup> or Lot Coverage <sup>2</sup>	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 <sup>1</sup> or Lot Coverage <sup>2</sup>	Maximum Allowable Height	Minimum Lot Size
R-E Residence Estates	Yes	1 DU per lot <sup>1</sup>	35'	18,000 sf
R-1 Single Family Residential	Yes	1 DU per lot <sup>1</sup>	35'	6,500 sf
R-3 Medium Density Residential	Yes	13-50 DU per acre <sup>1</sup>	55'	6,500 sf
R-4 High Density Residential	Yes	Unlimited <sup>1</sup>	10 stories or 100'	7,000 sf
C-2 General Commercial	No	50% <sup>2</sup>	10 stories or 100'	100' min. width
T4-N Transect Neighborhood Zone	Yes	75% <sup>2</sup>	3 stories	N/A
T5-N Transect Neighborhood Zone	Yes	100% <sup>2</sup>	5 stories	N/A
T-5C Transect Corridor Zone	Yes	95% <sup>2</sup>	7 stories	N/A
DU = dwelling units sf = square feet <sup>1</sup> Maximum density is listed for residential zoning classifications. <sup>2</sup> 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.<sup>3</sup>

<sup>3</sup> 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=TIT17ZOODI\\_17.16.050DIECRE](https://library.municode.com/nv/north_las_vegas/codes/code_of_ordinances?nodeId=TIT17ZOODI_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.<sup>4</sup>

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, aviation 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.<sup>5</sup>

### 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*.<sup>6</sup> Subdivision regulations for the City of Las Vegas, NV, are contained within the *City of Las Vegas Unified Development Code*.<sup>7</sup>

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.

<sup>4</sup> City of Las Vegas, NC, Unified Development Code, Chapter 19.10.080 (<https://online.encodeplus.com/regs/lasvegas-nv/doc-viewer.aspx#secid-526>)

<sup>5</sup> Clark County, Nevada, Code of Ordinances, Chapter 20.13 ([https://library.municode.com/nv/clark\\_county/codes/code\\_of\\_ordinances?nodeId=TIT20AI\\_CH20.13AIHARE](https://library.municode.com/nv/clark_county/codes/code_of_ordinances?nodeId=TIT20AI_CH20.13AIHARE))

<sup>6</sup> 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](https://library.municode.com/nv/north_las_vegas/codes/code_of_ordinances?nodeId=TIT16DECO_CH16.28MISU))

<sup>7</sup> 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

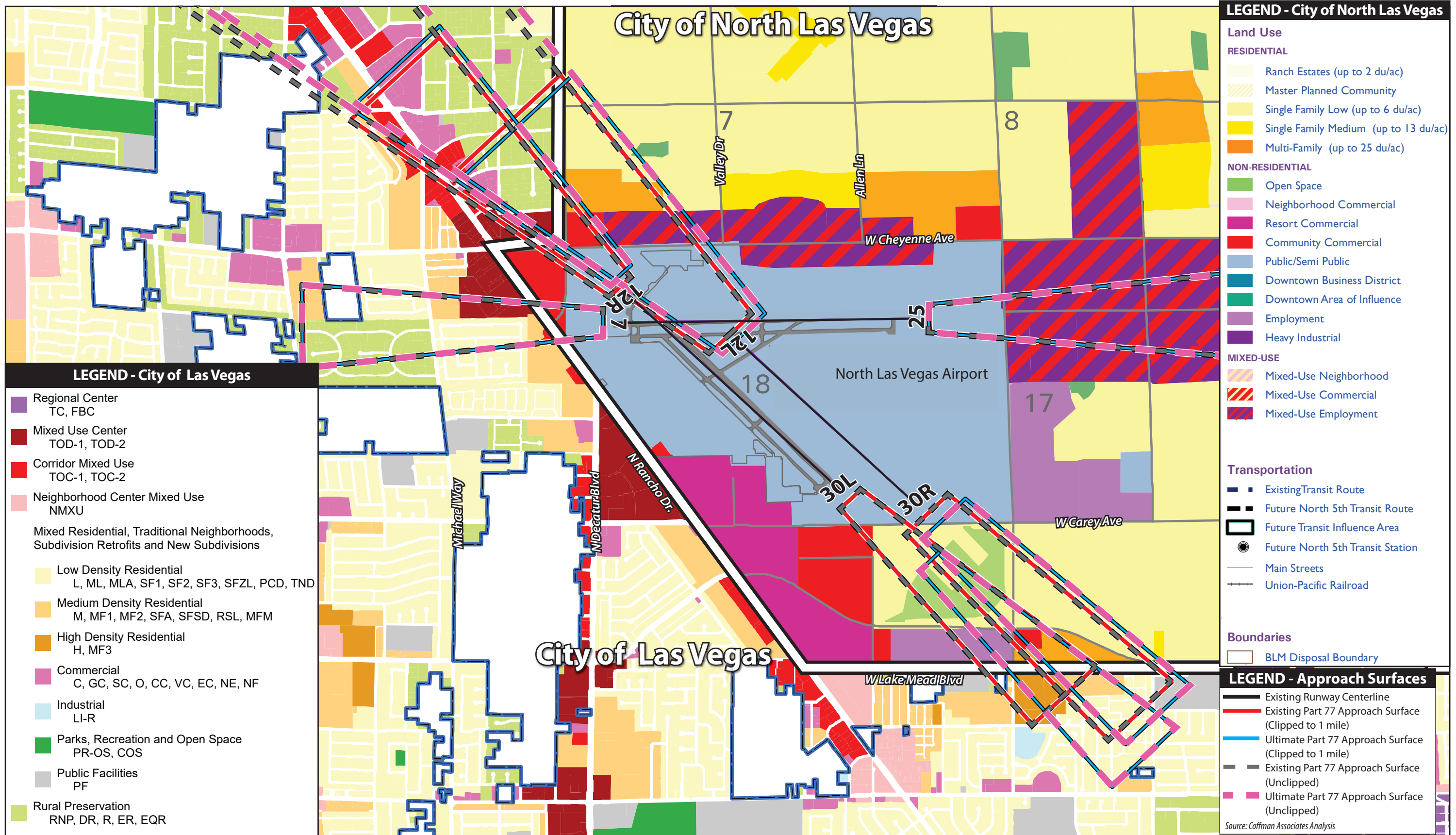
The *City of North Las Vegas Comprehensive Master Plan* contains guiding principles, goals, and policies, which help guide future policy decisions that impact the city's development pattern, including maintaining and building quality infrastructure. Airport property is identified as public/semi-public 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.



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**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
<b>Single-Family Low Density</b>	<b>Rural Preservation</b>
<p><i>Location:</i> Runways 12L, 30R, and 30L</p> <p><i>Intensity:</i> Low (4.5 to 6 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 12L, 12R, and 7</p> <p><i>Density:</i> Low</p> <p><i>Intent and Strategies:</i> 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.</p>
	<b>Low Density Residential</b>
	<p><i>Location:</i> Runways 30R and 7</p> <p><i>Density:</i> Low (fewer than 12.5 DU per acre)</p> <p><i>Intent and Strategies:</i> These areas are designated as traditional neighborhoods and contain low-density single-family housing and attached or detached homes.</p>
<b>Multi-Family Residential</b>	<b>Medium Density Residential</b>
<p><i>Location:</i> Runways 12L, 12R, 30L, and 30R</p> <p><i>Density:</i> Medium (up to 25 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 30L, 30R, 12R, and 7</p> <p><i>Density:</i> Medium (15-25.5 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>
	<b>High Density Residential</b>
	<p><i>Location:</i> Runways 30L and 30R</p> <p><i>Density:</i> High (25 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>
<b>Community Commercial</b>	<b>Commercial</b>
<p><i>Location:</i> Runways 12L, 30L, and 30R</p> <p><i>Intensity:</i> Medium</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 12L and 12R</p> <p><i>Intensity:</i> Medium</p> <p><i>Intent and Strategies:</i> This designation includes retail, office, or other commercial uses that serve as employment centers.</p>

(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
<b>Mixed-Use Employment</b>	<b>Mixed-Use Center</b>
<p><i>Location:</i> Runways 12L and 25</p> <p><i>Density/Intensity:</i> Medium to High (25-50 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 12L, 12R, and 7</p> <p><i>Density/Intensity:</i> Medium (4-5 stories, 15-30 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>
<b>Open Space</b>	<b>Regional Center</b>
<p><i>Location:</i> Runways 30L and 30R</p> <p><i>Intensity:</i> Low</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 30L and 30R</p> <p><i>Density/Intensity:</i> High (25-50+ DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>
<b>Public/Semi Public</b>	<b>Corridor Mixed-Use</b>
<p><i>Location:</i> Airport Property and All Runways</p> <p><i>Intensity:</i> Varies</p> <p><i>Intent and Strategies:</i> 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.</p>	<p><i>Location:</i> Runways 12R and 7</p> <p><i>Density/Intensity:</i> High (2-5 stories, 30-40 DU per acre)</p> <p><i>Intent and Strategies:</i> 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.</p>
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.<sup>8</sup> 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 amphitheatres are not compatible and should be prohibited within the 65 DNL noise contour.

<sup>8</sup> 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.<sup>9</sup>

## 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.

<sup>9</sup> 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.<sup>10</sup> 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:

<sup>10</sup> 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).<sup>11</sup> 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.<sup>12</sup>

- **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<sup>13</sup> facility for pretreatment prior to discharge in the sanitary sewage system. Chemicals in lavatory waste can present environmental

<sup>11</sup> Nevada Division of Environmental Protection, Land, Sustainable Materials Management, Solid Waste (<https://ndep.nv.gov/land/waste/solid-waste>), accessed August 2024

<sup>12</sup> FAA, Recycling, Reuse and Waste Reduction at Airports, April 24, 2013

<sup>13</sup> A triturator facility turns lavatory waste into fine particulates for further processing.

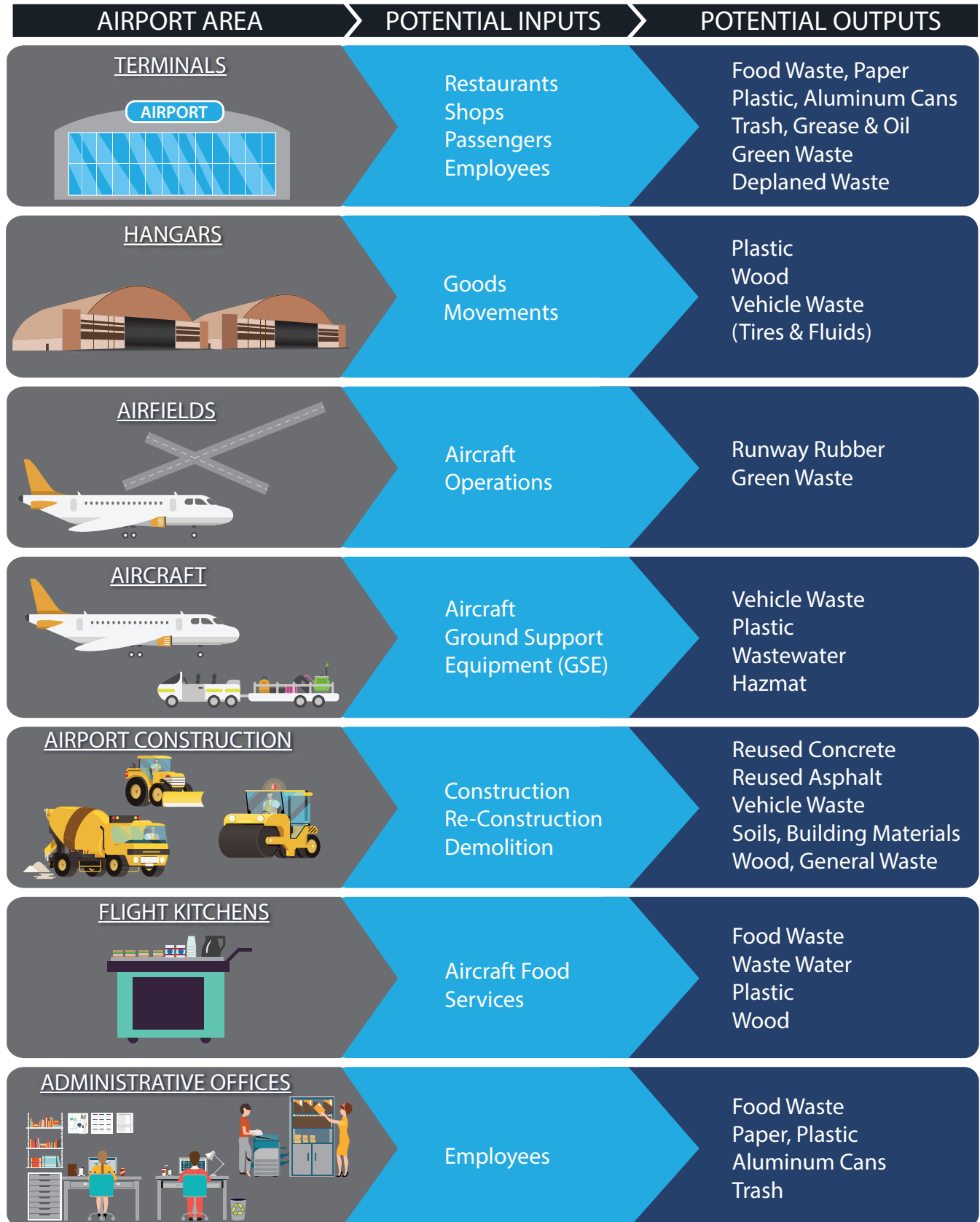


and human health risks if mishandled; therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewage system prior to pretreatment.

- **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



Source: Recycling, Reuse, and Waste Reduction at Airports, FAA (April 24, 2013)



## 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	<ul style="list-style-type: none"> <li>Reduce waste through controlled purchasing practices and the consumption of nonessential products</li> </ul>
Reduce amount of solid waste generated	<ul style="list-style-type: none"> <li>Conduct a waste audit to identify the most common types of waste at the airport</li> <li>Assign waste and recycling management to an individual or group</li> </ul>

*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**).



Source: Recycling Best Practice - A Guidebook for Advancing Recycling from Aircraft Cabins, ACRP (2014)



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](http://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.