Chapter 4 – Airport Facility Requirements

The evaluation of airport facility requirements is intended to determine the facility needs for Ashland Municipal Airport (S03) for the current twenty-year planning period based on updated aviation activity forecasts and conformance to established airport design criteria

Introduction

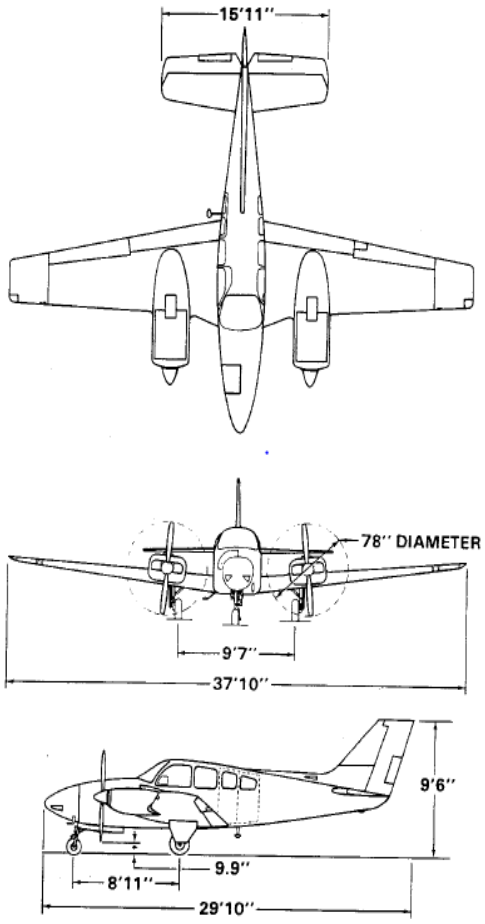
The evaluation of airport facility requirements combines the results of the inventory and forecasts contained in Chapters Two and Three, and established planning criteria to determine the future facility needs for the Airport during the current twenty-year planning period. **Airside** facilities include the airspace around the Airport, runways, taxiways, navigational aids and lighting systems. **Landside** facilities include hangars, terminal, and fixed base operator (FBO) facilities, aircraft parking apron(s), and surface access and automobile parking. **Support Facilities** such as aircraft fueling, security/perimeter fencing, and utilities are also examined. All airfield items are evaluated based on established FAA standards and community derived goals for the Airport.

The facility requirements evaluation identifies the adequacy or inadequacy of existing facilities and identifies what new facilities may be needed during the planning period based on forecast demand or conformance to FAA standards. The evaluation of demand-driven elements will reflect in gross numbers, new facility needs such as runway length requirements, hangar space, and aircraft parking positions based on forecast demand and the needs of the type of aircraft being accommodated. Items such as lighting, navigational aids, and approach capabilities are evaluated based on overall airport activity and facility classification. Potential options for accommodating current and future facility needs will be evaluated in the Airport Development Alternatives (Chapter Five).

Critical Aircraft and Airport Design Standards Discussion

Based on the current and projected level of activity described in Chapter Three, Aviation Activity Forecasts, the existing and future critical aircraft is determined. The critical aircraft establishes existing and future airport planning & design standards that will guide future planning, design, and development of the Airport.

Beechcraft Baron 58 (Be58)
3 View Drawing



CRITICAL AIRCRAFT AND AIRPORT REFERENCE CODE

The recommended existing and future critical aircraft is the **Raytheon/Beechcraft Baron 58 (Be58).** The design aircraft is intended to represent the most demanding aircraft using the airport on a regular basis and establishes the Airport Reference Code (ARC) of **B-I (small)**, which is an airport designation that signifies the airport's highest Runway Design Code (RDC), minus the third (visibility) component of the RDC. For more information see FAA Advisory Circular 150/5000-17 Critical Aircraft and Regular Use Determination and applicable airport planning & design standards summarized in greater detail below.

RUNWAY DESIGN CODE (RDC)

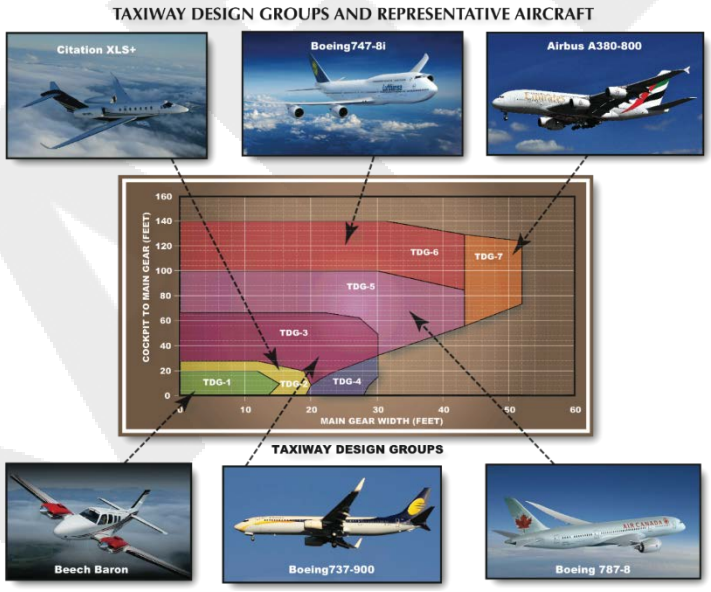
The Runway Design Code (RDC) is comprised of the selected Aircraft Approach Category (AAC), the Airplane Design Group (ADG), and the approach visibility minimums of a specific runway end. For airports with more than one runway, each runway will have its own RDC. The RDC provides the information needed to determine specific runway design standards. The approach visibility minimums refer to the visibility minimums expressed by runway visual range (RVR) values in feet. **The existing and planned RDC for Runway 12/30 is B-I-VIS.** For more detailed information on determining RDC see FAA Advisory Circular 150/5300-13A Airport Design.

APPROACH AND DEPARTURE REFERENCE CODE

The Approach and Departure Reference Codes (APRC and DPRC respectively) represent the current operational capabilities of each specific runway end and adjacent taxiways. The approach reference code uses the physical characteristics of the design aircraft (approach speed and wingspan/tail height) and the approach visibility minimums (expressed in RVR values) and runway to taxiway separation on the airfield to define specific standards. **The existing and planned APRC for Runway 12/30 is B-I(S)-VIS.** The departure reference code uses only the physical characteristics of the design aircraft and runway to taxiway separation. **The existing and planned DPRC for Runway 12/30 is B-I(S).** For more detailed information on determining APRC and DPRC see FAA Advisory Circular 150/5300-13A Airport Design.

TAXIWAY DESIGN GROUP

Taxiway Design Group (TDG) is based on the dimensions of the aircraft landing gear including distance from the cockpit to the main gear (CMG) and main gear width (MGW). These dimensions affect an aircraft's ability to safely maneuver around the airport taxiways and dictate pavement fillet design. Taxiways and taxilanes can be constructed to different TDGs based on the expected use of that taxiway/taxilane by the design aircraft. **The major taxiways at the Airport accommodate primarily ADG I aircraft, which is best represented by TDG 1.**



FAA DESIGN STANDARDS

FAA Advisory Circular 150/5300-13A Airport Design serves as the primary reference in establishing the geometry of airfield facilities. A comparison of existing condition dimensions and future design standards for the runway is summarized in **Table 4-1**.

FAA DESIGN STANDARDS

Specific design standards and conditions applicable to Ashland Municipal Airport facilities are presented in the following sections of this chapter within the sidebar "FAA Design Standards" text box. For additional information reference appropriate sections within AC 150/5300-13A.

TABLE 4-1: RUNWAY 12/30 AIRPORT DESIGN STANDARDS SUMMARY (DIMENSIONS IN FEET)

FAA STANDARD	RUNWAY 12/30 EXISTING CONDITIONS	RUNWAY 12/30 ARC A/B-I (SMALL) NOT LOWER THAN 1-MILE OR VISUAL EXISTING/FUTURE STANDARD	RUNWAY 12/30 ARC A/B-I (SMALL) NOT LOWER THAN 3/4-MILE COMPARISON STANDARD[1]
Runway Length	3,603	See Runway Length Analysis Discussion (Page 15)	
Runway Width	75	60	60
Runway Shoulder Width	0	10	10
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	 120 240 240	 120 240 240	 120 240 240
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	 250 200 200	 250 200 200	 250 200 200
Object Free Area • Width • Beyond RWY End • Prior to Landing Threshold	 250 240 240	 250 240 240	 250 240 240
Runway Protection Zone Length	RWY 12: 1,000 RWY 30: 1,000	RWY 12: 1,000 RWY 30: 1,000	RWY 12: 1,700 RWY 30: 1,700
Runway Protection Zone Inner Width	RWY 12: 250 RWY 30: 250	RWY 12: 250 RWY 30: 250	RWY 12: 1000 RWY 30: 1000
Runway Protection Zone Outer Width	RWY 12: 450 RWY 30: 450	RWY 12: 450 RWY 30: 450	RWY 12: 1,500 RWY 30: 1,500
Runway Centerline to: Parallel Taxiway/Taxilane CL Aircraft Parking Area 32' Building Restriction Line (BRL)	 163/151[2] 200[3] 350[4]	 150 125 350	 150 125 474[5]

Notes:

1. Not lower than ¾ mile B-I (small) standards depicted for the purpose of comparison.
2. Runway centerline to parallel Taxiway A centerline separation varies.
3. Distance between Runway 12/30 centerline and closest apron tiedowns.
4. A 350-foot BRL for 32-foot structures was depicted on the 2005 ALP.
5. A 474-foot BRL for 32-foot structures is required due to wider primary surface.

Demand/Capacity Analysis

Annual service volume (ASV) is a measure of estimated airport capacity and delay used for long-term planning. ASV, as defined in FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, provides a reasonable estimate of an airport's operational capacity.

For long-term planning purposes, the FAA estimates annual capacity (ASV) for a single runway with no air carrier traffic is approximately 230,000 operations; hourly capacity is estimated to be 98 operations during visual flight rules (VFR) conditions and 59 operations during instrument flight rules (IFR) conditions. Although these estimates assume optimal conditions (air traffic control, radar, etc.), they provide a reasonable basis for approximating existing and future capacity:

Existing Capacity: 23,964 Annual Operations / 230,000 ASV = 10% (demand/capacity ratio)

Future Capacity: 28,869 Annual Operations / 230,000 ASV = 12% (demand/capacity ratio)

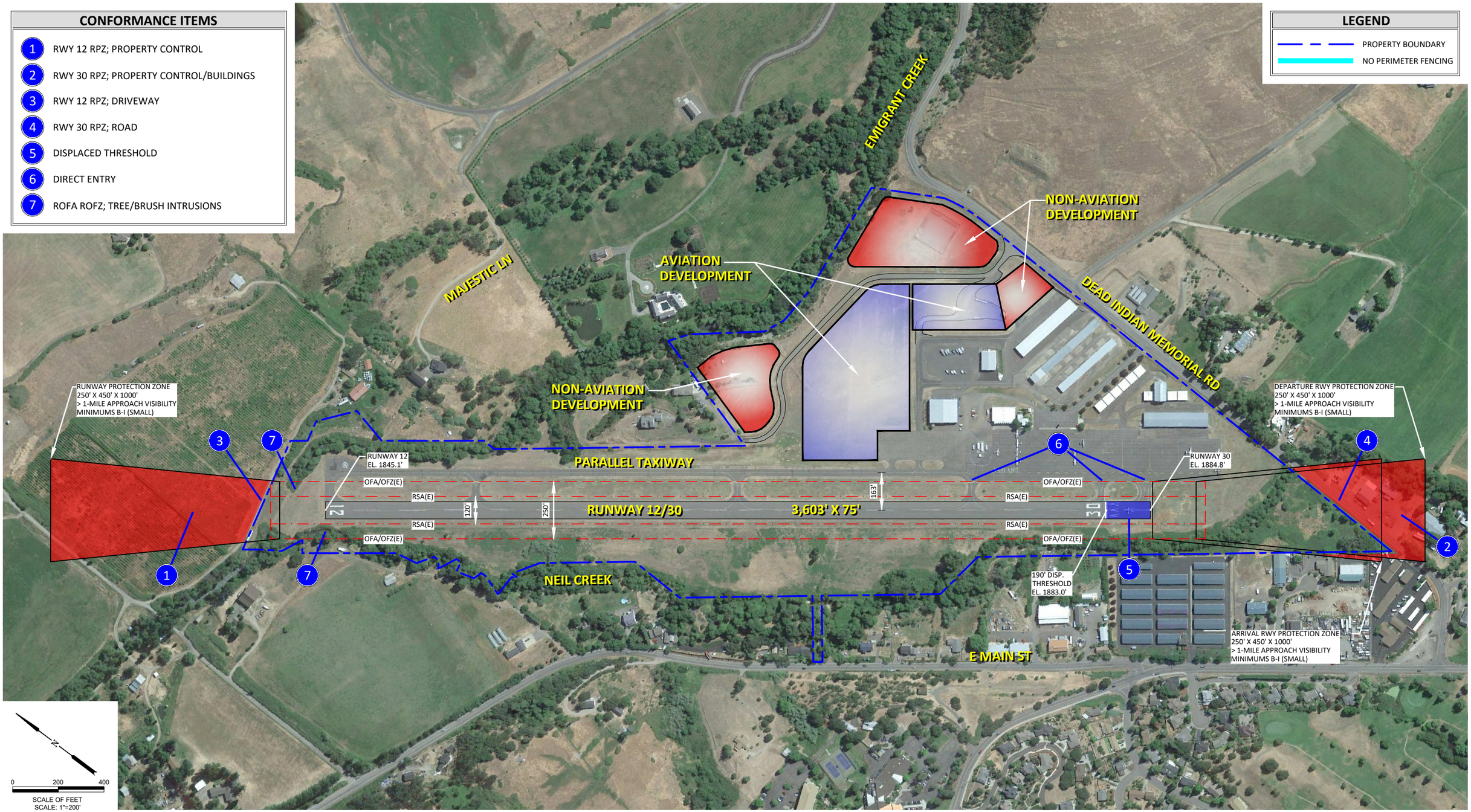
Based on these ratios, the average delay per aircraft would be expected to remain below one minute through the planning period and no capacity enhancements are anticipated during the planning period.

Airport Facilities Analysis

Based on the updated inventory of facilities presented in Chapter Two, existing airfield facilities were evaluated for their conformance with applicable FAA standards. Additionally, any other Airport facility issues and/or opportunities that may have been identified or need to be addressed during the planning process are also depicted and discussed further within the Facility Requirements chapter.

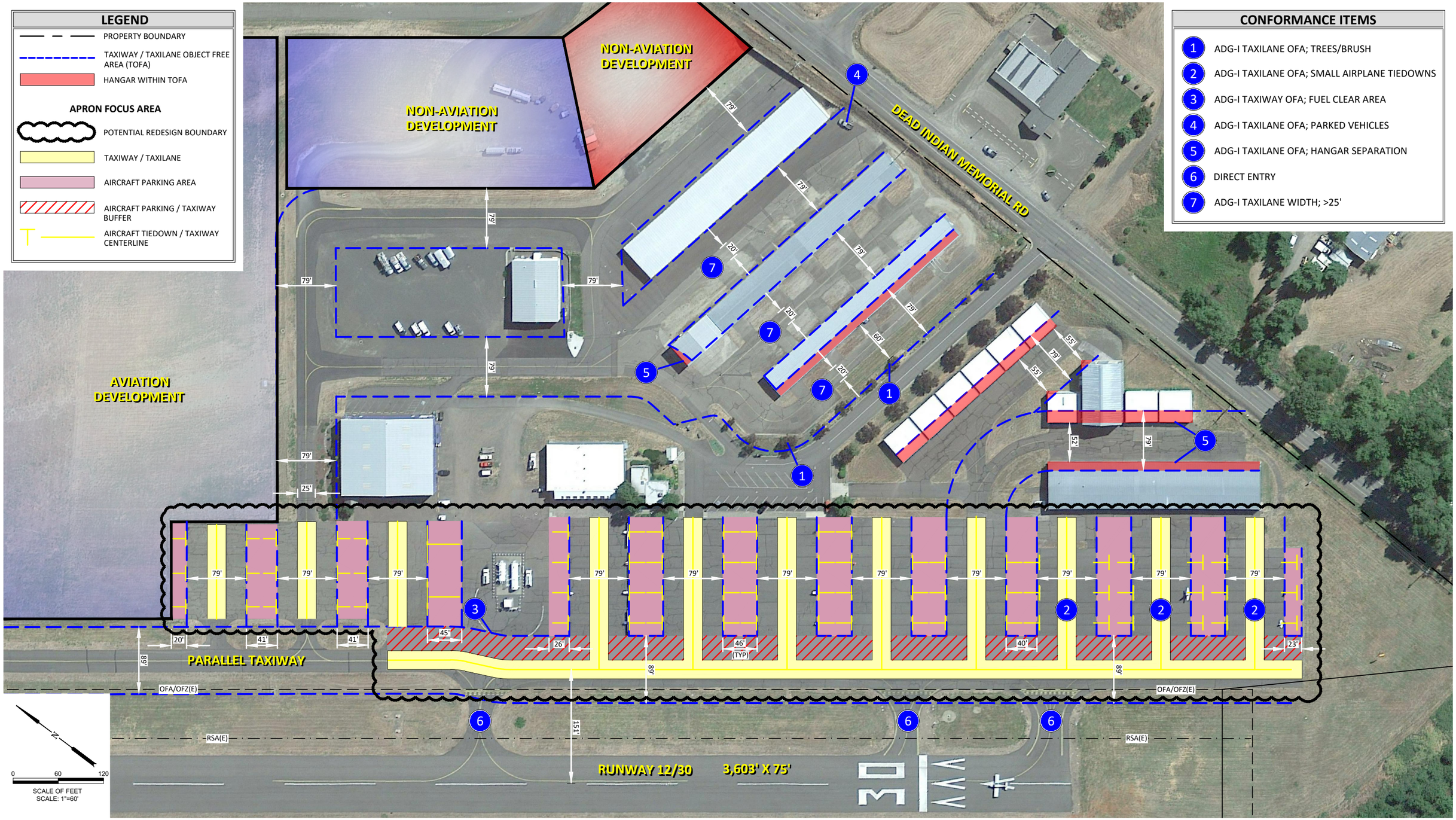
Figure 4-1 depicts the airside facilities analysis.

Figure 4-2 depicts the landside facilities analysis.



ASHLAND MUNICIPAL AIRPORT

AIRPORT FACILITY ANALYAIS (FIG 4-1)



AIRPORT FACILITY ANALYSIS (FIG 4-2)

Airfield Pavement Strength and Condition

Airfield pavements are considered to be the single most important asset on the Airport. Monitoring and planning for future improvements to the strength and condition of airfield pavements is critical to satisfying existing and future aeronautical demand.

AIRFIELD PAVEMENT STRENGTH

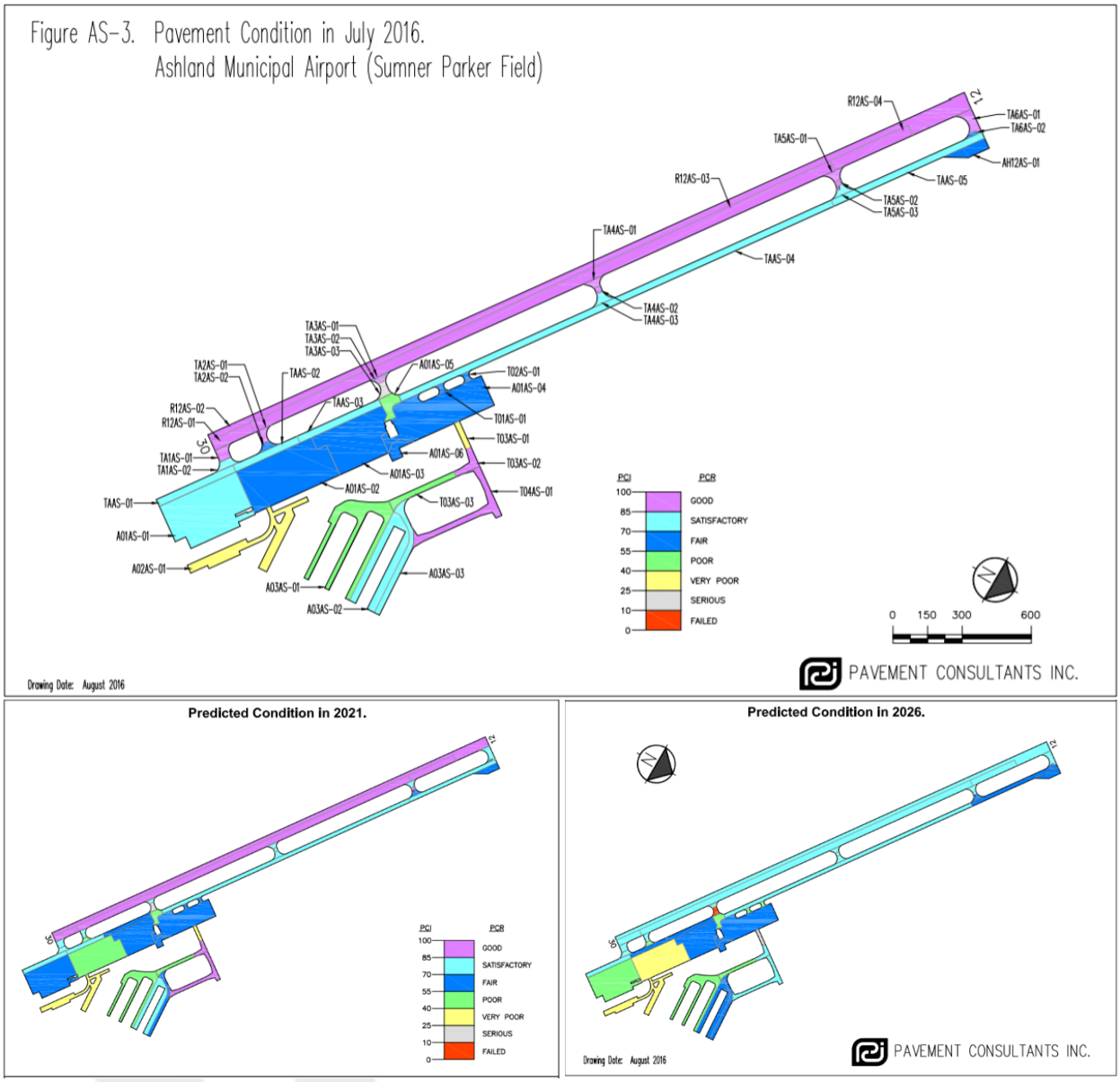
The published runway pavement strength rating is 15,000 pounds for aircraft equipped with single-wheel landing gear, which is sufficient to accommodate most A/B-I (small) aircraft. Ideally, taxiway and apron pavements designed to accommodate all aircraft operating at an airport should have the same weight bearing strength as the runway. However, pavements used by small aircraft (Hangar taxilanes, tiedown aprons) are normally designed to accommodate aircraft weighing 12,500 pounds or less with single-wheel landing gear configurations. **It is recommended that existing pavement strength ratings be maintained during the planning period.**

AIRFIELD PAVEMENT CONDITION

An updated Pavement Evaluation/Maintenance Management Program inspection, performed by Oregon Department of Aviation, was conducted in 2016. A graphical depiction of pavement condition in 2016 along with predicted conditions for 2021 and 2026 (assuming no future pavement maintenance) is presented within **Figure 4-3** on the following page. A summary of pavement conditions on the Airfield provided in the 2016 pavement condition report states:

> *"Section PCIs (Pavement Condition Index) at Ashland Municipal Airport range from a low of 14 (a PCR (Pavement Condition Rating) of "Serious") to a high of 100 (a PCR of "Good"). The area-weighted average PCI for all airport pavements is 77, corresponding to an overall PCR of "Satisfactory".*
>
> *The primary distresses observed during the inspection were: longitudinal and transverse cracking, patching, weathering, alligator cracking, depressions, block cracking and raveling."*

FIGURE 4-3: PAVEMENT CONDITION



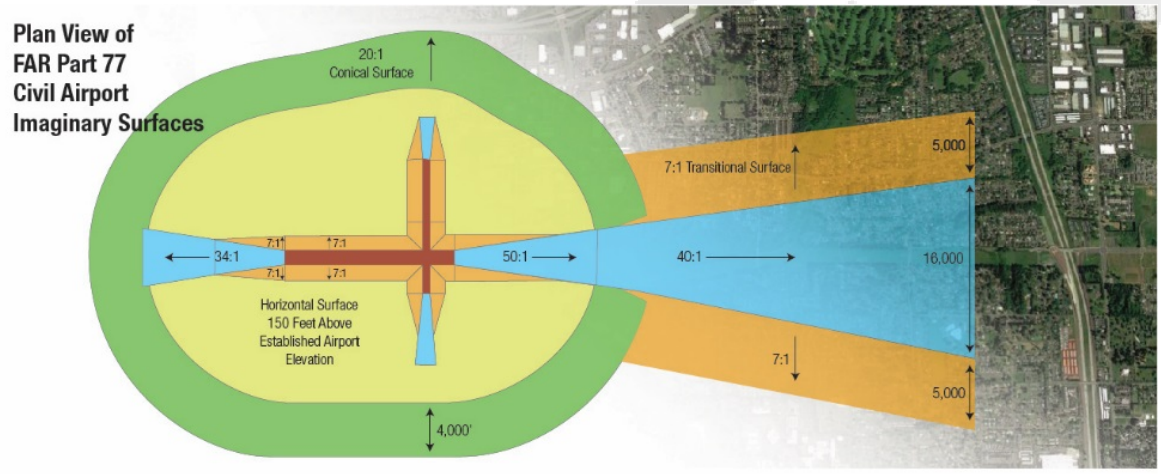
It is expected that apron, taxiway, and taxilane pavements on the airfield will require rehabilitation or reconstruction during the current planning period. A prioritized list of pavement rehabilitation or reconstruction projects will be provided in the updated capital improvement program. **It is recommended that ongoing maintenance, including vegetation removal, crack filling, and sealcoats be conducted on a regular basis and consistent with ODA PMP to maximize the longevity of asphalt airfield pavements through the planning period.**

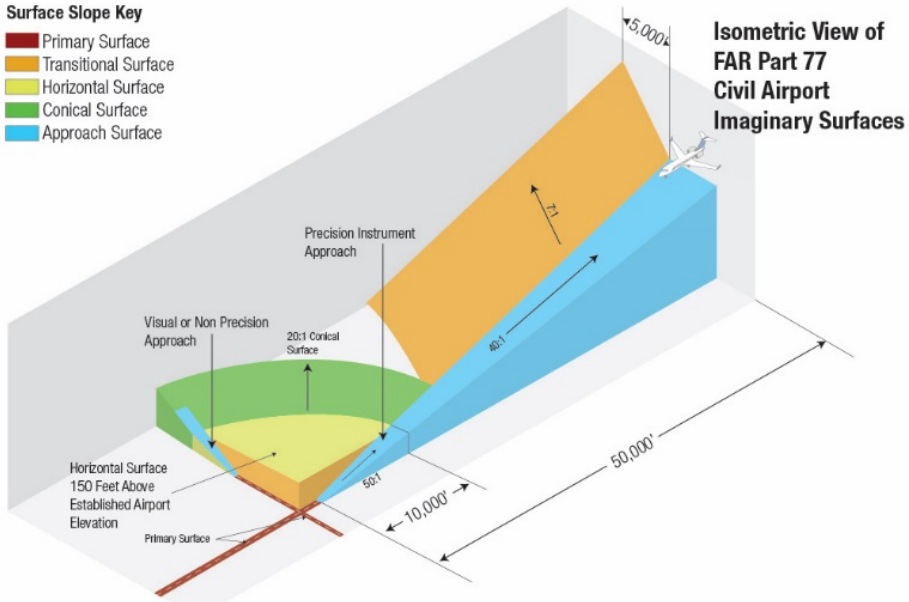
Airside Facilities Requirements

Airside facilities include the airspace around the Airport, runways, taxiways/taxilanes, apron/aircraft parking areas, navigational aids, signage, and lighting systems.

FAR PART 77 AIRSPACE AND OFF-AIRPORT LAND USE COMPATIBILITY

U.S. airport airspace is defined by Federal Aviation Regulations (FAR) Part 77.25 – Objects Affecting Navigable Airspace. FAR Part 77 defines airport imaginary surfaces that are established to protect the airspace immediately surrounding a runway. The airspace surfaces and ground areas surrounding a runway should be free of obstructions (i.e., structures, parked aircraft, trees, etc.) to the maximum extent possible to provide a safe aircraft operating environment.





Approach Surface

The Approach Surface extends outward and upward from each end of the primary surface, along the extended runway centerline. The dimensions and slope of the approach surfaces are determined by the type of aircraft intended to use the runway and the most demanding approach planned for the runway.

In the late 1960s avigation easements for the inner portion of the 20:1 Visual Approach Surface beginning 200 feet from the runway end to the outer extents of the RPZ on both runway ends were acquired to ensure obstructions were not allowed to penetrate the approach surface within the defined area. In April 2018 the City of Ashland trimmed numerous trees that were identified as obstruction within the avigation easement area contained within the Runway 30 20:1 Approach Surface.

Utilizing the 2018 AGIS obstruction data and additional information from the April 2018 City of Ashland obstruction clearing project, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects to be identified in the Capital Improvement Plan (CIP) (Chapter 8).

Primary Surface

The Primary Surface is a rectangular plane longitudinally centered on the runway (at centerline elevation) extending 200 feet beyond each runway end. The width of the primary surface depends on runway category, approach capability, and approach visibility minimums. The primary surface should be free of any penetrations, except items with locations fixed-by-function (i.e., PAPI, runway or taxiway edge lights, etc.). The outer ends of the primary surface connect to the inner portion of the runway approach surfaces.

Three primary surface penetrations were identified in 2018 AGIS data that include NAVAIDs, terrain, and a tree. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Transitional Surface

The Transitional Surface is located along the lateral edges of the primary surface and is represented by a plane rising perpendicularly to the runway centerline at a slope of 7 to 1. The transitional surface extends outward and upward to an elevation 150 feet above the airport elevation. The outer edges of the transitional surface connect with the horizontal surface. The transitional surface should be free of obstructions (i.e., parked aircraft, structures, trees, terrain, etc.).

12 transitional surface penetrations were identified in 2018 AGIS data that includes NAVAIDs, antennas, buildings, fences, terrain, tanks, poles, bushes, and trees. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Horizontal Surface

The Horizontal Surface is a flat plane located 150 feet above the airport elevation. The horizontal surface boundaries are defined by the radii (10,000 feet for larger than utility instrument runways and 5,000 feet for utility runways) constructed from each runway end. The outer edges of the radii for each runway are connected with tangent lines, which taken together define the horizontal surface.

Numerous horizontal surface obstructions were identified in the 2018 AGIS data due to topography within the Rogue Valley. Obstructions generally include terrain, trees, and other man-made obstacles. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Conical Surface

The Conical Surface is an outer band of airspace that encircles the horizontal surface. The conical surface begins at the outer edge of the horizontal surface and extends outward 4,000 feet and upward at a slope of 20:1.

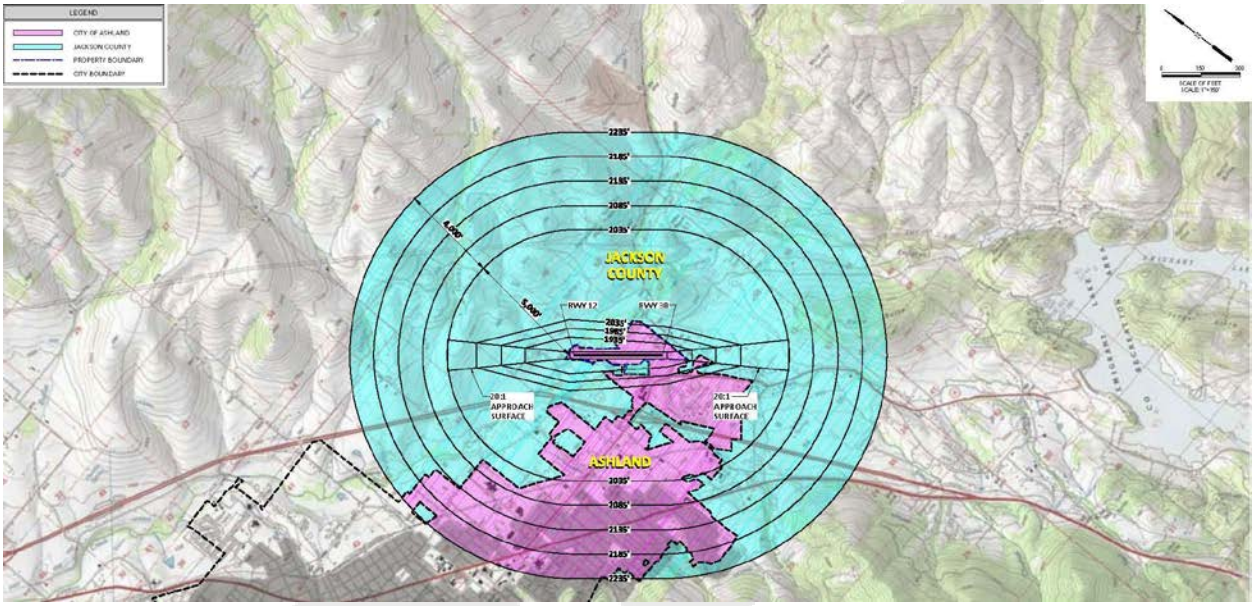
Numerous conical surface obstructions were identified in the 2018 AGIS data due to topography within the Rogue Valley. Obstructions generally include terrain, trees, and other man-made obstacles. Utilizing the 2018 AGIS obstruction data, it is recommended the obstacle disposition tables developed in coordination with the ALP drawing set be utilized for future obstacle removal projects as required.

Off-Airport Land Use

The City of Ashland has land use jurisdiction for the airport; however, some of the runway protection areas and the Part 77 surfaces extend beyond city limits and the Ashland urban growth boundary into unincorporated Jackson County. Both the City of Ashland and Jackson County have created Airport Overlay Zoning to protect Ashland Municipal Airport and address any off-airport land use compatibility issues that may potentially exist. Figure 4-4 on the following page illustrates local land use jurisdictions with responsibilities to protect the FAR Part 77 airspace associated with the existing Runway 12/30 at Ashland Municipal Airport. Additionally, in the late 1960s avigation easements for both runway ends were acquired by the City to address off Airport obstructions.

It is recommended the City of Ashland, in coordination with Jackson County, continue to work to develop a mitigation plan to remove FAR Part 77 surface obstructions and continue to ensure land use compatibility. Additionally, upon selection of a preferred alternative it is recommended the City and County update the Airport Overlay Zoning as required to address any potential shifts due to relocation of runway ends or other upgrades that may require an update of the Part 77 surfaces.

FIGURE 4-4: LAND USE JURISDICTION



RUNWAY 12/30

The runway 12/30 facility requirements were analyzed relative to runway orientation, runway length and width, and FAA design standards.

Runway Orientation and Crosswind Coverage

The preferred orientation of runways is a function of wind velocity and direction, combined with the ability of aircraft to operate under given conditions. FAA has defined the maximum allowable crosswind for small aircraft as 10.5 knots and 13 knots for larger general aviation aircraft.

The FAA recommends that primary runways accommodate at least 95 percent of local crosswind conditions. When this level of coverage is not provided, the FAA recommends consideration of a crosswind runway. An updated evaluation of wind data (All Weather, VFR, and IFR) utilizing closest available wind data from the Medford Airport was conducted and indicates that Runway 12/30 accommodates greater than 95 percent of all weather wind conditions for both small and larger general aviation aircraft. The current tabulated wind data from Medford is summarized below in **Table 4-2.**

TABLE 4-2: WIND ANALYSIS

Runway 12/30	
All Weather	
10.5 KNOTS	99.42%
13 KNOTS	99.74%
VFR	
10.5 KNOTS	99.35%
13 KNOTS	99.71%
IFR	
10.5 KNOTS	99.92%
13 KNOTS	99.95%
Runway 12/30 Bearing = 141.0 Degrees True Wind Data Source: National Climate Data Center (2007-2016 KMFR ASOS data)	

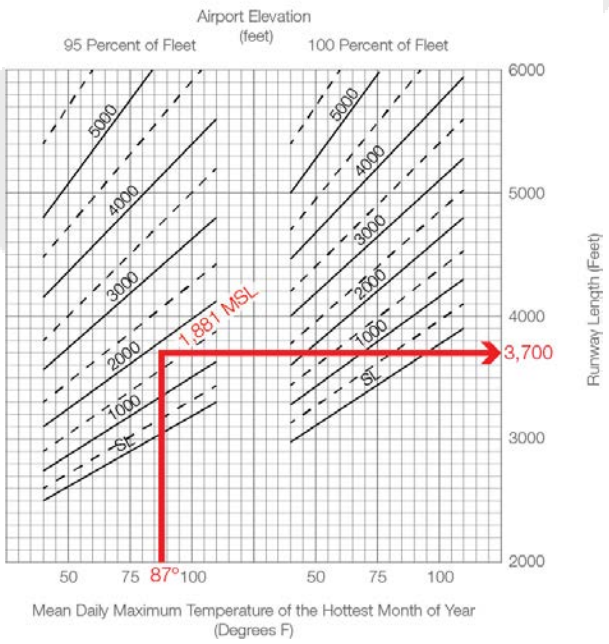
Runway Length

Runway length requirements are based primarily on airport elevation, mean maximum temperature of the hottest month, runway gradient, and the critical aircraft type expected to use the runway.

For general aviation airports the FAA recommends using a "family of design aircraft" approach to defining runway length requirements. FAA Advisory Circular (AC) 150/5325-4B, Runway Length Requirements for Airport Design provides the length analysis requirements for "small airplanes with fewer than 10 seats" that make up "95 percent of the fleet" for airports that are intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities.

Based on local conditions, this segment of activity requires a runway length of 3,700 at the Ashland Municipal Airport. The City of Ashland has committed to not extending the runway beyond its existing length. **It is recommended the existing runway length of 3,603' feet be maintained throughout the planning period.**

Figure 2-1. Small Airplanes with Fewer than 10 Passenger Seats



FAA DESIGN STANDARDS

Runway Safety Area (RSA)

Standards: ADG I standard is 120' wide or 60' each side of runway centerline and 240' beyond runway ends. Additional gradient standards apply.

Condition: The RSA for Runway 12/30 appears to meet FAA dimensional, object clearing, and grading standards.

Runway Object Free Area (OFA)

Standards: ADG I standard is 250' wide or 125' each side of runway centerline and 240' beyond runway ends. Additional gradient standards apply.

Condition: The OFA for Runway 30 end appears to meet FAA dimensional, object clearing, and grading standards. The OFA for Runway 12 end does not meet standards due to trees and a private drive within a small corner of the OFA.

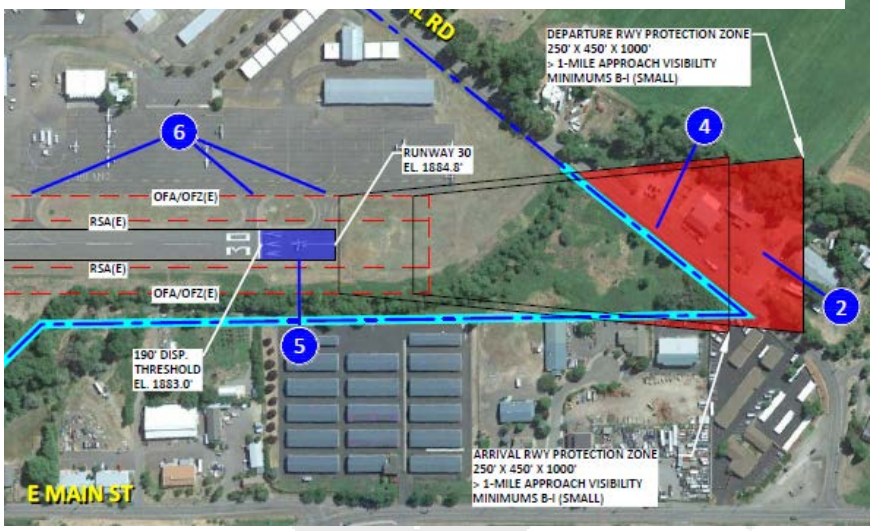
Runway Obstacle Free Zone (OFZ)

Standards: ADG I standard is 250' wide or 125' each side of runway centerline and 200' beyond runway ends.

Condition: The OFZ for Runway 12/30 appears to meet FAA dimensional and obstacle clearing standards.

Displaced Threshold

See Figure 4-1 for legend and full runway length.



The Ashland Municipal Airport currently has a 190' displaced threshold on the Runway 30 end to provide additional clearance for landing aircraft over existing obstacles located off of Airport property. While the FAA provides guidance to establish displaced thresholds, it should not be interpreted as an endorsement by the FAA – Seattle ADO of the option to displace or maintain a displaced runway threshold. Therefore, for the displaced threshold to remain, as part of this master plan the FAA will require an evaluation that reveals displacement is still the best alternative. **It is recommended an alternatives evaluation that addresses the existing displaced threshold and FAA policy to maximize utilization and retention of existing paved areas on the Airport be conducted in the following development alternatives analysis chapter to determine a preferred solution.**

Runway Protection Zones (RPZ)

In October 2012, the FAA released interim guidance regarding RPZs and incompatible land uses, with a particular focus on roads. This guidance directs airport sponsors to evaluate any planned changes to existing RPZs that introduce or increase the presence of roads in RPZs. Existing roads within RPZs are also to be evaluated during master planning to determine if feasible alternatives exist for realignment of a road outside RPZs or for changes to the RPZs themselves. The FAA Seattle Airports District Office has subsequently indicated that the primary focus of this policy is related to proposed changes to RPZs—as the result of a change to a runway end/RPZ location, approach visibility minimums, or the built items located in an RPZ. FAA funding for the removal of roads located in RPZs is currently limited based on the large number of cases

FAA DESIGN STANDARDS

Runway Protection Zone (RPZ)

Standards: ADG I/Visual RPZs comprise 8.035 acres. RPZs should be owned by the Airport or under control by easement and should be clear of incompatible land uses such as roads and buildings.

Condition: Both Runway 12 and 30 RPZs extend beyond Airport property and have roads, buildings, and/or private drives within their boundaries. No easements for incompatible land uses currently exists.

involved. Changes in FAA funding priorities themselves are subject to change. Any proposed changes in the length or configuration of the runway/runway displaced threshold that changes the location of existing RPZs evaluated in this study are subject to review by FAA headquarters in Washington D.C. **It is recommended existing RPZ conditions and potential alternatives for each runway end be considered in coordination with the displaced threshold alternatives analysis.**

FAA DESIGN STANDARDS

Runway Width

Standards: ADG I standard runway width for runways with visual or not lower than 1 mile visibility is 60'.

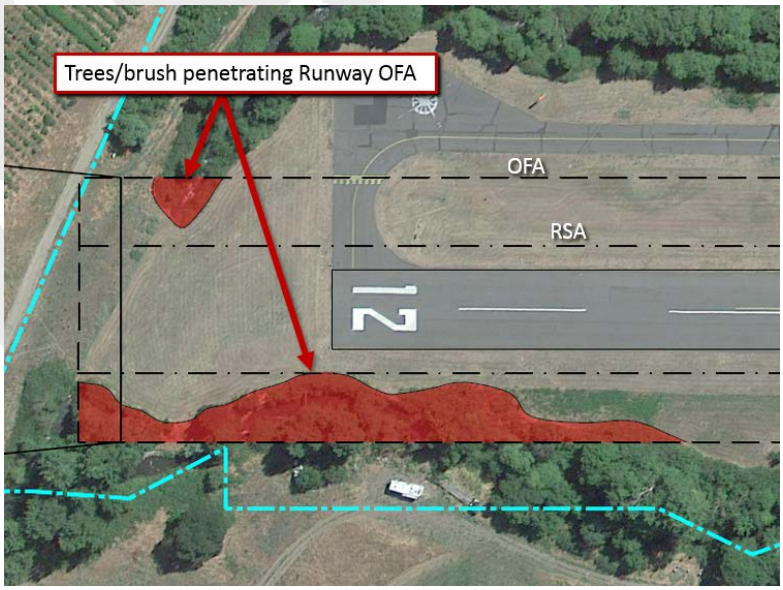
Condition: Existing Runway 12/30 width is 75' which exceeds standards by 15'. The excess 15' would not be eligible for future runway reconstruction or rehabilitation projects.

Runway Width

Runway 12/30 is 75 feet wide, which exceeds the dimensional standard for ARC A/B-I (small) with current approach visibility minimums (Visual). **As part of a future runway rehabilitation/reconstruction project, to be identified in the capital improvement plan chapter, it is recommended the runway width be reduced to meet standards, which will also require new edge lighting, signage, grading and drainage systems.**

Runway Object Free Area (OFA)

As mentioned in the design standards discussion sidebar on Page 14, the Runway 12 end OFA is not clear of above ground objects. There are currently trees and bushes associated with the riparian area of Neil Creek and Emgrant Creek that may need to be removed. Additionally, the private drive outside of Airport property overlaps with the OFA by only several feet. **It is recommended existing OFA conditions and potential alternatives for each runway end be considered in coordination with the displaced threshold, RPZ, and runway end alternatives analysis.**



TAXIWAY/TAXILANE NETWORK

The taxiway/taxilane facility requirements were analyzed relative to existing hangar siting, apron and aircraft parking requirements, runway access, and FAA design standards.

Taxiways

The full-length parallel taxiway, holding bay, and appurtenant connecter and entry/exit taxiways on the east side of the runway generally meets standards. However, when analyzed as part of an airport system several deficiencies were identified. Specifically, the wide expanse of pavement connecting the ramp to the parallel taxiway providing direct access from the apron to the runway is not recommended and should be mitigated to better define the apron, taxiway, and runway so a pilot can more easily distinguish between airfield features. **It is recommended an alternatives evaluation focused on the parallel taxiway, apron/aircraft parking, and runway entry/exit taxiways be conducted in the following development alternatives analysis chapter to identify a preferred solution.**

FAA DESIGN STANDARDS

Runway – Parallel Taxiway/Taxilane Separation

Standards: ADG I standard is 150' separation between runway to parallel taxiway for visual runways.

Condition: Runway to parallel taxiway separation ranges from 163' to 151' feet.

Taxiway Safety Area (TSA)

Standards: ADG I standard is 49' wide or 24.5' each side of taxiway centerline for the entire length of the taxiway. Additional gradient standards apply.

Condition: The existing TSAs on the Airport appear to meet FAA dimensional and grading standards.

Taxiway Object Free Area (TOFA)

Standards: TOFA for ADG I standards is 89' wide or 44.5' each side of taxiway centerline.

Condition: The existing parallel Taxiway "A" appears to meet FAA dimensional criteria. The relationship to adjacent aircraft parking area dimensions and wide expanse of pavement requires additional analysis.

See Figure 4-2 for legend and full runway length.

Taxilanes

Taxilane OFAs in several locations on the ramp and hangar development area are narrower than standard due to historically more lenient FAA standards. It is anticipated these taxilane conditions in the hangar development areas, where they exist, will remain and a modification to standards will need to be pursued. On the apron where parked aircraft and tiedowns obstruct the taxilane OFAs, consideration will need to be given to address the conditions in coordination with apron/aircraft parking requirements discussed in the following section. **It is recommended a modification to standards for hangar/TOFA obstructions be pursued and an alternatives evaluation focused on apron/aircraft parking and TOFA obstructions be conducted in the following development alternatives analysis chapter to identify a preferred solution.**

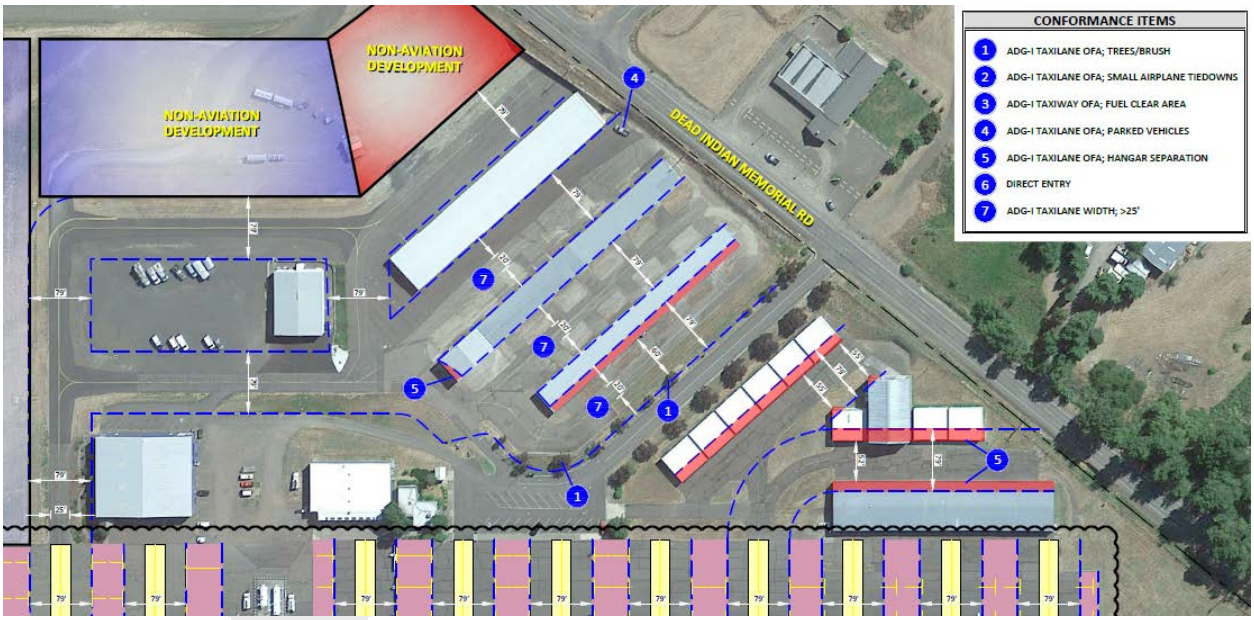
FAA DESIGN STANDARDS

Taxilane Object Free Area

Standards: Taxilane OFA for ADG I standards is 79' wide or 39.5' each side of taxilane centerline.

Condition: TOFA penetrations exist on the aircraft parking apron and in hangar development area in several instances.

See Figure 4-2 for full legend.



AIRCRAFT PARKING APRON

The aircraft parking apron facility requirements were analyzed relative to existing FAA apron and aircraft parking requirements analysis provided in FAA Advisory Circular 150/5300-13A Airport Design and facility needs depicted in **Table 4-3: Apron and Hangar Facility Requirements.**

Based and Itinerant Aircraft Parking

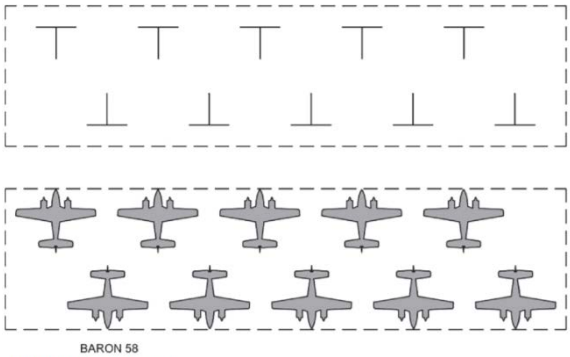
The size of aircraft parking areas and tie down layouts are considered non-standard due to their juxtaposition with taxilane OFAs. This non-standard condition (depicted in Figure 4-2) on the apron will require a redesign of the aircraft parking spots to remove parked aircraft from taxilane and address taxilane OFA obstructions.

DESIGN STANDARDS

Aircraft Parking Area

Standards: Runway centerline to aircraft parking area standards for ADG I is 125'

Condition: All aircraft parking areas are beyond the standard parking separation requirement.



Source: Delta Airport Consultants, Inc.

Figure B-2. Parking area for 10 Beech Baron 58 tie-down positions.

To quantify the based and transient aircraft parking needs/requirements depicted in **Table 4-3**, the based aircraft forecasts and average day of the peak month Aviation Activity Forecasts were used to determine the parking spots necessary to satisfy existing and future demand.

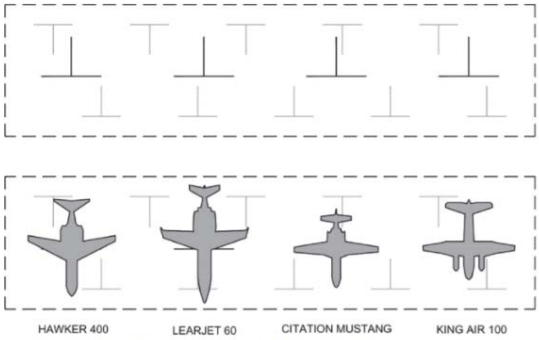
Historically the number of based aircraft parked on the apron fulltime has ranged from 40 to 20 percent of the total based aircraft. For planning purposes, it is estimated that 10 percent of the based aircraft would be parked on the apron full-time. Using this ratio, it is estimated the Airport will need to provide apron parking for approximately 8 based aircraft at the end of the 20-year planning period.

Transient aircraft parking needs were developed from the average peak day forecast data presented in Chapter 3 – Aviation Activity Forecasts. Transient aircraft parking requirements are estimated to be 50% of the itinerant operations of the average peak day of the peak month. Using this formula, it is estimated the Airport will need to provide parking for approximately 27 itinerant aircraft at the end of the 20-year planning period.

It is recommended an alternatives evaluation focused on providing apron/aircraft parking for approximately 36 aircraft, in coordination with taxiways, taxilanes, and runway entry/exit taxiways be conducted in the following development alternatives analysis chapter to identify a preferred layout.

Business Aircraft Parking

The standard parking area layout dimensions for ADG I aircraft provided in FAA Advisory Circular 150/5300-13A Airport Design would accommodate the existing design aircraft, the Airport's smaller fleet, as well as the occasional business aircraft. The conceptual parking area dimensions required to provide adequate parking clearances for larger business aircraft is depicted in the parking figure to the right. **It is recommended aircraft parking areas be designed to ADG I standards and accommodate the occasional business aircraft that may utilize the Airport.**



Note: The lighter lines depict the nested tie-down positions available for small aircraft
Source: Delta Airport Consultants, Inc.

Figure B-3. Parking area for 10 Beech Baron 58 tie-down positions marked for larger aircraft.

Helicopter Parking

Utility helicopter operator Brim Aviation has five helicopters currently based at the Airport. It is typically recommended by the FAA that Airport sponsors plan to separate fixed wing aircraft and helicopter operations when and where possible. For the Ashland Municipal Airport the separation in operations currently exists more or less. However, there is no designated area for helicopter operations and Brim Aviation helicopters have operated within the context of the largely fixed wing aircraft population. If future expansion continues north and east in to the developable areas as expected, in the future Brim Aviation would be surrounded by fixed wing operations, which may conflict. **It is recommended consideration be given to providing a designated helicopter parking/operations area during the development of apron layout alternatives.**

TABLE 4-3: APRON AND HANGAR FACILITY REQUIREMENTS SUMMARY

ITEM	BASE YEAR (2017)	2022	2027	2032	2037
Based Aircraft Forecast	60	67	71	74	77
Aircraft Parking Apron - Existing Aircraft Parking Type/Capacity					
Existing Apron Areas[1]	29,623 sy				
Small & Large Aircraft Parking	72 Tiedowns[6]				
Transient Helicopter Parking [2]	0				
Projected Needs (Gross Demand) [3]					
Locally Based Tiedowns (@ 300 SY each)		7 spaces / 2,100 sy	7 spaces / 2,100 sy	7 spaces / 2,100 sy	8 spaces / 2,400 sy
Small Airplane Itinerant Tiedowns (@ 360 SY each)		20 spaces / 7,200 sy	21 spaces / 7,560 sy	21 spaces / 7,560 sy	23 spaces / 8,280 sy
Business Aircraft Parking Positions (@ 625 SY each)		1 space / 625 sy	1 spaces / 625 sy	1 space / 625 sy	2 spaces / 1,250 sy
Small Helicopter Parking Positions (@ 380 SY each)		2 spaces / 760 sy	3 spaces / 1,140 sy	3 spaces / 1,140 sy	3 spaces / 1,140 sy
Total Apron Needs		**30** spaces / 10,685 sy	**32** spaces / 11,425 sy	**32** spaces / 11,425 sy	**36** spaces / 13,070 sy
Aircraft Hangars (Existing Facilities)					
Existing Hangar Units/Aircraft Storage Capacity	18 Units[4]				
Projected Needs (Net Increase in Demand) [5]					
(New) T-Hangar Space Demand (@ 1,500 SF per space) (Cumulative twenty-year projected demand: 8 Units / 15,000 SF)		**2 Units / 3,000 sf**	**5 Units / 7,500 sf**	**7 Units / 10,500 sf**	**8 Units / 12,000 sf**

1. Apron pavement area as defined in ODA Pavement Management Plan database.
2. No designated helicopter parking spaces; helicopter parking is accommodated within the existing apron.
3. Apron parking demand levels identified for each forecast year represents estimated gross demand.
4. 18 hangars including four T-hangars (42 spaces or 56,525 SF); 12 small/medium conventional hangars (26,500 SF); and two large commercial hangars consisting of approximately 18,500 SF, which provides storage capacity for approximately 72 aircraft.
5. Aircraft hangar demand levels identified for each forecast year represent forecast cumulative demand; assumed 90% of new based aircraft will be stored in hangars.
6. 72 marked tiedowns; however, apron/tiedown reconfiguration is required to meet TOFA standards between tiedown rows and to provide standard aircraft parking. It is assumed a 50% reduction in tiedowns could occur.

AIRFIELD INSTRUMENTATION, SIGNAGE, LIGHTING, AND MARKINGS

Runway Lighting

The runway lighting systems associated with Runway 12/30 and described in Chapter 2 – Inventory are in good condition. Lighting systems are typically replaced every twenty years, although some systems remain reliable, serviceable, and fully functional for a considerably longer period. For planning purposes, the useful life of airfield lighting systems is twenty years and replacement projects for the systems will be included in the twenty-year capital improvement program, as appropriate. **It is recommended runway lighting be maintained and updated accordingly depending on runway alternatives discussed in subsequent chapters. Runway lighting should be replaced at the time of rehabilitation or reconstruction.**

Runway Markings

The runway markings at the Airport as noted in the Inventory Chapter are consistent with FAA standards for color (white), configuration, and approach type and are considered to be in good condition. **It is recommended runway markings be maintained consistent with the ODA Pavement Maintenance Program.**

Taxiway Markings

The taxiway markings at the Airport are consistent with FAA standards for color (yellow) and configuration and are considered to be in good condition. **It is recommended taxiway markings be maintained consistent with the ODA Pavement Maintenance Program.**

Airfield Signage

There are no runway or taxiway hold position signs, runway distance remaining signs, or taxiway location signs on the airport. **It is recommended lighted airfield signage be installed in conjunction with a future runway lighting project, or unlighted signage be installed when practical.**

Airfield Lighting

The airfield lighting systems (airport beacon, wind cones, taxiway edge reflectors, etc.) meet standards for location, type, and color. The taxiways at the Airport are equipped with blue retroreflective edge markers. **It is recommended existing airfield lighting systems be maintained and the City consider installation of Medium Intensity Taxiway Lights (MITL) if pilot visibility at night needs to be enhanced.**

Landside Facilities Requirements

Landside facilities include hangars, terminal, and fixed base operator (FBO) facilities, aircraft parking apron(s), and surface access and automobile parking.

AIRCRAFT HANGARS

The Airport has 18 hangars including four T-hangars (42 spaces or 56,525 SF); 12 small/medium conventional hangars (26,500 SF); and two large commercial hangars consisting of approximately 18,500 SF, which provides storage capacity for approximately 72 aircraft. As previously noted, for planning purposes it is assumed that approximately 90% of the Airport's based aircraft will be stored in hangars.

As noted in the updated aviation activity forecasts, the number of based aircraft at the Airport is projected to increase by 17 aircraft during the twenty-year planning period. Demand for new hangar space (aircraft storage only) is estimated to be 8 spaces totaling approximately 12,000 square feet over the 20-year planning period based on a projected 90 percent hangar utilization. A planning standard of 1,500 square feet per based aircraft stored in hangars is used to project gross space requirements. The projected hangar storage requirements are presented in **Table 4-3.**

It is recommended adequate space for future T-Hangars and conventional hangar space to satisfy future demand be identified and depicted during the landside development alternatives process.

FBO/CORPORATE/TERMINAL AREA

In addition to aircraft storage, additional demand for business related and commercial hangar needs are anticipated. Specialized aviation service businesses such as flight training, engine & airframe repair, avionics, interior, and paint shops need locations where aircraft can access their facilities. Aviation service businesses rely on both locally based aircraft and customers from outside the local area. While there is no specific formula to predict demand for general aviation service businesses, reserving space for additional commercial hangars with access to taxiways is recommended.

It is recommended adequate space for future business and commercial hangar space to satisfy potential future demand be identified and depicted during the landside development alternatives process.

SURFACE ACCESS AND VEHICLE PARKING

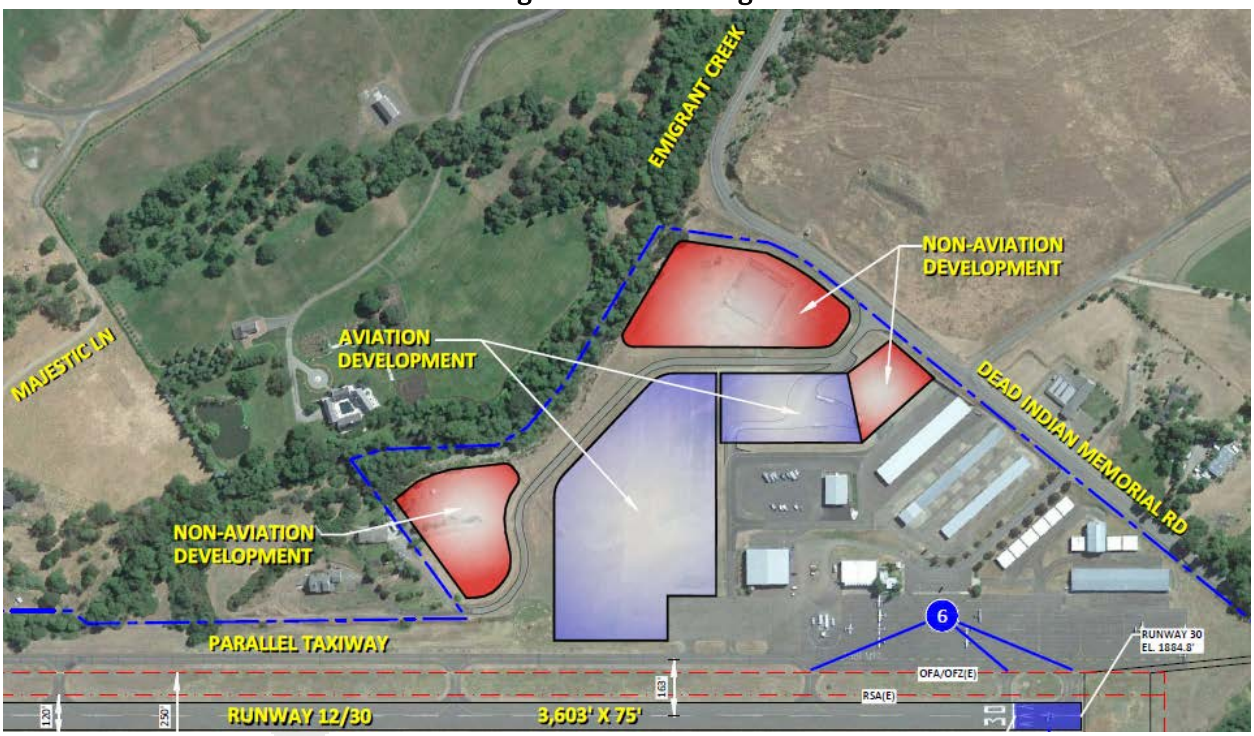
Vehicle access to Ashland Municipal Airport is provided by Ashland Street/Green Springs Highway 66 (OR-66) and Dead Indian Memorial Road, with two paved airport access road connections. U.S. Interstate 5 (I-5) Exit 14 (north and south) connects to Ashland Street. The main airport entrance

road provides access to the FBO building, terminal area, public vehicle parking lot, and hangars. The second airport access road is located approximately 700 feet north of the main airport entrance and provides access to landside facilities and two adjacent residences (easements). **It is recommended existing automobile access and parking facilities be maintained.**

ON-AIRPORT LAND USE

On-airport land use needs consist primarily of airfield facilities such as runways, aprons, taxiways/taxilanes, hangars, aircraft storage, and other typical aviation services. There are several areas on the Airport that are not accessible to aircraft due to topography and access roads/easements serving adjacent properties that may be well suited for non-aviation type development. The majority of the space available for future development is well suited for aviation type development and is expected to satisfy future demand beyond the 20-year planning period. **It is recommended existing Airport owned vacant land parcels be identified and confirmed for aviation or non-aviation land uses during the alternatives process.**

See Figure 4-1 for full legend.



Support Facilities Requirements

Support Facilities such as aircraft fueling, security/perimeter fencing, and utilities were also examined.

FUEL FACILITIES

As described in Chapter 2 – Inventory and Existing Conditions, the City of Ashland owns two above ground fuel tanks that are managed and operated by the FBO and Brim Aviation owns and operates three mobile fuel storage tanks. The planned redesign of the apron aircraft parking layout and associated taxiways and taxilanes may require some changes to the existing aircraft fueling facilities dependent on the final siting of aircraft parking areas and taxiway and taxilane OFAs. **It is recommended that during the alternatives evaluation focused on the parallel taxiway, apron/aircraft parking, and runway entry/exit taxiways the location of existing fueling facilities be considered with a strong preference to maintain the existing location.**

UTILITIES

The existing airport utilities as discussed in the Inventory Chapter appear to be adequate to support future development in the east landside development area of the airport. **It is recommended the existing utilities be maintained and extended as required to accommodate new development throughout the planning period.**

SECURITY/PERIMETER FENCING

Fencing currently exists along the majority of the southern Airport boundary along Dead Indian Memorial Road. The remaining perimeter of the Airport is unfenced. Preliminary project planning to construct a fence along the remaining portions of Airport property occurred but the project was delayed due siting constraints and environmental concerns. The FAA generally requires perimeter fencing encompass all airport property. However, due to environmental constraints associated with regulated riparian setbacks for Neil Creek, Runway OFA limitations, and adjacent property access requirements stakeholders were not able to come to an agreement on the final alignment of the future fence line. **It is recommended the need for a full-length perimeter fence, as well as any siting limitations and alternative options available be considered during the alternatives process.**

Summary

The projected twenty-year facility needs for the Airport are low to moderate and will consist primarily of facility improvements to satisfy FAA design standards and maintaining existing pavements as an ongoing facility need. The updated forecasts of aviation activity anticipate modest growth in activity that will resulting in similarly moderate airside and landside facility demands beyond existing capabilities. The existing airfield facilities can accommodate the forecasted increase in activity, with targeted facility improvements. For the most part, the need for new or expanded facilities, such as aircraft hangars, will be market driven. The non-conforming items noted within this chapter can be addressed systematically during the current planning period to improve overall safety for all users.