Chapter 4

Airport Facility Requirements

The evaluation of airport facility requirements is intended to determine the facility needs for Sunnyside Municipal Airport (1S5) for the current 20-year planning period based on updated aviation activity forecasts and conformance to established FAA airport design criteria.

Introduction

The evaluation of airport facility requirements combines the results of the inventory and forecasts contained in Chapters 2 and 3, and established planning criteria to determine the future facility needs for the Airport during the current 20-year planning period. Airside facilities include the runways, taxiways, navigational aids, and lighting systems. Airside facilities are often protected by airspace or clear areas that are defined by applicable FAA standards.

Landside facilities include hangars, terminal/fixed base operator (FBO) facilities, aircraft parking apron(s), aircraft fueling facilities, and aerial applicator facilities. Surface access roads, automobile parking, security/perimeter fencing, and utilities are generally identified as support facilities. All airfield items are evaluated based on established Federal Aviation Administration (FAA) standards and the functional role of 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 quantify facility needs such as runway length requirements, hangar space, and aircraft parking positions based on forecast demand and 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. Options for accommodating current and future facility needs will be evaluated in the Airport Development Alternatives (Chapter 5).

Demand/Capacity Analysis

The evaluation of runway capacity is used to identify existing or future operational constraints that may require specific facility improvements such as taxiways, aircraft hold areas, etc. Runway 07/25 has a full-length parallel taxiway, four 90-degree exit taxiways, and an aircraft hold area located adjacent to the Runway 25 end. This configuration provides a high level of functionality and operational capacity that provides for effective movement between the runway and adjacent landside facilities.

Annual service volume (ASV) is a broad measure of airport capacity and delay used for long-term planning as defined in *FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay*. Although the generic ASV calculation assumes optimal conditions (air traffic control, radar, the ability to operate in both visual flight rules (VFR) and instrument flight rules (IFR) conditions, etc.) that do not exist at Sunnyside Municipal Airport, it provides a reasonable basis for approximating existing and future capacity for planning purposes.

The FAA estimates the ASV for a single runway with no air carrier traffic is approximately 230,000 annual operations. Hourly capacity is estimated to be 98 operations during VFR conditions and 59 operations during IFR conditions (assuming the runway supports instrument operations). The existing and future demand-capacity ratios for Runway 07/25 presented below are based on the aviation forecasts presented in Chapter 3.

- *Existing Capacity: 4,225 Annual Operations / 230,000 ASV = 1.8% (demand/capacity ratio)*
- *Future Capacity: 5,196 Annual Operations / 230,000 ASV = 2.3% (demand/capacity ratio)*

Based on these ratios, the annual capacity of Runway 07/25 exceeds demand through the current 20-year planning period. Hourly capacity is also expected to be adequate to accommodate normal demand. The average delay per aircraft would be expected to remain below one minute through the planning period.

Critical Aircraft and Airport Design Standards Discussion

The existing and future critical aircraft is determined based on the current and projected level of activity described in Chapter 3, Aviation Activity Forecasts. The critical aircraft establishes existing and future airport planning & design standards organized in series of code categories. The groupings are applied to specific runways, taxiways and taxilanes to guide future planning, design, and development of the Airport. FAA design criteria are determined by the physical characteristics of the critical aircraft. Definitions for the FAA design standards are provided throughout the chapter. The primary airfield design groupings sharing common aircraft-specific components include:

- Airport Reference Code (ARC)
- Runway Design Code (RDC)
- Approach and Departure Reference Cost (APRC and DPRC)
- Taxiway Design Group (TDG)

The runway standards incorporate different combinations of aircraft elements including approach speed, wingspan, and weight with approach visibility criteria. Additional information is provided in the sections below. The taxiway design standard applies physical characteristics of the aircraft's landing gear configuration and overall dimensions.

CRITICAL AIRCRAFT

The critical aircraft is intended to represent the most demanding aircraft using the Airport on a regular basis (defined by FAA as ≥ 500 annual operations). This designation does not mean that larger aircraft cannot operate on the runway, but it does define the design guidance to be used for FAA-funded improvements.

The updated evaluation of current and forecast air traffic at Sunnyside Municipal Airport, presented In Chapter 3, Aviation Activity Forecast, identified the Air Tractor 802 (AT-802), a single engine turboprop aerial applicator, as the current and future critical aircraft. Based on published aircraft manufacturer's specifications, the AT-802 is **ARC A-II**.

The aircraft manufacturer (Air Tractor, Inc.) lists the AT-802 approach speed as 70 knots in the normal landing configuration, which is well within AAC A range (<91 knots). The FAA's approach speed categories (A-E) are defined by a common 1.3 times reference stall speed (also known as V^{sr}) for aircraft certified under FAR Part 25 (14 CFR 25.103). The FAA Aircraft Characteristics Database (2018 update)[1] lists the AT-802 as AAC B, which is not consistent with the aircraft manufacturer specifications noted above. For planning purposes, aircraft manufacturer data is considered the primary source and should be used to define the applicable ARC for this aircraft. The AT-802 has a maximum operating weight above 12,500 pounds, which is classified by FAA as a "large airplane."

As noted in Table 3-6, one locally based AT-802 currently generates approximately 700 annual operations at the Airport. This activity alone exceeds the FAA "regular use" threshold of 500 annual operations required for definition of the critical aircraft. Other locally based and transient aircraft traffic at the Airport increases current ARC A-II annual operations to approximately 1,200. For more information see *FAA AC 150/5000-17, Critical Aircraft and Regular Use Determination*.

The 2008 ALP identified a Cessna 421 (multi-engine piston) as the existing and future critical aircraft. This aircraft has **ARC "B-I (small)**."

AIRPORT REFERENCE CODE (ARC)

The ARC is a designation that combines the airplane design group (ADG) and the aircraft approach speed for the critical aircraft. These components are then used to define additional design codes, which are described in the following section.

ARC B-I "small" is noted as the existing and future ARC on the 2008 ALP. The "small" designation denotes a critical aircraft that weighs 12,500 pounds or less. **Based on current and forecast air traffic, ARC A-II is applicable Runway 07/25**. Planning criteria for large aircraft is applicable based on the critical aircraft's maximum operating weight above 12,500 pounds.

The change in critical aircraft and ARC requires application of ARC A/B-II design standards and "larger than utility" Part 77 airspace surfaces for the runway and its immediate surroundings. For planning purposes, approach visibility minimums are assumed to be 1-mile or visual, depending on future approach capabilities. Applicable airport planning & design standards are summarized in greater detail below.

RUNWAY DESIGN CODE (RDC)

The RDC is comprised of the selected Aircraft Approach Category (AAC), the ADG, and the approach visibility minimums of a specific runway end. 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 RDC for Runway 07/25 is A/B-II-VIS. The future RDC will be determined through the identification of the preferred runway/instrument approach alternatives in Chapter 5, Development Alternatives. For more detailed information on determining RDC see *FAA AC 150/5300-13B, Airport Design*.

1 Aircraft Characteristics Database (faa.gov)

APPROACH AND DEPARTURE REFERENCE CODE (APRC AND DPRC)

The APRC and DPRC represent the current operational capabilities of each specific runway end and adjacent taxiways. For detailed information on determining APRC and DPRC see *FAA AC 150/5300-13B, Airport Design*.

The APRC uses the performance characteristics of the critical 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 APRC for Runway 07/25 is B-II/4000**. This is the nearest definition to ARC A-II listed in the current version of the FAA airport design advisory circular.[2] The future APRC is dependent upon future approach capabilities and will be determined through the identification of a preferred alternative in Chapter 5, Development Alternatives.

The DPRC uses only the physical characteristics of the design aircraft and runway-to-taxiway separation. **The existing and planned DPRC for Runway 07/25 is B/II**. This is the nearest definition to ARC A-II listed in the FAA airport design advisory circular.[3]

TAXIWAY DESIGN GROUP (TDG)

The 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) (see **Figure 4-1**). These dimensions affect an aircraft's ability to safely maneuver on airport taxiways and dictate pavement fillet design.

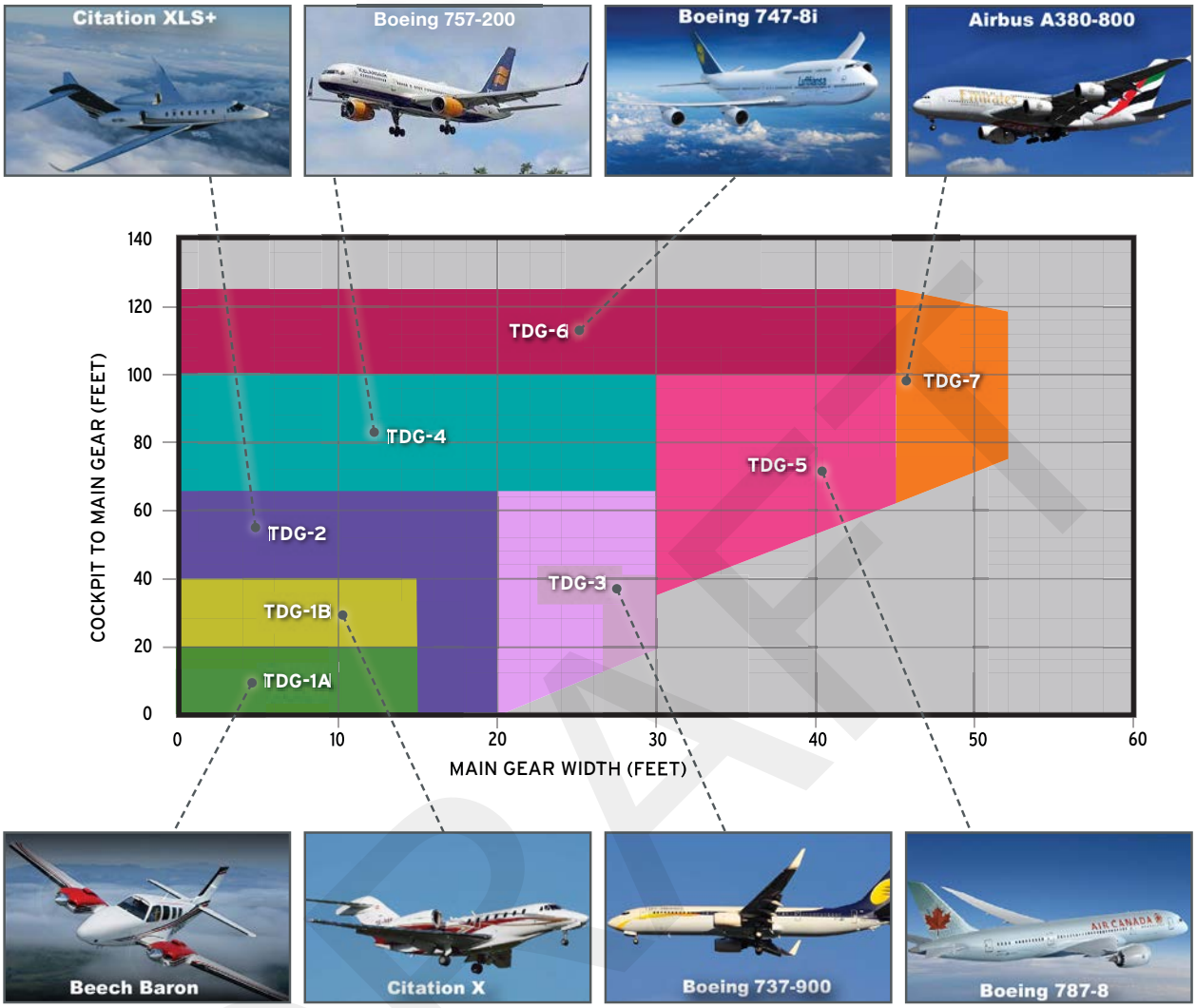
The current and future critical aircraft (AT-802) is listed in the FAA Aircraft Characteristics Database as **TDG 1B**. A review of ADG II aircraft types indicates that TDG 1A is common for other single-engine turboprops (Pilatus PC-12, Cessna Caravan, etc.) while TDG 1B is common for medium size business jets (Cessna Citation Excel, Bravo; Pilatus PC-24, etc.).

It is noted that the current version of the FAA airport design advisory circular[4] indicates that the TDG definition does not reflect landing year geometry for tailwheel equipped aircraft: *"Tail wheel aircraft maneuver differently than aircraft with tradition tricycle landing gear. This AC does not cover designs based on tail wheel aircraft."* Since the AT-802 is a tailwheel aircraft, the source for the FAA aircraft database entry is unknown. However, it is worth noting the significant difference in wheelbase between the AT-802 and the Pilatus PC-12, the next most common ADG II aircraft operating at the Airport (AT-802: 23' 10"; PC-12: 11' 5"), suggests the use of TDG 1B is appropriate.

The parallel taxiway (Taxiway A) and the four connector taxiways (A1-A4) are constructed to TDG 1B standards, which appears to be appropriate for current large airplane use. Hangar and apron taxiways/taxilanes can be constructed to different TDGs based on the expected aircraft use. The east tiedown apron is designed to accommodate small single-engine or twin-engine aircraft (TDG 1A).

2 AC 150/5300-13B, Appendix L, Table L-1.
3 AC 150/5300-13B, Appendix L, Table L-2.
4 AC 150/5300-13B, Page 1-4, Section 1.6.5

Figure 4-1: Taxiway Design Group Components



Source: Century West Engineering

FAA DESIGN STANDARDS

FAA AC 150/5300-13B, Airport Design, serves as the primary reference in establishing the geometry of airfield facilities at Sunnyside Municipal Airport. Existing condition dimensions and design standards based on the updated critical aircraft determination are summarized in **Table 4-1**. The design standards identified in the 2008 ALP (ADG I small) are also provided for reference.

FAA DESIGN STANDARDS

Specific design standards and conditions applicable to Sunnyside 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 150/5300-13B.

The change in critical aircraft noted earlier triggers a change in airport design standards that will be applied to existing facilities. The most significant change is an increase from ADG I to ADG II standards for the runway-taxiway system.

A summary of taxiway and taxilane design standards is provided in **Table 4-2**. As noted earlier, these standards are determined by the critical aircraft for major facilities used by all aircraft operating at the Airport. For facilities intended for use by a specific aircraft type (e.g., small airplane tiedowns) the aircraft-appropriate standard is used.

Table 4-1: Runway 07/25 Airport Design Standards Summary (Dimensions In Feet)

FAA STANDARD	RUNWAY 07/25 EXISTING CONDITIONS[1]	RUNWAY 07/25 (EXISTING/FUTURE STANDARD)[2] ARC A/B-II VISUAL OR NOT LOWER THAN 1-MILE	RUNWAY 07/25 (PREVIOUS STANDARD)[3] ARC A/B-I (SMALL) VISUAL OR NOT LOWER THAN 1-MILE
Runway Length	3,423	See Runway Analysis Discussion	
Runway Width	60	75	60
Runway Shoulder Width	10	10	10
Runway Blast Pads • Width • Length	none	95 150	80 60
Runway Safety Area • Width • Beyond RWY End • Prior to Landing Threshold	120 240 240	150 300 300	120 240 240
Runway Obstacle Free Zone • Width • Beyond RWY End • Prior to Landing Threshold	250 200 200	400[7] 200 200	250 200 200
Object Free Area • Width • Beyond RWY End • Prior to Landing Threshold	250 200 200	500 300 300	250 200 200
Runway Protection Zone Length	RWY 07: 1,000 RWY 25: 1,000	RWY 07: 1,000 RWY 25: 1,000	RWY 07: 1,000 RWY 25: 1,000
Runway Protection Zone Inner Width	RWY 07: 250 RWY 25: 250	RWY 07: 500 RWY 25: 500	RWY 07: 250 RWY 25: 250
Runway Protection Zone Outer Width	RWY 07: 450 RWY 25: 450	RWY 07: 700 RWY 25: 700	RWY 07: 450 RWY 25: 450
Runway Centerline to: Parallel Taxiway/Taxilane CL Aircraft Hold Position Aircraft Parking Area 18' Building Restriction Line (BRL) Nearest Building to Runway	 240 125 288[4] 370[5] 340[6]	 240 200 305.5[8] 376 340	 150 125 194.5 251 340

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

Table 4-1 Notes:

1. Based on 2019 signed ALP drawing, the existing facilities inventory (2021), and review of as-built drawings for newly constructed facilities.
2. Based on updated critical aircraft and ARC (A-II).
3. As depicted on 2019 ALP drawing.
4. Distance between Runway 07/25 centerline and east facing aircraft tiedowns located near fueling area (includes 5' for nose of aircraft in tiedown position). The current ALP drawing depicts "Existing APL" at 284.5' south of runway centerline, which is based on ADG I 44.5' clearance to the parallel taxiway.
5. As depicted on 2019 ALP drawing.
6. North end of T-hangar located adjacent to east tiedown apron; roof peak elevation <18'.
7. Standard for Large Airplanes (>12,500#)
8. Distance required to clear the Taxiway A TOFA (based on 240' runway-taxiway separation). This setback will clear a 7.9' aircraft (tail height) in the Part 77 transitional surface; larger aircraft parking will require increased runway separation to avoid penetrating the transitional surface.

Table 4-2: Sunnyside Municipal Airport – Taxiway And Taxilane Standards (Current/Future)

DESIGN STANDARD	AIRPLANE DESIGN GROUP (ADG) STANDARDS	TAXIWAY DESIGN GROUP STANDARD
	TAXIWAY DESIGN GROUP STANDARD	
Taxiway A, A1-A5	**ADG II**	**TDG 1B**
Taxiway Safety Area (width)[1]	79 feet	-
Taxiway Object Free Area (width)[1]	124 feet	-
Taxiway centerline to fixed or moveable object	62 feet	-
Taxiway Width	-	25 feet
Taxiway Shoulder Width	-	10 feet
Main Apron	**ADG II**	**TDG 1B**
Taxilane Width	-	25 feet
Taxilane Object Free Area (width)[1]	79 feet	
Taxilane centerline to fixed or moveable object	55 feet	-
East Tiedown Apron	**ADG I**	**TDG 1A**
Taxilane Width	-	25 feet
Taxilane Object Free Area (width)[1]	79 feet	-
Taxilane centerline to fixed or moveable object	55 feet	-

Source: FAA AC 150/5300-13B (Table 4-1, 4-2)

Table 4-2 Notes:

1. The required obstacle clearances are measured from the taxiway/taxilane centerline to the nearest fixed or moveable object, which includes items such as parked aircraft, hangars, fences, equipment storage, and parked vehicles. Current FAA design guidance requires additional separation be provided beyond the top of the tiedown marking to account for the distance "from main gear to nose of critical aircraft at the outer edge of the TLOFA." An acceptable design approach is to provide clearance for a common aircraft type that uses the apron (e.g., small single engine or small twin-engine piston aircraft).

Airport Facilities Analysis

Based on the updated inventory of facilities presented in Chapter 2, Existing Conditions, 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 this chapter.

The change to ARC A-II standards noted earlier will apply to existing facilities since the "regular use" threshold of 500 annual operations by the critical aircraft has been reached. As a result, the review will identify several existing facilities that were designed and constructed based on ADG I design standards, as non-conforming to ADG II standards.

The affected facility and airspace design standards are briefly summarized below:

- **Change in ARC**: ARC A-II – increased dimensions for runway width, runway safety area (RSA), runway object free area (OFA), and taxiways.

  Note: The existing runway-parallel taxiway separation meets current A-II standards and TDG 1B standards. The taxiway safety area (TSA) and object free area (TOFA) clearances increase with ADG II. The existing taxiway width (25 feet) meets the TDG 1B standard.

- **Change in Critical Aircraft Size** (Large Airplane) - increases width of OFA.
- **Change in TDG** – increases standard from TDG 1A to 1B based on critical aircraft, although no dimensional changes occur.

Upgrading airfield facilities to meet ADG II standards will be a primary focus of the Airport's near-term capital improvement program. It is anticipated that compliance will require several individual projects or groups of projects depending on the availability of FAA and local financial resources.

Figure 4-2 depicts existing airside and landside facilities ADG II conformance issues identified at Sunnyside Municipal Airport. Conformance issues related to the configurations of runways, taxiways and apron pavements are primarily due to the code change from A/B-I (small) to A/B-II. Issues related to the FAA's incompatible land use policy for Runway Protection Zones (RPZ) affect the Runway 7 RPZ (road and property ownership).

As noted previously in the ALP Report, Sunnyside Municipal Airport currently operates exclusively under VFR, with no instrument capabilities. Runway 07/25 is designated as a "visual" runway in the Code of Federal Regulations (CFR) Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace. The addition of instrument procedures at the Airport has been identified by users as a potential facility improvement need that should be considered in the ALP Report. Options for providing instrument approach and departure capabilities will be examined in the alternatives evaluation, including options that would require a change in Part 77 runway designation to non-precision instrument (NPI). **Figure 4-3** depicts the building restriction line (BRL) and aircraft parking line (APL) based on Part 77 setback. **Figure 4-4** depicts existing landside facilities with taxilane object free are (TOLA) clearance issues.

Figure 4-2: FAA Design Group (ADG) Comparison

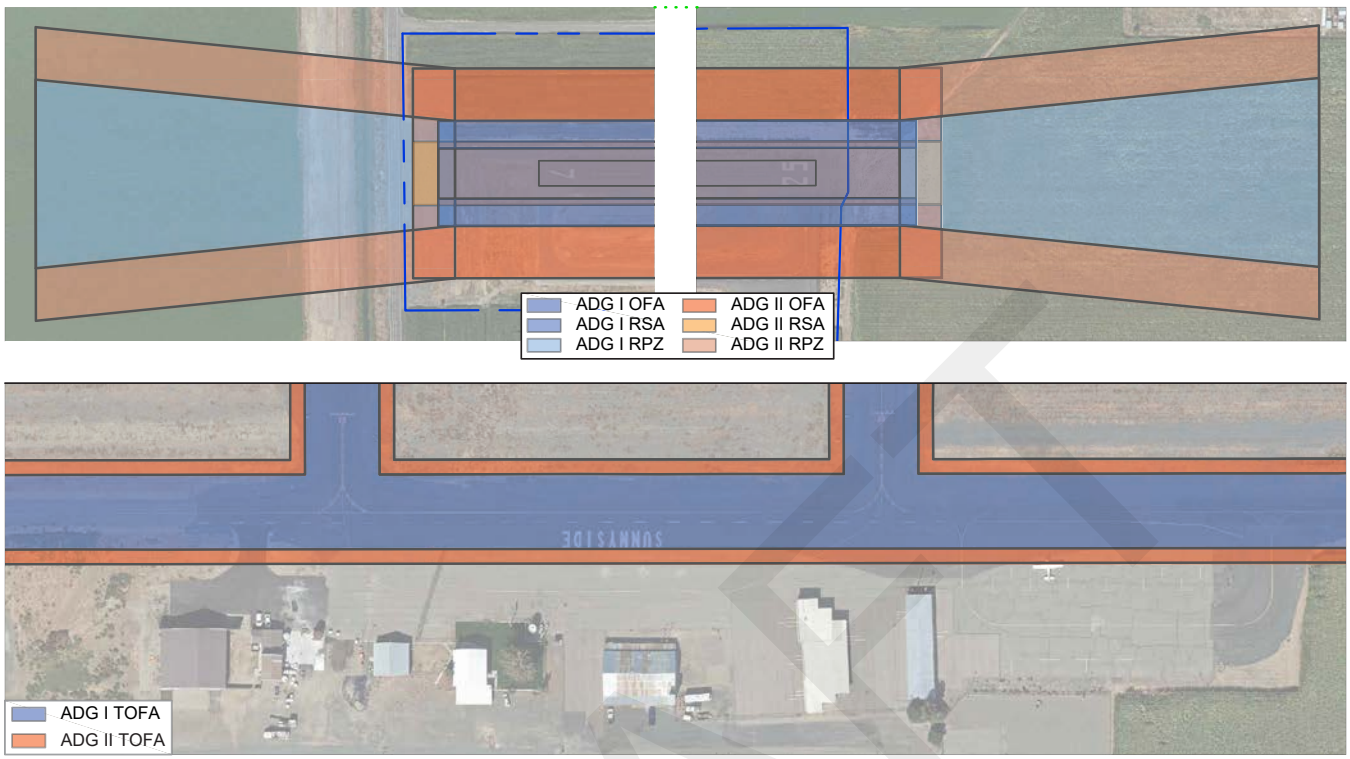
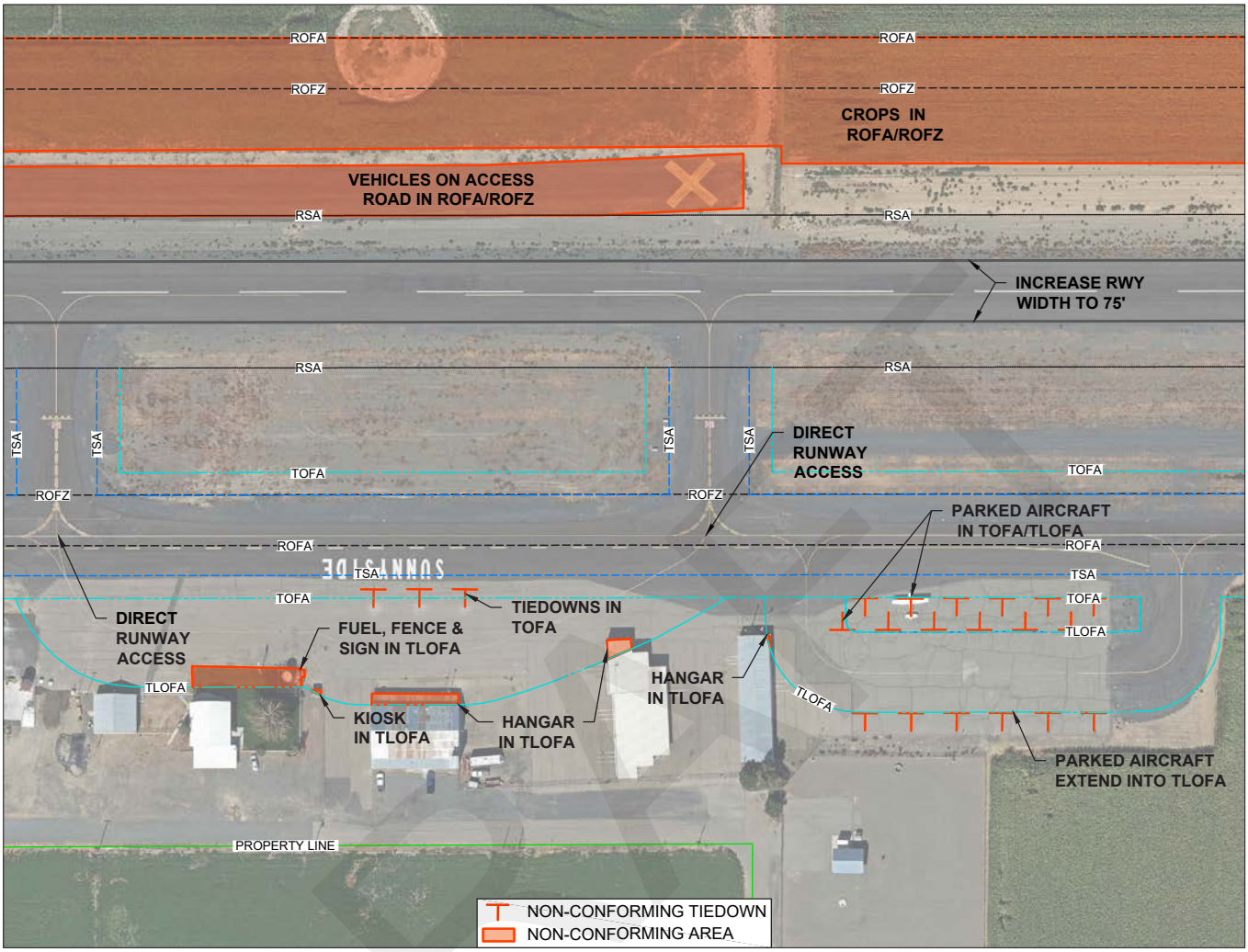


Figure 4-3: Part 77 Runway Setback

Figure 4-4: Terminal Area Conformance

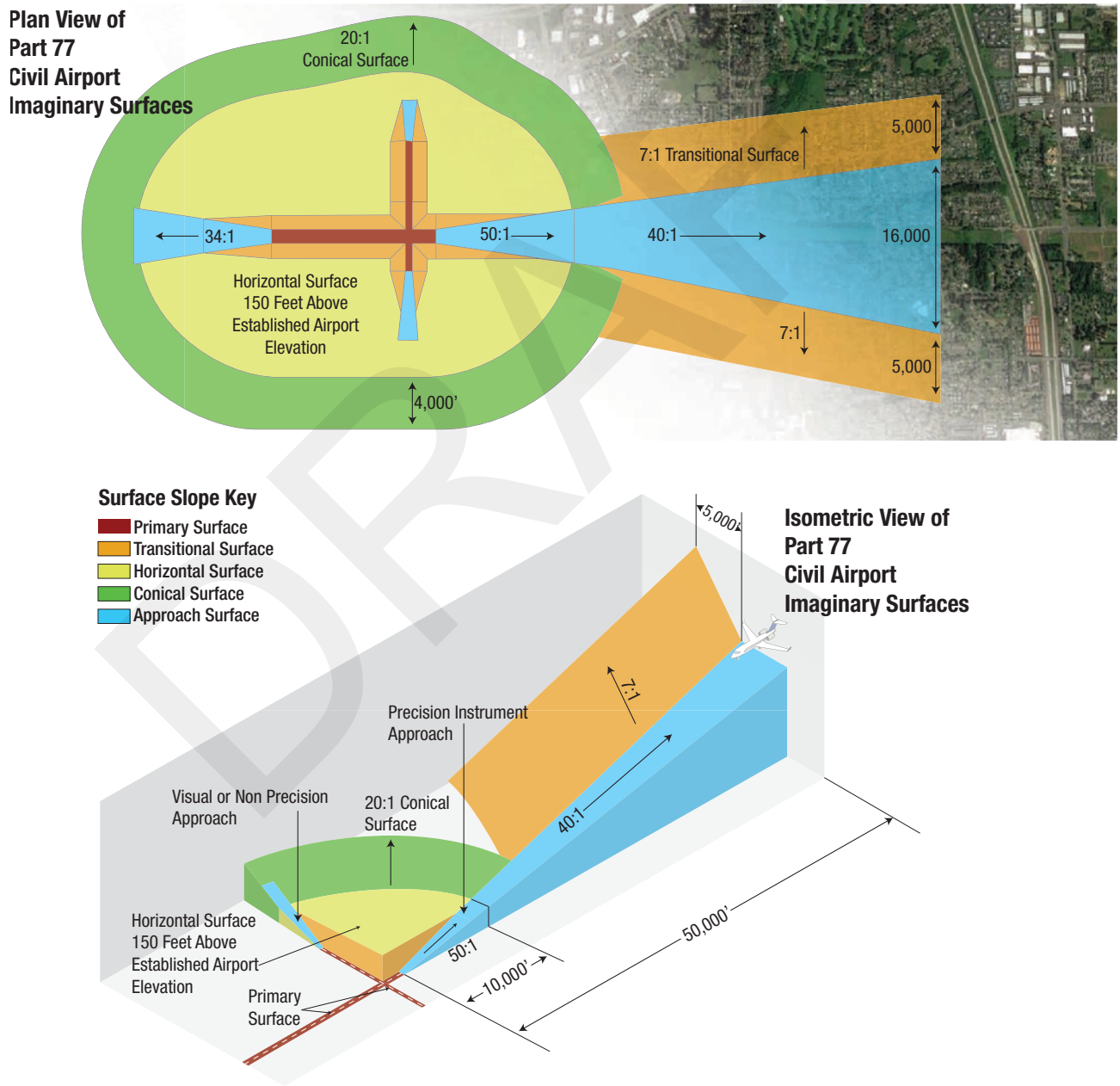


Airside Facility Requirements

PART 77 AIRSPACE

U.S. airport airspace is defined by Title 14, CFR Part 77 – Safe, Efficient Use, and Preservation of the Navigable Airspace.[5] Part 77 defines five types of airport imaginary surfaces that are established to protect the airspace immediately surrounding a runway. The airspace surfaces should be free of obstructions (i.e., terrain, structures, parked aircraft, trees, etc.) to the maximum extent possible to provide a safe aircraft operating environment. Runways that support instrument operations typically have larger or more demanding surfaces that protect aircraft operating closer to the ground without visual references. A generic Part 77 diagram illustrating each type of airspace surface is provided in **Figure 4-5**. Note: the generic runway configuration and depicted surfaces are for reference only and do not apply to Runway 07/25.

Figure 4-5: Part 77 Airspace (Generic)



Source: Century West Engineering, Airspace Plan; Part 77
Note: Precision approach airspace is provided for reference and is not applicable to Runway 07/25 at 1S5.

5 Part 77 is contained in Code of Federal Regulations (CFR), Title 14 – Aeronautics and Space, Chapter 1, Subchapter E, Part 77.

RUNWAY 07/25 AIRSPACE PLANNING CRITERIA

The definition of FAR Part 77 surfaces at an airport reflects a variety of factors, but a primary defining factor is runway category (visual, non-precision instrument, or precision instrument) which reflects approach capabilities. Runway 07/25 is designated as a visual runway. It does not currently support existing or planned instrument procedures.

Developing instrument approach capabilities at Sunnyside Municipal Airport has been identified as a potential upgrade of interest among airport users. The airports geographic information systems (AGIS) survey, being completed as part of the ALP update, will provide obstruction data required to support the feasibility analysis and subsequent design of instrument procedures. For general aviation (GA) airports, NPI approaches are the most common. Most new instrument procedures developed by FAA now utilize satellite navigation (SATNAV) technology with global positioning system (GPS) platforms. The most common NPI approach is an RNAV (GPS).[6] This type of approach provides electronic course guidance to the runway environment or a specific runway end. Pilots are responsible for maintaining prescribed altitudes during each stage of the procedure.

Although potentially confusing, it is important to note that NPI approaches can be developed at airports with instrument or visual airspace defined for their runway(s). From a Part 77 airspace perspective, an NPI approach to a runway end (e.g., RNAV GPS Rwy 7) will require NPI airspace surfaces, whereas an approach to the airport is designated as a circling *(or circle-to-land)* procedure and requires only visual airspace surfaces. The key distinction with a circling procedure is that the pilot must maintain visual contact with the runway environment after reaching the missed approach point (MAP), when proceeding to a runway end for landing. For a straight-in procedure, the pilot is guided electronically to the designated MAP. If visual contact with the airport environment is not established before reaching the MAP, the pilot is required to execute a missed approach procedure.

Both straight-in and circling RNAV GPS procedures typically require at least one-mile of visibility unless the runway is equipped with an approach lighting system (ALS). Instrument departure procedures are designed based on required aircraft climb gradients and obstruction clearance standards. An NPI circling procedure can be accommodated without any modifications to the existing airspace or markings for Runway 07/25. An NPI straight-in procedure would require larger and more restrictive approach surfaces, larger horizontal surface radii, and NPI runway markings.

A summary of visual and NPI Part 77 surface requirements for Runway 07/25 is provided in **Table 4-3**.

Table 4-3: Runway 07/25 - Part 77 Airspace Summary

	EXISTING STANDARD	OPTIONAL FUTURE STANDARD
PART 77 SURFACE	LARGER THAN UTILITY VISUAL (VIS)	LARGER THAN UTILITY NPI VISIBILITY > ¾-MILE
Width of Primary Surface	500 feet	500 feet
Approach Surface Length	5,000 feet	10,000 feet
Approach Surface Width (Outer End)	1,500 feet	3,500 feet
Approach Surface Slope	20:1	34:1
Transitional Surface	7:1 Slope to 150 feet above runway	Same1
Horizontal Surface Elevation	150 feet above airport elevation	Same
Horizontal Surface Radius	5,000 feet	10,000 feet
Conical Surface	**20:1 for 4,000 feet**	**Same**

Source: Code of Federal Regulations (CFR), Title 14, Subpart E#, Part 77
It is recommended that the option of upgrading the runway and airspace to NPI be evaluated in the alternatives analysis (Chapter 5). The evaluation would include the physical requirements and potential impacts on adjacent landside development (setbacks for hangars, aircraft parking, etc.) and off airport development. The FAA's assessment of approach feasibility and approximate approach minimums expected for both types of procedures will help define the incremental benefits of pursuing a more demanding approach type.

6 RNAV is an FAA acronym for "Area Navigation"

RUNWAY 07/25 AIRSPACE SURFACES AND OBSTRUCTIONS

This section describes the Part 77 airspace surfaces for Runway 07/25 based on the existing visual approach and large airplane standards.

For reference, the obstructions identified on the 2008 Part 77 Airspace Plan drawing (Sheet 4 of 7) are noted below. Major reconstruction projects for the runway and portions of the parallel taxiway have been completed since the 2008 ALP was completed and all previously identified obstructions will be reviewed based on 2021 AGIS obstruction survey data developed as part of this ALP Report update. The AGIS data will be used to populate obstruction tables in the updated Part 77 Airspace Plan, and related drawings in the ALP set (see Chapter 7). Part 77 obstruction clearing standards will also apply to any future changes in runway configuration.

Based on interest in adding instrument approach capabilities, an option to upgrade airspace to NPI will be evaluated in the airside alternatives (Chapter 5). As noted in **Table 4-2**, the option of upgrading the runway to NPI would increase the dimensions/slopes of several Part 77 surfaces. The NPI runway designation corresponds to straight-in NPI approaches to a specific runway end, rather than a circling procedure to the airport, which includes a visual final landing segment.

The updated ALP drawing set will depict the recommended future runway configuration and will serve as the primary reference for future obstacle removal projects in the Capital Improvement Plan (CIP) (Chapter 6).

Approach Surfaces (20:1, 5,000')

Approach surfaces provide defined descent paths for landing aircraft on runways (and helipads). The approach surface extends outward and upward from each runway end (at the end of the primary surface) along the extended runway centerline. The surface slope and dimensions are determined by the type of aircraft intended to use the runway, the most demanding approach planned for the runway, and the minimum visibility required for the approach.

<u>2008 Part 77 Drawing Obstructions:</u> Two approach surface obstructions were listed: Rwy 07 – Road (Hwy 241) and Runway 25 – a pole (overhead power pole) located on the west side of Ray Road. Vehicles traveling on Highway 241 penetrated the future (relocated) Runway 07 approach surface by approximately 10 feet; the pole penetrated the future Runway 25 approach surface by approximately 16 feet. These items were based on a reconfigured and extended (4,000 feet) runway that was shifted east. The future runway configuration also included a 200-foot displaced threshold on the Runway 07 end coupled with a 20:1 obstacle clearing surface (OCS) intended to support night circling instrument approach procedures. The future runway configuration will be evaluated based on current FAA standards in the airside alternatives evaluation (Chapter 5).

All approach surface penetrations identified in the AGIS for both the existing runway and any recommended future runway configuration will be noted with recommended mitigation to the extent required by FAA. This may include removing, lowering, or lighting the object. Part 77 surfaces cannot be modified, although the FAA recognizes use of design features such as displaced thresholds and threshold siting surfaces/obstacle clearance surfaces to mitigate airspace penetrations.

Primary Surface (500' wide)

The primary surface is a flat rectangular plane of airspace longitudinally centered on the runway, extending 200 feet beyond each runway end (for hard surfaced runways). The primary surface has the same elevation as the runway centerline at its nearest point. The outer ends of the primary surface connect to the inner portion of the runway approach surfaces.

The width of the primary surface depends on runway category, approach capability, and approach visibility minimums. Based on the larger-than-utility designation associated with the critical aircraft (>12,500#), the primary surface width is 500 feet for both NPI and visual approaches. The Runway 07/25 primary surface was previously 250 feet wide, consistent with the small airplane identified as the critical aircraft. The wider primary surface shifts the lateral 7:1 transitional surfaces outward on both sides of the runway, which may affect existing and future landside facilities and adjacent development.

The primary surface should be free of terrain or built item penetrations, except items with locations fixed-by-function (e.g., approach lighting, runway or taxiway edge lights, visual guidance indicators, airfield signs, etc.). Those items are required to be mounted on break-away (frangible) mounts. Other common items such as wind cones require a red obstruction light at the top of the mounting pole if it penetrates Part 77 airspace.

2008 Part 77 Drawing Obstructions: No obstructions listed.

All primary surface penetrations identified in the AGIS will be noted with recommended mitigation to the extent required by FAA for the current and future runway.

Transitional Surface

The runway transitional surface is located along the lateral edges of the primary surface and is represented by two planes 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 (see below).

The transitional surface should be free of obstructions (i.e., parked aircraft, structures, trees, terrain, etc.). Common facilities located adjacent to runways such as hangars and parked aircraft are located to avoid transitional surface penetrations. When penetrations exist, the FAA typically requires removal or lowering when possible; fixed objects penetrations such as buildings may also be identified with roof-mounted obstruction lighting, although long-term removal is generally expected by FAA.

2008 Part 77 Drawing Obstructions: Two transitional surface obstructions are listed to the future NPI transitional surface: The T-hangar located adjacent to the east tiedown apron (2 feet estimated penetration, 339 feet from runway centerline) and a group of hangars located along the back of the terminal area apron (undetermined penetrations based on variable building heights and distances to runway centerline). Survey and obstruction lighting were recommended for verified penetrating items.

Is noted that the 500-foot-wide primary surface associated with the future non-precision instrument utility Part 77 designation previously recommended is the same dimension as both the visual and NPI primary surface currently required for larger-than-utility runways. As a result, the beginning of the 7:1 transitional surface slope begins in the same location relative to runway centerline. The 2021 AGIS survey provides current elevation data for all existing structures that will be evaluated.

Horizontal Surface

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

Based on its existing visual approaches, 5,000-foot radii are used on Runway 07/25. The option of upgrading airspace to non-precision instrument (NPI) would increase the horizontal surface radii to 10,000 feet. Where feasible, horizontal surface obstructions identified in the AGIS should be removed, lighted, or lowered to a height where they are no longer penetrating the surface.

2008 Part 77 Drawing Obstructions: No obstructions listed.

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. The outer edge of the conical surface is 350 feet above airport elevation.

Where feasible, conical surface obstructions identified in the AGIS should be removed, lighted, or lowered to a height where they are no longer penetrating the surface.

2008 Part 77 Drawing Obstructions: No obstructions listed.

Airfield Pavement Strength and Condition

Airfield pavements are the single most important asset on an 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

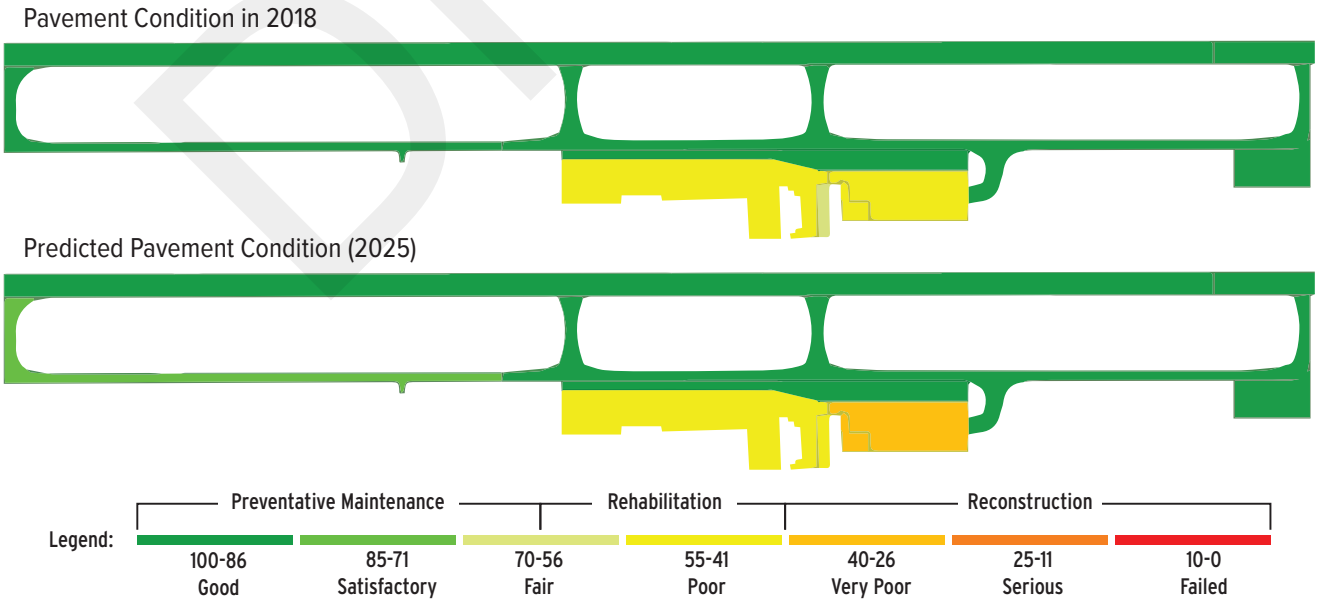
The published pavement strength rating for Runway 07/25 is 12,500 pounds for aircraft equipped with single-wheel landing gear.[7] The critical aircraft, AT-802, has a maximum takeoff weight (MTOW) of 16,000 pounds on a single-wheel configuration landing gear. The pavement sections used for all taxiway and apron pavements are identical to the runway. It is recommended that the airfield pavements be upgraded to accommodate 16,000-pound single-wheel gear aircraft as part of the next runway pavement construction project.

AIRFIELD PAVEMENT CONDITION

The most recent WSDOT Aviation airfield pavement management system (APMS) inspection at Sunnyside Municipal Airport was completed in 2018. This onsite inspection captured several new or rehabilitated pavement sections completed earlier in 2018, including the runway (reconstructed), the eastern section of the parallel taxiway (new), the aircraft hold area (new) adjacent to the Runway 25 threshold, and the northern section of apron (overlay) that directly abuts the south edge of the parallel taxiway. The study provides projected conditions for existing pavement, assuming no intervening maintenance, through 2025. **Figure 4-6** depicts the pavement condition for 2018 and 2025 on a scale of 0-100. A pavement maintenance plan is outlined through 2025 which prioritizes recommended work items based on pavement condition. Major rehabilitation was recommended for all sections of existing aircraft apron in 2019, except for the northern section of apron noted above. No other pavement-related actions are identified on the airfield in the APMS through 2025.

Major rehabilitation of asphalt pavements (overlay, crack cutouts, patching, etc.) is typically programmed on a 15 to 20-year cycle for planning purposes, depending on use and pavement design. A regular schedule of crack filling and fog/slurry seals should be performed for all asphalt pavement sections to maximize useful life. The required change in airfield design standards noted earlier may result in some existing pavements being reconstructed or modified before the end of their useful life to meet FAA standards. A prioritized list of pavement rehabilitation or reconstruction projects, and any recommended new pavements, will be provided in the updated capital improvement program.

Figure 4-6: Pavement Conditions



Source: Washington State Department of Transportation Aviation 2018 Pavement Management Program Update

7 FAA Airport Record Form 5010-1, FAA Chart Supplement

Source: Century West Engineering

FAA Design Standards

The airport design standards depicted on the 2008 ALP (and the 2019 As-built ALP) are summarized in this section to represent existing conditions. As noted earlier, the applicable airport design standards defined in this study are based on the critical aircraft identified in the updated aviation activity forecasts. In broad terms, the change in critical aircraft results in larger dimensions for most defined areas (see **Table 4-1**). It is noted that the change in design standards from Airplane Design Group I to II has not been implemented in recent airfield design projects. As a result, a group of "non-standard" facility conditions are identified that will likely require multiple projects completed over an extended period to bring all facilities into compliance with FAA standards.

RUNWAY 07/25

Runway 07/25 was 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, combined with the ability of aircraft to operate under given conditions. FAA has defined the maximum allowable direct crosswind (90-degrees) for small aircraft as 10.5 knots and 13 knots for larger general aviation aircraft. The 13-knot crosswind component corresponds to the current and future critical aircraft and ARC (A/B-II).

The FAA recommends that primary runways accommodate at least 95% of wind conditions. When this level of wind coverage is not provided, the FAA recommends consideration of a crosswind runway.

Although there is an automated weather observation system (AWOS) onsite, ten years of wind data are not available for the facility. In cases where the required data are not available, the FAA requires use of wind data from the nearest available airport(s). Yakima Air Terminal (YKM), located 28 nautical miles northwest of Sunnyside Municipal Airport, is the nearest airport with sufficient wind data.

YKM Wind Data

An evaluation of Runway 07/25 wind coverage was performed based on YKM wind data (All Weather, VFR, and IFR). The tabulated wind data is summarized in **Table 4-4**. A review of the YKM wind rose suggests that the Runway 07/25 orientation accommodates slightly more than 95% of all weather wind conditions for general aviation aircraft, suggesting that the runway meets the FAA's wind coverage threshold for a primary runway.

The new wind rose will be added to the Airport Layout Plan (ALP).

Table 4-4: Wind Analysis (YKM Data)

Runway 07/25	
All Weather	
10.5 KNOTS	95.23%
VFR	
10.5 KNOTS	95.19%
IFR	
10.5 KNOTS	95.65%

Source: Yakima Air Terminal (YKM) ALP Wind Rose. National Climate Data Center AGIS Windrose (2011-2020)
Runway 07/25 Bearing = S 89° 31' W True

Runway Length

For general aviation airports the FAA recommends using a "family of design aircraft" approach to defining runway length requirements. FAA *AC 150/5325-4B, Runway Length Requirements for Airport Design* provides runway length curves based on three families of aircraft differentiated by certificated MTOW, small airplanes with MTOW of 12,500 pounds or less; airplanes with MTOW of more than 12,500 pounds up to and including 60,000 pounds; and regional jets and airplanes with MTOW of greater than 60,000 pounds.

The current and future critical aircraft (Air Tractor 802) for Sunnyside Municipal Airport has a MTOW of 16,000 pounds, which would suggest that the runway length requirements should be determined based upon curves provided for Airplanes with a MTOW between 12,500 and 60,000 pounds. However, the runway length curves for that family of airplanes were developed using performance characteristics of business class jets which typically require longer runways for takeoff and landing than propeller-driven aircraft such as single-engine turboprops.

Furthermore, since the AT-802 is an agricultural aerial applicator, it typically dispatches its load (800 gallon hopper capacity) during flight and returns to the Airport at weights often below 12,500 pounds. According to data published by the manufacturer, the AT-802 has a takeoff distance of 2,000 feet at its maximum weight of 16,000 pounds.[8] Another single-engine turboprop with regular transient operations at the Airport is the Pilatus PC-12, operated by air ambulance and corporate users. The PC-12 has a MTOW 10,450 pounds with a takeoff distance of 2,455 feet. (MTOW, ISA, sea level, dry paved runway).[9]

Considering the performance characteristics of the critical aircraft and other similar aircraft, it appears that the runway length requirements for smaller ADG I and II piston aircraft operating at the Airport are more demanding. Based on this, it is appropriate to use the runway length standards for small airplanes with a MTOW 12,500 pounds and less. This captures group most of the single-engine and multi-engine piston activity at the Airport.

Chapter 2 of *AC 150/5325-4B*, provides runway length curves based on approach speeds and seating capacity of the critical aircraft, and percent of fleet groupings based on the airport's location and activity levels. For Sunnyside Municipal Airport, the standard based on small airplanes with approach speeds of 50 knots or more and seating capacity of 10 or fewer seats that make up 95% of the general aviation fleet is appropriate for long term planning.

8 https://airtractor.com/aircraft/at-802a/
9 https://www.pilatus-aircraft.com/en/fly/pc-12

FAA DESIGN STANDARDS

Runway Safety Area (RSA)
Standards: A/B-II standard is 150 feet wide or 75 feet each side of runway centerline and 300 feet beyond runway ends. Additional FAA standards include gradient, object clearing, and surface compaction.

Condition: The current RSA for Runway 07/25 meets ADG I dimensional standards, although the east end of the RSA extends off airport property beyond the end of Runway 25. To fully protect the surface, the entire RSA should be owned by the Airport.

Upgrading the RSA to ADG II standards will be required for the current runway and any future runway reconfigurations.

Runway Object Free Area (OFA)
Standards: A/B-II standard is 500 feet wide or 250 feet each side of runway centerline and 300 feet beyond runway ends. Additional FAA standards include gradient and object clearing.

Condition: The current OFA for Runway 07/25 meets ADG I dimensional standards, although the east end of the OFA extends off airport property beyond the end of Runway 25. To fully protect the surface, the entire OFA should be owned by the Airport.

Upgrading the RSA to ADG II standards will be required for the current runway and any future runway reconfigurations.

Runway Obstacle Free Zone (OFZ)
Standards: A/B-II standard for large airplanes is 400' wide or 200' each side of runway centerline and 200' beyond runway ends. Additional FAA standards include object clearing.

Condition: The current OFZ for Runway 07/25 meets small airplane dimensional standards, consistent with ADG I, although the east end of the OFZ extends off airport property beyond the end of Runway 25. To fully protect the surface, the entire OFZ should be owned by the Airport.

Upgrading the OFZ to large airplane (ADG II) standards will be required for the current runway and any future runway reconfigurations.

Runway Length Requirements
Rwy 7/25

Condition: 3,423 feet

Standards: 3,350 feet
(FAA Defined Length Required to accommodate 95% of small airplane fleet based on local airport conditions)

The FAA provide the following information regarding percentage of fleet: "This category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population centers, and remote recreational areas." The appropriate runway length curves are presented in Figure 2-1 of *AC 150/5325-4B*.

Utilizing the provided runway length curves referencing the airport elevation (768 feet) and mean daily maximum temperature (92 degrees F) for Sunnyside Municipal Airport, a recommended runway length of 3,350 feet is calculated.

The existing runway is 3,423 feet long, which exceeds the recommended length by 73 feet. It is recommended that the current length of 3,423 feet be maintained while the runway remains in its current configuration. When the runway is reconfigured to meet other ADG II design standards, its length may be reduced to 3,350 feet. The City also has the option of maintaining the existing length or a longer runway length that would not be eligible for FAA funding.

Runway Protection Zones (RPZ)

The RPZs depicted on the most recent ALP reflect ARC B-I (small) dimensional standards (250 x 450 x 1,000 feet). The Runway 7 RPZ has public roadway (SR 241) traversing the inner portion of the RPZ. Most of the Runway 7 RPZ is located off airport on Port of Sunnyside property; an existing avigation easement is depicted on the ALP. The Runway 25 RPZ also extends off airport property into Port of Sunnyside-owned property. The RPZ extends over agricultural land use and does not contain incompatible land uses such as public roadways or structures. The ALP depicts a future RPZ (with avigation easement to be acquired) in conjunction with a future 577-foot runway extension/shift. This results in a portion of the future Runway 25 RPZ extending east past Ray Road with one residential structure located in the RPZ.

Based on the current ARC A/B-II standards, the RPZ dimensional footprint increases in size (500 x 700 x 1000 feet) and the net area of incompatible land uses such as roads may also increase. In addition to applying the ADG II RPZ dimensions, the change in RPZ size triggers an RPZ land use review by FAA. Mitigation of incompatible land uses for both the current and future configuration of Runway 7/25 will be addressed through the development alternatives process described in Chapter 5, Development Alternatives.

The most recent update of the FAA Airport Design advisory circular (*AC 150/5300-13B, Appendix I*) identifies several common conditions and facilities that are considered compatible with RPZs. This design guidance is supplemented by the FAA's September 2012 interim guidance memorandum regarding RPZs and incompatible land uses.

FAA DESIGN STANDARDS

Runway Protection Zone (RPZ)

Standards: A/B-II standard for runway ends with visual or not lower than 1-mile visibility minimums is 500 x 700 x 1,000 feet (13.77 acres). If a runway end has a displaced threshold or uses declared distances to compensate for non-standard runway clearances, separate approach, and departure RPZs are required. 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.

FAA Advisory Circular 150/5300-13B, Appendix I (section I.3; I.3.1-I.3.3) defines permissible land uses within RPZs, which include farming activities that meet other design clearance requirements, compliant irrigation channels, and non-public airport service roads that are under airport control. Incompatible land uses are defined by FAA in a 2012 interim guidance memorandum.

Condition: The Runway 7 and 25 RPZs defined in the 2008 Airport Layout Plan Report the previous planning standard (ARC: B-I Small-Visual) and depicted on the current ALP drawing extend beyond Airport property on to Port of Sunnyside-owned properties. The Runway 7 RPZ contains SR 241 and Sulphur Creek Wasteway ROWs.

The current ALP depicts an avigation easement for the Runway 7 RPZ. No avigation easement is depicted for the Runway 25 RPZ. ARC A/B-II RPZ dimensions will be applied to the current runway (existing RPZ) and any future runway configuration (future RPZ). A review of RPZ configurations and property ownership/easement options will be included in the airside alternatives evaluation in Chapter 5 for proposed runway configurations.

Among other things, the FAA's interim 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 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. Any proposed changes in the length or configuration of the runway that changes the location of existing RPZs evaluated in this study are subject to review by FAA headquarters in Washington D.C.

Runway Width/Shoulders

Runway 07/25 is 60 feet wide with 10-foot gravel shoulders. The ARC A/B-II-dimensional standard for runways with visual or not lower than 1-mile approach visibility minimums is 75 feet with 10-foot shoulders. The runway should be widened to 75 feet with 10-foot unpaved shoulders to meet standards.

Runway Blast Pads

Runway 07/25 does not accommodate significant jet operations and therefore does not require blast pads, per FAA design guidance. However, if significant propeller wash is generated beyond the runway ends, a surface treatment may be considered to stabilize loose material within a standard blast pad footprint in the extended runway safety area.

TAXIWAY/TAXILANE NETWORK

The taxiways and taxilanes on the Airport were designed based on the previous ARC standards (A/B-I small). Based on current standards and planning criteria, all major taxiways and taxilanes at the Airport used by both ADG I and II aircraft should be upgraded to the more demanding ADG II standards. The increased clearance requirements for ARC A/B-II standards result in nonstandard conditions for existing taxiways and taxilanes. It is appropriate for taxilanes that are used exclusively by small airplanes to access tiedown aprons, T-hangars, etc. to be maintained at ADG I and the smallest taxiway design group.

ADDITIONAL FAA TAXIWAY AND TAXILANE DESIGN GUIDANCE

(AC 150/5300-13B, CHAPTER 4, SECTION 4.3.5. RUNWAY ACCESS FROM APRON)

Taxiways connecting an apron directly to a runway can lead to confusion by creating a false expectation of a parallel taxiway prior to a runway. This loss of situational awareness can result in a pilot entering a runway unknowingly, thus resulting in a runway incursion.

Standard: Design taxiways leading from an apron to a runway to make at least one turn between 75 and 90 degrees prior to reaching the runway hold line.

Condition: Taxiways A2 and A3 provide direct runway access from the main apron and hangar areas.

FAA DESIGN STANDARDS

Runway Width/Shoulders

Standards: A/B-II standard width for runways with visual or not lower than ¾-mile visibility is 75 feet. The standard is 10 feet for shoulders.

Condition: Existing Runway 07/25 width is 60 feet, which does not meet standards. The 10-foot gravel shoulders meet standards.

Options for widening the runway with standard shoulders will be included in the airside alternatives evaluation in Chapter 5 for both the current runway and any proposed future runway configurations.

FAA DESIGN STANDARDS

Taxiway Width/Shoulders

Standards: TDG 1B standard width is 25 feet with 10-foot shoulders is recommended for all major taxiways at the Airport. TDG 1A standards are recommended for taxiways/taxilanes used exclusively by small aircraft (small airplane tiedown aprons, T-Hangar access). TDG 1A and 1B standards are identical.

Condition: Existing Taxiway A width is 25 feet, which meets standards. The 10-foot gravel shoulders meet standards.

Issues related to specific taxiway and taxilane components are described below.

Parallel Taxiway

Taxiway A is 25 feet wide and has a 240-foot centerline-to-centerline offset from the runway, both of which meet ARC A/B-II standards. It is noted that the future increase in runway width associated with ADG II standards will not affect the parallel taxiway.

The ARC A/B-II TOFA for Taxiway A is penetrated by three north-facing aircraft tiedowns (parked aircraft) on the main apron, located directly adjacent to the painted SUNNYSIDE markings. It is noted that parked aircraft in these tiedowns will also penetrate the shifted Part 77 transitional surface for Runway 07/25 required for large aircraft. Established crop areas are located within the TOFA on the eastern section (south side) of Taxiway A, east of the tiedown apron, and adjacent to the outer edge of the aircraft hold area at the Runway 25 end. Clearing obstacles within the ADG II TOFA is recommended to be incorporated with related improvements.

FAA DESIGN STANDARDS

Runway – Parallel Taxiway/Taxilane Separation
Standards: A/B-II standard is 240 feet centerline-to-centerline separation between runway and parallel taxiway for visual runways and runways with visibility minimums not lower than 1-mile.

Condition: The separation between the runway and Taxiway A is 240 feet, which meets standards.

Taxiway Safety Area (TSA)
Standards: A/B-II standard is 79 feet wide, or 39.5 feet each side of taxiway centerline along the sides the taxiway. Additional gradient standards apply.

Condition: Taxiway A and Taxiways A1-A4 meet all TSA gradient and clearance standards.

The terminal apron taxilane TSA does not meet clearance standards. Parked aircraft in adjacent aircraft tiedowns, the NW corner of an adjacent multi-unit hangar, the fence adjacent to the fueling area, fuel tank components, and vehicles parked on adjacent apron areas are located within the defined TSA.

The east tiedown apron is designed to accommodate ADG I aircraft parking. However, some taxilane clearances are less than the ADG I standard. Some tiedown markings and parked aircraft (located in a tiedown) are located within the TSA for the apron taxilanes.

Taxiway Object Free Area (TOFA)
Standards: A/B-II standard is 124 feet wide, or 62 feet each side of taxiway centerline.

Condition: The western section of the parallel taxiway (Taxiway A) meets A/B-II TOFA clearance requirements. The A/B-II TOFA on the eastern section of Taxiway A is penetrated by parked aircraft and crops.

The northern row of small airplane tiedowns (6 positions) on the east apron are located at the outer edge of the A/B-II TOFA for Taxiway A, with the top of the painted "T" marking approximately 62 feet from centerline. However, when occupied, portions of aircraft parked in this row are located within the TOFA. The amount of surface penetration varies by aircraft but is typically in the range of 3 to 7 feet.

The northern boundary of crops planted along the south side of Taxiway A and the Runway 25 aircraft hold area are located within the TOFA.

Taxilane Object Free Area (TOFA)
Standards: A/B-II standard is 110 feet wide, or 55 feet each side of taxilane centerline. This standard will be applied to all aprons that serve ADG II aircraft.

Condition: The terminal apron does not meet ADG II TLOFA clearance standards due to obstructions (aircraft parking, hangars, fuel equipment, fences, and crops). The east apron internal taxilanes also have the OFA clearance issue described for the parallel taxiway. Although the clear dimension (approximately 80 feet) between the adjacent "T" markings meets the 79-foot TLOFA standard, the clear opening is reduced to less than 79 feet when aircraft occupy the adjacent rows.

Exit Taxiways A1-A4

Taxiways A2-A4 meet current FAA standards for angular interior fillet design, which replaced the traditional uniform radius for interior fillets used on Taxiway A1. The narrowest sections (near mid-point) on the exit taxiway connectors range from 28 to 32 feet, which exceeds the TDG 1B width standard of 25 feet. The fillet design for Taxiway A1 may be updated as part of the next major construction required for the taxiway.

Taxiway A2 and A3 provide direct access to the runway from the adjacent main apron and hangar areas, which is not consistent with current FAA design guidance intended to avoid runway incursions (see text box). Options for modifying these direct connections will be evaluated in the airside alternatives.

The existing aircraft hold lines for the runway are located 125 feet from the runway centerline, which coincides with the outer edge of the small aircraft runway obstacle free zone (OFZ) previously applied. The OFZ standard for runways accommodating large airplanes is 400 feet, and the aircraft hold lines should be relocated 200 feet from runway centerline.

The future runway width increase noted earlier will require minor adjustments to Taxiways A1-A4 at each connection on the south edge of the runway.

Taxilanes

The Airport has two public-use aprons with defined taxilanes. The taxilanes provide aircraft access to hangars, parking, and fueling facilities. The existing taxilanes were originally designed to accommodate small (ADG I) aircraft.

Three private taxilanes connect to the western section of Taxiway A. The taxilanes are used to support aerial applicator facilities and hangars and are privately maintained.

Main Apron

The main apron located near mid-runway has a single taxilane that partially parallels Taxiway A. The main parallel section of the taxilane (approximately 375 feet long) meets the ADG II standard (94 feet) for parallel taxiway to parallel taxilane separation. However, the taxilane object free area (TLOFA) is limited by numerous obstacles including a fence, hangar, the aircraft fueling position, and parked vehicles.

The main apron is regularly used by transient ADG II air ambulance and corporate aircraft that park in available apron areas, often within the defined TLOFA. The apron has no designated parking positions for larger ADG II aircraft. The use and configuration of the existing main apron will be examined in the landside development alternatives evaluation.

The east-west taxilane on the main apron has two connections to Taxiway A, at Taxiways A2 and A3. Direct aircraft access between aprons and runways is not recommended by FAA due to concerns about reduced situational awareness by pilots. The preferred design approach requires multiple changes in taxiing direction as aircraft transition toward active runways. Options for relocating the taxilane connection points on Taxiway A (offset from A2 and A3) will be evaluated in the airside alternatives as part of the overall review for ADG II conformance.

Main Apron Hangars

Several hangars located east of the aircraft fueling area are sited to provide aircraft access on their east and west sides, effectively creating (unmarked) stub taxilanes. The space between hangars varies, but none meet ADG I TLOFA standards on both sides of the hangars. Since relocating these hangars does not appear economically feasible, the areas adjacent to the hangars should be maintained as open aprons and pilots are responsible for safely moving their aircraft. When the hangars reach the end of their useful life, replacement hangars should be configured to meet applicable TLOFA standards.

East Apron

The east tiedown apron is designed to accommodate ADG I aircraft parking. However, the existing TLOFA clearances are less than the ADG I standard when aircraft are parked in a tiedown and partially extend into the TLOFA.

The FAA provides the following design guidance: *"From the edge of the TLOFA: a. Locate wing tiedown anchors at a distance so the nose of aircraft using the tiedown does not penetrate the adjacent TLOFA." (FAA AC 150/5300-13B, Appendix E).*

FAA AC 150/5300-13B APPENDIX J.5.7

(note: cited figure references are specific to the AC)

Direct Access from the Apron to a Runway.

Taxiways leading directly from an apron to a runway, as shown in Figure J-20, can create the false expectation of a parallel taxiway prior to the runway. This results in pilot confusion that could lead to a runway incursion. Taxiway geometries forcing the pilot to make turns promotes situational awareness and minimizes the risk of runway incursions. Refer to Figure 4-2 for standard taxiway configurations between the apron and a runway.

1. Taxiways from the terminal area with a straight path to the middle third of a runway present a risk of taxiing aircraft entering a high-energy area of a runway during an operation.
2. Taxiways from an apron area or holding bay leading directly to a runway end present the risk of a taxiing aircraft entering the runway during an operation.

Taxiway/Taxilane Recommendations

Based on the critical aircraft determination and evaluation of existing taxiways and taxilanes, the following recommendations are presented:

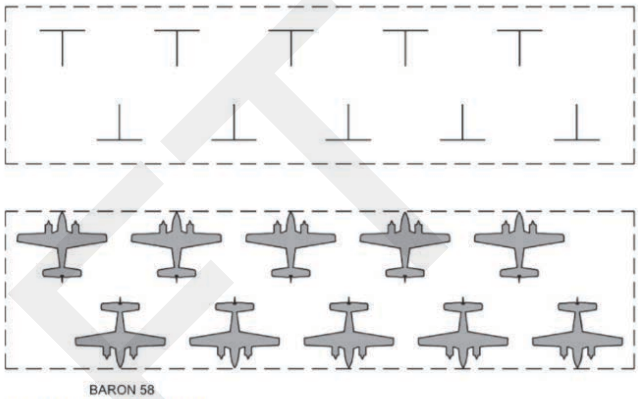
- The apron taxilanes should be reconfigured to meet taxilane object free area (TLOFA) obstacle clearance standards.
- The connections between the adjacent landside facilities and the runway via Taxiways A2 and A3 should be modified to meet FAA design guidance for direct access.
- Relocate aircraft hold lines on Taxiways A1-A4 to 200 feet from the runway centerline to meet current OFZ clearing standard.
- Modify agricultural leases to prevent tall crops from being planted in TOFAs and TLOFAs.
- Options for reconfiguring the existing aprons will be included in the landside alternatives analysis in addition to considering construction of new/replacement aprons. Issues to be addressed include defining designated aircraft parking positions, aircraft fueling positions, and aircraft taxiing routes within the aprons that do not conflict with applicable TLOFA standard.

Landside Facility Requirements

Landside facilities include aircraft parking apron(s), hangars, terminal, FBO facilities, aircraft fueling, surface access and automobile parking. The landside facilities were analyzed relative to existing conditions based on conformance to current FAA design standards; future facility demand is derived from the updated aviation activity forecasts presented in Chapter 3.

AIRCRAFT PARKING APRON

The evaluation of existing aprons will consider the type of aircraft to be accommodated. Small airplane tiedown aprons are typically designed to meet ADG I standards, whereas aprons that accommodate both ADG I and ADG II aircraft should be designed to meet the more demanding standard. Based on current use, ADG II standards should be used for the main apron taxilane and ADG I standards should be used on the east tiedown apron. Aircraft parking areas located adjacent to the parallel taxiway must also meet ADG II TOFA clearance requirements.



Source: Delta Airport Consultants, Inc.

The existing aircraft parking areas and tiedowns at the Airport are designed to meet the standards for small airplanes (ADG I) defined in the 2008 ALP Report.
The use of ADG II standards on the main apron results in several non-conforming items, primarily related to the required larger TLOFA clear area. As noted in the previous section, the current tiedown configuration on the east apron does not fully conform with ADG I TLOFA standards. These will be addressed below and in the landside development alternatives.

East Apron

The east apron has 18 marked tiedowns that are accessed by a circular taxilane with two connections to the parallel taxiway. It is observed that the anchors for two tiedown positions at the southeast corner of the apron have been recently paved over, reducing the number positions with anchors to 16.

As noted earlier, the spacing between the taxilane centerline and adjacent tiedown "T" markings is approximately 39.5 feet, but when occupied by parked aircraft the "clear" TLOFA is reduced significantly below ADG I standard. A similar condition exists for the northern row of 6 tiedowns located directly adjacent to the parallel taxiway. The tops of the tiedown markings are located approximately 63 feet from the taxiway centerline, which is just beyond the 62-foot edge of the TOFA, but the noses of aircraft parked in these tiedowns penetrate the TOFA by several feet.

Current FAA design guidance for nested tiedowns is to provide a minimum of 6 feet of end-to-end clearance between the tails of parked aircraft. Current spacing in the nested row is tightly interlocked (approximately 5 feet), with no end-to-end separation for aircraft tails.

Based on current FAA design guidance, none of the existing tiedowns on the east apron meet FAA standards. As a result, the current number of aircraft parking positions may be reduced as part of an overall apron reconfiguration required to accommodate the increased OFA clearances and tiedown configuration on the apron. All new aircraft parking areas will be designed to meet the applicable OFA standards. Since these reconfigurations will not be determined until the landside alternatives are developed, this assessment will note loss of parking based on clearances from existing taxilanes.

The aircraft parking apron facility requirements were analyzed relative to existing FAA apron and aircraft parking analysis provided in *FAA AC 150/5300-13B, Airport Design*. Facility needs are summarized in **Table 4-5**.

Main Apron

The main apron has 3 small airplane tiedowns located directly adjacent to the parallel taxiway. The tiedowns are located partially in the ADG II TOFA for the parallel taxiway (54 feet from taxiway centerline).

There are no designated parking positions for larger aircraft on the apron, including the regular ADG II transient aircraft and helicopters that operate at the Airport. These aircraft park in available areas of the apron, adjacent to hangars, the aircraft fueling area, or in the small airplane tiedowns. As noted earlier, ADG II TLOFA clearance is not consistent within the main apron.

Based and Itinerant Aircraft Parking

To quantify the based and transient aircraft parking needs/requirements presented in **Table 4-5**, the based aircraft forecasts and operations forecasts were used to determine the parking spots necessary to satisfy existing and future demand.

Although not specifically defined in current FAA general aviation apron design guidance, the FAA's previous planning standard of 300 square yards for each based aircraft and 360 square yards for transient aircraft was used to calculate apron space requirements for long-term planning purposes. Space requirements for transient business aircraft and helicopter parking were estimated based on typical configurations. The evaluation of apron configurations in the Airport Development Alternatives (Chapter 5) will reflect the aircraft using the facility, consistent with current FAA design guidance:

AC 150/5300-13B, Appendix E Section E.2.1. General aviation Apron, General Design Considerations.

1. *Evaluate apron parking positions and tie-downs for aircraft entry and exit under self-power and by tow.*
2. *Segregate parking areas for small aircraft (e.g., ADG I) from larger aircraft (e.g., ADG II) to optimize utility and efficiency of apron space.*
3. *Design separate apron areas to accommodate the critical aircraft intended to use the segment of apron.*
4. *Account for the effects of jet blast and propeller wash on adjacent aircraft and facilities…"*

Table 4-5: Apron And Hangar Facility Requirements Summary

ITEM	BASE YEAR (2022)	2027	2032	2037	2042
Based Aircraft Forecast	13	14	14	15	16
Aircraft Parking Apron - Existing Aircraft Parking Type/Capacity					
Existing Tiedown Apron[1]	18,700 sy				
Aircraft Fuel Apron[2]	350 sy				
Small Aircraft Parking	21 Tiedowns				
Large Aircraft Parking	0				
Projected Needs (Gross Demand)[3]					
Locally Based Tiedowns (@ 300 SY each)	1 space / 300 sy	1 space / 300 sy	1 space / 300 sy	1 space / 300 sy	1 space / 300 sy
Small Airplane Itinerant Tiedowns (@ 360 SY each)	3 spaces / 1,080 sy	4 spaces / 1,440 sy	4 spaces / 1,440 sy	4 spaces / 1,440 sy	4 spaces / 1,440 sy
Large Aircraft Parking Positions (@ 625 SY each)	1 space / 625 sy	2 spaces / 1,250 sy	2 spaces / 1,250 sy	2 spaces / 1,250 sy	2 spaces / 1,250 sy
Transient Helicopter Parking Positions (@ 380 SY each)	1 space / 380 sy	1 space / 380 sy	1 space / 380 sy	1 space / 380 sy	1 space / 380 sy
Aircraft Fueling Apron (@ 470 SY per position)	1 space / 470 sy	1 space / 470 sy	1 space / 470 sy	2 spaces / 940 sy	2 spaces / 940 sy
Total Apron Needs	**7 spaces / 2,855 sy**	**9 spaces / 3,840 sy**	**9 spaces / 3,840 sy**	**10 spaces / 4,310 sy**	**10 spaces / 4,310 sy**
Aircraft Hangars (Existing Facilities)					
Existing Hangar Units/Aircraft Storage Capacity (≈22,800 SF)	13 Units[4]				
Projected Needs (Net Increase in Demand)[5]					
(New) Hangar Space Demand (@ 1,500 SF per space)[6] (Cumulative 20-year projected demand: 3 Units / 4,500 SF)		1 Unit / 1,500 sf	0 Unit / - sf	1 Unit / 1,500 sf	1 Unit / 1,500 sf
Hangar Development Reserve		1 Unit / 1,500 sf	0 Unit / - sf	1 Unit / 1,500 sf	1 Unit / 1,500 sf
Total Hangar Units Forecast and Reserve (Cumulative projected Demand and Reserve: 6 Units / 9,000 SF)		**2 Unit2 / 3,000 sf**	**0 Unit / - sf**	**2 Unit2 / 3,000 sf**	**2 Unit2 / 3,000 sf**

Source: Century West Engineering

Table 4-4 Notes:

1. Apron pavement area as defined in WSDOT Airport Pavement Database (IDEA).
2. Fueling area included in main apron area. The fueling position (approx. 350 SY) is adjacent to the fuel tank and is located within TLOFA.
3. Apron parking demand levels identified for each forecast year represents estimated gross demand.
4. Six (6) existing hangars including two multi-unit T-hangars (4 unit and 5 unit), two large conventional hangars, and two small/medium conventional hangars. Total hangar area is estimated at 22,800 square feet, which currently accommodate 12 aircraft. Current average hangar space per aircraft stored is 1,900 square feet, although some conventional hangars also accommodate commercial activities and aircraft support.
5. Aircraft hangar demand levels identified for each forecast year represent forecast cumulative demand; assumed 95% of new based aircraft will be stored in hangars.
6. Hangar square footage approximated by type/size of aircraft and reflects existing hangar development patterns at 1S5.

Historically, the number of based aircraft parked on the apron full time has been low, typically less than 10%. Currently, one based aircraft is stored on the apron. For planning purposes, it is estimated that 5% of future based aircraft would be parked on the apron full-time and 95% stored in hangars. Using this ratio with the updated based aircraft forecast, it is estimated the Airport will require one or two parking positions (tiedowns) for based aircraft through the 20-year planning period.

Transient aircraft parking demand was calculated using a method described in Airport Cooperative Research Program (ACRP) Report 113. The ACRP method applies the following formula to the updated operations forecast to estimate future demand for transient aircraft parking:

$$(X/2 * T)/365 * P = \text{Number of Transient Parking Positions}$$

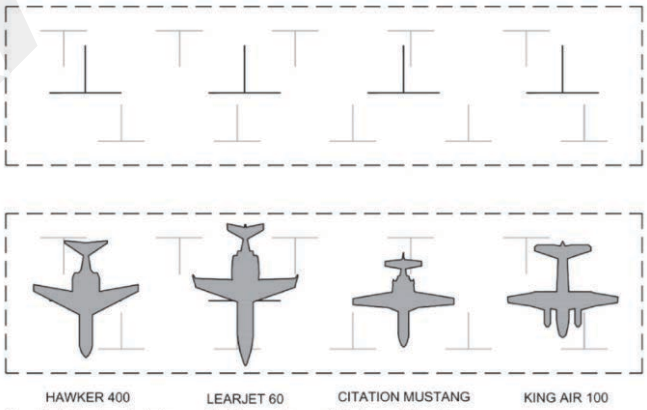
Where:
X = number of operations
T = percent of operations that are transient (50% estimated)
P = percent of transient aircraft that are parked on the apron at the same time (50% estimated)

A review of the 2021 aircraft operations presented in **Table 3-6**, in the Aviation Activity Forecasts chapter, provides an indication of parking demand by aircraft type. Based on 2021 activity, the split between transient and local aircraft was about equal. The largest portion of transient aircraft operations (66%) were generated by small single-engine and multi-engine piston aircraft; 27% were generated by larger turbine fixed wing aircraft including air ambulance aircraft, corporate aircraft, and other transient users; and 7% were generated by helicopters, primarily air ambulances.

Transient ADG II aircraft, primarily air ambulance and business aircraft (Pilatus PC-12 is typical) use the main apron for short-term loading/unloading and parking. Currently these users park near the three small tiedowns, or adjacent to existing hangars. As noted earlier, aircraft parked on the main apron are often located at least partially within the OFA for the apron taxilane or the parallel taxiway.

Development options for the main apron will be included in the landside alternatives evaluation with the intent to meet applicable FAA standards. The options may include reconfiguration to accommodate ADG II aircraft, limiting use to ADG I aircraft (with a replacement ADG II apron provided), or some combination of the two.

Based on current activity levels, two designated parking position should be provided for large aircraft (drive-through parking) and one position for helicopters. Additional parking for these aircraft should be included in long-term development reserves. The balance of transient parking needs will be accommodated in small airplane tiedowns.



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

Both locally based aerial applicator aircraft, including the critical aircraft, are stored and fueled at privately developed facilities with direct access to the parallel taxiway. These aircraft do not regularly use the main apron.

It is noted that the standard parking area layout dimensions for ADG I aircraft provided in *FAA AC 150/5300-13B, Airport Design*, would accommodate these larger transient aircraft, and the Airport's smaller fleet, although the TLOFA clearances may create practical limitations for larger aircraft movement in and out of the parking areas. Conceptual parking area configurations capable of accommodating larger business or medevac aircraft within small aircraft parking areas are depicted in the diagram to the right.

Aircraft Parking Recommendations

Based on the overall demand projections, a total of 5 small aircraft tiedowns will be required for locally based and transient aircraft; 2 parking positions for larger transient fixed wing airplanes; and 1 parking position for transient helicopters through the current 20-year planning period. For long-term planning purposes a development reserve equal to 100% of 20-year demand projection is recommended.

AIRCRAFT HANGARS

Currently, 12 of the Airport's 13 based aircraft (92%) are stored in hangars. Only one hangar has been constructed (commercial conventional hangar) at the Airport since the last ALP Report was completed in 2008.

For planning purposes, it is assumed that 95% of the Airport's future based aircraft will be stored in hangars with the remaining 5% parked on the apron. This allocation assumes that 15 of the 16 based aircraft forecast for 2042 will be hangared, resulting in a net increase of three hangar units over the 20-year planning period.

For private aircraft storage, the local preference toward multi-unit T-hangars (nine units) results in an average of less than 1,100 square feet per hangared aircraft. When both conventional hangars and multi-unit hangars are considered, the average per hangared aircraft is approximately 1,900 square feet. A planning standard of 1,500 square feet per based aircraft stored in hangars is used to project gross space requirements based on a variety of individual/ multi-unit hangar options for aircraft storage.

The projected hangar storage requirements are included in **Table 4-5**, presented in the previous section. Demand for new hangar space (aircraft storage only) is estimated to be three spaces totaling approximately 4,500 square feet over the 20-year planning period.

It is recommended that space adequate to accommodate forecast demand for general aviation hangars, and 100% hangar development reserve be defined during the landside development alternatives process.

GA TERMINAL/PILOT LOUNGE

The existing airport pilot lounge provides a restroom and an indoor waiting area in the large conventional hangar located near the aircraft fueling area. The facilities are accessible 24 hours a day with use of the Airport's common traffic advisory frequency (CTAF) on the door lock. The facility provides basic services that may require updating during the current planning period.

AIRFIELD INSTRUMENTATION, SIGNAGE, LIGHTING, AND MARKINGS

Runway & Taxiway Lighting

The runway lighting systems associated with Runway 07/25 are in fair condition. The useful life for airfield lighting systems is assumed to be 20 years, although some systems remain reliable and functional for longer periods. For aging systems, the availability of technical support and parts often impacts reliability. Since all existing airfield lighting systems will exceed the assumed 20-year useful life during the current planning period, replacement systems will be included in the 20-year capital improvement program. The transition to LED fixtures is anticipated for all airfield lighting systems.

Runway 07/25 is equipped with Low Intensity Runway Lighting (LIRL), which consists of runway edge and threshold lights.

Both runway ends are equipped with 2-Box Precision Approach Path Indicators (PAPI), with standard 3-degree glide paths. 4-Box PAPIs are the FAA's current standard for Visual Glide Slope Indicators (VGSI) at GA Airports. As noted earlier, the FAA is transitioning to LED airfield systems, including PAPIs. In addition to requiring less energy to create the same light output, FAA indicates that the life of the PAPI lamps is extended from 2,000 hours to at least 40,000 hours when converting from conventional incandescent to LED. The LIRL and PAPIs operate on dusk-dawn photocell switch.

The taxiways at the Airport are equipped with blue retroreflective edge markers, which appear to be adequate for current use. However, the Airport could consider installation of Medium Intensity Taxiway Lights (MITL) if taxiway recognition at night needs to be enhanced. Regular replacement of existing reflective markers should be assumed as units are damaged or fade.

It is recommended that existing runway lighting be upgraded to Medium Intensity Runway Lighting (MIRL) when the current system reaches the end of useful life. Until that time, the existing LIRL should be maintained and updated accordingly based on function and operating reliability. Adding MITL to Taxiway A, A1-A4 is optional.

Runway Markings

The runway markings at the Airport are consistent with FAA standards for color (white), configuration, and current approach type, and they are in good condition (repainted with 2018 runway project).

The existing basic/visual markings are consistent with FAA requirements for both visual approaches and NPI approaches with circling (or circle-to-land) procedures. A future NPI approach with a straight-in procedure would require NPI runway markings (threshold and aiming point markings). Future approach options and the facility needs associated with each will be evaluated in the airside development alternatives.

It is recommended that runway markings be maintained consistent with the type of instrument approach developed for the Airport and the WSDOT Pavement Maintenance Program.

Taxiway Markings

The taxiway markings at the Airport are consistent with FAA standards for color (yellow) and configuration and are in good condition. Each of the four connecting taxiways (A1-A4) have enhanced taxiway centerline markings (dashed lines on both sides of the centerline stripe) that extend from the connection on Taxiway A to the aircraft hold line. Taxiways A1-A4 also have surface painted holding position signs located directly before the aircraft hold line. The enhanced taxiway markings are designed to increase situational awareness and minimize the potential for runway incursions. The taxiway markings were painted in 2018-2019 and the markings are in very good condition. It is recommended taxiway markings be maintained consistent with the WSDOT Pavement Maintenance Program.

Airfield Signage

The reflective runway/taxiway hold position signs and taxiway location signs at the Airport are consistent with FAA standards for color and configuration, and they are generally in good condition. All airfield signage should be maintained and updated accordingly based on condition. Internally illuminated signage may also be considered for increased visibility.

Two sets of runway distance remaining signs [1/2, 2/1] (green background and white numbers) are located along the north edge of Runway 07/25. The existing signs do not meet current FAA standards for color (black background and white numbers) and should be updated in conjunction with future runway improvements and/or changes in configuration.

Airfield Lighting

The airfield lighting systems (airport beacon, primary and secondary wind cones, visual guidance systems, etc.) meet standards for location, type, and color. It is recommended that existing airfield lighting be maintained and updated accordingly based on function and operating reliability. A transition to LED lighting is recommended for future systems.

Airfield Instrumentation

The AWOS 3PT system, located on the north side of Runway 07/25, and west of the segmented circle, reportedly operates normally. As with lighting systems, replacement of AWOS units should be assumed on a 20-year schedule.

Surface Access And Vehicle Parking

Vehicle access to the Airport's south landside facilities is provided by a single paved drive that connects to East Edison Road. The entrance is located one-half mile east of the intersection of East Edison and Hanford Road (State Hwy 241). Vehicle access to the aprons and hangar areas is provided along the access road and through an unfenced opening between the fuel facility and the large conventional hangar.

Parking for approximately eight vehicles is provided on the south side of the conventional hangar nearest the aircraft fueling area that also houses the pilot lounge. The vehicle parking spaces are directly adjacent to the airport access road. Additional vehicle parking area is available in a 7,200-square foot gravel area between the airport access road and fence located along the east end of the landside area.

Airport tenants often park vehicles inside or next to their hangars. Airport management should review current tenant vehicle parking practices to identify areas commonly used for parking that are within an adjacent TLOFA. All areas used for vehicle parking should be clear of active aircraft movement areas, primarily the nearest TLOFA.

It is recommended that the existing vehicle access points and parking facilities be maintained and improved as required to serve developed areas of the Airport.

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 Airport has one privately owned aboveground fuel tank with secondary containment and a 24-hour credit card controlled dispensing system. The 10,000-gallon capacity of the 100LL AVGAS tank appears to be adequate for forecast demand during the current planning period. For long term planning, providing space for a second fuel tank should be considered when defining fueling area requirements as part of any future apron reconfiguration/expansion.

The aircraft fueling area is not marked, although the area adjacent to the storage tank is well defined. Most fueling aircraft park on the north side of the fuel tank on the main apron, but inside the ADG II TLOFA. In doing so the fueling aircraft blocks access to the apron by taxiing aircraft. This issue will be addressed in the landside development alternatives evaluation. A marked fueling area should be identified in a location that does not conflict with defined taxilanes. This may involve relocation of the fuel area or reconfiguring the main apron.

UTILITIES

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

PERIMETER FENCING/GATES

The Airport is not fully fenced. The south edge of the landside area has a 6-foot chain link fence with barbed-wire topper. The existing fencing has limited pedestrian and vehicle gates. Other facilities in the terminal area are fenced, including the aviation fuel storage tank and the adjacent caretaker residence. Other areas of the airport have limited range fencing. There is no fencing between the runway ends and the adjacent public roads. Vehicles access the airfield through an unfenced opening near the fuel area. FAA recommends that airports are completely fenced for security purposes and to prevent wildlife from entering the operations area. Fencing should be added along the airfield perimeter, or the active airfield operations area. Vehicle and pedestrian gates should be added at necessary access points.

In addition to fencing improvements, airport management should formalize surface access routes for on-airport agricultural lease areas to avoid runway crossings and vehicle movements in the FAA-defined runway/taxiway protected areas. Consistent with FAA airport operational guidelines, non-airport vehicles and equipment are not permitted to cross active runways and taxiways. Alternative routes and connections to adjacent public roads may be required to access agricultural fields on the north side of the runway. Fencing the exposed perimeter sections of the runway and parallel taxiway object free area may provide the best airfield protection and help to define alternative access routes to be developed outside the airfield operation area. Temporary airfield maintenance involving vehicle activity on or near the runway requires a date and time-specific FAA Notice to Air Missions (NOTAM) to be filed by the airport owner. Extended activities may require a runway closure through a NOTAM.

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. The existing City of Sunnyside Airport (AP) zoning for the Airport is appropriate to support landside development (hangars, aircraft parking, etc.). Any future land acquisitions identified in the development alternatives process should be rezoned to match the existing airport property.

The required facility upgrades, and the clearance requirements of ARC A-II may impact both existing developed areas and areas that are currently undeveloped. The previous ALP drawing depicts a runway shift and extension that requires acquisition of property adjacent to the east end of the Airport that is owned by the Port of Sunnyside. As noted earlier, an extension of the runway beyond its current length is not required to accommodate the current and future design aircraft. However, the property requirements associated with the future configuration of Runway 07/25, including the ARC A-II protected areas and RPZ will be re-defined in the airside alternatives evaluation.

The previous ALP also depicts future landside development within existing airport property. Future aircraft apron and hangars were planned at the east end of the terminal area, east of the airport access road. A future aircraft apron is depicted west of the main apron. The development of the new commercial agricultural hangar and apron in the area west of the main apron will require changes in future planning for this area. Opportunities for infill development exist between existing leases along the western section of the landside area. The configuration of future landside facilities within existing airport property will be re-defined in the airside alternatives evaluation. However, it appears that forecast demand for aeronautical landside facilities can be met within existing airport property.

OFF-AIRPORT LAND USE

The City of Sunnyside has land use jurisdiction for the Airport and its immediate surroundings, while portions of the Airport's Part 77 airspace surfaces extend over Yakima County jurisdiction. The City of Sunnyside and Yakima County have adopted airport overlay zoning ordinances to protect the airspace from obstruction or hazards and incompatible land uses.

To continue ensuring airport land use compatibility, it is recommended that the City continue to work with Yakima County to remove or mitigate any Part 77 surface obstructions identified in the 2021-22 AGIS survey and referenced on the updated Part 77 Airspace Plan. A primary focus will initially be related to mitigation of obstacles that may affect runway approaches and threshold locations/configurations.

If changes are made to the runway geometry or instrument approach capabilities that would affect the Part 77 airspace surfaces, local ordinances should be updated for consistency with the updated ALP drawing set.

SUMMARY OF FACILITY REQUIREMENTS

A summary of facility requirements for the 20-year planning period is presented in **Table 4-6.** Development reserves are recommended for all demand-driven facility needs such as aircraft parking and hangars.

Table 4-6: Facility Requirements Summary

Facility	Short Term (0-10 years)	Long Term (10-20 years)
Runway 7/25	ARC A-II Widen to 75 feet Increase Pavement Strength to ≥16,000 pounds single wheel Install runway markings consistent with approach type	ARC A-II Pavement Maintenance
Taxiway A, A1-A4	TDG 2 Pavement Maintenance Relocate aircraft hold line markings/signs (clear of OFZ)	TDG 2 Pavement Maintenance Rehabilitate west section of Taxiway A and Taxiway A1 Replace Edge Reflectors
Main Apron	Reconfigure Apron and Taxilane to meet ARC A-II standards Rehabilitate Main Apron	Pavement Maintenance
East Apron	Rehabilitate East Apron Reconfigure Apron, Tiedowns, and Taxilane to meet ARC A-I standards	Pavement Maintenance
Aircraft Fueling	Define Aircraft Fueling Area that does not conflict with adjacent TLOFA	Reserve for additional tanks
Navigational Aids and Lighting	MIRL – Rwy 07/25 (LED – replace existing LIRL) PAPI – Rwy 07/25 (LED - replace existing PAPIs	Replace Airport Beacon (LED)
Weather	None	Replace AWOS at end of useful life
Hangars	Define Hangar Development Areas	Same Replace/Reconfigure hangars at end of useful life
Agricultural Leases	Define access routes that do not conflict with runway/taxiway system	Same
Surface Access	Maintain, resurface	Same
Security	Airport Perimeter/Airport Operating Area (AOA) and Terminal Area Frontage Fencing Automated Vehicle Gates (Main Apron, Landside Developments)	Same Upgraded Exterior Lighting (with cutoff fixtures to control glare)
Utilities	Electrical and Water to New Hangar Sites	Same
Property	Acquire property at east end of the Airport for runway/ taxiway improvements Acquire avigation easements for Future RPZs	Same