CHAPTER 3

# Facility Requirements




## Introduction

The evaluation of airport facility goals and requirements combines the results of the inventory and activity projections, and application of established planning criteria to determine the future facility needs for the Arlington Municipal Airport (Airport) during the 20-year planning period. All airfield facility requirements definitions are based on Federal Aviation Administration (FAA) airport design and airspace planning standards, and locally defined goals for the Airport. The facility requirements evaluation identifies the adequacy of existing facilities and identifies what new facilities may be needed based on projected demand or conformance to FAA standards. Potential options for accommodating current and future facility needs will be evaluated in Chapter 4 – Airport Development Alternatives.

**Airside** facilities focus on the movement of aircraft associated with operations, which includes runways, taxiways, navigational aids and lighting systems. **Landside** facilities provide aircraft storage and support, which includes hangars, aircraft parking aprons, terminal and fixed base operator (FBO) facilities. Support facility needs include aviation fuel storage and dispensing, security/perimeter fencing, surface access, automobile parking, and utilities.

# Activity Review & Summary

In an August 2024 Memorandum (Forecast Review and Approval Instructions - 8/12/2024), the Federal Aviation Administration (FAA) changed its forecasting guidance for airports with less than 90,000 annual operations. The FAA guidance for "smaller general aviation (GA) airports with less than 90,000 annual operations" is that planning forecasts can be streamlined to focus on the existing and likely future critical aircraft for each runway. The guidance also indicates that the normal forecast consistency check with the FAA Terminal Area Forecast (TAF) is not required.

The following section in the FAA memorandum provides guidance relevant for Arlington Municipal Airport:

**Section 5. Forecasts at Non-towered, Low-activity Airports** (defined as having less than 90,000 annual operations) recommend streamlining the analysis to focus on the existing critical aircraft by runway, and the likely future critical aircraft by runway.

The memorandum further recommends the following:

> *"The airport sponsor may attest that 'Current operations at the airport are less than 90,000 operations annually, and not expected to exceed 90,000 operations in the foreseeable future. Therefore, preparation of a detailed forecast is not warranted'."*

The FAA defines foreseeable future as the "mid-term period," which references the midpoint of the standard FAA 20-year planning period used for airport master plans and forecasts.

A review of recent historical aircraft operations counting data and the updated 2024 (baseline) aircraft operations estimate confirms that annual aircraft operations levels at Arlington Municipal Airport are less than 90,000 operations and are not expected to reach 90,000 operations by the mid-term period in the current 20-year planning period (2024-2044). As a result, the preparation of a full aviation activity forecast in the current Airport Master Plan is not required.

May 2025

City of Arlington, Washington

Arlington Municipal Airport (AWO)

The sponsor provides the following statement attesting activity at AWO, consistent with FAA guidance:

*"Current operations at the airport are less than 90,000 operations annually, and not expected to exceed 90,000 operations in the foreseeable future. Therefore, preparation of a detailed forecast is not warranted."*

To facilitate the master planning process, a simplified activity projection was developed to approximate future demand for aircraft storage (apron and hangar space) and specific airside improvements.

The FAA Aerospace Forecast FY 2025-2045 growth rate for general aviation and air taxi hours flown (0.9%) was applied to the 2024 baseline operations total to estimate future operational activity over the 20-year planning period. **Table 3-1** summarizes the projected aircraft operations at Arlington Municipal Airport. Additional information about the critical aircraft and the associated design standards for each runway is provided later in this chapter.

Table 3-1: Projected Activity (Annual Aircraft Operations) – AWO

| | 2024 (Baseline) | 2029 | 2034 | 2039 | 2044 | Avg. Annual Growth Rate |
|---|---|---|---|---|---|---|
| Total Operations | 65,924 | 68,944 | 72,103 | 75,407 | 78,862 | 0.90% |

Historical (2011-2024) instrument flight plan data for Arlington Municipal Airport was reviewed to identify the volume of aircraft types, including the most demanding aircraft for the primary runway. **Table 3-2** summarizes the TFMSC data by aircraft approach category (AAC) and airplane design group (ADG). The majority of this activity is assumed to be accommodated on Runway 16/34.

Table 3-2: AWO Instrument Flight Plan (TFMSC) Annual Operations by AAC-ADG

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | Growth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A-I | 1124 | 1598 | 1618 | 1616 | 2028 | 2014 | 1734 | 1902 | 1914 | 2174 | 2608 | 8.78% |
| A-II | 88 | 134 | 150 | 118 | 88 | 94 | 72 | 88 | 180 | 124 | 148 | 5.34% |
| B-I | 96 | 358 | 670 | 614 | 630 | 574 | 570 | 228 | 52 | 58 | 66 | -3.68% |
| B-II | 254 | 236 | 220 | 236 | 282 | 194 | 164 | 282 | 234 | 168 | 236 | -0.73% |
| B-III | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | - |
| C-I | 12 | 20 | 12 | 16 | 4 | 2 | 6 | 18 | 14 | 58 | 80 | 20.89% |
| C-II | 46 | 30 | 20 | 42 | 60 | 70 | 126 | 114 | 66 | 26 | 26 | -5.55% |
| D-II | 2 | 0 | 0 | 0 | 0 | 10 | 2 | 2 | 0 | 2 | 12 | 19.62% |
| D-III | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - |
| **Total** | **1622** | **2382** | **2690** | **2642** | **3092** | **2958** | **2674** | **2634** | **2464** | **2610** | **3176** | 6.95% |
| **ADG-II+** | **390** | **406** | **390** | **396** | **430** | **368** | **364** | **486** | **484** | **320** | **422** | 0.79% |
| **A/B** | **1562** | **2328** | **2658** | **2584** | **3028** | **2876** | **2540** | **2500** | **2384** | **2524** | **3058** | 6.95% |
| **C/D** | **60** | **54** | **32** | **58** | **64** | **82** | **134** | **134** | **80** | **86** | **118** | 7.00% |

A review of FAA TFMSC data for the base year (2024) identified a total of 420 AAC B or greater operations and 422 ADG II or larger operations. Based on the composition of Arlington Municipal Airport's based aircraft fleet and the aircraft operations generated by both based and transient aircraft, it is reasonable to conclude that the addition of VFR air traffic for AAC B+ and ADG II+ aircraft independently pushes activity above 500 annual operations for each grouping. Based on this assessment, the current critical aircraft design criteria for Runway 16/34 is B-II.

As noted earlier, traffic data collected on-site between 2018 and 2022 categorized aircraft operations based on runway, AAC, ADG, engine type, and number of engines, but did not collect unique aircraft information for the operations. The on-site observation data averaged 660 annual B-II operations during the data period.

**The existing Runway Design Code (RDC) for Runway 16/34 is determined through the combination of AAC B and ADG II activity—both of which independently exceed 500 annual operations. The existing RDC for Runway 11/29 is based on activity generated by small single-engine and multi-engine piston aircraft (A-I Small).** Additional information about the critical aircraft is provided later in the chapter.

# 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. As noted earlier, Runway 16/34 has dual full-length parallel taxiways, each with four exit taxiways. This configuration provides a high level of functionality and operational capacity for general aviation (GA) Runways. For capacity planning purposes, the FAA assumes that non-towered airports with multiple Runways will have only one Runway actively in use at any given time, which defaults to single Runway capacity.

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, terminal radar, etc.) that do not exist at Arlington Municipal Airport, it provides a reasonable basis for approximating existing and future capacity for master 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 visual flight rules (VFR) conditions and 59 operations during instrument flight rules (IFR) conditions.

The existing and future demand-capacity ratios for Runway 16/34 (the Airport) are presented below:

- *Existing Capacity: 69,942 Annual Operations / 230,000 ASV = 28% (demand/capacity ratio)*
- *Future Capacity: 75,069 Annual Operations / 230,000 ASV = 33% (demand/capacity ratio)*

Based on these ratios, the annual capacity of Runway 16/34 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 throughout the planning period.

# Critical Aircraft and Design Codes

Critical aircraft are determined for each runway based on the current and projected level of flight activity. The applicable design standards for each runway and their associated facilities are determined by aircraft use, consistent with FAA criteria.

A critical aircraft is defined for each runway and it represents the most demanding aircraft using the runway on a regular basis (defined by FAA as ≥ 500 annual operations). Each aircraft has an Aircraft Approach Category (AAC) and Airplane Design Group (ADG) based on their physical and performance characteristics. These two components are combined to create the Runway Design Code (RDC). This definition was formerly referred to as the Airport Reference Code (ARC). For the purposes of this evaluation, the RDCs now defined for each runway are compared to the ARCs listed on the 2012 ALP. The RDC designation does not necessarily mean that larger aircraft cannot operate on that runway, but it does define the design guidance to be used for FAA-funded improvements. The more demanding RDC associated with the individual runways is also typically applied to the overall airport and is referenced in state and federal airport listings.

## RUNWAY 16/34

The evaluation of available aircraft operations data and the activity projection noted earlier indicates the existing and future critical aircraft for Runway 16/34 are included in **AAC B and ADG II (ARC/RDC B-II)**. The current critical aircraft activity includes a combination of documented IFR and estimated VFR operations at the Airport.

The 2011-2024 TFMSC data indicate that Arlington Municipal Airport averaged 253 annual jet operations over the most recent 5-year period, and 198 annual jet operations over the 11-year period, consistent with the upward trend reported by airport management in recent years. The highest jet operations total captured in TFMSC data during this period was 300 annual operations in 2021. It is assumed that the majority of jet activity at the Airport is conducted on Runway 16/34 with instrument flight plans. A small amount of VFR jet activity to nearby airports is also assumed.

### Existing Critical Aircraft

Based on a review of current and recent historical activity, **the existing critical aircraft for Runway 16/34 is an ADG II (B-II) multi-engine turboprop, with a Beechcraft King Air 350 identified as the representative aircraft.** This aircraft type, combined with B-II and larger jet operations exceed the FAA "regular use" threshold of 500 annual operations. The current critical aircraft weighs more 12,500 pounds, which is classified by FAA as a "large aircraft."

### Future Critical Aircraft

Based on projected activity, **the future critical aircraft is an ADG II (B-II) medium business jet, with the Cessna Citation Bravo (CE-550), a common 8-10 passenger jet identified as the representative aircraft.** The change in critical aircraft from turboprop to jet is consistent with the existing/future design aircraft identified on the current FAA-approved ALP for Arlington Municipal Airport. The change is also justified based on recent trends in local and transient jet activity at the Arlington Municipal Airport, and ongoing hangar development intended to attract new corporate aircraft to the Airport.

### Reserve Critical Aircraft

Activity by AAC C aircraft at Arlington Municipal Airport is not anticipated to reach 500 annual operations in the current 20-year planning period. However, recent activity trends suggest that the current level of combined C&D activity may exceed the FAA regular use threshold just beyond the 20-year planning period. As such, it is appropriate to identify an Ultimate (C-II) critical aircraft and a corresponding C-II reserve for Runway 16/34 to proactively plan for an eventual upgrade to C-II design standards to accommodate high performance business jets at the Airport.

**The reserve critical aircraft identified for Runway 16/34 is a Dassault Falcon 2000EX, a 10-12 passenger medium size business jet (C-II).** This aircraft, and other similar AAC C&D aircraft currently operate at Arlington Municipal Airport. The C-II reserve is consistent with the future airport reference code (ARC) identified on the 2012 FAA-approved ALP and allows the Airport to protect for facility needs that extend beyond the current 20-year master planning period.

## RUNWAY 11/29

### Existing and Future Critical Aircraft

Runway 11/29 accommodates mostly single-engine and light twin-engine piston aircraft based on its available runway length and the capabilities provided by Runway 16/34. **The existing and future critical aircraft for Runway 11/29 is an AAC/ADG A-I (small) single-engine aircraft, with a Cessna 182 Skylane, identified as the representative aircraft.**

# Airport Design Standards Summary

## RUNWAY DESIGN CODE

The Runway Design Code (RDC) is defined in FAA AC 150/5300-13B as the *"standards that apply to a specific runway and parallel taxiway allowing optimal safe operations by the critical aircraft under desired meteorological conditions."* The RDC is comprised of three component codes relating to the Aircraft Approach Category (AAC), Airplane Design Group (ADG), and meteorological conditions. The meteorological conditions are presented as the approach visibility minimums for each runway. These minimums are determined by the FAA based on the category of approach (visual, non-precision, or precision instrument) and expressed in Runway Visual Range (RVR). RVR values are measured in feet and correspond to commonly expressed fractions of statute miles. The RVR for a runway reflects the most capable approach for either end of the runway. The runway's critical aircraft determines the AAC, based on the approach speed, and ADG, based on the wingspan and tail height, components.

The existing RDC for Runway 16/34 is based on the published approach procedures and current critical aircraft. The most capable approach procedure for Runway 16/34 is the RNAV (GPS) RUNWAY 34 LPV, which has minimums lower than 1 mile, but not lower than ¾ mile, resulting in an RVR of 4000 feet. Therefore, the **existing RDC for Runway 16/34 is B-II-4000.** The future Part 77 airspace definitions depicted in the 2012 ALP (airspace plan sheets) include a planned upgrade to a precision instrument approach for Runway 34, with approach visibility minimums of ½-mile. Maintaining this level of future approach capability is recommended for Runway 16/34. Therefore, **the future RDC for Runway 16/34 is B-II-2400.**

The reserve critical aircraft for Runway 16/34 has a higher approach speed than the existing critical aircraft, increasing the AAC from B to C. The future upgrade to the instrument approach visibility minimums to lower than ¾ mile, but not lower than ½ mile also apply to the reserve (RVR 2400 feet). **The reserve RDC for Runway 16/34 is C-II-2400.**

Runway 11/29 is a visual runway that is available for instrument departure procedures. However, there are no instrument approach procedures for this runway. The RVR for a visual runway is 5000 feet. The existing and future RDC for Runway 11/29 is A-I(S)-5000.

Runway 16/34:

- RDC (Existing) – B-II-4000
- RDC (Future) – B-II-2400
- RDC (Reserve) – C-II-2400

Runway 11/29:

- RDC (Existing/Future) – A-I (small) - 5000

Appendix M of AC 150/5300-13B outlines the differences in design standards resulting from an increase in the critical aircraft AAC or ADG. This appendix also covers the design standard changes from a decrease in visibility minimums and as they relate to aircraft design components, such as approach speed. A change from B-II to C-II may necessitate the following design standard updates:

- Increase in crosswind component.
- Increase in runway separation standards.
- Increase in RPZ dimensions.
- Increase in runway design standards.
- Increase in surface gradient standards.

A change from RVR 4000 to 2400 feet may necessitate the following design standard updates:

- Increase in threshold siting standards
- Increase in OFZ dimensions
- Increase in RPZ dimensions

## APPROACH AND DEPARTURE REFERENCE CODE

The Approach and Departure Reference Codes (APRC and DPRC) are based on the existing runway to parallel taxiway separation and the AAC and ADG of the critical aircraft. These codes provide operational guidance on the capabilities of the airport based on the runway and taxiway environment. The APRC is a three-component code that describes the most demanding aircraft by AAC and ADG that may concurrently operate within the runway and taxiway environment without generating operational concerns, given certain visibility conditions. The DPRC does not consider visibility conditions and therefore is a two-component code comprised of the AAC and ADG. The DPRC identifies the type of aircraft that can depart from a runway while any other aircraft is on the parallel taxiway. A runway can have two APRC and two DPRC codes to account for pairing the most demanding AAC aircraft with a lower ADG and vice versa. The Codes are defined in Appendix L of AC 150/5300-13B.

Using Table L-1 in AC 150/5300-13B, the runway to parallel taxiway separation, and the lowest visibility minimums, the APRCs can be determined for both runways. The separation distance between Runway 16/34 and the closest parallel taxiway is 400 feet, and the visibility minimums are not lower than ¾ mile. The separation distance between Runway 11/29 is 240 feet, and the same visibility minimums apply. The APRC combinations for Runway 16/34 are D/IV/4000 and D/V/4000. The APRC for Runway 11/29 is B/II/4000.

Using Table L-2 in AC 150/5300-13B and the Runway to parallel taxiway separation, the DPRCs can be determined for both runways. The DPRCs for Runway 16/34 are D/IV and D/V. The DPRC for Runway 11/29 is B/II.

The APRCs and DPRCs identified indicate that the following aircraft may land, or depart on the listed runway, and taxi on a parallel taxiway at the airport without any restrictions. The APRC and DPRC are used for reference and are not applied as runway design standards.

#### Runway 16/34

- Within Approach Categories A and B, Airplane Design Groups I(S), I, II, III, & IV.
- Within Approach Categories C and D, Airplane Design Groups I, II, III, IV, & V.

#### Runway 11/29

- Within Approach Categories A and B, Airplane Design Groups I(S), I, & II.

# Runway Design Standards

The existing conditions and dimensions for Runway 16/34 and Runway 11/29, and the applicable existing/future/reserve design criteria are presented in T**able 3-3 and Table 3-4**, later in this section.

## RUNWAY 16/34

The existing configuration for Runway 16/34 meets or exceeds the existing/future design criteria B/II/4000 for approach visibility minimums not lower than ¾ mile.

Runway 16/34 does not meet the future design criteria (B/II/2400) with visibility minimums lower than ¾ mile for the following items: Runway Safety Area (RSA), Runway Object Free Area (ROFA), and Runway Projection Zone (RPZ). Most of the non-conforming items are located at the south end of the runway (limited by 172nd Street SW). The reduction in approach visibility requirements below ¾-mile also triggers increased runway-parallel taxiway separation and aircraft hold lines, both of which are currently met with Runway 16/34 and Taxiways A and B.

Several of the C-II reserve standards have increased dimensions, compared to the existing B-II-4000 and future B-II-2400 standards for Runway 16/34. The non-standard items noted above that are triggered by the 2400 RVR also apply to the C-II reserve. In addition, there are a handful of design standards changes between B-II 2400 and C-II 2400. These include Runway Safety Area (RSA) and Runway Object Free Area (ROFA) lengths and widths, departure RPZ dimensions, runway width (100 feet), and runway-parallel taxiway separation (400 feet), both of which are currently met with Runway 16/34 and Taxiways A and B.

### Runway Safety Area (RSA)

The RSA is a defined surface surrounding a runway that is prepared or suitable for reducing the risk of damage to airplanes in the event of an airplane undershoot, overshoot, or an excursion from the runway. The RSA elevation is the same as the elevation of the runway centerline or extended centerline at its nearest point. Surface gradient, obstacle clearance, and surface compaction standards apply.

The existing RSA is 150 feet wide, centered on the runway centerline, and extends 300 feet beyond the runway thresholds. The future RSA width increases to 300 feet and the length beyond the runway ends increases to 600 feet. The C-II reserve RSA width increases to 500 feet and the length beyond a runway ends increases to 1,000 feet. As a result, an upgrade from the existing design standards to either the future B-II or reserve C-II design standards, doubles or quadruples the size of the RSA for the current runway length.

The existing Runway 34 localizer is located 765 feet from the Runway 16 threshold and the airport perimeter fence is located 890 feet from the Runway 34 threshold. Both of these items are located in the reserve RSA for the existing 5,333 feet long runway. Any increase in runway length combined with the C-II reserve standards would increase the length of the RSA by the same amount.

**AAC/ADG B-II RSA standards (existing ≥¾-mile visibility or future < ¾-mile visibility) must be met and maintained for the existing Runway 16/34 and applied to any future Runway 16/34 configuration options evaluated in the development alternatives analysis, except for alternatives which are based on the reserve critical aircraft, then AAC/ADG C-II standards will be applied.**

## Runway Object Free Area (ROFA)

The ROFA is a surface centered on the runway that is provided to enhance the safety of aircraft operations. No above-ground objects except those that need to be in the OFA for air navigation or aircraft ground maneuvering purposes are allowed to penetrate the ROFA. The ROFA elevation is the same as the nearest point in the RSA. Surface gradient and obstacle clearance standards apply.

The existing ROFA is 500 feet wide, centered on the runway centerline, and extends 300 feet beyond the runway thresholds. The future ROFA effectively doubles in size, by increasing its width to 800 feet and its length beyond the runway ends to 600 feet. The C-II reserve ROFA width is also 800 feet, but its length beyond the runway ends increases to 1,000 feet, effectively doubling the size of the future B-II ROFA.

The existing Runway 34 localizer shelter is located 720 feet from the Runway 16 threshold, approximately 250 feet east of centerline; the existing localizer array is located 765 feet from the Runway 16 threshold, on the extended runway centerline; and the south airport perimeter fence is located 890 feet from the Runway 34 threshold. These items do not penetrate the existing or future ROFA, but would penetrate the reserve ROFA for the existing 5,333-foot long runway.

**AAC/ADG B-II ROFA standards (existing ≥¾-mile visibility or future < ¾-mile visibility) must be met and maintained for the existing Runway 16/34 and applied to any future Runway 16/34 configuration options evaluated in the development alternatives analysis, except for alternatives which are based on the reserve critical aircraft, then AAC/ADG C-II standards will be applied.**

## Runway Obstacle Free Area (ROFZ)

The ROFZ is a three-dimensional space along the runway centerline that precludes aircraft and other object penetrations, except for frangible NAVAIDs, for the protection of aircraft landing or taking off from the runway and missed approaches.

ROFZ standards are based on approach visibility minimums and the size and approach speed of aircraft using the Runway. The standard ROFZ for large aircraft is 400 feet wide, centered on the runway, extending 200 feet beyond the runway ends. Additional OFZ surfaces apply to runways with approach light systems (ALS), with approach visibility minimums lower than ¾-mile, and for runway ends served by a vertically-guided approach with minimums less than 250 feet or visibility less than ¾-mile (or RVR < 4000 feet).

The **Inner-approach OFZ (IA-OFZ)** is a volume of airspace centered on the approach area of runways with an approach lighting system. Runway 34 has a Medium Intensity Approach Lighting System (MALS) and therefore requires IA-OFZ. The IA-OFZ begins 200 feet from the runway threshold, and is the same width as the ROFZ, extending 200 feet beyond the last light unit in the ALS. The IA-OFZ rises at a slope of 50:1 from the beginning.

The **Inner-transitional OFZ (IT-OFZ)** and the **Precision OFZ (POFZ)** are not currently required based on current approach capabilities. The future RDC (B/II/2400) and reserve RDC (C/II/2400) for Runway 16/34 would require these surfaces for the runway end supporting a future precision instrument approach.

**AAC/ADG B-II ROFZ standards must be met and maintained for the existing Runway 16/34 (existing ≥¾-mile visibility) and applied to any future Runway 16/34 (future < ¾-mile visibility) configuration options evaluated in the development alternatives analysis, except for alternatives which are based on the reserve critical aircraft, then AAC/ADG C-II standards (future < ¾-mile visibility) will be applied.**

## Runway Protection Zone (RPZ)

The RPZ is an area at ground level prior to the landing threshold or beyond the departure end of a runway to enhance safety and the protection of people and property on the ground. Where practical, the FAA recommends that all land within the limits of the RPZs be owned by the Airport or under control by easement. This land should be clear of incompatible land uses, FAA AC 150/5190-4B provides guidance regarding RPZs and land uses.

For projects proposed by the sponsor, such as runway extensions or new runways, that would result in moving the RPZ into an area that has incompatible land uses, the FAA expects the sponsor to have or secure sufficient control of the RPZ, ideally through fee simple ownership, including any off-airport property within the RPZ. Similar requirements exist when existing RPZs are enlarged due to a change in RDC (e.g., B-II to C-II) or a reduction in approach visibility minimums (e.g., Not Lower than ¾-mile to Lower than ¾-mile).

Potential new incompatible land uses within an RPZ might be caused by one or more circumstances. Some of these circumstances result from airport sponsored projects, for example a change in the critical aircraft, or they could be introduced by outside agencies with shared jurisdiction over land within the RPZ. An example of an outside agency proposing a new incompatible land use could include expanding or improving an existing roadway within the RPZ or local development.

The FAA expects airport sponsors to take active steps (in accordance with Grant Assurance 21) to prevent or mitigate any new incompatible land use within the RPZ. Because Assurance 21 requires sponsors to take "appropriate action, to the extent reasonable," the FAA expects sponsors to proactively identify a full range of alternatives and prepare a sufficient evaluation to be able to draw a conclusion about what is "appropriate and reasonable." The following items are typically necessary for the FAA to assess a sponsor's alternatives evaluation:

- Statement of Purpose and Need of Proposed Action
- Identification of all interested parties, proponents, and any federal, state, or local transportation agencies
- Summary of land ownership and easements within the RPZ
- Summary of all alternatives considered including:
  - » Alternatives that preclude including the incompatible land use within the RPZ (e.g., zoning action, purchase, and design alternatives such as the implementation of declared distances, displaced thresholds, shifting the runway, shortening the runway, raising minimums)
  - » Alternatives that minimize the impact of the land use in the RPZ (e.g. routing a new roadway through less of the RPZ, etc.)
  - » Alternatives that mitigate risk to people and property on the ground (e.g., tunneling, depressing and/or protecting a roadway through the RPZ, implementing operational measures to mitigate any risks, etc.)
- Narrative discussion and exhibits depicting the alternative.
- Planning level cost estimates associated with each alternative, regardless of potential funding sources
- Practicability assessment based on the feasibility of the alternative in terms of cost, constructability, operational impacts, and other factors.

The FAA will not approve or reject the airport sponsors preferred alternative. The FAA only evaluates whether the sponsor has completed an acceptable level of alternatives analysis before the sponsor makes the decision to allow or not allow the proposed land use within the RPZ.

FAA guidance recommends the evaluation of existing roads in RPZs during airport master planning to determine if feasible alternatives exist for realignment of a road outside RPZs or for changes to the RPZs themselves. The FAA Seattle ADO has indicated that the primary focus of their review under this guidance is related to proposed changes to RPZs, which may include 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 threshold configuration of a runway that changes the location of existing RPZs are subject to review by FAA headquarters in Washington D.C.

The RPZ dimensions for Runway 16/34 are determined by the underlying design standards (AAC+ADG) and the lowest approach visibility minimums for each runway end. For Runway 34, the RPZ dimensions are based on published instrument approach visibility minimums "not lower than ¾-mile." For Runway 16, the existing RPZ dimensions are based on approach visibility minimums "not lower than 1-mile." For both B-II and C-II runways with approach visibility minimums below 1-mile, different approach and departure RPZ dimensions exist. See **Table 3-3** for current/future/reserve RPZ dimensions for Runway 16/34.

The future and reserve (B-II & C-II) RPZs dimensions for Runway 34 are based on approach visibility minimums lower than ¾-mile. Although the approach RPZ dimensions are the same, the reserve departure RPZ dimension is wider and longer than the future departure RPZ, extending south beyond airport property.

For Runway 16, the existing approach visibility minimums are not lower than 1-mile. The 2012 ALP depicts a future visibility standard of not lower than ¾-mile. It is recommended that this standard be maintained for future and reserve runway planning purposes. As with Runway 34, the future and reserve approach and departure RPZs for Runway 16 have different dimensional footprints.

The existing RPZ for Runway 34 has previously identified and studied incompatible land uses. State Route (SR) 531 (172nd Street NE) traverses the RPZ approximately 950 feet from the Runway 34 threshold. The existing RPZ extends nearly 2000 feet from the Runway 34 threshold. Washington State Department of Transportation (WSDOT) has proposed widening the roadway from one travel lane in each direction to two travel lanes in each direction along the airport frontage. The project was started in July 2019 but has been delayed due to the COVID-19 pandemic. In 2024, WSDOT contracted with a large engineering firm to bring the project to 30% design, including NEPA and ROW, before advertising as a design-build project in the future.

Table 3-3: Runway 16/34 Design Standards Summary (dimensions in feet)

| | Existing Conditions | Current/Future Standards B/II/4000 (≥ 3/4 mile) B/II/2400 (<3/4 mile) | Reserve Standards C/II/2400 Lower than 3/4 mile |
|---|---|---|---|
| **Runway** | | | |
| Width | 100 | 75/100 | 100 |
| Shoulder Width | 10 | 10 | 10 |
| Crosswind Component | 13 knots | 13 knots | 16 knots |
| Blast Pad (L x W) | N/A | 95 x 150 / 120 x 150 | 120 x 150 |
| **Runway Safety Area (RSA)** | | | |
| Width | 150 | 150/300 | 500 |
| Safety Area Length (beyond departure end) | | | |
| Runway 16 | 300 | 300/600 | 1000 |
| Runway 34 | 300 | 300/600 | 1000 |

Table 3-3: Runway 16/34 Design Standards Summary (dimensions in feet) *Continued*

| | Existing Conditions | Current/Future Standards B/II/4000 (≥ 3/4 mile) B/II/2400 (<3/4 mile) | Reserve Standards C/II/2400 Lower than 3/4 mile |
|---|---|---|---|
| Safety Area Length (length prior to threshold) | | | |
| Runway 16 | 300 | 300/600 | 600 |
| Runway 34 | 300 | 300/600 | 600 |
| **Runway Object Free Area (ROFA)** | | | |
| Width | 500 | 500/800 | 800 |
| Object Free Zone Length (beyond Runway end) | | | |
| Runway 16 | 300 | 300/600 | 1000 |
| Runway 34 | 300 | 300/600 | 1000 |
| Object Free Zone Length (length prior to threshold) | | | |
| Runway 16 | 300 | 300/600 | 600 |
| Runway 34 | 300 | 300/600 | 600 |
| **Runway Obstacle Free Zone (ROFZ)** | | | |
| Width | 400 | 400 | 400 |
| Obstacle Free Zone Length (beyond threshold) | | | |
| Runway 16 | 200 | 200 | 200 |
| Runway 34 | 200 | 200 | 200 |
| **Precision Obstacle Free Zone (POFZ)** | **(L x W) (length/width)** | **(L x W)** | **(L x W)** |
| Runway 16 | N/A | N/A | N/A |
| Runway 34 | N/A | N/A / 200 x 800 | 200 x 800 |
| Runway 34 | 1700 x 1000 x 1510 | 1700 x 1000 x 1510 / 2500 x 1000 x 1750 | 2500 x 1000 x 1750 |
| **Departure Runway Protection Zone (length starts 200 feet beyond Runway end)** | | | |
| Runway 16 | 1000 x 500 x 700 | 1000 x 500 x 700 | 1700 x 500 x 1010 |
| Runway 34 | 1000 x 500 x 700 | 1000 x 500 x 700 | 1700 x 500 x 1010 |
| **Runway Centerline to:** | | | |
| Runway holding position marking | 250 | 200/250 | 250 |
| Parallel Taxiway Centerline (Taxiway A/B) | 500/400 | 240/300 | 400 |
| Aircraft Parking Area | 575 | 250 | 400 |

**It is recommended that existing, future and reserve RPZ land use compatibility be evaluated further and coordinated with FAA through the alternatives analysis process for Runway 16/34.**

## RUNWAY 11/29

The existing configuration for Runway 11/29 meets or exceeds the existing/future design criteria A/I/5000 (VIS) for visual approaches.

**AAC/ADG A-I (Small) design standards for visual runways must be met and maintained for the existing Runway 11/29 and applied to any future Runway 11/29 configuration options evaluated in the development alternatives analysis. The airport sponsor has the option of maintaining existing facilities that exceed FAA standards, although FAA funding may not apply.**

The general descriptions for the following surfaces previously provided for Runway 16/34 also apply to Runway 11/29, as appropriate:

### Runway Safety Area (RSA)

The existing/future RSA is 120 feet wide, centered on the runway centerline, and extends 240 feet beyond the runway thresholds.

### Runway Object Free Area (ROFA)

The existing/future ROFA is 250 feet wide, centered on the runway centerline, and extends 240 feet beyond the runway thresholds.

### Runway Obstacle Free Area (ROFZ)

The existing/future ROFZ is 250 feet wide, centered on the runway centerline, and extends 200 feet beyond the runway thresholds. This standard applies to utility runways, which corresponds to small aircraft weighing 12,500 pounds or less.

### Runway Protection Zone (RPZ)

The existing/future RPZs for Runway 11/29 are 250 x 450 x 1,000 feet. The arrival and departure RPZs for the runway coincide, and begin 200 feet beyond each runway threshold. The Runway 11/29 RPZs are located entirely on airport property.

Table 3-4: Runway 11/29 Design Standards Summary (dimensions in feet)

| | Existing Conditions | A/I(S)/Visual Standards |
|---|---|---|
| **Runway** | | |
| Width | 75 | 60 |
| Shoulder Width | N/A | 10 |
| Crosswind Component | 10.5 knots | 10.5 knots |
| Blast Pad (L x W) | N/A | 80 x 60 |
| **Runway Safety Area (RSA)** | | |
| Width | 120 | 120 |
| Safety Area Length (beyond departure end) | | |
| Runway 11 | 240 | 240 |
| Runway 29 | 240 | 240 |
| Safety Area Length (length prior to threshold) | | |
| Runway 11 | 240 | 240 |
| Runway 29 | 240 | 240 |
| **Runway Object Free Area (ROFA)** | | |
| Obstacle Free Area Width | 250 | 250 |
| Beyond Runway end | | |
| Runway 11 | 240 | 240 |
| Runway 29 | 240 | 240 |
| Prior to threshold | | |
| Runway 11 | 240 | 240 |
| Runway 29 | 240 | 240 |
| **Runway Obstacle Free Zone (ROFZ)** | | |
| Obstacle Free Zone Width | 250 | 250 |
| Obstacle Free Zone Length (beyond threshold) | | |
| Runway 11 | 200 | 200 |
| Runway 29 | 200 | 200 |
| **Approach Runway Protection Zone (RPZ) (length starts 200 ft from threshold)** | **(L x U x V) (length/inner width/outer width)** | **(L x U x V)** |
| Runway 11 | 1000 x 250 x 450 | 1000 x 250 x 450 |
| Runway 29 | 1000 x 250 x 450 | 1000' x 250 x' 450' |
| **(length starts 200 feet beyond Runway end)** | | |
| Runway 11 | 1000 x 250 x 450 | 1000 x 250 x 450 |
| Runway 29 | 1000 x 250 x 450 | 1000 x 250 x 450 |
| **Runway Centerline to:** | | |
| Hold Position Marking | 125 | 125 |
| Parallel Taxiway Centerline | 240 | 150 |
| Aircraft Parking Area | 315 | 125 |

# Aircraft Operating Areas

In addition to the official runways, three “operating areas” at Arlington Municipal Airport are currently used by aircraft to land and take-off. These areas are not formally designated as runways and do not have defined Part 77 airspace surfaces. The operating areas are identified by the type of aircraft to use each area.

## Glider Operating Area

The grass surface between Runway 16/34 and Taxiway A is used for glider operations. This surface is an extended grass shoulder for the paved runway, within the runway safety area. The grass area is approximately 145 feet wide and 4,000 feet long, divided into three segments that are separated by Taxiways A2 and A3. The longest segment (1,600 feet) is located between Taxiway A2 and A3. This section is the designated glider takeoff area. The section located north of Taxiway A3 is the north landing and recovery area (1,175 feet). The section located south of Taxiway A2 is the south landing and recovery area (1,158 feet). The previous master plan recommended threshold markings be provided to delineate the location of the glider recovery areas. The markings were recommended 250 feet north of Taxiway A1 and 350 feet south of the intersection of Runway 16/ 34 and Taxiway A4.

Aircraft operating on the grass surface coordinate their activity with aircraft operating on Runway 16/34. Simultaneous operations between the grass surface and the adjacent paved runway are not permitted since the operating areas do not meet the FAA visual runway separation standard (700 feet). Runway 16/34 and the glider operations area would continue to be operated as a one-runway system and Airport's existing traffic patterns are to be maintained.

FAA guidance[1] recommends gliders do not operate from paved runways. Typical glider operations require vehicles, equipment, ground personnel, and time to properly set up gliders for launch and recovery. It is safer and more efficient to not occupy the runway for these tasks. In addition, it improves runway safety not to introduce vehicles, equipment and personnel into the paved runway environment.

## Turf Operating Area

A 100 x 1,400-foot grass operating area is located on the north side of Runway 11/29. This area is used by GA aircraft to practice turf landings. It is also used by aircraft with “tundra tires” or other landing gear that may be damaged by operating on pavement. It is primarily used in summer; however, there are operations year-round. As with the turf area adjacent to Runway 16/34, this surface effectively serves as widened grass shoulder for Runway 11/29 and aircraft may alternate between the paved and turf surface.

## Ultralight Area

A 100 x 1,700-foot grass operating area used by ultralight aircraft is located adjacent (west) to the closed Runway 3/21. Ultralights fly significantly slower than conventional airplanes and may have steep takeoff and approaches. In addition, per 14 CFR 103.15, operating an ultralight is prohibited over densely populated areas such as cities, towns, or settlements, as well as above gatherings of people in open-air settings. As such the ultralight pattern is at 400 feet AGL and approaches the Airport over sparsely populated areas. Having a distinct area for ultralight aircraft allows for increased separation between ultralights and conventional aircraft.

The 2012 ALP and Airspace Plan drawings depict a “Future Ultralight Runway 3/21.” The closed runway was proposed to be reconfigured for ultralight use. The future Runway 3/21 is depicted as a 1,500 x 100-foot split surface (50 feet paved and 50 feet turf) on a section of the closed runway. It is noted that FAA funding for a future ultralight runway is not likely. Ultralights are not included the Airport’s validated based aircraft count that is generated through the FAA’s National Based Aircraft Inventory Program. The previous recommendation to provide a future ultralight runway at Arlington Municipal Airport will be addressed through development of the master plan’s preferred alternative.

1 Federal Aviation Administration. 2023. Compliance Guidance Letter 2023-01 – Overview of Aircraft Operations on/from Airport Unpaved Areas.

# Runway Use

The use of the runway system is dictated by local weather conditions (e.g., prevailing winds, visibility, and ceiling) and by specific aircraft operating requirements. Based on onsite air traffic observations documented between 2018 and 2022, the majority of Arlington Municipal Airport operations (74%) occur on Runway 16/34. When the glider operations occurring on the adjacent turf area are considered, Runway 16/34 accounts for approximately 79% of total airfield operations, including glider operations on the adjacent grass surface. Based on observed operations, the traffic split for Runway 16 and 34 is approximately 19%/81%. For planning purposes, it is reasonable to assume that Runway 16/34 will accommodate 80% of annual air traffic, with an 80/20 split between Runway 34 and 16.

Runway 11/29 accommodates primarily small aircraft operations on both its paved surface and its adjacent grass shoulder. Based on onsite air traffic observations, Runway 11/29 accommodates approximately 19% of annual operations at Arlington Municipal Airport, including both the paved surface and the adjacent grass surface. The observations indicate approximately 13% of Runway 11/29 traffic occurs on its adjacent non-paved surface. The traffic split for Runway 11 and 29 is approximately 27%/73%. For planning purposes, it is reasonable to assume that Runway 11/29 will accommodate 20% of annual air traffic, with a 75/25 split between Runway 29 and 11.

Ultralight operations currently account for approximately 2% of annual operations at Arlington Municipal Airport. Glider operations are nearly evenly split between north and south from the grass surface adjacent to (east) Runway 16/34 and account for 5% of operations annually. The runway use data is presented in **Table 3-5**.

Table 3-5: Runway Use Summary

| | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|---|---|---|---|---|---|---|
| **Runway 16/34** | 77.1% | 81.2% | 60.2% | 77.9% | 75.4% | 74.3% |
| **Glider (Adjacent to Runway 16/34** | 5.9% | 5.0% | 3.6% | 4.3% | 5.7% | 4.9% |
| **Runway 11/29 & Adjacent Grass Surface** | 15.1% | 12.4% | 33.4% | 15.6% | 15.8% | 18.7% |
| **Ultralight** *(Grass)* | 1.9% | 1.4% | 2.8% | 1.3% | 3.2% | 2.1% |

Source: Arlington Municipal Airport – 2018-2022 Onsite Activity Counts (C.Riordan)

# Taxiway Design Group

The Taxiway Design Group (TDG) is a classification system for aircraft operating on the ground based on aircraft undercarriage dimensions, specifically the outer-to-outer main gear width (MGW) and the cockpit to main gear (CMG) distance. The undercarriage dimensions affect an aircraft's ability to maneuver and require specific fillet designs based on aircraft size. The major taxiways at the Airport are designed to accommodate at least ADG II aircraft. The critical design aircraft identified as part of the runway length determination for Runway 16/34 identified TDG-2A as the standard that accommodates the existing and future design aircraft. Taxiways associated with Runway 11/29 and those intended for use exclusively by smaller ADG I aircraft would typically use TDG 1A or TDG 1B standards.

# Taxiway Design Standards

The existing taxiway and taxilane system at the airport were analyzed relative to the runway, apron, and aircraft parking requirements, hangars, and FAA design standards. Existing taxiway markings at the Airport are consistent with FAA standards for color (yellow) and configuration and are generally in good condition. The existing runway to parallel taxiway centerline separation for Runway 16/34 is 500 feet for Taxiway A and 400 feet for Taxiway B, both of which exceed the existing and future requirements for the B-II critical aircraft and future precision approach visibility minimums. The taxiway separation also meets the requirements for the reserve C-II critical aircraft. The existing runway to parallel taxiway centerline separation for Runway 11/29 is 240 feet, which exceeds the existing and future requirements for the A-I (Small) critical aircraft.

The reconstruction of Taxiway A during the summer of 2025 removed the wide expanses of pavement on Taxiway A1 and Taxiway A4. However, a wide expanse of pavement remains the at the Runway 11 threshold, adjacent to Taxiway D and E, and the compass calibration pad. Wide pavement areas result in the placement of airfield signs far from a pilot's view, thus reducing the prominence of critical visual cues (signs, markings, lighting). The diminished visual cues, particularly under low visibility conditions, increases the probability of a runway incursion.

**It is recommended that a new compass calibration pad location be identified, or the markings be improved to reduce the likelihood of excursions onto closed pavement or runway.**

There are three locations at the Airport where the entrance taxiway to a runway intersects at other than a right angle. On Runway 11/29, Taxiway E entrance and Runway 11 and Taxiway B entrance at Runway 29 are not right-angle entrances. On Runway 16/34, Taxiway C enters the runway at a right-angle; however, the holding position is not perpendicular to the runway. Entrance taxiways intersecting a runway at other than a right angle increase the risk of a runway incursion. The acute angle reduces a pilot's field of view in one direction making it difficult for a pilot to detect an aircraft operating on the runway.

**It is recommended that the entrance taxiways be reconstructed to provide standard right-angle entrance.**

The intersection of Runway 34 with Taxiway A1 and Taxiway C is located close to the Runway 29 threshold, resulting in a complex network of taxiways and runway thresholds. During the reconstruction of Taxiway A, this intersection was improved by realigning Taxiway A1 and removing the aligned taxiway pavement between Runway 34 and Runway 29. Complex intersections increase the possibility of pilot error due to loss of situational awareness. Complex intersections can preclude standard installation of signs, markings, and lighting that provide key visual cues for navigation.

**It is recommended that the Runway 29 threshold be modified to provide sufficient physical space for designing entrance taxiways or associated markings and signage, such that the RSAs do not overlap.**

Taxiways leading directly from an apron to a runway can create the false expectation of a parallel taxiway prior to the runway. Taxiway A2 leads directly from the main apron to Runway 16/34. Taxiway C1 and Taxiway C2 lead directly from the apron to Runway 11/29. 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. Long term modifications to the south end of Taxiway B to provide a direct connection to the Runway 34 threshold may be considered as the number of locally-based aircraft located on the west side of Runway 16/34 increase use of Taxiway B to access Runway 16/34 from the west.

**It is recommended that the taxiway connectors aligned with ramp taxilanes be relocated or modified to increase situational awareness.**

Contiguous, parallel taxiways with apron pavement create a wide expanse of pavement void of critical visual cues such as elevated signs (e.g., taxiway location and direction signs). This occurs on Taxiway A and the main apron. The lack of visual cues can contribute to pilot loss of situational awareness. Additionally, the lack of surface markings induces non-channelized taxiing, which increases the risk of wingtip conflicts.

**It is recommended that painted green islands be installed along the main apron to promote channelized taxiing.**

# Area Airspace and Instrument Flight Procedures

The Class E airspace around the Airport is regulated by the FAA and provides sufficient airspace for the safe control and separation of aircraft during IFR operations. The floor of Class E airspace at Arlington Municipal Airport is established at 700 feet above ground level (AGL) and laterally abuts 1,200 ft. or higher ceiling Class E airspace. If an air traffic control tower were to be constructed at the Airport, then the airspace required for the Airport would be upgraded to Class D, while the tower is in operation. When control towers are closed, the active airspace for the Airport reverts back to Class E.

Class D airspace extends from the surface to 2,500 feet above the airport elevation and the area is tailored to contain published instrument approach procedures. All aircraft must establish two-way radio communications with the ATC facility prior to entering the airspace and thereafter maintain communications while in the airspace. Currently at the Airport, below 700 feet AGL, communication equipment is not required under visual flight rules, and it is the pilot's responsibility to see and avoid other aircraft.

The FAA defines the airspace issues to be investigated and addressed in the master planning process and are intended to protect aircraft in flight from hazards (built environment, obstacles, or terrain. Guidance is provided in both **14 Code of Federal Regulations (CFR) Part 77 and FAA Order 8260.3G United States Standard for Terminal Instrument Procedures (TERPS)**. CFR Part 77 establishes the standards used to determine obstructions to air navigation or navigational/communication facilities and process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace. TERPS prescribes the criteria for formulation, review, approval, and publishing of procedures for IFR operations to and from civil and military airports. TERPS criteria specify the minimum measure of obstacle clearance that is considered by the FAA to supply a satisfactory level of vertical protection from obstructions and are predicated on normal aircraft operations. The airspace surfaces prescribed in both documents have both vertical and lateral clearance requirements to known obstacles or terrain.

The approach surfaces are defined for specific runways by approach type (visual, non-prevision, or precision instrument) and the minimum approach visibility required for the most capable instrument approach procedure (IAP). The critical aircraft parameters represented by the AAC/ADG are also reflected in airspace planning criteria.

The existing Part 77 surfaces for Runway 16/34 are defined by the most demanding current instrument approach minimums. The most demanding approach minimum is a 3/4-mile visibility requirement for the Runway 34 RNAV/GPS procedure. The other IAPs, Runway 34 LOC and Runway 34 NDB, also have 3/4-mile visibility requirements but have higher minimum ceiling altitudes. Runway 11/29 is only used under VFR conditions; therefore, the existing Part 77 Surfaces are defined by the Utility of the runway. Runway 11/29 is a Utility Runway, only serving aircraft less than 12,500 pounds.

The future and reserve Part 77 surfaces for Runway 16/34 are based on the proposed change in RVR associated with the RDC. As noted earlier, the 2012 ALP and Airspace drawings depict a future precision instrument approach for Runway 34. This recommendation is maintained as the future airspace planning standard applied to Runway 16/34.

The existing RVR is 4,000 feet and the proposed RVR is 2400 feet. A RVR of 2400 feet is equivalent to an approach minimum of 1/2-mile, resulting in a reduction in the minimum visibility requirements at the airport. This would also result in the Part 77 approach type changing from a non-precision to a precision instrument runway.

# Airfield Facilities

## RUNWAY ORIENTATION AND CROSSWIND COVERAGE

As discussed in the Existing Conditions chapter, Runway 16/34 meets the 95% crosswind coverage requirement based on the existing/future and reserve design criteria standards. **Table 3-6** summarizes wind coverage for both the primary and secondary runways.

The FAA Reauthorization Act of 2024 has established a new runway type defined as a Legacy Crosswind Runway. This category now allows Legacy Crosswind Runways to be eligible for FAA assistance even though they are not needed to meet the wind coverage. The FAA's Reauthorization Program Guidance Letter 25-01 provides further clarification. Runway 11/29 meets this requirement as it is on the current ALP, is not parallel to the primary runway, and has previously received funding. As such, Runway 11/29 will be eligible to receive Airport Improvement Program (AIP) or other federal funding in accordance with the AIP Handbook.

Table 3-6: Wind Coverage at AWO

| **All Weather** | | | |
|---|---|---|---|
| Runway | 10.5-knot | 13-knot | 16-knot |
| 16/34 | 97.19 | 99.09 | 99.9 |
| 11/29 | 98.71 | 99.44 | 99.98 |
| Combined | 99.96 | 99.99 | 100 |
| **VFR** | | | |
| Runway | 10.5-knot | 13-knot | 16-knot |
| 16/34 | 96.73 | 98.94 | 99.89 |
| 11/29 | 98.48 | 99.34 | 99.82 |
| Combined | 99.95 | 99.99 | 100 |
| **IFR** | | | |
| Runway | 10.5-knot | 13-knot | 16-knot |
| 16/34 | 99.8 | 99.93 | 99.99 |
| 11/29 | 99.82 | 99.98 | 100 |
| Combined | 100 | 100 | 100 |

## RUNWAY LENGTH

FAA AC 150/5325-4B prescribes the method for determining minimum runway length requirements. The base assumptions include no obstructions for approaches and departures, zero wind, and dry runway surfaces. The Airport has a primary runway (16/34) and a legacy crosswind runway (11/29), each with a unique design aircraft. The AC outlines five steps to complete to determine the recommended runway length, these are the steps (the noted table references are specific to AC 150/5325-4B):

1. Identify the list of critical design airplanes that will make regular use of the proposed runway for an established planning period of at least five years.
2. Identify the airplanes that will require the longest runway lengths at maximum certificated takeoff weight.
3. Use Table 1-1 and the airplanes identified in Step #2 to determine the method that will be used for establishing the recommended runway length.
4. Select the recommended runway length from among the various runway lengths generated by Step #3 per the process identified in the applicable chapter.
5. Apply any necessary adjustment to the obtained runway length, when instructed by the applicable chapter of this AC, to the runway length generated by Step #4 to obtain a final recommended runway length. Chapter 5 provides the rationale for length adjustments.

The runway length requirements based on the "family of aircraft" approach for runways used by small (12,500 pounds or less) and larger airplanes (maximum takeoff weights between 12,500 pounds and 60,000 pounds) is used to capture the most common aircraft within a particular category. The larger aircraft are further characterized by determining the "percentage of the fleet" and "useful load factor" at which they operate, based on the haul lengths and service needs of those aircraft. The applicable runway length graphs from AC 150/5325-4B are presented in the following sections for both runways and the appropriate use scenarios (existing/future/reserve). The evaluation of runway length at Arlington Municipal Airport is also supported by other flight data, existing runway capabilities and general observation.

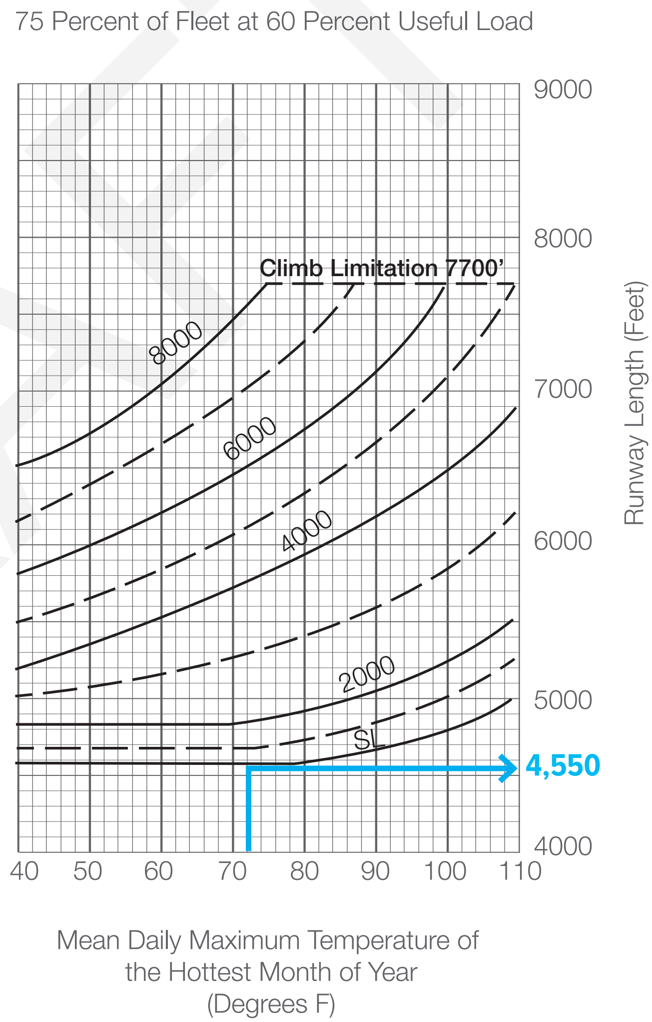
## Runway 16/34 – Existing Requirements

For Runway 16/34, FAA instrument flight plan (TFMSC) data provides a reliable indication of a specific segment of historical activity by aircraft type. Runway 16/34 is the Airport's sole instrument runway and would typically accommodate the majority of aircraft operations associated with IFR flight plans and the majority of large airplanes that meet the FAA's critical aircraft criteria.

The FAA runway length curves for large airplanes address the requirements for the jet fleet (12,501 to 60,000 pounds), that does not include large turboprop aircraft. Although the current critical aircraft for Runway 16/34 is not a jet, the FAA runway length curves for 75% of the large airplane fleet provides the best gauge of runway length requirements for this aircraft group provided in the AC. **Figure 3-1** depicts the runway length curve for 75% of the large airplane fleet at 60% useful load with Arlington Municipal Airport site inputs (temperature and runway elevation).

The basic runway length for Arlington Municipal Airport taken from this curve is approximately 4,550 feet. Two independent adjustments are made to the basic runway length, and then combined for the final dimension. Runway gradient is addressed by increasing the required length at a rate of 10 feet for each 1-foot difference between the high and low points on the runway. Runway 16/34 has a net elevation difference of 14 feet, resulting in an adjustment of 140 feet. For the 60% useful load fleet group, the adjustment for wet and slippery conditions can increase the runway length either by 15% or up to a maximum of 5,500 feet, whichever is less. Applying the 15% adjustment to the basic 4,550-foot runway length noted above, increases runway length requirements by 685 feet to fully satisfy the requirements for wet/slippery conditions on Runway 16/34. This adjusted runway length is less than the 5,500-foot maximum "adjustment" limit defined by FAA. Based on the gradient and wet/slippery adjustments applied to Runway 16/34, the final justified length for this segment of the large airplane fleet is 5,375 feet.

**Figure 3-1: Runway Length Curves 75% of Fleet, 60% useful load**




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

**Based on local conditions and the methodology outlined in AC 150/5325-4B, a runway length of 5,394 feet is needed to accommodate 75% of large airplanes (60,000 pounds or less maximum gross takeoff weight) at 60% useful load for the current 20-year planning period.**

At its current length of 5,332 feet, Runway 16/34 provides 99% (-43 feet) of the length justified for FAA funding based on existing air traffic and the FAA's project eligibility criteria. Future runway extension options will also be based on future critical aircraft and addressed in the airside alternatives evaluation.

For comparison, the takeoff requirements for the current critical aircraft (Beechcraft King Air 350) are presented in tabular form in **Figure 3-2**. The aircraft manufacturer data indicate basic runway length requirements for takeoff that are similar to the unadjusted lengths derived from the FAA runway length curves for the 75% of fleet, 60% useful load conditions.[2]

Figure 3-2: Existing Critical Aircraft (Beechcraft King Air 350) Runway Length Requirements for Takeoff

KING AIR 350I TAKEOFF PERFORMANCE (FLAPS UP)

TAKEOFF WEIGHT = 15,000 LB (MTOW)

| Ambient Temperature | | Field Elevation (ft.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| °C | °F | SL | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 |
| 0 | 32 | 3834 | 4071 | 4318 | 4582 | 4869 | 5173 | 5526 | 5949 | 6409 |
| 10 | 50 | 4072 | 4318 | 4580 | 4865 | 5224 | 5609 | 6061 | 6583 | 7167 |
| 15 | 59 | 4193 | 4439 | 4715 | 5008 | 5431 | 5887 | 6402 | 6964 | 7590 |
| 20 | 68 | 4323 | 4628 | 4969 | 5330 | 5782 | 6279 | 6830 | 7448 | 8133 |
| 25 | 77 | 4453 | 4817 | 5222 | 5652 | 6132 | 6671 | 7258 | 7931 | 8676 |
| 30 | 86 | 4755 | 5146 | 5588 | 6053 | 6571 | 7151 | 7796 | 8536 | -- |
| 35 | 95 | 5056 | 5474 | 5953 | 6454 | 7009 | 7631 | 8334 | -- | -- |
| 40 | 104 | 5400 | 5862 | 6367 | 6912 | 7520 | -- | -- | -- | -- |
| Climb Weight Limits °C/°F | | 52/126 | 50/122 | 48/118 | 46/115 | 44/111 | 40/104 | 36/97 | 32/90 | 25/77 |
| Take-off Distance at Climb Wt. Limits | | 6272 | 6660 | 7044 | 7473 | 7929 | 8111 | 8442 | 8777 | 8676 |



*The existing dimensions for Runway 16/34 meet current and near term future needs, and some long term needs. No reduction in current runway length or width is recommended based on anticipated changes in critical aircraft and/or instrument approach capabilities during the current planning period and beyond. Long term development reserves, consistent with the previous airport master plan, are also recommended to be maintained.*

2 Hawker Beechcraft Corporation – King Air 350i Flight Planning and Performance Guide at MTOW (15,000 lbs.).

## Runway 16/34: Current Critical Aircraft (RDC B-II) (not to scale)

Textron Beechcraft King Air 350

## Runway 16/34: Future Critical Aircraft (RDC B-II) (not to scale)

Cessna Citation Bravo (c-550)

## Runway 16/34: Reserve Critical Aircraft (RDC C-II) (not to scale)

Dassault Falcon 2000 EX

## Runway11/29: Existing/Future Critical Aircraft (RDC A-I – Small) (not to scale)

Cessna 182 (Skylane)

## Runway 16/34 – Future Requirements

For large airplanes (12,500 to 60,000 pounds), AC 150/5325-4B identifies "Airplanes that Make Up 75 Percent of the Fleet" and the "Remaining 25 Percent of Airplanes that Make Up 100 Percent of Fleet." The AC provides guidance for selecting the appropriate grouping of aircraft fleet and the corresponding runway length curves that should be used for planning. The FAA recommends that designers use the 75% fleet curves when the aircraft under evaluation are not found in the 100% fleet group. However, even when relatively few airplanes being evaluated are listed in the 100% of fleet aircraft group, the FAA recommends that the 100% fleet curves should be used. **Based on FAA criteria, use of the 100% fleet runway length curves is appropriate for evaluating future length requirements for Runway 16/34**. **Table 3-7** summarizes representative business jet aircraft within the 75% and 100% fleet groupings.

Table 3-7: 75% and 100% of Large Airplane Fleet (Representative Aircraft)

| 75% of Fleet | 100% of Fleet |
|---|---|
| British Aerospace – Bae 125-700 | British Aerospace – Bae Corporate 800, 1000 |
| Beechcraft, Mitsubishi – Beech Jet - 400A, Premier I | Bombardier – Challenger 600, 601-3A/3ER, 604 |
| Bombardier – Challenger 300 | Cessna – S550 Citation S/II, 650 Citation III/IV, 750 Citation X |
| Cessna – Citation I, II, III, V, VII, CJ-2, Bravo, Excel, Encore, Sovereign | Dassault – Falcon 900C/900EX, 2000/2000EX |
| Dassault – Falcon 10, 20, 50 | IAI – Astra 1125, Galaxy 1126 |
| Israel Aircraft Industries – Jet Commander 1121, Westwind 1123/1124 | Learjet – 45XR, 55/55B/55C, 60 |
| Learjet – 20 series, 30 series, 40, 45 | Raytheon Hawker – Horizon, 800/800 XP, 1000 |
| Raytheon Hawker – Hawker 400, 600 | Sabreliner – 65/75 |
| Rockwell – Sabreliner 75A | |

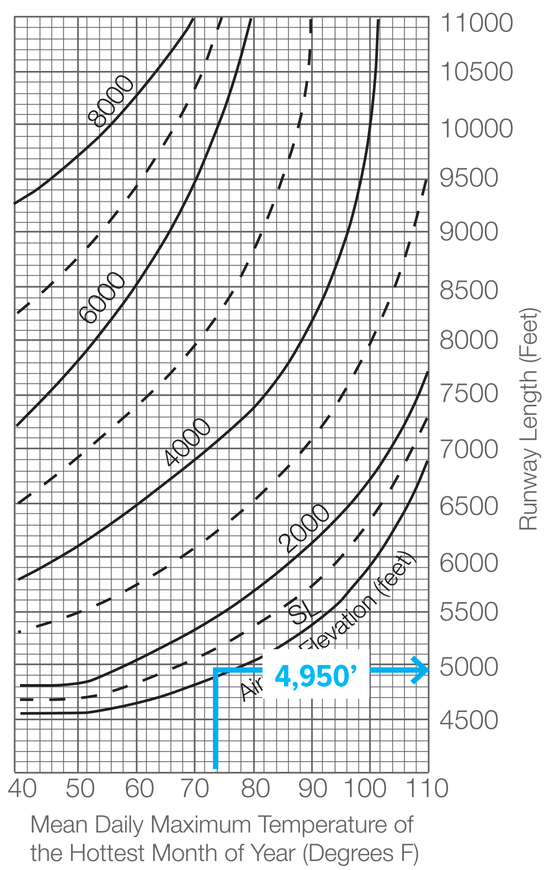
Source: FAA AC 150/5325-4B

**Based on FAA-defined criteria, including the typical haul lengths and service needs of the critical aircraft, the 60% useful load curve is recommended for the future Runway 16/34.** An aircraft's useful load represents the payload (passengers, fuel, etc.) that can be carried within its design/operating limits. For general reference, when an aircraft is at its maximum gross weight, it has reached its maximum useful load; however, that may not include full fuel tanks or a full passenger load depending on the aircraft's certificated design limits.

**Figure 3-3** depicts the runway length curves for 100% of the fleet and 60% useful load recommended for the future Runway 16/34. Based on airport elevation and maximum mean daily temperature, and unadjusted runway length of 4,950 feet is required at Arlington Municipal Airport. As with the existing runway length calculation, further adjustment is required to account for effective runway gradient and wet and slippery conditions. After these adjustments have been independently applied for Runway 16/34, a runway length of 5,833 feet is needed to fully satisfy the future requirements for wet/slippery conditions on Runway 16/34.

Based on local conditions and the methodology outlined in AC 150/5325-4B, a future runway length of 5,833 feet is needed to accommodate 100% of large airplanes (60,000 pounds or less maximum gross takeoff weight) at 60% useful load for the current 20-year planning period.

Figure 3-3: Runway Length Curves 100% of Fleet, 60% useful load




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

At its current length of 5,332 feet, Runway 16/34 provides 91% (-501 feet) of the length justified for FAA funding based on projected air traffic and the FAA's project eligibility criteria. Future runway extension options will also be based on future critical aircraft and addressed in the airside alternatives evaluation.

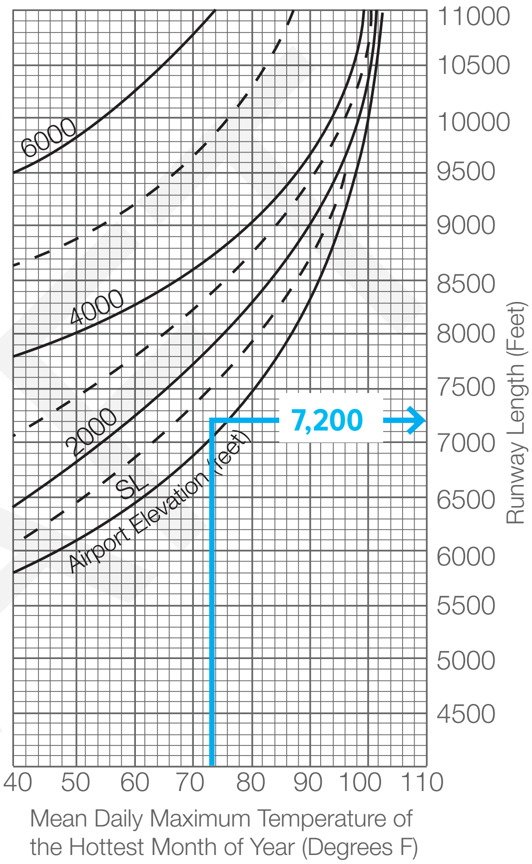
## Runway 16/34 – Reserve Requirements

The runway length requirements associated with the reserve C-II critical aircraft also use the 100% of large airplane fleet runway curves used to determine future length requirements for Runway 16/34. However, based on the typical mission capabilities of C-II business jets, the use of the higher (90%) useful load setting appears to be reasonable as a broad planning guide.

**Based on FAA criteria, use of the 100% fleet runway length curves is appropriate for evaluating reserve length requirements for Runway 16/34. Based on the typical haul lengths and service needs of the reserve critical aircraft, the 90% useful load curve is recommended for the reserve Runway 16/34.**

**Figure 3-4** depicts the runway length curves for 100% of the large airplane fleet and 90% useful load recommended for the reserve Runway 16/34. Based on airport elevation and maximum mean daily temperature, and unadjusted runway length of 7,400 feet is required at Arlington Municipal Airport to accommodate this segment of activity. As with the future runway length calculation, further adjustment is required to account for effective runway gradient and wet and slippery conditions. The 140-foot adjustment previously noted for runway gradient is applied. FAA design guidance limits the 15% adjustment for wet and slippery conditions for the 90% useful load calculation to "up to 7,000 feet." Since the basic length (7,400 feet) exceeds this length, no adjustment is made for wet and slippery conditions. After the gradient adjustment is applied, a runway length of 7,540 feet is needed to fully satisfy the reserve requirements on Runway 16/34.

Figure 3-4: Runway Length Curves 100% of Fleet, 90% useful load




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

**Based on local conditions and the methodology outlined in AC 150/5325-4B, a reserve runway length of 7,540 feet is needed to accommodate 100% of large airplanes (60,000 pounds or less maximum gross takeoff weight) at 90% useful load.**

At its current length of 5,332 feet, Runway 16/34 provides 71% (-2,208 feet) of the length needed to accommodate this level of service. Despite potential (future) demand justification, the ability of the Airport to accommodate a runway extension of this magnitude is a critical consideration in planning Arlington Municipal Airport airfield needs beyond the current 20-year period.

The 2012 Airport Master Plan facility requirements chapter noted the following regarding future planning for Runway 16/34: *"…the current ALP reflects a potential maximum runway length of 6,000 feet, which can be accommodated within the existing development footprint of the Airport."* The 2012 ALP depicts a future length of 6,000 feet for Runway 16/34 with a future C-II critical aircraft identified. The 6,000-foot runway length exceeds the length required to accommodate 100% of the large airplane fleet at 60% useful load, identified earlier for the future critical aircraft.

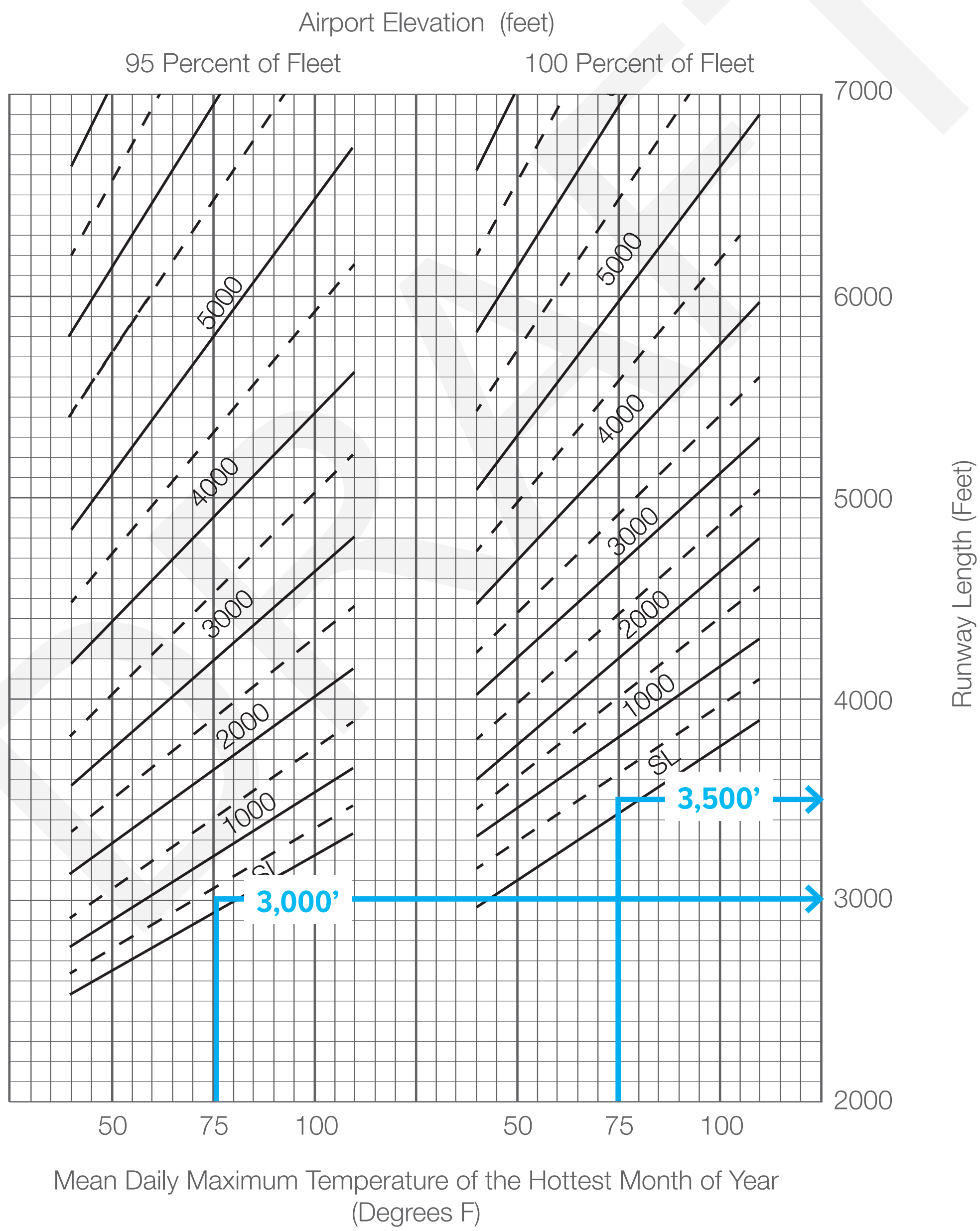
Future runway reserve options will be addressed in the airside alternatives evaluation.

### Runway 11/29 - Existing & Future

For Runway 11/29, the current and future critical aircraft (single engine piston) is best represented by the runway length curves for small aircraft 12,500 pounds or less, with approach speeds of 50 knots or more, and fewer than 10 passenger seats. For planning purposes, the use of the "100 Percent of Fleet" runway length curve is appropriate based on FAA guidance: ***"100 Percent of Fleet.*** *This type of airport is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area."* **Figure 3-5** depicts this runway length curve.

Based on airport elevation and maximum mean daily temperature, a runway length of 3,480 feet is required to accommodate this group of aircraft on Runway 11/29. The existing length of Runway 11/29 is 3,498 feet.

Figure 3-5: Runway Length Curves Small Airplanes, Fewer Than 10 Seats




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

## RUNWAY PAVEMENT STRENGTH

The existing published weight bearing capacity for Runway 16/34 is 114,000 pounds for aircraft equipped with single wheel gear (S), 150,000 pounds for aircraft equipped with double wheel gear (D), and 270,000 pounds for aircraft equipped with dual tandem gear (2D). The existing published weight bearing capacity for Runway 11/29 is 32,000 pounds (S), 34,000 pounds (D), and 59,000 pounds (2D). The existing, future, and reserve critical aircraft for both runways have maximum takeoff weights (MTOW) less than the existing bearing capacities.

The current Runway 16/34 pavement section was milled and overlayed in 2023 after receiving a crack and seal coat in 2018. The asphalt-concrete (AC) structural section was last reconstructed in 1994. The original pavement section was constructed in 1943. The current Runway 11/29 pavement section was milled and overlayed in 2019 after receiving a crack and seal coat in 2005 and 2010. The AC structural section was last reconstructed in 1991. The original pavement section was constructed in 1944.

## RUNWAY LIGHTING

Runway 16/34 has medium intensity Runway lights (MIRL) and Runway end and approach lighting. Runway 34 is equipped with MALS. Runway 16 is equipped with Runway End Identifier Lights (REIL). The Runway 16/34 MIRL includes yellow/ amber lights in the caution zone (the last 2,000 ft of the Runway). The change in edge lighting color is used on runways with an instrument approach. They provide pilots cues to indicate the Runway will be ending.

The 2012 ALP depicts a future features for Runway 34 that are consistent with future precision instrument approach capabilities. The existing NPI markings for Runway 34 would require upgrades to Precision Instrument Runways (PIR) to support future approach capabilities.

Runway 11/29 does not have runway edge lighting, although both runway ends are equipped with REILs.

The grass surface operating areas on the Airport are not lit.

## RUNWAY & TAXIWAY MARKINGS

Runway 16 has visual markings with no aiming points and Runway 34 has standard non-precision instrument (NPI) markings. These markings are appropriate for the current approaches. The 2012 ALP depicts features for Runway 34 that are consistent with future precision instrument approach capabilities. The existing NPI markings for Runway 34 would require upgrades to Precision Instrument Runways (PIR) to support future approach capabilities.

Runway 11/29 has visual markings with no aiming points. The glider, ultralight, and turf strip operating areas are unmarked.

There are no surface painted holding position signs (SPHPSs) at the airport. These signs are not mandatory, however; the FAA believes that SPHPS add another layer of safety to the airport. The airport should evaluate the benefit of installing SPHPSs at locations where the taxiways intersect the runway.

There are no enhanced taxiway centerline markings at the airport. These markings are not mandatory, however; the FAA believes that enhanced taxiway centerline markings add another layer of safety to the airport and maintains consistency across all airports. The airport should evaluate the benefit of installing enhanced taxiway centerline markings at locations where the taxiways intersect the runway.

## NAVIGATIONAL AIDS

The Airport has numerous visual and instrument NAVAIDs. The Runway 16 visual approach is equipped with a two-box PAPI and REILs. The Runway 34 visual approach is equipped with a two-box PAPI and a MALS. The Runway 34 instrument approach is equipped with a localizer and utilizes an off-airport non-directional beacon (NDB), Waton (AW). The Runway 11/29 visual approaches are equipped with two-box PAPIs and REILs at both ends. The airport has a white/green rotating beacon. The airport has a segmented circle with direction indicators and a lighted windsock.

## WEATHER REPORTING

The AWOS-3PT described in the existing conditions provides sufficient weather reporting information.

# Landside Facility Requirements

Landside facilities include aircraft parking apron(s), hangars, terminal, fixed base operator (FBO) facilities, and related items. The landside facility requirements at Arlington Municipal Airport were analyzed relative to hangar demand, apron and aircraft parking requirements, runway access, and conformance with FAA design standards. Future facility demand is estimated based on the updated evaluation of aviation activity. As noted earlier, a detailed aviation activity forecast was not submitted for FAA review and approval for this airport master plan, in accordance with current FAA policy for airports with less than 90,000 annual operations.

Basic projections of airport activity (based aircraft and aircraft operations) were made from the 2024 baselines noted earlier using long-term growth rates consistent with FAA national general aviation activity projections. Due to the uncertainties associated with projecting long-term future demand, the use of development reserves (100% of net projected 20-year demand) for aircraft parking and hangar space is recommended to ensure that aeronautical use land areas at the Airport are adequately protected.

The storage requirements by aircraft type are summarized in **Table 3-8** and described in the following sections.

## AIRCRAFT PARKING APRON

As described in Chapter 2, Arlington Municipal Airport currently has two hard surfaced apron areas available for public use. The East Apron (490,363 square feet) and the South Apron (129,427 square feet) accommodate locally-based and transient aircraft parking.

Aircraft apron facility requirements were analyzed relative to existing FAA apron and aircraft parking requirements analysis provided in FAA AC 150/5300-13B, Airport Design. The parking requirements by aircraft type are summarized in Table 3-7 and described in the following sections. To quantify the based and transient aircraft parking needs, the based aircraft and peak day activity projections were used to determine the parking necessary to satisfy existing and future demand. The projected growth in aviation activity during the current planning period is relatively modest, but is expected to create demand for additional aircraft storage at the Airport. Some requirements for different types of aircraft parking (tiedown, business aircraft drive-through parking, helicopter parking, electric aircraft charging/parking, etc. may be addressed through future apron reconfigurations.

Aircraft parking aprons should be developed to avoid conflicts with adjacent runways and taxiways. The applicable development setbacks should reflect the following items (note: some more demanding surfaces may supersede other surfaces). Additional setbacks such taxilane object free areas may also apply.

### Runway and Taxiway Setbacks

- Part 77 Airspace – Primary and Transitional Surfaces (avoid airspace penetration from parked aircraft)
- Runway Object Free Area (avoid parked aircraft in surface)
- Taxiway Object Free Area (avoid parked aircraft in surface)

The recommended aircraft parking setbacks for each runway at Arlington Municipal Airport are included in **Table 3-3** and **Table 3-4**, presented earlier in the chapter. The aircraft parking setback required for Runway 16/34 reflects clearances for future precision instrument runway airspace and the existing 500-foot (Taxiway A) and 400-foot (Taxiway B) and parallel taxiway separations. The airspace component of the calculation is based on one-half of the 1,000-foot primary surface width (measured from Runway centerline), plus the distance required for the 7:1 transitional surface slope to clear a specific aircraft tail height.

### Based and Transient Aircraft Parking

The evaluation of apron and taxilane configurations in the Airport Development Alternatives (Chapter 4) will reflect the aircraft using each facility, consistent with FAA design guidance: “Provide planning and design to accommodate varying aircraft types and sizes anticipated to use the airport.” *(AC 150/5300- 13B, Appendix E. E.1.3, General Aviation Facilities).*

### Existing Public Use Aprons

The East (Main) Apron is located east, and just south of the mid-point of Runway 16/34. The apron configured with three rows of aircraft parking positions with taxilane access extending the full length of the apron. Most of the parking rows feature east/west-facing tail-in small airplane tiedowns. Two drive-through parking positions for larger aircraft are marked inside a 155 x 64-foot outlined area in the center row, near the historic Navy hangar. The northern two parking areas on the front (west) row are outlined and larger aircraft use the areas for drive-through parking. Large aircraft or multi-engine aircraft and helicopters also park in the small airplane tiedown rows. The East Apron currently has 78 marked tiedowns and additional unmarked parking space for 2 aircraft.

The South Apron, located adjacent to Runway 29, is configured with three rows of aircraft parking positions with taxilane access extending the full length of the apron. The South Apron currently has 25 marked tiedowns and two extended sections (210 feet total) available for aircraft parking. A designated (Medevac) helicopter parking area and above-ground fuel storage tank are located in the front parking row, near the northwest corner of the apron. The South Apron also accommodates a variety of aircraft types (multi-engine piston and turbine, jets, and helicopters) with the small airplane tiedown rows.

### Apron Planning Standards

Small airplane tiedowns for both locally-based and transient aircraft are planned at 360 square yards per aircraft, consistent with FAA guidelines. The requirements for large transient business aircraft were estimated based on typical parking configurations used for ADG II aircraft. Based on the maximum ADG II wingspan of 79 feet, drive-through parking positions are configured to provide adequate wingtip clearances and nose/tail clearances from adjacent taxilane OFAs. For planning purposes, business aircraft parking positions are planned at 625 square yards per aircraft, which is roughly equivalent to an 80 feet (wide) x 70 feet (deep) area.

### Local Aircraft Demand Assumptions

For planning purposes, several key assumptions are used to define based aircraft parking requirements at Arlington Municipal Airport during the current 20-year planning period (see **Table 3-8**):

- 90% of based aircraft will be stored in hangars and 10% stored outside (apron parking)
- The based aircraft total is projected to increase from 436 to 537
- Based aircraft apron parking demand will continue to be predominantly small single-engine and multi-engine aircraft, and small helicopters that can be accommodated in small airplane tiedowns; larger aircraft will be stored primarily in hangars

### Locally-Based Small Aircraft Parking

It is projected that 44 to 54 parking spaces will be required for locally-based aircraft at Arlington Municipal Airport between 2024 and 2044. The projection reflects overall growth in the Airport's based aircraft fleet and the hangar/apron storage distribution.

As noted earlier, the projected increase in based aircraft during the next 20 years is modest, averaging 1% annually. Since the projection is a basic approximation, it is recommended that long term reserves be used to account of potentially stronger growth. For planning purposes, doubling the projected demand provides a reasonable development cushion. **Therefore, the combined projection and reserve for locally-based aircraft apron parking demand at Arlington Municipal Airport is 88 to 108 spaces during the current 20-year planning period.**

As noted above, the two primary public use aprons at Arlington Municipal Airport currently have parking available for more than 160 aircraft. The configuration of these aprons may change from predominantly small airplane tiedowns to include other aircraft parking uses in the future, depending on demand.

## Transient Activity Demand Assumptions

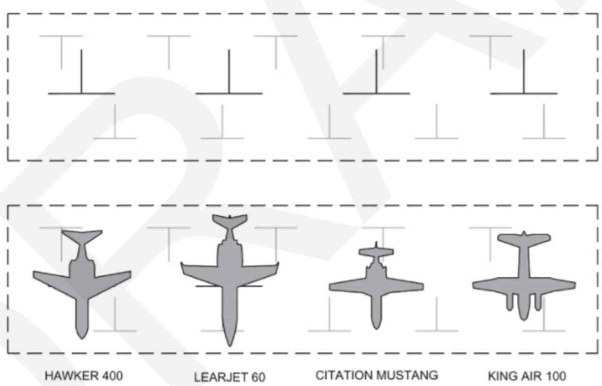
For planning purposes, key assumptions are used to define transient aircraft parking requirements at Arlington Municipal Airport during the current 20-year planning period:

- Future aircraft operations at the Airport is are assumed to be 43% itinerant/57% local
- Transient aircraft are assumed to account for approximately 35% of itinerant operations at the Airport
- Peak month activity at the Airport is estimated at approximately 13% of annual operations

The overall distribution of air traffic is similar to the traffic splits identified in the previous airport master plan, and reflects current and anticipated levels of flight training at the Airport. Local operations are flights that begin and end at the same airport, and include flight training activity in the traffic pattern and nearby practice areas. Itinerant operations are flights between two airports.

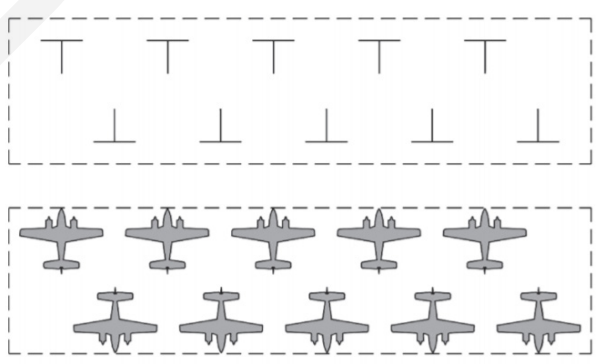
Transient aircraft are not based at airport they are visiting, although they may generate both local and itinerant operations. For transient aircraft, itinerant activity generally generates demand for parking and/or services, while local activity (repetitive traffic pattern work) does not typically require significant parking resources. Flight training aircraft from other airports in the region do not typically require parking, aside from short-term turnarounds and fueling.

The peak month for aircraft operations at Arlington Municipal Airport is experienced in the summer months (July/August), which coincides with the best seasonal flying weather conditions and increased hours of daylight. This level is also common for GA airports with moderate flight training activity and represents a 50% increase over an average 12-month distribution of activity.




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

Typical parking layout for small AC tiedown positions marked for larger aircraft.




Source: Delta Airport Consultants, Inc.

*Generic parking area for 10 tiedown positions*

## Transient Aircraft Parking Demand

Transient aircraft parking needs were developed from the current and projected peak day data operations. Peak parking demand is estimated based on accommodating the aircraft generating 50% of design day transient operations. Design day is the average number of daily operations during the peak month.

The design day transient operations at Arlington Municipal Airport are projected to range from 43 to 51 during the planning period. The required parking ranges from 11 to 13 spaces during the same period (50% of transient design day operations/2 with each airplane generating one landing and one takeoff per visit).

## Transient Small Aircraft Parking

Using the formula noted above, it is estimated the Airport will need to provide approximately 7 to 8 transient small aircraft tiedowns during the 20-year planning period for normal busy day demand. The relatively low transient parking demand compared to annual aircraft operations reflects the high percentage of flight training/local operations at the Airport.

The projected demand combined with a development reserve indicates that approximately 14 to 16 transient small aircraft tiedowns should be planned for the 20-year planning period.

## Business Aircraft Parking

Transient business aircraft currently park on the East and South Aprons in the existing small aircraft tiedown rows.

For facility planning purposes, the definition of business aircraft parking needs is based on typical ADG I and ADG II drive-through parking spaces. Based on projected demand, 3 to 4 ADG I/II business aircraft parking positions will be required during the current planning period, with overflow demand accommodated within the existing aircraft tiedown rows (see adjacent images). The long-term projections reflect typical busy day activity that would include smaller jets and other business class aircraft. To address potential demand beyond current projections, defining additional reserve areas for large aircraft parking expansion is recommended. It is assumed that all locally-based business jets and turboprops are stored in hangars.

The projected demand combined with the recommended development reserve indicates that approximately 6 to 8 ADG I/II business aircraft parking positions should be planned for the 20-year planning period.

## Helicopter Parking

The South Apron has one designated helicopter parking position used by a locally-based medevac operator. Other based and transient helicopters are parked in small airplane tiedown rows on the East and South Aprons. There are no designated transient helicopter parking positions at Arlington Municipal Airport. For planning purposes, 1 transient helicopter parking position should be adequate to accommodate normal demand during the current planning period, with any overflow demand accommodated in small airplane tiedown rows.

The projected demand combined with the recommended development reserve indicates that approximately 2 transient helicopter positions should be planned for the 20-year planning period.

Table 3-8: Apron And Hangar Facility Requirements Summary

| Item | Base Year (2024) | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|
| Based Aircraft Projection | 436 | 463 | 486 | 511 | 537 |
| Aircraft Parking Apron - Existing Aircraft Parking Type/Capacity | | | | | |
| Existing East Tiedown Apron[1] | 490,363 square feet (54,485 sy) | | | | |
| Existing South Tiedown Apron[1] | 129,427 square feet (14,381 sy) | | | | |
| Medium/Large Aircraft Parking | 2 Drive-Through Positions | | | | |
| Small Aircraft Parking | 103 Tiedowns | | | | |
| Helicopter Parking[2] | 1 | | | | |
| Projected Needs (Gross Demand)[3] | | | | | |
| Locally Based Tiedowns (@ 360 sq yd each) | 44 spaces / 15,840 sq yd | 46 spaces / 16,560 sq yd | 49 spaces / 17,640 sq yd | 51 spaces / 18,360 sq yd | 54 spaces / 19,440 sq yd |
| Small Airplane Itinerant Tiedowns (@ 360 sq yd each) | 7 spaces / 2,520 sq yd | 7 spaces / 2,520 sq yd | 8 spaces / 2,880 sq yd | 8 spaces / 2,880 sq yd | 8 spaces / 2,880 sq yd |
| Business Aircraft Parking Positions (@ 625 sq yd each) | 3 spaces / 1,875 sq yd | 3 spaces / 1,875 sq yd | 4 spaces / 2,500 sq yd | 4 spaces / 2,500 sq yd | 4 spaces / 2,500 sq yd |
| Transient Helicopter Parking Positions (@ 800 sq yd each) | 1 space / 400 sq yd | 1 space / 400 sq yd | 1 space / 400 sq yd | 1 space / 400 sq yd | 1 space / 400 sq yd |
| **Total** | **55 spaces / 20,635 sq yd** | **57 spaces / 21,355 sq yd** | **62 spaces / 23,420 sq yd** | **64 spaces / 24,140 sq yd** | **67 spaces / 25,220 sq yd** |
| Aircraft Hangars (Existing Facilities) | | | | | |
| Existing Hangar Units / Aircraft Storage Capacity (Approx. 2,718,693 sf) | 647 Units | | | | |
| Projected Needs (Net Increase in Demand)[4] | | | | | |
| (New) Hangar Space Demand (@ 1,500 sq ft per space) (Cumulative 20-year projected demand: 91 Units/ 136,500 sq ft) | | 24 Units / 36,000 sq ft | 21 Units / 31,500 sq ft | 23 Units / 34,500 sq ft | 23 Units / 34,500 sq ft |

Source: Century West Engineering
Table 3-8 Notes:
1. Existing apron areas, per 2025 WSDOT Pavement Management Plan.
2. Helicopter parking (northwest corner of South Apron). Additional helicopters parked in small AC tiedowns and East and South Aprons.
3. Apron parking demand levels identified for each forecast year represents estimated gross (aggregate) demand.
4. Aircraft hangar demand levels identified for each forecast year represent forecast cumulative demand, assuming 90% of new based aircraft will be stored in hangars.

## AIRCRAFT HANGARS

The Airport currently has approximately 2.75 million square feet of hangar space that accommodates a variety of commercial tenants and approximately 90% of Arlington Municipal Airport's based aircraft.

For planning purposes, it is assumed that 90% of new based aircraft at Arlington Municipal Airport will require hangar storage. **It is projected that an additional 91 hangar units (approximately 136,000 sq ft) will be required for locally-based aircraft storage at Arlington Municipal Airport between 2024 and 2044.** The projection reflects overall growth in the Airport's based aircraft fleet and the hangar/apron storage distribution. For planning purposes 1,500 square feet per hangar unit is assumed to reflect a combination of smaller multi-unit hangars and larger conventional hangars, similar to the current mix of hangar types at Arlington Municipal Airport.

**The projected demand combined with the recommended development reserve indicates that approximately 182 hangar units (approximately 273,000 sq ft) provides a reasonable guide for the 20-year planning period.**

## FIXED BASE OPERATORS (FBO) AND FLIGHT TRAINING SERVICES

Arlington Flight Services (AFS) is the sole FBO serving Arlington Municipal Airport. AFS provides flight training, aircraft rental, pilot supplies, maintenance, and fuel services. Flight training services are also offered by multiple non-FBO providers located on the Airport. These providers offer traditional fixed-wing flight training, as well as specialized training for rotorcraft, gliders, and ultralights. Additionally, businesses on the facility provide other aviation services such as charter service, aerial photography, aircraft maintenance, and kit airplane sales.

The FBO and flight service providers currently located on the facility appear to meet the current needs of the Airport's users. The addition of additional services will be driven by market conditions. The Airport should continue to monitor the local markets and coordinate with business tenants to provide needed FBO and flight training services.

## VEHICLE ACCESS & PARKING

There are a variety of public and tenant access points to the airport. East side facilities are accessible from 59th Street NE, the southwest facilities are accessed from Airport Boulevard, and the northwest facilities are accessed from 188th Street NE. There is no internal vehicle circulation road on the airfield. Authorized vehicles navigate from point to point using a mix of active and decommissioned taxiways, the closed Runway, and short access drives leading to individual hangar areas. The current surface network appears to provide adequate access to and on the airport. However, a dedicated internal circulation road dedicated to vehicular traffic would separate vehicles and aircraft and may enhance safety on the airfield.

There are approximately 250 vehicle parking stalls on the airport. Additional parking capacity is provided by unmarked parking areas and in hangars. The available parking on the airport accommodates the existing demand. Additional parking should be provided with future development.

## AIRPORT FENCING

The Airport perimeter is nearly completely fenced by a mix of chain link, barbed wire, and split rail fencing. Access points to the airfield are controlled by automated and manual security gates. While there are no requirements that dictate if and how GA airports are fenced, FAA generally recommends that airports secure the perimeter with 8- to 10-foot chain link fence topped with three strands of barbed wire.

Additional gates should be added to accommodate future development on the airfield.

## FUEL FACILITIES

Arlington Municipal Airport offers 100-octane low lead (100LL) aviation gasoline (AVGAS) and jet fuel (Jet-A) for commercial sale through a local fixed based operator (FBO). Additionally, some tenants maintain private fuel storage for their aircraft. The current fuel facilities appear to provide adequate service to the existing fleet. As the size and make-up of the fleet evolve over time, additional fuel capacity should be added as demand dictates.

The location of the self-service 100LL AVGAS tank and fueling area are located on a small, confined apron adjacent to the FBO. Fueling aircraft may occasionally conflict with other operations on the apron, especially at time of high demand. Relocating the self-serve fueling area and tanks to a less congested area should be considered in long-term planning.

## SUSTAINABLE AVIATION FUELS

Recently there has been a push to increase the availability and usage of "sustainable aviation fuels" (SAF). SAF can be broadly defined as a jet fuel that is sourced from a renewable source or 'feedstock' for use in a jet aircraft. It has emerged as the aviation industry's leading alternative to conventional jet fuel, as SAF is chemically similar to conventional jet fuel and is considered a "drop-in" fuel. A summary of the current SAF market, applications, and anticipated facilities needed to implement SAF at Arlington Municipal Airport has been prepared and is available in **Appendix E**.

## UTILITIES

The existing airport utilities as discussed in the Existing Conditions chapter provide effective service to support the existing airside and landside facilities. It is recommended the existing utilities be maintained and extended as needed to accommodate new development during the planning period. A significant increase in electrical service capacity may be required to accommodate electric charging stations and battery banks supporting electric aircraft.

## ADVANCED AIR MOBILITY (AAM) INFRASTRUCTURE

AAM includes aircraft that are electrically powered, may be automated, and have vertical take-off and landing capabilities. As the AAM industry continues to evolve, airports are looking at their existing infrastructure to identify future improvements needed to support AAM operations. With the exception of electrical charging facilities, AAM aircraft can utilize much of the existing infrastructure available to fixed wing and rotor aircraft today. AAM requires high-power electrical charging equipment with specialized connections to charge on-board batteries or swappable battery banks which power the aircraft. The electrical infrastructure that serves the airport may require upgrades to provide sufficient capacity to the accommodate AAM charging. Airports may also need to supplement grid power with on-site power generation and storage, potentially through solar cells. Aircraft charging stations can be placed adjacent to an apron area similar to typical aircraft fueling facilities, or as part of a Heliport or Vertiport. As part of this planning study, AAM planning and a solar grid analysis were completed and is included in **Appendices F** and **G**.