ARLINGTON MUNICIPAL AIRPORT

AIRPORT MASTER PLAN

Appendix A

Environmental Overview

EXECUTIVE SUMMARY

This section describes the existing conditions of resources that could potentially be affected by activities and projects described in the Arlington Municipal Airport Master Plan Update. Guidance is provided in Advisory Circular 150-5700-6B and Federal Aviation Administration Order 1050.1F. The information is based on desktop review of publicly available information and knowledge of subject matter experts.

Based on results of the desktop review, the following resources are believed to be the most susceptible to potential impacts by activities or projects associated with implementation of the Arlington Municipal Airport Master Plan Update.

- Historical, Architectural. Archaeological, and Cultural Resources – Documented historic district and historic sites determined eligible for listing on the National Register of Historic Places
- Hazardous Materials, Solid Waste, and Pollution Prevention – Documented existing contaminated sites
- Water Quality (surface water runoff) – Documented existing contamination
- Groundwater – Property is within a Well Head Protection Area and Source Water Protection Area; and contains the City of Arlington's drinking water source well.

In addition, Biological Resources and potential Farmlands have the potential to be affected, but results of the desktop review do not indicate discernible potential impacts to these resources from activities or projects associated with implementation of the Arlington Municipal Airport Master Plan Update.

Biological Resources – No U.S. Fish and Wildlife-managed critical habitat is present at the Arlington Municipal Airport. U.S. Fish and Wildlife-managed species listed as threatened that could be impacted by activities associated with the Arlington Municipal Airport are: North American wolverine, marbled murrelet, yellow-billed cuckoo, northwest pond turtle (proposed threatened), bull trout, a dolly Varden. Two threatened species of fish under jurisdiction of National Marine Fisheries Service could be impacted: steelhead trout and Chinook salmon.

The Arlington Municipal Airport is within the Pacific Flyway bird migration route and Bald and golden eagles may be present at the airport; however the probability of presence for golden eagles is exceptionally low.

Farmlands – The National Resources Conservation Service, National Soil Survey categorizes much of the airport property as: prime farmland if irrigated; farmland of statewide importance; prime farmland if drained; and prime farmland if irrigated and drained. The Farmland Conversion Impact Rating will be considered during alternatives analysis and design.

Hazardous Materials, Solid Waste, and Pollution Prevention – The Washington State Department of Ecology lists 16 current and historical contaminated sites within 2,500 feet of the boundary of the Arlington Municipal Airport: two are awaiting cleanup (both on east side within the property); three have cleanup started (two within the property on the east side, and one east of the property boundary); and the remaining 11 have reported status of no further action (nine are within the property boundary).

Historical, Architectural, Archaeological, and Cultural Resources – There is one historic district and six historic properties within the property including runways/taxiways, warm-up apron, and the fire station. The property does not contain recorded archaeological sites, cemeteries, or traditional cultural places. The alternatives analysis and design will consider potential impacts to properties eligible for listing on the National Register of Historic Places.

Water Quality – The City of Arlington stormwater management infrastructure collects surface water runoff on the property and discharges to Portage Creek, 0.5 miles north of the property. Portage Creek is listed by the Washington Department of Ecology as Category 4A (at Total Maximum Daily Load) for bacteria, fecal coliform, and dissolved oxygen. Other surface waters within 1.5 miles of the property are also contaminated for these criteria and temperature criteria (Stillaguamish River).

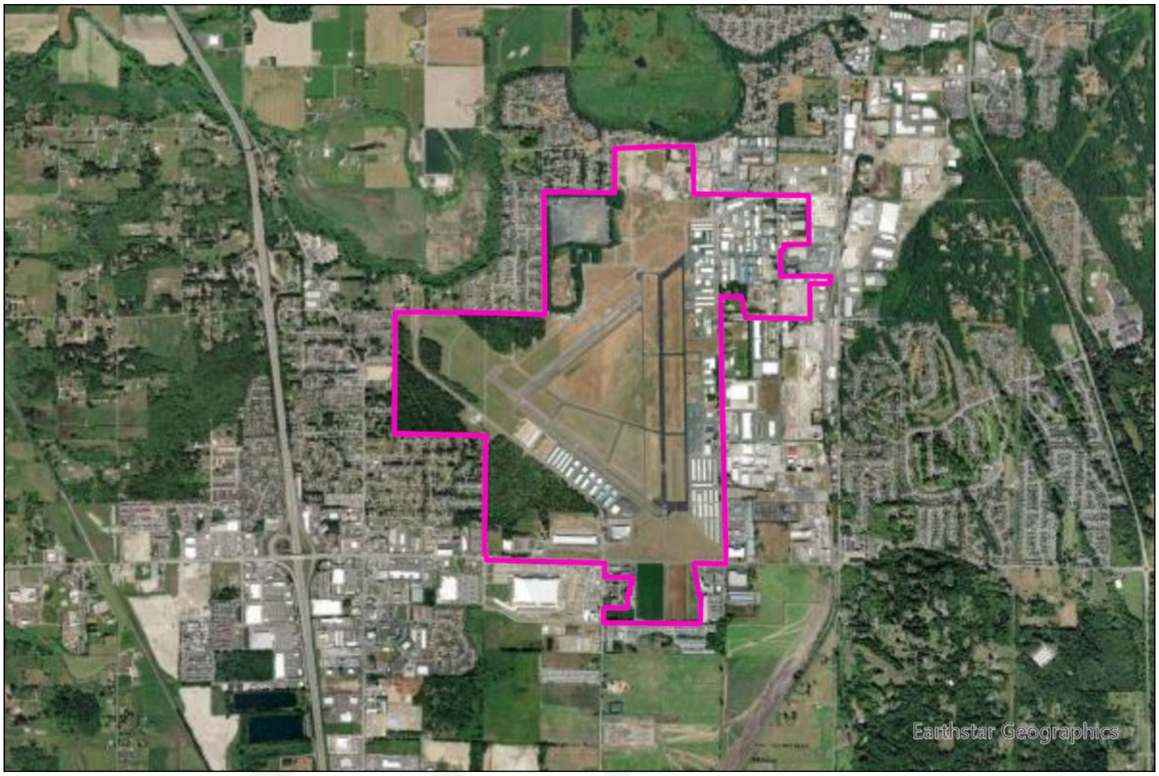
Groundwater – Drinking water for the City of Arlington is sourced from a 150-foot-deep well in the southeast area of the property in a shallow aquifer (water table 50 feet beneath the surface). The source well (Airport Well) is within the Washington Department of Health 10-Year Wellhead Protection Area. In addition to this primary well, additional Washington Department of Health Group A Public Water Sources are on the property. The northern portion of the property is within the Stillaguamish River basin, a Washington Department of Health Source Water Protection Area.

ARLINGTON MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

Appendix B

Cultural Resources Memo

CULTURAL RESOURCES REVIEW FOR THE ARLINGTON MUNICIPAL AIRPORT MASTER PLAN UPDATE AND AGIS SURVEY PROJECT, ARLINGTON, SNOHOMISH COUNTY, WASHINGTON



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DECEMBER 5, 2024

Cultural Resources Review submitted to:

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22232 17th Ave SE #206
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November 13, 2024

Samantha Peterson, Senior Aviation Planner/ Project Manager
Century West Engineering
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Bothell, Washington 98021

Re: Letter Report – Cultural Resources Review for the Arlington Municipal Airport Master Plan and AGIS Obstruction Survey Project, Arlington, Snohomish County, Washington

Samantha Peterson,

Legacy Anthropology was retained by Century West Engineering to conduct a background cultural resources review of the Area of Potential Effect (APE) for the City of Arlington's Airport Master Plan. The APE is comprised of the approximately 1,190 acres within the boundaries of the Arlington Municipal Airport. During the review, Legacy Anthropology identified that five cultural resource assessments had been previously conducted within the APE. The APE also contained 20 historic properties, including one historic district that is listed on the National Register of Historic Places. The APE does not contain any recorded archaeological sites, cemeteries, or traditional cultural places, although 12 archaeological sites and one cemetery have been recorded within one mile of the APE.

1.0 Introduction

The Arlington Municipal Airport is updating its Airport Master Plan to develop plans for undeveloped or underdeveloped areas of the airport, focus on environmental justice, and include next generation technologies and Advanced Air Mobility. The Arlington Municipal Airport is in the City of Arlington, in Township 31 North and Range 05 East. The Area of Potential Effect (APE) is comprised of approximately 1,190 acres of the airport. Century West Engineering was retained by the City of Arlington to update its Airport Master Plan. Century West Engineering retained Legacy Anthropology, LLC on October 1, 2024, to conduct a cultural resources review with recommendations for the updated Airport Master Plan.

County	Snohomish
Property Owner	City of Arlington
Address	18204 59th Avenue Northeast, Arlington, Washington
Parcel Number	various
UTM	Zone 10, 563064 m E, 5334489 m N
Lat/Long	48° 09' 38" N, 122° 09' 07" W
Township and Range	T 31 N, R 05 E, S 15, 16, 21, 22, and 27
USGS Quadrangle	2023 Arlington West, WA 7.5'
Acreage	~1,190

1.1 Area of Potential Effect

The Area of Potential Effect (APE) is comprised of the approximately 1,190 acres within the boundaries of the Arlington Municipal Airport. The APE is situated in the City of Arlington within Sections 15, 16, 21, 22, and 27 of Township 31 North and Range 05 East of Snohomish County, Washington (Figure 1 and Figure 2).

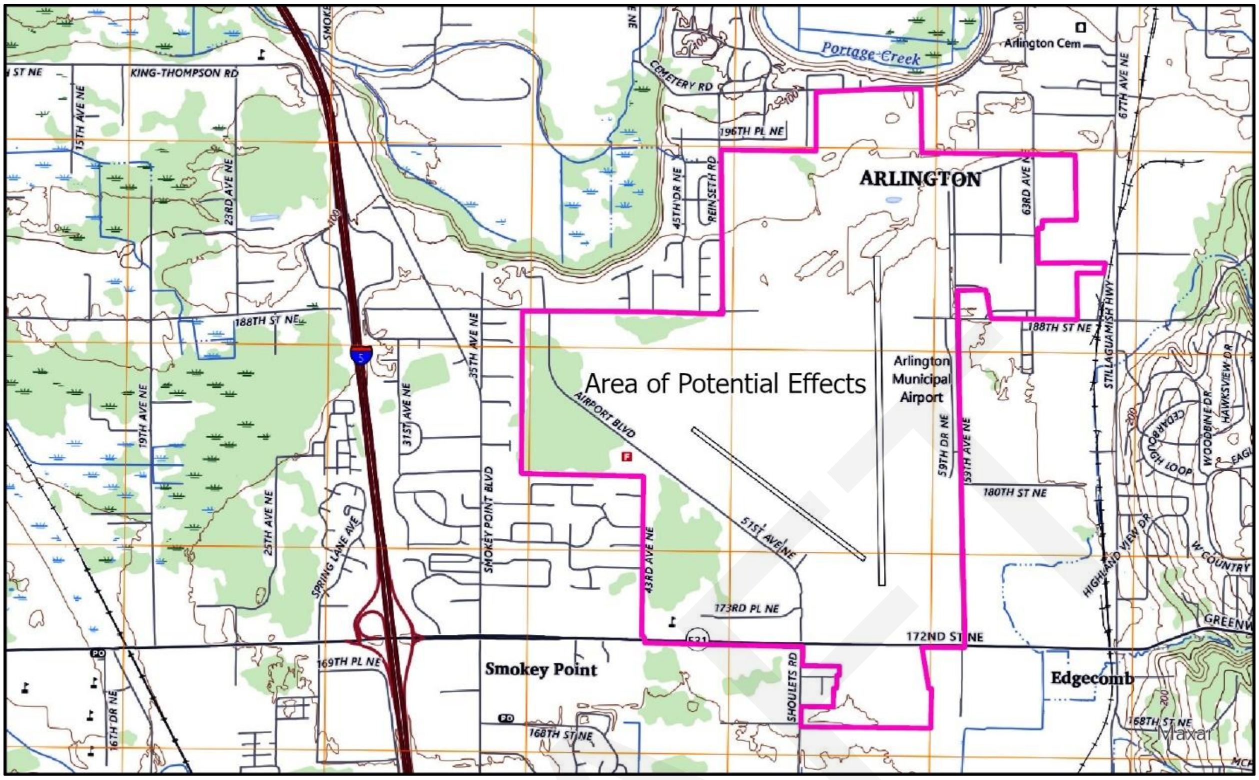

Figure 1. The Arlington Municipal Airport (APE) outlined in pink on the 2023 Arlington West USGS map (USGS 2023).

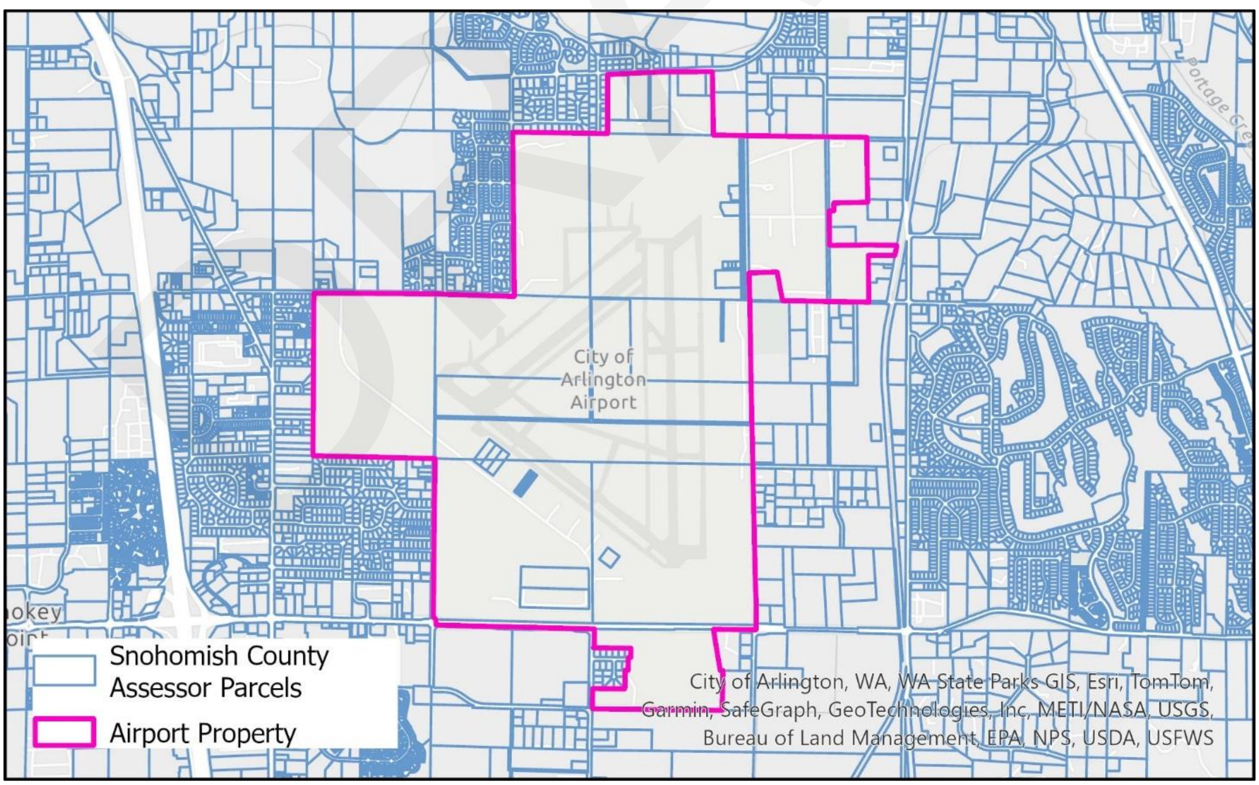

Figure 2. The APE outlined in pink on a Snohomish County Assessor map.

2.0 Background Review

Legacy Anthropology conducted a background review of the APE by inspecting historical maps, including GLO, Metsker, Anderson, Kroll, and USGS Quadrangle maps, as well as historic aerial imagery of the Area of Potential Effect (APE). Also, Legacy Anthropology reviewed records available through the Department of Archaeology and Historic Preservation (DAHP)'s Washington Information System for Architectural and Archaeological Records Data (WISAARD) database within one mile of the APE to compile an inventory of the nearby cultural resource surveys, archaeological sites, cemeteries, historic properties, and traditional cultural places.

2.1 History of the Area of Potential Effect

The APE is within the traditional territory of the stuləgʷábš (Stillaguamish), the descendants of which are now part of the Stillaguamish Tribe of Indians and the Tulalip Tribes (Stillaguamish Tribe of Indians 2023; Tulalip Tribes 2024). The stuləgʷábš (Stillaguamish) were speakers of Northern Lushootseed (Stillaguamish Tribe of Indians 2023; Suttles and Lane 1990). They lived in permanent winter villages that contained longhouses 100 to 200 feet in length, made from cedar planks, carved house posts, and shed roofs (Stillaguamish Tribe of Indians 2023; Tulalip Tribes 2024). The village of Skabalko was located at Arlington Junction, approximately 2.3 miles northeast of the APE (Bruseth 1972; Lane 1973). In the spring, summer, and fall, they moved up and down the rivers and their tributaries to utilize fish runs, game patterns, and crop yields. Seasonal camps were often assembled and disassembled in permanent locations that were known to large groups of families (Bruseth 1972; Stillaguamish Tribe of Indians 2023). Ba Quab at Kent's Prairie was one such location, approximately 1.5 miles northeast of the APE (Bruseth 1972).

The first European-descended settlers to arrive to present-day Arlington in 1851 were prospectors looking for ore in the river. A rough wagon road was constructed following the trail that brought settlers from Marysville, opening the area for more arrivals (City of Arlington 2024a). Life for the stuləgʷábš (Stillaguamish) and other Southern Coast Salish groups changed drastically after contact with European settlers. The introduction of European diseases, tools, material types, religion, and lifestyle all had great repercussions to the Coast Salish's way of life. On January 22, 1855, The Treaty of Point Elliott concluded with 82 chiefs and headmen representing Tribes in the northern area to the international boundary with Canada. Hundreds of members of the Duwamish, Suquamish, Snoqualmie, Snohomish, Stillaguamish, Swinomish, Skagit, Lummi, and others were present for the Treaty Council. The treaty established the Tulalip, Swinomish, Lummi, and Port Madison Reservations. Many Indigenous people did not relocate to the reservations and remained in their traditional lands, including, but not limited to many of the Stillaguamish, Samish, Duwamish, Snoqualmie, Snohomish, Upper Skagit, and the Sauk and Suiattle people (Marino 1990).

After the Treaty of Point Elliot was signed, many Euro-American settlers moved to the area including Nels K Tvete and Nils C. Johnson who started a store along the forked bank of the Stillaguamish River (City of Arlington 2024a; Oakley 2007). The land of the APE was first surveyed by the General Land Office in 1875. At that time, no waterways were mapped within the APE, although there was some marshland at the southern tip of the APE in Section 27. Ba Quab (Kent's Prairie) was mapped with a green border to the northeast of the APE (U.S. Department of the Interior 1875). In 1890, two towns were platted in what is now present-day Arlington. One was named Haller City, which was along the bank of the river, and the other was named Arlington, which was platted further inland. Arlington was granted a railway depot in favor of Haller City due to the latter's proximity to the river. In 1903, after many businesses relocated to Arlington, the two towns were incorporated as one (Interstate Publishing Company 1906; Oakley 2007).

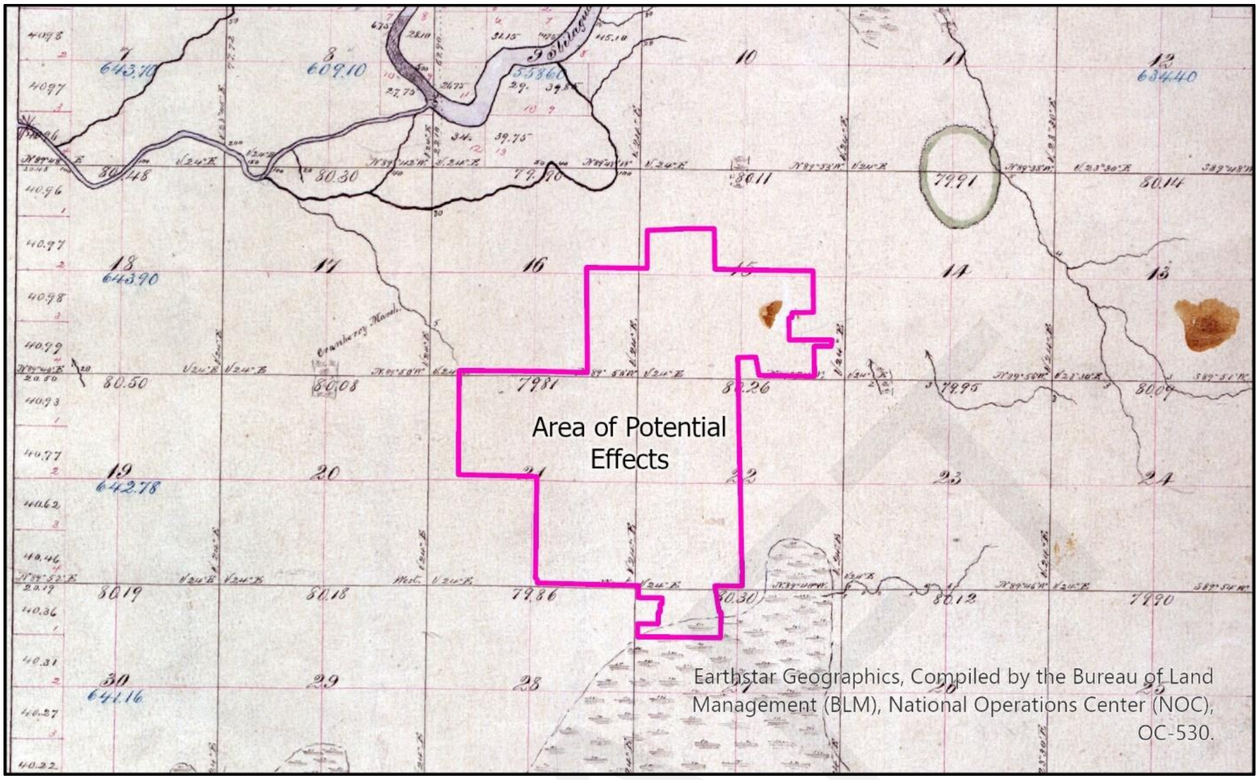

Figure 3. The APE in pink on the 1875 General Land Office survey map (U.S. Department of the Interior 1875).

By 1910, the land of the APE had been divided into numerous parcels and was situated between the communities of Lakewood to the west, Edgecomb to the east, and Arlington to the north. One north-south oriented railroad was mapped near the present-day alignment of 59th Avenue northeast, and a second railroad, oriented northeast-southwest, bisected the APE (Figure 4 and Figure 5) (Anderson Map Company 1910; USGS 1911). M. Birkenmeier claimed much of the central and northeastern portion of the APE (Anderson Map Company 1910; Metsker Map Company 1927). In 1934, the Arlington Commercial Club leased 200 acres of forestland from M. Birkenmeier to construct an airstrip, 4,000 feet (ft) long and 400 ft wide. It was constructed using funds allocated through President Franklin Roosevelt's New Deal. Later in the year, the Town of Arlington acquired the airstrip under a five-year lease and constructed a crosswind runway. The airstrip was used by private fliers, aerial circuses, and the Forest Service (City of Arlington 2024b; Dougherty 2007). The airstrip was constructed in Section 15 but was not mapped (Kroll Map Company 1934; Metsker Map Company 1936).

In 1940, the United States Navy leased the airstrip to supplement training. The United States Army then purchased additional land to construct a base that would support bombers. They constructed two runways, a control tower, and living facilities (City of Arlington 2024b). In 1943, the Navy purchased the Army's facilities (Figure 6) (USGS 1943). In 1943, the Navy initiated additional construction, including a central heating plant, barracks, hangar, mess hall, warehouse, a theater-recreational building, magazines, a firehouse, an overhaul building, a radio and radar building, paint shops, training facilities, a public works building, maintenance garage, and a lumber storage building. By 1945, the airport was fully supplied, the roads were asphalted, and a third runway was constructed. At the end of World War II, the airport was downgraded to caretaker status, to be used by Naval Air Station Whidbey for emergency landings (City of Arlington 2024b).

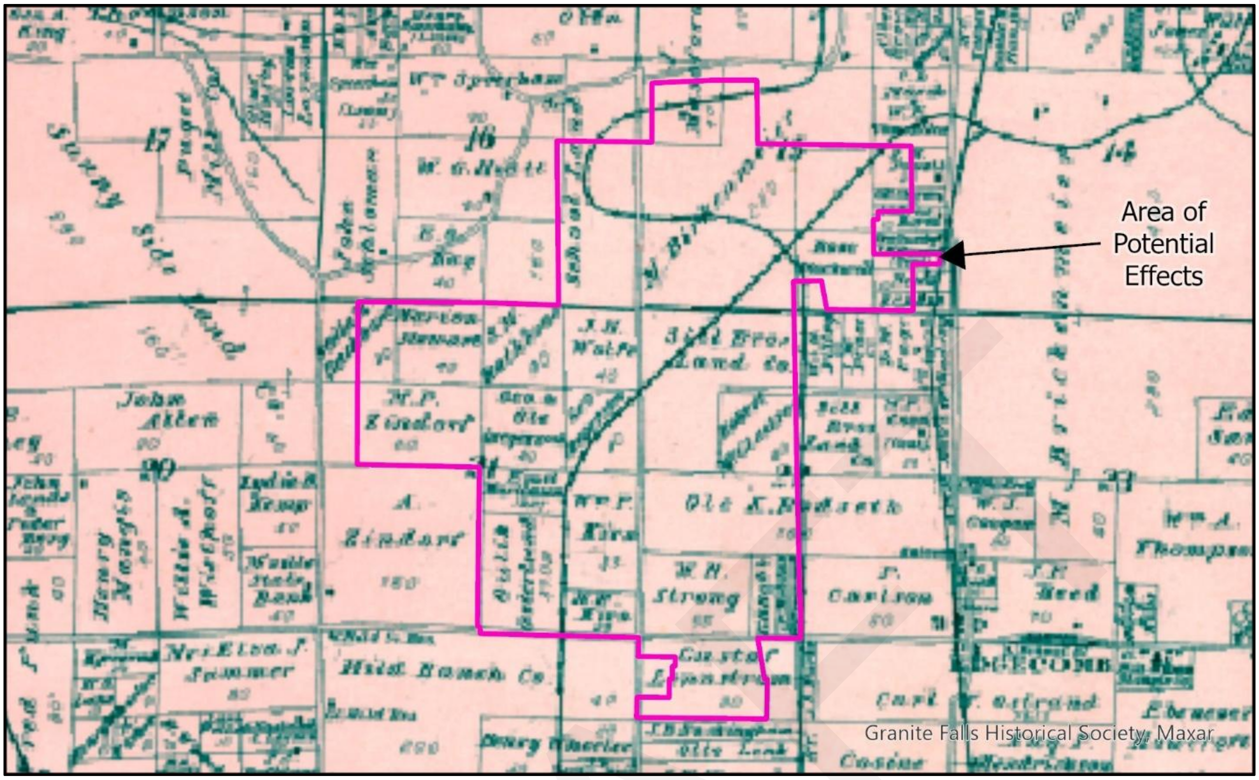

Figure 4. The APE in pink on the 1910 Anderson Map Company map (Anderson Map Company 1910).

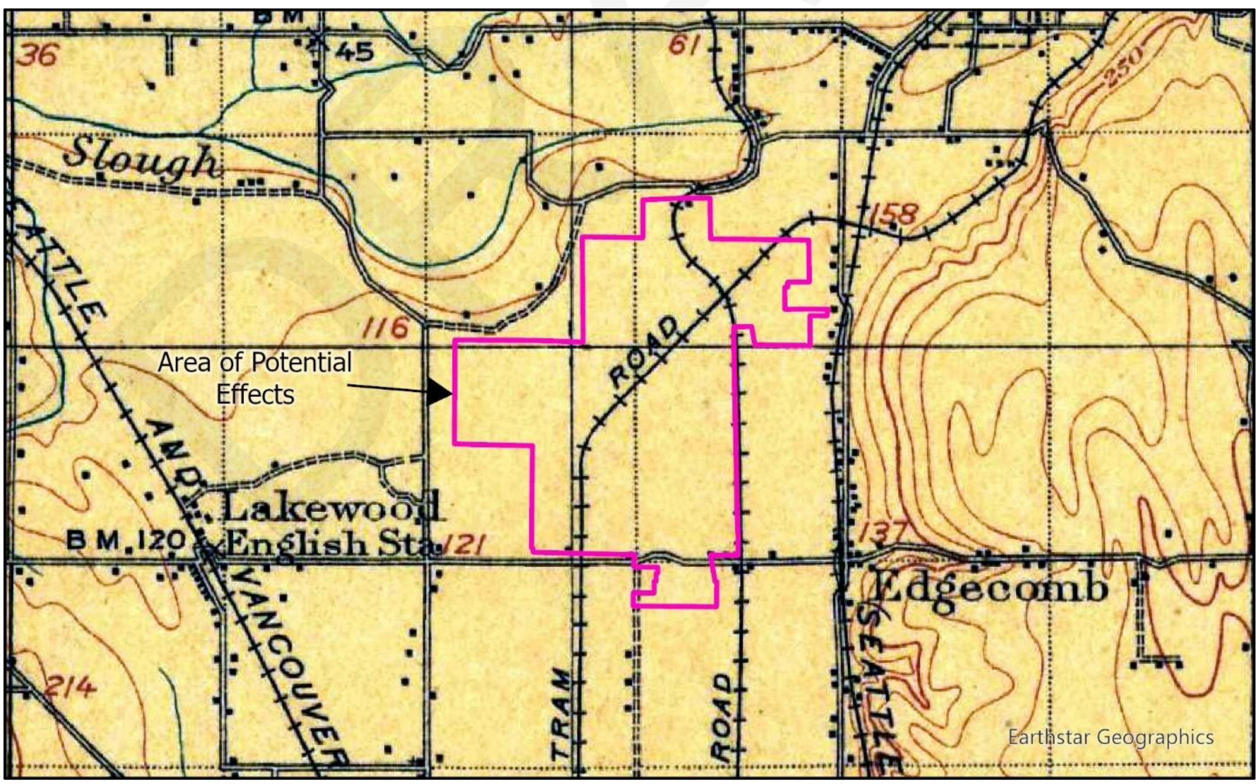

Figure 5. The APE in pink on a 1911 quadrangle map (USGS 1911).

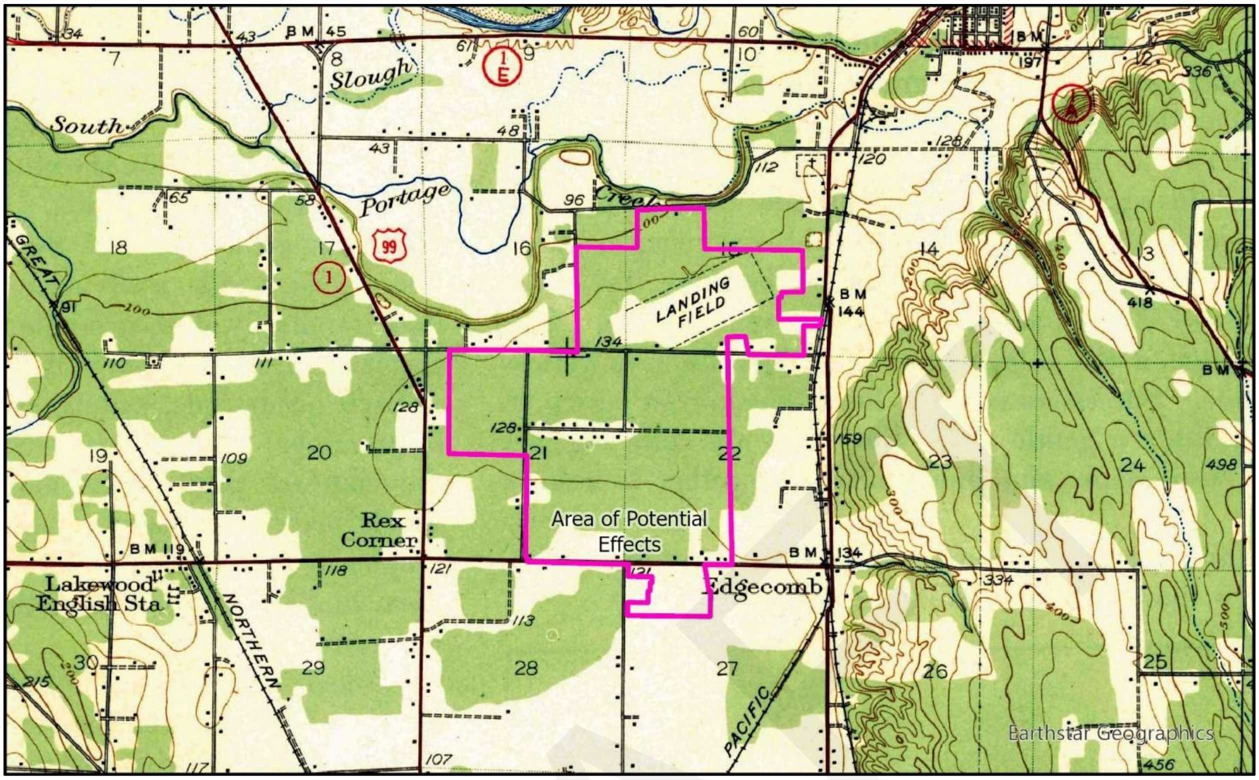

Figure 6. The APE on a 1943 quadrangle map, prior to many of the Navy's improvements (USGS 1943).

After World War II, the runways were occasionally used for car drag racing (City of Arlington 2024b). Maps from 1952 and 1956 and aerial imagery from 1954 showed that the airport had expanded to near its present-day extent. Most of the airport's buildings were situated on the eastern edge of Section 22 and the southeast corner of Section 15 (Kroll Map Company 1952; NetrOnline 2024; USGS 1956). In 1959, the airport was declared surplus by the U.S. government. Ownership of the airport was transferred to the City of Arlington through a quitclaim deed, and it was officially redesignated the Arlington Municipal Airport (City of Arlington 2024b). By 1960, the airport had changed little and contained a gravel pit and water tank in Section 15 (Metsker Map Company 1960). In 1969 aerial imagery, much of the northwestern and southwestern edges of the APE were covered with woodland. The portion of the APE in Section 15 also contained woodland, with a cluster of buildings and roads in the southeast corner (NetrOnline 2024).

By the 1980s, a baseball field at the location of present-day Evans Field had been built, and the area north and east of the baseball field contained a mixture of commercial buildings, cleared fields, and pockets of woodland. Several buildings had also been constructed at the southeastern corner of the APE (Metsker Map Company 198x; NetrOnline 2024). By 1990, the area north and east of Evans Field had been developed into an industrial park, which contained numerous roads and commercial buildings. By 2006, Airport Boulevard was constructed, as well as several commercial buildings between the new road and the southwestern airstrip. Directly northwest of the APE, a large housing development was constructed. Small scale development around the perimeter of the APE continued into the 2020s (NetrOnline 2024). Today, the airport operates for commercial and civilian flying. Numerous aviation businesses operate within the airport, including aircraft manufacturing, flight instruction, and aircraft restoration (City of Arlington 2024b).

2.2 Archaeological Review

A review of the Department of Archaeology and Historic Preservation (DAHP)'s database of recorded archaeological sites and previous archaeological work within a one-mile radius of the Area of Potential Effect (APE) was conducted. According to the DAHP's Predictive Model, the APE is at a moderate to very high risk for the presence of cultural resources (Figure 7).

2.2.1 Cultural Resources Surveys

A total of 53 cultural resources assessments have been conducted within a one-mile radius of the APE. The 10 assessments conducted within or adjacent to the APE are detailed below (Table 1).

Table 1. Cultural resource assessments within and adjacent to the APE.

Reference	NADB	Report Title	Result
Robinson 1999	1343377	*A Cultural Resource of Washington State Department of Transportation's SR 531: Milepost 6.99 to Milepost 8.59 Widening Project, Snohomish County, Washington*	negative
Shantry 2010	1354025	*Cultural Resources Assessment for the Arlington Airport West Side Road, Snohomish County, Washington*	negative
Stipe 2011	1680440	*Arlington Food Bank Cultural Resource Survey*	negative
Blake 2017	1693855	*Cultural Resources Assessment of the Proposed Arlington Airport Business Park Project, Arlington, Washington*	negative
Schneider et al. 2024	1698345	*State Route 531 - 43rd Ave NE to 67th Ave NE Widening Project, Snohomish County, Washington - Cultural Resources Assessment*	negative
Payne et al. 2020a	1694999	*Cultural Resources Survey the 172nd Street Project, Arlington, Snohomish County, Washington.*	negative
Payne et al. 2020b	1695000	*Cultural Resources Survey the 172nd Street Project, Arlington, Snohomish County, Washington- Amendment 1*	negative
Kassa 2016	1689761	*Cultural Resources Assessment for the Snohomish County PUD No. 1 Arlington Remote Pole Yard Project, Arlington, Snohomish County, Washington*	negative
Osiensky and Iverson 2019	1694054	*Cultural Resources Assessment for the SCG 188th Street Industrial Park Project, Arlington, Snohomish County, Washington*	positive for 45SN709
Boggs 2011	1680982	*Cultural Resources Assessment for the 173rd Right-of-way Project Arlington, Snohomish County, Washington*	negative

Archaeological and Historical Services Eastern Washington University (Robinson 1999) conducted a survey along 172nd Street Northeast, overlapping with the southern edge of the APE. This assessment was done prior to roadway widening. No cultural resources were identified, and no further archaeological oversight was recommended.

Northwest Archaeological Associates, Inc (Shantry 2010) conducted a cultural resource assessment prior to the construction of Airport Boulevard between SR531 and NE 188th Street, within the western portion of the APE. The assessment included pedestrian survey and the excavation of subsurface probes. A total of 63 shovel tests were dug. No cultural resources were identified during this project, and no further archaeological oversight was recommended.

Tetra Tech (Stipe 2011) conducted a cultural resource assessment prior to the construction of a food bank facility and parking lot within the northeastern portion of the APE. The assessment included background research, consultation with local tribes, pedestrian survey, and subsurface probing. A total of 12 shovel tests were dug within the 1-acre project area. No cultural resources were identified during the survey, and no further archaeological oversight was recommended.

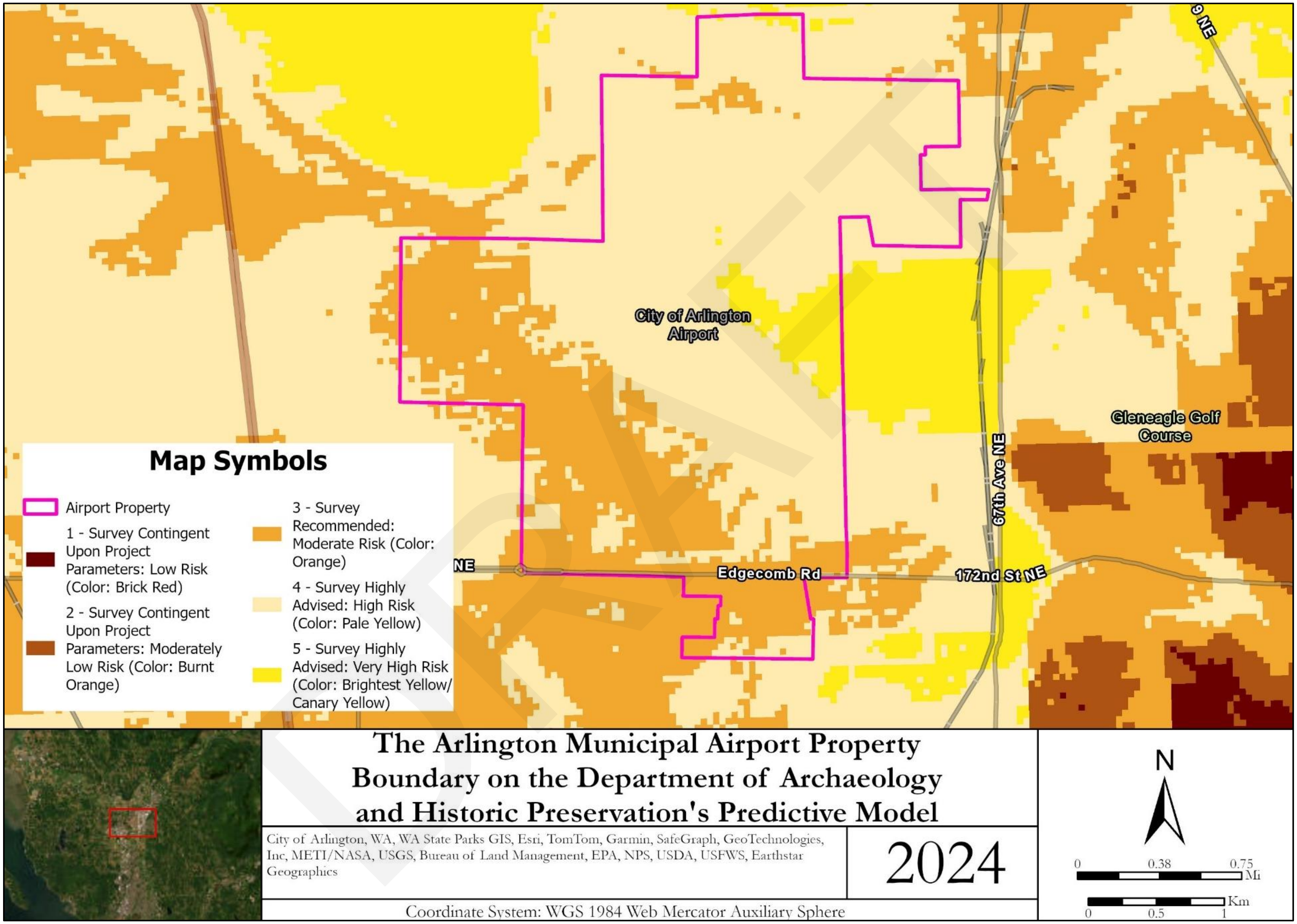

Figure 7. The APE on the DAHP's predictive model for the potential of encountering cultural resources.

WHPacific, Inc (Blake 2017) performed a cultural resource assessment prior to construction of a business park development within the southwest corner of the APE. The assessment included background research, pedestrian survey, and subsurface probes. Nine shovel tests were dug within the 43-acre project area. No historic or precontact materials were identified during the survey.

Environmental Science Associates (Schneider et al. 2024) performed a cultural resource assessment for State Route (SR) 531 43rd Avenue Northeast to 67th Avenue Northeast Widening Project. Part of this project overlaps the airport's Runway Protection Zone at the southern edge of the APE. Analysis included background research, a pedestrian survey, and subsurface probes. A total of 38.3 acres were tested, and 49 shovel tests were dug. No historic or precontact materials were discovered during the survey, and no further archaeological oversight was recommended.

Cardno (Payne et al. 2020a) conducted an archaeological investigation of 68 acres at 4620 172nd St NE, adjacent south of the APE. This area was being developed for a large warehouse distribution center with associated parking lots, road access, and buildings. A total of 40 shovel tests were placed throughout the 68 acres, in addition to performing a pedestrian survey. No protected cultural resources were identified during the subsurface testing or survey.

Cardno (Payne et al. 2020b) revisited the 68 acres at 4620 172nd St NE south of the APE, to conduct additional testing for the frontage road that will provide access to the site. Fifteen additional shovel tests were placed during this investigation, all of which were negative for protected cultural resources. Two historic properties were identified and recorded during the pedestrian survey. The first of these historic properties included two poultry houses that were built around 1969. The second historic property was a single-family residence that was also built in 1969. Both historic properties were not recommended to be eligible for listing on the National Register of Historic Places.

Cultural Resource Consultants (Kassa 2016) conducted a cultural resource assessment prior to ground disturbing activities associated with the development of a pole yard, microgrid and battery backup system, an office, data and energy control center, and a substation on Parcel Number 31052200400200 in Snohomish County, Washington, adjacent east of the APE. Analysis included background research, pedestrian surface survey, and subsurface probing. One historic barn was recorded but was not considered eligible for National Register for Historic Places.

ASM Affiliates Inc (Osiensky and Iverson 2019) conducted a cultural resource assessment prior to construction of an industrial park on a 12-acre lot along 188th Street NE, adjacent southeast of the APE. The analysis included pedestrian and subsurface survey of property and one historic archaeological site, 45SN709, was identified and recorded. Site 45SN709 was associated with a 1934 residence that once existed within the project area. The site was determined not eligible for the National Register of Historic Places.

Northwest Archaeological Associates (Boggs 2011) conducted a cultural resource assessment prior to construction of a new road in Arlington, the eastern end of which is adjacent west of the APE. Analysis included background research, tribal consultation, pedestrian survey, and subsurface probes. No precontact materials were identified during the survey, and no further archaeological oversight was recommended.

2.2.2 *Recorded Archaeological Sites*

There are 12 recorded archaeological sites within a one-mile (mi) radius of the APE. Seven of the nearest sites are historic and the remaining five are precontact lithic sites. The nearest precontact archaeological site is 45SN026 was a lithic scatter, located 500 feet (ft) east of the APE. The twelve sites situated within one mile of the APE are detailed in Table 2 and below.

Table 2. Recorded archaeological sites within a 1.0 mi radius of the Project Area

Site Number	Site Type	Site Recorders	Distance from APE
45SN709	historic culturally modified trees, historic residential structures	Osiensky and Iverson 2019	220 ft southeast
45SN026	precontact lithic material	Myrick and Kidd 1961; Obermayr 1991; Gouette and Larsen 2024	500 ft east
45SN775	historic railroad properties, historic road	Gardner and Berger 2020a	870 ft southeast
45SN773	precontact isolate, precontact lithic material	Gardner and Berger 2020b	0.25 mi southeast
45SN774	precontact isolate, precontact lithic material	Gardner and Berger 2020c	0.3 mi southeast
45SN720	historic isolate	Macrae 2019	0.3 mi east
45SN776	historic structures not specified	Gardner and Berger 2020d	0.45 mi southeast
45SN881	historic debris scatter/ concentration	Bush 2023a	0.6 mi northwest
45SN880	precontact isolate, precontact lithic material	Bush 2023b; Johnson 2023	0.65 mi northwest
45SN777	precontact isolate, precontact lithic material	Gardner and Berger 2020e	0.75 mi south
45SN778	historic residential structures	Gardner and Berger 2020f	0.85 mi south
45SN779	historic agriculture	Gardner and Berger 2020g	0.95 mi south

45SN709: This site is located approximately 220 ft southeast of the APE and consists of a historic raised concrete foundation with associated features and artifacts, that are likely the remains of a residence built in 1934. The artifacts included two clear glass bottle fragments, two amber glass bottle fragments, a wire nail, metal wire connectors, a metal pipe and pipe fittings, and a mammal bone fragment. One stump identified within the site had been stripped of bark (Iversen and Osiensky 2019).

45SN026: Precontact lithic material site 45SN026 was identified by Myrick and Smith (1961) approximately 500 ft east of the APE. The site was located on a flat terrace, a few yards from a high ridge. Artifacts were identified scattered across several acres on the ground surface. The site's dimensions were 500 yards long and 100 yards wide. In 1961, the area was actively being used for agriculture. Identified artifacts included lithic choppers, scrapers, bifacially worked points, lithic fragments, and one serrated point. Obermayr (1991) revisited the site but did not identify any cultural material. Most of the site had been covered in fill, leveled, or was overgrown with grass. Gouette and Larsen (2024) identified two lithic flakes during subsurface testing of a parcel within the site. One was a tertiary flake identified between 20-30 centimeters (cm) depth below surface (dbs) and the other was a secondary flake identified between 60-70 cm dbs. Both were found in a disturbed context.

45SN775: This site was identified by Gardner (2020a) 870 ft southeast of the APE. The site is a 12 ft wide and 2,621 ft long stretch of compacted berm that Garnder associated with 59th Ave and the Marysville and North Railroad Grade. One shovel test of the berm encountered burnt wood and imported fill on top of intact, relict topsoil.

45SN773: This precontact isolate was recorded by Gardner (2020b) 0.25 mi southeast of the APE. This area was historically mapped as marshland. The isolate was a fine-grained volcanic lithic biface that was located 10 cm dbs within the plow zone.

45SN774: Gardner (2020c) recorded another precontact lithic isolate 0.3 mi southeast of the APE. It was a fine grained volcanic lithic flake that appeared to be a tertiary/ reduction flake. The flake was black to dark grey in color and was broken on its lateral end. It was found within the plow zone.

45SN720: Archaeological site 45SN720 is comprised of a historic isolate identified approximately 0.3 mi east of the APE. The historic isolate consisted of a 1940s to 1950s era historic building foundation between 24 and 35 cm dbs. Associated artifacts included an amethyst glass fragment and a molded ceramic dated to 1940s to 1950s era (Macrae 2019).

45SN776: Recorded by Gardner (2020d), this site lies 0.45 mi south of the APE. The site was a 12 meter (m) by 52 m concrete pad with associated debris that included fence posts and ceramic fence insulators. An analysis of ariel imagery revealed that there was a structure at this location from 1954 to 1990.

45SN881: Bush (2023a) recorded a historic debris scatter archaeological site 0.6 mi northwest of the APE. The site was comprised of approximately 50 historic bottles spread over an area approximately 30 m long and 11 m wide. Three distinct clusters of bottles were identified, and they dated from the 1930s-1990s.

45SN880: A precontact lithic isolate was identified 0.65 mi northwest of the APE. The isolate was a secondary chert flake identified at 0-23 cm dbs in disturbed glacial outwash sediments (Bush 2023). Johnson (2023) conducted additional testing at the site and did not identify any more archaeological resources.

45SN777: Gardner (2020e) recorded a precontact lithic isolate artifact 0.75 mi south of the APE. This isolate was a reduction flake made from a blue/ green volcanic rock with a quartz seam. It was found 15 cm dbs within the plow zone.

45SN778: A concrete slab with associated debris that included a Clayton steam boiler, propane tank, and concrete vault was identified 0.85 mi south of the APE. This was recorded as a site by Gardner (2020f). An analysis of historic maps and images of the area concluded that a homestead was built in the area in 1910.

45SN779: The remains of a historic barn were recorded by Gardner (2020g) 0.95 mi south of the APE. The site was comprised of a set of concrete foundation slabs and sills that encompassed an area 145 ft long and 100 ft wide. An analysis of historic imagery concluded that the barn was built sometime between 1954 and 1969.

2.2.3 Recorded Cemeteries

There is one cemetery recorded within one mile of the APE (Table 3).

Table 3. Recorded cemeteries within one mi of the APE.

Reference	Cemetery Name	Distance from the APE
DAHP n.d.a	Arlington Municipal Cemetery (45SN543)	0.25 mi northeast

The Arlington Municipal Cemetery (45SN543) is located 0.25 miles northeast of the APE at 20310 67th Avenue N.E., Arlington. In 1903, the "Harwood Cemetery" was plotted, and it operated as a private non-profit association. By 1999, the City of Arlington had purchased the cemetery, expanded its size to approximately 30 acres, and renamed it the Arlington Municipal Cemetery. The cemetery is still in use today (City of Arlington 2024c).

2.2.5 Historic Properties

There are 493 properties on the DAHP's Historic Properties Inventory within a one-mile radius of the APE, 20 of which are within it. One district within the APE is listed on the National Register of Historic Places (NRHP), and five properties on the Historic Property Inventory contribute to that district. The historic properties within the APE are detailed in Table 4 and below.

Table 4. Historic properties within the APE.

Smithsonian No./ DAHP Prop. ID	Reference	Name/ Address	Register Status	Year Built
728214	Bush 2022	N/A	N/A	N/A
269305	Artifacts Consulting 2011a	5530 Cemetery Road, Arlington	N/A	1953
269219	Artifacts Consulting 2011b	N/A	N/A	1965
50930	Boswell and Heideman 2011	Naval Auxiliary Air Station, Arlington (45SN350)	NRHP District	1942-1945
48259	Michael and Spencer 2005a	Arlington Municipal Airport Small Arms Range	Not Determined	1944
48245	DAHP n.d.b	Arlington Municipal Airport Public Works Building	N/A	N/A
48243	Michael and Spencer 2005b	Arlington Municipal Airport Small Arms Range	Not Determined	1944
48242	Michael and Spencer 2005c	Arlington Municipal Airport Bore Sighting Range	NRHP, part of 45SN543	1944
48241	Michael and Spencer 2005d	Arlington Municipal Airport Runways/Taxiways	NRHP, part of 45SN543	1942
48240	Michael and Spencer 2005e	Arlington Municipal Airport Warm-Up Apron	NRHP, part of 45SN543	1942
48239	Michael and Spencer 2005f	Arlington Municipal Airport Class C Overhaul Building	NRHP, part of 45SN543	1945
48238	Michael and Spencer 2005g	Arlington Municipal Airport Armory and Instrument Building	Determined Not Eligible	1945
48237	Michael and Spencer 2005h	Arlington Municipal Airport Hangar	NRHP, part of 45SN543	1944
48236	Michael and Spencer 2005i	Arlington Municipal Airport Married Officers Quarters No. 45	Determined Not Eligible	1945
48234	Michael and Spencer 2005j	Arlington Municipal Airport Married Officers Quarters No. 46	Determined Not Eligible	1945

Smithsonian No./ DAHP Prop. ID	Reference	Name/ Address	Register Status	Year Built
48233	Michael and Spencer 2005k	Arlington Municipal Airport Fire Station	Determined Eligible	1944
48232	Michael and Spencer 2005l	Arlington Municipal Airport Paint Storage Building	Determined Not Eligible	1940s
48231	Michael and Spencer 2005m	Arlington Municipal Airport Lumber Storage Building	Determined Not Eligible	1945
48230	Michael and Spencer 2005n	Arlington Municipal Building Repair Shop	Determined Not Eligible	1945
48229	Michael and Spencer 2005o	Arlington Municipal Airport Public Works Building	Determined Not Eligible	1945

Historic Property ID 728214 is located at the southeastern corner of the APE in Section 22. No information about this property is available in the DAHP's database, as this property is currently in draft form (Bush 2022).

Historic Property ID 269305 was located at 5530 Cemetery Road, Arlington within the northern portion of the APE in Section 15. It was built in 1953. It was a professional, one-story building (Artifacts Consulting 2011). In recent aerial imagery, the building appears to have been demolished between 2009 and 2013 (NetrOnline 2024).

Historic Property ID 269219 was located within the northeastern corner of the APE in Section 15. It is a one-story warehouse built in 1965 (Artifacts Consulting 2011b). An examination of aerial imagery at the mapped location of this property revealed that a structure was likely demolished between 1981 and 1990 (NetrOnline 2024).

Historic Property ID 50930 The Naval Auxiliary Air Station, Arlington (45SN350) is a historic district listed on the National Register of Historic Places. It is located within the central portion of the APE in Sections 15, 16, 21, and 22. It encompasses approximately 400 acres. This registered district is comprised of 28 contributing resources built between 1942 and 1945. The contributing resources include two buildings (Historic Property IDs 48239 and 48237), a bore sighting range (Historic Property ID 48242), three runways (Historic Property ID 48241), a warmup apron (Historic Property ID 48240), a fueling area, six hardstands, and 14 taxiways. The two contributing buildings are a hanger, built in 1943 to the specifications of all auxiliary air stations affiliated with Naval Air Station Seattle, and an overhaul building built between 1944-1945 for engine repairs. The bore sighting range is comprised of a concrete bore sighting platform, a 1000-ft-long and 50-ft-wide corridor, and an earthen bullet stop located at the north end of the airport. The airport contains three runways with northeast-southwest, north-south, and northwest-southeast alignments. Directly west of the hangar is a 1,200 ft by 400 ft warmup apron, and directly north of the warmup apron is a fueling station. Six hardstands built in 1942 still exist within the airport, although originally there were at least 13 of them. These hardstands are spread out within the forested areas at the edges of the airport. Fourteen taxiways built between 1942-1945 exist throughout the airport. In addition to the World-War II era airport structures, several more taxiways, a communications system, and a lighting system have been constructed within the airport post-1946 (Boswell and Heideman 2011; Michael and Spencer 2005c, 2005d, 2005e, 2005f, 2005h).

Historic Property IDs 48259 and 48243 make up the Arlington Municipal Airport Small Arms Range, which was built within the northern portion of the APE in 1944. It was built near the bore sighting range. Surviving structures include a concrete foundation for the observation tower and three concrete boxes used to launch clay pigeons for shotgun training. The pistol range no longer exists. These historic properties are Not Determined for listing on The NRHP (Michael and Spencer 2005a, 2005b).

Historic Property ID 48245 is located within the northeast corner of the APE in Section 15. The property is comprised of a public works building. No further information is available on the DAHP's database for this property (DAHP n.d.b).

Historic Property ID 48238, the Arlington Municipal Airport Armory and Instrument Building, is located on the eastern edge of the APE in Section 22. It was built in 1945 as a secondary support, single-story building with armory and instrument repair facilities. An elevated observation tower was later added to the building. The building was determined not eligible for listing on the NRHP (Michael and Spencer 2005g).

Historic Property IDs 48236 and 48234 are located at the northeast corner of the APE near Evans Field in Section 15. The buildings were married officers' quarters built in 1945. Both buildings were constructed in the Minimal Traditional Ranch Style and have been heavily altered since their initial construction. Both were Determined Not Eligible for listing on the NRHP (Michael and Spencer 2005i, 2005j).

Historic Property ID 48233, the Arlington Municipal Airport Fire Station, is located at the eastern edge of the APE in Section 22. The building was constructed in the Modern style in 1944. It fit five fire engines and two crash cranes. The building is in great condition and was Determined Eligible for the NRHP but was not included as a contributing resource to 45SN350 (Michael and Spencer 2005k).

Historic Property ID 48232, the Arlington Municipal Airport Paint Storage Building, is located in the northeast corner of the APE in Section 15. It was built in the 1940s but is not associated with any Army or Naval development within the airport. It was Determined Not Eligible for the NRHP (Michael and Spencer 2005l).

Historic Property ID 48231, the Arlington Municipal Airport Lumber Storage Building, is located near the paint storage building in Section 15. It was built in 1945 and was part of the Navy's collective public works area. It was Determined Not Eligible (Michael and Spencer 2005m).

Historic Property ID 48230, the Arlington Municipal Airport Repair Shop, is in Section 15. Built in 1945, the two-story building contained a central shop area, a parts storage area, and a mechanical/ electrical shop. It was Determined Not Eligible (Michael and Spencer 2005n).

Historic Property ID 48229, the Arlington Municipal Airport Public Works Building was built in 1945 at the northeast corner of the APE, in Section 15. It originally had a joiner shop, blueprint shop, locker room, and plumbing shop. It was Determined Not Eligible for listing on the NRHP (Michael and Spencer 2005o).

2.2.5 Traditional Cultural Places

There are no recorded Traditional Cultural Places on the DAHP database within one mile of the APE.

3.0 Conclusion and Recommendations

Legacy Anthropology conducted a background review of the Area of Potential Effect (APE), comprised of the 1,190 acres of the Arlington Municipal Airport. The background review included a brief overview of available literature and an inspection of the Department of Archaeology and Historic Preservation (DAHP)'s database of recorded cultural resources. The APE is within the traditional territory of the stuləgʷábš (Stillaguamish), the descendants of which are now part of the Stillaguamish Tribe of Indians and the Tulalip Tribes. Prior to the construction of the airport, the APE contained residential parcels and railroad properties. In 1934, an airstrip was built within the APE using funds allocated through President Franklin Roosevelt's New Deal. During World War II, the facilities of the airport were greatly expanded by the Navy and Army. After World War II, the City of Arlington operated the airport into the present-day.

The DAHP's predictive model considers the APE to be at a moderate to very high risk for containing cultural resources. During the background review of the APE, Legacy Anthropology identified that only five cultural resources assessments have been conducted within the boundary of the APE. Two were conducted along the right-of-way of State Route 531/ 172nd Avenue Northeast prior to roadway improvements, one was done prior to the construction of Airport Boulevard, one was performed prior to commercial development at the south end of Section 21, and one was done prior to the construction of a food bank in Section 15. Most of the APE has not been surveyed. No archaeological sites have been identified within the APE, although 12 archaeological sites are recorded within one mile of the APE. These include five precontact sites and seven historic sites. The APE also does not contain any cemeteries or traditional cultural places that were recorded on the DAHP's database. The APE contains 20 recorded historic properties, including one historic district that is listed on the National Register of Historic Places, The Naval Auxiliary Air Station, Arlington (45SN350). The Naval Auxiliary Air Station, Arlington historic district encompasses approximately 400 acres within the central portion of the APE. All of these findings suggest that there is a high likelihood of encountering previously unidentified precontact and historic archaeological sites within the APE.

Based on the background research that Legacy Anthropology conducted, we recommend:

- **that the Affected Tribes be consulted with prior to all ground disturbing work planned within the APE**
- **that all proposed and future ground disturbing activities/projects within the APE undergo cultural resources assessments in compliance with all county, state, and federal cultural resource laws. These cultural resource assessments may include background review, pedestrian survey, and subsurface testing, and all identified archaeological sites and buildings older than 50 years should be recorded with the DAHP**

Regards,

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ARLINGTON MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

Appendix C

Zoning Ordinances

Chapter 20.38

AIRPORT PROTECTION DISTRICT

Sections:

20.38.010 Purpose.

(a) The purpose of the Airport Protection (AP) district is to protect the viability of the Arlington Municipal Airport as a significant resource to the community by encouraging compatible land uses and densities, reducing hazards to lives and properties, and ensuring a safe and secure flying environment.

(b) The AP District and subdistricts therein are based on aircraft accident data from the National Transportation Safety Board (NTSB) as depicted in the Airport Master Plan Safety Zones and, the Federal Aviation Regulation (FAR) Part 77 Imaginary Surfaces and FAA AC 150/5200-33A, Hazardous Wildlife Attractants on or near Airports.

(c) As the name implies, this district is laid over the existing zoning districts. It is shown outside of the current City limits as advisory to adjacent jurisdictions.

(d) The AP district modifies the density and land use requirements of the underlying zoning districts. These modifications are based on the guidelines within the WSDOT Aviation Division's "Airports and Compatible Land Use, Volume 1" and provide for maximum protection to the public, health, safety and general welfare of the community, airport users, and citizens working and residing within the Airport Protection District.

20.38.020 Statutory Authority.

This chapter is adopted pursuant to RCW 35.63, 35A.63, 36.70 and 36.70A, which requires a city to enact development regulations within its jurisdiction to discourage the siting of incompatible land uses adjacent to general aviation airports for the purposes of promoting the public health, safety, and general welfare of City residents and aviation users.

20.38.030 Definitions.

High Intensity Uses are any use that is characterized by a potential to attract dense concentrations of people to an indoor or outdoor area, even for a limited time. A "dense concentration" varies with the subdistricts and zones, and is defined in Table 20.38-1.

Special Function Uses are land uses for which the significant common element is the relative inability of the persons occupying the space to move out of harm's way, including, but not limited to, uses such as schools K-12, hospitals and large clinics, nursing homes, convalescent facilities, and sports stadiums.

20.38.040 Applicability.

The provisions of this Chapter shall apply to all lands, buildings, structures, natural features or uses located within those areas that are defined by the AP District designated on the Official Zoning Map unless otherwise exempted pursuant to §20.38.050 (Exemptions).

20.38.050 Exemptions.

The following structures, uses or other activities are exempt from the provisions of the AP district when permitted in the underlying zoning district, provided that the use will not penetrate the FAR Part 77 surfaces, attract wildlife that is hazardous to aviation, impact airport operations, or create a safety impact as determined by the Airport Manager.

(1) Necessary Aviation Facilities. Any air navigation facility, airport visual approach or aircraft arresting device, meteorological device, or a type of device approved by the FAA, the location and height of which is fixed by its functional purpose.
(2) Agricultural Uses. Non-residential agricultural uses, structures, and/or buildings
(3) Any aeronautical business or event.
(4) Nonconforming Uses. Any use, situation, lot, building or structure that legally existed prior to the effective date of this chapter is considered nonconforming. Nonconforming uses and situations are governed by Chapter 20.32, Nonconforming Uses. Such nonconforming uses are generally exempt from this chapter, except as may be compelled by state or federal regulations or it loses its nonconforming status pursuant to the regulations of Chapter 20.32. Nonconforming uses may be maintained, repaired, or reconstructed in accordance with the provisions of Chapter 20.32.
(5) Other Uses. Other uses may be exempt when determined by the Airport Manager and/or Airport Commission to be minor or incidental in nature and consistent with the intent of this chapter.

20.38.060 Airport Protection District Boundaries.

In order to carry out the purposes and intent of the AP district as set forth herein, and also to restrict those uses that may be hazardous to the operational safety of aircraft operating within the Airport Protection District, there are hereby created and established the following Airport Protection District and subdistricts, based on the air space and land use safety surfaces for Arlington Municipal Airport. These subdistricts comprise the AP District and are shown on the Official Zoning Map.

(1) Airport Protection Subdistrict A is comprised of the following Airport Safety Zones:
    (a) Runway Protection Zone (RPZ) Zone 1: The RPZ boundary is trapezoidal in shape and centered about the extended runway centerline. It begins 200 feet beyond the future end of the area usable for takeoff or landing (i.e. runway threshold). The RPZ dimensions are a function of the type of aircraft operating at the airport and the approach visibility minimums associated with each runway end. Based on the potential instrument approach improvements that are recommended in the Airport Layout Plan Update, larger future RPZ boundaries have been identified. The future

Runway 16 RPZ may be described as being 1,000 feet at the inner width, 1,510 feet at the outer width, and 1,700 feet in length, with the Runway 34 RPZ boundary being 1,000 x 1,750 x 2,500 respectively. In addition, both Runways 11/29 and 8/26 RPZ boundaries may be described as 250 feet at the inner width, 450 feet at the outer width, and 1,000 feet in length.

(b) Inner Safety Zone (ISZ) Zone 2: a rectangular area that is positioned on the extended runway centerline, and adjacent to the RPZ boundary defines the ISZ boundary. For Runway 16 the ISZ is 1,500 feet wide overall (extending 750 feet laterally from the runway centerline) and extends approximately 2,100 feet beyond the RPZ boundary. For Runway 34 the ISZ is 1,500 feet wide overall (extending 750 feet laterally from the runway centerline) and extends approximately 3,300 feet beyond the RPZ boundary. For Runway 11/29, the ISZ is 1,000 feet wide overall (extending 500 feet laterally from the runway centerline) and the ISZ outer boundary is defined by swinging an arc with a radius of 3,000 feet that is on the runway centerline 1,000 feet inward from the runway threshold.

(c) Inner Turning Zone (ITZ) Zone 3: The ITZ boundary is defined by a triangular shaped area that is positioned along each side of the RPZ and ISZ boundaries. For Runway 16, the ITZ extends approximately 5,000 feet from a point that is on the runway centerline 1,500 feet inward from the future runway threshold, within a 30-degree sector of the extended runway centerline. For Runway 34 the ITZ extends approximately 6,000 feet from a point that is on the runway centerline 2,000 feet inward from the runway threshold, within a 20-degree sector of the extended runway centerline. For Runway 11/29, the ITZ extends approximately 3,000 feet from a point that is on the runway centerline 1,000 feet inward from the runway threshold, within a 30-degree sector of the extended runway centerline.

(d) Outer Safety Zone (OSZ) Zone 4: A rectangular area that is also centered on the runway defines the OSZ boundary. For Runway 16 the OSZ is 1,000 feet wide overall (extending 500 feet laterally from the runway centerline) and extends approximately 3,000 feet beyond the ISZ. For Runway 34 the OSZ is 1,000 feet wide overall (extending 500 feet laterally from the runway centerline) and extends approximately 4,000 feet beyond the ISZ. For Runway 11/29, the OSZ is 1,000 feet wide overall (extending 500 feet laterally from the runway centerline) and extends approximately 1,500 feet beyond the ISZ.

(e) Sideline Safety Zone (SSZ) Zone 5: For Runway 16/34, the SSZ boundary is defined by a 1,000 foot centerline offset on each side of the runway that connects the ITZs on each end of the runway. For Runway 11/29, the SSZ boundary is defined by a 500-foot centerline offset on each side of the runway that connects the ITZs on each end of the runway. For the Ultralight/Sport Runway 8/26, the SSZ boundary is defined by a 400-foot centerline offset on each side of the runway that connects the ITZs on each end of the runway.

(2) Airport Protection Subdistrict B is based on the Arlington Municipal Airport’s traffic pattern. The area on the west side of the airport is defined by connecting the outermost and western points of Runway 16/34 Inner Turning Zones 3 with an arc that is tangent to a line centered on Smokey Point Boulevard. The area on the east side of the airport is defined by continuing the arcs of Inner Turning Zones 3 east of Runway 16/34 to a point where they meet a line

centered on 63rd Avenue NE. A line centered on 63rd Avenue NE then connects the ends of the two arcs.

(3) Airport Protection Subdistrict C is based on the FAA AC 150/5200-33A guidelines for the type of aircraft operating at Arlington Municipal Airport. The distance recommended by the AC for an airport that serves turbine aircraft is 10,000 feet from Aircraft Operation Areas (AOA). This boundary coincides with the outer boundary of the transitional surface and the inner boundary of the conical surface.

(4) Airport Protection Subdistrict D is comprised of the following Federal Aviation Regulations (FAR) Parts 77 Imaginary Surfaces:

   (a) Primary Surfaces: A surface that is longitudinally centered on the runway, extending 200 feet beyond the paved threshold in each direction. Runway 16-34's ultimate primary surface measures 1,000 feet across because it is to become a precision instrument runway. Runway 11-29's ultimate primary surface measures 250 feet across since it is to remain a utility runway with only visual approaches.

   (b) Approach Surface: Inclined planes extending upward and outward from the ends of the primary surfaces. The approach for Runway 16 has been established in support of a future non-precision instrument approach with visibility minimums greater than ¾ of a mile. The approach for Runway 34 has been established in support of a future precision instrument approach with visibility minimums lower than ¾ of a mile. As specified in FAR Part 77, Runway 16's future approach surface will be 1000 feet wide at the intersection with the primary surface, will extend outward for a distance of 10,000 feet at a slope of 34:1, and will reach an outer width of 3,500 feet. The future approach surface for Runway 34 will extend outward for a distance of 10,000 feet at a slope of 50:1 and another 40,000 feet at a slope of 40:1. The approach surface will reach an outer width of 16,000 feet wide at 50,000 feet. Runway 11-29's approach surfaces are the same at both runway ends. The approach surfaces are 250 feet across at the primary surface and extend outward for a distance of 5,000 feet at a 20:1 slope to an outer width of 1,250 feet.

   (c) Horizontal Surface: A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 5,000 feet radii from the center of each Primary Surface of Runway 16/34. Tangents then connect the adjacent arcs.

   (d) Transitional Surfaces: An inclined plane with a slope of 7:1 extending upward and outward from the primary and approach surfaces, terminating at the point where they intersect with the horizontal surface or any surface with more critical restriction.

   (e) Conical Surfaces: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

20.38.070 Restrictions on Certain Use Classifications on Arlington Airport Property.

Certain uses, though allowed in particular zoning districts as identified in §20.40, Permissible Uses, are herein deemed non-permissible within that zoning district where applied to property owned by the Arlington Airport, even when leased to private parties. These use classifications are denoted by footnote conditions.

20.38.080 Performance Standards and Miscellaneous Restrictions.

(a) Subdistrict A – The following rules shall be applied within the boundaries of the AP Subdistrict A:
   (1) No structures, devices or other objects shall be placed or erected that makes it difficult for pilots to distinguish between airport lights and other lights, results in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, or otherwise endanger the landing, take off, or maneuvering of aircraft.
   (2) No bulk above ground storage greater than 6,000 gallons of flammable or hazardous substance will be permitted unless it is associated with an aviation business.
   (3) Except for aeronautical events such as the Arlington Fly-In, the public assembly of people and other uses or activities, whether permanent (such as multi-family, hospitals, schools, churches, etc.) or temporary (such as circuses, carnivals or other outdoor entertainment events or religious assembly not exceeding five days in duration), that allow public concentrations of people shall be prohibited within Subdistrict A, but allowed in all other parts of the AP District so long as such uses do not adversely affect airport operations, safety in air navigation or penetrate the FAR Part 77 Surfaces.
   (4) No use, building, or structure shall be permitted or constructed within the Runway Protection Zone 1, except accessory activities such as off-street parking facilities, low growing landscaping or agricultural crops, mini-storage, agricultural storage buildings and/or other similar activities as approved by the Airport Manager and if they are allowed by the underlying zone.
   (5) Densities, both residential and non-residential, shall not exceed those listed in Table 20.38-1: Density Limits within the APD,
   (6) The following uses shall be prohibited in the referenced Zones:
      (i) High Intensity Uses within Subdistrict A RPZ Zone 1, ISZ Zone 2 and ITZ Zone 3. The densities in in Table 20.38-1: Density Limits within the APD shall not be exceeded. If the density is averaged over a large parcel the structures shall be located outside the restricted zones.
      (ii) Emergency services such as police stations, fire stations, emergency services operations and other similar uses within the RPZ Zone 1 and ISZ Zone 2.

(b) Subdistrict B – The following rules shall be applied within the boundaries of the AP Subdistrict A and B:
   (1) Special function uses shall be prohibited under the airport traffic pattern.

(c) Subdistricts A, B, and C – The following rules shall be applied within the boundaries of the AP Subdistricts A, B, and C:
   (1) No use shall be permitted that would foster an increase in bird population and thereby increase the likelihood of a bird impact problem.

(d) Subdistricts A, B, C, and D – The following rules shall be applied within the boundaries of the entire AP District:
   (1) No use shall be made of any land that will cause electrical interference with navigational signals or radio communications at the airport or with radio or electronic communications between the airport and aircraft or aircraft to aircraft.
   (2) No use, building or structure shall emit emissions of fly ash, dust, vapor, gases, or other forms of emissions that may conflict with any planned operations of the airport.
   (3) Except as necessary and incidental to airport operations and as listed in Subsection 4, no buildings, structures or objects of natural growth shall be constructed, altered,

maintained, or allowed to grow so as to project or otherwise penetrate the airspace surfaces.

(4) In the areas to the east, southeast and southwest of the airport where the natural terrain rises, the acceptable height and avigation easement will be based on the height of tallest tree native to the area as depicted in USDA, Soil Conservation Service, Soil Survey of Snohomish County Area, Washington, July 1983. The native tree identified is Douglas Fir with a maximum height of 166 feet.

(5) No structure or other object shall penetrate the FAR Part 77 Surfaces unless such structure or object would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height and would be located in an area of established development where it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation or penetrate the FAR Part 77 Surfaces.

(6) Other uses or activities determined to be incompatible with aviation, aviation safety, or any activity that has a potential or would require a Temporary Flight Restriction (TFR) or interfere with airport traffic patterns and operations shall be prohibited.

Table 20.38-1: Density Limits within the APD

Land Use[1]	Zone 1 RPZ	Zone 2 ISZ[1, 2]	Zone 3 ITZ[2]	Zone 4 OSZ[2]	Zone 5 SSZ[1]	Rest of influence area
Maximum Residential Density (average number of dwelling units per gross acre)	0	1 du per 10 acres	1 du per 5 acres	1 du per 5 acres	1 du per 5 acres	No limit
Maximum Nonresidential Intensity (average number of people per gross acre)	0[1]	25	60	60	80	No limit

[1] Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that FAA criteria are satisfied.

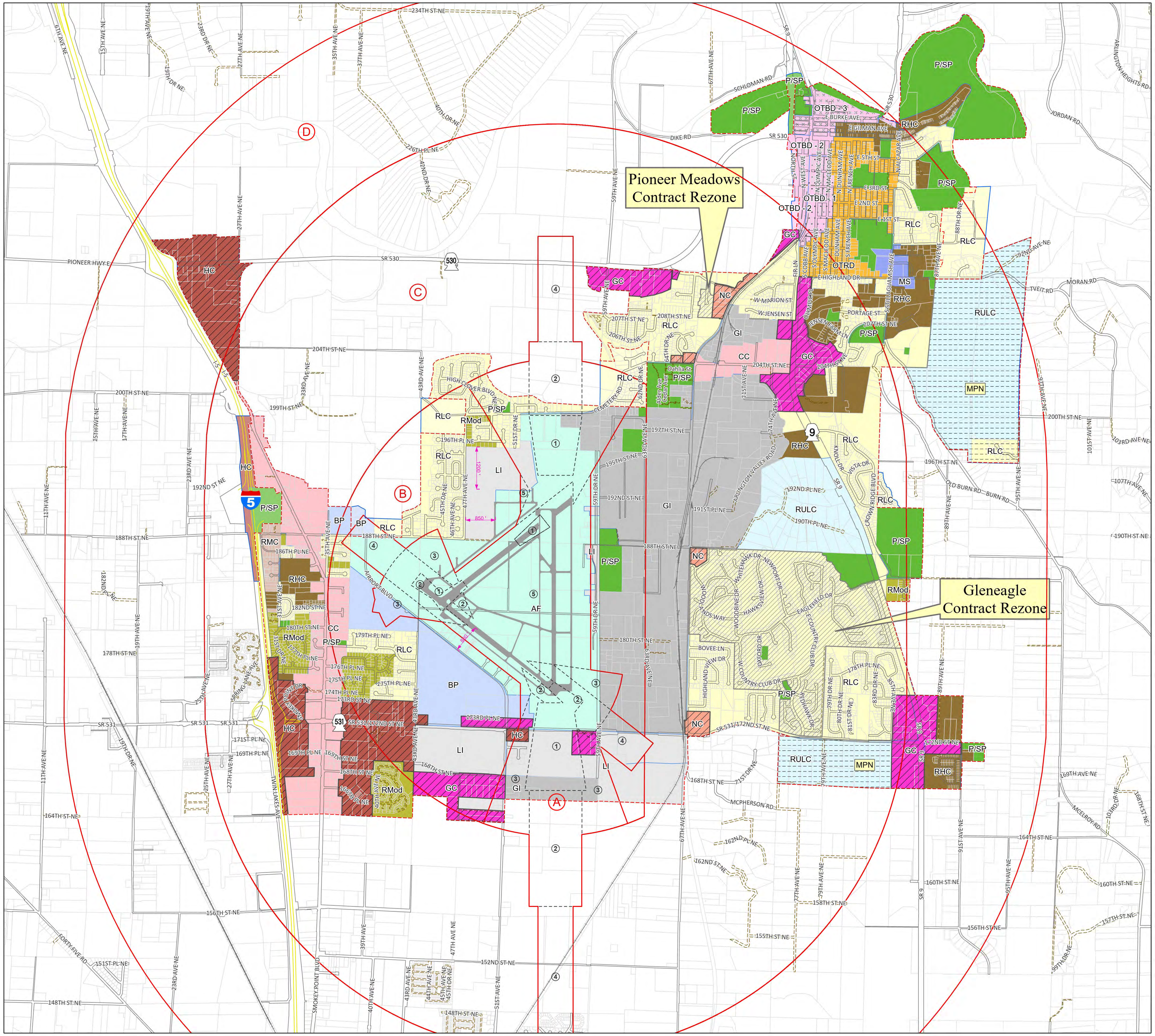
[2] Clustering of buildings to either side of the extended runway centerlines is encouraged to preserve open space in the event of an emergency aircraft landing.

20.38.090 Notice to Future Owners.

In order to mitigate impacts to the Arlington Airport, and to provide notice to future property owners, all property owners within the Airport Protection Subdistricts A, B and C seeking a land use or building permit or under taking substantial reconstruction shall dedicate an avigation easement over their property to the City of Arlington. All property owners within the Airport Protection Subdistrict D seeking a land use or building permit or conditional use permit or undertaking substantial reconstruction shall sign a disclosure notice. In addition, language shall be placed on the face of all residential subdivisions within the Airport Protection District notifying owners of possible affects from aviation activities. The language of the easement and notice shall be as provided by the Airport, as approved by the City Attorney and recorded with Snohomish County.

20.38.100 Supplemental Permit Review Requirements.

(a) No use, building, structure, or development activity within the AP District shall be established, altered or relocated by any person, firm or corporation, except as otherwise authorized by this chapter. Permits for such activities shall be processed in accordance with applicable provisions of the underlying zone, and the permit issuing authority may require the applicant to submit the following information in addition to that required of a standard permit:
   (1) A certificate from an engineer or land surveyor that clearly states that no airspace obstruction will result from the proposed use.
   (2) The maximum elevation of proposed buildings or structures based on the established airport elevation.
   (3) All construction on airport property and any construction that penetrates Federal Regulation Part 77 surfaces shall prepare and submit FAA form 7460.
   (4) The site plan shall clearly show:
      (A) The location of the project in relation to the Arlington Municipal Airport Protection District.
      (B) The location and height of all proposed buildings, structures, and natural vegetation as measured from the airport surface.
      (C) Within Subdistricts A, B and C, the location and type of storm drainage facilities.



- City Limits
- Urban Growth Area
- Streets
- Rail-line
- APD Subdistricts
- APD Safety Zones
- A B C D

THIS IS A COPY OF THE OFFICIAL ZONING MAP OF THE CITY OF ARLINGTON, PURSUANT TO AMC §20.36.100, WHICH WAS ADOPTED BY THE CITY COUNCIL ON 25 SEPTEMBER 2020 PURSUANT TO ORDINANCE NO. 2020-019 AND BECAME EFFECTIVE 30 SEPTEMBER 2020 .

Don Vanney
Mayor

Wendy Van Der Meersche
City Clerk

ZONING

- RULC = Residential Ultra Low Capacity
- RLC = Residential Low Capacity
- RMod = Residential Moderate Capacity
- RMC = Residential Medium Capacity
- RHC = Residential High Capacity
- OTRD = Old Town Residential District
- NC = Neighborhood Commercial
- OTBD - 1 = Old Town Business District - 1
- OTBD - 2 = Old Town Business District - 2
- OTBD - 3 = Old Town Business District - 3
- GC = General Commercial
- HC = Highway Commercial
- CC = Commercial Corridor
- BP = Business Park
- LI = Light Industrial
- GI = General Industrial
- P/SP = Public/Semi-Public
- MS = Medical Services
- AF = Aviation Flightline

- Contract Rezone
- Master Planned Neighborhood (MPN)
- Mixed Use Overlay

City of Arlington Zoning Map

Scale:

1 inch equals 1,333 feet

File:

ZoningLayouts \ 24x36Zoning2024

REV	REVISION	DATE
CS	Cote Annexation	9/24/2004
CS	Newman Annexation	8/1/2005
CS	Crawford Annexation	12/12/2005
CS	Heartland Annexation	2/27/2006
BC	Mulligan Annexation	9/13/2006
BC	Foster Annexation	2/15/2007
BC	Brekhus/Beach Annexation	5/19/2007
BC	Johnston Annexation	6/13/2007
DK	Bertrand Annexation	6/30/2008
DK	Island Crossing Annexation	11/26/2008
DK	Scrivener's Error	9/25/2010
DK	Zoning Revision	2/14/2011
DK	Comp Plan Amendment	4/22/2011
DK	Thompson Annexation	7/8/2011
DK	Hilltop Sports Annexation	7/8/2011
DK	Comp Plan Amendment	5/20/2012
DK	Star Annexation	6/27/2012
PE	Country Charm Annexation	8/28/2013
CY	Comp Plan Adoption	7/6/2015
CY	Comp Plan Amendment	7/13/2015
CY	Comp Plan Amendment	12/12/2016
MH	Comp Plan Amendment	7/10/2017
MH	Comp Plan Amendment	9/20/2017
MH	Comp Plan Amendment	5/6/2019
MH	Comp Plan Amendment	9/30/2020
MH	Lindsey Annexation	3/3/2022
MH	Scrivener's Error	3/10/2022
MH	Comp Plan Amendment	5/21/2022
MH	Comp Plan Amendment	6/28/2023
MH	Comp Plan Amendment	6/25/2024

CITY OF ARLINGTON

Appendix D

Approach Plates

ARLINGTON TWO DEPARTURE

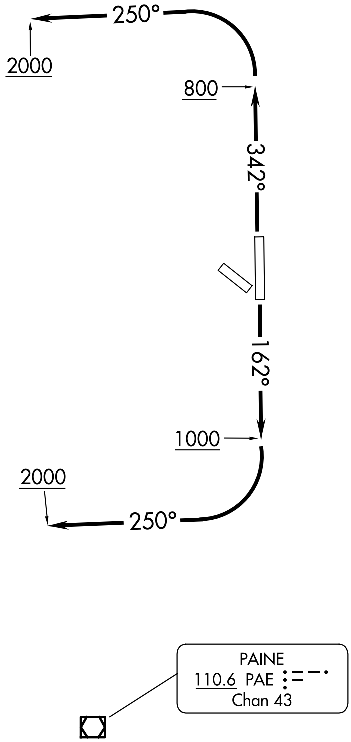
AL-795 (FAA)

ARLINGTON MUNI (AWO)
ARLINGTON, WASHINGTON

NW-1, 02 OCT 2025 to 30 OCT 2025

SEATTLE CLNC DEL
121.725
SEATTLE APP CON
128.5 306.9

TOP ALTITUDE:
2000



NOTE: RADAR required.

TAKEOFF MINIMUMS
Rwys 11, 29: NA - ATC.
Rwys 16, 34: Standard.

NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAY 16: Climb heading 162° to 1000, then climbing right turn heading 250° to 2000, thence . . . .

TAKEOFF RUNWAY 34: Climb heading 342° to 800, then climbing left turn heading 250° to 2000, thence . . . .

. . . . expect RADAR vectors to assigned route, expect clearance to filed altitude 5 minutes after departure.

LOST COMMUNICATIONS: If no transmissions are received for 3 minutes after departure, climb to filed altitude direct PAE VOR/DME, thence via assigned route.

NW-1, 02 OCT 2025 to 30 OCT 2025

LOC I-AWO	APP CRS	Rwy ldg	5332
111.5	**342°**	TDZE	**135**
		Apt Elev	**142**

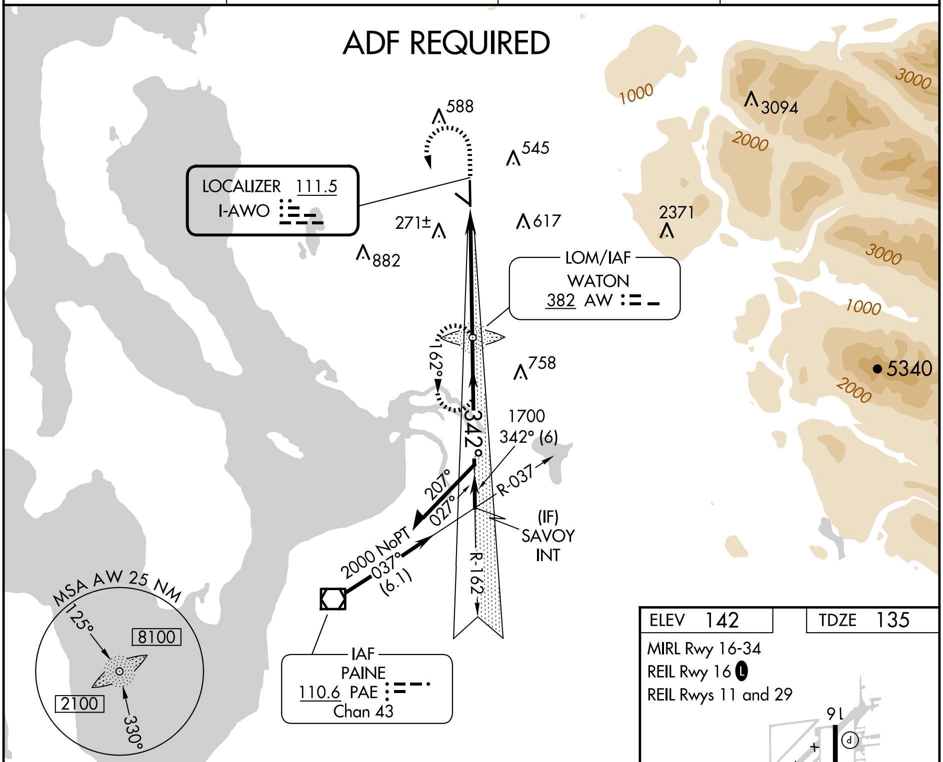
LOC RWY 34
ARLINGTON MUNI (AWO)

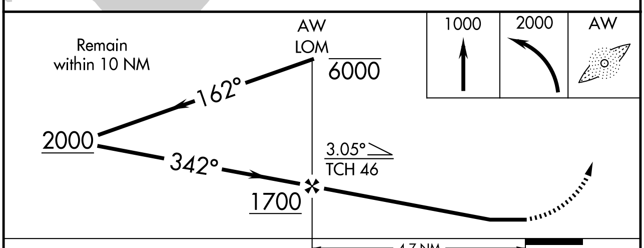
T ▲ NA ADF required. When local altimeter setting not received, use Whidbey Island NAS (Ault Field) altimeter setting: increase all MDA 80 feet and visibility S-34 Cats C and D and Circling Cats B and C ¼ SM. For inop MALS, increase S-34 Cats C and D visibility to 1⅜ .

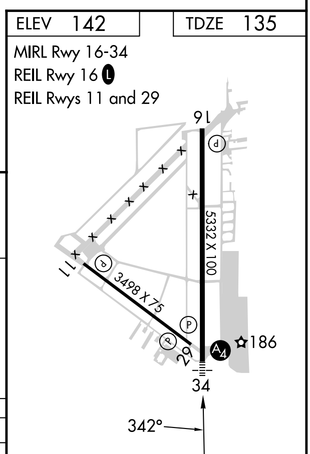
MALS A4

MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 direct WATON LOM and hold.

AWOS-3PT	SEATTLE APP CON	CLNC DEL	CTAF
135.625	**128.5 306.9**	**121.725**	**122.725** L







CATEGORY	A	B	C	D
S-34	580-¾ 445 (500-¾)		580-1 445 (500-1)	
CIRCLING	840-1 698 (700-1)	900-1 758 (800-1)	1000-2½ 858 (900-2½)	1040-3 898 (900-3)

FAF to MAP 4.7 NM					
Knots	60	90	120	150	180
Min:Sec	4:42	3:08	2:21	1:53	1:34

NW-1, 02 OCT 2025 to 30 OCT 2025
NW-1, 02 OCT 2025 to 30 OCT 2025

NDB RWY 34
ARLINGTON MUNI (AWO)

LOM AW	APP CRS	Rwy Idg 5332
382	342°	TDZE 135
		Apt Elev 142

T

A NA

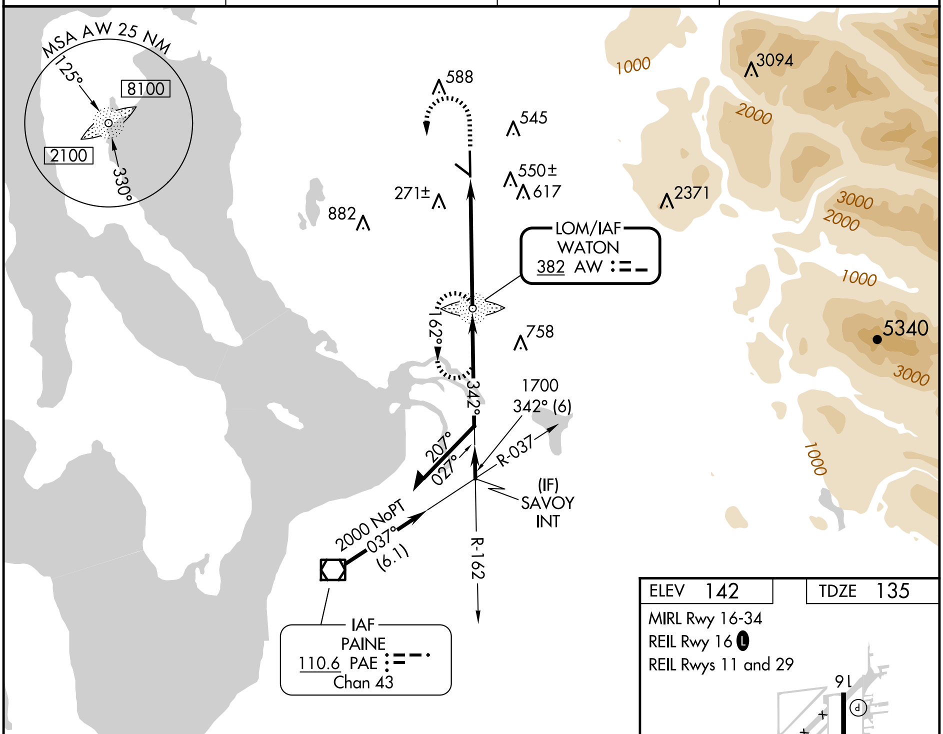
When local altimeter setting not received, use Whidbey Island NAS (Ault Field) altimeter setting: increase all MDA 80 feet and visibility S-34 Cats B, C, and D and Circling Cats B and C ¼ SM. For inop MALS when using Whidbey Island NAS (Ault Field) altimeter setting, increase S-34 Cats C and D visibility to 2½.

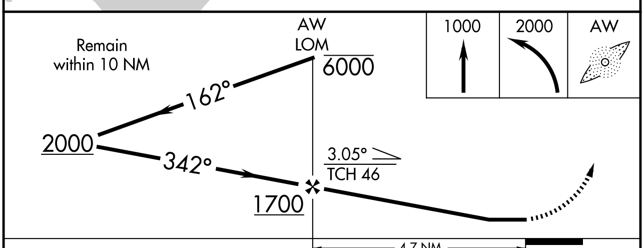
MALS

A4

MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 direct AW LOM and hold.

AWOS-3PT	SEATTLE APP CON	CLNC DEL	CTAF
135.625	128.5 306.9	121.725	122.725 L





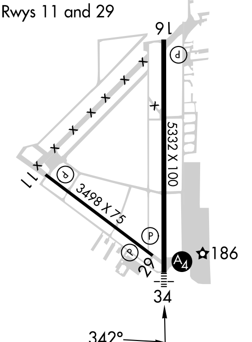
CATEGORY	A	B	C	D
S-34	860-¾ 725 (800-¾)		860-1¾ 725 (800-1¾)	
CIRCLING	860-1 718 (800-1)	900-1 758 (800-1)	1000-2½ 858 (900-2½)	1040-3 898 (900-3)

ELEV 142 TDZE 135

MIRL Rwy 16-34

REIL Rwy 16 L

REIL Rwys 11 and 29



FAF to MAP 4.7 NM

Knots	60	90	120	150	180
Min:Sec	4:42	3:08	2:21	1:53	1:34

NW-1, 02 OCT 2025 to 30 OCT 2025

RNAV (GPS) RWY 34

ARLINGTON MUNI (AWO)

WAAS CH 90324 W34A	APP CRS 342°	Rwy ldg 5332 TDZE 135 Apt Elev 142

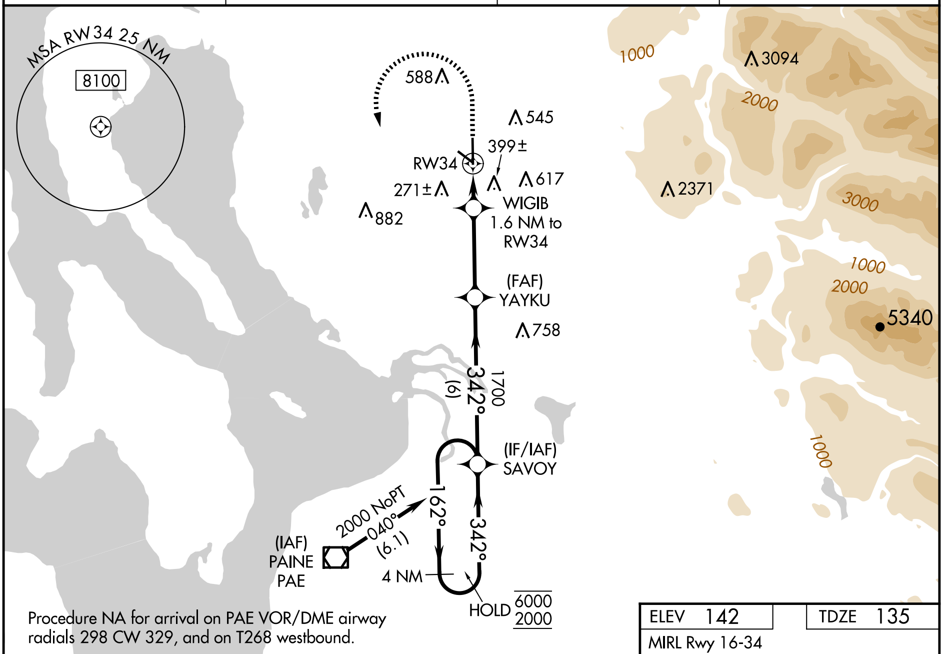
RNP APCH-GPS.

T A Inop table does not apply to LPV. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C or above 54°C. For inop ALS, increase LNAV/VNAV all Cats visibility to 1⅜ SM and LNAV Cat C and D visibility to 1⅛ SM.

MALS A4

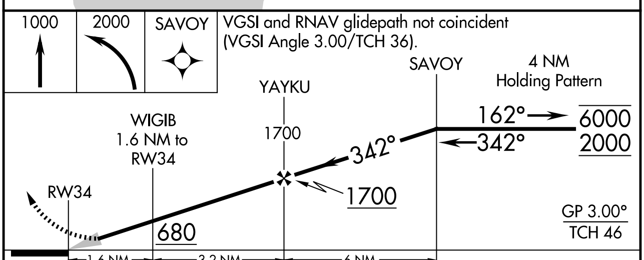
MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 direct SAVOY and hold.

AWOS-3PT	SEATTLE APP CON	CLNC DEL	CTAF
135.625	128.5 306.9	121.725	122.725 L



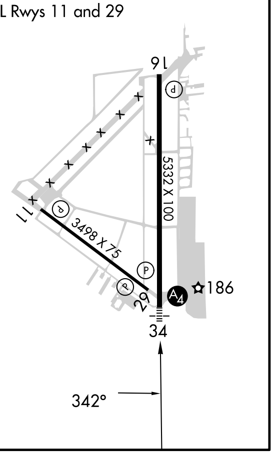
Procedure NA for arrival on PAE VOR/DME airway radials 298 CW 329, and on T268 westbound.

NW-1, 02 OCT 2025 to 30 OCT 2025



ELEV 142 TDZE 135

MIRL Rwy 16-34
REIL Rwy 16 L
REIL Rwys 11 and 29



CATEGORY	A	B	C	D
LPV DA	335-¾ 200 (200-¾)			
LNAV/VNAV DA	510-¾ 375 (400-¾)			
LNAV MDA	540-¾ 405 (400-¾)		540-1 405 (400-1)	
C CIRCLING	840-1 698 (700-1)	900-1 758 (800-1)	1000-2½ 858 (900-2½)	1040-3 898 (900-3)

NW-1, 02 OCT 2025 to 30 OCT 2025

ARLINGTON MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

Appendix E

Sustainable Aviation Fuel Analysis

MEMORANDUM

To: Century West Engineering

From: Kimley-Horn and Associates, Inc.

Date: August 25, 2025

Subject: Arlington Municipal Airport (AWO) Sustainable Aviation Fuel Analysis

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This memo has been prepared to support Century West Engineering in the development of the Arlington Municipal Airport – Airport Master Plan Update. This memorandum will summarize and provide an overview of the sustainable aviation fuels market currently in production and available for purchase based on publicly available information. The review will also estimate future availability of SAF for use by aircraft at Arlington Municipal Airport as well as potential source options. The memorandum will include a summary of anticipated facilities needed to support distribution and storage of SAF fuels and how they may be incorporated into the existing fueling infrastructure.

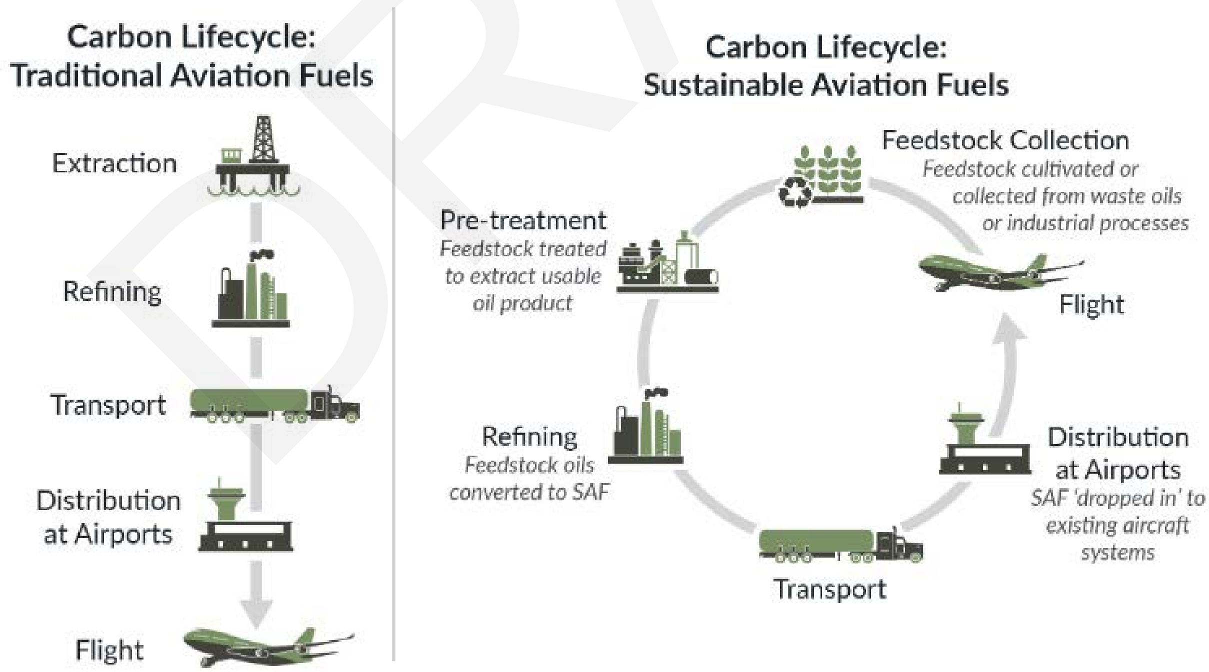
SUSTAINABLE AVIATION FUEL (SAF)

Sustainable Aviation Fuel (SAF) can broadly be 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 (Jet A) and is considered a "drop-in" fuel. As a result, the use of SAF requires no modification to aircraft in order to use this fuel. This cross-compatibility extends to fueling infrastructure such as storage tanks, pumps, pipelines, fuel trucks, off-load racks, and other fueling infrastructure enabling airports to offer SAF without making significant upgrades to their existing infrastructure.

Given the similarity in chemical composition, SAF has no effect on the tailpipe emissions of aircraft. Instead, it reduces lifecycle carbon emissions by offsetting tailpipe emissions. As illustrated in **Figure 1**, the traditional carbon life cycle is linear, extracting carbon from fossil fuel feedstocks, refining it, and then transporting to airports to be used in jet engines, emitting carbon emissions throughout the process. Conversely, SAF establishes a circular carbon lifecycle by gathering carbon from renewable sources (through cultivation of plants or recycling of waste oils/gases), refining it, and then dispersing it to airports for use. The use of renewable feedstocks offsets the carbon emitted from the aircraft by capturing carbon through feedstock cultivation, recycling waste oils, or capturing carbon dioxide (CO_2) emitted from industrial processes.

The analysis in this memorandum provides an overview of SAF technologies and explores the existing and projected production and availability of the fuel for use at Arlington Municipal Airport (AWO). Furthermore, this analysis aims to evaluate what factors could influence the availability of SAF and identify what infrastructure would be needed to support the use of the fuel at AWO.

Figure 1: Carbon Lifecycle Comparison



Source: Kimley-Horn, 2025

Role of Sustainable Aviation Fuel's Reduction in Greenhouse Gas Emissions

While airports can implement sustainability practices to improve their environmental stewardship, much of aviation's environmental impact results from aircraft operations. In 2022, aircraft generated roughly 2.5 percent of the total greenhouse gas (GHG) emissions in the United States, representing 10 percent of emissions in the transportation sector.[1] Given the significance of this impact, concentrated efforts have been made to improve the sustainability of aircraft operations through operational and technological improvements. One such technology being investigated is the use of SAF to replace Jet A in turbine aircraft.

The goal of SAF is to reduce the lifecycle carbon emissions of aircraft by sourcing fuel from carbon-neutral or carbon-negative sources, effectively canceling out the carbon emissions of a jet engine's operations. Many airports, airlines, aircraft manufacturers, and support businesses are in the process of implementing and expanding SAF use throughout the aviation industry.

Sustainable Aviation Fuel Background

Current SAF can be categorized as one of two types: Biofuels and e-fuels (also referred to as synthetic fuels or synfuels). The end products of both types of SAF are much the same as they provide a drop-in replacement to conventional jet fuel that can be used without modification to the aircraft. However, the feedstocks and production process of these fuels are different leading to significant variance in the amount carbon reduction achieved. Biofuel is the most commonly produced type of SAF and is derived from biomass, or renewable organic matter, such as fats, oils, and greases (FOGs), plant-based carbs or sugars, and lignocellulosic plants materials.

In contrast, e-fuel refers to a synthetic version of fuel produced through the power-to-lipid (PtL) process that combines electricity, hydrogen, and CO_2 to create hydrocarbons that are chemically identical to jet fuel. While the below elements are considered necessary elements to produce e-fuels, their source can vary so long as the elements are still derived from a renewable source.

A summary of Biofuel and e-fuel feedstocks are below:

Biofuel feedstocks:

- Fatty oil (triglyceride) feedstocks such as animal fats, cooking oils, seed oils, and waste greases
- Sugar/starch-based feedstocks such as sugar cane/beets, corn, and sorghum
- Lignocellulosic-based feedstocks such as wood waste, grasses, and algal/aquatic residues

e-fuel feedstocks:

- Hydrogen sourced from water using electrolysis
- Carbon dioxide (CO_2) captured from various industrial sources such as factories or power plants, and directly from the atmosphere
- Renewable energy generated from wind or solar

SAF is produced through complex chemical processing of raw biological or captured-carbon materials to be converted into usable jet fuel. These processes are highly regulated and subject to rigorous testing and materials specifications from ASTM International. ASTM is the leading fuel safety entity charged with developing and maintaining technical standards and qualifications that ensure jet fuel meets certain performance criteria and is

[1] Overton, Jeff. "U.S. and International Commitments to Tackle Commercial Aviation Emissions". Environmental and Energy Study Institute, January 31, 2025, https://www.eesi.org/articles/view/u.s-and-international-commitments-to-tackle-commercial-aviation-emissions.

safe for commercial use. ASTM has approved four pathways for producing SAF up to a 50 percent blend limit, meaning the SAF being used in aircraft is a half-and-half mixture of conventional jet fuel and SAF. The four pathways are described in the following bullets.[2,3]

- **Hydroprocessed Esters and Fatty Acids (HEFA):** Fatty feedstocks such as FOGs are hydroprocessed to remove oxygen and break apart the long chain of fatty acids to create a paraffinic molecule chain suitable for refining a biofuel called Synthetic Paraffinic Kerosene (SPK). Hydrocarbons from algal oil (algae) can also be broken down in a process called HC-HEFA. HEFA is the most common SAF production pathway, receiving ASTM certification in 2011.
- **Fischer-Tropsch (FT-SPK):** Any feedstock containing carbon is converted to syngas using gasification, similar to how fossil fuels (coal or natural gas) are separated into carbon and hydrogen for refining. The Fischer-Tropsch synthesis reaction then converts the syngas to jet fuel. The Fischer-Tropsch reaction can be used to develop both biofuels and e-fuels. Bio-feedstocks include woody biomass such as municipal, agricultural, and forestry waste; wood, and energy crops (e.g., corn, palm, sugar cane/beets, and sorghum). The Fischer-Tropsch synthesis can also be used to refine SAF called Power-to-Liquid (PtL) from oxygen and CO_2 captured in industrial processes. Fischer-Tropsch processes can produce both SPK and Synthetic Aromatic Kerosine (SAK) biofuels. ASTM approved the Fischer-Tropsch process in June 2009.
- **Alcohol-to-Jet (AtJ):** Cellulosic or starchy alcohol (isobutanol and ethanol) is converted into SAF through a series of chemical reactions that remove oxygen and create a carbon chain suitable for jet fuel. Alcohol derived from lignocellulosic biomass (e.g., corn stalks and husks) is considered a favorable feedstock, but other potential feedstocks (not yet ASTM approved) include methanol, iso-propanol, and long-chain fatty alcohols. ASTM approved in April 2016 for isobutanol and in June 2018 for ethanol.
- **Catalytic Hydrothermolysis (CH-SPK):** Fatty acid ester and free fatty acids from processing waste oils or energy oils are combined with preheated feed water and then passed to a catalytic hydrothermolysis reactor. Feedstocks for the CH-SPK process can be a variety of triglyceride-based feedstocks such as soybean oil, jatropha oil, camelina oil, carinata oil, and tung oil. ASTM approved CH-SPK in February 2020.

In addition to these four primary pathways, ASTM has approved a number of other pathways with a 10 percent SAF blend ratio. Additionally, ASTM D1655 *Standard Specification for Aviation Turbine Fuels,* allows co-processing or refining both SAF and Jet A at existing oil refineries in blends up to five percent. While these blend ratios are much lower, they still offer potential for conventional jet fuel production to become more sustainable.

EXISTING AND PROJECTED SAF PRODUCTION AND AVAILABILITY

At the beginning of 2024, SAF production capacity in the US was roughly 2,000 barrels per day from only two refineries in Long Beach, California, and Great Falls, Montana. By February 2025, production had increased to 30,000 barrels per day.[4] The two plants driving the increase in SAF production capacity are the Phillips 66's plant located in Rodeo, California, and capable of producing 10,000 barrels per day and the Diamond Green Diesel plant located in Port Arthur, Texas, with a production capacity of 15,000 barrels per day. Both plants use the HEFA production as it is the most common production method currently approved for SAF for use in aircraft. The plants, along with smaller additions in Reno, Nevada, and Hawaii came online in late 2024 and early 2025. Despite this substantial relative growth, SAF production still accounts for a small fraction of total jet fuel

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[2] U.S. DOE. "*Sustainable aviation fuel*: Alternative Fuels Data Center," Accessed July 24, 2025, https://afdc.energy.gov/fuels/sustainable-aviation-fuel#.
[3] SkyNRG, "Technology Basics," Accessed August 1, 2025, https://skynrg.com/sustainable-aviation-fuel/technology-basics/.
[4] Troderman, Jimmy. "U.S. Sustainable Aviation Fuel Production Takes Off as New Capacity Comes Online," U.S. Energy Information Administration, May 6, 2025, https://www.eia.gov/todayinenergy/detail.php?id=65204.

consumption, with daily production capacity accounting for less than two percent of the 1.7 million barrels consumed by the aviation industry per day in 2025.[5]

Many airlines and airports have begun using or offering SAF as it becomes more commercially available. Notable airports currently offering SAF to general aviation (GA) users include King County International Airport (BFI) through Signature Aviation in Washington, Aspen/Pitkin County Airport (ASE) and Telluride Regional Airport (TEX) in Colorado, as well as Sedona Airport (SEZ) in Arizona. SEZ receives its SAF from Neste's Long Beach facility that provides a 30/70 percent mixture of SAF to SEZ. The SAF is sold from the conventional jet fuel tanks at SEZ, which receives SAF every 10th shipment (10 percent of total fuel usage).[6]

Similarly, The Boeing Company purchased 9.4 million gallons of SAF in April 2024 for use at their airport facilities in the Pacific Northwest. Four million gallons of blended SAF are being delivered to The Boeing Company's fuel farms at select airports for use in aircraft delivery flights, flight testing, and other transportation. The remaining 5.4 million gallons are purchased as SAF book-and-claim credits for distributors to deliver to other airports for airline and GA use.[7]

Looking ahead, SAF production is poised to experience substantial growth in 2025 and continue through 2026. According to the US Energy Information Administration (EIA) biofuel production is projected to increase another 20 percent in the year 2026. This is due in part to the increase in SAF production realized from 2024 to 2025 and plans to build additional facilities that will increase the production capacity of biofuels in the US.[8] In the long-term, SAF production is expected to continue growing, due in part to the U.S. Department of Energy's (DOE) SAF Grand Challenge, which aims to increase production rates to 3 billion gallons (71.4 million barrels) per year by 2030.[9]

There are several initiatives in Washington State to produce SAF. These include SkyNRG's Project Wigeon, a large SAF production facility located in Walla Walla that is currently projected to open in 2029. Other facilities include BP's Cherry Point Refinery where they have recently received a grant to build SAF infrastructure at their current facility for 10 million gallons of SAF from renewable biomass, as well as Twelve's eFuel plant in Moses Lake producing fuels from green hydrogen.

FACTORS INFLUENCING AVAILABILITY OF SAF

While SAF is widely seen as a viable solution for improving sustainability of the aviation industry, there are several factors limiting its widespread implementation.

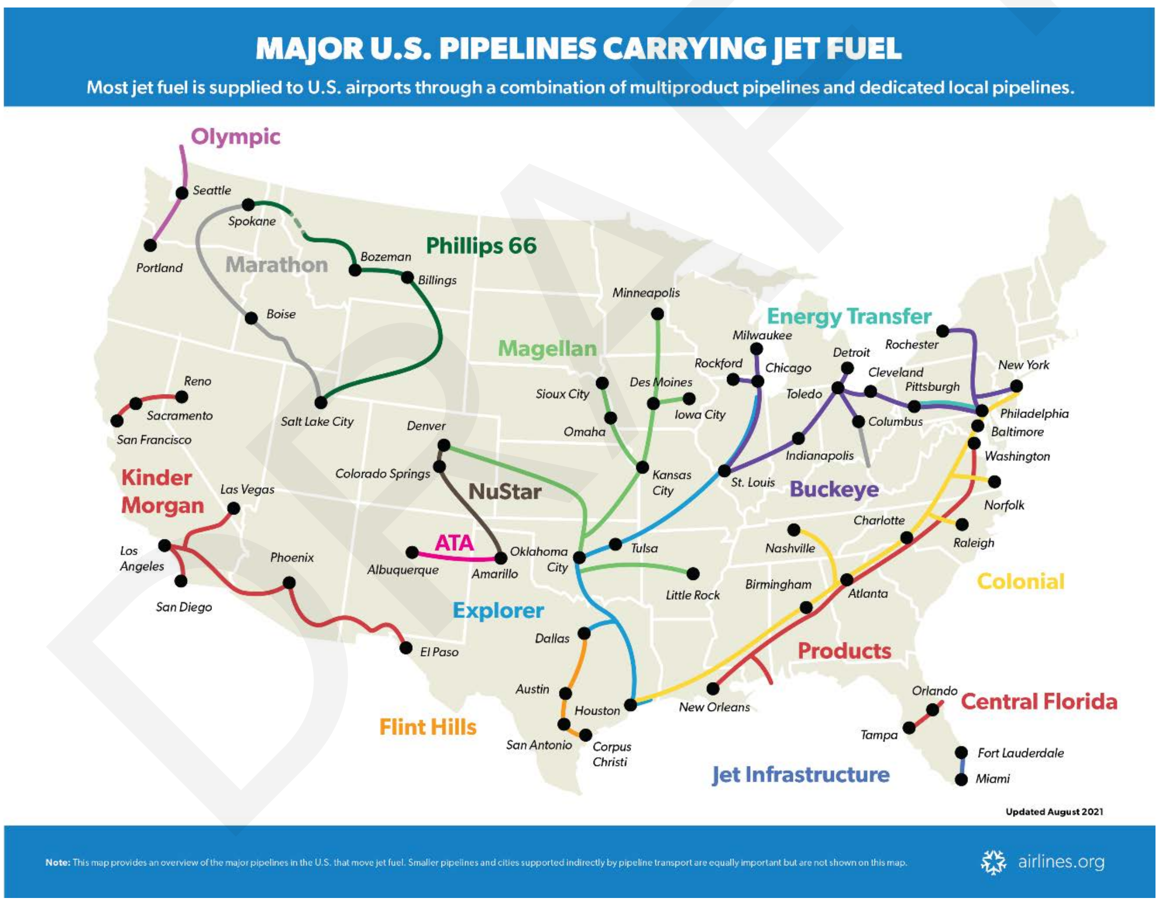
One significant factor influencing the availability of SAF is the cost. From feedstock sources and processing to logistics and domestic policy, there are several components of the SAF supply chain that impact its cost effectiveness. For example, some feedstock materials can be expensive and difficult to obtain, making the

[5] Troderman, Jimmy."U.S. Sustainable Aviation Fuel Takes Off," Page 4.
[6] Phelps, Mark, "Avfuel Brings Sustainable Aviation Fuel to Sedona Airport," AVweb, June 20, 2024, https://avweb.com/aviation-news/avfuel-brings-sustainable-aviation-fuel-to-sedona-airport/.
[7] Boeing Media Relations, "News Release: Boeing Makes its Largest Purchase of Blended Sustainable Aviation Fuel." The Boeing Company, April 16, 2024, https://www.boeing.com/company/about-bca/washington/boeing-to-buy-9-4m-gallons-of-blended-sustainable-aviation-fuel,
[8] US Energy Information Administration (EIA). *"US sustainable aviation fuel production takes off as new capacity comes online,"* US EIA, Accessed July 24, 2025, https://www.eia.gov/todayinenergy/detail.php?id=65204
[9] U.S. DOE Bioengineering Technologies Office, Sustainable Aviation Fuel Grand Challenge, U.S. DOE, Accessed August 1, 2025, https://www.energy.gov/eere/bioenergy/sustainable-aviation-fuel-grand-challenge.

production of SAF more expensive when additional biomass materials must be procured from multiple sources. Additionally, there are significant up-front financial investments needed to obtain the advanced technology and equipment required to convert these materials into SAF. Lastly, the relatively small-scale production of SAF coupled with regulations prohibiting its transportation in traditional fuel pipeline networks means that it must be moved by less cost-efficient methods. These factors and many others contribute to the overall price of SAF, which is significantly higher than conventional jet fuel. According to Airlines for America, the average weekly SAF price per gallon is $4.94 compared to just $2.24 per gallon of conventional jet fuel.[10] With a price of more than double that of conventional jet fuel SAF remains infeasible for many potential operators.

Accessibility to SAF will represent a considerable hurdle to use at GA airports, as the cost of transporting SAF can vary drastically depending on the airport's proximity to the nearest production source. Much like other traditional fuels, the movement of most conventional jet fuel to commercial service airports is accomplished through a national network of pipelines as shown in **Figure 2**.[11] This vast network offers distinct advantages making the largescale transportation of jet fuel cheaper and more efficient.

Figure 2: US Pipelines Carrying Jet Fuel



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[10] Airlines for America (A4A) using Argus Jet Fuel (Los Angeles) Index, "Daily Jet Fuel Price Comparison: Sustainable vs. Conventional Jet Fuel (Five-Day Rolling Avg.)," Accessed July 15, 2025, https://www.airlines.org/dataset/saf-vs-jet-fuel-comparison/#jet-fuel-prices

[11] Airlines for America. "*Major U.S. pipelines carrying jet fuel,"* August 13, 2021, https://www.airlines.org/media/major-u-s-pipelines-carrying-jet-fuel/

Source: Airlines for America (A4A), 2021 (Accessed July 24, 2025)

Neat SAF, which is 100% SAF without any blending, is not yet permitted to be transported through traditional pipelines per Federal Energy Regulatory Commission regulations, requiring it to be blended with conventional jet fuel at a refinery or terminal before being transported via pipeline to an airport. At refineries where SAF is co-processed with petroleum and mixed onsite site, distribution is straightforward, and the blended mixture can be transported through the existing supply chain in a similar manner to other fuels. In cases where SAF is produced at a standalone facility, it must be transported by truck or rail to a facility where it can be blended with Jet A and then be delivered to an airport. Driver shortages and fluctuating fuel prices (diesel and gas) make transporting SAF by truck more expensive than other transportation options, yet this option is often the fastest and most flexible and is commonly used for shorter distances especially when SAF is produced near a Jet A terminal and requires delivery to geographically disperse airports.

As of July 2025, the closest operational SAF production facilities to AWO are Great Falls, Montana, and Reno, Nevada. Use of SAF at AWO would require the fuel to be trucked more than 675 miles, resulting in a substantially higher cost and carbon emissions. There are several production facilities in the planning and development stage in Washington State including Moses Lake and Walla Walla, with plans to open in 2029. [12] When these facilities come online, transport costs are likely to decline, although GA airports like AWO will have to compete with in the Pacific Northwest and globally for the supply of SAF from these facilities.

INFRASTRUCTURE NEEDED

As described, the intended purpose of SAF is to replace conventional jet fuel use in turbine aircraft operating at AWO. Given the ability to "drop in" SAF into existing fuel supplies, the Airport could pursue one of two pathways:

- Integrate SAF fuel shipments into the conventional jet fuel supply or;
- Build a new fuel reception, storage, and distribution facility specific to SAF.

The following section briefly summarizes some of the considerations for each potential pathway.

To integrate SAF into the main Jet A fuel supply, AWO could implement a practice similar to SEZ and receive staggered shipments of SAF fuel throughout the year. This strategy would be relatively simple to implement as SAF functions as a drop-in replacement and can be mixed into the regular shipments of jet fuel received by the Airport. For example, if AWO (or it's FBO) purchases SAF once in every ten fuel shipments (similar to the rate at which SEZ purchases SAF) this would equate to 8,000 gallons of SAF purchased per year. Use of existing fuel facilities would also enable AWO to insulate and protect itself from potential financial hardship if providing SAF does not yield a profitable outcome. The increased price of SAF could be offset by either increasing the price of all jet fuel sold at the Airport or by allowing operators to purchase SAF "credits" at a higher price which can be used to meet sustainability metrics.

The second strategy AWO could employ is to add separate fuel infrastructure that is specifically dedicated to SAF. The airport would develop all the traditional components of a typical jet fuel system including a storage tank and accompanying components such as fuel pumps, hoses, offload racks, and fueling trucks, and other

[12] Argus Media. "*SAF Capacity Map*." Last updated June, 2025. https://view.argusmedia.com/rs/584-BUW-606/images/PRO-Argus-SAF-Capacity-Map-June-2025-V1.pdf

distribution systems. Based on historical fuel usage at AWO, an 8,000-gallon tank would likely provide sufficient capacity for SAF and would be able to be placed directly adjacent to the existing fuel facility.

SUMMARY

SAF offers a promising avenue for the aviation sector driving rapid advancements in research and development and prompting stakeholders around the globe to establish mandates and targets for cutting air travel's carbon emissions. Although SAF accounts for a small percentage of annual jet fuel consumption, at roughly one percent, its role is expected to grow rapidly, becoming central to future net zero goals during the next decade.[13] With several SAF facilities planned in the state of Washinton and the growing trend toward sustainability, AWO could emerge as a uniquely strategic hub for SAF integration and help to further the State's clean air initiatives. While higher costs and scalable production remain a challenge, ongoing investments and support from stakeholders such as FBO's, businesses), and key partners in the aerospace industry help to underscore the importance of transitioning to a more sustainable future and set the stage for SAF to become a cornerstone of a low-carbon aviation industry.

[13] US Energy Information Administration (EIA). *"US sustainable aviation fuel production takes off as new capacity comes online,"* US EIA, Accessed July 24, 2025, https://www.eia.gov/todayinenergy/detail.php?id=65204

ARLINGTON MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

Appendix F

Advanced Air Mobility Planning

Kimley»Horn

MEMORANDUM

To: Century West Engineering

From: Kimley-Horn and Associates, Inc.

Date: September 9, 2025

Subject: **Task 7.4 - Arlington Municipal Airport (AWO) Advanced Air Mobility Planning**

As the aviation industry enters a transformative era, the City of Arlington recognizes the critical importance of preparing Arlington Municipal Airport (AWO) for the emerging landscape of Advanced Air Mobility (AAM). AAM encompasses passenger transport, cargo delivery, and public service missions enabled by electric vertical takeoff and landing (eVTOL) aircraft and other emerging technologies such as battery and hydrogen-powered platforms. While this analysis primarily focuses on the passenger use case, it acknowledges the diversity of use cases within that category, including air taxi services, medical transport, tourism, and other specialized missions.

This technical memorandum outlines a recommended approach for integrating AAM considerations into the Airport Master Plan Update (AMPU), ensuring that AWO is well-positioned to accommodate anticipated AAM demand. The analysis emphasizes the near-term outlook, specifically the first six years of AAM service, and leverages the latest FAA Aerospace Forecast 2025–2045 to estimate AAM demand at the Airport using market share analysis. While long-term forecasting beyond this initial period presents inherent challenges, this study provides reference scenarios illustrating how AAM operations may evolve over time by applying varying growth rates that may correlate to AAM growth.

Near-term projections will serve as a reference for the subsequent phase of the study, which will evaluate AAM facility requirements such as energy grid capacity, AAM aircraft parking, and other infrastructure needs. While long-term forecasting presents inherent uncertainties, reference scenarios are included to illustrate how AAM operations may evolve under different growth trajectories. The findings and recommendations are intended to support informed decision-making by the City as it prepares AWO for the next generation of air mobility.

Introduction to Advanced Air Mobility

AAM introduces a transformative approach to regional mobility through short-haul passenger flights, cargo delivery, and public service missions using eVTOL aircraft. One of the most promising use cases in Snohomish County is passenger transport between Arlington and major urban centers like Seattle. AAM could reduce travel time on this corridor to under 20 minutes, significantly improving mobility. This time savings not only enhances quality of life for commuters but also boosts regional economic productivity by improving access to employment, healthcare, and education. In AAM's initial phase, passenger flight operations are expected to be limited in scale and frequency, focusing on pilot programs, demonstration flights, and early commercial services. These activities will likely be managed by Fixed Based Operators (FBOs) and AAM Operators, leveraging existing facilities such as hangars and aprons. This approach enables airports and public agencies to participate in the evolving AAM ecosystem with limited investment.

Strategically positioned in Snohomish County, AWO offers a compelling location for early adoption of AAM operations. The region has experienced robust population growth, averaging 3.65 percent annually between 2018 and 2024, nearly three times the state's average, highlighting its growing appeal as both a residential and economic hub. This expansion is fueled by several favorable conditions: a strong job market anchored by aerospace, manufacturing, and technology sectors; and a housing market. However, this rapid growth has also led to increased strain on regional infrastructure, particularly roadways. Congestion on major corridors such as Interstate 5 has become a persistent challenge, with vehicle commute times from Arlington to Seattle often exceeding 90 minutes during peak hours. These transportation bottlenecks underscore the urgency for alternative mobility solutions, positioning AAM as a timely and innovative response.

As AAM technologies mature and demand increases, AWO may transition from supporting limited operations to accommodating a broader range of services and higher traffic volumes. If the industry's forecasted growth is realized, this evolution will necessitate the development of dedicated infrastructure, potentially including a public-use vertiport equipped with electric aircraft charging stations, passenger amenities, and other operational support systems. The vertiport could be publicly owned and designed to support both commercial and public service missions or developed and operated similar to an FBO. Long-term planning should also incorporate multimodal connectivity, ensuring seamless integration with ground transportation networks such as buses, ride-sharing services, and regional rail.

Washington State – AAM Planning Overview

Washington State has demonstrated a proactive and strategic approach to planning for AAM positioning itself alongside leading metropolitan regions such as Los Angeles, New York, and San Francisco. Through a series of coordinated planning efforts, including *WSDOT Aviation System Plan (2017), Washington Electric Airport Feasibility Study (2022), and WSDOT AAM Aircraft Plan (2025),* the State has laid a comprehensive foundation for integrating AAM into its multimodal transportation network.

WSDOT AAM Aircraft Plan (2025) was developed in response to Engrossed Substitute House Bill (ESHB) 1125, which directed WSDOT to assess the feasibility, infrastructure needs, regulatory pathways, and economic implications of AAM deployment. The plan outlines a strategic vision for Washington to embrace next-generation aviation technologies, emphasizing mobility, sustainability, and economic resilience. It anticipates the first vertiport becoming operational by 2027 and identifies key milestones to guide forecasting and infrastructure planning.

WSDOT identifies AAM as a regional economic opportunity, particularly through Regional Air Mobility (RAM), which could reduce travel time and costs, enhance connectivity between rural and urban centers along the I-5 and selected routes to Eastern WA, and stimulate business and tourism in smaller communities. These benefits align with the goals of the Washington Transportation Plan 2040 and are supported by data from the *2020 Washington Aviation Economic Impact Study*.

The plan also emphasizes leveraging existing infrastructure, making airports like AWO strong candidates for early AAM operations. Notably, AWO ranks 9th out of 82 airports according to the selection study in the *Electric Aircraft Feasibility Study (2020)*, scoring 44 out of 50 points based on criteria such as county-level demand, connectivity, economic vitality, and existing services. In addition to airport readiness, the plan identifies urban transit hubs such as King Street Station and Everett Station in downtown Seattle as notional vertiport sites. King Street Station, located in Pioneer Square, offers multimodal access via Amtrak, commuter rail, light rail, streetcar, and ferry services. Everett Station similarly provides extensive transit connectivity and community services, with long-term plans for expansion and mixed-use development. Both locations are expected to support high-traffic AAM operations and may require complex vertiport infrastructure to accommodate future demand.

Figure 1 – Selection of Beta Test Sites, Preliminary Results

Associated City	FAA ID	Airport	Washington Classification	Final Points Ranking
Seattle	BFI	Boeing Field/King County International	Major	48
Spokane	GEG	Spokane International (Geiger Field)	Major	48
Everett	PAE	Snohomish County (Paine Field)	Major	48
Renton	RNT	Renton Municipal	Regional	48
Seattle	SEA	Seattle-Tacoma International*	Major	48
Spokane	SFF	Felts Field	Regional	48
Moses Lake	MWH	Grant County International	Major	47
Arlington	AWO	Arlington Municipal	Regional	44
Kelso	KLS	Southwest Washington Regional	Community	44
Tacoma	TIW	Tacoma Narrows	Regional	44
Wenatchee	EAT	Pangborn Memorial	Major	43
Pullman/ Moscow	PUW	Pullman/Moscow Regional	Regional	43
Yakima	YKM	Yakima Air Terminal (McAllister Field)	Major	43
Chehalis	CLS	Chehalis-Centralia	Regional	42
Kenmore	S60	Kenmore Air Harbor Inc	General Use	42
Vancouver	VUO	Pearson Field	Regional	42

Source: Electric Aircraft Feasibility Study (2020), WSDOT Aviation Division

These statewide efforts reflect Washington's commitment to aligning AAM planning with broader transportation, sustainability, and economic development goals. The insights and milestones established in these plans will inform subsequent phases of the Arlington Municipal Airport Master Plan

Update, particularly in evaluating facility requirements such as energy grid capacity, aircraft parking, and multimodal integration.

Forecasting Challenges and Assumptions

Given that AAM is an emerging mode of transportation that has yet to be fully realized, forecasting AAM demand at AWO presents a complex and uncertain challenge. Unlike traditional aviation operations, which benefit from decades of historical data and well-established forecasting models, AAM lacks a comparable foundation of empirical data. This absence makes it difficult to accurately predict the pace and scale of future AAM activity at AWO. While various industry reports and projections exist, many are designed to attract investment and may not reflect the operational realities or regulatory constraints that will shape AAM deployment. These projections often assume optimistic timelines and overlook the technological, infrastructural, and policy hurdles that must be addressed before AAM can be widely adopted in the United States. The growth of AAM at AWO will depend on a range of evolving factors, including aircraft certification, airspace integration, community acceptance, and operator readiness. Each of these factors introduces uncertainty into the forecasting process, and their combined influence will ultimately determine whether AAM activity at AWO follows a low-growth or high-growth path. Recognizing these limitations, the following section outlines a baseline forecasting methodology for AAM operations at AWO. This approach incorporates both conservative and optimistic growth scenarios, as defined in ***Table 1***, to account for uncertainty and to support 20-year forecasting effort and infrastructure planning.

Table 1 - AAM Forecasting Challenges and Considerations

Forecast Variables	Low Growth	High Growth
AWO AAM Infrastructure/Energy Grid Capability	Delayed development of vertiport infrastructure and energy grid capacity could hinder AAM operators from scaling efficiently. This misalignment may slow market expansion and limit AWO's ability to realize its full growth potential.	If vertiport infrastructure and energy systems are expanded in step with projected demand, AAM operators will be able to scale services efficiently. This alignment will support higher flight volumes, reduce delays, and unlock AWO's full growth potential.

Forecast Variables	Low Growth	High Growth
AAM Operator Market Entrance / Aircraft Certification by 2027	The pace of AAM market growth in the nation will be heavily influenced by the number and diversity of certified eVTOL aircraft and service providers entering the market. A scenario in which only a few operators achieve certification could result in limited competition, higher costs, and slower innovation.	If multiple OEMs successfully certify aircraft and a range of operators enter the market in the near future, it would foster a competitive environment that encourages service differentiation, pricing flexibility, and broader consumer adoption.
Growth of AAM Network in the Region	AAM growth at AWO also relies on a broader regional network of vertiports and flight corridors. Limited service destinations within a 150-mile radius would restrict route flexibility and reduce the overall utility of AAM operations.	Establishing AAM corridors between AWO and key destinations, such as Seattle-Tacoma International Airport (SEA), Snohomish County Airport - Paine Field, and Downtown Seattle, would significantly strengthen market viability. Adding high-demand locations like sports venues and event sites would further boost service appeal and drive demand.
Public/Community Acceptance of AAM	Public perception of AAM safety, noise, and environmental impact will play a pivotal role in determining the pace of adoption. A single high-profile accident or unmet expectations around noise reduction could negatively impact trust and stall progress	Realizing the tangible benefits of AAM, such as reduced roadway congestion, lower greenhouse gas emissions, and enhanced emergency response capabilities will play a critical role in strengthening public perception and fostering support for AAM adoption and growth.

Forecast Variables	Low Growth	High Growth
Enabling Technology/Regulatory Advancements	The current National Airspace System (NAS) may constrain AAM growth due to airspace and ATC workload limitations without any meaningful technological and regulatory advancements. Prevents supporting many simultaneous autonomous operations.	Implementation of Unmanned Aircraft System Traffic Management (UTM), inspired Air Traffic Management (ATM), Communications, Navigation, Surveillance, and Automation (CNSI) systems that enable scalable and weather tolerant operations in the AAM industry. Other airspace components may include a number of high-capacity aerodromes strategically located in the region.
Different Types of Ownership Model	A singular private ownership model of vertiports emerges, restricting public use of facilities to a limited number of operators.	Different types of vertiport ownership models, including Public-Private Partnership (P3) opportunities.

Source: Kimley-Horn

20-Year AAM Forecast at AWO

While AAM is not anticipated to significantly impact airfield capacity at AWO in the near term, it is essential to proactively incorporate AAM considerations into the airport's long-range planning framework. As the industry evolves and regional demand patterns emerge, AWO must be prepared to evaluate the potential scale and scope of AAM operations over a 20-year planning horizon. This begins with assessing projected demand under varying growth scenarios and estimating potential service volumes.

Given that the AAM industry is still in the early stages of development, a range of assumptions and forecasting methodologies must be clearly defined before beginning the forecasting process. The following section outlines the key assumptions and methodological framework used to guide the 20-year AAM forecast at AWO.

Forecasting Assumptions

1. **Primary Use Case at AWO:** The forecast assumes that the primary initial use case for AAM deployment at AWO will be passenger transport, particularly for short- to medium-range urban and regional trips. This aligns with broader industry expectations that early AAM operations will target high-value, time-sensitive travel corridors, serving affluent early adopters and business travelers. Over the course of the 20-year planning horizon, it is anticipated that AAM services will become more accessible to the general traveling public, expanding beyond niche markets. In contrast, lightweight drone delivery operations are expected to be more viable in logistics

hubs or dedicated shipment centers rather than at AWO. This assumption is based on the need to avoid congested controlled airspace and minimize operational conflicts with manned aircraft. As such, drone delivery is not considered a primary driver of AAM activity at AWO within the forecast period.

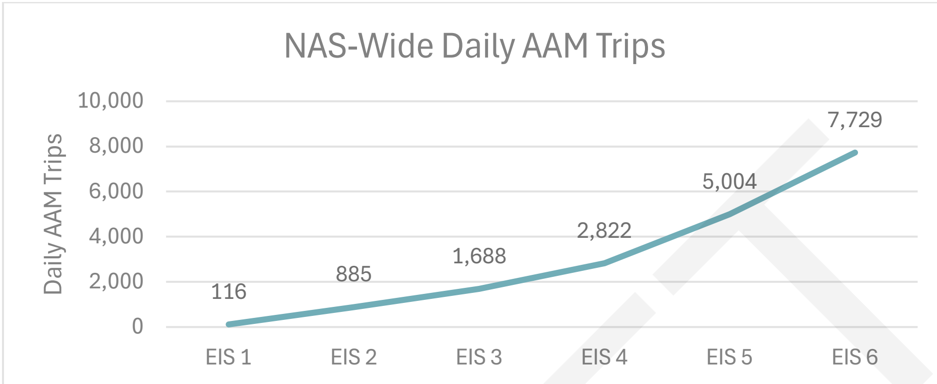
2. **Entry into Service (EIS):** The forecast sets 2027 as the EIS year for commercial AAM operations within the National Airspace System. This moderate-growth scenario accounts for the time required to achieve FAA certification, develop supporting infrastructure, and secure community acceptance. While some original equipment manufacturers (OEMs) project earlier timelines, 2027 is considered a realistic baseline for limited early adoption This timeline also aligns with WSDOT's projection that the first vertiport will become operational by 2027, as noted in the WSDOT AAM Aircraft Plan. It is important to note that this does not imply immediate AAM activity at AWO; initial deployments are more likely to occur in major metropolitan areas such as Los Angeles, San Francisco, and New York, with the Greater Seattle Area (Seattle, Bellevue, Tacoma, King, Pierce, and Snohomish) potentially following at a later stage.
3. **Infrastructure Availability:** This forecast represents an **unconstrained scenario**, meaning it assumes that the necessary supporting infrastructure at AWO will be available in alignment with the launch of AAM services. Specifically, this includes the installation of ground-based charging stations for eVTOL aircraft, as well as potential upgrades to the electrical grid to support sustained and scalable operations. These infrastructure components are considered essential to enabling safe, reliable, and commercially viable AAM activity at AWO over the 20-year planning horizon.

Defining Baseline Number of Daily Operation at EIS 1

Defining a baseline number of daily AAM operations, without any historical precedent to guide assumptions, is one of the most complex challenges in forecasting for AAM operations. Any baseline value established at this stage should be considered provisional and subject to revision as the AAM industry matures and more data becomes available. It is critical that this baseline be revisited regularly to reflect emerging trends, technological advancements, and regulatory developments.

According to the FAA's 2025 Aerospace Forecast, approximately 116 daily AAM trips are expected nationwide across the National Airspace System (NAS) during EIS 1. AAM services are projected to begin entering the market between 2025 and 2027, starting in a limited capacity and focused on select launch cities. These early operations will likely be experimental and slow to scale. The first five years following EIS are expected to concentrate on resolving key challenges such as certification, infrastructure development, and building viable business models. If these foundational hurdles are successfully addressed, the period from EIS 1 to EIS 6 is anticipated to experience exponential growth. Beyond 2040, the industry is expected to transition into a more mature and stable phase. ***Figure 2*** below presents FAA's NAS-wide AAM demand forecast for the first six years of service.

Figure 2 – NAS-Wide Daily AAM Trips



Source: 2025 – 2045 Aerospace Forecast, FAA

AAM daily trips are projected to increase significantly, reaching approximately 7,729 by EIS 6. This trajectory reflects a Compound Annual Growth Rate (CAGR) of 131% between EIS 1 and EIS 6, and a still-robust 71.9% CAGR from EIS 2 to EIS 6. Such rapid acceleration is consistent with FAA expectations for emerging aviation sectors, where early-stage growth tends to follow an exponential curve driven by technological innovation, regulatory progress, and market entrance by various AAM operators. As the industry transitions from early adoption to broader maturity, this growth is expected to stabilize into a more predictable and sustainable pattern.

To estimate local AAM demand at AWO, a market share methodology was employed. This method begins by identifying the population within the airport's immediate catchment area, defined as a 10-mile radius. This distance reflects a practical last-mile connection between an AAM facility at AWO and the origin or destination points of potential users, preserving the time-saving benefits of AAM. The local population within this radius, approximately 193,000 residents, based on U.S. Census Bureau data, represents the potential customer base for AAM services in the area.

This local population is then compared to the total U.S. urban population, estimated at 265 million people[1] . By calculating the ratio of AWO's catchment population to the national urban population, AWO is estimated to represent approximately 0.07% of the total AAM market share. This percentage is then applied to the FAA's national AAM demand forecast to estimate AWO's potential activity levels during the first five years following EIS. These projections are summarized in ***Table 2*** and serve as a baseline input for 20-year AAM forecast at AWO.

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[1]*According to the U.S. Census Bureau, approximately **80% of the nation's population resides in urban areas**.*

Table 2 – AWO AAM Market Share

Year	NAS-Wide Daily Trips	AWO Daily Trips (0.07% Market Share)	AWO Annual Trips
2027 - EIS 1	116	0.1	30
2028 - EIS 2	885	0.6	235
2029 - EIS 3	1,688	1.2	448
2030 - EIS 4	2,822	2.1	749
2031 - EIS 5	5,004	3.6	1,329
2032 - EIS 6	7,729	5.6	2,053

Source: FAA; Kimley-Horn

As shown in the table, AWO's catchment area is not expected to generate sufficient demand for at least one daily AAM trip until EIS 3, which corresponds to the year 2029. While daily trips can be extrapolated into annual figures, resulting in approximately 30 trips by EIS 1 and 235 trips by EIS 2, these volumes fall short of the threshold needed to support a viable business case for infrastructure investment. Based on the analysis, AWO may begin to see demand for at least one daily trip starting in 2029, with potential growth to around 5 to 6 daily trips and approximately 2,053 annual trips by 2032. Using the 5.6 daily trips (or 2,053 annual trips) as a baseline for initial AAM operations, the following section examines how activity at AWO could evolve under more stabilized growth conditions through 2044 as the industry transitions into a more mature phase.

AAM Activity at AWO Post EIS 6

The FAA Aerospace Forecast projects a Compound Annual Growth Rate (CAGR) ranging from 32% to 67% for AAM operations during the first six years following Entry into Service (EIS). These figures reflect the anticipated surge in activity as the industry begins to take shape, driven by early adoption, technological innovation, and regulatory momentum. However, sustaining such elevated growth rates over a full 20-year forecast horizon is unlikely. Factors such as market saturation, evolving regulatory frameworks, and the pace of infrastructure development will inevitably moderate growth as the industry matures. As outlined in the forecasting challenges section of this report, AAM remains an emerging sector with limited historical data and few established forecasting models to support long-range projections. To address this uncertainty, this section incorporates comparative growth rates from other aviation segments at AWO, as well as regional economic indicators, to develop a more grounded and comprehensive 20-year demand forecast for AAM operations.

- **FAA 2025-2045 Aerospace Forecast: Air Taxi and General Aviation Growth Rates -** The FAA's 2025-2045 Aerospace Forecast offers valuable benchmarks drawn from traditional aviation segments. Specifically, the FAA anticipates an average annual growth rate of 1.3% for Air Taxi operations and 0.9% for (GA) General Aviation hours flown between 2025 and 2045. These figures reflect steady, incremental growth patterns typical of mature aviation sectors. As AAM transitions from its early exponential phase into a more stabilized stage of development, these conservative growth rates provide a realistic baseline for modeling future demand.

- **City of Arlington and Snohomish County Socioeconomic Growth -** Regional socioeconomic trends are a useful data point in assessing future AAM demand at AWO. Historic and forecasted growth in population and GDP offer insight into the community's capacity to support new transportation modes. The following indicators were evaluated in the forecast:
  - **Snohomish County Population Projection:** 1.25%
  - **Snohomish County Historic GDP Growth (2013–2024):** 2.55%
  - **City of Arlington Historic GDP Growth (2013–2024):** 2.27%

  These figures suggest steady regional expansion, which could correlate with increased demand for AAM services, particularly as the technology becomes more accessible and integrated into broader mobility networks.
- **AWO 2024 Terminal Area Forecast (TAF) –** The FAA's 2024 TAF for AWO offers insight into anticipated aviation activity based on regional trends and historical performance. According to the forecast, total operations at AWO are expected to grow at an average annual rate of 0.85%, while the number of based aircraft is projected to increase by 0.75% annually between 2024 and 2044. These modest growth rates reflect the airport's stable operational environment and can serve as a conservative reference point when modeling long-term AAM activity.

Utilizing the growth trends highlighted above, ***Figure 3 and Table 3*** below illustrates the projected annual AAM trips at Arlington Municipal Airport beyond EIS 6. This establishes a baseline level of service that AWO can anticipate over the 20-year planning horizon, reflecting a more normalized growth trajectory as the industry matures and integrates into the broader transportation ecosystem.

Figure 3 – Potential AAM Activity at AWO Post EIS 6

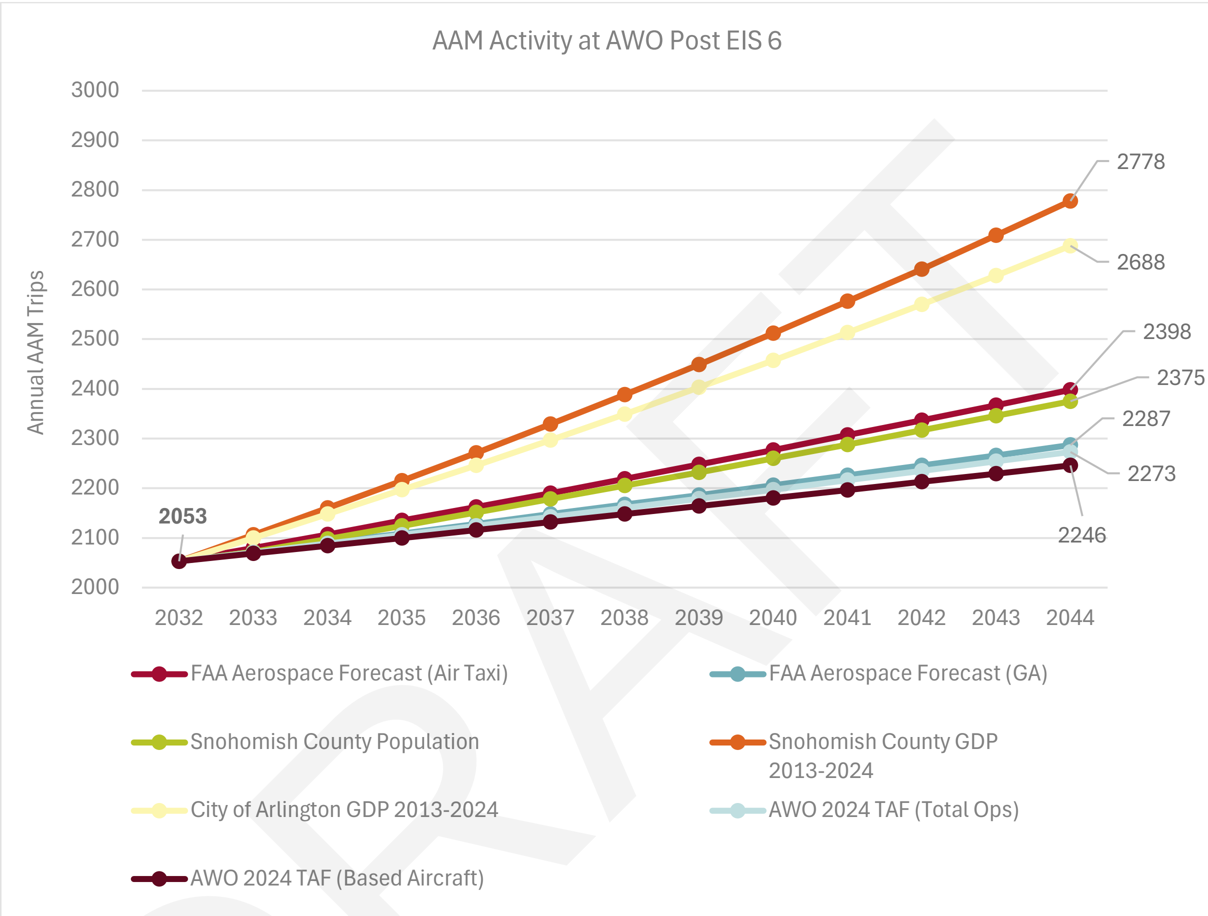


Table 3 – Potential AAM Activity at AWO Post 6

Year	FAA Aerospace Forecast (Air Taxi)	FAA Aerospace Forecast (GA)	Snohomish County Population	Snohomish County GDP 2013-2024	City of Arlington GDP 2013-2024	AWO 2024 TAF (Total Ops)	AWO 2024 TAF (Based Aircraft)
CAGR Post EIS6	1.30%	0.90%	1.25%	2.55%	2.27%	0.85%	0.75%
2027 - EIS1	0						
2028 - EIS2	0						
2029 - EIS3	448						
2030 - EIS4	750						

Year	FAA Aerospace Forecast (Air Taxi)	FAA Aerospace Forecast (GA)	Snohomish County Population	Snohomish County GDP 2013-2024	City of Arlington GDP 2013-2024	AWO 2024 TAF (Total Ops)	AWO 2024 TAF (Based Aircraft)
CAGR Post EIS6	**1.30%**	**0.90%**	**1.25%**	**2.55%**	**2.27%**	**0.85%**	**0.75%**
2031 - EIS5	1,329						
2032 - EIS6	2,053						
2034	2,107	2,091	2,098	2,160	2,148	2,089	2,084
2039	2,248	2,186	2,232	2,449	2,403	2,179	2,164
2044	2,398	2,287	2,375	2,778	2,688	2,273	2,246

Source: Kimley-Horn

Traditionally, regression analysis has been used to identify optimal forecasting scenarios by examining historical trends and growth rates that align with a desired trajectory. However, as discussed earlier, a major challenge in forecasting AAM demand is the lack of historical operational data, which renders such statistical modeling impractical. Consequently, the long-term projections for AAM operations presented here should be interpreted as reference estimates rather than precise forecasts. Assuming the highest growth scenario, approximately 2,778 annual trips are projected by 2044, equating to roughly 8 daily trips out of AWO.

Summary of 20-Year AAM Activity at AWO

In summary, this memorandum outlines the projected development of AAM operations at AWO over a 20-year planning horizon. The forecast establishes a framework for understanding anticipated demand patterns, operational volumes, and facility planning requirements associated with the phased introduction of eVTOL aircraft.

Initial AAM activity at AWO is expected to begin later than in major metropolitan areas. While cities such as Los Angeles, San Francisco, and New York are projected to see operations commence with EIS 1, demand at AWO is anticipated to emerge around EIS 3, corresponding to the year 2029. This timeline reflects AWO's regional market characteristics and its position relative to early launch locations. By EIS 6, projected for the year 2032, AWO is expected to support approximately five to six daily AAM trips. This level of activity equates to roughly 2,053 annual operations and serves as the baseline for evaluating infrastructure needs. For planning consistency, facility requirements will be assessed using a rounded estimate of six daily trips, or 2,190 annual operations. These figures will inform subsequent analysis of vertiport design, energy grid capacity, and other operational support systems, which will be addressed in a follow-up memorandum.

Forecasts extending beyond EIS 6 should be treated as preliminary and subject to periodic review. As the AAM industry continues to evolve, driven by regulatory developments, technological innovation, and market adoption, it is essential to revisit and refine long-term projections. The absence of historical operational data necessitates a flexible and adaptive approach to forecasting. Future updates should incorporate new data sources, stakeholder input, and scenario-based modeling to ensure continued relevance and accuracy in planning efforts.

ARLINGTON MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

Appendix G

Solar Grid Analysis

MEMORANDUM

To:	Century West Engineering
From:	Kimley-Horn and Associates, Inc.
Date:	September 18, 2025
Subject:	Airport Solar Grid

This memo is intended to support Century West Engineering in the development of the Sustainable Aviation Plan chapter of the Arlington Municipal Airport – Airport Master Plan. This memorandum will summarize and provide an overview for the potential to decrease dependency on local grid sourced energy through the production of solar power, along with the environmental and financial benefits of investing in solar parks. This review will also provide a recommend the capacity of a microgrid that will support the growth of AAM operations at AWO.

Solar Power Production

Solar power can be defined as electricity generated by converting sunlight into usable energy through photovoltaic (PV) technology. This renewable energy source has emerged as a solution for airports aiming to reduce their dependence on grid-sourced electricity, lower operational carbon emissions, and promote sustainability. Adopting solar power at airports offers multiple environmental and economic benefits. Environmentally, it helps reduce the airport's carbon footprint by replacing electricity that would otherwise be generated by fossil fuels. Integrating solar power also enhances the operational resilience of airports by diversifying their energy supply sources. This can improve energy reliability, particularly in cases of grid disruptions or during peak demand periods.

The analysis given in this memorandum provides an overview of solar power technology and evaluates the potential benefits and feasibility of implementing solar energy systems at Arlington Municipal Airport (AWO). The analysis includes an assessment of existing energy use, site suitability, projected energy generation, anticipated reductions in carbon emissions, cost implications, and alignment with broader sustainability goals within the aviation industry.

Current Energy Usage and Solar Offset Potential

EXISTING ENERGY USE

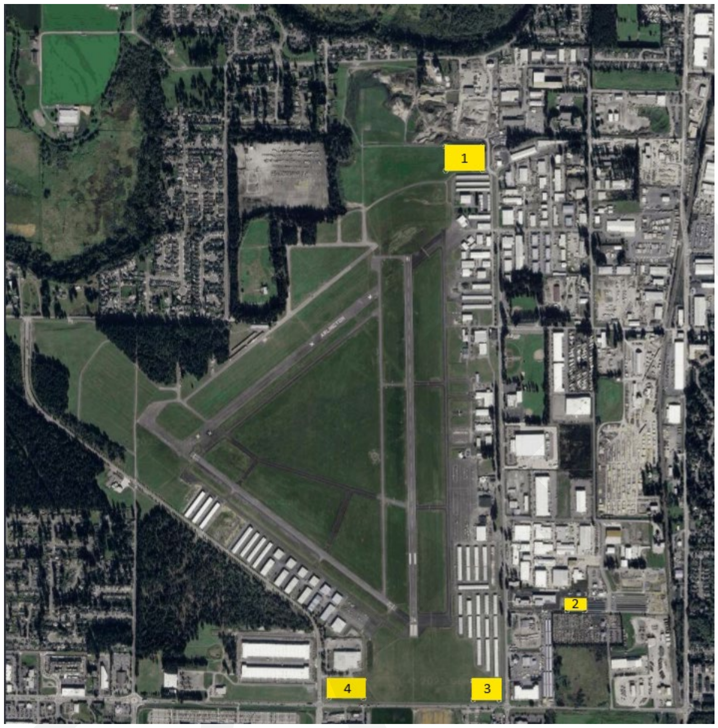
The current energy usage of the Arlington Municipal Airport (AWO) was analyzed to determine and understand the dependency of Arlington Municipal Airport (AWO) on grid-sourced energy . Using the airport's monthly electric bill data from calendar years 2023-2025, we estimated the airport's annual energy usage (kWh). Based on this information, it was estimated that the airport uses around **134MWh** of energy annually. A summary of the overall consumption segregated by meter number per year is provided in Appendix A.

The data shown in Appendix A does not analyze the main grids capacity to provide power to the airport, as it only summarizes the existing equipment loading and current energy usage. Future loads, such as those from airport expansion projects and new technology upgrades including EVTOL vehicles will significantly increase AWO's energy use, and thus, increase their dependence on grid sourced energy.

SOLAR POWER FACILITIES – POTENTIAL FOR SOLAR OFFSET

Four locations for solar power facilities, also known as solar parks, have been identified within the Airport property limits. Solar Parks are locations where larger scale installation of ground-mounted photovoltaic (PV) panels are installed and used to harness sunlight and turn into electricity to power facilities. These four locations possess the ability to accommodate a substantial number of solar panels to provide power to support airport operations. The option to provide solar power to supplement existing grid power, provides an avenue to reduce or completely offset the airport's dependency on grid sourced energy. The four identified locations are illustrated in **Figure 1: Potential Power Facility Locations** below.

Figure 1: Potential Solar Power Facility Locations



Source: Kimley-Horn, 2025

A summary of the potential solar power that can be generated with the installation of solar panels at each location, as well as the estimated annual mega-watt hour production is included in **Table 1: Solar Power Infrastructure Summary** below. The annual mega-watt production has been calculated using the National Renewable Energy Laboratory's PVWatts Calculator using a 1.2 DC-to-AC ratio[1].

[1] National Renewable Energy Laboratory. "PVWatts Calculator." *Pvwatts.nrel.gov*, pvwatts.nrel.gov/.

Table 1: Solar Power Infrastructure Summary

Location Number	Land Used (Acres)	Number of Potential Panels	DC Watts per Panel	Total DC System Wattage (kW)	Estimated Annual MWh
1	2.5	3600	550	1980	1825-1988
2	0.50	660	550	363	336-364
3	1.8	2560	550	1408	1305-1413
4	2.5	3600	550	1980	1825-1988

Source: Kimley-Horn, 2025

Each of these potential solar park locations would produce enough energy to support current and future airport operations allowing the airport to consider further electrification projections. Further considerations regarding generation of power, locations, connectivity to the existing grid, ability to power the airport operations and other benefits are covered in subsequent sections of this paper.

ECONOMIC AND FINANCIAL BENEFITS

Economically, solar energy can significantly lower electricity costs and and provide incentives for renewable energy adoption. Additionally, solar installations can provide energy price stability by reducing vulnerability to fluctuating utility rates and offering a hedge against future energy cost volatility. Excess electricity generated by airport solar systems can be fed back into the grid, creating energy credits through net metering programs.

Net metering, regulated under Washington State Law RCW.80.60, extends the ability to compare surplus power generated against the power consumed from the utility company in a 1:1 ratio. Credit is earned for the unused surplus energy that is sent back to the grid, potentially allowing for the use of grid sourced energy at no cost. The process of enrolling in net metering requires coordination with the service provider in the region who will determine which rate class and what standard rate applies to the customer. Arlington Municipal Airport falls under the service provider of Snohomish County Public (PUD) which would classify AWO as a business that produces over 2MW[2].

Washington state also provides tax deferrals for investment projects with qualifiers of a minimum project cost of $2 million and construction starting prior to 2032 which are outlined in RCW 82.89. Projects may see up to a 100% reduction of state sales and use taxes owed if the Department of

[2] Snohomish County Public Utility District. “Connecting Your Own Generation.” *Snohomish County PUD*, 2025, snopud.com/account/services/connecting-generation/.

Labor & Industries certifies that the project is developed under a community workforce agreement or project labor agreement[3].

On a federal level, IRC 48E allows airports to be eligible for a 30% tax credit for projects beginning construction by July 4, 2026 or placed in service by December 31, 2027[4]. The new construction will also be subject to Foreign Entity of Concern (FEOC) restrictions making equipment procurement more difficult.

ENVIRONMENTAL BENEFITS

Environmentally, the installation of solar PV as a replacement for grid-sourced power has lasting impacts towards decreasing carbon emissions. With Airports requiring a large amount of power each year, finding a way to fully replace grid sourced energy with a renewable source, like solar power, would help reduce the carbon emissions from airport sources.

Snohomish PUD utility stated that their emissions rate for power generation for 2023 was 0.0406 Metric Tons (MT) of CO2 per megawatt-hour (MWh) [5]. The emissions factor is calculated using Washington state's Fuel Mix Disclosure filing and the Washington State Department of Ecology's method for using that filing. For AWO, we can calculate how much CO2/MWhis produced by estimating their annual energy use of 134MWh and multiply it by the emisions factor giving us total estimated annual CO2emissions of **5.45MT**. **Table 2: Potential CO2 Emissions Offset** below tabulates the annual CO2 Emissions offset annually each of the solar park locations.

Table 2: Potential CO2 Emissions Offset

Plot Number	CO2 Emissions Offset Annually (metric tons)
1	74
2	13.5
3	53
4	74

As shown by the calculations above, each potential solar power facility has the potential to fully offset AWO's current carbon emissions with capacity for significant future electric demand.

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[3] Washington State Department of Revenue. "Tax Incentive Programs." https://dor.wa.gov/taxes-rates/tax-incentives/tax-incentive-programs
[4] HodgsonRuss. "One Big Beautiful Bill Act Modifies Qualification Requirements for Renewable Energy Tax Credits." July 2025, https://www.hodgsonruss.com/newsroom/publications/one-big-beautiful-bill-act-modifies-qualification-requirements-for-renewable-energy-tax-credits
[5] Snohomish County Public Utility District. *Carbon Emissions Data*. Snohomish County PUD, 2025, snoPUD.com/community-environment/clean-energy/carbon-emissions-data/.

MICROGRID CAPACITY PLANNING

According to the U.S Department of Energy Grid Deployment Office, a Microgrid is defined as interconnected loads and distributed energy resources within defined boundaries. Microgrids can either be grid-connected or operate as their own off-grid entity. Common elements of microgrids include[6]:

- Solar Arrays
- Generators
- Battery Energy Storage Systems (BESS)

There is potential to build solar power facilities at AWO that could produce a significant amount solar energy annually. The total facility production levels could support the current power needs as well as growth of the airport's future power needs. According to a study prepared by Jacobs Engineering in 2024, "by 2030, airport ecosystems that are electrifying will nearly double their current peak power demands. By 2050, airport ecosystems will require nearly five times more power than their current peak demand."[7] Investing in solar infrastructure now will ensure resiliency in the long-term.

To fully utilize this solar power, additional electrical infrastructure will be required to move energy efficiently from the potential solar power facility locations to the airport facilities where it's needed. This infrastructure may include subpanels, power distribution facilities, transformers, and generators to provide backup power incase of outage. The integration of advanced microgrid controls and energy management systems is also essential to balance power supply and demand, optimize storage use, and ensure reliability. Solar energy is not always produced when the demand occurs, so options to generate and store power for these situations is critical. Battery Electric Storage Systems (BESS) are a great option to include with the installation of new solar PV to truly allow the airport to function as its own microgrid. On-site battery energy storage allows for the flexible use of solar energy at different times, not just when the sun is shining.[8] The combination of solar PV and BESS also allow for electrical loads to stay balanced during times when energy demand does not quite equal energy production[6]. Despite the added costs of infrastructure, AWO could greatly benefit from the microgrid combinations of Solar PV and BESS to support future airport growth and operations while reducing their dependency on grid sourced electricity.

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[6] U.S. Department of Energy Grid Deployment Office. "Microgrid Overview". January 2024
[7] Jacobs. "As Demand for Power Grows, Airports are At Risk: A New Report Shows What We Need to Do Next. January 2024, https://www.jacobs.com/newsroom/thought-leadership/demand-power-grows-airports-are-risk-new-report-shows-what-we-need-do
[8] U.S Department of Energy. "Solar Integration: Solar Energy and Storage Basics. https://www.energy.gov/eere/solar/solar-integration-solar-energy-and-storage-basics

Appendix A

Meter Number (Estimate)	Account Number	Service Address	Facility Served	Year	Jan (kWh)	Hrs/Cycle	(kW)	Feb (kWh)	Hrs/Cycle	(kW)	Mar (kWh)	Hrs/Cycle	(kW)	Apr (kWh)	Hrs/Cycle	(kW)	May (kWh)	Hrs/Cycle	(kW)	Jun (kWh)	Hrs/Cycle	(kW)	Jul (kWh)	Hrs/Cycle	(kW)	Aug (kWh)	Hrs/Cycle	(kW)	Sep (kWh)	Hrs/Cycle	(kW)	Oct (kWh)	Hrs/Cycle	(kW)	Nov (kWh)	Hrs/Cycle	(kW)	Dec (kWh)	Hrs/Cycle	(kW)	Total (kWh) Per Year
10001402	223784984	18722 59th AVE NE	Airport Office Lease	2025	720.0	33.0	21.8	3440.0	34.0	101.2	2080.0	25.0	83.2	840.0	31.0	27.1																									
			(inactive)	2024	5600.0	33.0	169.7	3920.0	34.0	115.3	4320.0	25.0	172.8	3080.0	31.0	99.4	1880.0	28.0	67.1	1400.0	32.0	43.8	600.0	33.0	18.2	120.0	29.0	4.1	120.0	33.0	3.6	120.0	29.0	4.1	160.0	28.0	5.7	80.0	30.0	2.7	21400
				2023													920.0	28.0	32.9	680.0	32.0	21.3	680.0	33.0	20.6	80.0	29.0	2.8	160.0	33.0	4.8	1120.0	29.0	38.6	3520.0	28.0	125.7	4689.0	30.0	156.3	
?(All Usage)	200923944	18204 59th AVE NE	Airport Office Suite A	2025	11.0	33.0	0.3	17.0	34.0	0.5	9.0	25.0	0.4	11.0	31.0	0.4	12.0	28.0	0.4	13.0	32.0	0.4																			
				2024	16.0	33.0	0.5	14.0	34.0	0.4	15.0	25.0	0.6	12.0	31.0	0.4	10.0	28.0	0.4	9.0	32.0	0.3	9.0	33.0	0.3	5.0	29.0	0.2	7.0	33.0	0.2	7.0	29.0	0.2	9.0	28.0	0.3	12.0	30.0	0.4	125
				2023	18.0	33.0	0.5	15.0	34.0	0.4	16.0	25.0	0.6	12.0	31.0	0.4	8.0	28.0	0.3	8.0	32.0	0.3	8.0	33.0	0.2	7.0	29.0	0.2	7.0	33.0	0.2	7.0	29.0	0.2	11.0	28.0	0.4	15.0	30.0	0.5	
1000613651	221863418	18824 59th AVE NE GATE	NE Gate	2025	16.0	33.0	0.5	17.0	34.0	0.5	11.0	25.0	0.4	14.0	31.0	0.5	13.0	28.0	0.5	15.0	32.0	0.5																			
				2024	15.0	33.0	0.5	14.0	34.0	0.4	14.0	25.0	0.6	15.0	31.0	0.5	13.0	28.0	0.5	14.0	32.0	0.4	14.0	33.0	0.4	13.0	29.0	0.4	14.0	33.0	0.4	14.0	29.0	0.5	13.0	28.0	0.5	13.0	30.0	0.4	166
				2023	16.0	33.0	0.5	13.0	34.0	0.4	14.0	25.0	0.6	13.0	31.0	0.4	12.0	28.0	0.4	15.0	32.0	0.5	15.0	33.0	0.5	13.0	29.0	0.4	14.0	33.0	0.4	13.0	29.0	0.4	15.0	28.0	0.5	13.0	30.0	0.4	
1000561789	200578326	17812 59th DR NE #E	E Hanger	2025	1596.0	33.0	48.4	1694.0	34.0	49.8	1179.0	25.0	47.2	1370.0	31.0	44.2	1219.0	28.0	43.5	1051.0	32.0	32.8																			
				2024	1499.0	33.0	45.4	1448.0	34.0	42.6	1504.0	25.0	60.2	1432.0	31.0	46.2	1173.0	28.0	41.9	1111.0	32.0	34.7	719.0	33.0	21.8	524.0	29.0	18.1	928.0	33.0	28.1	1253.0	29.0	43.2	1279.0	28.0	45.7	1360.0	30.0	45.3	14230
				2023	1354.0	33.0	41.0	1338.0	34.0	39.4	1426.0	25.0	57.0	1259.0	31.0	40.6	994.0	28.0	35.5	1038.0	32.0	32.4	627.0	33.0	19.0	541.0	29.0	18.7	871.0	33.0	26.4	1190.0	29.0	41.0	1487.0	28.0	53.1	1395.0	30.0	46.5	
1000253372	200580926	17908 59th DR NE	D Hanger	2025	2886.0	33.0	87.5	2829.0	34.0	83.2	1559.0	25.0	62.4	1105.0	31.0	35.6	653.0	28.0	23.3	329.0	32.0	10.3																			
				2024	3393.0	33.0	102.8	2394.0	34.0	70.4	1547.0	25.0	61.9	1122.0	31.0	36.2	769.0	28.0	27.5	683.0	32.0	21.3	339.0	33.0	10.3	274.0	29.0	9.4	376.0	33.0	11.4	827.0	29.0	28.5	1101.0	28.0	39.3	1909.0	30.0	63.6	14734
				2023	4220.0	33.0	127.9	2966.0	34.0	87.2	3636.0	25.0	145.4	2150.0	31.0	69.4	1429.0	28.0	51.0	439.0	32.0	13.7	297.0	33.0	9.0	385.0	29.0	13.3	542.0	33.0	16.4	940.0	29.0	32.4	1946.0	28.0	69.5	2281.0	30.0	76.0	
1000247214	200712115	17804 59th AVE NE	C Hanger	2025	3242.0	33.0	98.2	4677.0	34.0	137.6	2391.0	25.0	95.6	1702.0	31.0	54.9	692.0	28.0	24.7	1578.0	32.0	49.3																			
				2024	3386.0	33.0	102.6	2827.0	34.0	83.1	2841.0	25.0	113.6	1981.0	31.0	63.9	1036.0	28.0	37.0	810.0	32.0	25.3	367.0	33.0	11.1	213.0	29.0	7.3	401.0	33.0	12.2	785.0	29.0	27.1	1637.0	28.0	58.5	2832.0	30.0	94.4	19116
				2023	3768.0	33.0	114.2	3804.0	34.0	111.9	3392.0	25.0	135.7	2986.0	31.0	96.3	1497.0	28.0	53.5	221.0	32.0	6.9	154.0	33.0	4.7	136.0	29.0	4.7	238.0	33.0	7.2	640.0	29.0	22.1	2642.0	28.0	94.4	3289.0	30.0	109.6	
1000277041	201138989	17816 59th AVE NE #J	J Hanger	2025	547.0	33.0	16.6	595.0	34.0	17.5	341.0	25.0	13.6	328.0	31.0	10.6	281.0	28.0	10.0	221.0	32.0	6.9																			
				2024	719.0	33.0	21.8	624.0	34.0	18.4	544.0	25.0	21.8	370.0	31.0	11.9	267.0	28.0	9.5	218.0	32.0	6.8	183.0	33.0	5.5	171.0	29.0	5.9	210.0	33.0	6.4	292.0	29.0	10.1	504.0	28.0	18.0	478.0	30.0	15.9	4580
				2023	419.0	33.0	12.7	507.0	34.0	14.9	524.0	25.0	21.0	376.0	31.0	12.1	246.0	28.0	8.8	255.0	32.0	8.0	224.0	33.0	6.8	239.0	29.0	8.2	240.0	33.0	7.3	270.0	29.0	9.3	462.0	28.0	16.5	613.0	30.0	20.4	
1000277042	201138997	17818 59th AVE NE #K	K Hanger	2025	1768.0	33.0	53.6	2202.0	34.0	64.8	1187.0	25.0	47.5	1042.0	31.0	33.6	751.0	28.0	26.8	350.0	32.0	10.9																			
				2024	1434.0	33.0	43.5	1247.0	34.0	36.7	1332.0	25.0	53.3	914.0	31.0	29.5	587.0	28.0	21.0	374.0	32.0	11.7	162.0	33.0	4.9	155.0	29.0	5.3	232.0	33.0	7.0	630.0	29.0	21.7	1044.0	28.0	37.3	1511.0	30.0	50.4	9622
				2023	1776.0	33.0	53.8	1469.0	34.0	43.2	1701.0	25.0	68.0	773.0	31.0	24.9	487.0	28.0	17.4	447.0	32.0	14.0	176.0	33.0	5.3	248.0	29.0	8.6	164.0	33.0	5.0	114.0	29.0	3.9	936.0	28.0	33.4	1323.0	30.0	44.1	
1000585471	201152592	17814 59th AVE NE #H	H Hanger	2025	533.0	33.0	16.2	516.0	34.0	15.2	393.0	25.0	15.7	307.0	31.0	9.9	329.0	28.0	11.8	111.0	32.0	3.5																			
				2024	517.0	33.0	15.7	732.0	34.0	21.5	472.0	25.0	18.9	461.0	31.0	14.9	210.0	28.0	7.5	299.0	32.0	9.3	324.0	33.0	9.8	216.0	29.0	7.4	195.0	33.0	5.9	197.0	29.0	6.8	474.0	28.0	16.9	476.0	30.0	15.9	4573
				2023	672.0	33.0	20.4	217.0	34.0	6.4	200.0	25.0	8.0	170.0	31.0	5.5	180.0	28.0	6.4	212.0	32.0	6.6	318.0	33.0	9.6	306.0	29.0	10.6	337.0	33.0	10.2	399.0	29.0	13.8	569.0	28.0	20.3	648.0	30.0	21.6	
1000563620	201152618	17812 59th AVE NE #SO	G Hanger	2025	618.0	33.0	18.7	755.0	34.0	22.2	405.0	25.0	16.2	450.0	31.0	14.5	589.0	28.0	21.0	375.0	32.0	11.7																			
				2024	851.0	33.0	25.8	845.0	34.0	24.9	550.0	25.0	22.0	546.0	31.0	17.6	498.0	28.0	17.8	534.0	32.0	16.7	279.0	33.0	8.5	225.0	29.0	7.8	343.0	33.0	10.4	555.0	29.0	19.1	459.0	28.0	16.4	541.0	30.0	18.0	6226
				2023	549.0	33.0	16.6	246.0	34.0	7.2	438.0	25.0	17.5	584.0	31.0	18.8	414.0	28.0	14.8	212.0	32.0	6.6	280.0	33.0	8.5	312.0	29.0	10.8	287.0	33.0	8.7	448.0	29.0	15.4	723.0	28.0	25.8	866.0	30.0	28.9	
1000487299	202696068	19203 59th DR NE	NE Gates - 188th, 59th	2025	86.0	33.0	2.6	105.0	34.0	3.1	73.0	25.0	2.9	87.0	31.0	2.8	77.0	28.0	2.8	93.0	32.0	2.9																			
				2024	93.0	33.0	2.8	90.0	34.0	2.6	91.0	25.0	3.6	87.0	31.0	2.8	0.0	28.0	0.0	91.0	32.0	2.8	87.0	33.0	2.6	76.0	29.0	2.6	92.0	33.0	2.8	83.0	29.0	2.9	81.0	28.0	2.9	88.0	30.0	2.9	959
				2023	85.0	33.0	2.6	75.0	34.0	2.2	77.0	25.0	3.1	66.0	31.0	2.1	66.0	28.0	2.4	74.0	32.0	2.3	75.0	33.0	2.3	65.0	29.0	2.2	72.0	33.0	2.2	70.0	29.0	2.4	78.0	28.0	2.8	87.0	30.0	2.9	
1000542495	203509245	5901 172nd ST NE	Airport Sign	2025	2.0	33.0	0.1	0.0	34.0	0.0	4.0	25.0	0.2	1.0	31.0	0.0	0.0	28.0	0.0	0.0	32.0	0.0																			
				2024	4.0	33.0	0.1	1.0	34.0	0.0	1.0	25.0	0.0	1.0	31.0	0.0	2.0	28.0	0.1	3.0	32.0	0.1	0.0	33.0	0.0	0.0	29.0	0.0	1.0	33.0	0.0	2.0	29.0	0.1	5.0	28.0	0.2	3.0	30.0	0.1	23
				2023	5.0	33.0	0.2	3.0	34.0	0.1	3.0	25.0	0.1	4.0	31.0	0.1	0.0	28.0	0.0	0.0	32.0	0.0	0.0	33.0	0.0	0.0	29.0	0.0	0.0	33.0	0.0	2.0	29.0	0.1	5.0	28.0	0.2	3.0	30.0	0.1	
1000518641	204028054	17415 51st AVE NE	West Ramp Lighting	2025	826.0	33.0	25.0	994.0	34.0	29.2	577.0	25.0	23.1	614.0	31.0	19.8	469.0	28.0	16.8	506.0	32.0	15.8																			
				2024	665.0	33.0	20.2	590.0	34.0	17.4	567.0	25.0	22.7	609.0	31.0	19.6	484.0	28.0	17.3	457.0	32.0	14.3	464.0	33.0	14.1	469.0	29.0	16.2	650.0	33.0	19.7	699.0	29.0	24.1	742.0	28.0	26.5	819.0	30.0	27.3	7215
				2023	721.0	33.0	21.8	549.0	34.0	16.1	553.0	25.0	22.1	416.0	31.0	13.4	350.0	28.0	12.5	370.0	32.0	11.6	341.0	33.0	10.3	357.0	29.0	12.3	440.0	33.0	13.3	497.0	29.0	17.1	604.0	28.0	21.6	635.0	30.0	21.2	
1000548642	203901251	5101 172nd ST NE	51st Ave Airport Sign	2025	0.0	33.0	0.0	0.0	34.0	0.0	0.0	25.0	0.0	0.0	31.0	0.0	0.0	28.0	0.0	0.0	32.0	0.0																			
				2024	1.0	33.0	0.03	1.0	34.0	0.03	0.0	25.0	0.0	0.0	31.0	0.0	0.0	28.0	0.0	0.0	32.0	0.0	0.0	33.0	0.0	0.0	29.0	0.0	0.0	33.0	0.0	0.0	29.0	0.0	0.0	28.0	0.0	0.0	30.0	0.0	2
				2023	2.0	33.0	0.1	1.0	34.0	0.0	2.0	25.0	0.1	1.0	31.0	0.0	0.0	28.0	0.0	0.0	32.0	0.0	0.0	33.0	0.0	0.0	29.0	0.0	0.0	33.0	0.0	1.0	29.0	0.0	0.0	28.0	0.0	1.0	30.0	0.0	
?(All Usage)	220175178	18204 59th AVE NE	Airport Office Suite B	2025	2930.0	33.0	88.8	3302.0	34.0	97.1	2815.0	25.0	112.6	3225.0	31.0	104.0	2274.0	28.0	81.2	2330.0	32.0	72.8																			
				2024	2920.0	33.0	88.5	2760.0	34.0	81.2	2640.0	25.0	105.6	2240.0	31.0	72.3	2200.0	28.0	78.6	2160.0	32.0	67.5	2560.0	33.0	77.6	2160.0	29.0	74.5	2560.0	33.0	77.6	2624.0	29.0	90.5	2731.0	28.0	97.5	3780.0	30.0	126.0	31335
				2023	2600.0	33.0	78.8	2680.0	34.0	78.8	2920.0	25.0	116.8	2440.0	31.0	78.7	2200.0	28.0	78.6	2440.0	32.0	76.3	2440.0	33.0	73.9	2280.0	29.0	78.6	2440.0	33.0	73.9	2280.0	29.0	78.6	2440.0	28.0	87.1	4000.0	30.0	133.3	
1000129559	202286001	5705 188TH ST NE	???	2025	4840.0	33.0	146.7	5160.0	34.0	151.8	3680.0	25.0	147.2	4360.0	31.0	140.6	3880.0	28.0	138.6	3480.0	32.0	108.8	4400.0																		29800
				2024		33.0	0.00		34.0	0.00		25.0	0.0		31.0	0.0		28.0	0.0		32.0	0.0		33.0	0.0	3880.0	29.0	133.8	4720.0	33.0	143.0	4120.0	29.0	142.1	4000.0	28.0	142.9	4400.0	30.0	146.7	21120
				2023		33.0	0.0		34.0	0.0		25.0	0.0		31.0	0.0		28.0	0.0		32.0	0.0		33.0	0.0		29.0	0.0		33.0	0.0		29.0	0.0		28.0	0.0		30.0	0.0	

Airport Total MWh 134.306