

Memo

To: Ben Mello, FAA SEA-ADO
From: Century West Engineering
Date: 9/23/2022
Project: Aurora Airport Master Plan
Re: Summary of Comments/Responses/Revisions on CWE to FAA Working Paper #1 Data Revisions (5.19.2022) FAA-SEA-ADO Comments.pdf

Summary of Comments:

Note: page number references for comments are based on the PDF file, not the page numbers for each chapter that appear on the printed pages.

Page: 21

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:28:19 AM

Would it be beneficial to state that this was the original project schedule and that the most up-to-date schedule is located on the website

CWE Response:

Will include an up-to-date project schedule and the following text:

The schedule below reflects the most current project schedule at the time of publication. An up-to-date project schedule was provided on the project website and updated periodically over the course of the project to account for any potential delays or additional meetings provided.

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Author: Benjamin J Mello Subject: Sticky Note Date: 6/21/2022 6:53:54 AM

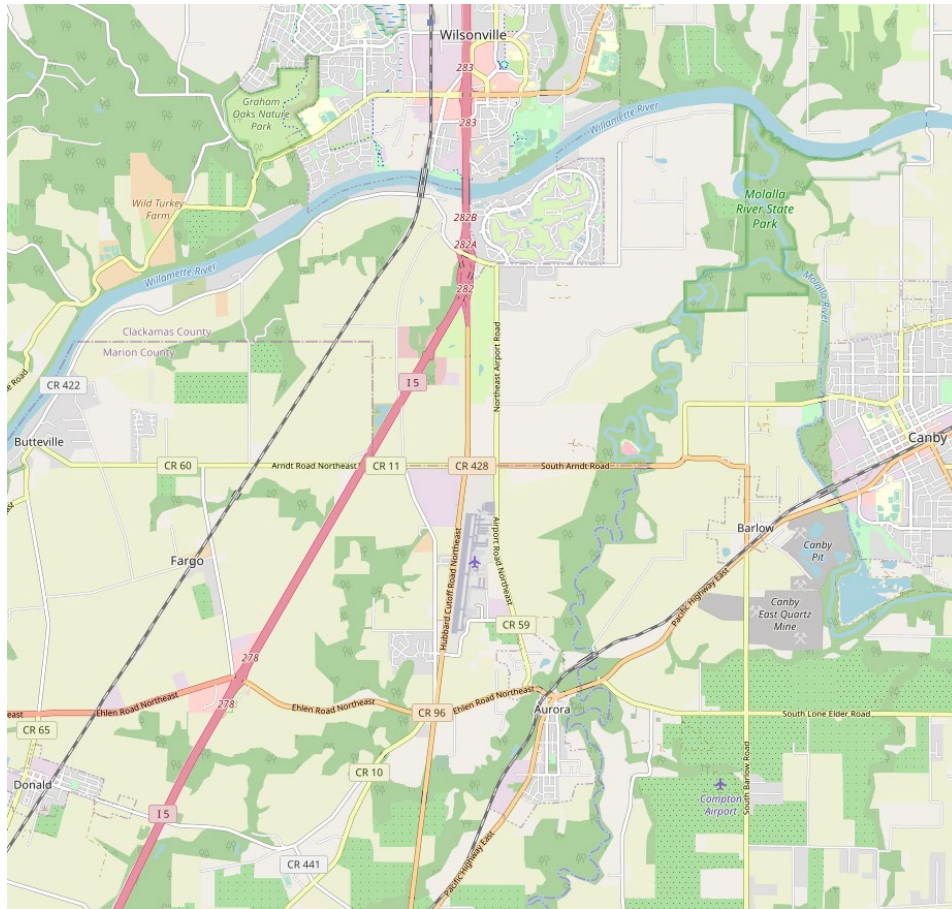
Suggest another map showing the topographic location of the airport in relation to neighboring communities of Aurora, Wilsonville, and Charbonneau.

Author: Benjamin J Mello Subject: Sticky Note Date: 6/21/2022 6:56:47 AM

This map could also depict the immediate area of the airport to include Highway 551, NE Arndt Rd, the major development in the corner of Boones Ferry Rd NE, and Highway 551.

CWE Response:

Will include the following map (or similar) from [Openstreetmap.org](https://www.openstreetmap.org) for additional context.



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Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:58:40 PM

It might be a good idea to state that the TTF aircraft do not access the airport through a gate and that the access is seamless with many of the gates on the airport owned and operated by the TTF owners

CWE Response:

3rd Paragraph - Text Replacement:

*Aurora State Airport is unique compared to many other airports in that the majority of its based aircraft are stored off airport property, on privately-owned land parcels where the private owner is responsible for securing access to Airport property through formal through-the-fence (TTF) agreements with the airport owner (ODAV). The aircraft stored on these parcels access the Airport seamlessly at designated TTF points. The TTF access points at Aurora State Airport do not have gates and aircraft move freely between the Airport and the adjacent private property. Flight operations for the TTF aircraft rely on the Airport's runway-taxiway system, lighting, and navigational aids to access area airspace in the same manner as on-airport based aircraft. As noted above, the current based aircraft count does not include helicopters located at two privately owned heliports located adjacent to the Airport. A summary of all based aircraft by type and storage location is presented in **Table 2-5**.*

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/16/2022 9:56:45 AM

It would be interesting to know the amount of historical helicopter operations and whether or not the current operational counts include the privately operated helicopters located off of the airport

CWE Response:

Historical OPSBNET data generated by the Aurora ATCT include off-airport helicopter operations as described below for current activity. Prior to this master plan the off-airport flight activity was not separated from Airport-generated activity for evaluation. However, it is known that activity has increased over time, corresponding with specific events such as the construction of the second heliport facility (HTS) that came into service after the last airport master plan was completed. Historical based aircraft fleet data for these facilities is limited and was not extensively detailed in previous airport master plans. During the December 2021 update of the Airport's validated based aircraft count for FAA (basedaircraft.com), airport management eliminated 21 off-airport helicopters that were previously included the FAA's based aircraft inventory for Aurora State Airport.

Text Replacement (Replace 3rd paragraph from top of page 2-11) with the following two paragraphs:

During data collection annual operations estimates were requested from both off-airport private heliport operators. Each operator estimated between 200 and 300 annual operations were generated at their individual facilities, yielding a total of approximately 600 annual operations. However, in later discussions, the ATCT manager estimated the off-airport helicopter activity to be closer to 3% of total ATCT-logged itinerant operations for the Airport (approximately 1,200 operations in 2021).

The planning team determined that the higher ATCT estimate should be used to ensure that all off-airport helicopter operations were identified and removed from the Airport's operations totals. A reduction of 3% was applied to itinerant operations as reported by the OPSNET Airport Operations Report to account for the helicopter flight activity associated with the two adjacent heliports.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:44:30 AM A table showing the existing aircraft type with total operations would be helpful.

CWE Response:

Agreed. We will include a table to present operations by aircraft type (based on TFMSC reports).

Text Replacement (Replace last paragraph of page 2-13):

*The OPSNET Airport Traffic Count data only differentiate local and itinerant traffic for GA aircraft. Understanding the demand placed on the Airport by different sizes and types of aircraft is also important. A review of Traffic Flow Management System Counts (TFMSC) data illustrates an evolving fleet mix at the airport over the previous six-year period. Aircraft activity is primarily categorized by Aircraft Approach Category – AAC (approach speed during landing) and Airplane Design Group - ADG (wingspan and tail height). **Table 2-10** depicts aircraft ranging from small single-engine piston aircraft to large transport category jets. In general, larger, and faster aircraft require larger operating surfaces and protected areas. **Table 2-XX** provides a summary of operations by select aircraft operating at Aurora State Airport. The current and future AAC/ADG for Aurora State Airport will be determined following FAA approval of the aviation activity forecasts, specifically approval of the design aircraft is completed. The design aircraft represents the most demanding aircraft type that generates at least 500 annual operations.*

Update Table 2-10 Title:

Table 2-10: Aircraft Approach Category – AAC and Airplane Design Group - ADG

Insert new table after Table 2-10:

Table 2-11: Select jet aircraft operations by AAC/ADG:

Re-number all subsequent tables (2-12 to 2-X)

TFMSC IFR Data - Select Jet Aircraft with Maximum Certificated Takeoff Weight of More than 12,500 Pounds

	AAC/ADG	Aircraft Designator	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
BAE HS 125*	B-I	HS25	2	0	0	0	0	0	0	0	0	0
Beechjet 400/400A/400XP	B-I	BE40	32	64	46	34	26	14	4	6	22	38
Beechjet Premier/Raytheon 390 Premier	B-I	PRM1	68	100	88	76	66	4	16	12	4	4
Cessna 500 Citation I	B-I	C500	0	4	6	0	20	20	2	0	0	0
Cessna 501 Citation I Special	B-I	C501	78	66	46	14	16	12	30	16	8	20
Cessna Citation CJ-2	B-I	C25A	44	68	176	82	74	188	232	148	100	182
Dassault Falcon 10	B-I	FA10	64	74	70	90	16	0	10	0	0	0
Sabreliner 40/60	B-I	SBR1	2	4	0	2	2	0	0	0	2	0
Cessna 550 Citation Bravo*	B-II	C55B	0	0	0	0	0	0	6	0	0	16
Cessna 550 Citation II/Bravo	B-II	C550	210	134	162	224	260	158	212	174	138	162
Cessna 551 Citation II/Special	B-II	C551	6	4	6	14	56	26	12	0	4	0
Cessna 560 Citation V Encore/Ultra	B-II	C560	362	496	460	580	688	772	706	618	546	622
Cessna 560 XL Citation Excel/XLS	B-II	C56X	102	118	132	258	316	396	430	392	340	278
Cessna 650 Citation III/IV	B-II	C650	90	90	118	144	118	114	98	68	66	42
Cessna 680 Citation - Latitude	B-II	C68A	0	0	0	0	0	4	10	30	30	40
Cessna 680 Citation Sovereign	B-II	C680	64	52	68	72	64	90	138	150	138	250
Cessna 750 Citation X	B-II	C750	60	74	90	94	90	94	104	92	84	38
Cessna Citation CJ-3	B-II	C25B	46	36	26	100	86	106	90	302	182	66
Cessna Citation CJ-4	B-II	C25C	6	12	2	4	10	72	60	622	618	730
Dassault Falcon 20	B-II	FA20	90	84	28	14	98	74	76	68	66	82
Dassault Falcon 2000/EX	B-II	F2TH	2	14	6	4	6	4	34	130	108	346
Dassault Falcon 50/EX	B-II	FA50	10	18	96	220	310	316	276	284	216	302
Dassault Falcon 900/B/C/EX	B-II	F900	180	144	48	8	54	80	68	100	26	16
Embraer EMB545/Legacy 450	B-II	E545	0	0	0	0	2	2	0	0	4	2
Embraer Phenom 300	B-II	E55P	14	102	96	92	86	122	56	80	256	430
Hawker Horizon	B-II	HA4T	2	2	2	0	0	0	0	2	2	6
Dassault Falcon FX	B-III	FA7X	0	0	0	0	0	0	4	4	2	0
Hawker 600	C-I	H25A	0	0	2	0	0	0	0	0	0	0
Hawker 800/800XP	C-I	H25B	224	210	310	118	42	28	34	20	8	32
IAI Westwind 1124	C-I	WW24	10	8	4	2	10	2	2	4	0	0
Learjet 28*	C-I	LJ28	0	0	0	2	0	0	0	0	0	0
Learjet 31	C-I	LJ31	4	2	0	0	6	54	92	110	32	22
Learjet 40	C-I	LJ40	10	0	8	0	4	0	2	0	2	6
Learjet 45/XR	C-I	LJ45	110	148	180	236	240	208	110	136	122	204
Learjet 55	C-I	LJ55	0	2	0	0	2	0	4	2	0	0
Learjet 60	C-I	LJ60	2	4	10	82	36	14	30	14	6	10
Bombardier Challenger 300	C-II	CL30	32	90	64	72	78	104	88	78	62	54
Bombardier Challenger 350	C-II	CL35	0	0	0	4	2	0	22	54	80	104
Bombardier Challenger 600/601/604	C-II	CL60	126	122	36	12	64	80	58	52	90	68
Cessna 700 Citation - Longitude*	C-II	C700	0	0	0	0	0	0	0	0	0	18
Embraer ERI 135/140/Legacy	C-II	E135	0	4	6	0	2	2	0	0	0	0
Embraer Legacy 500*	C-II	E550	0	0	0	0	0	2	0	0	0	4
Gulfstream 150	C-II	G150	2	0	0	2	2	6	80	22	4	2
Gulfstream 280	C-II	G280	0	0	6	2	0	0	0	2	0	2
Gulfstream II/G200	C-II	GLF2	2	0	0	0	0	0	0	0	0	0
Gulfstream III/G300	C-II	GLF3	0	0	2	2	2	0	0	0	0	2
IAI Astra 1125	C-II	ASTR	178	152	164	114	160	162	96	14	0	4
IAI Galaxy 1126	C-II	GALX	8	10	16	0	2	4	0	4	2	2
Learjet 70	C-II	LJ70	0	0	0	0	0	0	2	0	2	0
Learjet 75	C-II	LJ75	0	0	0	0	4	10	12	0	2	4
Bombardier Global 5000	C-III	GL5T	0	0	0	0	0	0	0	2	0	0
Bombardier Global Express	C-III	GLEX	18	10	4	8	0	14	50	52	10	0
Learjet 35	D-I	LJ35	2	8	16	0	4	6	8	4	0	12
Gulfstream IV/G400	D-II	GLF4	4	0	4	0	2	6	2	8	26	84
Gulfstream V/G500	D-III	GLF5	6	10	4	2	0	4	2	0	4	6
Gulfstream VI/G600	D-III	GLF6	0	0	0	0	6	4	2	0	0	0
Total			2272	2540	2608	2784	3132	3378	3370	3876	3414	4312
	B-II		1244	1380	1340	1828	2244	2430	2376	3112	2824	3428
	B-III		0	0	0	0	0	0	4	4	2	0
	C-I		360	374	514	440	340	306	274	286	170	274
	C-II		348	378	294	208	316	370	358	226	242	264
	C-III		18	10	4	8	0	14	50	54	10	0
	D-I		2	8	16	0	4	6	8	4	0	12
	D-II		4	0	4	0	2	6	2	8	26	84
	D-III		6	10	4	2	6	8	4	0	4	6
Operations by AAC C and D Jets			738	780	836	658	668	710	696	578	452	640
Operations by ADG II and III Jets			1620	1778	1646	2046	2568	2828	2794	3404	3108	3782

Note: Operations by military, turboprop, and piston aircraft are not represented in the counts above

* AAC/ADG data was not provided in TFMSC. Classifications were assigned according to FAA Aircraft Characteristics Database

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:45:58 AM
Date of the comprehensive plan

CWE Response:

We will provide additional information about the dates of adoption and periodic updates of the comprehensive plan.

Revised Text (first paragraph in Marion County Comprehensive Plan section page 2-16):

The Marion County Comprehensive Plan (Adopted: May 13, 1981 by Ord No. 601; subsequent periodic updates through 2021) was developed...

Add Footnote (new No. 5, re-number subsequent footnotes)

5. Marion County Comprehensive Plan (May 1981, Ord No. 601); Revised: July 1994 by Ord 979, October 1998 by Ord 1091, May 2000 by Ord 1130, July 2000 by Ord 1118, August 2000 by Ord 1131, January 2001 by Ord 1132 and Ord 1139, December 2002 by Ord 1166, February 2008 by Ord 1260 and Ord 1261, September 2010 by Ord 1308, and June 2021 by Ord 1435.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:45:30 AM

Are there plans for this plan to be updated? Since the plan is from 2005 and it was slated to be a plan for 20 years I suspect that Marion County would be developing a new plan soon.

CWE Response:

Insert the following after the RTSP Paragraph:

Marion County is in the early stages of planning for an update to the RTSP as it approaches the end of its 20-year planning period. In 2012-2013, an update was started, but never formally adopted and ultimately not considered as an update to the plan. The County has applied for state grant funding to begin the necessary update to the RTSP.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:49:52 AM

Would it be beneficial to add that the current master planning effort supersedes any prior study?

CWE Response:

Insert the following sentence to the end of the 2012 Aurora State Airport Master Plan Update paragraph:

The 2021 Airport Master Plan will supersede the previous planning studies completed for Aurora State Airport.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:50:17 AM

Would it be beneficial to note that the 2019 study was not formally accepted by the FAA?

CWE Response:

Replace the 2019 Constrained Operations Runway Justification Study paragraph with the following:

In 2019, the ODAV completed a study to update the aviation activity forecasts and review the runway length requirements at Aurora State Airport to consider if the eligibility threshold for a runway extension had been met. A constrained operations Airport user survey was distributed as part of this study. The survey identified 645 constrained annual operations from a variety of aircraft and aircraft operators. Additional analysis of TFMSC data and the airport user surveys indicated more than 500 annual operations by aircraft to/from destinations beyond 1,000 nm of Aurora State Airport. The study concluded that a runway length of 7,888 feet was justified by FAA methodologies (AC 150/5325-4B). However, consultants recommended a future runway length of 6,002 feet as it was identified in the 2012 Airport Master Plan and depicted on the ALP. Aviation Activity Forecasts developed in the study received FAA approval in a letter dated September 26, 2019. The FAA reviewed the draft "Aurora State

Airport Constrained Operations Runway Justification Study” and provided comments that were incorporated into the final version of the report. The FAA indicated that they agreed with the runway length justification in the report, but had no formal approval of the document.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:50:41 AM

Please ensure that the environmental categorizes from the approved scope of work are included in the report.

CWE Response:

Revised Text - Update the introduction of the ENVIRONMENTAL SCREENING/NEPA CATEGORIES (on Page 2-19)

*An environmental screening/desktop review of previous environmental work was included as part of the Airport Master Plan to provide a summary of the FAA prescribed environmental impact categories. Building off previous environmental work completed for the Airport, the desktop review referenced materials and site assessments completed for the Draft Environmental Assessment (EA) for Obstruction Removal. The supporting field investigations for the EA include a biological assessment, water resources report, cultural resources, and air quality report. The documents included in the EA are currently under review by FAA and have been incorporated by reference into the environmental screening report provided in **Appendix 2**.*

Typical environmental impact categories include:

- *Air Quality;*
- *Biological Resources (including fish, wildlife, and plants);*
- *Federally-listed Endangered and Threatened (“T&E”) Species;*
- *Climate;*
- *Coastal Resources;*
- *Department of Transportation Act, Section 4(f);*
- *Farmlands;*
- *Hazardous Materials, Solid Waste, and Pollution Prevention;*
- *Historical, Architectural, Archeological, and Cultural Resources;*
- *Land Use;*
- *Natural Resources and Energy Supply;*
- *Noise and Compatible Land Use*
- *Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks*
- *Visual Effects; and*
- *Water Resources (including wetlands, floodplains, surface waters, water quality, stormwater, groundwater, and wild and scenic rivers).*

Several of the impact categories above (land use, climate, socioeconomic, etc.) are analyzed separately throughout Chapter 3 – Existing Conditions Analysis. Per the scope of work, not all impact categories identified above were included for analysis. A summary of significant findings is below.

Insert the following sections after Water Quality

Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks

Local and regional socioeconomic data is presented previously in this chapter. Title VI of the US Civil Rights Act of 1964, as amended, EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and Order DOT 5610.2, Environmental Justice require that no minority or low-income person shall be disproportionately adversely impacted by any project receiving federal funds. For transportation projects, this means that no particular minority or low-income person may be disproportionately isolated, displaced, or

otherwise subjected to adverse effects. Potential impacts are assessed in terms of property acquisitions or relocations, changes in access to employment areas, and other changes in low-income and minority communities/neighborhoods. To determine whether an environmental justice population is present, Federal agencies must refer to U.S. Census data to establish the demographic and socio-economic baseline.

According to the Department of Transportation Order 1050.1F and Executive Order 13045, the FAA is directed to identify and assess environmental health risks and safety risks that the agency has reason to believe could disproportionately affect children. Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come into contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to. The closest schools to the airport are: North Marion Primary, Intermediate, Middle and Senior High School (2.0 miles southeast).

The FAA has not established significance thresholds for socioeconomic, environmental justice, or children's environmental health and safety risks.

Farmlands

The Farmland Protection Policy Act (FPPA) was passed under the Agriculture and Food Act of 1981 to minimize the impact that federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. According to the FPPA, farmland is classified as either "prime farmland, unique farmland, or farmland of statewide or local importance." There are no farmlands located on ODAV-owned Airport property. Some of the private lands located adjacent to the Airport are zoned Exclusive Farm Use (EFU), as well as Residential, and Commercial, and publicly owned rights of way.

Natural Resources and Energy Supply

The Airport uses fuel to power aircraft, natural gas for heating, and electricity to power buildings and runway and taxiway lighting. Electricity is provided to the Airport by Portland General Electric. Airport water is well water and sewer service are septic systems. Natural gas is provided by NW Natural Gas.

Historical, Architectural, Archeological, and Cultural Resources

The archaeology survey identified no high-probability areas and no archaeological resources within the study area consisting of ODAV-owned property on the Airport. Four historic resources have been previously identified within the study area: Runway 17-35, a drainage ditch, and two wind cones. The historic resources were recommended to be not eligible for listing in the National Register of Historic Places (NRHP) in 2019.

*The report recommended that individual projects proposed in association with the Master Plan should include a compliance-level cultural resource investigation. This includes documenting historic resources within the study area on one or more Section 106 Documentation Forms and determining their eligibility for listing in the NRHP in consultation with the Federal Aviation Administration and the Oregon State Historic Preservation Office (SHPO). Consultation with SHPO regarding the potential for a historic district at Aurora State Airport should be resumed. The most recent Cultural Resource Review and Archaeology Survey completed as part of the Airport Master Plan is included in **Appendix 2**.*

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:51:08 AM

Please provide any references to the recent (2018) field investigation work and four major reports for Aurora and the obstruction removal EA as they relate to the resource categories listed below and contained in the approved scope

CWE Response:

We have incorporated the applicable reference to previous environmental materials in the comment above.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:51:40 AM

Having an exhibit showing where these are located would be a good idea especially considering the location in reference to the TTF (s).

CWE Response:

We have identified the location of the fuel storage tanks in **Figure 2-12**.

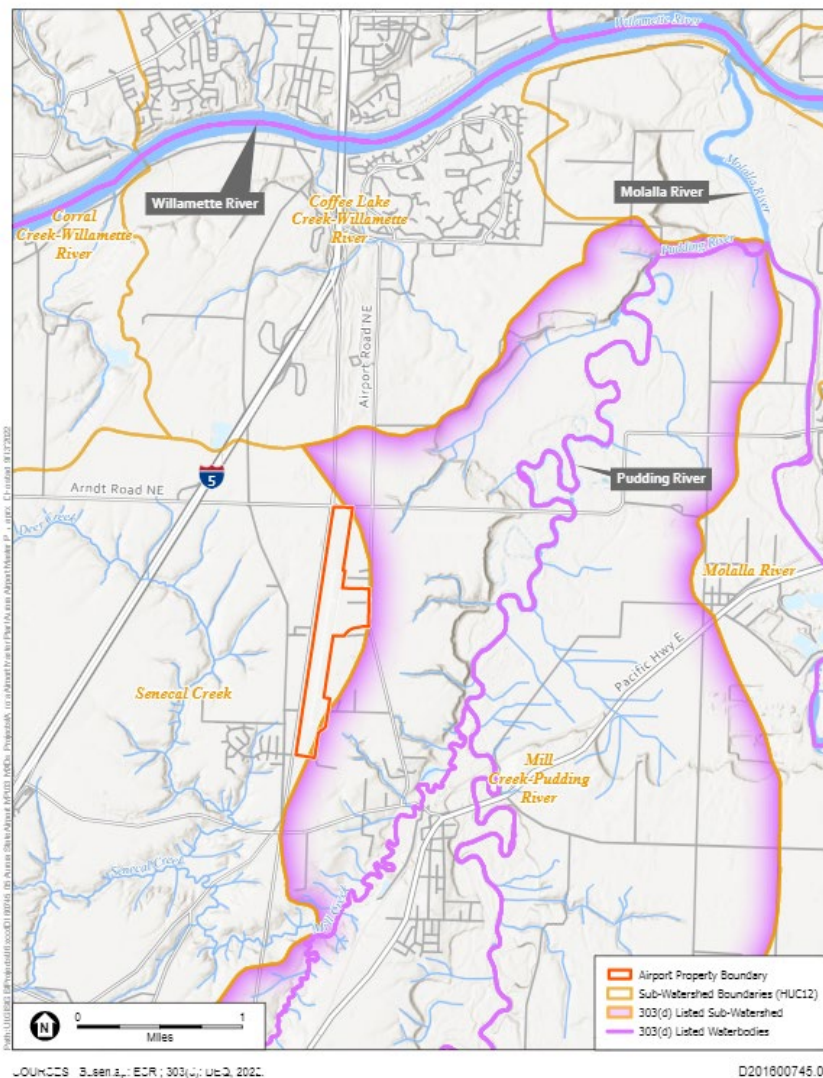
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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:24:41 AM

Having an exhibit showing the bulleted items could be helpful

CWE Response:

We have added text reference and a new figure (**Figure 2-XX: Area Water Quality**) to this section.



Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:24:26 AM Referencing an exhibit that depicts the transportation system would be a nice feature

CWE Response:

Revised text at beginning of paragraph (sentence 1)

*As depicted in **Figure 2-8**, the Airport is located...*

Revised Figure 2-8 title:

Figure 2-8: Area Surface Transportation and Zoning Map

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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:33:42 AM
maybe remove the A since we are using B now.

CWE Response:

We have updated all references to FAA AC 150/5300-13B.

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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:37:40 AM

It might be helpful to show an exhibit that depicts the different overflight routes that occur in the area but are not associated with AURORA STATE AIRPORT.

CWE Response:

We have updated **Figure 2-11** to highlight enroute instrument airways in the vicinity of the Airport:

Updated the figure to highlight Enroute Airways in the area

FIGURE 2-11: AREA AIRSPACE – SEATTLE SECTIONAL CHART



Source: SkyVector.com

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/16/2022 10:54:13 AM

Considering the terrain surrounding the airport would a plan and profile exhibit be helpful to show the existing trees and powerline off Runway 35 and the road and field elevation off Runway 17?

CWE Response:

This issue will be examined in the Facility Requirements and Development Alternatives sections of the AMP. We will provide the requested context in future chapters of the master plan as required.

Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:43:53 AM

While defined earlier in the report it might make sense to spell out TTF

CWE Response:

We will spell out TTF for context at the beginning of each chapter in the master plan, followed by the acronym. We have attempted to be consistent with definition and use of other common FAA acronyms.

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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 11:49:45 AM
Suggestion to rename this exhibit to state ODAV Main apron looking east.

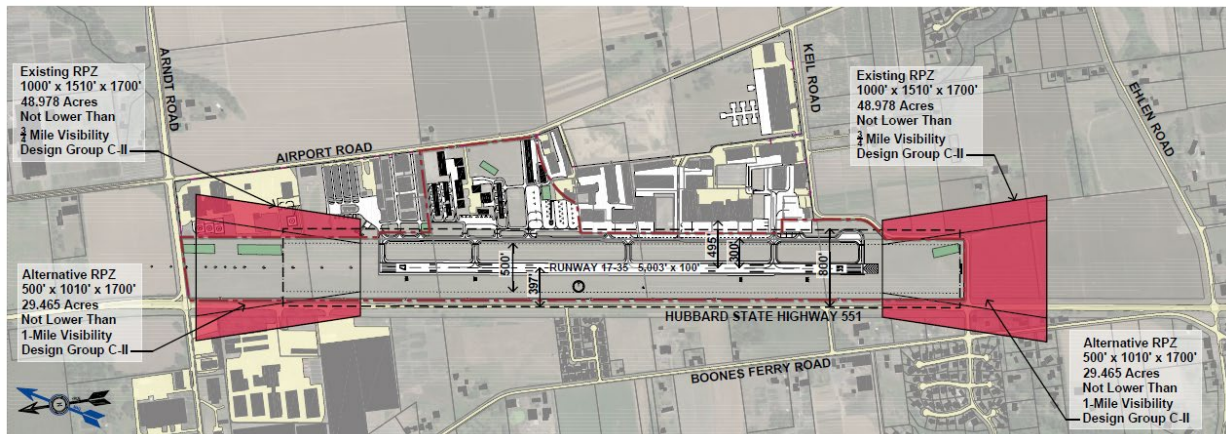
CWE Response:
Rename as suggested.

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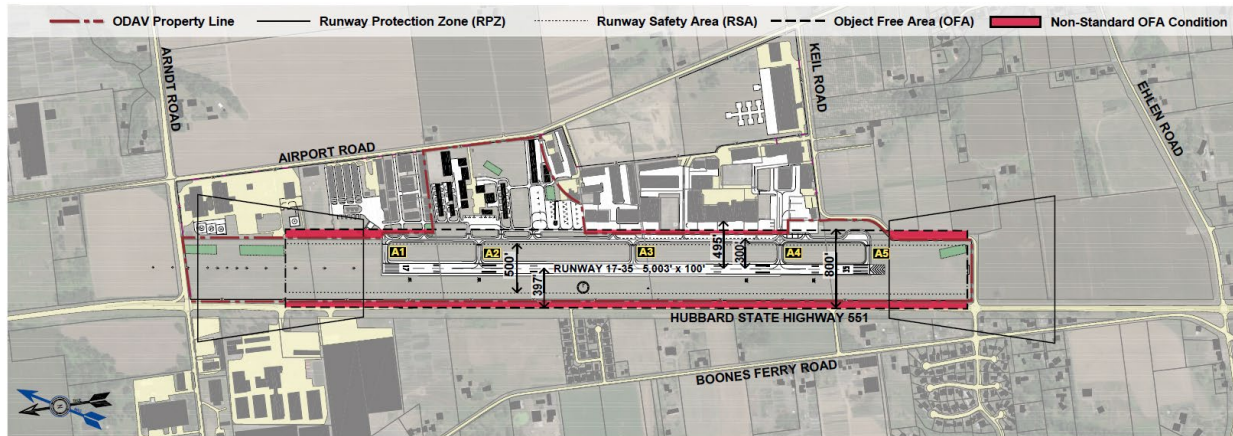
Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 7:52:58 AM
Showing these areas of existing non-standard conditions would be helpful.

CWE Response:
We will include additional graphics to depict the existing non-standard conditions.

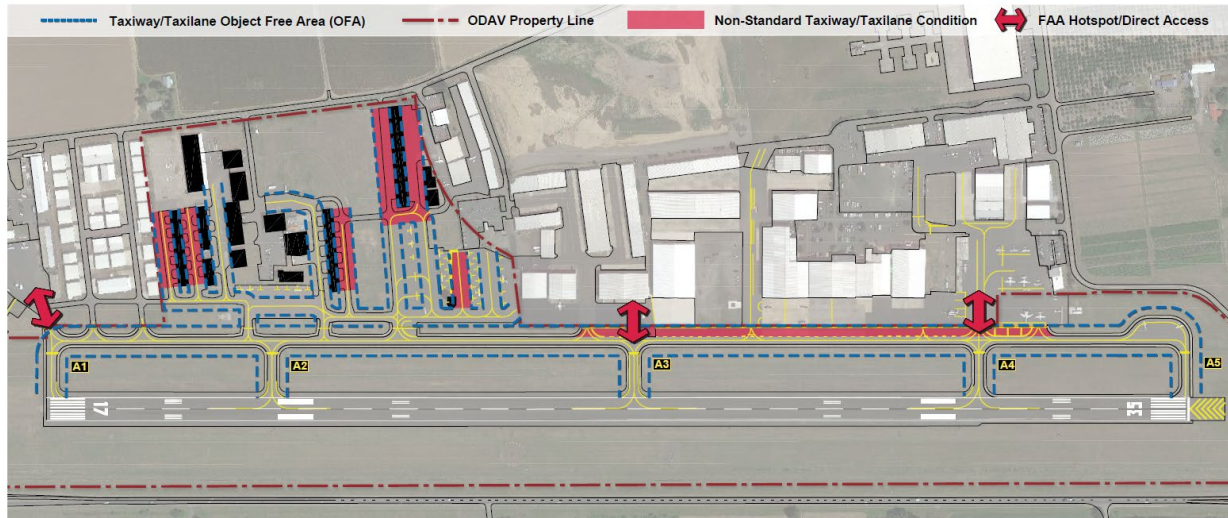
RPZ



OFA



Taxiway/Taxilane



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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 12:32:57 PM

Photo and or exhibit showing the location of the fuel tanks

CWE Response:

Will identify fuel tank locations on **Figure 2-12** and reference them appropriately, and update Fuel Services text to include a reference to **Figure 2-12**

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Author: Benjamin J Mello Subject: Sticky Note Date: 6/22/2022 12:49:16 PM

Is it worth noting that only the ODAV gates are being actively closed and that the other TTF gates are up to the owners?

CWE Response:

We will clarify fencing/gates.

Proposed Text Update to Airport Fencing section on Page 2-39:

Approximately four miles of fencing and access gates surround the entire Airport, inclusive of the public and private properties. The perimeter fencing was constructed in 1999 with a combination of private funds (for abutting private land areas) and FAA funds (for publicly owned airport land). All access points are gated, although not all are automated. The gates that are not automated are locked and are used to provide controlled access for maintenance. These gates are not intended for regular public use.

*The Airport gate signage and color system (Red, White, Purple, Blue, Orange, Green, and Yellow) was installed at access points along Keil Road and Airport Road. The design, construction, and installation of the access gates was funded with private money. ODAV operates and maintains the Blue and Purple gates which provide access to public-use areas of the airport. The remaining colored gates depicted in **Figure 2-14** serve private properties with access agreements and are operated and maintained by private operators.*

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:17:09 AM

It might be a good idea to clarify specifically, 10% at 5 years and 15% at years.

CWE Response:

We will reword: "...should not vary significantly from the TAF. When there is more than 10% variance in the 5-year term, or 15% in the 10-year term, supporting documentation should be supplied to the FAA...."

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:18:49 AM

An increase in square footage on it's own does not necessarily reflect a direct impact to airport activity. Hangar construction could have been to accommodate existing aircraft that were previously parked on the apron. An existing owner may have upgaged their aircraft and need a larger hangar or decided to move their aircraft from the ramp to covered storage. It is important to tell the story behind the new hangar space- was it for existing aircraft, what kind of aircraft it the space for, etc.....

CWE Response:

We agree. There is no definitive conclusion that growth rates for hangar square footage precisely represent the equivalent in based aircraft numbers. Each individual hangar will have a different story, as you suggest. However, as a broad indicator of activity, it is reasonable to assume that privately funded hangar construction at an airport occurs when facility demand supports the investment. Although widely varying historical based aircraft data for the Airport limits our ability to draw consistent conclusions between current and historical activity data, we are aware of a strong increase in based jet aircraft at the Airport over the last 10+ years. This segment of activity represents tens of millions of dollars of added aircraft value to the Airport's fleet, which is consistent with the size, quality, and cost of the referenced new hangar construction. We will expand on that information to add context to the construction growth rate.

Proposed Revised Text (Replace Paragraph 2 in Hangar Construction section)

*Historical aerial photography was reviewed to approximate changes in building square footage based on visible roof area. Most of the activity involved new construction of large conventional hangars, although removal of older hangars (primarily T-hangars) also occurred as part of the redevelopment. The net increase in hangar square footage between 2012 and 2021 translates into a compound annual growth rate (CAGR) of 1.7%. This indicator is presented to gauge physical improvements related to aircraft storage since the last airport master plan was completed. A summary of the hangar evaluation is provided in **Table 3-3**.*

*The investment in new hangar space (+177,100 square feet) and the removal of older hangars (-39,000 square feet) are considered valid indicators of trends within the based aircraft fleet, although changes by aircraft type are not necessarily uniform and direct correlations between increased square footage and based aircraft numbers will vary. Airport management reported that the trend in construction during this period saw a move from smaller multi-unit hangars to larger conventional hangars. Such a trend may also partially explain the diverging trends in aviation gasoline (AVGAS) and jet fuel activity at the Airport noted in the following section (see **Table 3-4**).*

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 7:09:27 AM

Operations have increased from 43K to 76K, but fuel sales are flat- Avgas is down even though local ops have increased 13K to 31K annually. Is this accurate, if so can it be explained for the reader? Additionally fuel sales are not considered in the forecast; it would be a good idea to explain the reason why the data is presented but not considered in the development of the forecast.

CWE Response:

The tenant-reported AVGAS delivery data provided to ODAV are believed to be accurate and complete. It is unlikely that any single factor could explain the fluctuations and overall flat/downward trend in AVGAS volume. It

is more likely that a combination of events may have contributed to recent trends. These include the recent hangar construction that eliminated small T-hangar units (replaced with large hangars favored by business class turbine aircraft) and the introduction of controlled airspace at the Airport associated with the new ATCT. These events may have contributed to the relocation of small piston engine aircraft to other airports in the area, which would directly impact AVGAS activity. In addition, several other factors may have contributed to the recent activity trend including the lingering systemwide effects of the COVID-19 pandemic documented by FAA, national AVGAS consumption trends, local market fuel pricing (competition from nearby airports), and an increase in transient flight training activity by piston aircraft based at other airports in the Portland-Metro area that do not routinely purchase fuel at Aurora State Airport.

Proposed Revised Text (new paragraph #3 in section)

Trend line models were not developed for aircraft operations forecasts since the relationship between fueling and activity at the Airport is inconsistent, and therefore inconclusive. A review of ATCT local aircraft operations data (2016-2021) shows significant growth in local aircraft operations. ATCT management confirms that local operations at Aurora State Airport are predominately aircraft performing flight training in the airport traffic pattern (repetitive touch and go landings, etc.). This activity is heavily skewed toward piston aircraft. The rise in local aircraft operations compared to the flat or declining AVGAS fueling activity during this period does not provide clear evidence of a trend, as the two factors may be unrelated or only partially related. A combination of events appears to be contributing to recent AVGAS trends, including the recent hangar construction that eliminated small airport T-hangar units (replaced with large hangars favored by business class turbine aircraft), the lingering effects of the COVID-19 pandemic, documented systemwide by FAA, national AVGAS consumption trends, local market fuel pricing (competition from nearby airports), and an increase in transient piston flight training activity by aircraft based at other airports in the Portland-Metro area that do not routinely purchase fuel at Aurora State Airport.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 7:04:38 AM

It would be helpful to have the flight school data to help augment the information provided by the ATCT.

It would be helpful to know how long the flight schools have been in business. It is interesting that operations have increased in the last 5 years but Avgas fuel sales have remained flat but flight training accounts for 40/45% of flights

CWE Response:

The composition of flight training at the Airport includes two locally based flight schools and schools located at other nearby airports. Since flight schools are not required by FAA to report annual aircraft operations by airport, data are not readily available. Although the ATCT aircraft operations counts do not distinguish between flight training activity and other air traffic operating in the vicinity of the Airport, ATCT staff were consulted to verify (through observation) the portion of aircraft operations that are associated with flight training.

The Aurora ATCT manager confirms that 40 to 45% of the total aircraft operations at Aurora State Airport are related to flight training, noting that “Aurora State is so dynamic in its day-to-day operations and highly dependent upon the weather. This percentage may be higher in the summer months.” The Aurora ATCT manager also confirmed the OPSNET historical growth in local operations accurately reflects increased flight training activity. It was confirmed that most local operations at the Airport are flight training runway-related movements (touch and go, stop, and go landings, etc.). It was also confirmed that operations related to local area flight training (e.g., to/from VFR practice areas) are counted as itinerant operations since they exit the Class D airspace. The ATCT manager indicated that the rate of growth in local operations experienced at Aurora State Airport in recent years is not sustainable due to a variety of factors that are not formally quantified.

The activity mix is consistent with historical ATCT operations counts and is reflected in the 2021 baseline operations total. In addition to the two locally based flight schools (with about 20 fleet aircraft combined), the

Aurora ATCT manager indicates that aircraft from Hillsboro, Troutdale, and Twin Oaks airports account for significant local operations. The aircraft not locally based do not regularly purchase fuel at the Airport since their home airports are located nearby.

A reduction in small non-flight training piston aircraft at the Airport attributed to the change to Class D airspace (ATCT) and the demolition of several T-hangars that were replaced with large corporate hangars is also consistent with historical AVGAS consumption. The increase in locally based piston flight training observed by the ATCT manager may have partially offset a deeper decline in AVGAS consumption attributed to changes in piston aircraft fleet size.

We will combine paragraph 3 with paragraph 1 to better describe the nature of flight training at the Airport.

Proposed Revised Text

Flight schools are not required by FAA to report annual aircraft operations by airport. Although the ATCT aircraft operations counts do not distinguish between flight training activity and other air traffic operating in the vicinity of the Airport, Aurora ATCT staff were consulted to approximate the portion of local operations that are associated with flight training. In addition to the two locally based flight schools (with about 20 fleet aircraft combined), the Aurora ATCT manager indicates that aircraft from Hillsboro, Troutdale, and Twin Oaks airports operate at the Airport daily. The Aurora ATCT manager confirms that 40 to 45% of the total aircraft operations at Aurora State Airport are related to flight training, noting that "Aurora State is so dynamic in its day-to-day operations and highly dependent upon the weather. This percentage may be higher in the summer months." It was also confirmed by the ATCT manager that most local operations at the Airport are flight training, and virtually all of those are runway related movements (touch and go, stop, and go landings, etc.). The activity mix is consistent with historical ATCT operations counts and is reflected in the 2021 baseline operations total.

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 7:39:52 AM
and use the airport for fuel or other services.

CWE Response:

We will add "...and do not regularly use the Airport for fueling or related services."

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 7:44:00 AM

It needs to be clearly stated that the FAA does not normally consider TTF as based aircraft. However due to the fact that the TTF do not have to cross a fence to enter the airfield and that the TTF facilities are seamlessly integrated with the airport the FAA in this one instance has approved the TTF aircraft has based aircraft.

CWE Response:

We will add the clarification to the paragraph.

Proposed Revised Text:

The current split between aircraft located on airport property and on adjacent privately-owned property with TTF access agreements was verified in the updated validated count. Both on-airport and TTF aircraft are included in the Airport's current and historical FAA validated counts since they all rely on the runway-taxiway system for their flight operations. It is noted that the FAA does not normally consider TTF aircraft as "based aircraft" at the airports they access and utilize. However, due to the fact that the TTF at Aurora State Airport do not have to cross a fence to enter the airfield and that the TTF facilities are seamlessly integrated with the Airport, the FAA has in this one instance, approved the TTF aircraft at Aurora State Airport has based aircraft. As noted earlier, helicopters located at the two private heliports adjacent to the Airport are not "TTF aircraft" and they are not included in current based

aircraft counts for the Airport. This accounting represents current FAA guidance, and it is a change from the previous FAA-accepted counting methodology used at the Airport. Prior to this airport master plan, these (non-TTF) helicopters were included in based aircraft counts for Aurora State Airport.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 8:00:17 AM

True for SEP, SETP has significant use in business -PC12 is the most commonly used aircraft for aeromedical in the NAS

CWE Response:

We will update after "municipal business trips": "SETP aircraft are also commonly used by air ambulance (medevac) and air cargo service providers."

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 8:00:43 AM

because the traffic is handled by the ATCT

CWE Response:

We have reworded the text to read: "ATCT operations counts do not distinguish between fixed-wing aircraft and helicopters since they are handled by ATCT as they traverse the Airport's airspace."

Proposed Revised Text (Paragraph 3, Annual Aircraft Operations section):

A second adjustment was made to eliminate helicopter operations for the two adjacent private heliports. The movement of these aircraft in and out of the Airport's controlled airspace is captured in the operations counts for the Aurora State Airport because the traffic is handled by the ATCT. However, separating the activity from Aurora State Airport runway operations is appropriate since the aircraft do not actually takeoff or land on the Airport. Based on standard FAA air traffic control procedures, ATCT operations counts do not distinguish between fixed-wing aircraft and helicopters.

As noted earlier, annual operations estimates were requested from both off-airport private heliport operators. Each operator estimated between 200 and 300 annual operations were generated at their individual facilities, yielding a total of approximately 600 annual operations. However, in later discussions, the ATCT manager estimated the off-airport helicopter activity to be closer to 3% of total ATCT-logged itinerant operations for the Airport (approximately 1,200 operations in 2021). The planning team determined that the higher ATCT estimate should be used to ensure that all off-airport helicopter operations were identified and removed from the Airport's operations totals. A reduction of 3% was applied to itinerant operations as reported by the OPSNET Airport Operations Report to account for the helicopter flight activity associated with the two adjacent heliports.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 8:02:51 AM

A note should be added regarding the attempts made to the existing off heliport operators to verify the ATCT manager estimates.

CWE Response:

See response to previous comment.

Annual operations estimates were requested from both off-airport operators, and each estimated between 200 and 300 annual operations were generated by their individual facilities, yielding a total of up to 600 annual operations. However, in later discussions the ATCT manager estimated the off-airport helicopter activity to be closer to 3% of total ATCT-logged itinerant operations for the Airport (approximately 1,200 operations in 2021). The planning team determined that the higher ATCT estimate should be used to ensure that all off-airport helicopter operations were

identified and removed from the Airport's operations totals. A reduction of 3% was applied to itinerant operations as reported by the OPSNET Airport Operations Report to account for the helicopter flight activity associated with the two adjacent heliports.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 8:06:33 AM
Please confirm is the tower count of 74,465 or the airport count of 72,549 was used.

CWE Response:

Table 3-6 (historical ATCT aircraft operations) uses OPSNET Airport Operations data rather than Tower Operations data, since Tower Operations counts include airport overflights.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 8:08:56 AM
Is this CY or FY? Please show actual data from OPSNET and then show the adjustments

CWE Response:

Updated Table 3-6 data below will be incorporated into formatted table in working paper. OPSNET data presented in calendar year (CY); report data range 1/2016 to 12/2021.

Annual Operations Fleet Mix													
	2016		2017		2018		2019		2020		2021		
	Raw	Adj*	Raw	Adj*	Raw	Adj*	Raw	Adj*	Raw	Adj*	Raw	Adj*	
Itinerant													
Air Taxi	2,040	2,194	2,163	2,319	1,980	2,121	1,567	1,670	1,061	1,129	1,885	2,006	
General Aviation	30,909	32,174	32,291	33,502	34,390	35,665	32,583	33,638	30,680	31,621	35,308	36,390	
Military	246	265	186	199	259	277	100	107	36	38	74	79	
Subtotal	33,195	34,633	34,641	36,020	36,629	38,063	34,252	35,415	31,777	32,788	37,267	38,475	
Local													
General Aviation	15,053	16,191	23,391	25,075	26,145	28,011	28,566	30,453	34,154	36,333	35,221	37,488	
Military	129	139	120	129	229	245	32	34	18	19	61	65	
Subtotal	15,182	16,330	23,511	25,204	26,374	28,256	28,598	30,487	34,172	36,352	35,282	37,553	
Total	48,377	50,963	58,152	61,223	63,003	66,320	62,850	65,902	65,949	69,140	72,549	76,028	
UAO Historical ATCT Data (Raw and Adjusted)													
* Data adjusted for off-hour operations and off-airport helicopter operations													

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 11:37:29 AM
Discussion of critical aircraft is provided later in the chapter?

CWE Response:

Add to end of paragraph:

Further discussion of ARC and its role in determining the critical aircraft is discussed in the Critical Aircraft section later in this chapter.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 11:38:51 AM

This section should be provided earlier in the chapter to provide context to the reader

CWE Response:

The location of this section is intended to provide a logical sequence of relevant aircraft activity information to the reader. For reference purposes, we have first established currently available historical FAA data and forecasts, then follow with recent forecasts developed for the Airport and current forecast demographic data. This information provides important context leading into the new forecast models presented in the following section. We feel that relocating this section earlier in the chapter may not provide the same context.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:55:33 AM

How? The three local forecasts over estimated operations and based aircraft. What were the methodologies used to develop those forecasts and why did they prove to be inaccurate.

CWE Response:

The intended purpose of this section is to present a record of recent forecasting for the Airport, regardless of any inherent flaws or underlying data issues. We have consistently indicated throughout the working paper that we are unable to draw meaningful trends or conclusions by connecting current data with specific historical data (particularly pre-ATCT operations data (estimates) and less accurate based aircraft counting methods) and previous forecasts due to reliability issues with *previous* data. The 2021 activity established for the Airport used in the aviation activity forecasts is intended to provide an accurate baseline measure to enable future comparisons to be performed. Based on these factors, we do not feel that there is significant value in comparing methodologies or actual numbers from the previous forecasts with the new master plan forecasts.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 11:42:48 AM

it is important to note that this forecast was prepared prior to the ATCT.

CWE Response:

We will add that information:

Proposed Revised Text (add to end of this section):

The 2012 Airport Master Plan forecasts were developed before the addition of the ATCT at the Airport. As result, baseline and forecast annual aircraft operations were based on estimates. These data were later found to have inadvertently overestimated activity when compared to actual aircraft operations counts logged by the ATCT. As noted elsewhere in the master plan, any estimates of air traffic for the Airport that pre-date the ATCT are not considered reliable or relevant for comparison. Similar issues are found with based aircraft data related to previous counting methods.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 11:45:41 AM

This should be moved to the beginning of the chapter

CWE Response:

The location of this section (20-year demographic forecasts) is intended to support some of the new forecast models presented in the following section. Historical demographic data is presented for reference in Chapter 2 Existing Conditions (Table 2-1, 2-2).

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 11:59:53 AM
Does this include post/current C-19 impacts?

CWE Response:

The most recent PRC forecasts (2021) factored in COVID-19 impacts that existed at the time of publication.

Add text after "...corresponds to the Airport Master Plan.":

The PRC forecasts are prepared annually. The 2021 forecasts presented were prepared during the second year of the COVID-19 pandemic and account for pandemic-related impacts, as documented at the time.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:56:26 AM

General comments -Please provide additional justification for why forecasts were thought to be reasonable. Please ensure that the data used goes back to the same year as the data presented in the Existing Conditions Chapter (2012) or provide justification as to why the timelines do not match

CWE Response:

Comment 1. We will add the following statement ahead for the Based Aircraft heading to clarify why the first three models are considered reasonable and recommended for comparison. We will also move the "discarded models" section (4 models) that currently follows Figure 3-4 ahead of the "Recommended Based Aircraft Forecast Summary" to make the evaluation clearer.

Proposed Text (add directly below Recommended Based Aircraft Forecast Summary heading):

Several based aircraft forecast models were developed using standard general aviation airport forecasting methodologies to provide a range of projections for comparison. The models rely on a variety of data inputs to identify the most relevant projections. The resulting annual growth rates for all the forecasts are comparable to FAA-accepted growth rates for similar general aviation airports throughout the United States. A preliminary comparison of the models identified the most relevant models based on applicability with Aurora State Airport. Models determined to have less relevance or those that were redundant were discarded and were not included in the accompanying table or graph that identified the recommended forecast.

Comment 2. We can provide data to bridge the gap between 2012 and 2021 with the disclaimer that no conclusions should be drawn from the inconsistencies between older historical data and the 2021 baseline.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:04:26 PM

As mentioned earlier, an estimate of SQ footage does not necessarily correlate to an increase in based aircraft, especially considering the reported drop in based aircraft over the past 10 years. Without additional information this would not be a reasonable forecast scenario. What is this assumption based on?

CWE Response:

As indicated in the description, this model reflects privately funded hangar development over an extended period. While a direct correlation is not defined, the overall trend of hangar construction is consistent with changes in the Airport's based aircraft fleet during this period, particularly the movement between piston and turbine aircraft.

As noted extensively in the working paper, the historical record of based aircraft counting at Aurora State Airport has been complicated by a variety of estimates (prior to the FAA's active management of the based aircraft inventory that identifies duplicate aircraft, non-airworthy aircraft, etc.) and the previous inclusion of aircraft located at the two private helicopter facilities located adjacent to the Airport. Because of the data inconsistencies, drawing firm conclusions between previous historical counts and current counts is not considered to be a reliable indicator of a trend. It is also noted that this model was not recommended as the preferred based aircraft focus

since the significant rate of hangar construction over this period is not believed to be sustainable over the 20-year planning period.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:06:59 PM

Why is this a reasonable scenario? Has the airport's history of based aircraft counts been in line with other contract tower airports in the state? Why were only contract towers included in this analysis? There is no data provided that supports this being a reasonable scenario.

CWE Response:

The relevance of the model is based on the FAA's assessment of future airport activity at Oregon airports most similar to Aurora State Airport, as measured through several lenses (facility capabilities, size and composition of based aircraft fleet, proximity to population centers, etc.). While the FAA contract tower airports in Oregon include a small number of commercial service airports, the majority are larger general aviation (GA) airports. The two commercial service airports with contract towers also support large GA fleets.

We are not familiar with the assumptions used by FAA in building the future year projections in the TAF query model (TAF.FAA.GOV) by Facility Class. However, based on our review, it is apparent that some level of differentiation is assumed by FAA between classes of airports, including FAA-staffed and federal contract air traffic control towers. We also accept that the nominal difference in forecast growth rates reflected in the TAF for Oregon vs the NW Mountain Region activity is valid.

The models presented in the FAA TAF related to airports with air traffic control towers include FAA staffed towers and federal contract towers. A review of the FAA TAF for these airport groups indicates similar expectations for based aircraft growth (1.11% vs 1.15% average annual growth between 2020-2040). Despite the similar expectations, we maintain that the characteristics of contract air traffic control airports in Oregon are more similar to Aurora State Airport, than the group of FAA-staff air traffic control towers. This model assumes that airports with contract air traffic control towers in Oregon share many of the same characteristics as Aurora State Airport.

A review of the airports in each category indicates that two-thirds (67%) of the airports with FAA staffed air traffic control towers are at Oregon's larger commercial service airports. By comparison 25% (2 of 8) of the Oregon's contract tower airports currently support FAR Part 121 commercial air service.

The development of forecast models was intended to provide a range of projections using a variety of indicators. The challenges with relying heavily on historical based aircraft data for this airport are well documented, which presents a need to rely on broader measures of aeronautical activity generated by FAA and others.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:08:07 PM

Again why is this a reasonable scenario? Have based aircraft counts at the airport tracked with the national growth rate historically?

CWE Response:

Unfortunately, inconsistent historical based aircraft data for Aurora State Airport does not support reliable tracking between the Airport and other forecasts to gauge reasonableness or validity. However, absent the ability to perform a detailed trend comparison, we do believe that the broad FAA forecasts do provide a reasonable forecast projection.

The use of an established FAA forecast provides a valid high-level indication of growth rates that is consistent with FAA national expectations for the GA aircraft fleet. More specifically, our adaptation of the FAA forecast recognized different growth expectations defined by FAA for specific aircraft types to tie the projections to the existing based aircraft fleet mix at the Airport. As noted in the section "The model assumes that the Airport's

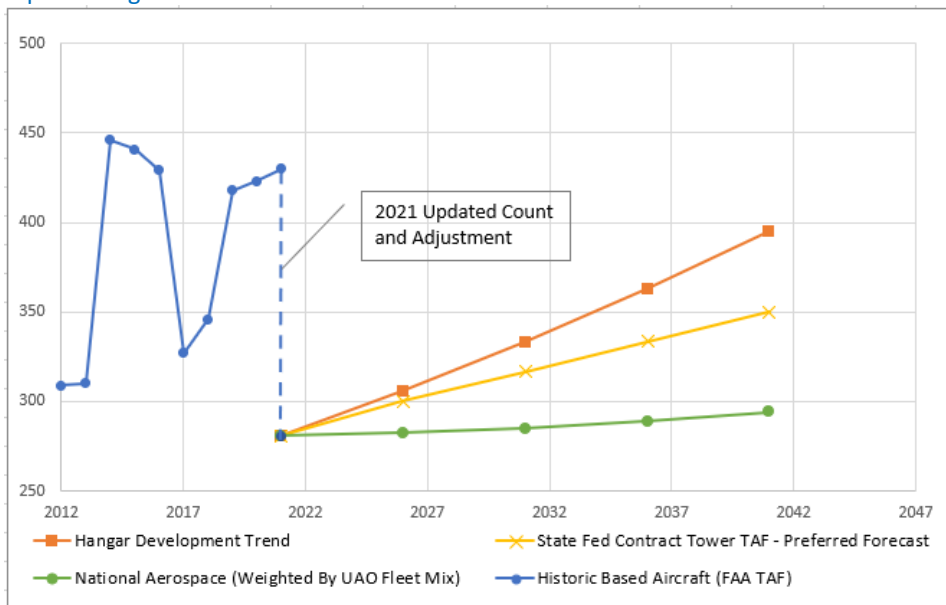
based aircraft fleet will grow in parallel to the national fleet.” The model, although not selected as the recommended based aircraft forecast, provides a reasonable projection that mirrors the FAA’s current modest long-term growth expectations for the national GA fleet.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:56:50 AM
This should go back to 2012.

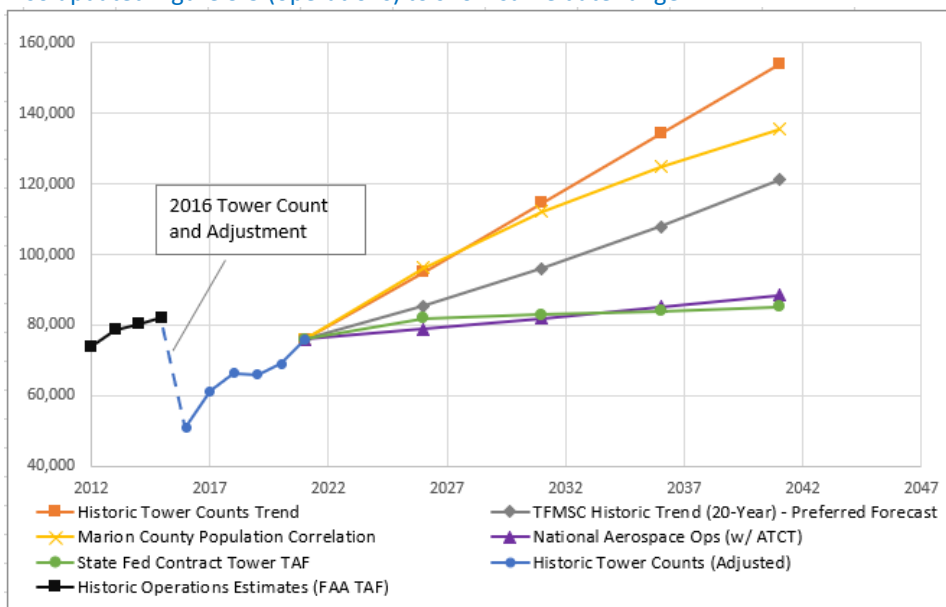
CWE Response:

We will depict available FAA TAF data to bridge the gap between 2012 and 2021 with the disclaimer that no conclusions should be drawn from the inconsistencies between older TAF data and the 2021 baseline.

Updated Figure 3-4 and 3-5 below.



Also updated Figure 3-5 (operations) to show same date range:



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Author: Benjamin J Mello Subject: Comment on Text Date: 8/16/2022 11:57:40 AM

Please provide justification as to why the fleet mix CAGR is different than the total based aircraft. It seems like the end number of total aircraft was determined and then the aircraft breakouts were fixed based on this. For example- Why would jet based aircraft grow at the level projected but multi-engine would remain flat?

CWE Response:

The following text will be added at the beginning of the section:

Understanding the current and projected compositions (fleet mix) of the based aircraft fleet enables the airport to understand the current facility needs and plan for the future facility needs of the local users. Future fleet mixes are based on the projected total based aircraft projections developed from the preferred based aircraft forecast. The fleet mix is then estimated based on historic trends. As previously discussed historic based aircraft counts have been inconsistent and unreliable. As such estimating future fleet mixes from historic trends is not a viable solution. Instead, trends developed in the FAA National Aerospace Forecast (General Aviation Aircraft) were used as an indicator of how the fleet may change over the planning period. National Aerospace Forecast were used to estimate the future fleet composition for jets, turboprops, helicopters, and multi-engine piston. Note that due to rounding of the projected decimal estimates to whole numbers, the reported growth rates may not exactly match National Aerospace Forecast growth rates. This is evident in the case of multi-engine piston aircraft which shows flat growth over time, while the National Aerospace Forecast shows a slight negative growth. The remaining projected based aircraft for each forecast year not assigned to the other aircraft types were assumed to be single-engine piston aircraft (including similar light sport and experimental aircraft). That assumption results in a positive growth rate of single-engine piston aircraft over the planning period, which does not align with the projected decrease in single-engine aircraft presented in the National Aerospace Forecasts. However, it does result in a decrease in the percentage of the total fleet over time, suggesting that the perceived increase can be attributed to background growth of the entire fleet.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:35:23 PM

Specifically what operational events and if the results are disproportionately reflected in the results then why was this scenario chosen as one of the preferred?

CWE Response:

This model (Historical Tower Counts Trend) was not selected as the recommended aircraft operations forecast, primarily due to the comparatively short period of ATCT data available to develop the projection. Also, as indicated by FAA at the beginning of the COVID-19 pandemic "Federal Aviation Administration (FAA) forecast approval will be based in reference to the data and methodologies used and the conclusions at the time the document was prepared. However, consideration must still be given to the significant impacts of COVID-19 on aviation activity. As a result, there is lower than normal confidence in future growth projections."

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:39:13 PM

Based on historical ops data from the TAF, total ops have dropped from highs in 2010, while population has grown. How can this scenario be considered a good correlation with diverging data sets? Please show all inputs and equations used

CWE Response:

This comment is linked to the Marion County Population Correlation model, but it may be related to the TAF-based models presented in the section. The TAF models developed do not rely on the TAF for a single airport (Aurora State Airport) but rather use larger groups of airports with common features. This method provides a broader

measure of activity that is less prone to skewing caused by inaccurate TAF data for the Airport. Our assumption is that the methodologies used by FAA to develop the TAF for groupings of airports (by state, region, nationally, etc.) are based on specific measures of activity and other forecast inputs. Our opinion is that an aggregate growth rate for a group of similar airports in Oregon provides a reasonable projection. Although we developed and considered TAF models for Oregon, regional, and national contract tower airports, our assessment is the Oregon model is most relevant within the comparison of TAF-derived models. However, it is noted that the TAF contract tower models were not selected as the recommended operations forecast for the airport master plan.

Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:43:02 PM

Why are only contact towers considered in this analysis? What difference does it make to an airports ops whether they are staffed by a contract employee or federal employee?

Additionally, what historic relationship do ops at the airport have to contract towers?

CWE Response:

The relevance of the model is based on the FAA's assessment of future airport activity at Oregon airports *most similar* to Aurora State Airport, as measured through several lenses (facility capabilities, size and composition of aircraft fleet, proximity to population centers, etc.). While the FAA contract tower airports in Oregon include a small number of commercial service airports, the majority are larger GA airports. The two commercial service airports with contract towers also support a large GA fleet.

We do not question the assumptions used by FAA in building the future year projections in the TAF. However, based on our review, it is apparent that some level of differentiation is assumed by FAA between classes of airports, including FAA-staffed and federal contract air traffic control towers. We also accept that the nominal differential in forecast growth rates reflected in the TAF for Oregon vs the NW Mountain Region activity is valid. The limited period of accurate aircraft operations counts (2016-2021) results in short period where annual growth rates are considerably higher than other FAA forecasts, including the TAF models. This is reflected in the Historic Tower Counts Trend model noted earlier that was not recommended. The model assumes that growth in future activity at Aurora State Airport will be similar to FAA's expectations for the group of Oregon airports with similar facility capabilities (e.g., contract ATCT).

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 6:51:37 AM

TFMSC is a great long term source for projecting growth in itinerant operations. TFMSC is not an appropriate database for local aircraft or to determine total operations. Please use different methods for determining local operation projections.

CWE Response:

We will modify this model to differentiate the local and itinerant operations growth and present a hybrid projection consistent with historical traffic data. ATCT historical data for local operations provides the only indication of documented local activity at the Airport, so we will identify a growth rate accordingly.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/12/2022 7:47:21 AM

Table shows 2.4%

CWE Response:

2.4% is correct. We will update text.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 12:47:20 PM

Is this still the case when the two off airport helicopter operators are removed from the total operations

CWE Response:

The fleet mix splits, including on-airport and TTF helicopters were based on estimates. Further discussions with ATCT manager indicated that the helicopter estimates were higher than observed. **Table 3-15** and associated text will be updated to reflect the revised fleet mix.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/17/2022 7:08:56 AM

Since helicopter traffic is a high component of operations at the airport it might be a good idea to provide a brief write-up regarding the destinations of these operations considering the 2 private helicopter operating areas adjacent to the airport.

CWE Response:

Please see previous response. Helicopter ops are not a significant contributor to the Airport's activity. Most of the rotor activity is related to Life Flight operations. We will add text to this section to explain.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/16/2022 11:59:01 AM

TFMSC shows 4835 jet ops in 2021, so there is a proration happening here of 10% which isn't valid. Moreover it is not clear how the splits were derived.

CWE Response:

The fleet mix has been revised as mentioned previously. Raw TFMS shows 4835 jet operations, when normalized to balance arrivals and departures the total is 5,022 operations. The splits were developed based on the following:

Helicopter: 1% of total ops as estimated by ATCT manager

Jet: Normalized TFMS Jet operations (2021).

Turboprop: Normalized TFMS Turbine operations (2021).

MEP: 3.4% of remaining ops based on MEP/SEP based aircraft split

SEP: 96.6% of remaining ops based on MEP/SEP based aircraft split

The following text will be added:

The distribution of total operational activity attributed to each of the five primary types of aircraft – single engine piston, multi-engine piston, turboprop, jet, and helicopter – is called the fleet mix. An understanding of the current and projected fleet mixes enable airports to plan for improvements to accommodate for growth or decline in activity by the specific aircraft type.

The fleet mix is derived from the current and projected operations totals established in the existing conditions analysis (base year counts) and the preferred forecast (projected estimates). ATCT operations counts do not distinguish between the individual aircraft types. So, fleet mix shares are estimated based on ancillary information, including TFMS data, national trends, and input from knowledgeable sources such as ATCT controllers.

The base year fleet mix was estimated starting with the total operations in 2021. TFMS data provides counts of aircraft arriving at or departing AURORA STATE AIRPORT with a filed IFR flight plan and classifies those counts by aircraft type. The vast majority of jets and turboprop operations are executed with an IFR flight plan and are captured by the TFMS data. As such, the TFMS jet and turboprop operations totals were used as the respective fleet mix splits.

While some helicopters operate under IFR and file flight plans, that is not the case for all. So TFMSC helicopter counts are not representative of the activity on the airfield. Discussions with the ATCT manager indicated that helicopter operations (not including off-site operators) account for approximately 1% of the total operations. As this was the best information available, a 1% split of total operations was attributed to helicopter activity.

Having accounted for jets, turboprops, and helicopters, the remaining operations can be attributed to piston aircraft. However, there are no definitive data sources that differentiate between single engine and multi engine piston aircraft operations. So as a planning estimate, the remaining unclassified operations were split according to the ratio of single-engine piston to multi-engine piston aircraft based at Aurora State Airport (96.6% SEP/3.4% MEP).

To estimate future fleet mix, the base year mix developed above was projected through the planning period using the following growth rates. The jet and turboprop growth rates were based on 20-year TFMSC trends for each respective aircraft type. Growth rates developed in the FAA National Aerospace Forecasts (General Aviation, Hours Flown) were applied to helicopters and multi-engine piston aircraft. All remaining operations not accounted for in each projected year were attributed to single-engine piston aircraft.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 12:51:52 PM
Trends by specific aircraft types in the turboprop (small v large) jet categories are essential inputs into the runway length analysis. Provide additional breakouts for aircraft groupings esp for jet.

CWE Response:

Will break out Jets \leq 12,500 lbs. and Jets $>$ 12,500 lbs. in Table 3-15.
**Table to be added when revised preferred operations forecast is finalized.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 12:52:35 PM
This needs a source describing how it was calculated.

CWE Response:

We will add sources as described above.

Also, we will update the listing of "Single Engine" to "Single Engine Piston*" for consistency in all fleet mix tables.

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/17/2022 6:12:44 AM
The calculations for determining peak month/day and design day/hour are based on estimates. Why? Data specific to those metrics can be pulled from OPSNET. This section needs to be updated to reflect actual peaking data

CWE Response:

We have recalculated the peaking metrics using OPSNET data and queries. Monthly operations numbers for 2021 were adjusted to account for the off-site helicopter activity and off-hour activity as described previously. The busiest month based on those results was identified (July 2021). The Peak Day Report was run in OPSNET which showed June 16, 2021, as the peak day. This updated data may require further revision depending on the final aircraft operations forecast numbers, per your previous comment regarding local/itinerant operations forecast methodology.

The first two paragraphs will be changed to read as follows:

Activity peaking is evaluated to identify potential capacity related issues that may need to be addressed through facility improvements or operational changes. The Peak Month represents the month of the year with the greatest number of aircraft operations (takeoffs and landings). The Peak Month for most general aviation airports occurs during the summer when weather conditions and daylight are optimal. This also coincides with the busiest time of

year for flight training and recreational flying. A review of OPSNET ATCT operations counts identified July as the Peak Month in 2021.

The Design Day is a calculated metric that is representative of an average day in the peak month, which is calculated by dividing the total peak month operations by 30.5. Also of interest is the Peak Day. The Peak Day represents the busiest day that the airport experiences in a year. The Peak Day may or may not fall within the Peak Month. A review of the OPSNET Peak Day report identified June 16 as the Peak Day in 2021.

The Updated Table 3-17 is below:

Peak Operations					
	2021	2026	2031	2036	2041
Annual Operations	76,028	85,438	96,013	107,898	121,253
Peak Month Operations* [†]	8,699	9,776	10,986	12,345	13,874
Design Day Operations (Average Day in Peak Month)	285	321	360	405	455
Peak Day Operations** ^{††}	435	489	549	617	694
Design Hour Operations (Assumed 20% of design day)	57	64	72	81	91
* Adjusted OPSNET Data					
[†] 2021 Peak Month identified as July					
^{††} 2021 Peak Day identified as June 6					

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Author: Benjamin J Mello Subject: Comment on Text Date: 8/15/2022 1:12:43 PM with similar characteristics

CWE Response:

We will change "...family of aircraft..." to "...aircraft with similar characteristics..."

Author: Benjamin J Mello Subject: Sticky Note Date: 8/17/2022 8:31:39 AM
AC 150/5325-4B Chapter 3 runway length tables are not correlated to C and D aircraft. Moreover, this forecast does not breakout the aircraft types needed to assess the 75% and 25% including regular use in each or the city pair data needed to assess 60% v 90% payloads. Please include the existing and projected critical aircraft tables for specific aircraft (s) in the Forecast Chapter.

CWE Response:

We will provide an additional table to break out jet aircraft operations (including the critical aircraft) in the recommended forecast by operational categories that correspond to the AC 150/5325-4B Chapter 3 runway length tables.

**Table to be added when revised preferred operations forecast is finalized.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:20:04 PM

With the runway length calculations there are departure obstacles requiring minimum climb gradients on both runway ends. AC 150/5325-4B Chapter 3 assumes a no obstacle environment-if obstacles cannot be mitigated, the AC charts may not be valid.

CWE Response:

Noted. This assessment will be included the facility requirements chapter evaluation of runway length.

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:20:48 PM
RDC- ARC is no longer used in AC 150/5300-13B

CWE Response:

We have changed **Table 3-18** heading to "Aircraft Approach Category (AAC) and Airplane Design Group (ADG)" and removed reference to ARC in the figure.

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:21:43 PM
SEP or SETP included?

CWE Response:

No. Only piston engine aircraft are included (* including LSA/Experimental fixed wing aircraft with one piston engine). We will revise the table to read "Single Engine Piston*" similar to the listed "Multi-Engine Piston for the based aircraft and aircraft operations fleet mix sections of the table. We will update all fleet mix tables for consistency.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:22:05 PM
Comment stated previously

CWE Response:

See our previous response on providing detailed fleet mix breakouts for jets.

Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:22:56 PM
Helicopter ops seem high - does this number include the 2 private helicopter operators

CWE Response:

The helicopter operations total does not include the off-site helicopter activity. However, after discussing the fleet mix with the ATCT manager we have adjusted our estimates in the table below. OPSNET tower counts do not categorize aircraft by type. An estimated fleet mix based on input from the ATC personnel and ancillary data sources such as TFMSC reflects the best data available.

**Table to be added when revised preferred operations forecast is finalized

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Author: Benjamin J Mello Subject: Sticky Note Date: 8/15/2022 1:23:27 PM
Please use 2021 TAF

CWE Response:

Updated TAF data; we will also revise, as needed, based on adjustments to recommended aircraft operations model forecast to differentiate growth between local and itinerant aircraft.

Airport Planning and TAF Forecast Comparison				
	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base yr.	2021	0	0	0.0%
Base yr. + 5yrs.	2026	0	0	0.0%
Base yr. + 10yrs.	2031	0	0	0.0%
Base yr. + 15yrs.	2036	0	0	0.0%
Commercial Operations				
Base yr.	2021	2,006	1,727	16.2%
Base yr. + 5yrs.	2026	2,254	1,845	22.2%
Base yr. + 10yrs.	2031	2,533	1,967	28.8%
Base yr. + 15yrs.	2036	2,847	2,097	35.8%
Total Operations				
Base yr.	2021	76,028	76,794	-1.0%
Base yr. + 5yrs.	2026	85,438	78,053	9.5%
Base yr. + 10yrs.	2031	96,013	79,109	21.4%
Base yr. + 15yrs.	2036	107,898	80,198	34.5%

Note: TAF data is on a U.S. government fiscal year basis (October through September).