

Memo

To: Ben Mello, FAA SEA-ADO
From: Century West Engineering
Date: 5/19/2022
Project: Aurora Airport Master Plan
Re: Corrections to Working Paper #1 (Chapters 1, 2, and 3)

This memorandum is to acknowledge the following changes to draft Working Paper #1 and a request for official FAA review of the Aviation Activity Forecasts.

CHAPTER 2, EXISTING CONDITIONS

A summary of the 2012 Airport Master Plan study, fuel services, and emergency services was added to the draft chapter. Below is a copy of the additional sections in the draft chapter.

CHAPTER 3, AVIATION ACTIVITY FORECASTS

In a letter from the City of Wilsonville dated April 12, 2022, “RE: Comments on Draft 2022 Aurora State Airport Master Plan Chapters 1-3”, the City noted a discrepancy between annual TFMSC operations numbers listed in the 2019 Constrained Operations Runway Justification Study, and those listed in Working Paper #1 of the 2022 Airport Master Plan. In response to this comment Century West investigated and identified a procedural error in how the data were queried from the TFMSC website that resulted in monthly operations totals being split between two or more records in the TFMSC data output files. The split monthly totals resulted in additional operations being generated in the data normalization calculations. We have updated our procedures, and redownloaded and renormalized the operations data.

As the preferred operations forecast is based on a 20-year trend derived from TFMSC data, that forecast model was impacted and has been revised. The revised forecast has a compound annual growth rate (CAGR) of 2.36% (rounded to 2.4% in the text and tables) compared to 2.30% as previously reported. The increased growth rate resulted in 121,253 annual operations in the year 2041, an increase of 1,344 operations (+1.1%) over the previously reported 119,909 operations.

While investigating the City’s comment, the planning team also noted differences in Airport Reference Code (ARC) classifications assigned to six aircraft in the two studies. The previous version of Working Paper #1 as well as the 2019 study used a combination of the TFMSC, the FAA Aircraft Characteristics

Database (https://www.faa.gov/airports/engineering/aircraft_char_database/), and individual aircraft flight manuals to determine the ARCs of these specific aircraft. However, the two studies did not assign ARCs to these aircraft consistently. In the interest of simplicity and transparency, the planning team has elected to instead use a single data source, TFMSC, to determine the ARC of individual aircraft.

The revised historical TFMSC operations data, and forecasted operations projections impacted several tables and figures included in Chapter 2 and Chapter 3 of Working Paper #1. The tables and figures affected are listed on the following pages with the updated information provided as presented in the revised Working Paper #1. Sources and notes for the impacted tables will be maintained as previously shown in the updated working paper.

After further review, Table 3-8 was removed from the revised *Chapter 3, Aviation Activity Forecasts* in Working Paper #1, as the summary of a select list of aircraft is not pertinent to the forecast discussion which should look at the fleet as a whole. This table is relevant to the Facility Requirements discussion in *Chapter 4, Facility Goals and Requirements*, and may be included in that chapter instead. Since the table was removed, the tables previously numbered 3-9 through 3-21 have been renumbered 3-8 through 3-20 to reflect the change.

It should be noted that the above-discussed revisions do not impact the selection of the design aircraft (C-II Jet similar to Canadair 600). The revised data continue to show more than 500 annual operations by AAC C and D aircraft, and ADG II or larger aircraft.

CHAPTER 2 EXISTING CONDITIONS

2012 Aurora State Airport Master Plan Update

The 2012 Airport Master Plan Update (AMPU) updated the 2000 Airport Master Plan with the goal of assessing the Airport's role and capabilities and identifying a plan for development needed to accommodate anticipated activity levels over the 20 year planning horizon. The 2012 AMPU included analysis of the following issues:

- Runway Extension
- Air Traffic Control Tower (ATCT)
- Impact of Airport Expansion on Surrounding Areas
- Calm Wind Runway Change
- Precision Instrument Approach
- Helicopter Operations (located on public property)

The preferred alternative included the following improvements:

- Construction of an ATCT
- A 1,000' runway and parallel taxiway extension to the south
- Development of additional hangar and apron areas on ODAV property
- Property acquisitions and avigation easements

The validity of the AMPU (Aurora Master Plan Update, 2012) was recently questioned as part of a petition for review made to the Oregon Land Use Board of Appeals (LUBA). In that land use action, the petitioners sought review of a 2019 Oregon Aviation Board (OAB) Decision made pursuant to OAR 138-103-0055 in which the Board found that the AMPU was compatible with the Marion County Comprehensive Plan. Petitioners also filed in state Circuit Court as a precautionary measure in the event LUBA dismissed the matter for lack of jurisdiction. LUBA did conclude that it lacked jurisdiction to hear this matter, but was overturned on appeal on that issue. Following the instructions of the Court of Appeals, LUBA found that it did have jurisdiction and remanded the decision back to OAB, finding that it could not review the matter until certain records from the 2012 adoption process were provide to LUBA. The circuit court cases remain pending but are expected be dismissed or otherwise resolved consistent with LUBA's order of remand.

Fuel Services

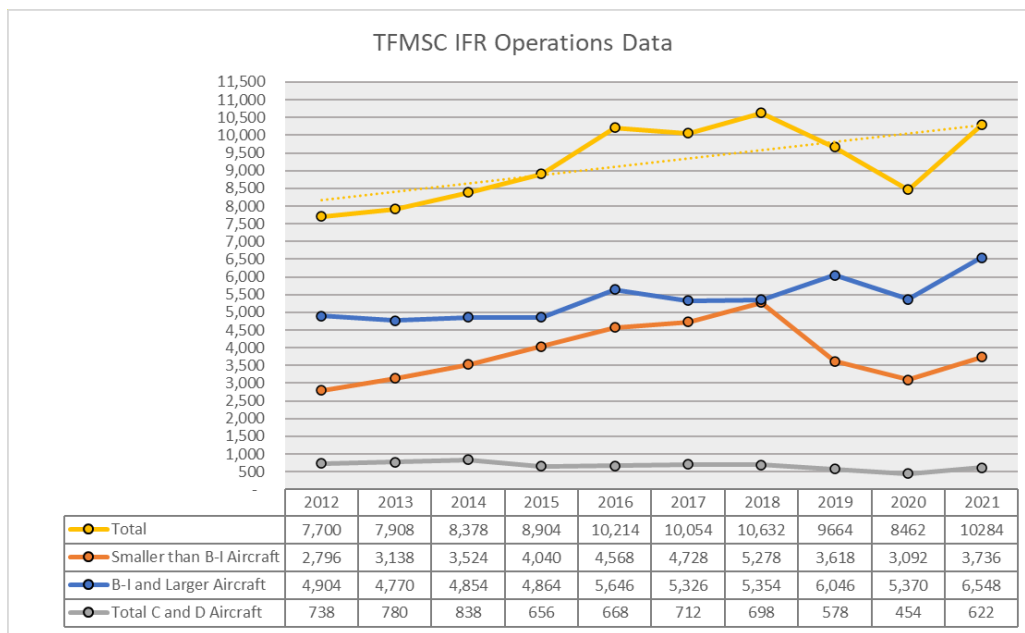
On airport fuel sales are provided by Atlantic Aviation, which has an above-ground 12,000-gallon aviation gasoline (AVGAS/100LL) tank and an above-ground 20,000-gallon Jet A tank located on leased ODAV property immediately southwest of the Atlantic Aviation building. Atlantic Aviation operates two mobile fuel trucks to ferry fuels from their tanks to aircraft parked on the apron. Additional off-airport fuel storage and service is available on surrounding private properties with TTF agreements. There are no known underground fuel storage tanks on airport property.

Emergency Services

Marion County Sheriff Department provides emergency service and response to the Aurora State Airport. A single dedicated deputy is assigned to the Aurora community, which includes the Airport. The Aurora Fire District provides fire suppression, rescue, emergency medical response, and hazardous material response. The nearest district fire station is in the City of Aurora, less than two miles from the Airport. The Aurora Airport Water Control District was formed in 2002 and installed a 247,800-gallon fire suppression system to assist the Aurora Fire District in protecting the Airport in the event of fire.

Figure 2-3 TFMSC IFR Operations Data

Updated to reflected revised TFMSC numbers



CHAPTER 3 AVIATION ACTIVITY FORECASTS

Figure 3-5 Operations Forecast Models

Updated to reflect corrected TFMSC operations numbers used to develop growth rate.

Growth rate increased to 2.4%

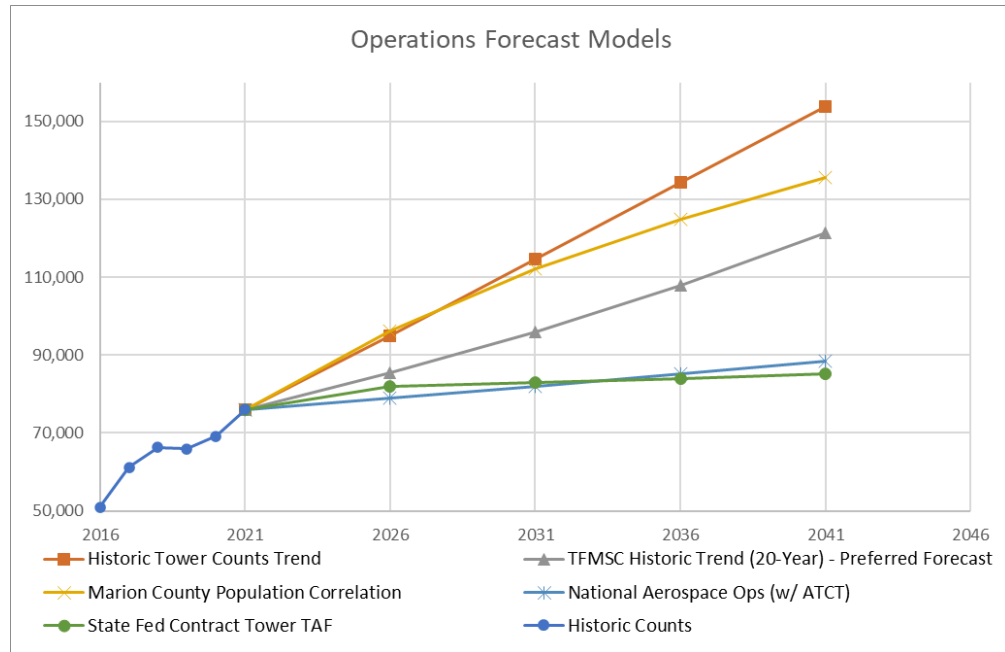


Table 3-7 Aurora State Airport Instrument Flight Operations

Updated to reflected revised TFMS numbers and TFMS ARC classifications

Historical operations counts for B-II, C-I, C-II, and D-III differ from counts presented in the 2019 study due to the change in ARC classification source.

Added row to summarize ADG II and larger operations

TFMS IFR OPERATIONS BY ADG - Calendar Year Data											
Airport Reference Code (ARC)	2012 Operations	2013 Operations	2014 Operations	2015 Operations	2016 Operations	2017 Operations	2018 Operations	2019 Operations	2020 Operations	2021 Operations	Average Annual Operations
A-I	2,372	2,638	2,414	2,482	2,750	2,752	3,428	2,458	2,162	2,334	2,579
A-II	410	494	1,108	1,554	1,814	1,966	1,844	1,158	930	1,398	1,268
A-III	14	6	2	4	4	10	6	2	0	4	5
A-IV	0	0	0	0	0	0	0	0	0	0	0
B-I	1,496	1,368	1,422	1,194	1,198	1,126	1,134	1,190	1,024	1,154	1,231
B-II	2,222	2,232	2,214	2,620	3,270	3,110	3,146	3,798	3,448	4,166	3,023
B-III	0	0	0	2	0	2	4	8	2	0	2
B-IV	0	0	0	0	0	0	0	0	0	0	0
C-I	360	374	514	438	340	306	274	286	170	274	334
C-II	348	378	294	208	316	368	358	226	242	242	298
C-III	18	10	6	8	0	14	50	54	10	0	17
C-IV	0	0	0	0	0	0	2	0	0	2	0
C-V	0	0	0	0	0	0	0	0	0	0	0
D-I	2	8	16	0	4	10	8	4	2	14	7
D-II	4	0	4	0	2	6	2	8	26	84	14
D-III	6	10	4	2	6	8	4	0	4	6	5
D-IV	0	0	0	0	0	0	0	0	0	0	0
D-V	0	0	0	0	0	0	0	0	0	0	0
Unknown	448	390	380	392	510	376	372	472	442	606	439
Total	7,700	7,908	8,378	8,904	10,214	10,054	10,632	9,664	8,462	10,284	9,220
Operations by AAC C and D Aircraft	738	780	838	656	668	712	698	578	454	622	674
Operations by ADG II and Larger	3,022	3,130	3,632	4,398	5,412	5,484	5,416	5,254	4,662	5,902	4,631

Table 3-8 Historical TFMS Activity by ARC (Select Jets) (REMOVED)

This table has been removed from Working Paper #1 since it does not add relevant information to the forecast discussion and the information presented fits better in the Facility Requirements discussion.

Since this table was specifically referenced in the City’s comments, the updated data are presented below to demonstrate that the comments were addressed. However, it is not included in the revised Working Paper #1 and is included in this memo only for the sake of transparency and for FAA reference.

The 2018 operations for the C560 presented in the revised table show two more operations for that aircraft compared to the 2019 Study (706 vs 704). We believe this is due to a typographical error in the 2019 study, as that table column was manually updated in the report when the complete 2018-year data became available.

TFMSC IFR Data - Select Jet Aircraft with Maximum Certificated Takeoff Weight of More than 12,500 Pounds and Select Jet Aircraft over 60,000 Pounds														
	ARC	Aircraft Based at UAO	Aircraft Designator	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average Annual Operations
Cessna 550 Citation	B-II	x	C550	210	134	162	224	260	158	212	174	138	162	183
Cessna 560 Citation	B-II	x	C560	362	496	460	580	688	772	706	618	546	622	585
Cessna 650 Citation	B-II	x	C650	90	90	118	144	118	114	98	68	66	42	95
Cessna 680 Citation	B-II	x	C680	64	52	68	72	64	90	138	150	138	250	109
Cessna 750 Citation	B-II		C750	60	74	90	94	90	94	104	92	84	38	82
Falcon 20	B-II	x	FA20	90	84	28	14	98	74	76	68	66	82	68
Falcon 2000	B-II	x	F2TH	2	14	6	4	6	4	34	130	108	346	65
Falcon 50	B-II	x	FA50	10	18	96	220	310	316	276	284	216	302	205
Falcon 900	B-II		F900	180	144	48	8	54	80	68	100	26	16	72
Hawker Horizon	B-II		HA4T	2	2	2	0	0	0	0	2	2	6	2
Phenom 300	B-II	x	E55P	14	102	96	92	86	122	56	80	256	430	133
Hawker 800	C-I	x	H25B	224	210	310	118	42	28	34	20	8	32	103
Lear 31	C-I		L31	4	2	0	0	6	54	92	110	32	22	32
Lear 45	C-I	x	L45	110	148	180	236	240	208	110	136	122	204	169
Lear 55	C-I		L55	0	2	0	0	2	0	4	2	0	0	1
Lear 60	C-I	x	L60	2	4	10	82	36	14	30	14	6	10	21
Astra 1125	C-II		ASTR	178	152	164	114	160	162	96	14	0	4	104
Challenger 300	C-II	x	CL30	32	90	64	72	78	104	88	78	62	54	72
Challenger 600	C-II	x	CL60	126	122	36	12	64	80	58	52	90	68	71
Embraer ERJ 135	C-II		E135	0	4	6	0	2	2	0	0	0	0	1
Galaxy 1126	C-II		GALX	8	10	16	0	2	4	0	4	2	2	5
Gulfstream 150	C-II		G150	2	0	0	2	2	6	80	22	4	2	12
Lear 75	C-II		L75	0	0	0	0	4	10	12	0	2	4	3
Bombardier Global Express*	C-III		GLEX	18	10	4	8	0	14	50	52	10	0	17
Lear 35	D-I		L35	2	8	16	0	4	6	8	4	0	12	6
Gulfstream IV/G400*	D-II		GLF4	4	0	4	0	2	6	2	8	26	84	14
Gulfstream V/G500*	D-III		GLF5	6	10	4	2	0	4	2	0	4	6	4
Gulfstream VI/G600*	D-III		GLF6	0	0	0	0	6	4	2	0	0	0	1
Total				1800	1982	1988	2098	2424	2530	2436	2282	2014	2800	2235
B-II				1084	1210	1174	1452	1774	1824	1768	1766	1646	2296	1599
B-III				0	0	0	0	0	0	0	0	0	0	0
C-I				340	366	500	436	326	304	270	282	168	268	326
C-II				346	378	286	200	312	368	334	170	160	134	269
C-III				18	10	4	8	0	14	50	52	10	0	17
D-I				2	8	16	0	4	6	8	4	0	12	6
D-II				4	0	4	0	2	6	2	8	26	84	14
D-III				6	10	4	2	6	8	4	0	4	6	5
Operations by AAC C and D Jets				716	772	814	646	650	706	668	516	368	504	636
Operations by ADG II and III Jets				1458	1608	1472	1662	2094	2220	2158	1996	1846	2520	1903

Table 3-14 Aircraft Operations Forecast Models (Previously Table 3-15)

Updated to reflect revised forecast numbers

Operations Forecasts						
	CAGR	2021	2026	2031	2036	2041
Historic Tower Counts Trend	3.6%	76,028	95,039	114,646	134,254	153,862
TFMSC Historic Trend (20-Year) - Preferred Forecast	2.4%	76,028	85,438	96,013	107,898	121,253
Marion County Population Correlation	2.9%	76,028	96,244	112,162	124,981	135,506
National Aerospace Ops (w/ ATCT)	0.8%	76,028	78,939	81,966	85,114	88,388
State Fed Contract Tower TAF	0.6%	76,028	81,924	82,972	84,046	85,151

Table 3-15 Operations Fleet Mix (Previously Table 3-16)

Updated to reflect revised operations forecasts

Operations Fleet Mix Forecast					
Aircraft Type	2021	2026	2031	2036	2041
Total Airport Operations	76,028	85,438	96,013	107,898	121,253
Single Engine*	60,823	67,838	75,562	84,377	93,971
Multi Engine Piston	760	769	768	647	606
Turbo Prop	3,041	3,588	4,321	5,071	6,063
Jet	5,322	6,408	7,681	9,171	10,913
Helicopter	6,082	6,835	7,681	8,632	9,700
Fleet Mix Percentages					
Single Engine*	80.0%	79.4%	78.7%	78.2%	77.5%
Multi Engine Piston	1.0%	0.9%	0.8%	0.6%	0.5%
Turbo Prop	4.0%	4.2%	4.5%	4.7%	5.0%
Jet	7.0%	7.5%	8.0%	8.5%	9.0%
Helicopter	8.0%	8.0%	8.0%	8.0%	8.0%

* Includes Experimental/LSA

Table 3-16 Local and Itinerant Activity (Previously Table 3-17)

Updated to reflect revised operations forecast

Local and Itinerant Activity					
Aircraft Operations	2021	2026	2031	2036	2041
Itinerant					
Itinerant Air Taxi	2,006	2,254	2,533	2,847	3,199
Itinerant GA	36,390	40,904	45,977	51,677	58,083
Itinerant Military	79	79	79	79	79
Itinerant Total	38,475	43,237	48,589	54,603	61,361
Local					
Local GA	37,488	42,136	47,360	53,230	59,826
Local Military	65	65	65	65	65
Local Total	37,553	42,201	47,425	53,295	59,891
Total Operations	76,028	85,438	96,013	107,898	121,253

Table 3-17 Aircraft Operations Peaking (Previously Table 3-18)

Updated to reflect revised operations forecast numbers

Peak Operations					
	2021	2026	2031	2036	2041
Annual Operations	76,028	85,438	96,013	107,898	121,253
Peak Month Operations (11%)	8,363	9,398	10,561	11,869	13,338
Design Day Operations (Average Day in Peak Month)	274	308	346	389	437
Busy Day Operations (Assumed 150% of design day)	411	462	519	584	656
Design Hour Operations (Assumed 20% of design day)	55	62	69	78	87

Table 3-19 Forecast Summary (Previously Table 3-20)

Updated to reflect revised operations forecast

ADG and AAC group forecasts were updated to use preferred operations forecast growth rate (2.4%).

Forecast Summary						
	CAGR	2021	2026	2031	2036	2041
Based Aircraft						
Single Engine*	0.9%	216	229	240	250	259
Multi Engine Piston	0.0%	6	6	6	6	6
Turbo Prop	1.1%	13	14	15	15	16
Jet	2.3%	36	40	45	50	56
Helicopter	1.4%	10	11	11	12	13
Total Based Aircraft	1.1%	281	300	317	333	350
Aircraft Operations						
Itinerant						
Itinerant Air Taxi	2.4%	2,006	2,254	2,533	2,847	3,199
Itinerant GA	2.4%	36,390	40,904	45,977	51,677	58,083
Itinerant Military	0.0%	79	79	79	79	79
Itinerant Total	2.4%	38,475	43,237	48,589	54,603	61,361
Local						
Local GA	2.4%	37,488	42,136	47,360	53,230	59,826
Local Military	0.0%	65	65	65	65	65
Local Total	2.4%	37,553	42,201	47,425	53,295	59,891
Total Operations	2.4%	76,028	85,438	96,013	107,898	121,253
Aircraft Operations Fleet Mix						
Single Engine*	2.1%	60,823	67,838	75,562	84,377	93,971
Multi Engine Piston	-1.2%	760	769	768	647	606
Turbo Prop	3.5%	3,041	3,588	4,321	5,071	6,063
Jet	3.6%	5,322	6,408	7,681	9,171	10,913
Helicopter	2.3%	6,082	6,835	7,681	8,632	9,700
Total Operations	2.4%	76,028	85,438	96,013	107,898	121,253
Operations By C-II (Critical Aircraft)	2.4%	242	272	306	343	386
Operations by AAC C & D	2.4%	622	699	785	883	992
Operations by ADG II & Larger	2.4%	5,902	6,632	7,452	8,374	9,410
Instrument Operations	2.4%	9,658	10,853	12,196	13,390	15,402

* Includes Experimental/LSA

Table 3-20 Airport Planning and TAF Forecast Comparison (Previously Table 3-21)

Updated to reflect revised operations forecast.

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	1,191	68.4%
Base yr. + 5yrs.	2026	2,254	1,731	30.2%
Base yr. + 10yrs.	2031	2,533	1,848	37.1%
Base yr. + 15yrs.	2036	2,847	1,973	44.3%
Total Operations				
Base yr.	2021	76,028	64,035	18.7%
Base yr. + 5yrs.	2026	85,438	65,371	30.7%
Base yr. + 10yrs.	2031	96,013	66,303	44.8%
Base yr. + 15yrs.	2036	107,898	67,262	60.4%
Note: TAF data is on a U.S. government fiscal year basis (October through September).				