Memo

To:	**Tim House, Lead Airport Planner, FAA Seattle-ADO**
From:	**Century West Engineering**
Date:	**12/9/2022**
Project:	**Aurora State Airport (UAO) Master Plan**
Re:	**Follow-up to FAA Comments on CWE FAA Working Paper #1 (5.19.2022)**

This brief memorandum responds to a specific FAA review comment (noted below), provided by FAA Airport Planner Ben Mello on August 17, 2022, for Aurora State Airport – Airport Master Plan Working Paper 1. The noted comment is related to the methodology used in developing our preliminary recommended aircraft operations forecast model.

This memorandum provides additional information and a revised annual aircraft operations forecast in response to FAA comment. We are proposing the revised forecast as the recommended aircraft operations model for the airport master plan. We are requesting FAA review of the revised methodology and data be completed at your earliest convenience to allow completion of the formal FAA review of Working Paper 1 submitted to FAA in May 2022, and ultimately FAA approval of the master plan 2021-2041 aviation activity forecasts.

Responses to all other FAA comments included in FAA Airport Planner Mello's 8/17/22 email were provided to FAA in a 9/23/22 email to Airport Planner Mello; proposed edits to Working Paper 1 are noted in that email. If the revised operations forecast appears reasonable to FAA, we will then revise the subsequent operations forecasts (operational peaks, design aircraft, fleet mix, TAF comparisons, etc.) for consistency and include the updated forecasts in the revised Working Paper 1.

DRAFT REVISED AIRCRAFT OPERATIONS FORECAST – AURORA STATE AIRPORT (12/9/22)

In their review of the preliminary 2021-2041 aviation activity forecasts for the Aurora State Airport Master Plan submitted to FAA by Century West Engineering, the FAA recommended using a different method for forecasting local operations than the TFMSC method that was applied to both local and itinerant operations:

Working Paper 1, Page: 86

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.

Hybrid TFMSC Itinerant/FAA National Aerospace Forecast GA Local Operations Model

While the TFMSC 20-year trend discussed previously is a good indicator of itinerant activity, local operations are not captured in the TFMSC data and therefore the model should be augmented to account for local activity, which is conducted in visual flight rules (VFR) conditions.

Normally at a towered airport such as Aurora State Airport, a trend analysis of historical ATCT local operations would provide a reasonable indication of future growth potential. However, two unique factors significantly limit the ability to generate reliable airport-specific trend analyses for this forecast:

1. Limited Data Range. The limited number of years of ATCT operations (2016-forward) provides a reliable indication of individual year historical activity but does not provide a sufficient span of time needed to define reliable trends to build future activity projections. This is highlighted within the overall ATCT data, where local operations have experienced several significant upward and downward fluctuations during this period.
2. COVID-19. As noted on Working Paper 1, Page 3-1, the FAA recognizes that the COVID-19 pandemic and the ongoing post-COVID recovery have created significant forecast uncertainty throughout the U.S. civil aviation system that reduces the level of confidence normally associated with airport master plan forecasting. The impacts of COVID-19 on activity at Aurora State Airport are reflected in the ATCT historical operations counts noted above, and they contribute to annual data that fails to define a reliable trend that can be used to project future aircraft flight activity.

Since the ATCT opened, the Aurora State Airport has experienced strong growth in local operations increasing at an annual rate of over 18% between 2016 and 2021. ATCT personnel interviewed as part of this study indicated that most of this growth can be attributed to flight training, specifically airport traffic pattern activity associated with flight training (touch and go operations, etc.). However, several factors were noted suggesting that recent growth is not sustainable at the current rate. ATCT personnel stated that they regularly deny access to the Class D (controlled) airspace to incoming aircraft due to congestion in the pattern and the need to accommodate other air traffic (e.g., inbound, outbound aircraft on instrument flight plans, etc.). This was further corroborated in interviews with flight school operators who stated that they have been denied access to the airspace by the ATCT due to congestion. Locally based flight schools also report that the ATCT will limit aircraft access to the traffic pattern (for touch and goes, etc.) for aircraft planning their flights from the Airport, when the area is congested.

Anecdotally, locally based and area flight schools report that these conditions are increasingly prompting changes in their use of Aurora State Airport for flight training activity. This includes increased use of less congested airports for general pattern work and managing the training operations at Aurora State Airport based on the higher volume of air traffic and congestion commonly found.

The comments provided by ATCT and the flight schools suggest that the very strong growth in local operations seen at Aurora, particularly during the COVID years, is unlikely to continue. Growth is expected to moderate and perhaps return to more modest, pre-COVID levels.

This may already be occurring as observed in the Airport's year-to-date ATCT counts for 2022. The available 2022 OPSNET Local Operations counts (January-October), are on pace to see a 21% decrease in local operations compared to 2021 totals. While conclusions cannot be drawn from a single data point, especially considering the effects of the COVID-19 pandemic are not well understood, this sharp deviation from the rapid growth seen over the past several years should be noted and may suggest that the Airport is experiencing broader downturns in activity that may be visible in flight training activity (local operations) for the foreseeable future.

Updated Operations Forecast Methodology

A new hybrid aircraft operations forecast model was developed that uses separate growth rates for itinerant aircraft and local operations. The individual rates are applied to the 2021 baseline local and itinerant operations total for the twenty-year forecast window. The use of a hybrid model addresses the comment provided by FAA in the draft operations forecast and recognizes the distinction in local and itinerant operations commonly found at general aviation (GA) airports.

Itinerant operations are projected to increase at an average annual rate of 2.4% between 2021 and 2041. This growth rate reflects the long-term (2001-2021) historical trend defined for instrument flight plan-related operations at Aurora State Airport documented in the FAA TFMSC data.

Local operations are projected to increase at an average annual rate of 0.7% between 2021 and 2041. This growth rate is consistent with the FAA's 2022-2042 National Aerospace Forecast growth rate defined for General Aviation Local Operations at Airports with FAA and Contract Air Traffic Control Service. As noted above, the use of a national FAA forecast growth rate appears to be the best available method for projecting local aircraft operations at Aurora State Airport due to the strong fluctuations in local activity experienced at the Airport since the ATCT operation began, making localized trend analysis unreliable. The varied impacts in activity at Aurora State Airport that are generally attributed to the COVID-19 pandemic further underscore the inability to define reliable operations projections based on a limited range of data that experienced significant inconsistencies.

The updated recommended annual aircraft operations forecast is summarized below.

Recommended Operations Forecast (Updated 12/2022)						
TFMSC Historic Trend/FAA NAF Hybrid	**CAGR**	**2021**	**2026**	**2031**	**2036**	**2041**
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	0.7%	37,488	38,821	40,201	41,630	43,110
Local Military	0.0%	65	65	65	65	65
Local Total	**0.7%**	**37,553**	**38,886**	**40,266**	**41,695**	**43,175**
Total Operations	**1.6%**	**76,028**	**82,123**	**88,855**	**96,298**	**104,537**

Operations Fleet Mix Forecast (Updated 12/2022)					
Aircraft Type	Historical	Forecast			
	2021	2026	2031	2036	2041
Total Airport Operations	76,028	82,123	88,855	96,298	104,537
Single Engine*	65,319	68,635	71,633	74,042	75,478
Multi Engine Piston	2,299	2,334	2,369	2,404	2,439
Turbo Prop	2,628	3,720	5,267	7,457	10,557
Jet	5,022	6,595	8,660	11,372	14,934
Helicopter	760	839	926	1,023	1,129
Fleet Mix Percentages					
Single Engine*	85.9%	83.6%	80.6%	76.9%	72.2%
Multi Engine Piston	3.0%	2.8%	2.7%	2.5%	2.3%
Turbo Prop	3.5%	4.5%	5.9%	7.7%	10.1%
Jet	6.6%	8.0%	9.7%	11.8%	14.3%
Helicopter	1.0%	1.0%	1.0%	1.1%	1.1%