

Public Open House Meeting #3

NIR3FD

Aviation Planning Group

May 26, 2022



Port Staff

Introductions

Rudy Rudolph

Operations & Airport Director

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Project Team

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Participation

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This presentation will be recorded and posted on the Port's Airport Master Plan Update website.

We will mute all participants during the presentation.

Please type in the chat box if you have a comment or question.

Comments will be heard at the end during the Comments portion of the presentation and a Q/A will be updated on the website.





- **1.** Studies Underway
- 2. HCP Update
- **3.** Review of Master Plan Update Process
- 4. Master Plan Update Focus Area & Goals
- 5. Master Plan Project Update
- **6.** Preferred Alternative
- 7. Emerging Technologies
- 8. Next Steps
- 9. Comments



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There are two projects that the airport is involved in.

The **Master Plan Update** is focused on meeting the aviation demand.

The Bush Prairie Habitat Conservation Plan (HCP)

is focused on protecting and mitigating endangered species in and around the airport and the City of Tumwater by developing a mitigation plan.

WSDOT Studies

REGIONAL

A project unrelated to the Master Plan Update and the HCP being conducted by WSDOT is the **Commercial Aviation Coordination Commission** (CACC).

The CACC is a group created by the Legislature to develop recommendations to meet Washington state critical aviation system capacity needs.

OLM is **not** being considered in this study.

If you have questions on that particular study please reach out to the CACC at <u>CACC@wsdot.wa.gov</u>

HCP Update

- The **Bush Prairie Habitat Conservation Plan (HCP)** is being developed to balance growth and the preservation of endangered species within the City of Tumwater and its urban growth area.
- The City of Tumwater and the Port of Olympia are jointly developing the Habitat Conservation Plan.
- The goal of the HCP is to consider the streaked horned lark, pocket gopher and vesper sparrow and develop a mitigation plan to allow development.
- HCP is estimated to be complete by end of 2023.

Master Plan Update Process

> A master plan's purpose is not to solve an airport's management, operations, or maintenance issues.

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According to the Federal Aviation Administration (FAA), an airport master plan is...

A comprehensive study of an airport that usually describes the short-, medium-, and long-term development plans to meet future aviation demand.

Follows FAA Advisory Circular 150/5070-6B

Master Plan Tasks:

- Inventory
- Forecast
- Facility Requirements

- Alternatives
- Airport Layout Plan
- Capital Improvement Plan



Figure E17 Airport Property Map - Exhibit 'A'

E 30





Master Plan Update Goals

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IRT

- Meet Aviation Demand
- Meet FAA design standards
- Prepare OLM for future development
- Prepare OLM for emerging aviation technologies
- Continued Airport self-sufficiency



Project Update

Completed

- Inventory
- Forecast Approved by FAA
- Facility Requirements
- Alternatives

Current focus areas

- Coordination with the HCP Team
- Airport Layout Plan
- Implementation Plan

Future Focus Areas

• Part 139 Commercial Service Feasibility Study

Summary of Preferred Alternative

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• The Preferred Alternative proposes a reduction in taxiway and runway pavement by 550,000 square feet compared to the existing approved ALP - providing opportunity for habitat.

Summary of Preferred Alternatives

- Taxiway changes:
 - Relocation of Taxiway F to be parallel
 - Relocation of Taxiway W to be parallel
 - Removal of Taxiway D and Taxiway C
 - 90 degree intersections of taxiways to runways
 - Move taxiways outside of the middle third of the runway
- Rehabilitation of Runway 17/35
- Shortening Runway 8/26 by 647 feet to 3,510 feet in length
- Pavement Maintenance





Near-Term



Mid-Term



600

Long-Term





Emerging Technologies



- Airport Cooperative Research Project on electric aircraft and hydrogen technologies takeaways
- Washington Electric Aircraft Feasibility Study takeaways
- Charging, Hybrid aircraft, and Hydrogen fuel

Preparing Your Airport for Electric Aircraft and Hydrogen Technologies

OLYMPIA REGIONAL AIRPORT PORT OF OLYMPIA

Airport Cooperative Research Project (ACRP) Report 236

The following figures and tables are sourced from ACRP 236

AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP RESEARCH REPORT 236

Preparing Your Airport for Electric Aircraft and Hydrogen Technologies

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Subscriber Categories Aviation • Planning and Forecasting • Terminals and Facilities

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> TRANSPORTATION RESEARCH BOARD 2022

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Baseline Aircraft Concepts

			J.			
Configuration	Small All-Electric Tube & Wing	Small All-Electric Tube & Wing	All-Electric Tube and Wing Commuter	Hybrid-Electric Tube and Wing Regional	All-Electric Multi Copter	All-Electric Tilt Rotor
Examples	Pipistrel	Bye Aerospace	Eviation	UTC	Beijing Yi-Hang	
	Alpha Electro	SunFlyer 4 / eflyer 4	Alice	Project 804	Creation EHANG 184	Bell Nexus 4EX / Joby S4
Capacity	1 pilot + 1 passenger	1 pilot + 3 passenger	2 pilots + 9 passengers	2 pilots + 39 passengers	2 passengers	1 pilot + 4 passengers
Range / Endurance	1 hr. + reserve (Circuits) 45min + reserve (Cross country)	4 hours / 420 miles	650 miles	700 miles	25 miles	60 miles
Payload	400 lbs.	800 lbs.	2,750 lbs.	200 lbs.	570 lbs.	800 lbs.

Table 3: Baseline Aircraft Concepts







Figure 9. Propulsion equivalent energy costs for jet fuel and electricity.

Figure 8. Efficiency of traditional and electrified powertrains.

OLYMPIA REGIONAL Airport Master Plan Update

ACRP Report 236 Airside Requirements

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Electric Charging Infrastructure



Figure 38. Electric aircraft charging via fixed charging stations.



Figure 39. Electric aircraft charging via a mobile supercharger.



Figure 40. Electric aircraft battery swap.

Three key ways to charge aircraft, and there are pros/cons for all three.



Fast charge is on the horizon

- 20 minute charge offers 90 minutes of flight time
- Flight testing for eDA40 is set to begin in the second quarter of 2022, with certification forecasted for 2024

The First Electric Airplane That You Can Fast-Charge Like Your Tesla Is Coming Soon

Diamond Aircraft's eDA40 can be recharged in about 20 minutes. You just can't do it at your local Walmart.







Courtesy Diamond Aircraft



Case Study: Washington Electric Aircraft Feasibility Study

- Study provided a framework for quantifying economic impacts
- Potential to support jobs and create business revenues
- Reduction in time and regional travel costs
- Connecting communities and employment centers along the I-5 corridor



Source: EBP US, 2020, Kimley-Horn AIES 2020.

Figure 18. Economic impact and measures.



Perspective on the Aviation Demand

- Short-Term (2025 Horizon)
- Medium-Term (2030 Horizon)
- Long-Term (2040 Horizon)



Figure 23. Potential timeline of electric aircraft implementation.

Electric training aircraft are making big advancements in the development of battery-powered electric aircraft.

Electric Trainer Aircraft

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 Textron (Cessna and Beechcraft) purchased Pipistrel for \$235 million which says they view electric aircraft future as a strong market.

PRIL 27, 2018

First all-electric trainer plane gets airworthiness certification from the FAA in the US ed Lambert - Apr. 27th 2018 12:36 pm PT 🎔 @FredericLambert



EMERGING TECHNOLOGIES

U.S. Aviation First: Private Pilot Certificate Earned Using an Electric Airplane

Pilot Shane Fisher performed his check ride in Pipistrel's battery-powered Velis Flectro





Electric Aircraft in PNW



April 2022 Eviation makes a deal to sell Cape Air 75 electric airplanes; first flight test now set for summer

BY ALAN BOYLE on April 18, 2022 at 10:59 am



Hybrid Aircraft

VoltAero Cassio hybrid-electric aircraft to pass 10,000km milestone	20
BY BEN SAMPSON ON 26TH APRIL 2022	ELECTRIC & HYBRID

VoltAero's Cassio 1 testbed aircraft has been used to demonstrate the French company's hybrid-electric powertrain (Image: VoltAero)

This Agile Hybrid eVTOL Made in Italy Promises an Extensive Range at 186 MPH

Home > News > Aviation

6 May 2022, 04:54 UTC · by Otilia Drăgan

Helicopters carry most of the burden when it comes to medical air transportation, but things are starting to change. Small drones are already being used for delivering urgent medical supplies over short distances, but eVTOLs (electric vertical take-off and landing) capable of interregional flights have the potential to revolutionize medical transportation.





Hybrid Aircraft

ATR Eyes Hybrid-Electric Propulsion for New 'Evo' Turboprop

by Cathy Buyck - May 18, 2022, 3:00 AM



Surf Air Mobility Enters Into Exclusive Agreements With AeroTEC and MagniX to Accelerate Development of Electrified Commercial Aircraft





Sustainable Aviation Fuels (SAF) AKA: Biofuel/Plant Based Fuels:

 Created by using feedstock produced by green plants, that absorb CO2 from the atmosphere and convert it oils/sugars to make low-carbon jet fuel.

Bio/Plant material

- Waste oils
- Plant and algae material
- Animal fats

- FAA approval for up to 50% SAF blend with Jet-A
- SAF is proven, dropin technology
- Biofuel can be blended with conventional fuel.



There is adequate space for fuel farm expansion if demand for biofuels occurs.



Figure 45. Hydrogen delivery.

Figure 43. Aircraft H₂ container swap.



Hydrogen Aircraft



The German aerospace company's H2-powered electric airplane flew above 7,000 feet.

H2FLY, a German aerospace company, has just set a new hydrogen plane altitude record with its HY4 four-seater.

Second aircraft joins ZeroAvia fleet for hydrogen-electric flight second testing

BY BEN SAMPSON ON 10TH MAY 2022

ELECTRIC & HYBRID





Emerging Technologies

- Potential for OLM to support alternative fueled aircraft through training and general aviation activities
- Industry is evolving quickly
- Environmentally friendly and sustainable
- OLM Master Plan Update Appendix: Emerging Technologies



Next Steps



Comments

If you have a comment you can:

Use the "Raise Hand" button

- Under "Participants" or
- Under "Reactions"

Comments are limited to 3 minutes. Type a comment in the chat box

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Thank you

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