

Washington Electric Aircraft Feasibility Study

WAMA 2021 Conference

Max Platts, Aviation Planner

October 6, 2021

Planning for the Next Aviation Revolution

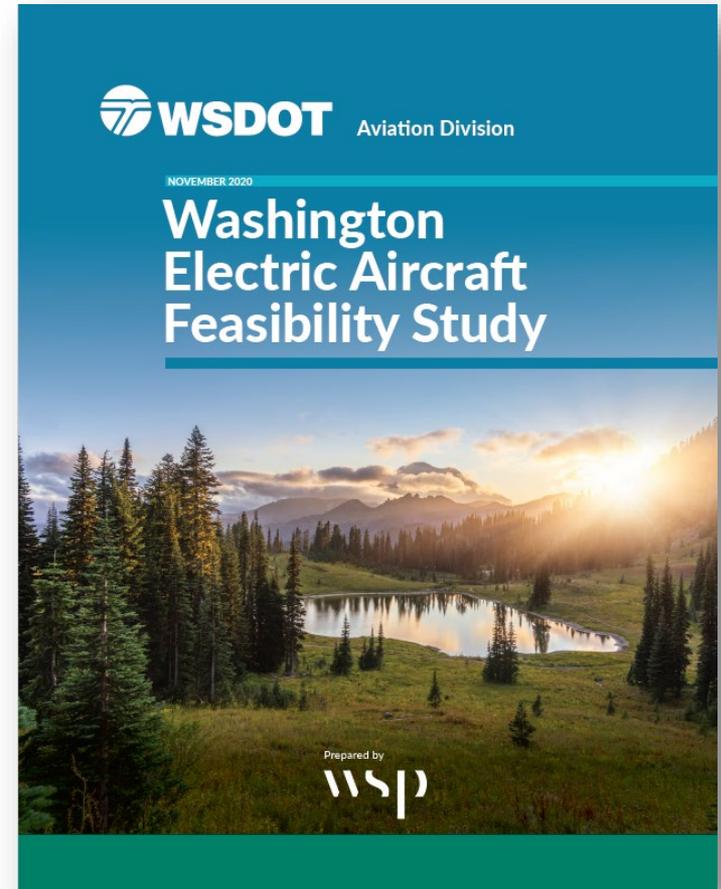
- **Electric aircraft are flying today, with more companies entering the market**
 - **Over 200 models under development**
- **November 2020 WSDOT completed a one-year consultant lead study on the potential impacts of electric aircraft for Washington State**
- **There is great potential to open up new markets for air travel while reducing greenhouse gas emissions**
- **Planning for implementation of electric aviation is key to successful adoption**



Washington Electric Aircraft Feasibility Study

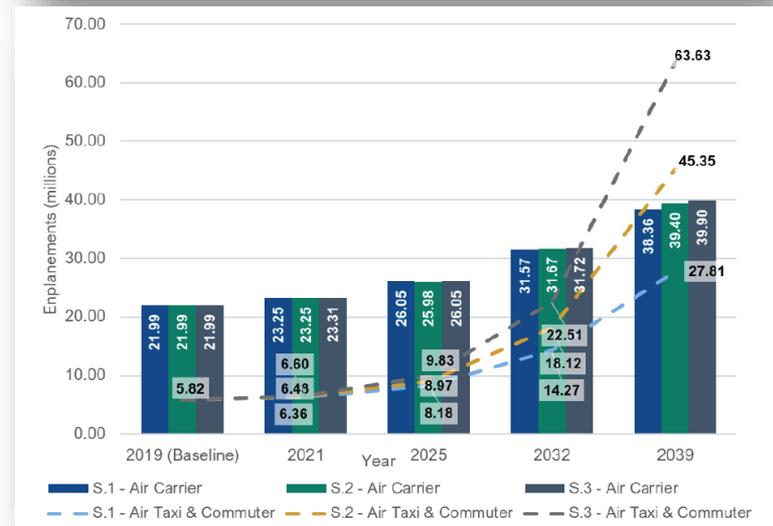
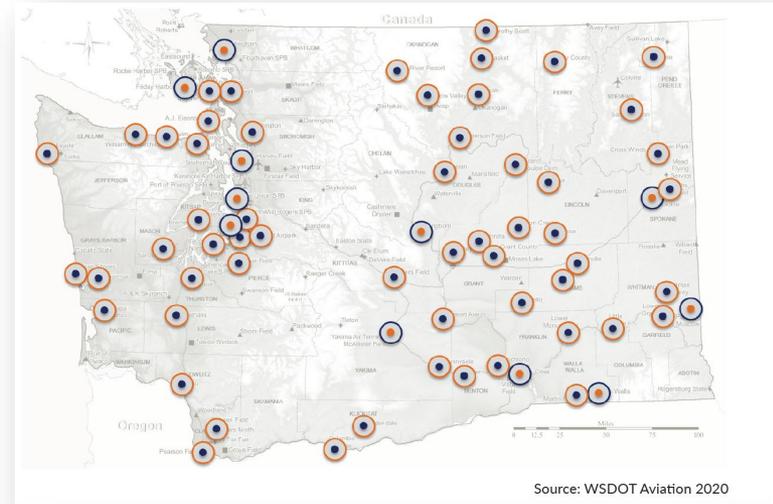
- Study Areas of Emphasis

- Identification of current and projected airport infrastructure improvement needs to accommodate electric aircraft
- Evaluation of projected economic impact resulting from increased access to air transportation
- Demand forecasting for electric propulsion regional passenger air service in Washington State
- Appraisal of potential environmental impact and emission reductions
- Identification of six airports to support beta test of electric aircraft
 - Grant County International
 - Olympia Regional
 - Boeing Field/King County International
 - Spokane Felts Field
 - Yakima Air Terminal
 - Chehalis Centralia Municipal



eAircraft Feasibility Study Findings

- eA has potential to increase access to commercial aviation for individuals and businesses
 - Leading to economic growth supporting jobs and creating business revenues
- Air taxi & commuter operations to increase in 2025, with dramatic growth after 2032
 - Until larger passenger aircraft are viable airline operations will not see as much growth
- Aviation represents 0.46% of emissions in Washington State and 2.4% of global CO2 emissions and is projected to increase
 - Electric aircraft could help reduce the aviation emissions and noise
- Electric propulsion is key for Advanced Air Mobility



Potential Use Cases for eAircraft

- **Micro haul and thin-haul**
 - Similar to Cape Air/Kenmore Air
 - Part 121
 - Small eCTOL Aircraft
- **Air Metro**
 - Similar to a bus or train route
 - Connectivity in and out of urban centers
- **On demand air taxi**
 - App based ride hailing
 - Uber elevate/Joby
- **Air Cargo**
 - Feeder operations
 - Small Cessna Caravan type operations
- **Flight Training and General Aviation**
 - Business/Personal travel
 - Pilot training schools
- **Emergency Services**
 - Air ambulance
 - First responder

eAircraft Feasibility Study Findings

- Batteries will initially limit the size of all-electric aircraft
 - Small regional aircraft
 - Air taxis
 - Advanced Air Mobility
- Larger aircraft will most likely be powered with combustibile fuels for quite some time
 - Aircraft produced today will be flying through 2040
- A more sustainable path forward could include powering aviation with:
 - Sustainable Aviation Fuel
 - Electric Propulsion
 - Hydrogen Fuel Cells



What is next for eA in Washington?

Setting the conditions for Advanced Air Mobility in Washington State

- Emerging technology could help address aviation capacity
- Washington Aviation System Plan
 - Further planning for eA adoption
 - Identification of eA opportunities
- WSDOT Strategic Vision for AAM and Sustainable Aviation
 - Vision for future of aviation in Washington
 - Introduces the Washington Sustainable Aviation Partner Airports



Policy Initiatives

- **Promote and champion the use of alternative, more environmentally friendly fuel sources**
 - Support efforts to implement Sustainable Aviation Fuel
 - Support efforts to further Hydrogen for aviation use
 - Work with Commerce and others to encourage investment in sustainable aviation
- **Work with partners within the state and local jurisdictions to develop policy around sustainable aviation**
 - Collaborate with local governments to develop vertiport policies and protect existing airports
 - Support policy development to encourage the increased use of UAS
 - Encourage unified local government policies to create a statewide UAS operating environment
- **Promote public acceptance**
 - Communicate the benefits of eA for increased access to air service, emissions and noise reduction, and economic benefits
 - Identify high-potential electric aircraft routes for air cargo and passenger service

Planning Initiatives

- **Encourage and support airports planning efforts in support of eAircraft:**
 - Include electric and other advanced aircraft in airport master planning
 - Identify use cases for electric aviation and establish the necessary electrical service to support that use case
 - Work with local utilities to implement service improvements to support eAircraft, electric ground support equipment, and EVs
 - Adopt sustainability practices and projects to protect long term viability of the airport
 - Environmental sustainability
 - Financial sustainability
- **Coordinate with other modal managers with regional and statewide long-term transportation planning**
 - Linking aviation with other transportation modes
- **Create a conducive environment for the testing and subsequent commercial operation of advanced, sustainable aircraft in Washington State.**
- **Keep pace with industry and regulators**

Funding Initiatives

- Increase eligibility for airports seeking grant funding from WSDOT for electric and sustainable aviation fuel infrastructure and sustainability projects
 - FY 2022: 10% of the annual state grant funds available to airports through WSDOT to fund planning and infrastructure grants to electrify airports
- Provide low-interest loans to airports to install electric aircraft infrastructure through the CARB Loan Program and others
- Work to encourage congress and the FAA to include electric aircraft infrastructure planning and sustainability projects funding as part of the AIP
- Work with aviation stakeholders to implement a fee structure to replace combustion fuel sales related tax revenue

Sustainable Aviation Partner Airports

To be inclusive of the diverse regional communities and to set the groundwork for a robust air mobility network across the state, WSDOT expanded the beta test program described in the Electric Aircraft Feasibility Study

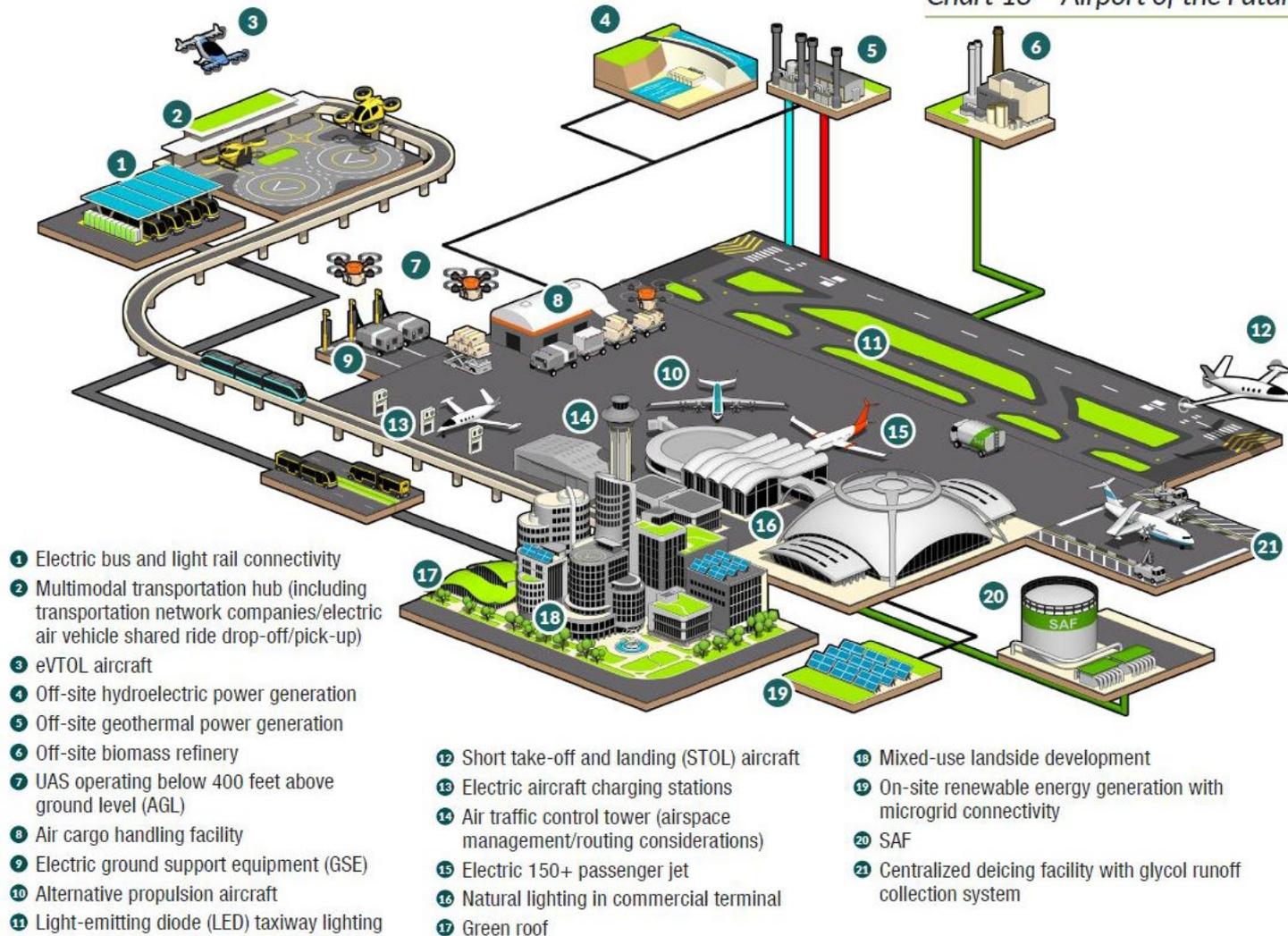
- Goal is to help airports plan for the future and make industry stakeholder connections

Partner Airports:

- Arlington Municipal Airport
- Chehalis/Centralia Airport
- Grant County International Airport
- Kenmore Air Harbor
- King County International Airport
Boeing Field
- Olympia Regional Airport
- Pangborn Memorial Airport
- Pierce County Airports
- Richland Airport
- Seattle-Tacoma International Airport
- Spokane Airports
- William R. Fairchild International Airport
- Yakima Air Terminal

Airport of the Future

Chart 13 - Airport of the Future



Source: Kimley-Horn



Thank you!

Max Platts

Aviation Planner

max.platts@wsdot.wa.gov

360.890.5258