



Regional Aviation Baseline Study

Technical Workshop #3

April 7, 2020

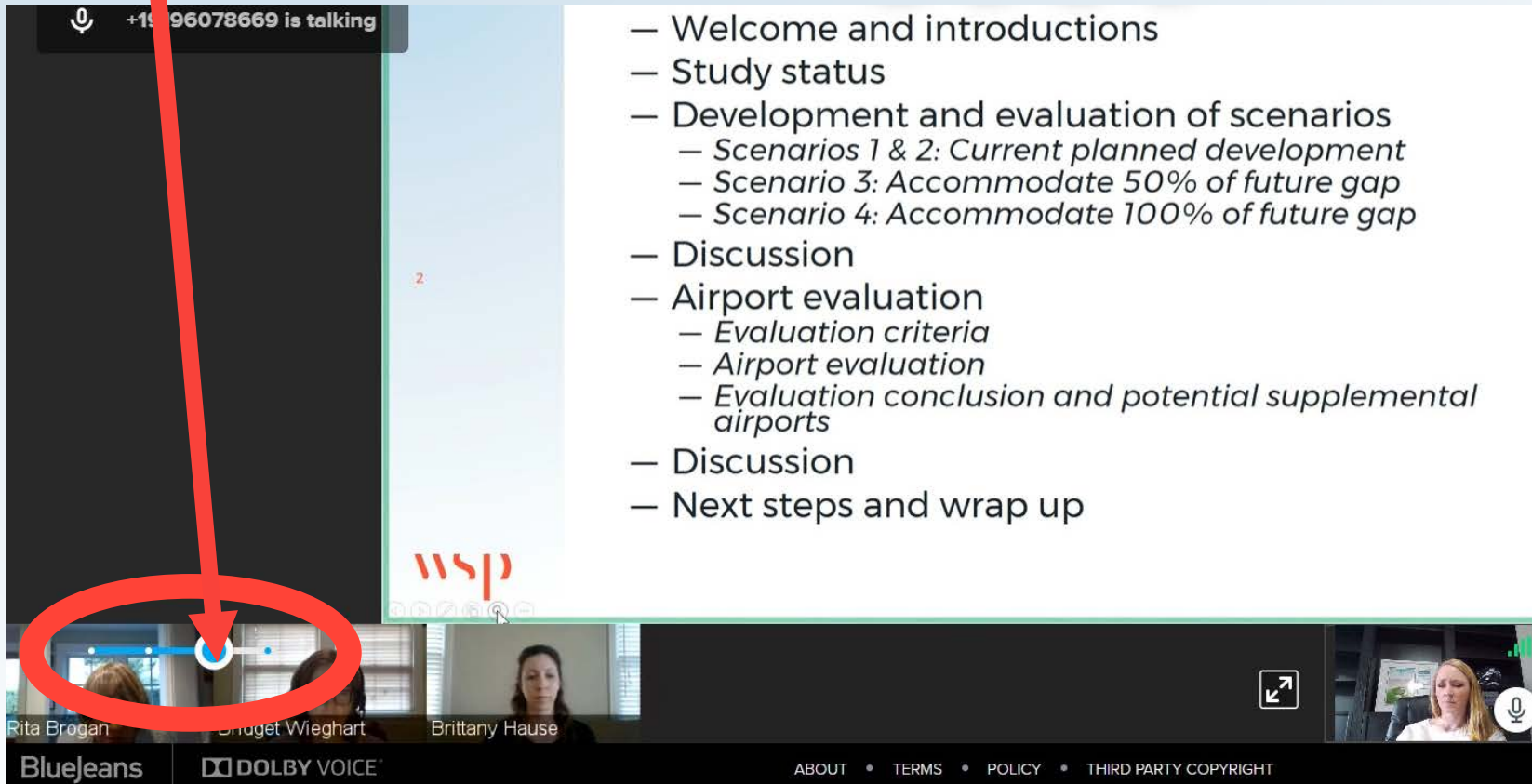


Using Blue Jeans

- We'll keep participants muted during the presentation –if you have a question, please send it through the Chat Box.
- You'll be able to unmute yourself during discussion portions of the agenda –if you'd like to speak, send us a note through Chat or just jump in.
- We'll be recording the meeting so we can be sure to capture everything in our meeting notes.

Using BlueJeans

- Troubleshooting
 - If cannot see presentation, only see participant videos – move blue dot to the right
 - If cannot see participant videos, only see presentation move blue dot to the left



The screenshot shows a BlueJeans meeting interface. At the top, a status bar indicates "+15 96078669 is talking". The main content area displays a presentation slide with the following agenda:

- Welcome and introductions
- Study status
- Development and evaluation of scenarios
 - *Scenarios 1 & 2: Current planned development*
 - *Scenario 3: Accommodate 50% of future gap*
 - *Scenario 4: Accommodate 100% of future gap*
- Discussion
- Airport evaluation
 - *Evaluation criteria*
 - *Airport evaluation*
 - *Evaluation conclusion and potential supplemental airports*
- Discussion
- Next steps and wrap up

The slide also features the "wsp" logo in the bottom right corner. Below the slide is a video gallery showing three participants: Rita Brogan, Bridget Wieghart, and Brittany Hause. A red arrow points from the text "move blue dot to the right" to a blue dot on the video gallery bar, which is circled in red. The BlueJeans interface includes a "BlueJeans" logo, "DOLBY VOICE" branding, and a footer with links for "ABOUT", "TERMS", "POLICY", and "THIRD PARTY COPYRIGHT".

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Agenda

- Welcome and introductions
- Study status
- Development and evaluation of scenarios
 - *Scenarios 1 & 2: Current planned development*
 - *Scenario 3: Accommodate 50 % of future gap*
 - *Scenario 4: Accommodate 100 % of future gap*
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Welcome and introductions





wsp

Study status

Background

- Aviation plays a pivotal role in the central Puget Sound
- Recent rapid airline passenger and air cargo growth raises questions about the region's ability to meet the future aviation needs while sustaining high-quality service

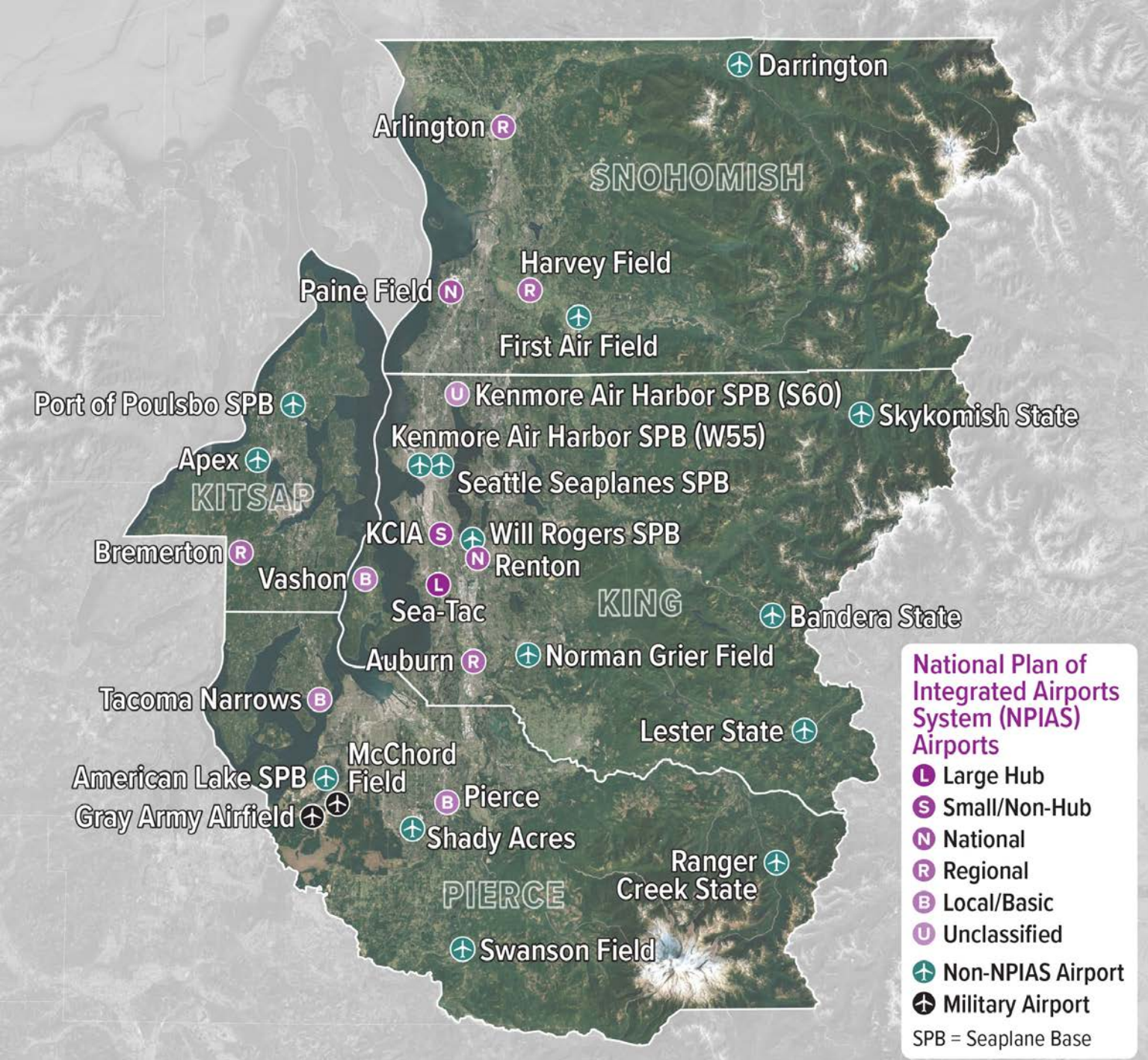
Study purpose and outcomes

Provide a clear picture of the different roles and aviation activities at each of the region's airports, describe how these activities interact, and set the stage for future planning.

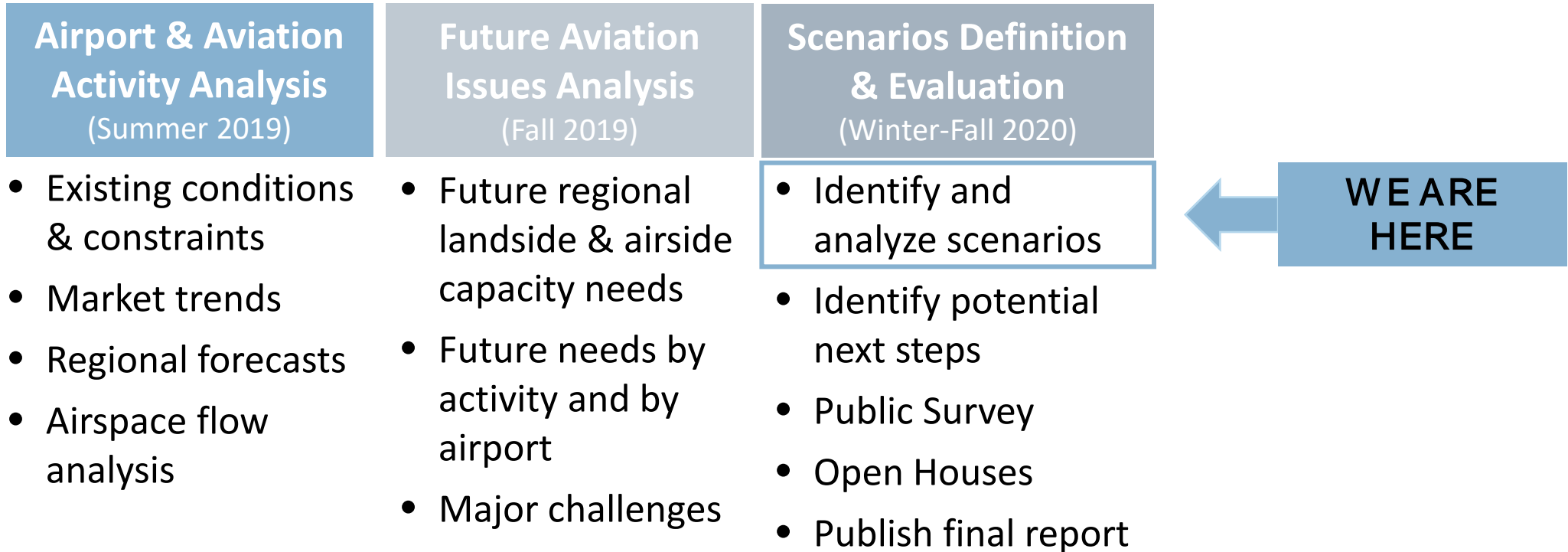
Outcomes:

- Identify the roles of each airport and the aviation activities within the region.
- Provide a regional perspective on how aviation activities interact with each other, the community, and the broader community.
- Obtain input from stakeholders about their needs and build a common understanding about aviation and airspace constraints.
- Identify future aviation needs within central Puget Sound region and set the stage for future planning.

Study area and airports



Study phases





Source: Geekwire/Kevin Lisota



Development and evaluation of scenarios

Commercial service passenger needs through 2050

Unconstrained forecast projects 55 million enplanements by 2050

CENTRAL PUGET SOUND REGION	FORECAST OF PASSENGER ENPLANEMENTS				
	2017	2022	2027	2037	2050
Passenger Enplanements (High Forecast)	22,450,500	25,400,000	31,100,000	38,000,000	55,600,000

Source: Working paper 1, WSP, KPA, CDM
 Note: Low forecast for 2050 is 49,300,000 enplanements

PAINE FIELD + SEA-TAC	2017	2022	2027	2050
Constrained to Near-Term Project SAMP Scenario ^(1,2)	23,050,000	25,655,000	28,600,000	28,600,000
Constrained to Long-Term Vision Scenario ^(1,3)	22,050,500	25,655,000	28,600,000	33,600,000

Source: SAMP 2016, Federal Aviation Administration TAF 2018

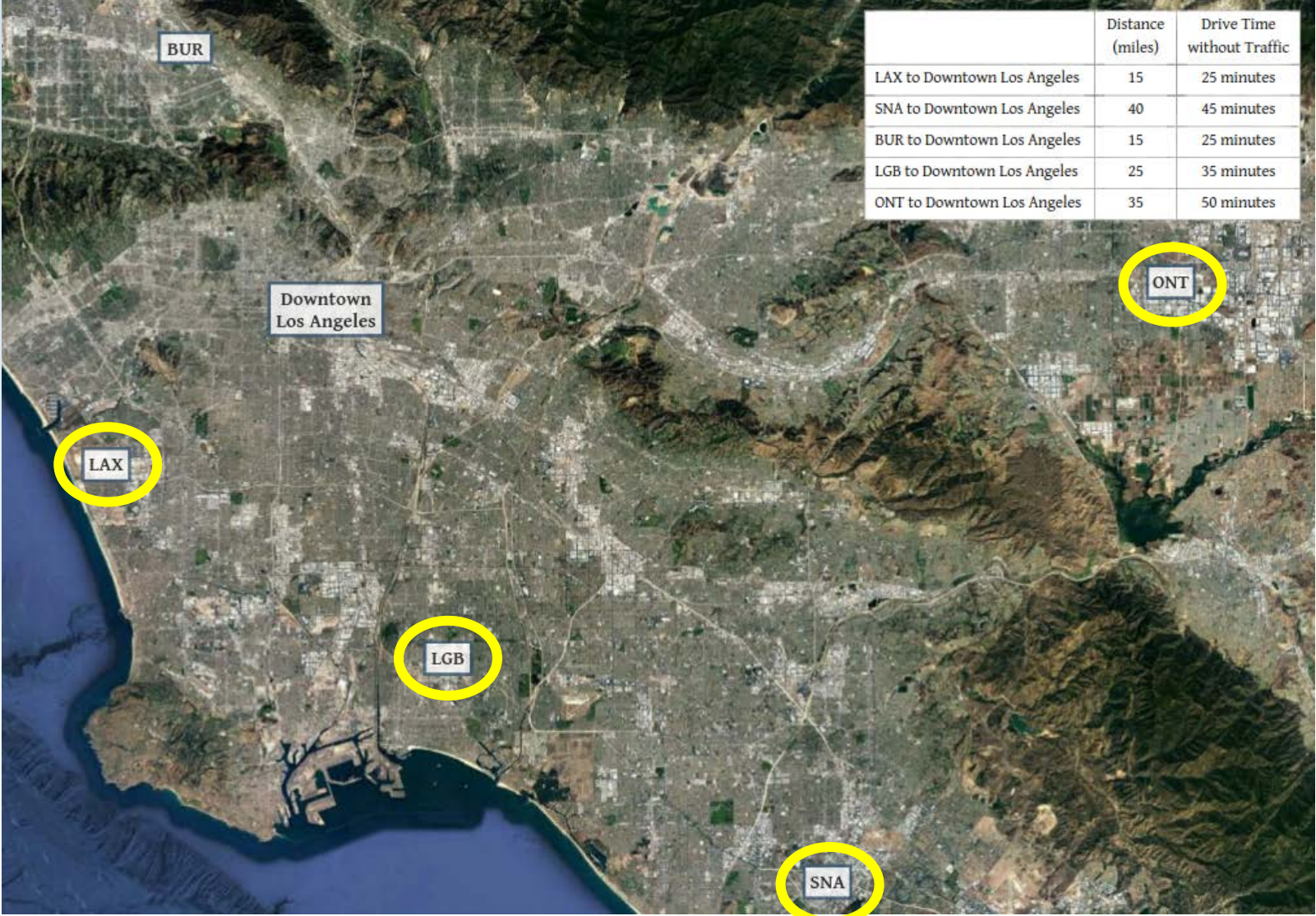
CENTRAL PUGET SOUND REGION	2017	2022	2027	2050
Constrained to Near-Term Project SAMP Scenario ^(1,2)	0	0	-2,500,000	-27,000,000
Constrained to Long-Term Vision Scenario ^(1,3)	0	0	-2,500,000	-22,000,000

¹Assumes Paine Field accommodates only 600,000 annual enplanements, per supplemental environmental assessment

²Based on Sea-Tac SAMP Near-Term Projects, accommodating up to 28 million enplaned passengers

³Based on Sea-Tac SAMP Long-Term Vision, possibly accommodating up to 33 million annual enplaned passengers

Multiple-airport cities



Close Parallel CS Runways



Single CS Runway



Single CS Runway



Source: KOMO News

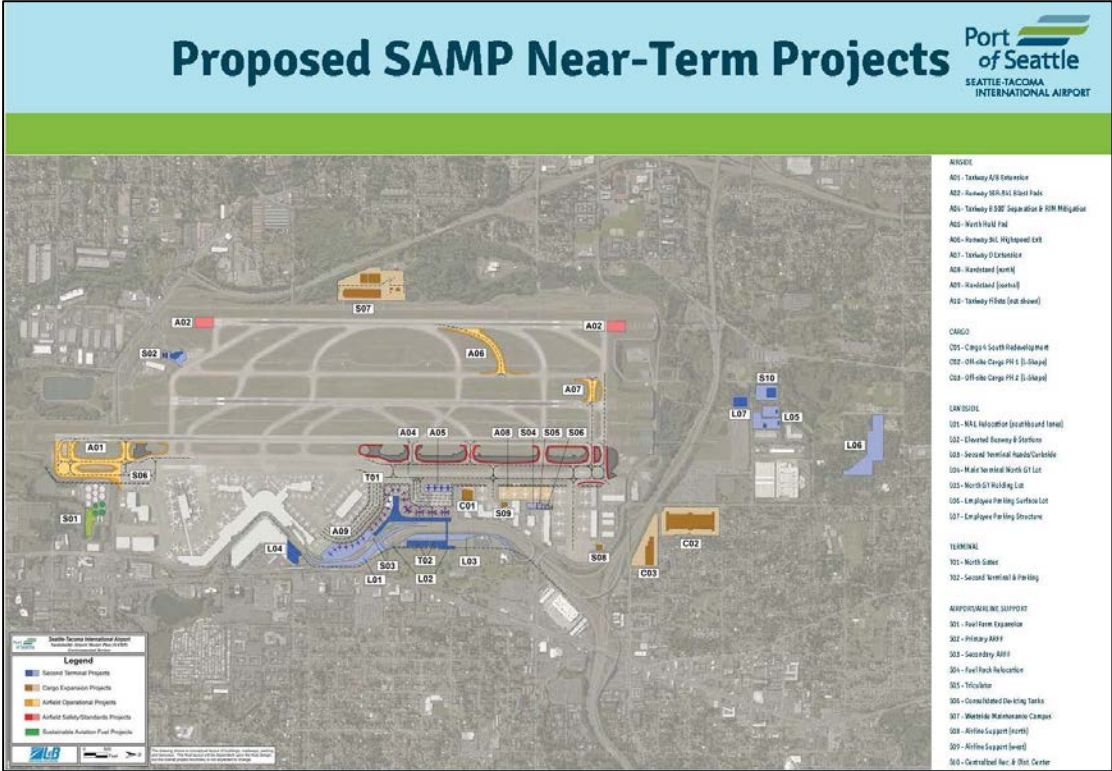


Scenario evaluation

Scenario 1: Baseline Sea-Tac implements near-term 2027 SAMP

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- Projected 2050 gap of 27 million enplanements

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Paine Field – 1 CS Runway, 2 Gate Terminal

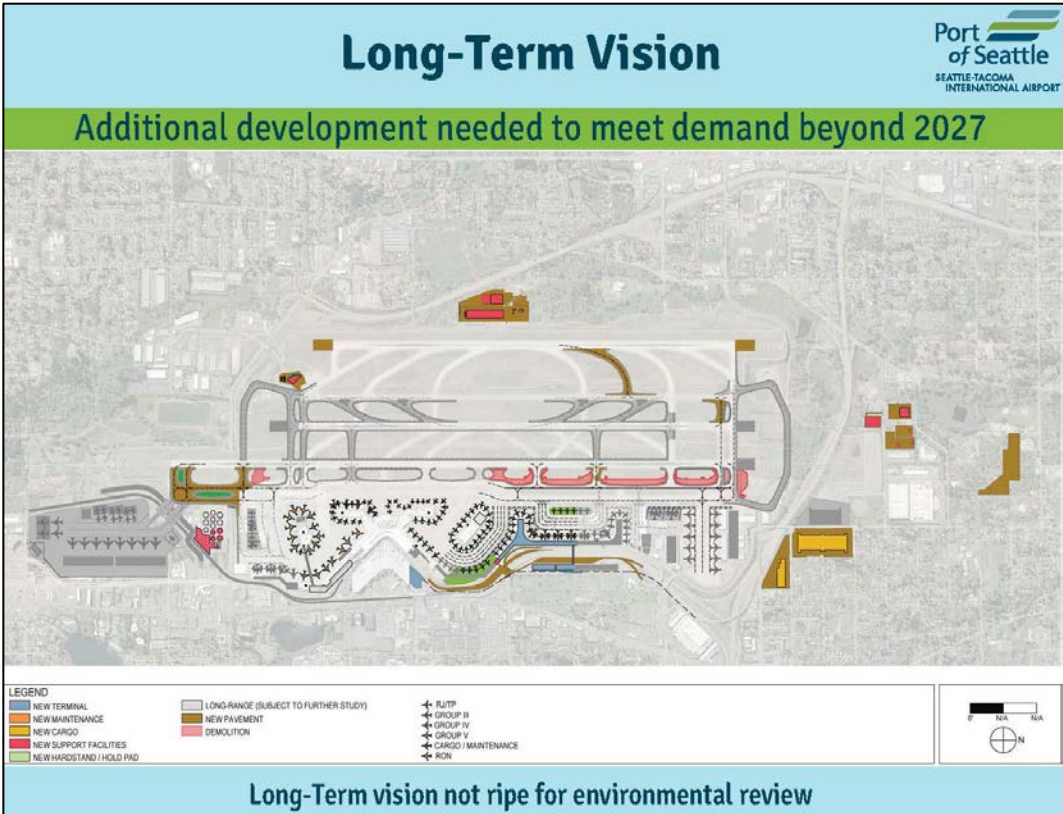


Scenario 2

Sea-Tac implements long-term 2037 vision

- SAMP Long-Term Vision
- Paine Field maintains up to 600,000 enplanements
- Projected 2050 gap of 22 million enplanements

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Paine Field – 1 CS Runway, 2 Gate Terminal



Scenario 3

Baseline + accommodate 50% of projected gap

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- Significant development at 1 or multiple airports
- Projected 2050 gap of 14 million enplanements

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Paine Field – 1 CS Runway, 2 Gate Terminal



1 or 2 Airports
accommodate
14,000,000 annual
enplanements

Scenario 3.1

Accommodate 50% of gap at one airport

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- One airport would need 2 parallel runways of at least 7,000 feet with separation of at least 4,300 feet
- Projected 2050 gap of 14 million enplanements

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Ft. Lauderdale Int'l Airport

- 9,000 ft & 8,000 ft Rwy's
- 63 gates
- 1,380 Acres
- 2019 18M Enplane.

Scenario 3.2

Accommodate 50% of gap at two airports

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- 2 single-runway airports with runways of at least 7,000 feet
- Projected 2050 gap of 14 million enplanements

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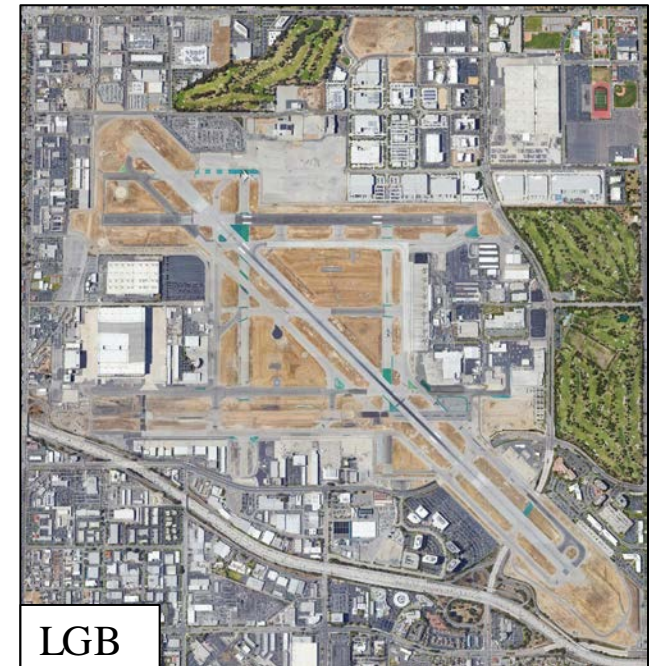


John Wayne Airport (SNA)

- 5,701 ft Runway
- 20 gates
- 504 Acres
- 2019 5M Enplanements

Long Beach (LGN)

- 10,000 ft Runway
- 11 gates
- 1,166 Acres
- 2019 2M Enp.



Scenario 4.1

Accommodate 100% of gap at one airport

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- One airport would need 3 parallel runways of at least 7,000 feet



CLT Int'l Airport

- 3 Rwys 10,000 ft - 8,700 ft
- 115 gates
- 5,558 Acres
- 2019 25M Enp

Scenario 4.2

Accommodate 100% of gap at two or three airports

- SAMP Near-Term Projects
- Paine Field maintains up to 600,000 enplanements
- Need to add 3 runways of at least 7,000 feet between 2 or 3 airports
- One airport with parallel runways plus 1 with a single runway OR 3 airports with single runways

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+



Discussion

- What is your reaction to the scenarios we've presented?
- Are there any additional benefits we should consider?
- Are there any additional drawbacks we should consider?



Source: Gulfstream



Airport evaluation

Evaluation criteria

1. Ability to accommodate single or parallel runways
2. Existing airspace constraints or conflicts
3. Impact to Sea-Tac aircraft operations
4. Flood zone hazard
5. Ownership
6. Current and future roadway and transit access
7. Incompatible land use within a mile of 7,000-foot or 9,000-foot runway ends
8. Ability to accommodate additional aircraft operations
9. Impact to aerospace manufacturing
10. Population and employment within 60-minute drive time

1. Ability to accommodate single or parallel runways

Runway length:

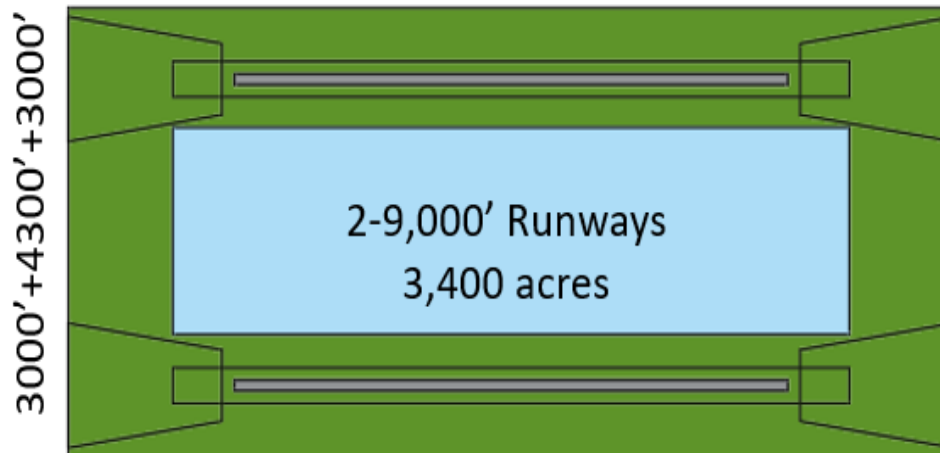
- **Green**: airport has a 7,000- to 9,000-foot runway or could accommodate one or parallel runways with ease/minimal impact
- **Yellow**: airport has potential to accommodate 7,000-9,000-foot runway(s), but there would be impacts to existing developed areas, major roadways, and/or railroads
- **Red**: airport cannot accommodate 7,000-9,000-foot runway(s) due to constraints such as proximity to lakes, rivers, and mountains, extensive existing developed areas surrounding the airport, and/or impacts to major highways, roadways or railroads; **excludes an airport from further analysis**

1. Ability to accommodate single or parallel runways

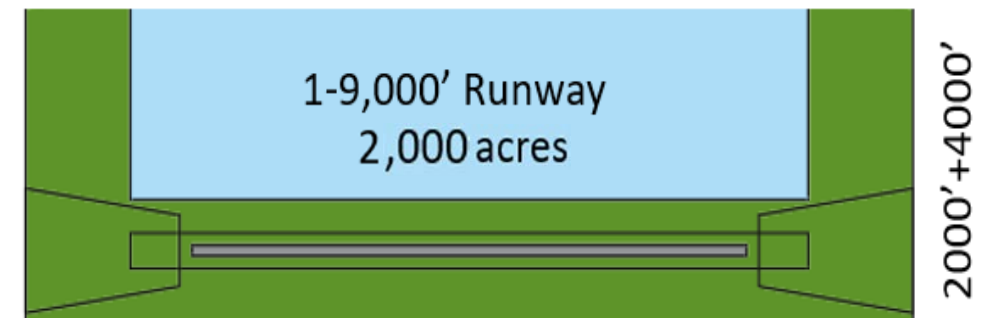
Runway layout:

- **Green**: adequate space available for commercial service and cargo needs with limited impacts to existing developed areas
- **Yellow**: limited space available for commercial service and cargo needs with some impact to existing developed areas
- **Red**: no/very limited space for commercial service and cargo needs due to greater than 50 percent of existing development within 2,000-acre box or no space with adequate airfield access due to terrain; **excludes an airport from further analysis**

Ideal Parallel Runway Airport Layout



Ideal Single Runway Airport Layout



2. Airspace analysis

Existing Airspace Constraints or Conflicts

- **Green**: no existing airspace constraints or conflicts
- **Yellow**: limited existing airspace constraints or conflicts
- **Red**: significant existing airspace constraints or conflicts; excludes an airport from further analysis

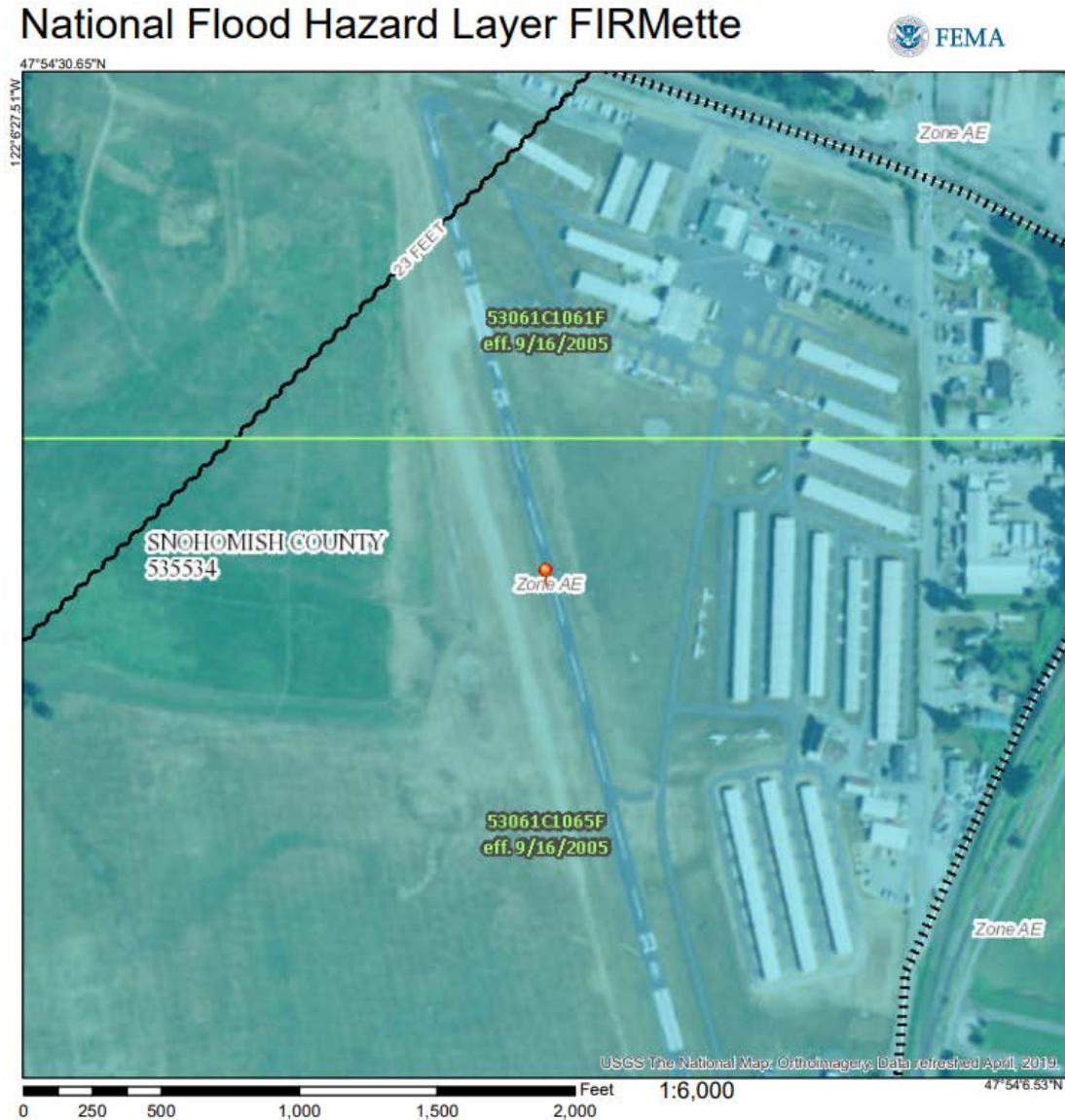
3. Airspace impacts to Sea-Tac operations

- **Green**: no impact to Sea-Tac efficiency/airspace
- **Yellow**: slight impact to Sea-Tac efficiency/airspace
- **Red**: significant impact to Sea-Tac efficiency/airspace; excludes an airport from further analysis

4. Flood zone hazard

- **Green**: located in a low risk flood zone
- **Yellow**: located in a moderate risk flood zone
- **Red**: located in a high-risk flood zone; excludes an airport from further analysis

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Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AD, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	Area of Minimal Flood Hazard Zone X
	Effective LOMRs
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

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5. Ownership

- Green: publicly owned
- Yellow: privately owned or military/federal property
- Red: None

6. Current and future roadway and transit access

- **Green**: current access meets or high potential to meet access criteria
- **Yellow**: moderate potential for future access
- **Red**: no potential



7. Incompatible land use within one mile of runway(s)

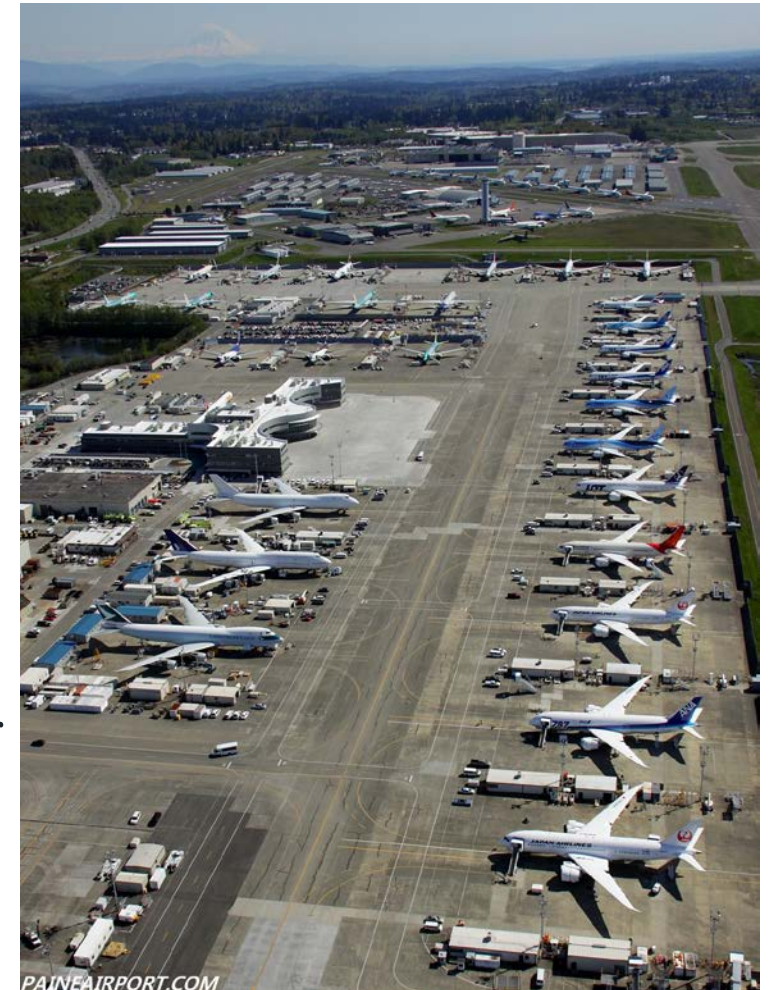
- **Green**: no incompatible land uses within one mile of runway end
- **Yellow**: limited incompatible land uses within one mile of runway end
- **Red**: significant incompatible land uses within one mile of runway end

8. Ability to accommodate additional aircraft operations (airfield capacity)

- **Green**: can accommodate full future demand of 450,000 annual aircraft operations
- **Yellow**: can partially accommodate future demand of 450,000 annual aircraft operations
- **Red**: can accommodate minimal additional aircraft operations

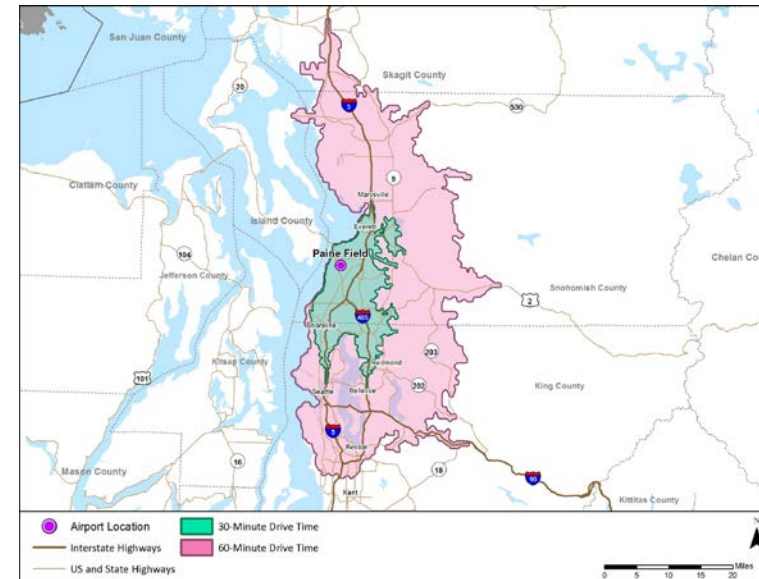
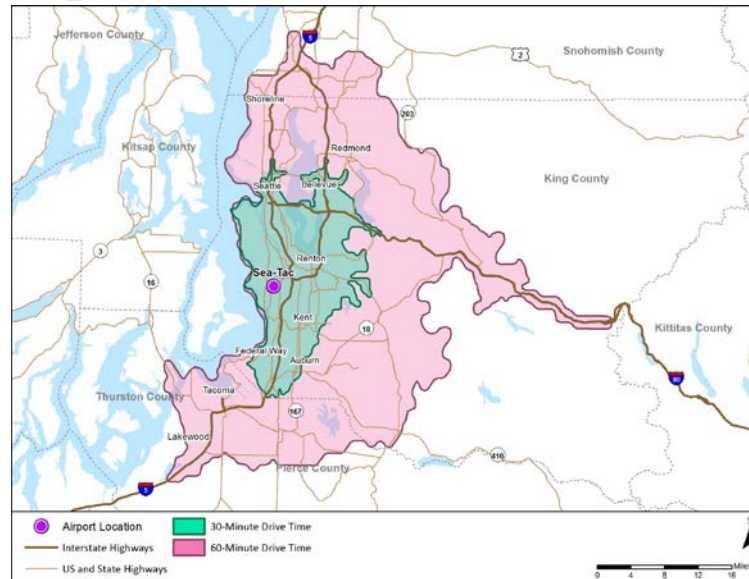
9. Impact to aerospace manufacturing

- **Green**: no impact to aerospace manufacturing
- **Yellow**: limited impact to aerospace manufacturing requiring limited reduction in space allocated to future aerospace manufacturer expansion
- **Red**: significant impact to aerospace manufacturing requiring significant reduction in space allocated to aerospace manufacturer or relocation of aerospace manufacturer to another airport



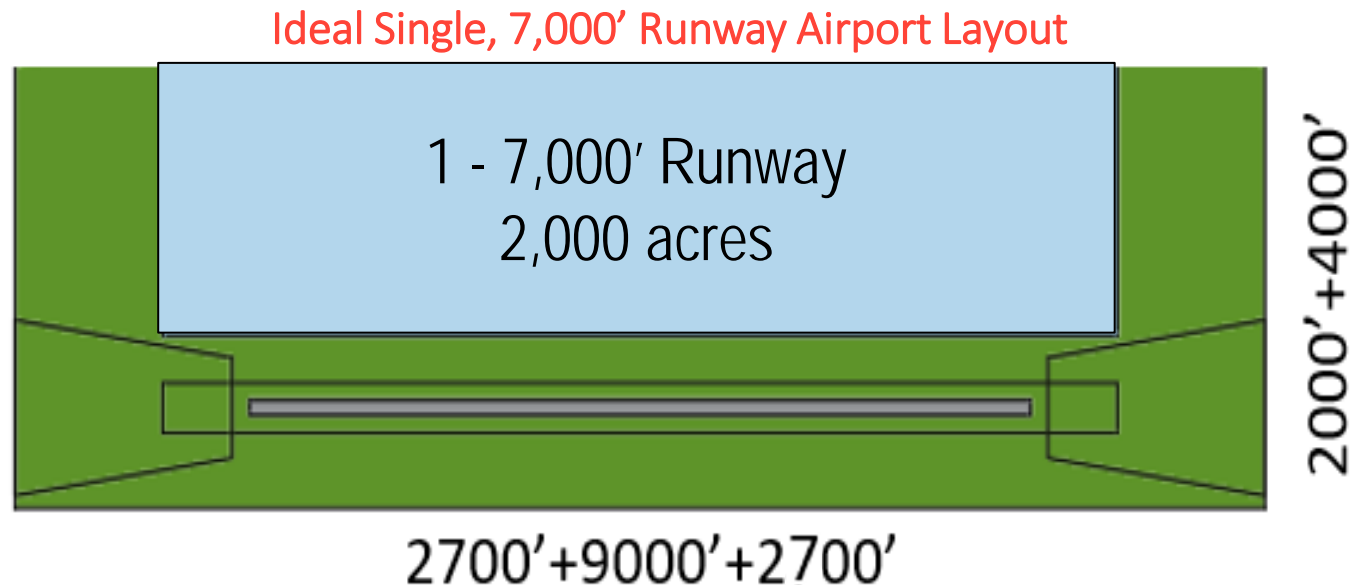
10. Population and employment within 60-minute drive time

- **Green**: meets benchmark and adds at least 10 percent or more net benefit to coverage
- **Yellow**: does not meet benchmark, but adds a 5 to 9 percent net benefit to coverage
- **Red**: does not meet benchmark and adds less than a 5 percent net benefit; however, this does not exclude an airport from further evaluation.



Study airport evaluation

- First, each airport was assessed on the ability to accommodate a 7,000-foot runway
- Airports that could accommodate a 7,000-foot runway were evaluated against the remaining criteria.



Ability to accommodate single or parallel CS runways

- **Green**: seven airports have a runway that is 7,000 feet long or has an ability to extend the runway
- **Yellow**: six airports have potential for a 7,000-foot runway with some impacts to surrounding areas
- **Red**:
 - all seaplane bases were eliminated
 - all state airports in the study area were removed; they could not accommodate a longer runway
 - Gray Army Airfield, Auburn Municipal, and Renton Municipal were eliminated because they could not accommodate a longer runway
 - Darrington Municipal and Swanson were eliminated because of inability for commercial operations to occur

28 study area airports evaluated, 13 remaining

Ability to accommodate commercial service needs

- Green:

- Arlington Municipal
- Bremerton National
- McChord Field
- Paine Field
- Tacoma Narrows
- Vashon Municipal

- Yellow:

- Apex Airpark
- First Air Field
- Harvey Field

- Red:

- Boeing Field
- Norman Grier Field
- Pierce County
- Shady Acres

Shady Acres Developed Area Analysis (73% Developed)

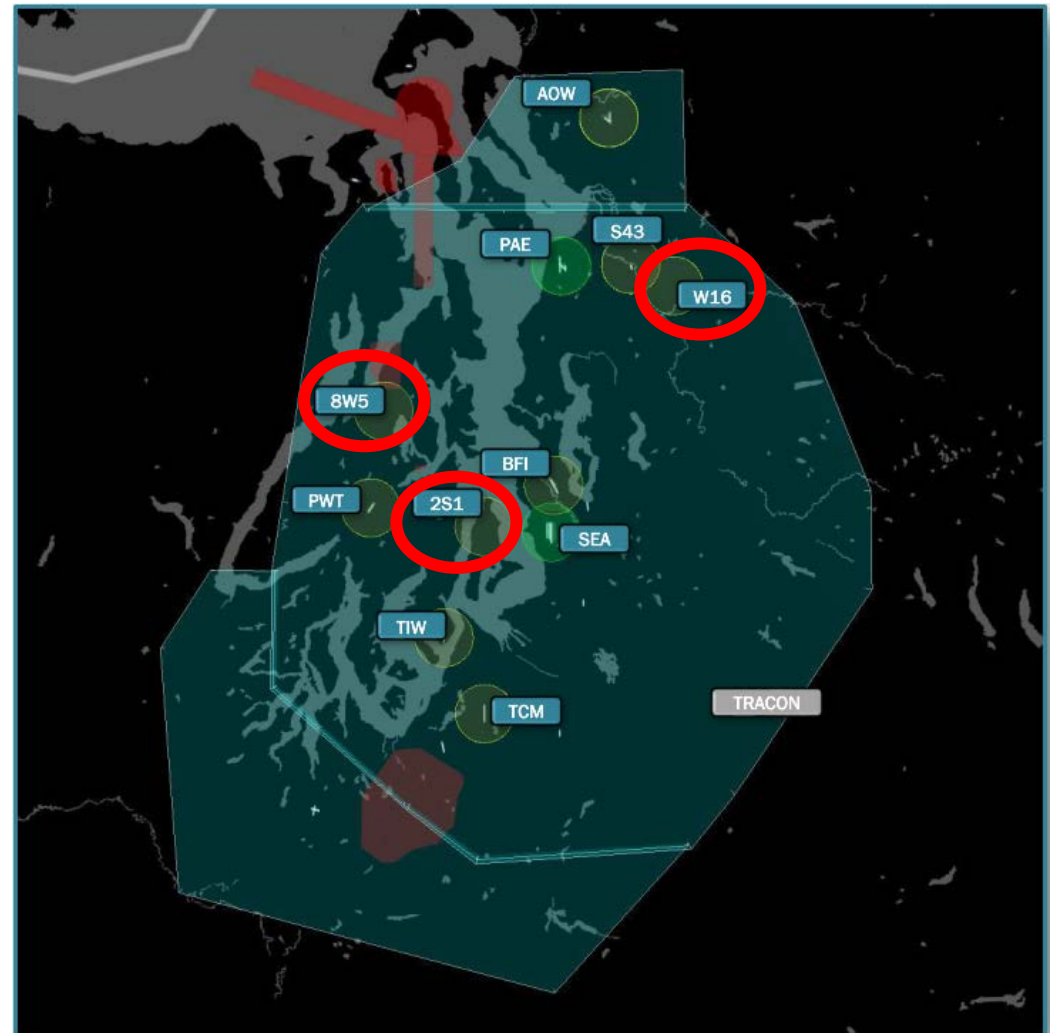


Out of 13, 9 airports
remain

Existing airspace constraints or conflicts and impacts to existing Sea-Tac airspace operations

- **Green:**
 - Arlington Municipal
 - Paine Field
- **Yellow:**
 - McChord Field
 - Harvey Field
 - Tacoma Narrows
 - Bremerton
- **Red:**
 - Apex Airpark
 - First Air Field
 - Vashon Municipal

Out of 9, 6 airports remain



Flood zone hazard

- Green:
 - Arlington Municipal
 - Bremerton National
 - McChord Field
 - Paine Field
 - Tacoma Narrows
- Yellow: N/A
- Red: Harvey Field

Out of 6, 5 airports remain

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Harvey Field National Flood Hazard Layer FIRMeTte



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99	With BFE or Depth Zone AE, AD, AH, VE, AR	Regulatory Floodway
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Future Conditions 1% Annual Chance Flood Hazard Zone X			
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NO SCREEN	Area of Minimal Flood Hazard Zone X	Effective LOMRs	
OTHER AREAS	Area of Undetermined Flood Hazard Zone D		
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer	Levee, Dike, or Floodwall	
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Ownership

- Green:
 - Arlington Municipal
 - Bremerton National
 - Paine Field
 - Tacoma Narrows
- **Yellow**: McChord Field (DOD/Federally-owned)
- Red: N/A

All 5 airports remain

Analysis Overview

AIRPORTS	ABILITY TO ACCOMMODATE 7,000' RUNWAY	ABILITY TO ACCOMMODATE 9,000' RUNWAY	ABILITY TO ACCOMMODATE PARALLEL RUNWAYS	ABILITY TO ACCOMMODATE COMMERCIAL SERVICE AND CARGO (BELLY) NEEDS	EXISTING AIRSPACE CONSTRAINTS OR CONFLICTS	IMPACT TO SEA-TAC AIRSPACE OPERATIONS	FLOOD HAZARD ZONE	OWNERSHIP
Arlington Municipal Airport (AWO)	Green	Green	Yellow	Green	Green	Green	Green	Green
Bremerton National Airport (PWT)	Green	Green	Green	Green	Green	Yellow	Green	Green
Paine Field Airport (PAE)	Green	Green	Red	Green	Green	Green	Green	Green
Tacoma Narrows Airport (TIW)	Green	Green	Yellow	Green	Yellow	Green	Green	Green
McChord Field (Joint Base Lewis-McChord) (TCM)	Green	Green	Red	Green	Yellow	Green	Green	Yellow
Harvey Field Airport (S43)	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Red	Grey
Vashon Municipal Airport (2S1)	Green	Green	Green	Green	Yellow	Red	Grey	Grey
Apex Airpark (8W5)	Yellow	Yellow	Yellow	Yellow	Red	Green	Grey	Grey
First Air Field (W16)	Yellow	Yellow	Yellow	Yellow	Red	Yellow	Grey	Grey
King County International Airport-Boeing Field (BFI)	Green	Green	Red	Red	Grey	Grey	Grey	Grey
Norman Grier Field Airport (S36)	Yellow	Yellow	Yellow	Red	Grey	Grey	Grey	Grey
Pierce County Airport-Thun Field (PLU)	Yellow	Yellow	Yellow	Red	Grey	Grey	Grey	Grey
Shady Acres Airport (3B8)	Yellow	Yellow	Yellow	Red	Grey	Grey	Grey	Grey
American Lake SPB (W37)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Auburn Municipal Airport (S50)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Bandera State Airport (4W0)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Darrington Municipal Airport (1S2)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Gray Army Airfield (Joint Base Lewis-McChord) (GRF)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Kenmore Air Harbor Inc SPB (S60)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Kenmore Air Harbor SPB (W55)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Lester State Ultralight Flightpark (15S)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Port of Poulsbo Marina Moorage SPB (83Q)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Ranger Creek State Airport (21W)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Renton Municipal Airport (RNT)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Seattle Seaplanes SPB (0W0)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Skykomish State Airport (S88)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Swanson Airport (2W3)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey
Will Rogers/Wiley Post Memorial SPB (W36)	Red	Red	Red	Grey	Grey	Grey	Grey	Grey

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The 5 remaining airports remain for detailed analysis

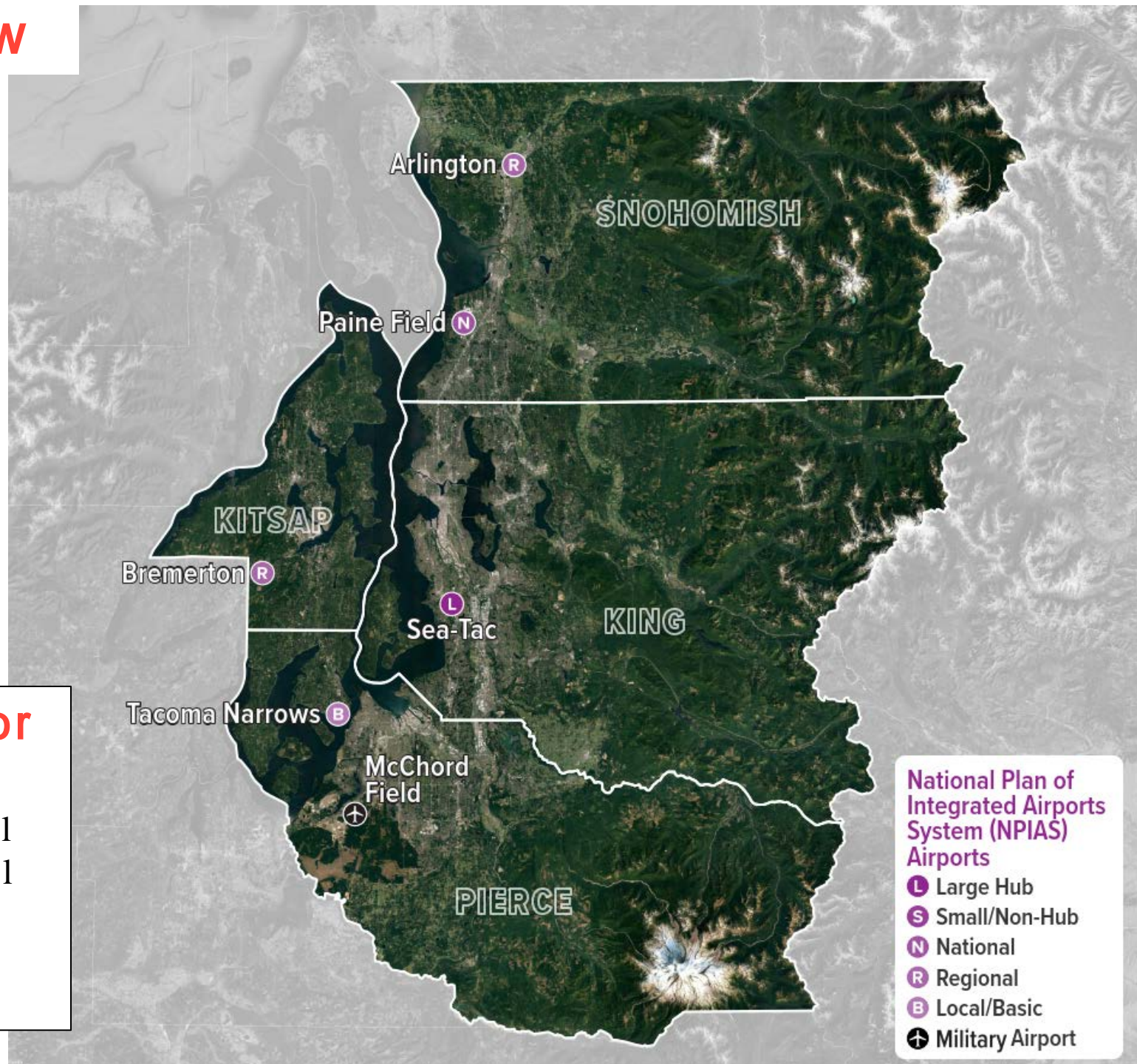


Analysis overview

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5 airports remain for detailed analysis:

- Arlington Municipal
- Bremerton National
- Paine Field
- Tacoma Narrows
- McChord Field



Arlington Municipal Airport

Ability to accommodate single or parallel runways

Existing airport layout



Potential commercial service airport layout



Potential commercial service airport layout is based on an ideal layout needed for commercial service operations, includes:

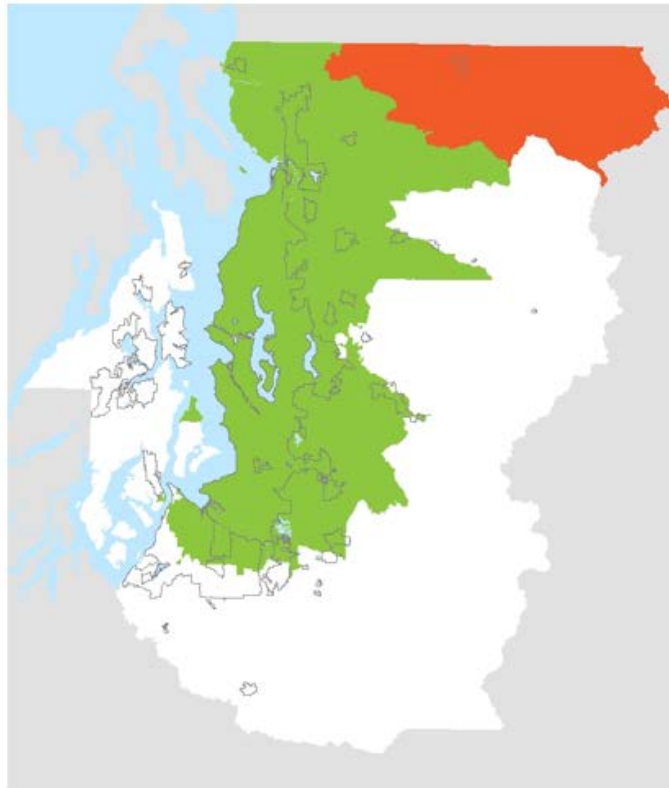
- Runways spaced 4,300' apart
- 3,400 acres

Arlington Municipal Airport

Existing and future 60-minute drive-time coverage


SEA-TAC & PAINE FIELD + ARLINGTON MUNICIPAL: TODAY

SEA-TAC & PAINE FIELD + ARLINGTON MUNICIPAL: 2050



Area within a 60-minute drive of Sea-Tac and Arlington Municipal today (left) and in 2050 (right)

 Sea-Tac & Paine Field

 Arlington Municipal

AIRPORT NAME	POPULATION WITHIN 60-MINUTE DRIVE TIME	POPULATION NET BENEFIT	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT NET BENEFIT
Arlington Municipal	71%	1%	80%	0%

Arlington Municipal Airport

Current and future roadway and transit access

- 2 miles east of I-5, accessible via SR 531
- No direct access to a 4-lane arterial or highway
- WSDOT plans to widen SR 531 between 43rd Avenue NE and 67th Avenue NE
- 59th Avenue NE could be widened to the east of the airport but would require significant redevelopment of airport property
- No high-capacity transit service
- Community transit operates daily
- No planned high-capacity transit but it is possible

Arlington Municipal Airport

Airspace analysis

- 43 nautical miles north of Sea-Tac and 16 nautical miles north of Paine Field
- Development is not anticipated to be constrained by existing airport
- Greatest issue is proximity to Paine Field and Whidbey Island military operations

Bremerton National

Ability to accommodate Single or parallel runways

Existing airport layout



Potential commercial service airport layout



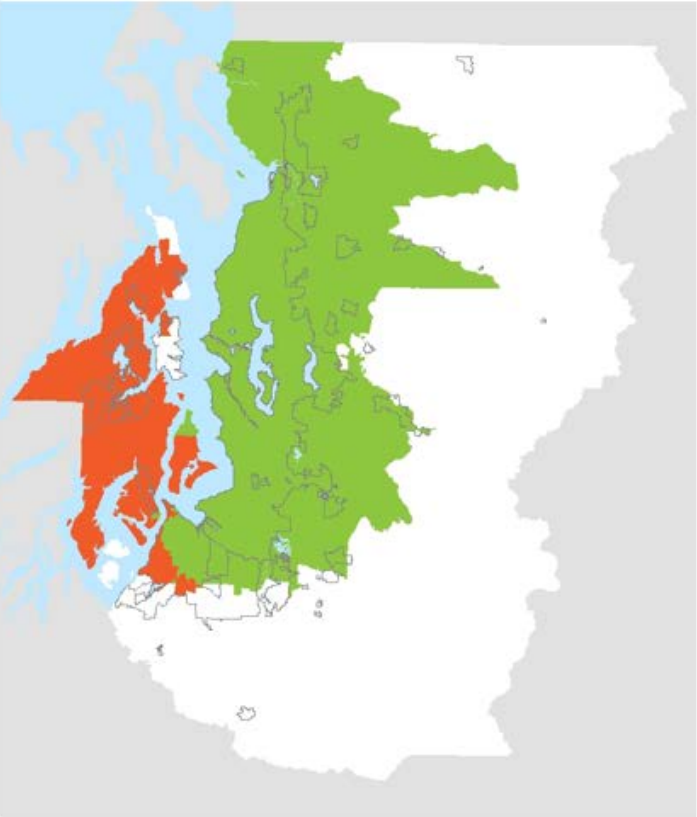
Potential commercial service airport layout is based on an ideal layout needed for commercial service operations analyzed with existing conditions. This layout includes:

- Runways spaced 4,300 feet apart
- 3,400 acres

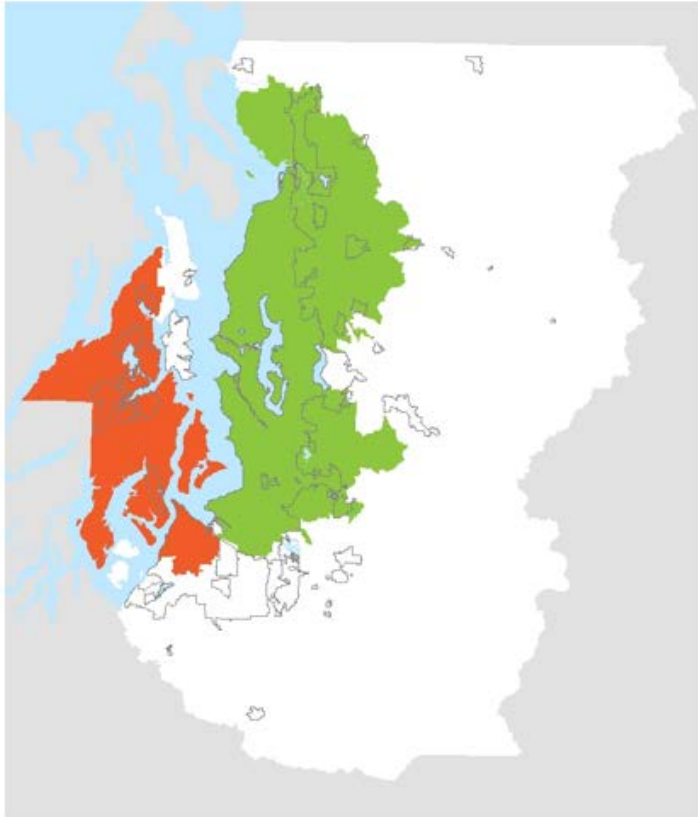
Bremerton National

Existing and future 60-minute drive-time coverage


SEA-TAC & PAINE FIELD + BREMERTON NATIONAL: TODAY



SEA-TAC & PAINE FIELD + BREMERTON NATIONAL: 2050



Area within a 60-minute drive of Sea-Tac and Bremerton National today (left) and in 2050 (right)

 Sea-Tac & Paine Field

 Bremerton National

AIRPORT NAME	POPULATION WITHIN 60-MINUTE DRIVE TIME	POPULATION NET BENEFIT	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT NET BENEFIT
Bremerton National	84%	14%	92%	12%

Bremerton National

Current and future roadway and transit access

- Kitsap County is the least populated county in the study area
- Adjacent to SR 3
- Access to I-5 is 30 miles from the airport via SR 3 and SR 16
- SR 16 access is more than 5 miles from the airport
- WSDOT does not plan to upgrade SR 16 near SR 3
- WSDOT does not plan to widen SR 3
- No high-capacity transit
- Rider-request shared-ride service available

Bremerton National *Airspace analysis*

- 19 nautical miles west of Sea-Tac
- West of primary arrival and departure paths for Sea-Tac
- Runway is not parallel to Sea-Tac
- Sea-Tac traffic over the sound and military operations could constrain development
- Modern navigation technology may be able to minimize conflicts with Sea-Tac in the future

Paine Field

Ability to accommodate single or parallel runways

Existing airport layout



No potential commercial service airport layout shown as the airport currently accommodates commercial service operations

- Paine Field is about to start a Master Plan, which will determine future development based on needs established in the master planning process

Paine Field

Existing and future 60-minute drive-time coverage

SEA-TAC & PAINE FIELD : TODAY



SEA-TAC & PAINE FIELD : 2050



Area within a 60-minute drive of Sea-Tac and Paine Field today (left) and in 2050 (right)

 Sea-Tac & Paine Field

AIRPORT NAME	POPULATION WITHIN 60-MINUTE DRIVE TIME	POPULATION NET BENEFIT	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT NET BENEFIT
Paine Field	70 %	0 %	80 %	0 %

Paine Field

Current and future roadway and transit access

- Access to I-5 via SR 526
- SR 526 is a 4-lane highway
- SR 526 accessed via 4-lane Airport Road
- SR 526 becomes SR 525 and connects to I-405
- SR 99 intersects Airport Road
- Community Transit SWIFT Green Line high-capacity transit

Paine Field

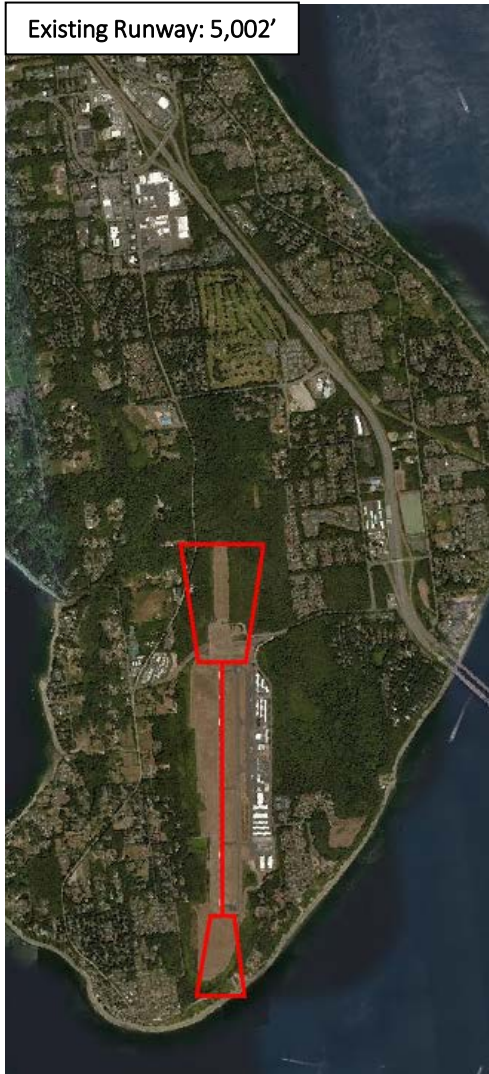
Airspace analysis

- 27 nautical miles north of Sea-Tac
- North of primary arrival and departure paths for Sea-Tac
- Existing runways are near parallel to Sea-Tac
- Development is not expected to be constrained by existing airspace

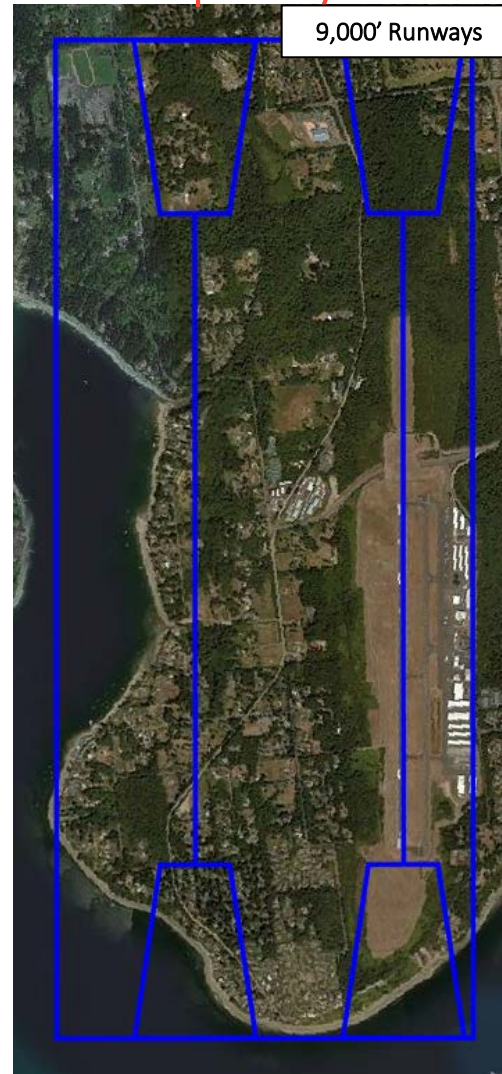
Tacom a Narrows

Ability to accommodate single or parallel runways

Existing airport layout



Potential commercial service airport layout



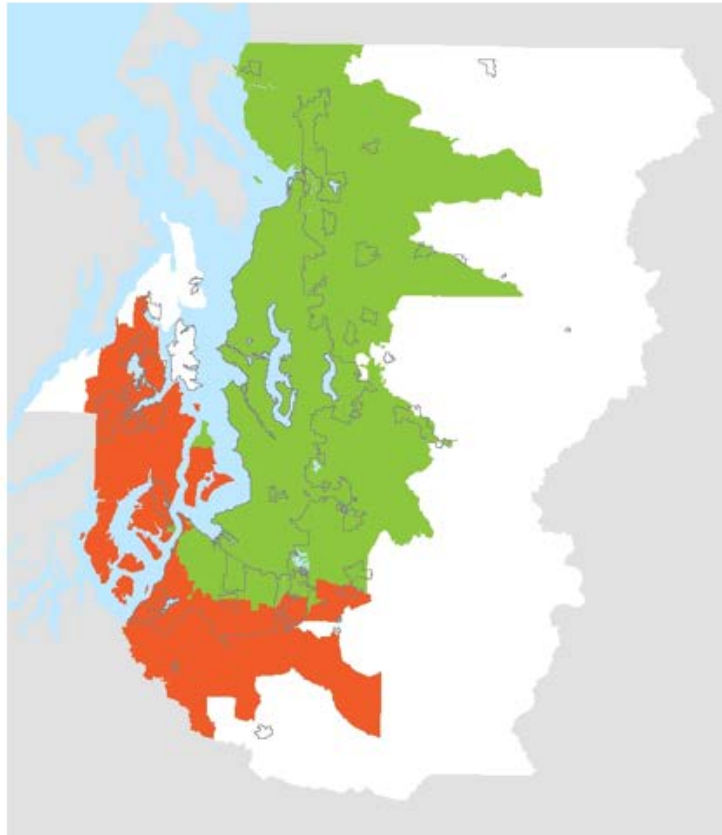
Potential commercial service airport layout is based on an ideal layout needed for commercial service operations analyzed with existing conditions. This layout includes:

- Runways spaced 4,300 feet apart
- 3,400 acres

Tacom a Narrow s

Existing and future 60-minute drive-time coverage

SEA-TAC & PAINE FIELD + TACOMA NARROWS: TODAY



SEA-TAC & PAINE FIELD + TACOMA NARROWS: 2050



■ Sea-Tac & Paine Field
 ■ Tacoma Narrows

Area within a 60-minute drive of Sea-Tac and Tacoma Narrows today (left) and in 2050 (right)

AIRPORT NAME	POPULATION WITHIN 60-MINUTE DRIVE TIME	POPULATION NET BENEFIT	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT NET BENEFIT
Tacom a Narrow s	92%	22%	95%	15%

Tacoma Narrows

Current and future roadway and transit access

- Access to I-5 is 7 miles away via SR 16 and the Tacoma Narrows Bridge
- Unlikely but technically feasible to upgrade SR 16 to an interstate
- Construction of a new interstate is unlikely
- Excellent state highway access via SR 16
- No 4-lane access but 26th Avenue NW or Stone Drive NW could be widened
- No high-capacity transit
- Some daily transit options are available within a mile of the airport

Tacom a Narrow s

Airspace analysis

- 15 nautical miles southwest of Sea-Tac
- Under the primary west side arrival and departure paths for Sea-Tac (South flow)
- Conflicts from :
 - *Sea-Tac*
 - *Boeing Field*
 - *Military restricted use (to the south)*
 - *TCM Military traffic (to the south)*
 - *Military route (to the west)*
- Moderate constraints on Sea-Tac anticipated
- Modern navigation technology may be able to minimize conflicts in the future

McChord Airfield

Ability to accommodate single or parallel runways

Existing airport layout



Potential commercial service airport layout



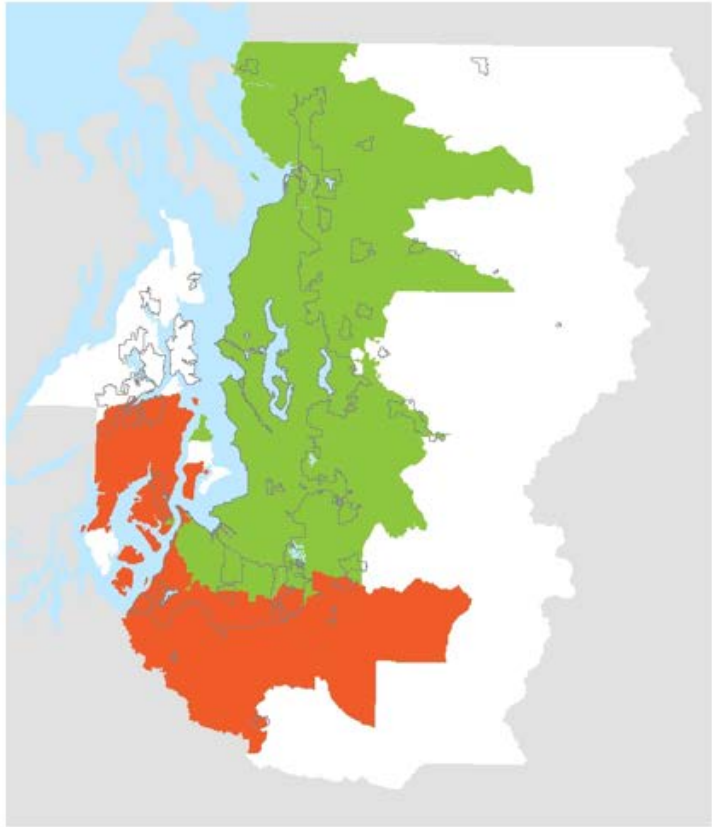
Potential commercial service airport layout is based on an ideal layout needed for commercial service operations analyzed with existing conditions. This layout includes:

- Single runway of at least 9,000 feet
- 2,000 acres

McChord Airfield

Existing and future 60-minute drive-time coverage

SEA-TAC & PAINE FIELD + MCCHORD FIELD: TODAY



SEA-TAC & PAINE FIELD + MCCHORD FIELD: 2050



Area within a 60-minute drive of Sea-Tac and McChord today (left) and in 2050 (right)

■ Sea-Tac & Paine Field
 ■ New Airport

AIRPORT NAME	POPULATION WITHIN 60-MINUTE DRIVE TIME	POPULATION NET BENEFIT	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT NET BENEFIT
McChord Field	90 %	20 %	93 %	13 %

McChord Airfield

Current and future roadway and transit access

- Access controlled by U.S. government
- Excellent proximity to interstate and state highway networks but low capacity and low speed streets inhibit efficient access
- Located 1 mile from northwestern base boundary
- Access to I-5 is 2 miles away from the airport's western gate
- 4-lane access Bridgeport Way SW, designated as Col. Jackson Blvd within the base
- No high-capacity transit

McChord Airfield

Airspace analysis

- 19 nautical miles south southwest of Sea-Tac
- South of the primary arrival and departure paths for Sea-Tac
- Conflicts from :
 - *Military operations*
- No significant constraints to Sea-Tac anticipated
- May constrain McChord AFB from efficiently fulfilling their mission
 - *Airspace priority issues (military vs. civil)*

Detailed Analysis Overview

AIRPORTS	POTENTIAL TRANSIT ACCESS	POTENTIAL ROADWAY ACCESS (INTERSTATE)	POTENTIAL ROADWAY ACCESS (STATE HW)	POTENTIAL ROADWAY ACCESS (4 LANE)	EXISTING INCOMPATIBLE LAND USE	CURRENT ABILITY TO ACCOMMODATE ADDITIONAL AIRFIELD OPERATIONS	IMPACT TO AEROSPACE MANUFACTURING	POPULATION WITHIN 60-MINUTE DRIVE TIME	EMPLOYMENT WITHIN 60-MINUTE DRIVE TIME
Arlington Municipal Airport (AWO)	Yellow	Green	Green	Green	Yellow	Yellow	Green	Red	Red
Bremerton National Airport (PWT)	Yellow	Red	Green	Green	Green	Yellow	Green	Green	Green
Paine Field Airport (PAE)	Green	Green	Green	Green	Red	Red	Yellow	Red	Red
Tacoma Narrows Airport (TIW)	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green	Green
McChord Field (Joint Base Lewis-McChord) (TCM)	Yellow	Green	Green	Green	Yellow	Yellow	Green	Green	Green



Source: Pierce County



Evaluation conclusion

Economic impact

SCENARIOS FOR YEAR 2050 PASSENGER ENPLANEMENT DEMAND (55M)	2050 PASSENGER DEMAND/ CAPACITY MET	PERCENT OF 2050 DEMAND MET	RESULTING ANNUAL PASSENGER ENPLANE. GAP	ESTIMATED ANNUAL LOST IN ECONOMIC IMPACT	ESTIMATED LOST IN JOBS TO THE REGION
Baseline: Sea-Tac Implements Near-Term Projects	28,000,000	51%	27,000,000	~\$22 Billion	~150,000
Sea-Tac Implements Long-Term Vision	33,000,000	60%	22,000,000	~\$18 Billion	~122,000
Baseline + Accommodating 50% of Projected Gap	44,000,000	80%	14,000,000	~\$11 Billion	~75,000
Baseline + Accommodating 100% of Projected Gap	55,000,000	100%	0	\$0	0

Note:

The 2019 WSDOT Airport Economic Impact Study estimated Sea-Tac to contribute 151,400 jobs, \$7 Billion in Labor Income and \$22 Billion in Business Revenues

Scenario pros and cons

SCENARIOS FOR YEAR 2050 PASSENGER ENPLANEMENT DEMAND (55M)	PROS	CHALLENGES
Baseline: Sea-Tac Implements Near-Term SAMP	No increase in potential 2050-level noise and aircraft carbon impacts, single occupancy vehicle trips to airports	No increase in airport economic impact \$ and jobs by 2050
Sea-Tac Implements Long-Term 2037 Vision	Would increase 2050 airport economic impact \$ and jobs by ~60% Increases services compared to baseline but less than other scenarios	Would increase 2050-level noise and aircraft carbon impacts, single occupancy vehicle trips to airports by ~60% ² .
Baseline + Accommodating 50% of Projected Gap	Would increase 2050 airport economic impact \$ and jobs by ~80% Would increase business and consumer choices more than baseline and long-term vision scenarios	Would increase 2050-level noise and aircraft carbon impacts, single occupancy vehicle trips to airports by ~80% ²
Baseline + Accommodating 100% of Projected Gap	Would increase 2050 airport economic impact \$ and jobs by ~100% Provides the most business and consumer choices compared to other scenarios	Would increase potential 2050-level noise and aircraft carbon impacts and single occupancy vehicle trips to airports by ~100% ⁽¹⁾

⁽¹⁾ Assumes worst-case no improvements in current aircraft/engine efficiency, noise emissions and fuel types.

⁽²⁾ Assumes doubling of existing airport passengers is directly related to doubling the 2019 economic impact in dollar output and job creation.



Potential candidates to take on supplemental commercial service for consideration

- Arlington Municipal
- Bremerton National
- Tacoma Narrows
- Paine Field (operations are limited by current EIS)
- McChord Field (operational complexity with military use; would require DOD agreements and/or act of Congress)

If converting existing airport(s)...

basic FAA process for converting and expanding existing GA airport to CS airport

- Update Statewide Airport System Plan (WSDOT)
- Conduct FAA Airport Master Plan (FAA and WSDOT) with a commitment from at least one airline to serve the airport
- FAA determines National Environmental Policy Act requirements (likely EIS)
- Conduct FAA Benefit-Cost Analysis (BCA)
- Federal and state funding grants, financing, engineering, construction, commissioning, etc.

If greenfield site...

basic FAA process for “greenfield” site for new CS airport

- Conduct airport master planning
- Conduct site selection study
- Obtain airline(s) support
- Detailed site planning and feasibility
- FAA Environmental Analysis (likely EIS)
- FAA Benefit-Cost Analysis (BCA)
- Land acquisition
- Environmental/construction permitting
- Engineering design
- Construction
- Commissioning

Discussion

- Does our evaluation of GA airports that could be upgraded to commercial supplemental airports make sense to you?
- After seeing the airport evaluation, what do you think of the scenarios?

Next Steps

- WP# 3 comments due by April 21
- Present WP # 3 to Executive Board (TBD)
- Survey and focus groups (TBD)
- Regional public meetings and online open house (TBD)

Wrap up

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