Stakeholder Engagement and Education Report

Prepared for

Puget Sound Regional Council

Prepared by PRR

In association with

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TABLE OF CONTENTS

PROJECT OVERVIEW

Aviation plays a critical role for people and businesses in the growing central Puget Sound region, which is currently home to 29 airports of varied sizes and functions. Continued, coordinated planning is essential for ensuring that the regional airport system can support existing and future demand. As part of these efforts, PSRC has launched the Regional Aviation Baseline Study, funded by a $1.6 million grant from the Federal Aviation Administration (FAA).

PSRC's Regional Aviation Baseline Study has been conducted to provide a clear picture of the aviation needs in the region and set the stage for future planning efforts. As part of the study, PSRC engaged with community members to understand their priorities and concerns about how the region should manage anticipated growth in aviation demand. PSRC hosted a technical working group, fielded a survey, conducted focus group interviews, and held three virtual public meetings and an online open house to provide venues for community members to hear from the project team and provide input on the study.

PUBLIC INVOLVEMENT PLAN

The Public Involvement Plan provided a roadmap for informing and engaging project decision makers, elected officials, regional stakeholders, and the larger public throughout the Regional Aviation Baseline Study. The Plan outlined engagement strategies to support the project's communication objectives to:

- Clearly communicate the scope and findings of the study to diverse audiences.

- Provide transparency and create confidence in the study findings as a consistent foundation about the aviation system and constraints for stakeholders and decision makers.

- Obtain feedback from stakeholders and the larger public regarding aviation needs and scenarios to address them.

The Plan identified four audience segments: core audiences, stakeholders, influentials, and interested parties. Core audiences have decision making authority or direct influence on the study. These groups include PSRC, State legislators, FAA staff, study area airports, WSDOT, and airport community leadership. Stakeholders are directly affected by the study. This group includes airlines, aviation activist organizations, aviation-related businesses, local governments, air cargo, major employers, airport roundtable groups, and aviation industry groups. The influentials audience segment includes organizations and individuals with a high level of interest in the regional aviation system, but who are not involved with aviation activities on a daily basis. This last segment includes issue-specific advocacy groups, business and trade media, civic organizations, chambers of commerce, and general media. Interested parties include people who are more generally interested in current events and community issues, including the general public, local and regional businesses, and neighborhood organizations in areas not directly adjacent to airports. The Plan included strategies to provide a suitable level of engagement and information for each of these audience segments.

As the COVID-19 pandemic emerged in spring 2020, the project team altered some of the planned engagement strategies as follows:

- held the final Technical Working Group (TWG) meeting virtually;

- delayed the launch of the survey to a time when potential respondents could dedicate more mental energy to the topic;

- shifted from focus groups to in-depth phone interviews to avoid in-person gatherings; and

- moved from four in-person public meetings, one per county, to three virtual public meetings scheduled at different days of the week and times. We also posted a recording of the meeting on YouTube. The project website linked to this recording so people who did not attend the meeting could watch the recording in English or languages other than English using YouTube's interpretation feature.

PUBLIC INVOLVEMENT TIMELINE

The project had four phases between October 2018 and Spring 2021.

1. Airport and Aviation Activity Analysis Phase

   This phase included a study of existing conditions, regional forecasts, goals, objectives, and metrics for the system, and analyze economic conditions, market trends, airspace flow, and multimodal connections.

2. Future Aviation Issues Analysis Phase

LESSONS LEARNED FROM REMOTE ENGAGEMENT

While shifting all engagement strategies to remote options presented some logistical challenges, there were some successes that could inform engagement planning for future PSRC projects.

- Of all the TWG meetings, the virtual meeting had the highest rate of participation.

- Multiple participants at the virtual public meetings noted how much easier it is to participate virtually, i.e. without having to physically go to a venue for the meeting.

- Holding the virtual public meetings at different times of day, rather than one meeting per county, provided more attendance options for residents of all four counties.

While remote engagement can be more inclusive of some groups, it does present additional challenges:

- For some audiences, internet connection speeds are not high enough to support streaming a live online meeting.

- Many platforms do not offer an elegant solution for real-time interpretation of online meetings; the Zoom platform is, as of December 2020, the best platform for interpretation.

- Some users are less familiar with computers and/or specific virtual meeting platforms and may experience technical difficulties or frustration with the technology.

- While a webinar format is often the best choice for a large virtual meeting, some users experience frustration needing to type their question rather than ask it out loud.

This phase included analysis of the feasibility of airports in the region to accommodate demand.

3. Scenarios Definition and Evaluation Phase

    This phase included defining and evaluating scenarios for accommodating future aviation demand.

4. Final Report and Project Completion

    This phase includes incorporated public input into the project's final report.

The Technical Working Group met three times, once during each of the first three phases. Most public involvement activities took place late in phase three so that the full breadth of study information was available, but there was still time to incorporate public input in the final report.

Due to the COVID-19 pandemic, the initial project timeline shifted. We conducted the survey during summer 2020 rather than spring 2020, as had been planned, and we conducted interviews in the fall rather than focus groups in the summer of that year. We held the regional public meetings and online open house during fall 2020 rather than late spring/early summer 2020.

SUMMARY OF MAJOR PUBLIC INVOLVEMENT ACTIVITIES

Technical Working Groups

The study team convened a Technical Working Group (TWG) that met three times during the project, once during each study phase. TWG members reviewed draft materials in advance of the meetings and provided input at the TWG meetings and in writing. The first two TWG meetings were conducted at the PSRC offices. Due to COVID-19, the third TWG meeting was conducted remotely.

Representatives from the following organizations were invited to participate in the TWG:

- Aircraft Owners and Pilots Association
- Alaska Airlines
- Boeing
- Delta Air Lines
- King County International Airport/Boeing Field
- Lynden International
- National Business Aviation Association
- Port of Bremerton

- Renton Municipal Airport
- Seaplane Pilots Association
- Seattle-Tacoma International Airport
- Snohomish County Airport/Paine Field
- TransGroup
- Washington Airport Management Association
- WSDOT Aviation

PSRC Executive Board

Following each TWG meeting, the study team presented an update to the PSRC Executive Board. In addition, the team provided an update after the project survey and other major deliverables were completed. PSRC Executive Board members are appointed by their General

Assembly constituents to represent the member governments. The Board is chaired by PSRC's president, meets monthly, and carries out delegated powers and responsibilities between meetings of the General Assembly.

PSRC Email List

PSRC also provided regular updates about the study to its Regional Aviation Baseline Study project email list. As of September 2020, the list had 713 subscribers. Between October 2018 and November 2020, news about the Regional Aviation Baseline Study was shared in 14 issues of PSRC's regular email newsletter, which was distributed to nearly 4,000 subscribers. Announcement of the release of the final report and associated content will be distributed to both email lists.

Survey

See Appendix 1 for the full survey report.

The project team conducted a statistically valid public opinion survey of the four-county region to provide regional decision makers a representative view of how the wider public perceives aviation needs and issues.

The survey objectives were to:

- Explore awareness and understating of the existing aviation system
- Outline aviation needs and concerns of the general public
- Provide regional decision makers with input from a broad cross-section of the public

With the COVID-19 pandemic dominating the news during spring 2020, the team opted to conduct the survey later in the year when potential respondents might be less focused on the pandemic and more willing to participate in the survey. The team mailed invitations to participate in an online-only, statistically representative survey to 20,000 randomly selected households across the four-county region (5,000 households per county). One week later, the team followed up with a reminder postcard. PRR intentionally over-sampled in Pierce, Snohomish, and Kitsap counties to ensure enough completed surveys from those counties to allow for an acceptable margin of error within all counties. The incentive for participating was an opportunity to win one of ten $100 dollars gift cards.

The survey was online-only because the team expected that Washington state would begin loosening some COVID-19-related safety restrictions shortly after the survey was launched and wanted to gather feedback before those changes began to dominate the news cycle again and took attention away from the survey.

The survey was open from June 23 to July 8, 2020. During that time, 1,416 people completed the survey (7.2% response rate, +/- 2.6% margin of error).[1] Overall, the sample was

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[1] The final sample had 32% King County (margin of error +/- 4.8%), 18% Pierce County (margin of error +/- 6.4%), 26% Snohomish County (margin of error +/- 5.3%), and 25% Kitsap County (margin of error +/- 5.4%) respondents.

representative regarding gender, income, and Latinx ethnicity. The sample skewed slightly toward white respondents (in King County) and those over 55 years of age. The team used an online panel to obtain data from respondents from underrepresented demographics.[2] While the survey and recruitment materials were available in English, Chinese, Somali, and Spanish, the vast majority of respondents took the survey in English. Two people took the survey in Spanish, three in traditional Chinese, and three in simplified Chinese; no surveys were completed in Somali.

The survey questions addressed the following topics:

- The importance of passenger aviation to the region

- How to address increasing demand on the passenger aviation system

- Basic demographics of respondents, including where they live, typical travel behavior, and socio-economic factors
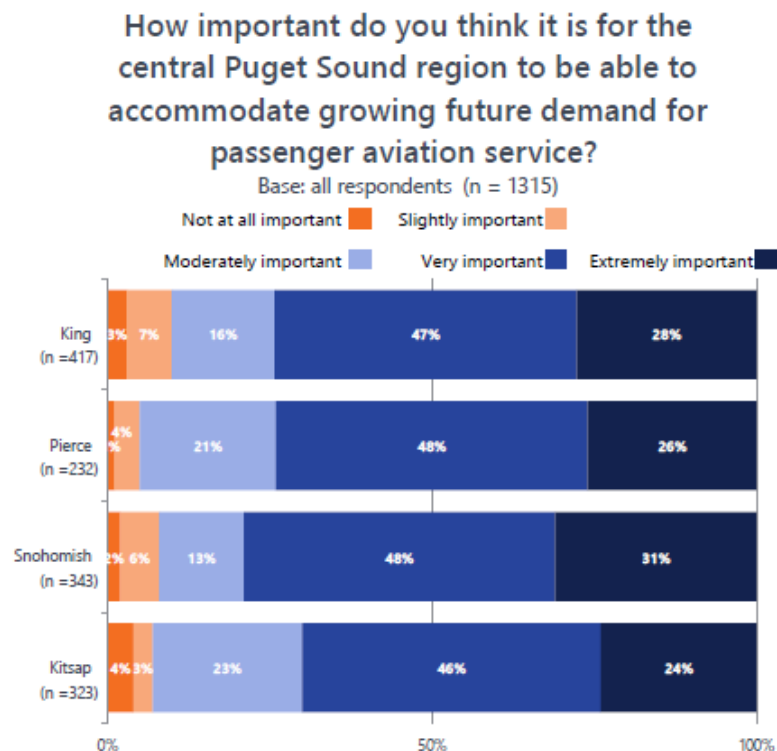
The survey also served as a recruitment tool for in-depth interviews (page 10).

The team used unweighted data segmented by county for analysis. This method preserved county-level representativeness and maintained consistency in the analysis procedures for each county. The team identified statistically significant relationships in the quantitative data using correlation analysis, pair-sample T-tests, ANOVA, and Chi-square tests. All reported relationships were statistically significant at the .05 level (95% confidence level). The team used an iterative approach to develop a coding framework for qualitative data analysis.[3]

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[2] The online panel included women, people of color, 18-34 year-olds, and people with household incomes under $75,000.

[3] One research staff person reviewed 30 randomly-selected responses for each question and developed a coding framework that captured key themes. That staff person then reviewed a different set of 30 randomly-selected responses for each question to verify the coding framework. A second research staff person reviewed a different set of 30 randomly-selected responses to ensure inter-coder reliability.

A large majority – between 91% and 95% of respondents, depending on county – thought the region should meet aviation demand.

How important do you think it is for the central Puget Sound region to be able to accommodate growing future demand for passenger aviation service?
Base: all respondents (n = 1315)

	Not at all important	Slightly important
	Moderately important	Very important	Extremely important

County	Not at all	Slightly	Moderately	Very	Extremely
King (n =417)	3%	7%	16%	47%	28%
Pierce (n =232)	4%	%	21%	48%	26%
Snohomish (n =343)	2%	6%	13%	48%	31%
Kitsap (n =323)	4%	3%	23%	46%	24%

Participants were asked to rank importance of nine features of the aviation system; participants ranked each of the features as important, but across all four counties they ranked cost of flying, access to the airport, getting through security lines, and on-time performance as the most important. Participants ranked amount of service to a variety of destinations, parking availability, environmental impacts, noise impacts, and economic benefits as less important.

King	Pierce	Snohomish	Kitsap
1. Getting through security lines	1. Cost of flying	1. Cost of flying	1. Cost of flying
2. On-time performance	2. Getting through security lines	2. Access to airports	2. Access to airports
3. Cost of flying	Access to airports	3. Getting through security lines	3. Getting through security lines
4. Amount of service to a variety of destinations	3. Amount of service to a variety of destinations	4. On-time performance	4. On-time performance
5. Access to airports	4. On-time performance	5. Economic benefits	5. Amount of service to a variety of destinations

We selected the top-ranking features based on respondents' average ranking of importance. The differences within the top-ranking features are minimal (between 0.1-0.2).

Figure 1. Top features for the aviation system, by county

When asked directly about the priority of environmental impacts vs economic benefits, respondents were fairly split in Pierce, Snohomish, and Kitsap counties (King County respondents prioritized minimizing noise and environmental impacts). Participants in every county thought it was important to improve transportation options to airports.

Between 57% and 67% of respondents, depending on county, thought new passenger service should be added to existing airports rather than building a new airport, as shown in Figure 2. Respondents also prioritized expanding service at regional airports rather than at Sea-Tac, as depicted in Figure 3.
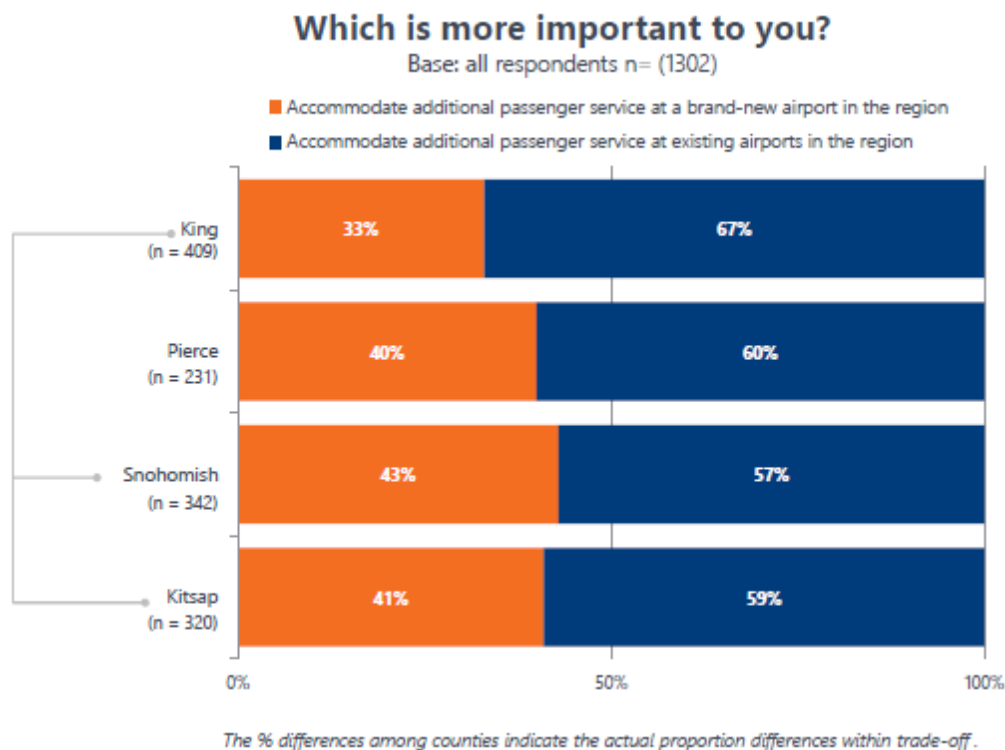

Figure 2. Importance of accommodating passenger service at existing airports, by county
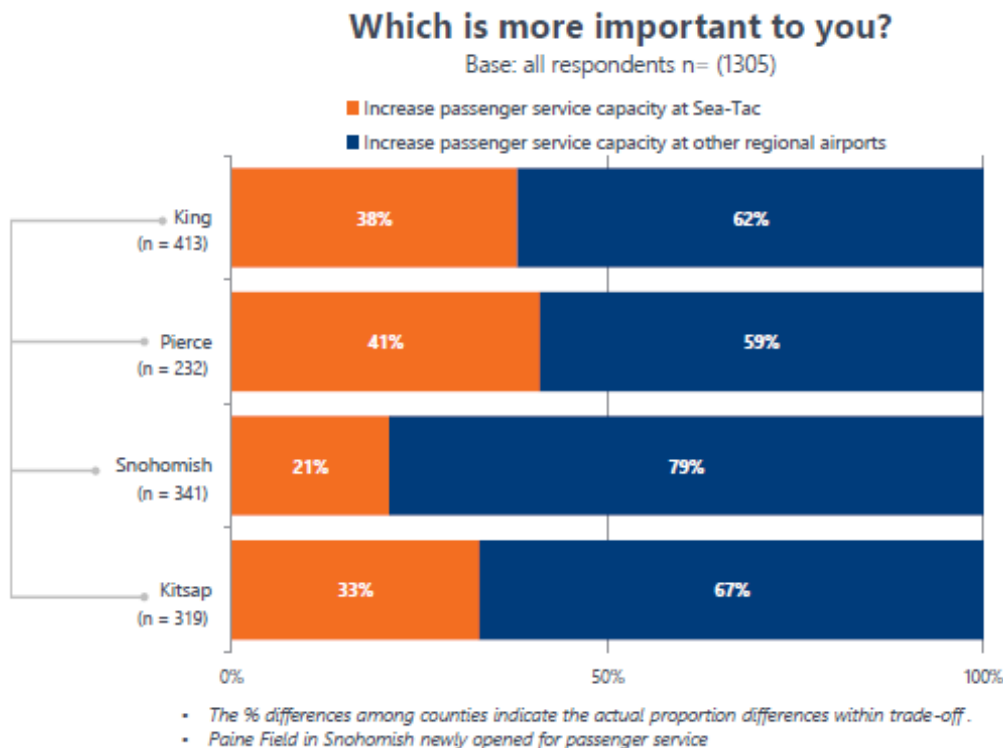
Which is more important to you?

Base: all respondents n= (1305)

■ Increase passenger service capacity at Sea-Tac
■ Increase passenger service capacity at other regional airports

County	Sea-Tac	Other regional airports
King (n = 413)	38%	62%
Pierce (n = 232)	41%	59%
Snohomish (n = 341)	21%	79%
Kitsap (n = 319)	33%	67%

- The % differences among counties indicate the actual proportion differences within trade-off.
- Paine Field in Snohomish newly opened for passenger service

Figure 3. Importance of increasing passenger service capacity at regional airports vs. Sea-Tac, by county

Focus Group Interviews

See Appendix 2 for the full interview report.

While the project originally envisioned traditional focus groups, due to COVID-19 restrictions on gathering in groups, the study team shifted to a series of one-on-one telephone interviews instead. The interview was designed to elaborate on the feedback we received through the public opinion survey. The team conducted 22 interviews between October 6 and 16, 2020, with people who had previously responded to the public opinion survey.

As with the survey, most participants said it was very important for the region to meet growing demand for aviation. Most participants cited jobs and the economy and travel experience as the primary reasons for meeting the growing demand. Environmental impacts were the top concern for participants, but when asked to weigh different benefits and impacts, most participants said the issues were not mutually exclusive and explained that they thought as capacity for air travel in the region increased, there would also be advances in dealing with pollution and noise. Most participants favored expanding service at airports around the region rather than concentrating service at one airport.

Virtual Public Meetings and Online Open House

See Appendix 3 for the full meeting report.

PSRC hosted three virtual public meetings over a two-week period:

- Wednesday, Sept. 23, 5-6:30 p.m.
- Tuesday, Sept. 29, 11:30 a.m.-1p.m.
- Wednesday, Sept. 30, 8-9:30 a.m.

Virtual public meetings were hosted live on Zoom Webinar. Meetings consisted of a roughly one-hour presentation that included several poll questions and a thirty-minute question-and-answer session in which participants asked questions via chat and the project team responded verbally. The first meeting had 65 participants. There were 76 participants in the second meeting, and 35 in the third.

PSRC also hosted an online open house on the project website. The online open house included similar information to what was presented in the virtual public meeting, with greater detail on some technical topics. While the virtual public meetings were held at specific times, the online open house was available any time between September 21 and October 30, 2020; users could visit the website at a time that was convenient to them to review information about the study.

There were 14,253 page views for the online open house, lasting an average of 2 minutes 31 seconds. The online open house included a comment box and four questions, matching the poll questions asked at the virtual public meetings. In total, 390 users left a comment and/or answered the questions.

The team notified community members in the four-county region through mailed postcards, online advertising, and email.

- Postcards were mailed to 209,962 addresses the week of September 14.
- Online ads were placed on Facebook, Instagram, and through Google Ads from September 21 to October 19.
- PSRC emailed 713 members of its email listserv on September 18.

PSRC also reached out to specific groups and jurisdictions to notify them of the online open house and virtual public meetings, including:

- 350 Seattle
- Cascade Bicycle Club
- City of Arlington
- City of Burien
- City of Gig Harbor
- City of Lynnwood
- City of Mukilteo
- City of Normandy Park
- City of Sea-Tac
- City of Tukwila
- Climate Solutions
- Communities of Opportunity
- County Health Departments
- El Centro De La Raza
- City of Des Moines
- City of Edmonds
- City of Everett
- City of Federal Way
- Emerald Alliance
- Forterra
- Futurewise
- Hoh Tribe
- Jamestown S'Klallam Tribe
- King County
- Kitsap County
- League of Quiet Skies Voters
- Lower Elwha Klallam Tribe
- Lummi Nation

- Makah Nation
- Muckleshoot Tribe
- Nisqually Tribe
- Nooksack Tribe
- Pierce County
- Port Gamble S'Klallam Tribe
- Port of Bremerton
- Puget Sound Partnership
- Puget Sound Sage
- Puyallup Tribe of Indians
- Quiet Skies Coalition
- Quiet Skies Puget Sound
- Quileute Tribe
- Samish Indian Nation
- Skokomish Tribe
- Snohomish County
- Snoqualmie Tribe
- Squaxin Island Tribe
- Stillaguamish Tribe of Indians
- Suquamish Tribe
- Swinomish Indian Tribal Community
- The Nature Conservancy
- Transportation Choices Coalition
- Tulalip Tribes
- Upper Skagit Tribe
- Vashon Island Fair Skies
- Washington Environmental Council

Poll questions at the virtual public meetings included:

1. What airport do you most frequently fly in or out of?
   a. Sea-Tac
   b. Paine Field
   c. King County International
   d. Other

For each meeting, most participants said they used Sea-Tac.

2. In considering the region's plans to manage the growing demand for aviation, what is most important to you?
   a. On-time, easy-to-access passenger service
   b. Maximizing economic benefits of the aviation industry
   c. Minimizing noise and environmental impacts of aviation

"Minimizing noise and environmental impacts of aviation" was the top response at each meeting, followed by "on-time, easy-to-access passenger service" and then "maximizing economic benefits of the aviation industry".

3. In considering the region's plans to manage the growing demand for aviation, what is least important to you?
   a. On-time, easy-to-access passenger service
   b. Maximizing economic benefits of the aviation industry
   c. Minimizing noise and environmental impacts of aviation

At each meeting, "maximizing benefits of the aviation industry" was ranked as least important. At two meetings, "on-time, easy-to-access passenger service" was ranked second, followed by "minimizing noise and environmental impacts of aviation". At one meeting, "minimizing noise and environmental impacts of aviation" was ranked second, followed by "on-time, easy-to-access passenger service".

4. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:

   a. Prioritize meeting future demand for aviation

   b. Meet some, but not all, future demand for aviation

   c. Not expand capacity at all

   d. Unsure

At one meeting, "prioritize meeting future demand for aviation" and "meet some, but not all, future demand for aviation" were tied for the top response. At the other two meetings, "meet some, but not all, future demand for aviation" was the top response, followed closely by "prioritize meeting future demand for aviation". At all three meetings, "not expand capacity at all" was the third response, with few or no participants saying they were unsure.

5. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?

   a. Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports as possible

   b. Disperse new aviation service – and associated benefits and impacts – at multiple airports

   c. Don't know

For each meeting, participants selected "disperse new aviation service" as the top response, followed by "consolidate new aviation service" and few or no participants selecting "don't know".

Common questions during the virtual public meetings centered in the study process and next steps; impacts of aviation, including noise and environmental impacts; the basis for the demand forecast, including impacts from the COVID-19 pandemic; specifics about the technical analysis of scenarios; advances in aviation technology; and questions specific to Paine Field.

Online open house participants were presented with questions similar to the poll questions asked at the virtual public meeting, and an opportunity to fill out an open-ended comment form.

Poll questions included:

1. What airport do you most frequently fly in or out of?

Most participants selected Sea-Tac.

2. Participants were asked to select the most and least important out of:

   a. Maximizing economic benefits of the aviation industry

   b. Minimizing noise and environmental impacts of aviation

   c. On-time, easy-to-access passenger service

A large majority of participants ranked "minimizing noise and environmental impacts of aviation" as most important and "maximizing economic benefits of the aviation industry" as least important.

3. Considering the tradeoffs presented in this open house, which option would you prefer?

    a. Concentrate new aviation service at one airport, or as few airports as possible

    b. Distribute new aviation service at multiple airports

    c. Don't know

Responses were fairly evenly split, with 144 respondents in favor of dispersing service, 115 in favor of concentrating service, and 114 saying they don't know.

4. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region?

    a. Meet some, but not all, demand for aviation

    b. Not expand capacity at all

    c. Prioritize meeting the full demand for aviation

    d. Unsure

Most (234) respondents chose "not expand capacity at all", followed by "meet some, but not all, demand for aviation" (106), then "prioritize meeting the full demand for aviation" (33) and "unsure" (16).

Most open-ended comments expressed concern about environmental impacts (close to 200 comments) and concerns about noise (more than 100 comments). Other comments expressed opposition to meeting demand (more than 50), a comment about a specific airport (close to 50), and the impact of COVID-19 on the forecast, support for expanding service at Sea-Tac, support for dispersing service, concern about access issues, support for prioritizing demand, and support for high-speed rail as an alternative to flying (each less than 50).

Additional Outreach

During the course of the study, PSRC mailed three project update emails to its 713-member listserv.

PSRC also conducted briefings for local jurisdictions and elected officials, aviation businesses, and aviation interest groups, including:

- 350 Seattle
- Alaska Airlines
- City of Arlington
- City of Auburn
- City of Burien
- City of Des Moines
- City of Everett
- City of Federal Way
- City of Gig Harbor
- City of Kenmore
- City of Mukilteo
- City of Normandy Park
- City of Renton
- City of SeaTac
- City of Tukwila
- Delta Air Lines
- El Centro de la Raza
- Highline Forum

- King County
- King County Eastside Transportation Partnership
- King County International Airport
- King County SeaShore Transportation Advisory Board
- King County South County Transportation Advisory Board
- McChord Air Force Base
- Normandy Park
- Office of Financial Management
- Pierce County
- Pierce County Airports
- Port of Bremerton
- Port of Moses Lake

- Port of Seattle
- Seattle Southside Chamber of Commerce
- Snohomish County Airport
- Sound Transit Citizen Oversight Panel
- Tomorrow @ SeaTac
- Town of Eatonville
- Washington Roundtable
- Washington State Legislature (multiple)
- Washington State Senate
- Washington State Transportation Commission (multiple)
- Women's Transportation Seminar Lunch and Learn

During the study, PSRC maintained a project email inbox. The project inbox received about 40 emails from people with questions or comments about the project. Common themes included:

- Concerns about the environmental impacts of aviation, including impacts concentrated on historically marginalized communities
- Concerns about noise from aviation
- Questions about the study or logistics for the virtual public meetings and/or online open house
- Questions or comments about plans for specific airports
- Suggestions for additional technical information or topics to include in the study
- Questions or comments about passenger rail as an alternative to air travel
- Objections to the standards for the "baseline" scenario

KEY TAKEAWAYS FROM PUBLIC INVOLVEMENT

Participation

Although there were many ways for members of the public to provide input into the study, the greatest number of participants was through the online open house. There were more than 14,000 page views while the online open house was live and 390 people submitted feedback. This mirrors trends observed on other projects, although it's important to note that the COVID-19 pandemic likely influenced this participation: Some people who participated in the online open house may have

preferred an in-person public meeting, or some people who would have liked to participate may have been unable to do so due to other demands on their time.

Of the virtual public meetings, the meeting held over the lunch hour had the highest attendance (76 participants). The evening meeting had the second highest attendance (65 participants), and the morning meeting had the lowest attendance (35 participants). These numbers mirror trends the team has observed on other recent public meetings. Again, these participation numbers may have been different without the influence of COVID-19. Multiple virtual public meeting attendees expressed appreciation for the format, the range of dates and times offered, and the ability to listen from home rather than having to attend an in-person meeting.

Specific interest groups, such as Vashon Island Fair Skies and the Quiet Skies Coalition, clearly have an engaged and passionate membership who submitted numerous comments voicing concerns about noise and pollution related to aviation.

There are many languages spoken in the four-county Puget Sound region, and areas near airports tend to have a higher percentage of people who use a language other than English. For future projects looking to have a higher proportion of input from these audiences, working with community-based organizations or, to maintain random sampling, oversampling specific areas based on language and other demographics could increase the number of responses from priority audiences.

The virtual public meetings were conducted in English; there is a recording of the virtual public meetings linked from the project website and housed on YouTube so that it can be viewed in languages other than English using YouTube's auto translate feature. The online open house was available in English with Google Translate options for Arabic, Chinese, German, French, Korean, Russian, Spanish, Tagalog, and Vietnamese. The online open house was not advertised in these languages.

PSRC held briefings for groups that work with people who live in airport communities and will continue working with these groups as the study is finalized.

Most Common Input and Questions

Meet demand and address noise and environmental impacts

Across the board, members of the public who shared feedback through any of the engagement methods detailed above recognized the importance of the aviation industry to the region while also recognizing the noise and environmental impacts the industry causes.

Survey participants indicated a stronger preference for meeting the demand for aviation than participants in the online open house and virtual public meetings. The survey, which was statistically representative of the region, found that 91% to 95% of respondents, depending on county, thought meeting the demand for passenger aviation was moderately to extremely important. Because the survey used random sampling and is statistically representative of the region, survey findings can provide a good sense of the general public's attitudes toward aviation.

Survey respondents also ranked noise and environmental impacts as important: 70% to 79% of respondents, depending on county, ranked environmental impacts as somewhat to very important, and 51% to 64% of respondents ranked noise impacts as somewhat to very important.

Interview participants showed a similar priority for meeting demand but also addressed environmental issues. They ranked noise impacts as less important. Interview participants emphasized that these issues were not mutually exclusive: They thought it was possible to meet demand while also improving aircraft and supporting services to decrease environmental and noise impacts.

Additional common feedback:

- Many online open house participants submitted complaints about existing noise levels and flight paths for flights leaving and arriving at Sea-Tac.

- Some participants in the virtual public meetings and online open house expressed skepticism about the demand forecast given the impact of COVID-19 on the aviation industry.

Common questions:

- Participants at the virtual public meetings asked how noise and environmental impacts for expanded service would be studied and mitigated.

- Many participants in the virtual public meetings and online open house were unclear about the process for expanding passenger service and the environmental review process that would be associated with any airport expansion or new airport. This could be problematic because it may mean they are focused on providing input that is not relevant at this stage of the process, or have a hard time understanding the findings being presented because of confusion about the process.

- Many participants in the virtual public meetings and online open house were confused about who would be responsible for leading the expansion of an existing airport or new service offering. Participants were under the impression that PSRC or some other external body had authority to direct an airport to expand, rather than the process being driven by the airport owner. Similar to the bullet above, this is problematic because it may indicate that some participants were focused on providing input that is not relevant at this stage of the process, or could have a hard time understanding the findings being presented because of confusion about the process.

Recommendations for Future Projects/Next Steps

On this project, we saw different themes in input across the survey, focus group interviews, online open house, and virtual public meetings. For example, online open house comments were more focused on environmental impacts while the survey responses prioritized meeting the demand for aviation. Using multiple methods to collect input helped ensure the team received as complete as possible a picture of regional opinion related to the future of the aviation system. For future projects, including a random-sample survey as well as qualitative opportunities for participation like open houses will help ensure a comprehensive set of input, from a variety of audience, is collected.

The Regional Aviation Baseline Study was primarily focused on documenting the nature of the Puget Sound's aviation capacity needs. As part of future projects focused on aviation capacity, however, many members of the public would likely benefit from information about (1) the environmental study and potential mitigation that would be associated with siting a new airport or expanding service at an existing airport, and (2) who would drive any airport expansion (and who cannot).

In spite of overall support for meeting our region's aviation capacity needs, noise and environmental impacts continue to be of major concern to the public. As the region continues to focus on the issue of aviation capacity and demand, communicators and policy makers alike will be challenged to provide context and clarity to broaden public understanding of the aviation challenges and trade-offs facing our region.

Future work on potential expansion of aviation capacity in the region should place a priority on engaging those who have been traditionally underrepresented in decisions about public facilities. This includes people who are Black, people who are Indigenous, and people of color; people who use languages other than English, including people with limited English proficiency; people who are immigrants; people with disabilities; and people with low incomes. Online engagement is not always the most effective way to reach these groups. Strategies for engaging those who are traditionally underrepresented could include working with community-based organizations, conducting in-language engagement and research (with a focus on in-depth interviews or focus groups rather than surveys), purchasing ads or authoring op-eds in ethnic media, and using direct mail (again, transcreated or translated into applicable languages) to specific geographic areas. For engagement with people who are Indigenous, project teams should work directly with applicable tribes and provide resources to cover expenses. Any public meetings should take into account platform limitations. For example, Zoom Webinar offers options for live interpretation, but does not work well with screen readers or closed captioning applications on personal computers, and people who have low internet bandwidth may not be able to access virtual public meetings or online open houses. For in-person public meetings, considerations should be given to access limitations, including accessibility for people with limited mobility, times of the meeting, and availability of childcare.

APPENDIX 1

SURVEY REPORT

Introduction

01

Table of contents

Study overview
Purpose and approach

Puget Sound Regional Council (PSRC) conducted a study to understand public perceptions of the aviation system in the central Puget Sound region.

Purpose

This study is designed to support the Regional Aviation Baseline Studies, which had been conducted to provide a clear picture of the different roles and purposes of each aviation activity at each of our Region's airports, how these activities interact, and identify future needs in the central Puget Sound region (King, Kitsap, Pierce, and Snohomish counties) and set the stage for future planning. The baseline study is expected to inform the region's stakeholders and the product of this study will be helpful in informing future decision making of the region's aviation needs and options for policy makers to consider for meeting those needs in the future.

Approach

PSRC hired WSP and PRR to conduct a statistically valid, online public opinion survey to:
- Outline current aviation travel behavior.
- Gauge public priority of aviation capacity in the region.
- Explore perceptions of system challenges and identify emerging concerns.
- Learn perceptions on trade-offs scenarios for solution of needs.

Research Objectives

- Explore awareness and understanding of the existing aviation system.

- Outline aviation needs and concerns of the general public.

- Provide regional decision makers with input from a broad cross-section of the public.

Survey methods
Questionnaire design, participant recruitment, and fielding

PRR developed the survey questions in collaboration with PSRC and WSP, and collected data through Qualtrics, a professional online survey platform optimized for easy use on electronic and mobile devices.

PRR mailed an invitation to take the online survey to 20,000 randomly selected addresses, 5,000 each in King, Pierce, Snohomish, and Kitsap counties. One week later, PRR followed up with a reminder postcard. The incentive for participating was an opportunity to win one of the ten $100 dollars gift cards. PRR intentionally over-sampled in Pierce, Snohomish, and Kitsap counties to ensure enough completed surveys from those counties to allow for an acceptable margin of error within all counties.

PRR also used an online panel to recruit women, people of color, 18-34 year-olds, and people with annual household incomes under $75,000. Based on census estimates (2018 American Community Survey), the initial sample underrepresented these groups.

SURVEY PERIOD

June 23 to **July 8, 2020**

SURVEY COMPLETION

1,416 people completed the survey

7.2% response rate

+/- **2.6%** margin of error

20,000 randomly-selected households invited
399 invites returned undeliverable
Response rate= 1,416/(20,000-399)

The survey was available in English, Chinese, Spanish, and Somali.

The final sample had 32% King County (margin of error +/- 4.8%), 18% Pierce County (margin of error +/- 6.4%), 26% Snohomish County (margin of error +/- 5.3%), and 25% Kitsap County (margin of error +/- 5.4%) respondents. Eight respondents took the non-English survey (2-Spanish, 3-Traditional Chinese, and 3-Simplified Chinese). Overall, the sample was representative regarding gender, income, and Latinx ethnicity. The sample skewed slightly toward white respondents (in King County) and those over 55 years of age. See Appendix A for a comparison of respondent demographics compared to Census demographics (based on 2018 American Community Survey). The analysis in this report uses unweighted data to preserve county-level representativeness and maintain consistency in the analysis procedures for each county. The charts use unweighted data, but segment results by county to allow for easy comparison across counties.

PRR

Statistical analyses

01

Correlations identified statistically significant relationships between a respondent's characteristics (e.g., gender) **and their survey responses** (Y Variable)**.**

The correlation analysis included all survey questions and the following demographic factors: age, gender, travel frequency, distance from the closest airport, household income, race, or Latinx ethnicity.

All reported correlations are statistically significant at the .05 level (95% confidence level) and have correlation coefficients above 0.15 or below -0.15, which indicates a relatively strong relationship.

02

Pair-sample T-test determined whether there are statistically significant differences between the perceived importance and perception (worse/same/better) of nine aspects of the aviation system.

All reported differences are statistically significant at the .05 level (95% confidence level).

03

We used an iterative approach to analyze qualitative data for the three open-ended questions.

One research staff person reviewed 30 randomly-selected responses for each question and developed a coding framework that captured key themes. That staff person then reviewed a different set of 30 randomly-selected responses for each question to verify the coding framework. A second research staff person reviewed a different set of 30 randomly-selected responses to ensure inter-coder reliability.

04

ANOVA and Chi-square determined whether there are statistically significant differences between counties.

All reported differences are statistically significant at the .05 level (95% confidence level).

! This report summarizes survey results using charts. The totals in some charts may add up to somewhat more or less than 100% due to rounding or where respondents could select multiple responses. In addition, the total number of respondents varies from chart to chart based on how many people answered the question.

Key findings: Open-ended responses

1. Respondents saw many **benefits** of the Puget Sound region's current aviation system, such as travel options, time-saving, affordability, economic benefits, and accessibility.

2. Respondents acknowledged both positive and negative **impacts** of passenger aviation to the central Puget Sound region:
    *   Positive impacts included employment/business opportunity, travel options, and local economy benefits.
    *   Negative impacts included environmental impacts and quality of experience at the airport/on the airplane.

3. Respondents reported a bottleneck in access and service due to the increase in aviation activity in the central Puget Sound region as **personally impacting them**.
    *   Some respondents mentioned the convenience of using **Paine Field** airport compared with Sea-Tac.

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Key findings: In-depth analyses

1. Respondents use airports more for personal travel than business travel. Each year King County residents flew more for personal or business travel compared to other counties.

2. Respondents across all four counties agreed that the aviation system is working well, and think it is important for the region to accommodate growing future demand for passenger aviation service.

3. Residents across all four counties think **cost of flying, getting through security lines, access to the airport, and on-time performance** are the most important features for the regional aviation system.
    *   Pierce, Snohomish, and Kitsap County residents think **parking availability** is more important compared to King County residents.
    *   King County residents think **environmental and noise impacts** are more important compared to other counties.
    *   Snohomish County residents think **economic impact** is more important compared to other counties.

4. Residents across all four counties perceive **cost of flying, environmental impacts, noise impacts, and parking availability** have gotten worse in the last three years.
    *   Snohomish County respondents have a more favorable view regarding **access to the airport, parking availability, and on-time performance** compared with respondents in other counties, likely to some extent because Paine Field, in Snohomish County, now offers passenger service.

Key findings: in-depth analyses (cont.)

5. When asked to prioritize features of the aviation system, most survey respondents prioritized the following:

    ▪ **Increasing passenger airline service** is prioritized over no increase to aviation impacts.

    ▪ **Improve transportation options to airports** is prioritized over increase parking capacity at airports.

    ▪ **Accommodate additional passenger service at existing airports** is prioritized over building a brand-new airport in the region.

    ▪ **Distribute environmental and noise impacts around several airports in the region** is prioritized over consolidating the impacts.

    ▪ **Increase passenger service capacity at other regional airports** is prioritized over at Sea-Tac.

6. There wasn't a clear preference for the following aviation system trade-offs besides specific counties:

    ▪ **Preventing aircraft noise/greenhouse gas emissions** or **increasing economic benefits**

       ○ King County residents were more likely to support **no increase in aircraft noise and greenhouse gas emissions** compared to Pierce, Snohomish, or Kitsap.

    ▪ **Invest in high-speed rail to provide an alternative to flying** or **increase passenger service capacity.**

       ○ Snohomish County residents were more likely to support **increasing passenger service capacity at other regional airports** compared to King, Snohomish, or Kitsap.

Detailed Findings

02

How to read pages in this report

Descriptive title, main takeaway

Parking availability is important to people (but slightly less important to respondents from King County).

Correlation results: indicates whether there's a relationship between survey responses and respondent's characteristics

Correlations
Respondents who think parking availability is more important were more likely to:
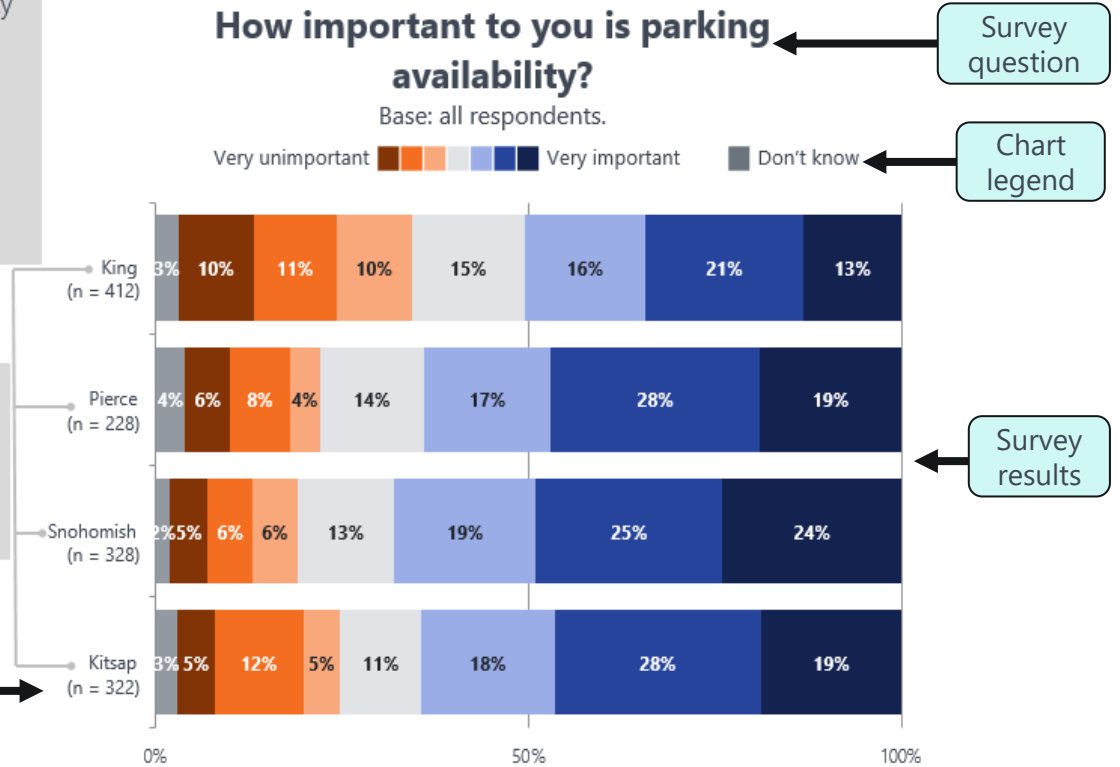- Prefer increased parking capacity over improved transportation at the airport

They were less likely to:
- Live in an urban area
- Live in King County

Survey question

How important to you is parking availability?
Base: all respondents.

Chart legend

Very unimportant ▮▮▮▮▮▮ Very important ▮ Don't know

T-test & Chi-square results: indicates whether there are statistically significant differences between counties

Differences
Pierce (+9%), Snohomish (+10%), and Kitsap (+8%) residents think parking availability was more important compared to King.

Survey results

County								
King (n = 412)	3%	10%	11%	10%	15%	16%	21%	13%
Pierce (n = 228)	4%	6%	8%	4%	14%	17%	28%	19%
Snohomish (n = 328)	2% 5%	6%	6%	13%	19%	25%	24%	
Kitsap (n = 322)	3% 5%	12%	5%	11%	18%	28%	19%	

0%   50%   100%

Number of people who responded to this question in each county

PRR

Themes in open-ended responses

PRR

Benefits: 59% of sampled respondents think current aviation system provides various travel options

Question: If someone new to the area asked you before the current COVID-19 situation what are the top three (3) <u>benefits</u> passenger aviation provides to the central Puget Sound region, what would you have told them?

59% of sampled respondents mentioned travel benefits, such as

- The region has national and international aviation hubs with numerous flight destination options

  - *"International travel is possible from the SEA area. Flights to many US cities are accessible from the multiple airlines that utilize SeaTac."* –Pierce County, female, age 55-64, white

  - *"Easier to do international travel from SeaTac, and domestic travel from regional airports"* – Snohomish County, male, age 25-34, Asian/Asian American

  - *A variety of airports ranging in size from community to international, easy access to each one, flying schedules, both set and spontaneous."* –Kitsap County, female, age 65-74, white

- Time savings & affordability from flying

  - *"Fast access to/from major destinations, more affordable than driving to nearby hubs (e.g., SFO), enables business in the Puget Sound region."* –Snohomish County, male, 25-34, white

24% of sampled respondents mentioned economic benefits, especially through:

- Job creation: *"It provides jobs for the region."* –Kitsap County, female, 45-54, white

- Tourist industry: *"Enables more tourism for the Puget Sound region."* –Snohomish County, male, 25-34, white

- Participation in *"global commerce"* –Pierce County, male, 75+, white

- Making *"Seattle an international business hub and helps residents travel for work."* –Snohomish County, female, 45-54, white

> This finding is consistent with the quantitative results: Many respondents think **amount of service destinations to a variety of destinations** and **cost of flying** has improved in the past three years (see pages 44-45).

Benefits (continued): 27% of sampled respondents think current aviation system provides benefits to airport accessibility

Question: If someone new to the area asked you before the current COVID-19 situation what are the top three (3) <u>benefits</u> passenger aviation provides to the central Puget Sound region, what would you have told them?

27% of sampled respondents mentioned easy access

- Convenient and centralized airport locations: *"It provides convenient transportation, depending on what airline you take" –Pierce County, female, age 55-64, white*

- Regional airports provide transportation for those in rural areas: *"Paine Field is the best regional airport in the entire NW. It is convenient, and very accessible" –Snohomish County, male, age 55-64, white*

- Seaplane access to waterfront locations: *"Floatplane access to all waterfront locations" –Kitsap County, male, age 65-74, white*

5% of sampled respondents mentioned quality of experience at the airport/on the airplane

- *"Easy business travel, passenger friendly SeaTac airport, wide diversity of locations accessible from this area" –Kitsap County, female, age 55-64, white*

- *"Very friendly people, lots of outdoor activities and nice views of Mt Rainer" –Pierce County, male, age 65-74, white*

5% of sampled respondents mentioned cultural/community benefits through travel:

- *"Brings in a lot of diverse people, extending our community further than it would have otherwise" –Kitsap County, male, 25-34, white*

3% of sampled respondents mentioned personal interest:

- *"A variety of airports ranging in size from community to international, easy access to each one, flying schedules Another benefit is purely aesthetic but during the flight, Washington or the general Puget Sound region provides beautiful scenery." –Pierce County, female, age 55-64, white*

Some people said there were no benefits of the current system. They often pointed to environmental degradation, urbanization, overdevelopment, or overpopulation.

Impacts: 27% of sampled respondents think passenger aviation system brings employment and business benefits

Question: What if that same person asked you before the current COVID-19 situation what the top three (3) impacts of passenger aviation are to the central Puget Sound region, what would you have told them?

POSITIVE impacts

27% of sampled respondents mentioned **employment/business benefits**, such as

- Greater employment opportunities & improve local economics:
  - *"Aviation in the area provides a variety of job opportunities." –King County, age 55-64, white*
  - *"Business & jobs regarding support to Aviation (i.e. Boeing)."–Snohomish County, female, age 55-64, white*
  - *"Supports and uplifts local economy through the increase in jobs and income for the region." –Kitsap County, female, age 55-64, white*
  - *"Tourism tax dollars pumped into the local economy." –Kitsap County, male, age 45-54, white*
- *"Property valuations." –Pierce County, male, age 65-74, Asian American*

13% of sampled respondents mentioned **increased travel options**, such as

- *"Allowing business and leisure travel." –Snohomish County, female, age 55-64, white*
- *"Convenient travel options for residents to travel elsewhere and non-residents to visit." –Pierce County, male, age 45-54, white*
- *"Faster travel time." –Snohomish County, female, age 25-34, white*

4% of sampled respondents mentioned **intangible benefits**

- *"More people can see the beautiful PNW." –King County, male, age 35-44, white*
- *"People would want to possibly move here." –No demographic information*

> More than half of survey respondents think economic benefits from passenger aviation system is important (page 39).

PRR

Impacts (continued): 49% of sampled respondents think passenger aviation system brings negative environmental impacts

Question: What if that same person asked you before the current COVID-19 situation what the top three (3) impacts of passenger aviation are to the central Puget Sound region, what would you have told them?

NEGATIVE impacts

49% of sampled respondents mentioned **environmental impacts**

- *"Increased air and noise pollution; expanded airport footprints to meet growing requirements." –Snohomish County, male, age 65-74, Native Hawaiian or Pacific Islander*
- *"Environmental concerns/global warming." –Snohomish County, female, age 25-34, white*
- *"Land use." –Pierce County, male, age 65-74, white*
- *"Air pollution from aircraft and ground traffic to and from the airports; Noise pollution from aircraft." –Snohomish County, male, age 65-74, white*

45% of sampled respondents mentioned **increased traffic accessing the airport and long waiting lines**

- *"Extreme congestion at Sea-Tac traffic, parking, and people. Long waits at TSA." –King County, male, age 55-64, white*
- *"Increased air traffic means more chaos at the airport in terms of going through security, checking luggage, picking up or dropping off passengers, getting to the airport, etc." –King County, female, age 65-74, white*
- *"Increased traffic in the South Everett area; the possible increase in petty crime that comes with increase of traffic and population to any relatively well used public service." –Snohomish County, male, age 55-64, white*

20% of sampled respondents mentioned **quality of experience at the airport/on the airplane**

- *"Overcrowded airports: "too many people & delays." –Pierce County, male, age 75+, white*
- *"Delays and increased difficulty flying standby: "flying standby is more difficult." –King County, female, age 65-74, white*

This finding is consistent with the quantitative results: Many respondents think **accessing the airport** and **getting through security lines** has gotten worse in the last 3 years. (pages 46 & 48).

Personal impacts: 40% of sampled respondents reported having difficulty with access to the airport

Question: Over the past few years, passenger aviation activity has increased in the central Puget Sound region by 18% (from 42 million to 52 million passengers). How has this impacted you?

40% of sampled respondents report having **difficulty with access to airport**. Main concerns include:

- Traffic congestion and longer waiting line (33%): *"Longer lines to drop off passengers, baggage and security. All that results in more of our time to take a flight through SEATAC. However, recently we have taken a flight out of Everett and that was a much better situation."* *–Snohomish County, male, age 65-74, white*

  - More congested, longer lines at passenger drop-off

  - Light rail expansion may help some

  - Opening of Paine Field may help some: *"Allowed for Paine Field to begin service which has had a positive affect on our travel life."* *–Snohomish County, male, age 45-54, white*

- Parking (12%): *"Parking at SeaTac Airport is tight and expensive, and traffic around the airport is terrible. Delays at SeaTac are a given, especially for baggage handling."* *–King County, female, age 55-64, white*

  - Tight, crowded (reservations now needed in some cases), which can lead to parking farther from airport leading to long walks

  - Onsite Sea-Tac-Tac parking is easier, and many levels of parking garage have been reconfigured

  - Parking is expensive

- Lack of mass transit options (5%): *"The only impact this has had on myself is access to the airport. For areas in the South Sound there are no options for mass transit to the airport and in order to pay a reasonable fee to park near the airport, reservations are usually needed at the park and ride lots."* *–King County, female, age 55-64, white*

13% of respondents mentioned the convenience of using **Plain Field** airport compared with Sea-Tac, which is consistent with respondents' preference to **increase passenger service capacity at other regional airports** compared with increasing Sea-Tac capacity (page 66).

Personal impacts (continued): 35% of sampled respondents reported having concerns regarding environmental impact and airport crowdedness

Question: Over the past few years, passenger aviation activity has increased in the central Puget Sound region by 18% (from 42 million to 52 million passengers). How has this impacted you?

35% of sampled respondents reported concerns related to crowdedness at the airport/on the airplane.

- Crowded airport & longer waiting line (25%): *"The airport is overcapacity and difficult to get in and out of." (493)*
  - More congested, longer lines at passenger drop-off
  - Longer, slower security and screening lines
  - Long periods spent standing or sitting uncomfortably
  - Delays in baggage handling

- Fewer seats & increase in ticket prices (11%): *"Flight prices are not at all competitive - International flights to Asia and flights to Alaska or Hawaii from SEA for example are 50% more expensive than from other nearby airports, such as Vancouver, BC or Portland, OR; and instead of SEA being a hub for trans-pacific travel, it has been ceded to SFO or LAX." –King County, gender(s) not listed here, age 45-54*

35% of sampled respondents reported concerns related to environmental impacts

- Air and noise pollution (from more flights as well as changing flight/landing patterns): *"Noise pollution has increased with increased flights taking off and landing, increased car traffic and pollution for those driving to or from the airport" –King County, female, age 55-64, white*

- General degradation, climate change

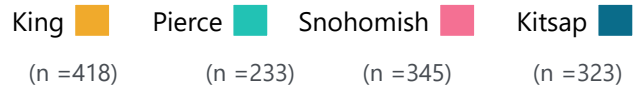**9% of sampled respondents reported positive impact on travel options**

- More direct flight destinations, access to the world
- Preference to see small airports share portion of air travel

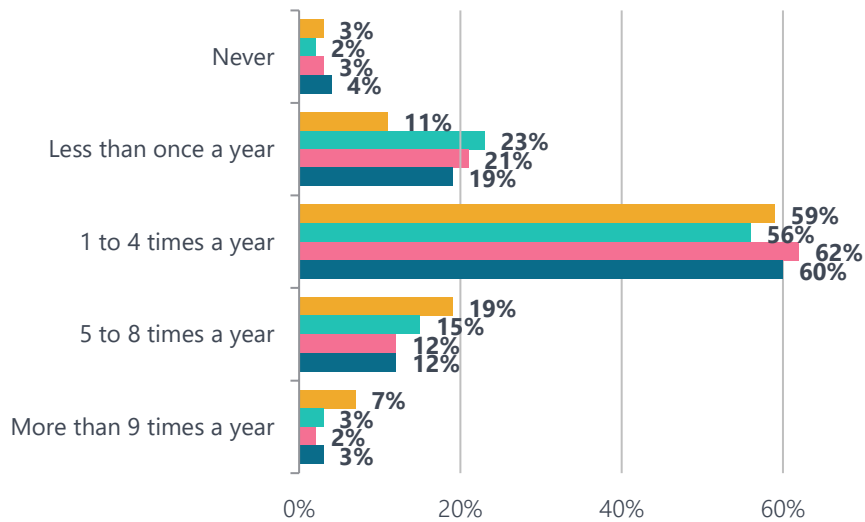# Flying behavior and attitudes toward aviation services

Respondents use airports more for personal travel than business

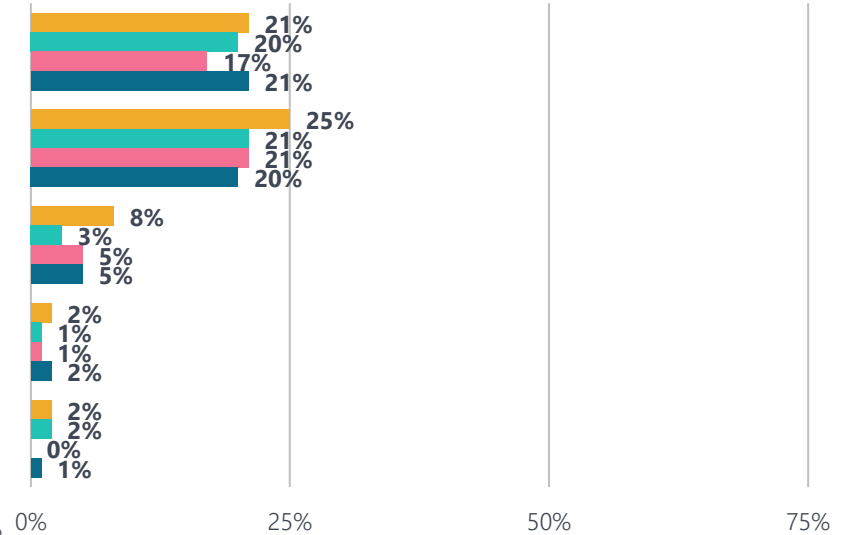## How often do you typically fly each year for...
Base: all respondents.

King 🟧 Pierce 🟩 Snohomish 🟩 Kitsap ⬛

(n =418) (n =233) (n =345) (n =323)

Personal travel

Never
- King: 3%
- Pierce: 2%
- Snohomish: 3%
- Kitsap: 4%

Less than once a year
- King: 11%
- Pierce: 23%
- Snohomish: 21%
- Kitsap: 19%

1 to 4 times a year
- King: 59%
- Pierce: 56%
- Snohomish: 62%
- Kitsap: 60%

5 to 8 times a year
- King: 19%
- Pierce: 15%
- Snohomish: 12%
- Kitsap: 12%

More than 9 times a year
- King: 7%
- Pierce: 3%
- Snohomish: 2%
- Kitsap: 3%

Business travel

Never
- King: 21%
- Pierce: 20%
- Snohomish: 17%
- Kitsap: 21%

Less than once a year
- King: 25%
- Pierce: 21%
- Snohomish: 21%
- Kitsap: 20%

1 to 4 times a year
- King: 8%
- Pierce: 3%
- Snohomish: 5%
- Kitsap: 5%

5 to 8 times a year
- King: 2%
- Pierce: 1%
- Snohomish: 1%
- Kitsap: 2%

More than 9 times a year
- King: 2%
- Pierce: 2%
- Snohomish: 0%
- Kitsap: 1%

Correlations

Respondents who fly for <u>personal travel</u> tend to:
- Have higher incomes
- Think it is important to accommodate growing future demand for passenger aviation service

Respondents who fly for <u>business travel</u> tend to:
- Be younger
- Be male
- Have higher income
- Think it is important to accommodate growing future demand for passenger aviation service
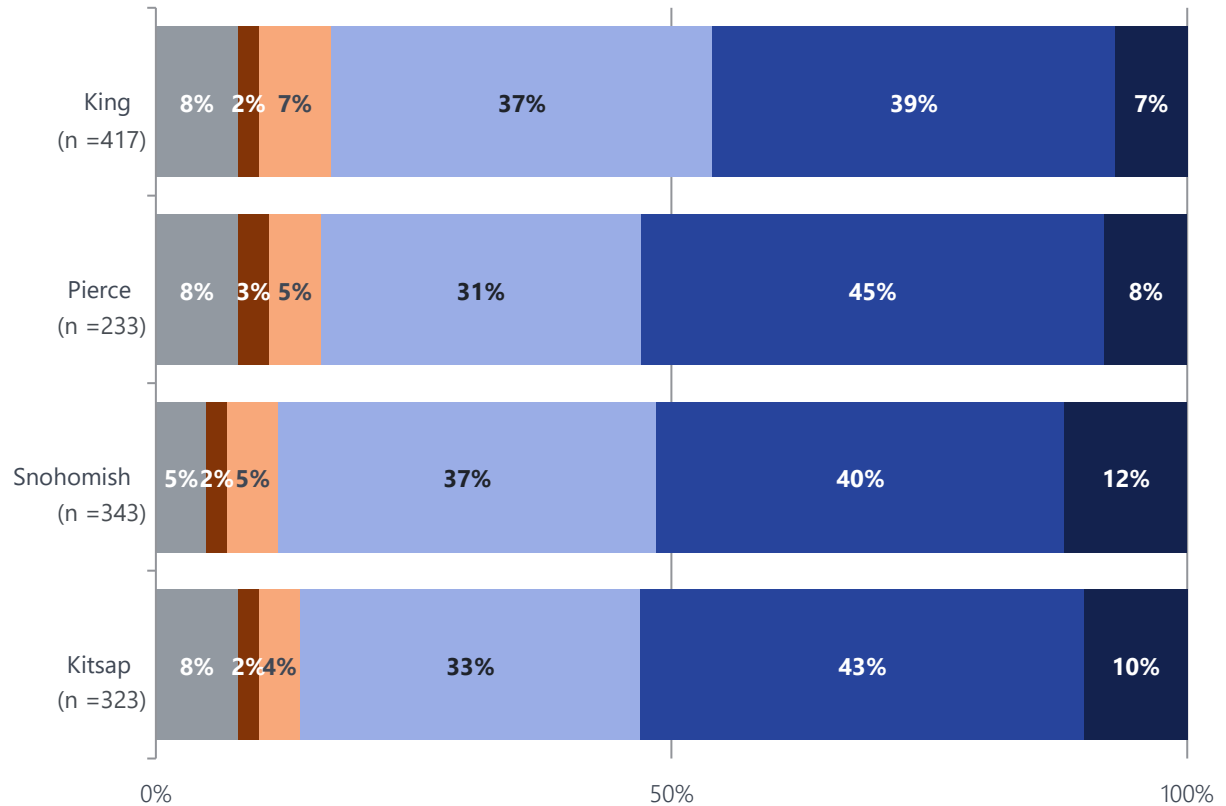
Differences

King County residents fly more for personal and business travel than residents of other counties.

PRR

Overall, respondents agreed that the aviation system is working well

Overall, how well do you think the passenger aviation system in the central Puget Sound region was working prior to the COVID-19 situation?

Base: all respondents (n = 1,316)

Legend:
- Don't know
- Not well at all
- Slightly well
- Moderately well
- Very well
- Extremely well

Region	Don't know	Not well at all	Slightly well	Moderately well	Very well	Extremely well
King (n = 417)	8%	2%	7%	37%	39%	7%
Pierce (n = 233)	8%	3%	5%	31%	45%	8%
Snohomish (n = 343)	5%	2%	5%	37%	40%	12%
Kitsap (n = 323)	8%	2%	4%	33%	43%	10%

There are no statistically significant relationships to report.

PRR

People in all four counties think it is important for the region to accommodate growing future demand for passenger aviation service
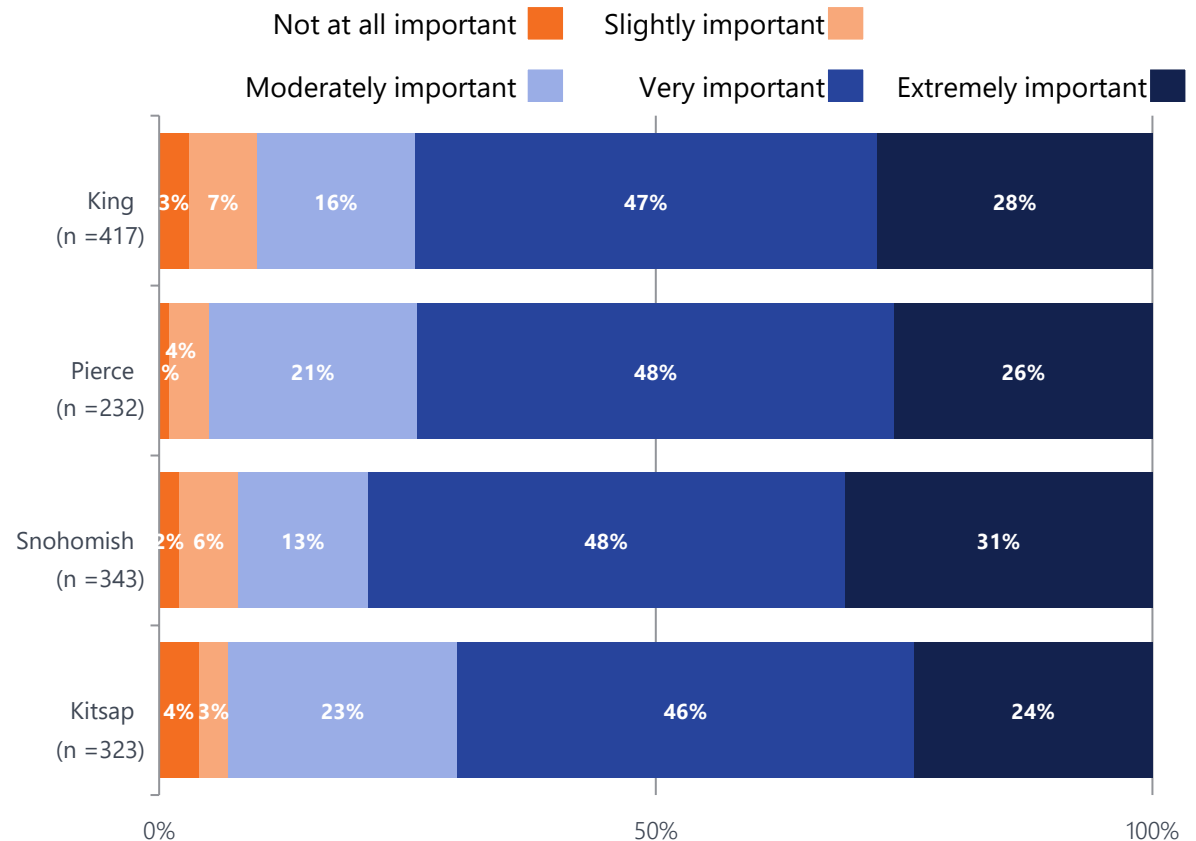
Correlations

Respondents who think it is important to accommodate growing future demand for aviation service tend to:
- Fly more often for personal and business travel
- Have higher incomes

How important do you think it is for the central Puget Sound region to be able to accommodate growing future demand for passenger aviation service?

Base: all respondents (n = 1315)

Legend:
- Not at all important
- Slightly important
- Moderately important
- Very important
- Extremely important

County	Moderately important	Very important	Extremely important
King (n =417)	3% / 7% / 16%	47%	28%
Pierce (n =232)	4% / % / 21%	48%	26%
Snohomish (n =343)	2% / 6% / 13%	48%	31%
Kitsap (n =323)	4% / 3% / 23%	46%	24%

PRR

22

Level of importance toward nine aviation features

Residents in the four-county region think **cost of flying, access to airport, getting through security lines**, and **on-time performance** are the most important features for the aviation system

King	Pierce	Snohomish	Kitsap
1. Getting through security lines 2. On-time performance 3. Cost of flying 4. Amount of service to a variety of destinations 5. Access to airports	1. Cost of flying 2. Getting through security lines Access to airports 3. Amount of service to a variety of destinations 4. On-time performance	1. Cost of flying 2. Access to airports 3. Getting through security lines 4. On-time performance 5. Economic benefits	1. Cost of flying 2. Access to airports 3. Getting through security lines 4. On-time performance 5. Amount of service to a variety of destinations

We selected the top-ranking features based on respondents' average ranking of importance.
*The differences within the top-ranking features are minimal (between 0.1-0.2).*

- Among Pierce, Snohomish, and Kitsap County residents, the top three most important aviation features are **cost of flying, access to airports,** and **getting through security lines.**
- Among King County residents, the top three most important aviation features are **getting through security lines, on-time performance,** and **cost of flying.**

The **cost of flying** is important to people in all four counties (38-50% said it was very important)

How important to you is cost of flying?
Base: all respondents. (n = 1286)

Very unimportant ■■■■■■ Very important ■ Don't know
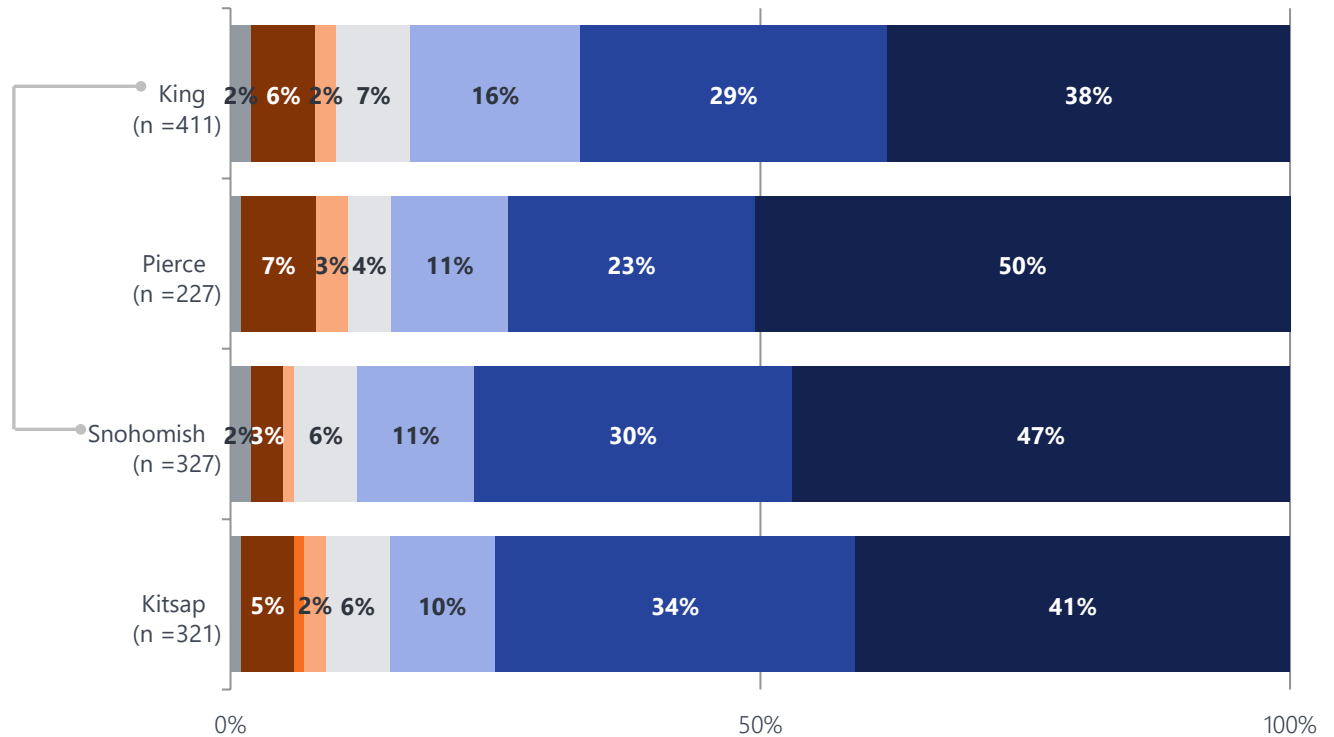
Differences
Snohomish County (+5%) residents think cost of flying was more important compared to King.

County	Values
King (n =411)	2% 6% 2% 7% 16% 29% 38%
Pierce (n =227)	7% 3% 4% 11% 23% 50%
Snohomish (n =327)	2% 3% 6% 11% 30% 47%
Kitsap (n =321)	5% 2% 6% 10% 34% 41%

0%   50%   100%

The % differences between counties are based on the average ranking of importance (scale 1-7)

PRR

The **amount of service to a variety of destinations** is important to people in all four counties (31%-38% said it was very important)
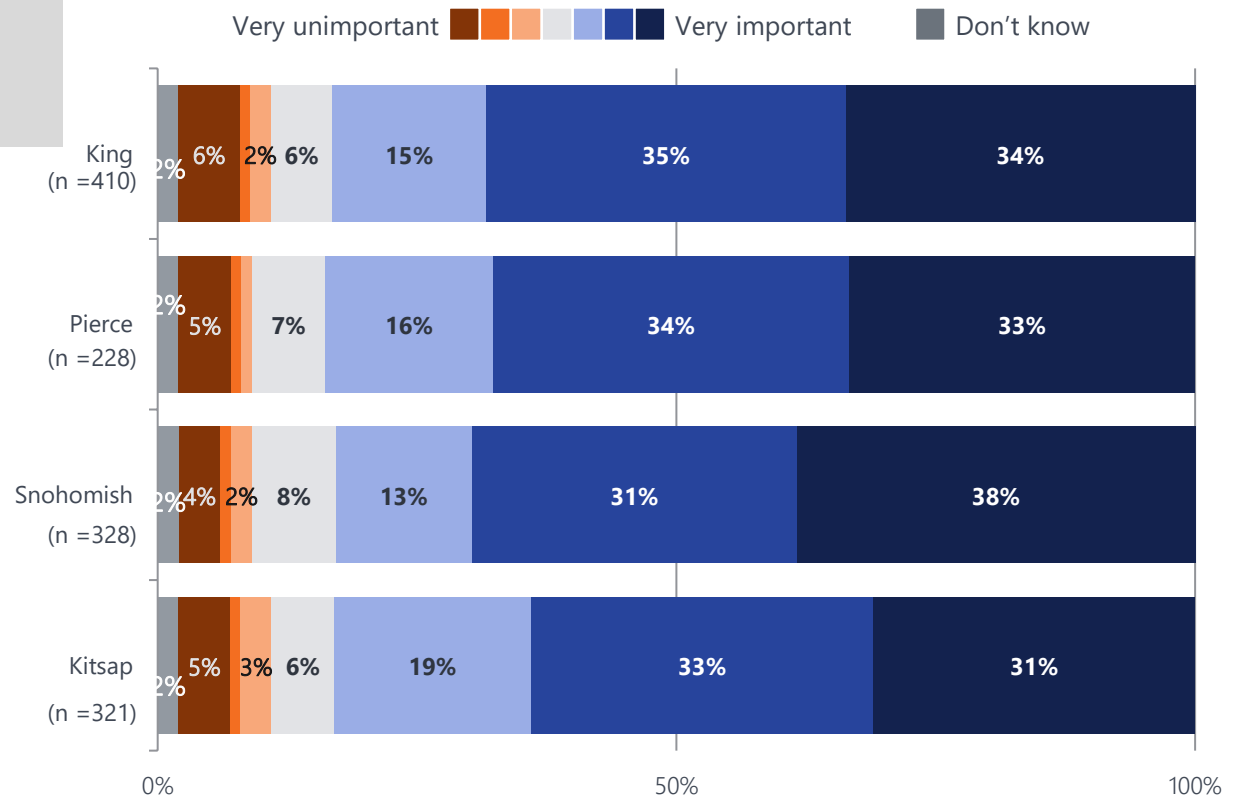
Correlations

Respondents who think the amount of service to a variety of destinations is important tend to:

- Have higher income
- Think it is important to accommodate growing future demand for passenger aviation service

How important to you is amount of service to a variety of destinations?
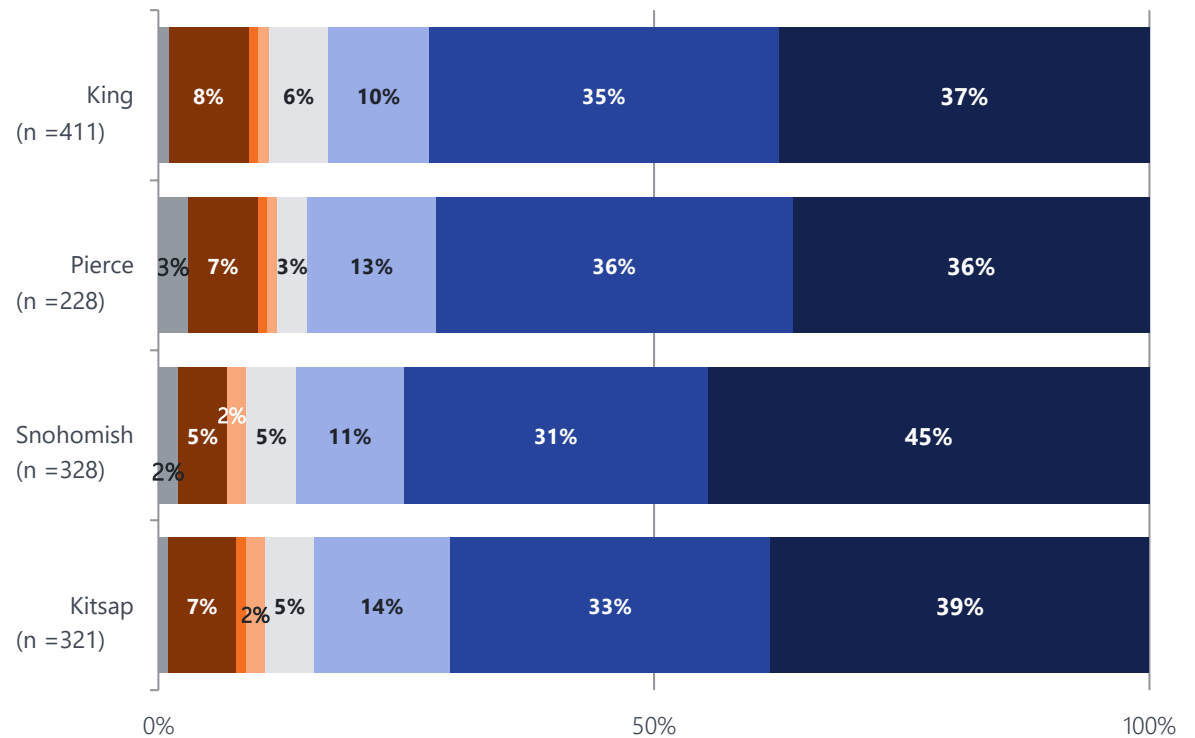
Base: all respondents. (n = 1287)

Very unimportant ■■■■■■ Very important ■ Don't know

County							
King (n =410)	2%	6%	2%	6%	15%	35%	34%
Pierce (n =228)	2%	5%		7%	16%	34%	33%
Snohomish (n =328)	2% 4%	2%	8%	13%	31%	38%	
Kitsap (n =321)	2%	5%	3%	6%	19%	33%	31%

0%   50%   100%

PRR

26

Access to the airport is important to people in all four counties (36%-45% said it was very important)

How important to you is access to airports?
Base: all respondents. (n = 1288)

Very unimportant ▇▇▇▇▇▇ Very important ▇ Don't know

County						
King (n =411)	8%	6%	10%	35%	37%	
Pierce (n =228)	3% 7% 3%	13%	36%	36%		
Snohomish (n =328)	2% 5% 2% 5%	11%	31%	45%		
Kitsap (n =321)	7% 2% 5%	14%	33%	39%		

There are no statistically significant relationships to report.

PRR

27

Parking availability is important to people but less important than the first three features (King County residents perceived as slightly less important)

Correlations

Respondents who think parking availability is more important were more likely to:

- Prefer increased parking capacity over improved transportation at the airport

They were less likely to:

- Live in an urban area
- Live in King County

Differences

Pierce (+9%), Snohomish (+10%), and Kitsap County (+8%) residents think parking availability was more important compared to King.

How important to you is parking availability?

Base: all respondents. (n = 1290)

Very unimportant ▮▮▮▯▮▮ Very important   ▮ Don't know

County							
King (n = 412)	3%	10%	11%	10%	15%	16%	21%	13%
Pierce (n = 228)	4%	6%	8%	4%	14%	17%	28%	19%
Snohomish (n = 328)	2% 5%	6%	6%	13%	19%	25%	24%
Kitsap (n = 322)	3% 5%	12%	5%	11%	18%	28%	19%

0%   50%   100%
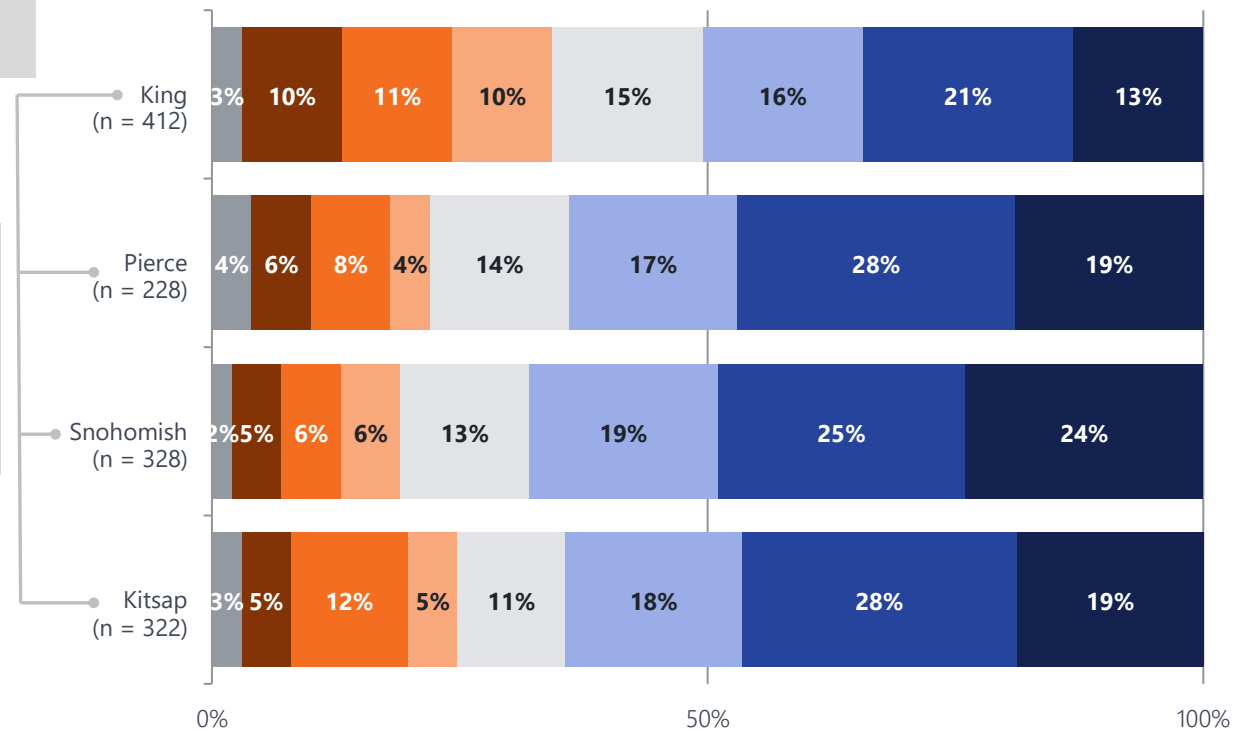
The % differences between counties are based on the average ranking of importance (scale 1-7)

Getting through the security is important to respondents in all four counties (36%-43% said it was very important)

How important to you is getting through security?
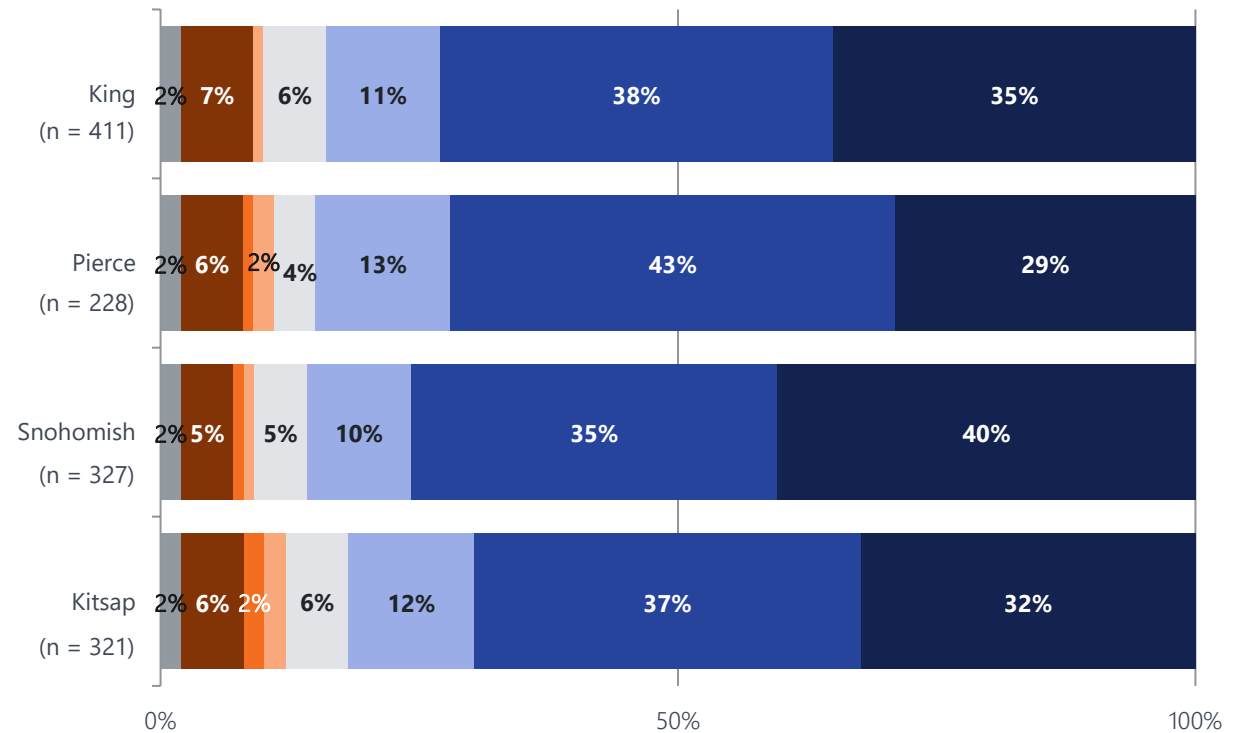
Base: all respondents. (n = 1291)

Legend: Very unimportant ■■■■■ Very important ■ Don't know

County						
King (n = 412)	6%		6%	11%	32%	41%
Pierce (n = 228)	6%	2%	5%	10%	35%	40%
Snohomish (n = 329)	2%	4%	7%	12%	31%	43%
Kitsap (n = 322)	2% 6%	2%	8%	15%	32%	36%

0%   50%   100%

There are no statistically significant relationships to report.

PRR

29
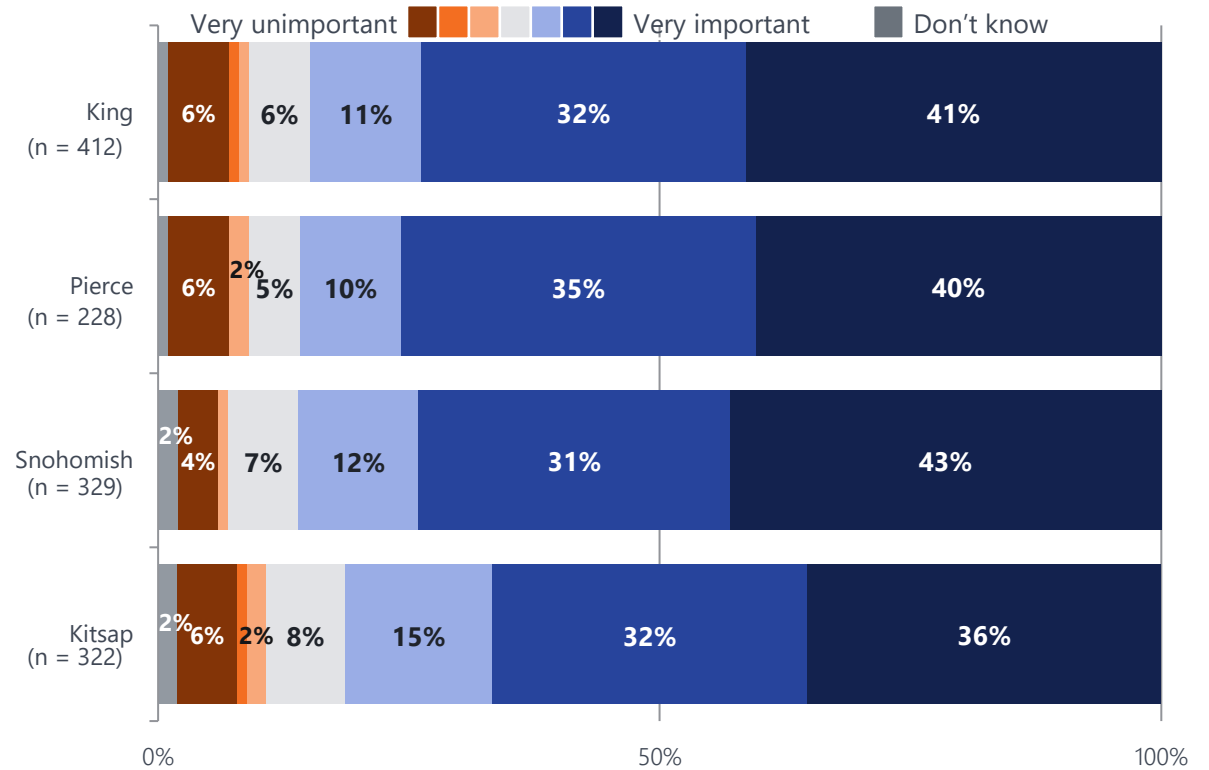
On-time performance is important to people in all four counties (29%-40% said it was very important)

How important to you is on-time performance?

Base: all respondents. (n = 1287)

Very unimportant ███ ███ ███ ███ ███ ███ Very important   ██ Don't know

King
(n = 411)
2% | 7% | 6% | 11% | 38% | 35%

Pierce
(n = 228)
2% | 6% | 2% | 4% | 13% | 43% | 29%

Snohomish
(n = 327)
2% | 5% | 5% | 10% | 35% | 40%

Kitsap
(n = 321)
2% | 6% | 2% | 6% | 12% | 37% | 32%

0%   50%   100%

Environment impacts are important to survey respondents (30%-40% said it was very important)

Correlations

Respondents who said environmental impacts are important were more likely to:
- Think the environmental impacts have gotten worse
- Prefer to have no increase to aviation's impacts
- Prefer to have no increase in aircraft noise levels
- Prefer to improve transportation options
- Prefer to invest in high speed rail to provide an alternative to flying

Differences

King County residents think environmental impacts were more important compared to Pierce (-6%) and Kitsap (-5%).

How important to you are environmental impacts?

Base: all respondents. (n = 1288)

Very unimportant ▬▬▬▬▬▬ Very important ▬ Don't know

King (n = 410)	2% 6% 2% 3%	8%	11%	28%		40%	
Pierce (n = 228)	3% 8% 4% 2%	13%	16%	22%		32%	
Snohomish (n = 328)	2% 5% 2% 4%	13%	15%	24%		34%	
Kitsap (n = 322)	2% 7% 3% 6%	9%	18%	25%		30%	

0%   50%   100%

The % differences between counties are based on the average ranking of importance (scale 1-7)

Noise impacts are important to respondents but much less so than other aspects, with Pierce County residents ranking it the least important

How important to you are noise impacts?

Base: all respondents. (n = 1285)
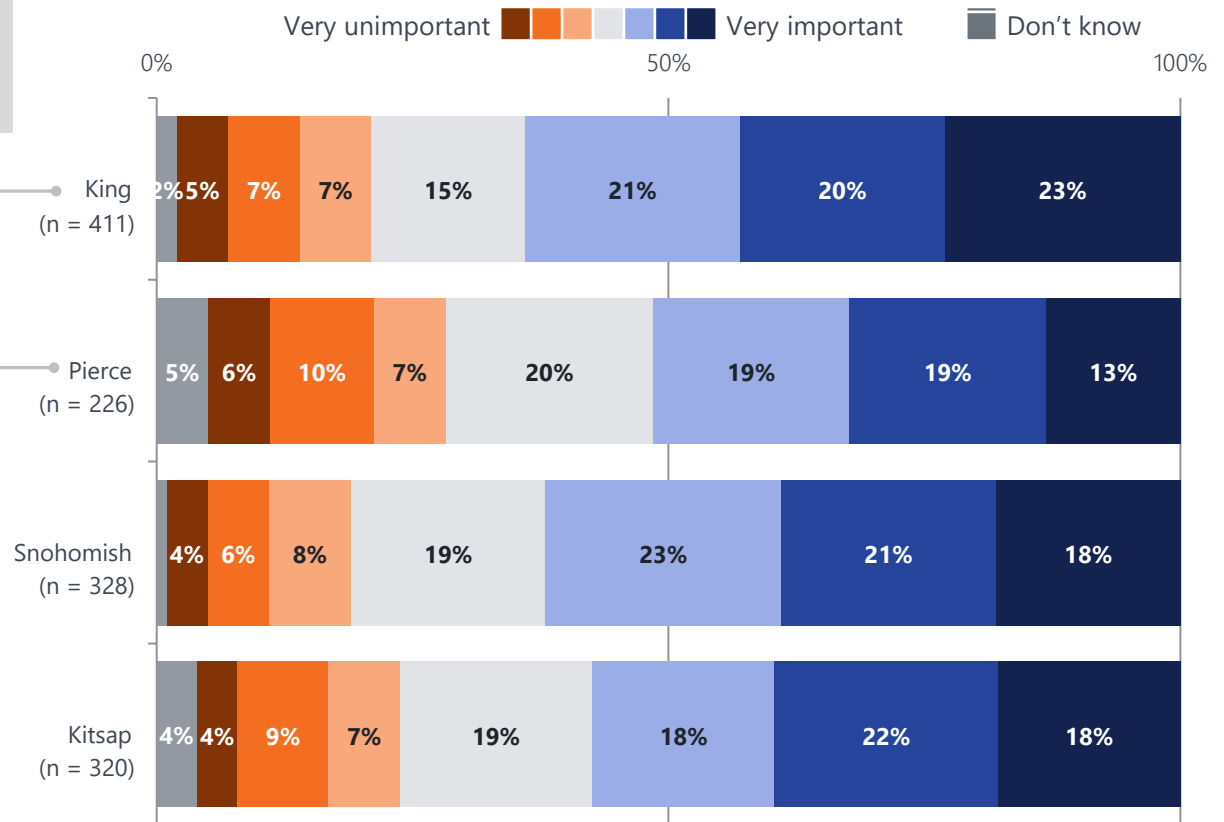
Very unimportant ▮▮▮ ▮▮▮ Very important ▮ Don't know

	Very unimportant						Very important	Don't know
King (n = 411)	2% 5%	7%	7%	15%	21%	20%	23%
Pierce (n = 226)	5%	6%	10%	7%	20%	19%	19%	13%
Snohomish (n = 328)	4%	6%	8%	19%	23%	21%	18%
Kitsap (n = 320)	4% 4%	9%	7%	19%	18%	22%	18%

The % differences between counties are based on the average ranking of importance (scale 1-7)

PRR

32

Economic benefits are important but less so than other aspects, with Snohomish County ranking it higher than other counties

How important to you are economic benefits?

Base: all respondents. (n = 1289)
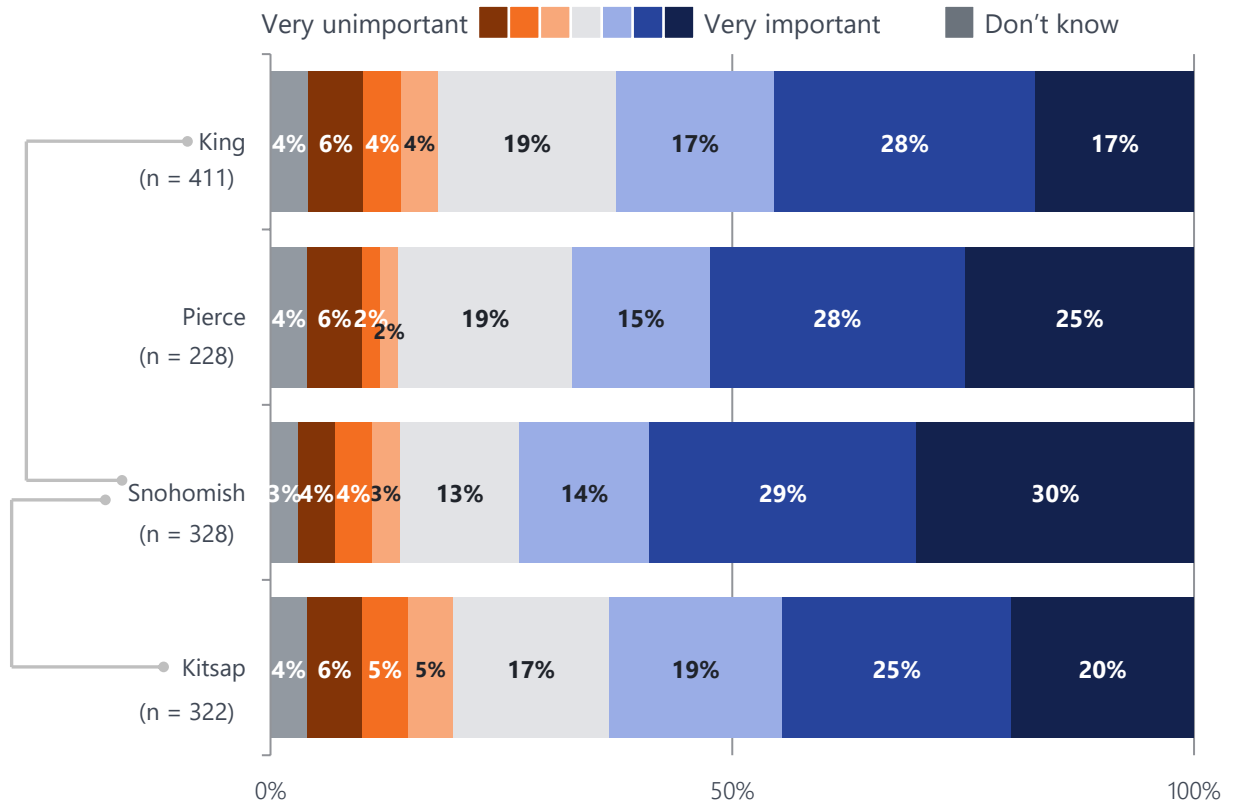
Very unimportant | Very important | Don't know

County								
King (n = 411)	4%	6%	4%	4%	19%	17%	28%	17%
Pierce (n = 228)	4%	6%	2%	2%	19%	15%	28%	25%
Snohomish (n = 328)	3%	4%	4%	3%	13%	14%	29%	30%
Kitsap (n = 322)	4%	6%	5%	5%	17%	19%	25%	20%

0%   50%   100%

The % differences between counties are based on the average ranking of importance (scale 1-7)

PRR

Perceptions (worse/same/better) toward nine aviation features

Residents in the four-county region think **cost of flying, environmental impacts, noise impacts, and parking availability** have gotten worse in the last three years

King	Pierce	Snohomish	Kitsap
1. Environmental impacts 2. Noise impacts 3. Parking availability	1. Cost of flying 2. Access to airports 3. Parking availability	1. Noise impacts 2. Environmental impacts 3. Cost of flying	1. Cost of flying 2. Noise impacts 3. Environmental impacts

We selected the top-ranking features based on respondents' average ranking of perception (worse/same/better).
The differences within the top-ranking features are minimal (between 0.1-0.3).

- Among King and Snohomish County residents, the top two features perceived to have gotten worse in the last three years are **environmental and noise impacts.**
- Among Pierce and Kitsap County residents, the top one feature perceived to have gotten worse in the last three years is **cost of flying.**

Generally, respondents said the **cost of flying** has improved in the last three years

Correlations
Respondents who think cost of flying is getting better tend to:
- Think the aviation system in the area was working well

Has the cost of flying gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents (n = 1307)

Much worse ◼◼◼◼◼◼◼ Much better   ◼ Don't know

Region	Don't know						
King (n = 417)	12%	7%	12%	21%	32%	11%	4%
Pierce (n = 233)	12%	4%	18%	24%	30%	8%	3%
Snohomish (n = 333)	15%	4%	14%	22%	29%	10%	5%
Kitsap (n = 324)	12%	6%	17%	23%	29%	7%	3% 3%

0%   50%   100%
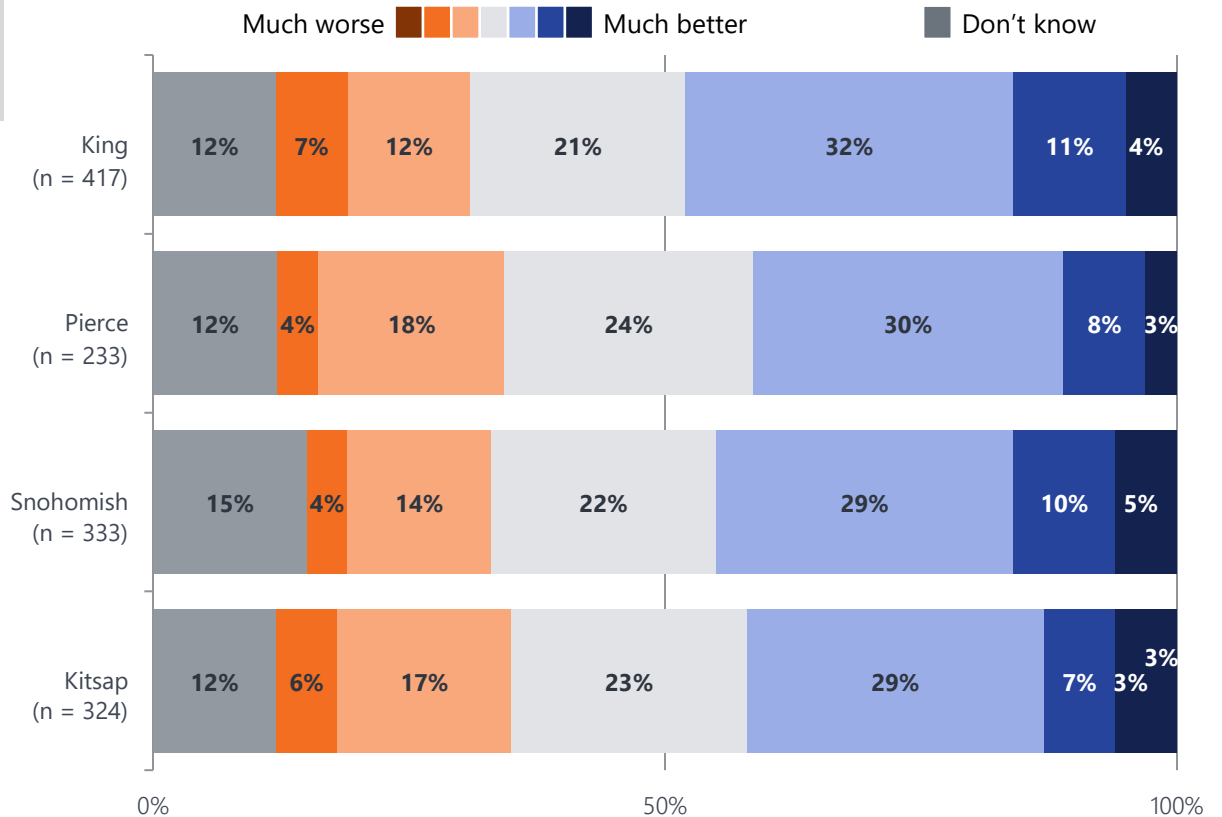
A majority of survey respondents think **the amount of service destinations** has improved, while many think it has stayed the same (25-32%)

Has the amount of service to a variety of destinations gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents (n = 1307)

Much worse ■■■■□□■■ Much better   ■ Don't know

King (n = 417): 19% | 2% | 3% | 25% | 25% | 18% | 6%

Pierce (n = 233): 17% | 3% | 4% | 33% | 18% | 20% | 5%

Snohomish (n = 333): 17% | 2% | 5% | 26% | 20% | 23% | 8%

Kitsap (n = 324): 18% | 2% | 5% | 32% | 20% | 17% | 4%

0%   50%   100%

The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

PRR
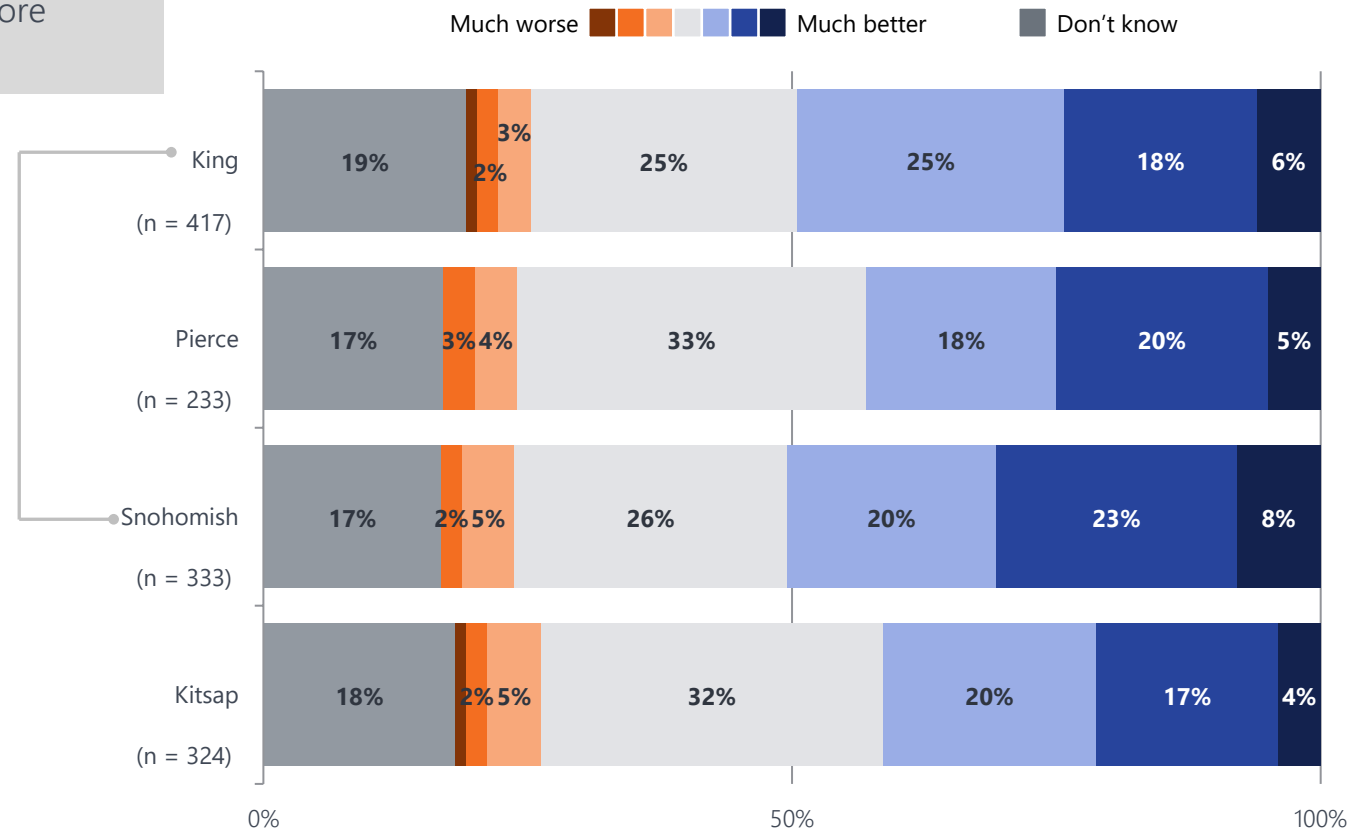
37

In all counties, respondents think **accessing the airport** has worsened in the past three years

Correlations
Respondents who think access to the airport is getting better tend to:
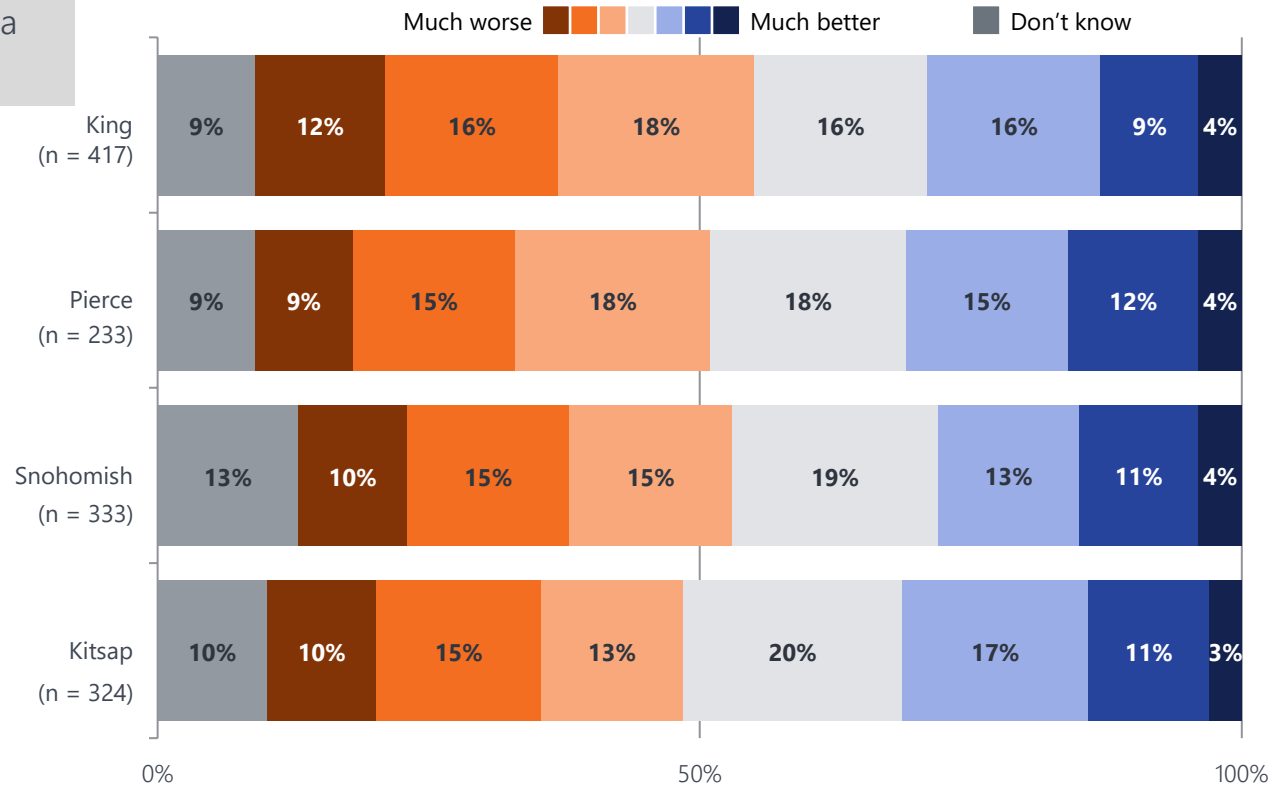- Think the aviation system in the area was working well
- Think it is more important to accommodate growing future demand for passenger aviation service

Differences
King (+6%), and Pierce (+7%) County residents are more likely to think access to airports has gotten worse compared with Snohomish.

Has access to airports gotten better, stayed the same, or gotten worse in the last 3 years?
Base: all respondents (n = 1307)

Much worse ▮▮▮▮▮▮ Much better ▮ Don't know

County	Don't know	Much worse			Same			Much better
King (n = 417)	10%	11%	18%	17%	24%	9%	10%	3%
Pierce (n = 233)	11%	8%	20%	18%	26%	10%	5%	2%
Snohomish (n = 333)	11%	10%	16%	14%	17%	12%	11%	10%
Kitsap (n = 324)	10%	7%	17%	17%	22%	13%	11%	3%

The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

PRR

38
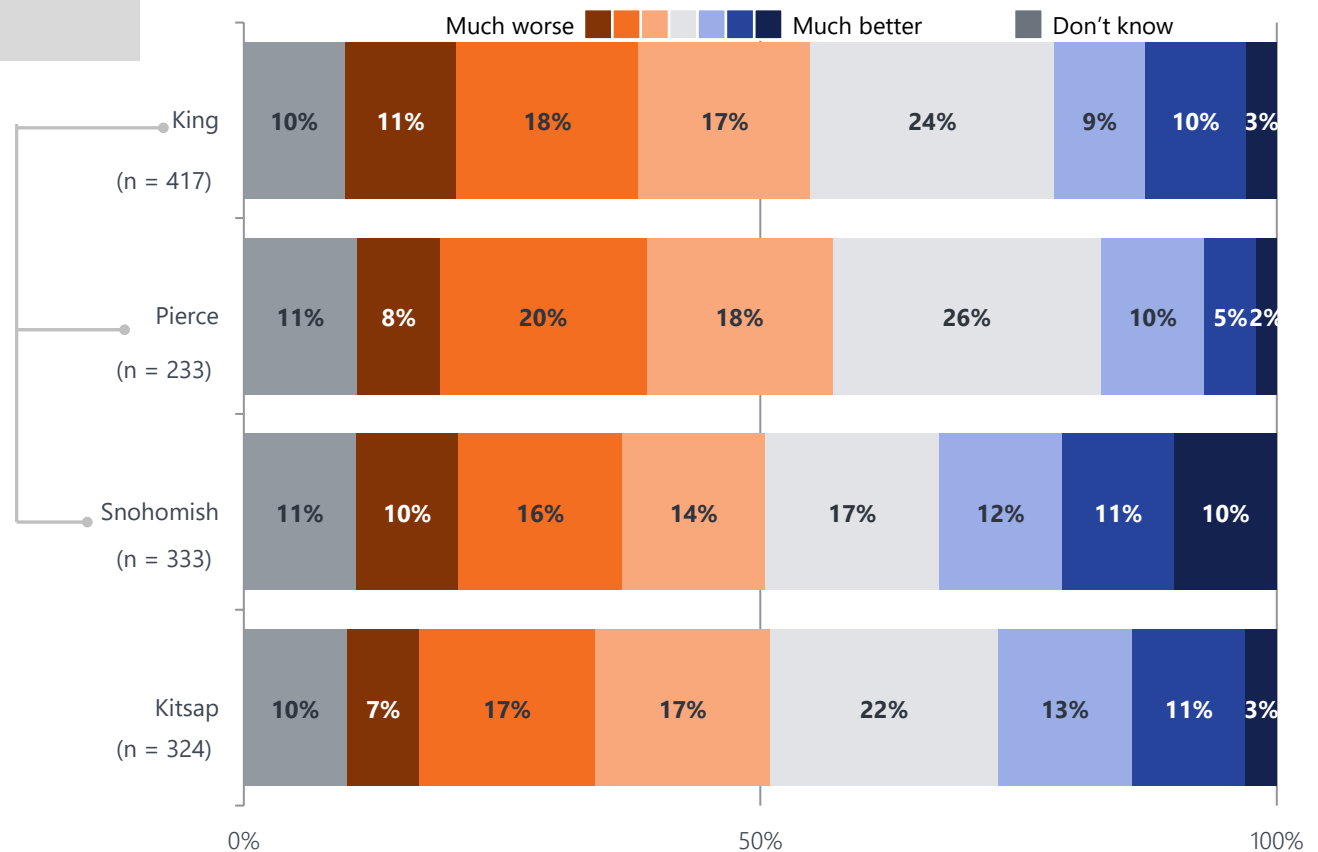
Respondents think **parking availability** has stayed the same (27-36%) or don't know of the changes (22-36%) in the past three years

Correlations
Respondents who think parking availability is getting better tend to:
- Think the aviation system in the area was working well

Differences
Snohomish County residents are more likely to think parking availability has improved compared to King (+5%).

Has parking availability at the airport gotten better, stayed the same, or gotten worse in the last 3 years?
Base: all respondents (n = 1307)

Much worse ▮▮▮▮▮▮ Much better   ▮ Don't know

County	Don't know	Much worse			Same			Much better
King (n = 417)	36%	4%	12%	13%	27%		3%	3%
Pierce (n = 233)	22%	4%	13%	12%	33%		9%	4%
Snohomish (n = 333)	22%	5%	10%	13%	36%		8%	6% 2%
Kitsap (n = 324)	27%	3%	12%	12%	35%		7%	3% 2%

0%   50%   100%

The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

PRR

39
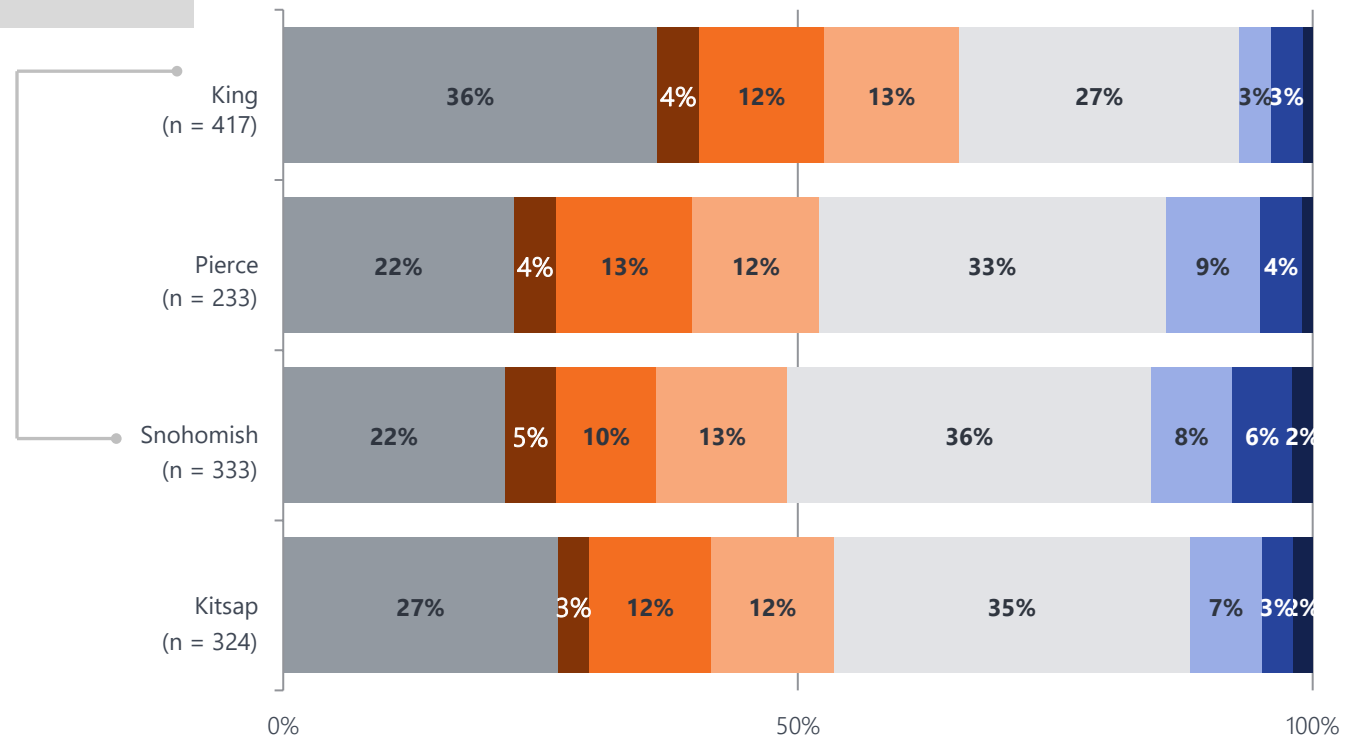
In all counties, respondents think **getting through security lines** has gotten worse in the last 3 years

Has getting through security gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents (n = 1307)

Much worse ▮▮▮▮▮▮ Much better ▮ Don't know

County	Don't know	Much worse						Much better
King (n = 417)	9%	12%	16%	18%	16%	16%	9%	4%
Pierce (n = 233)	9%	9%	15%	18%	18%	15%	12%	4%
Snohomish (n = 333)	13%	10%	15%	15%	19%	13%	11%	4%
Kitsap (n = 324)	10%	10%	15%	13%	20%	17%	11%	3%

0%   50%   100%

PRR

In all counties, respondents think **on-time performance** has stayed the same (44-47%) in the past three years

Has on-time performance gotten better, stayed the same, or gotten worse in the last 3 years?

Base; all respondents. (n = 1307)

Much worse ▮▮▮▮▮ Much better ▮ Don't know

County	Don't know	Much worse			Same		Much better	
King (n = 417)	19%	6%	10%		47%		10%	5%
Pierce (n = 233)	19%	4%	12%		44%		11%	7%
Snohomish (n = 333)	21%	5%	7%		45%		11%	9%	2%
Kitsap (n = 324)	20%	4%	11%		44%		10%	7%	2%

0%   50%   100%
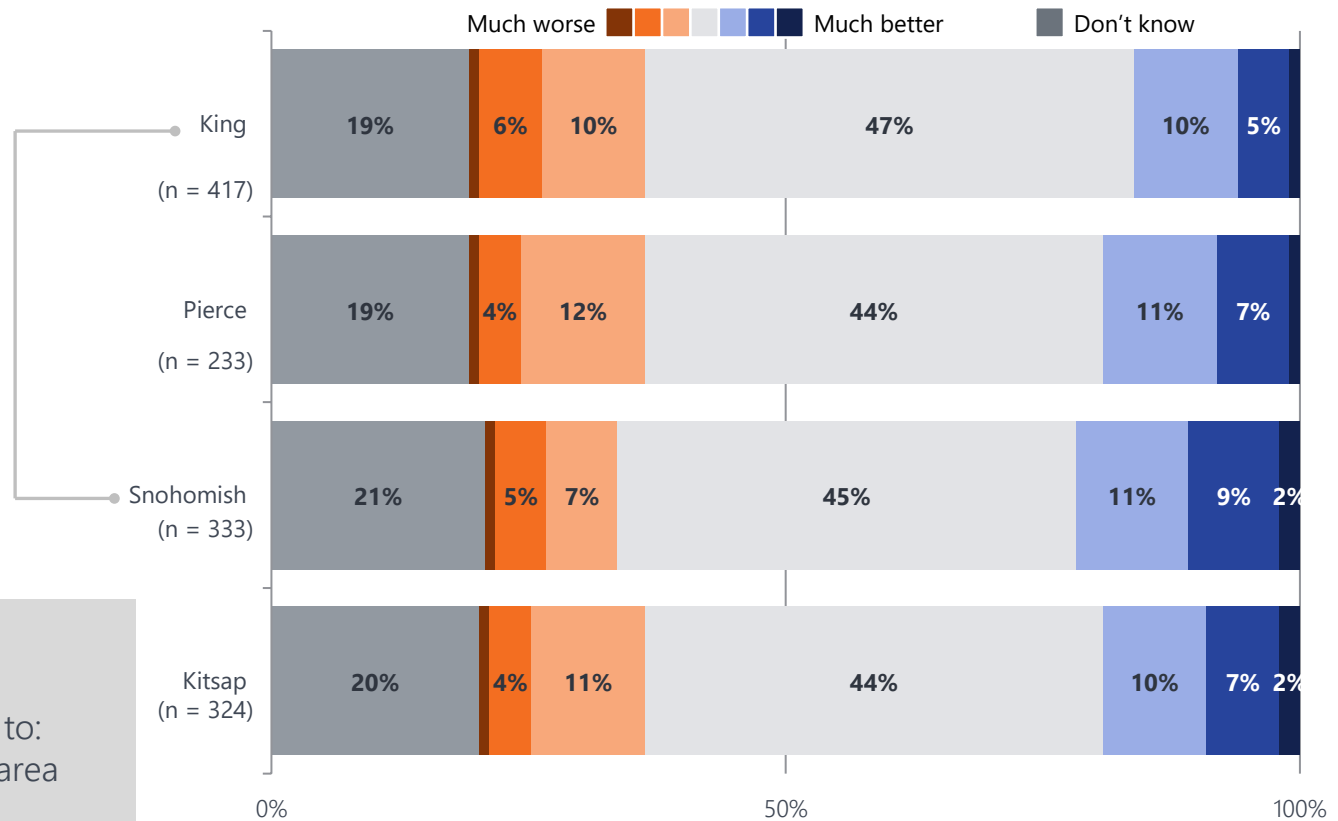
Differences
Snohomish County respondents are more likely to think the on-time performance has improved compared to King (-5%).

Correlations
Respondents who think on-time performance is getting better tend to:
- Think the aviation system in the area was working well

The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

PRR

41

One third of the respondents don't know if **environmental impacts** have gotten worse or better in the past three years

Correlations

Respondents who think environmental impacts have gotten <u>worse</u> tend to:

- Live closer to the airport
- Be female
- Think the aviation system in the area was not working well
- Think it is less important to accommodate growing future demand for passenger aviation service

Differences

King County residents are more likely to think environmental impacts have gotten worse compared to Pierce (-8%) or Kitsap (-6%).

Have the environmental impacts gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents. (n = 1307)

Much worse ▮▮▮▮▮▮ Much better ▮ Don't know

County	Don't know	Much worse					Much better
King (n = 417)	31%	7%	17%	16%	20%	5%	3%
Pierce (n = 233)	35%	3%	12%	8%	26%	11%	4%
Snohomish (n = 333)	29%	7%	14%	12%	26%	7%	5%
Kitsap (n = 324)	30%	5%	14%	11%	23%	13%	4%

0%   50%   100%
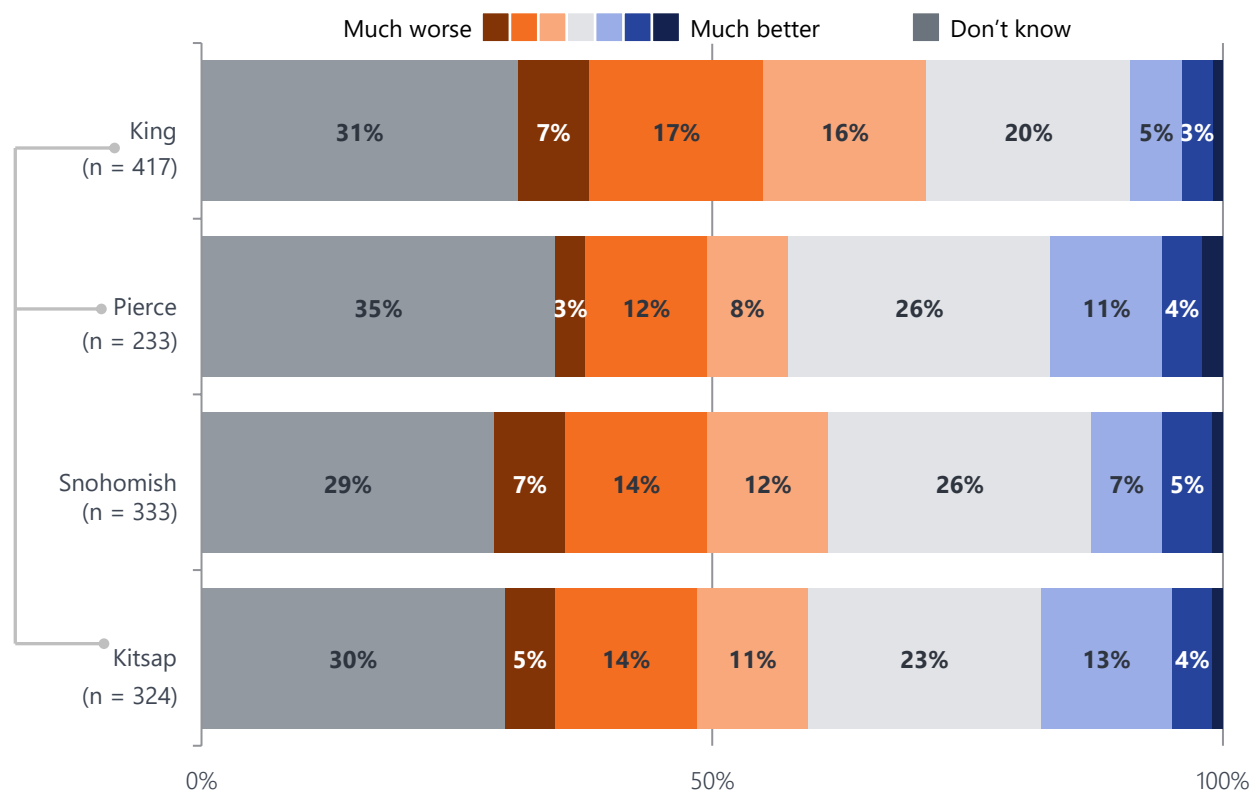
The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

A plurality of respondents think **noise impacts** have stayed the same (30-45%); slightly larger number from Pierce County said it has stayed the same

Correlations

Respondents who think the noise impacts have gotten <u>worse</u> tend to:

- Live closer to the airport
- Think the aviation system in the area was not working well
- Think cost of flying is less important
- Think it is less important to accommodate growing future demand for passenger aviation service

Differences

Pierce County residents are more likely to think noise impacts has stayed the same compared to Snohomish (-7%) or King (-7%).

Has the noise impacts gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents (n = 1307)

Much worse ▮▮▮▯▯▮▮ Much better ▮ Don't know

County	Don't know	Much worse						Much better
King (n = 417)	24%	9%	11%	18%	30%		7%	
Pierce (n = 233)	26%	3%	9%	8%	45%		6%	3%
Snohomish (n = 333)	19%	8%	13%	16%	39%		3%	2%
Kitsap (n = 324)	27%	5%	11%	13%	36%		6%	2%

0%   50%   100%
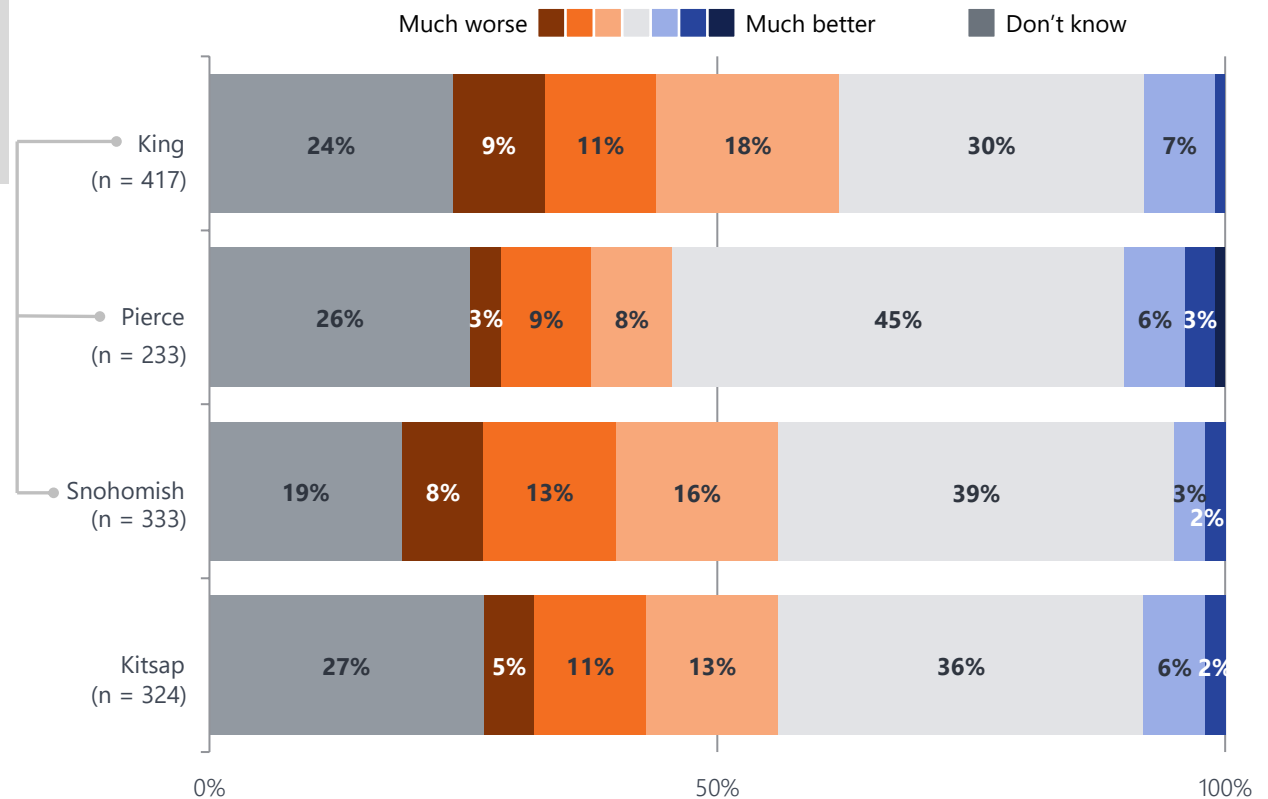
The % differences between counties are based on the average ranking of perception (worse/same/better), scale 1-7

Respondents think **economic benefits** has stayed the same (24-31%), or don't know of the changes (28-39%) in the past three years

Have economic benefits gotten better, stayed the same, or gotten worse in the last 3 years?

Base: all respondents (n = 1307)

Much worse ▮▮▮▮▮▮ Much better ▮ Don't know

Correlations
Respondents who think economic benefits are getting better tend to:
- Think the aviation system in the area was working well

King
(n = 417): 39% | 3% | 10% | 24% | 11% | 9% | 3%

Pierce
(n = 233): 29% | 6% | 11% | 28% | 12% | 11% | 3%

Snohomish
(n = 333): 28% | 2% | 5% | 7% | 24% | 15% | 17% | 2%

Kitsap
(n = 324): 34% | 2% | 4% | 6% | 31% | 14% | 7% | 3%

0%   50%   100%
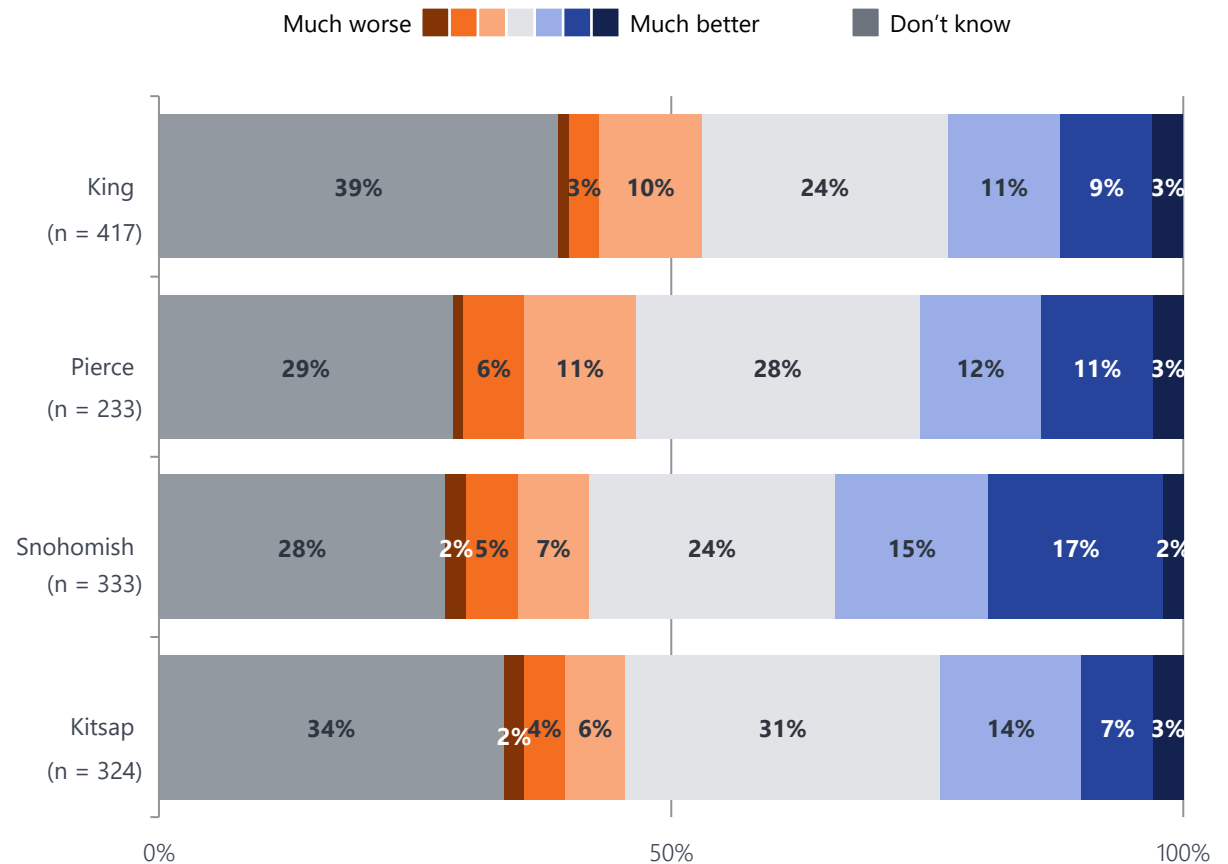
Differences between perceived importance and perceptions of worse/same/better

How to read the following pages

Purpose of the analyses:

The following pages present ratings of the **importance** of specific aspects of the regional aviation system compared to **perceptions of whether those aspects have gotten worse, stayed the same, or got better** over the last three years. This comparison identifies those aspects where there are the biggest differences between importance and perceived performance. Aspects that are more important and which also are perceived as getting worse indicate areas for special attention.

Note:
- The original questions include "Don't know" responses but we removed them from the analysis.
- We only present the statistically significant differences between importance and perception (see orange circle).

Among Kitsap County residents, the greatest differences between importance and perceived performance are related to **cost of flying** and **access to airports**

Descriptive title, main takeaway

Average importance score: a higher score indicates people rating this feature as more important (scale of 1-7)

Average perception score: a higher score indicates the feature is perceived to have improved in the past three years; the score<=3 indicates the feature is perceived to have gotten worse (scale of 1-7)

Comparing perception (worse/same/better) and relative importance of planning options.
Base: all respondents (n= 324)

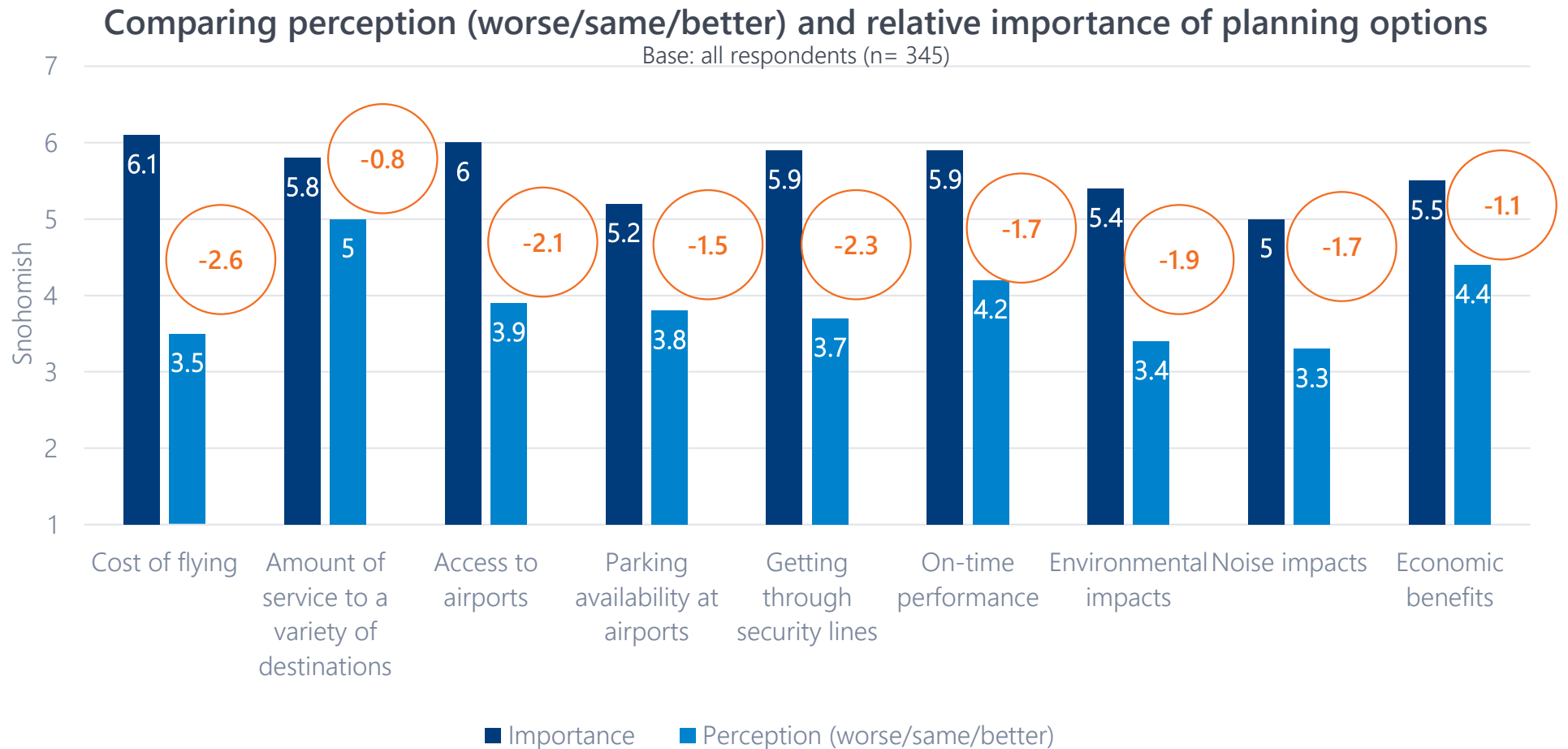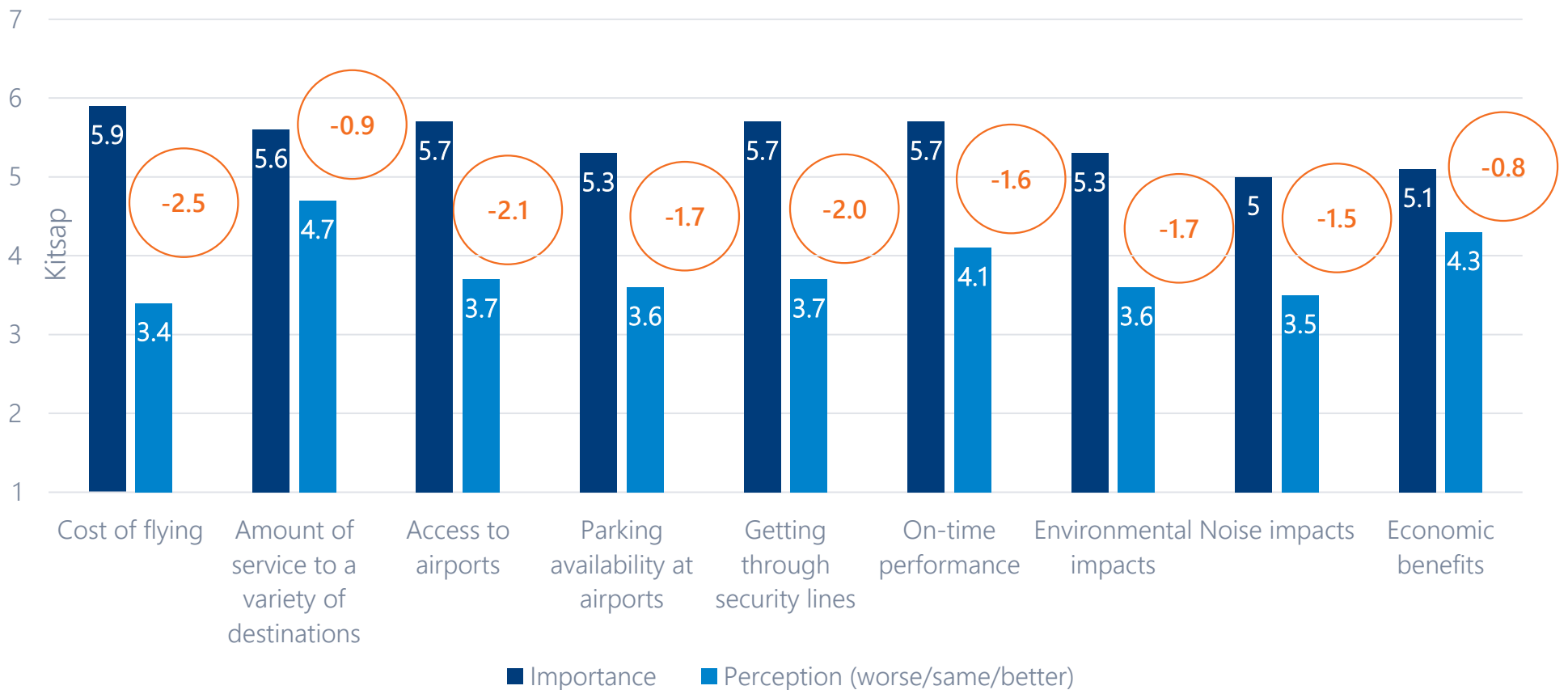| Feature	Importance	Perception	Difference
Cost of flying	5.9	3.4	-2.5
Amount of service to a variety of destinations	5.6	4.7	-0.9
Access to airports	5.7	3.7	-2.1
Parking availability at airports	5.3	3.6	-1.7
Getting through security lines	5.7	3.7	-2.0
On-time performance	5.7	4.1	-1.6
Environmental impacts	5.3	3.6	-1.7
Noise impacts	5	3.5	-1.5
Economic benefits	5.1	4.3	-0.8

■ Importance ■ Perception (worse/same/better)

The reported differences between perception and importance are statistically significant

The difference indicates the average differences between importance and perception (worse/same/better)

PRR

46

Across the four-county region, the issues where the public most sees importance as high but performance as low are **cost of flying, getting through security lines, and access to airports**

King	Pierce	Snohomish	Kitsap
1. Environmental impacts 2. Getting through security lines 3. Access to airports & Cost of flying (tied between the two features)	1. Cost of flying 2. Access to airports 3. Getting through security lines	1. Cost of flying 2. Getting through security lines 3. Access to airports	1. Cost of flying 2. Access to airports 3. Getting through security lines

We selected the top-ranking features based the difference between perceived importance and perception (worse/same/better). The differences within the top-ranking features are small (between 0.1-0.5).

- Three of the most significant differences between importance and perceived performance across all four counties are identical – cost of flying, getting through security lines, and access to airports. For King County the greatest difference between importance and perceived performance involves environmental impacts.

Among King County residents, the greatest differences between importance and perceived performance are related to **environmental impacts** and **getting through security lines**

Comparing perception (worse/same/better) and relative importance of planning options
Base: all respondents (n= 418)

Y-axis label: King

Category	Importance	Perception	Difference
Cost of flying	5.7	3.5	-2.2
Amount of service to a variety of destinations	5.8	4.8	-0.9
Access to airports	5.7	3.5	-2.2
Parking availability at airports	5	3.4	-1.5
Getting through security lines	5.9	3.5	-2.3
On-time performance	5.7	4	-1.8
Environmental impacts	5.7	3.2	-2.5
Noise impacts	5.1	3.2	-1.9
Economic benefits	5.1	4.3	-0.8

■ Importance   ■ Perception (worse/same/better)

The reported differences between perception and importance are statistically significant

PRR

48

Among Pierce County residents, the greatest differences between importance and perceived performance are related to **cost of flying** and **access to airports**

Comparing perception (worse/same/better) and relative importance of planning options

Base: all respondents (n= 233)
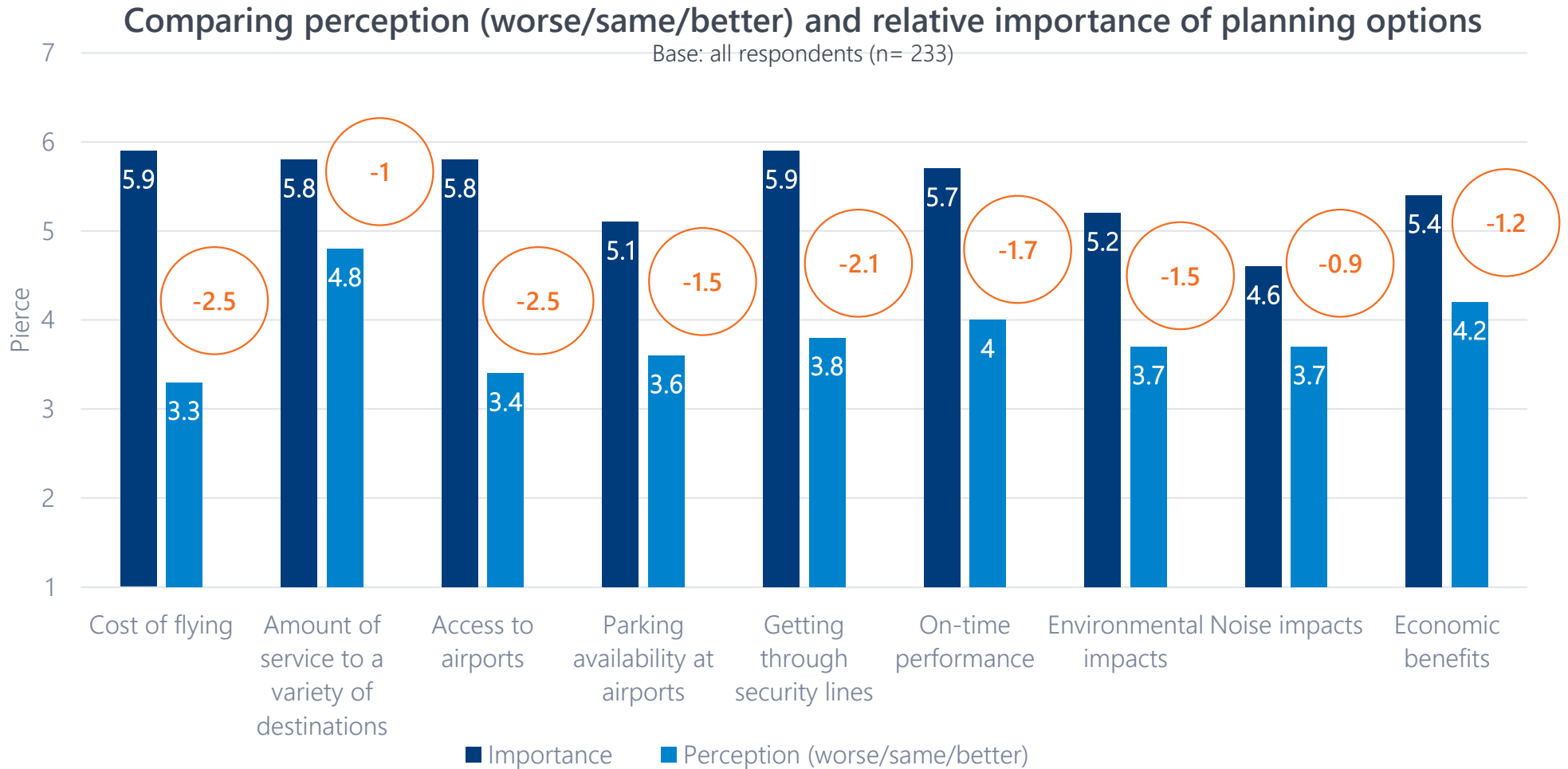
The reported differences between perception and importance are statistically significant

Among Snohomish County residents, the greatest differences between importance and perceived performance are related to **cost of flying** and **getting through security lines**

Comparing perception (worse/same/better) and relative importance of planning options

Base: all respondents (n= 345)

Category	Importance	Perception	Difference
Cost of flying	6.1	3.5	-2.6
Amount of service to a variety of destinations	5.8	5	-0.8
Access to airports	6	3.9	-2.1
Parking availability at airports	5.2	3.8	-1.5
Getting through security lines	5.9	3.7	-2.3
On-time performance	5.9	4.2	-1.7
Environmental impacts	5.4	3.4	-1.9
Noise impacts	5	3.3	-1.7
Economic benefits	5.5	4.4	-1.1

■ Importance ■ Perception (worse/same/better)

The reported differences between perception and importance are statistically significant

Among Kitsap County residents, the greatest differences between importance and perceived performance are related to **cost of flying** and **access to airports**

Comparing perception (worse/same/better) and relative importance of planning options.
Base: all respondents (n= 324)

Kitsap

	Cost of flying	Amount of service to a variety of destinations	Access to airports	Parking availability at airports	Getting through security lines	On-time performance	Environmental impacts	Noise impacts	Economic benefits
Importance	5.9	5.6	5.7	5.3	5.7	5.7	5.3	5	5.1
Perception (worse/same/better)	3.4	4.7	3.7	3.6	3.7	4.1	3.6	3.5	4.3
Difference	-2.5	-0.9	-2.1	-1.7	-2.0	-1.6	-1.7	-1.5	-0.8

■ Importance ■ Perception (worse/same/better)

The reported differences between perception and importance are statistically significant

PRR

51

Seven aviation feature trade-offs

Increasing passenger airline service is more important to people than no increase to aviation impacts

Which is more important to you?
Base: all respondents (n = 1303)

- No increase to aviation's impacts to surrounding communities
- Increase passenger airline service at Sea-Tac Airport and other airports in the region

County	No increase	Increase
King (n = 412)	30%	70%
Pierce (n = 229)	22%	78%
Snohomish (n = 342)	27%	73%
Kitsap (n = 320)	26%	74%

0%   50%   100%

PRR

53
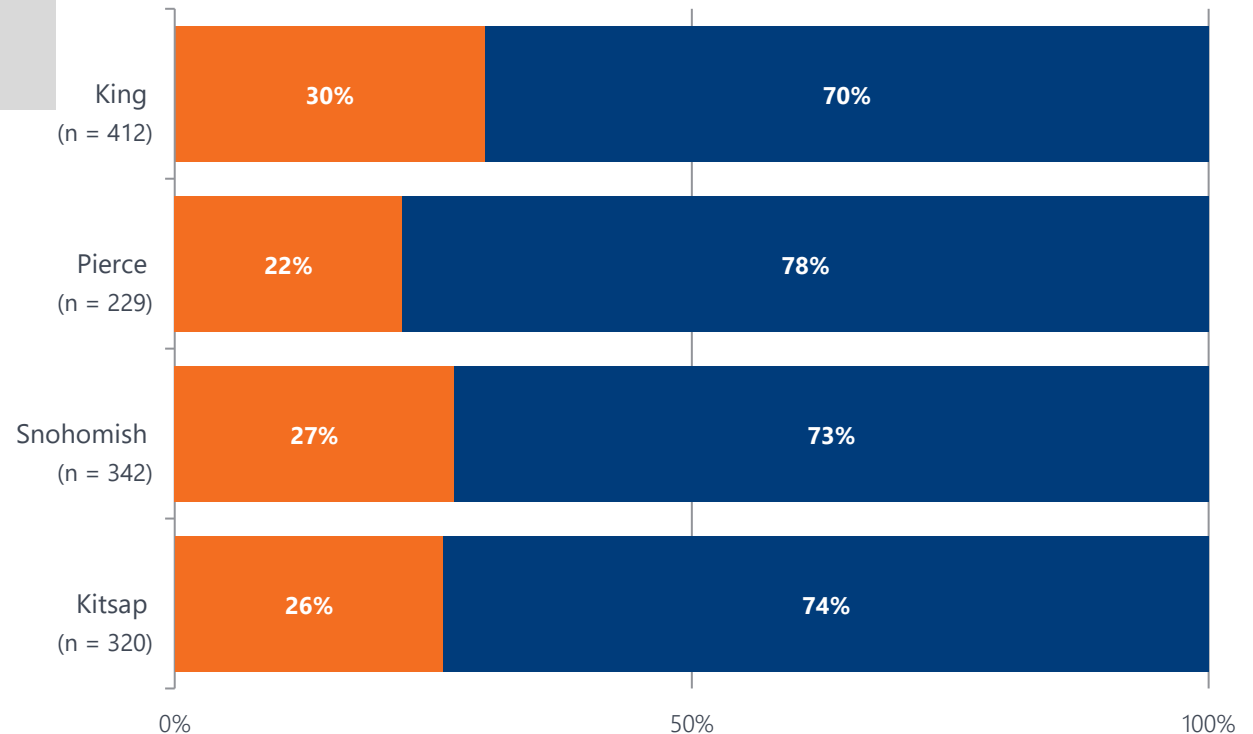
Overall, the region is split between **aircraft noise/greenhouse gas emissions** and **increasing economic benefits** (with King County somewhat less so)

Correlations

Respondents who prefer increasing airport economic benefits over preventing aircraft noise levels and aircraft greenhouse gas emissions tend to:

- Be male
- Think it is more important to accommodate growing future demand for passenger aviation service

Differences

King County residents are more likely to support preventing aircraft noise and greenhouse gas emissions compared to Pierce (-18%), Snohomish (-14%), or Kitsap (-12%).

Which is more important to you?

Base: all respondents (n = 1304)

- No increase in aircraft noise levels and aircraft greenhouse gas emissions
- Increase in airport economic benefits and job growth

County	No increase in aircraft noise levels and aircraft greenhouse gas emissions	Increase in airport economic benefits and job growth
King (n = 413)	62%	38%
Pierce (n = 231)	44%	56%
Snohomish (n = 340)	48%	52%
Kitsap (n = 320)	51%	49%

The % differences among counties indicate the actual proportion differences within trade-off .

PRR

54
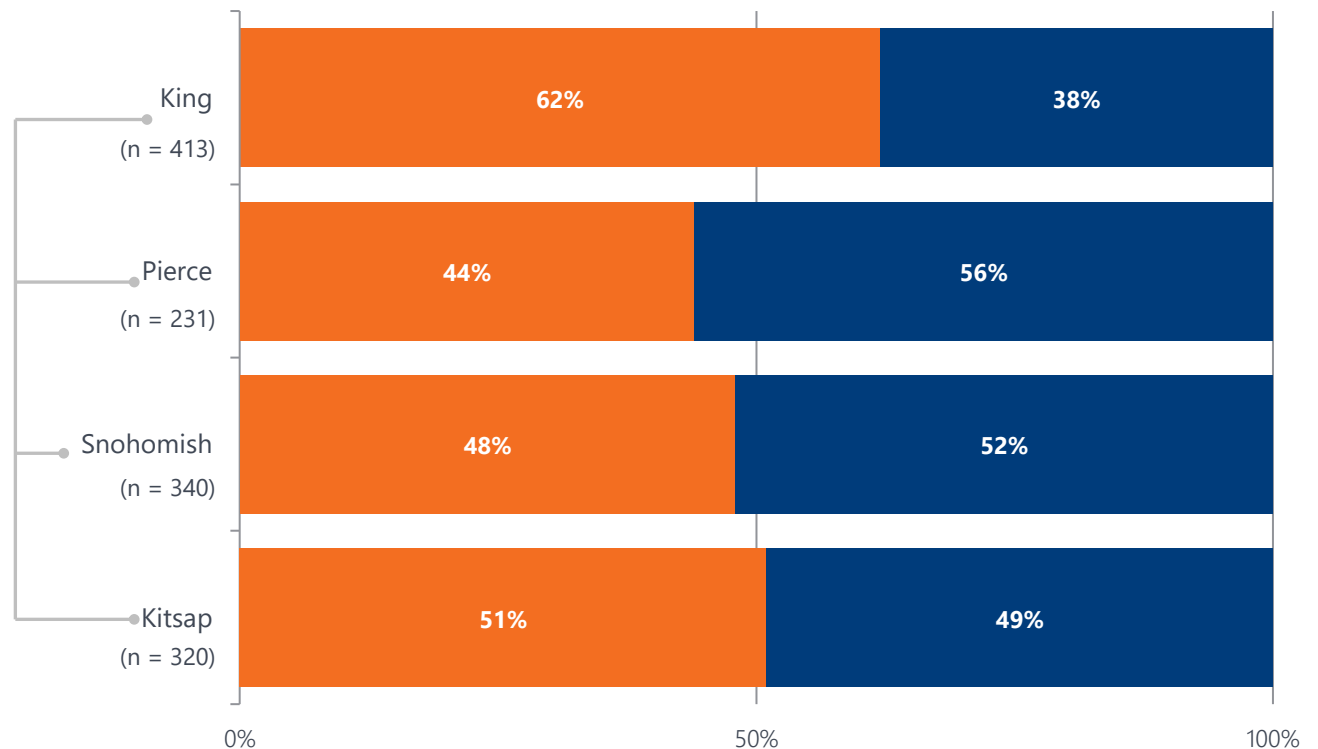
73-85% of respondents think it is more important to **improve transportation options to airports** than increase parking capacity

Which is more important to you?
Base: all respondents n= (1311)

- 🟧 Increase parking capacity at airports
- 🟦 Improve transportation options to airports
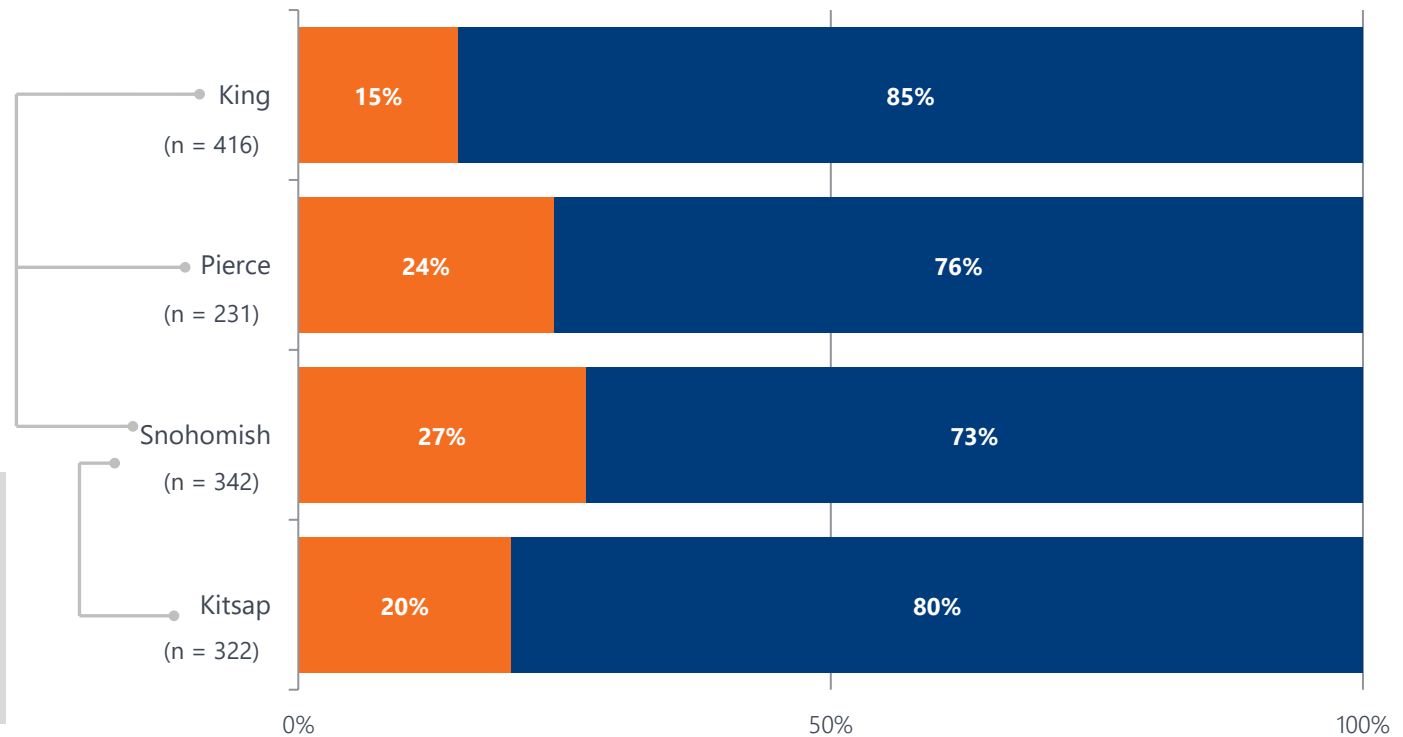
King (n = 416): 15% | 85%

Pierce (n = 231): 24% | 76%

Snohomish (n = 342): 27% | 73%

Kitsap (n = 322): 20% | 80%

0%   50%   100%

The % differences between counties indicate the actual proportion differences within trade-off

57%-67% of respondents think it is more important to **accommodate passenger service at existing airports** than at a brand-new airport

Which is more important to you?
Base: all respondents n= (1302)

■ Accommodate additional passenger service at a brand-new airport in the region
■ Accommodate additional passenger service at existing airports in the region
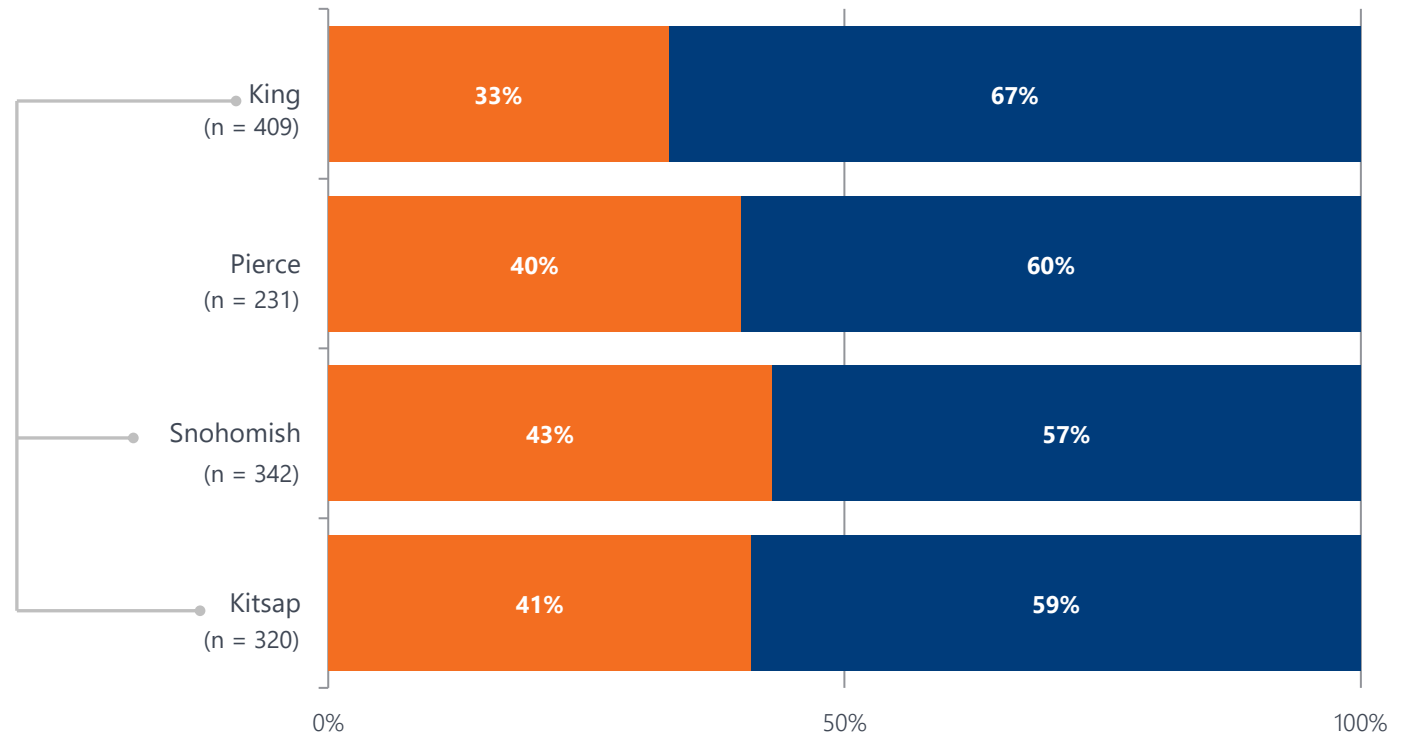
Differences
King County residents were more likely to support accommodating additional passenger service at existing airports compared to Snohomish (-10%) or Kitsap (-8%).

County	Brand-new	Existing
King (n = 409)	33%	67%
Pierce (n = 231)	40%	60%
Snohomish (n = 342)	43%	57%
Kitsap (n = 320)	41%	59%

0%   50%   100%

The % differences among counties indicate the actual proportion differences within trade-off .

PRR

In all four counties, **distributing environmental and noise impacts around several airports** is more important than consolidating impacts around one airport

Which is more important to you?

Base: all respondents n= (1302)

- 🟧 Consolidate environmental and noise impacts around one airport
- 🟦 Distribute environmental and noise impacts around several airports in the region

	Consolidate	Distribute
King (n = 412)	33%	67%
Pierce (n = 231)	30%	70%
Snohomish (n = 341)	29%	71%
Kitsap (n = 318)	33%	67%

0%   50%   100%

There are no statistically significant relationships to report.

PRR
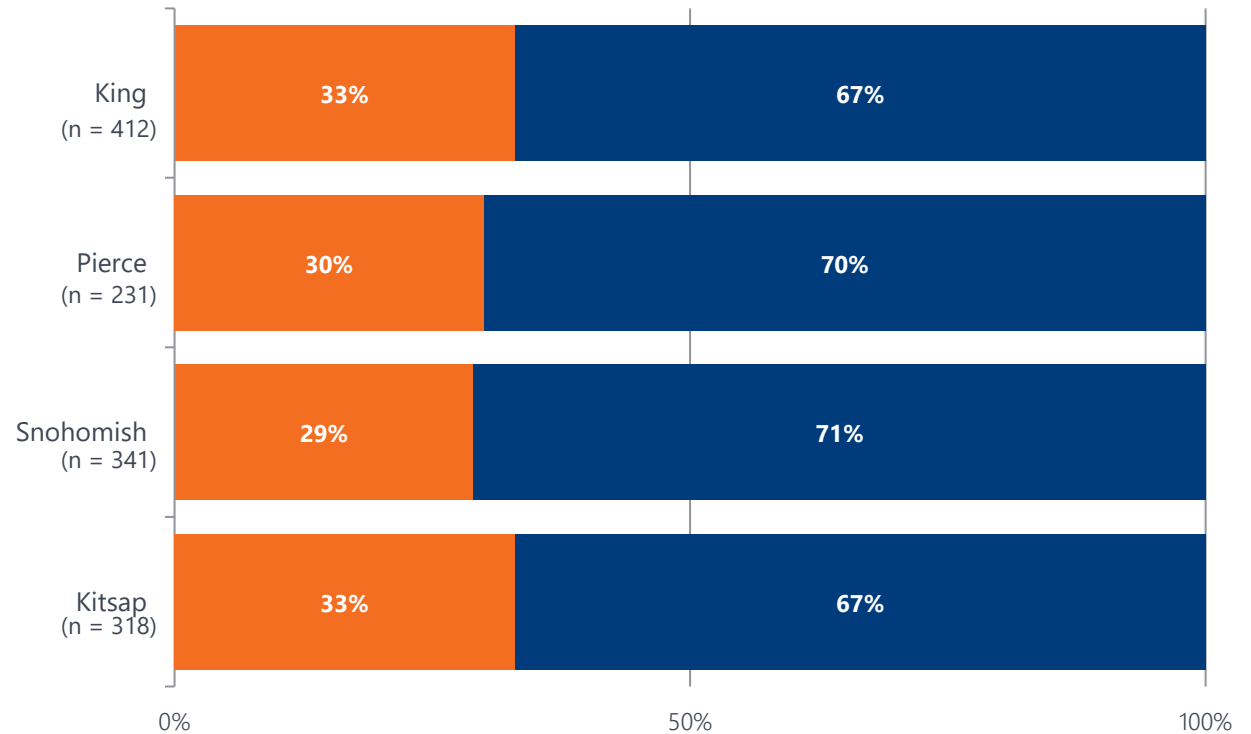
Respondents are divided on **expanding passenger service capacity** in the aviation system or **investing in a high-speed rail** as an alternative to flying

Correlations

Respondents who prefer to invest in high speed rail tend to:

- Think environmental impacts are more important
- Think environmental impact are worsening
- Think noise impacts are worsening

Which is more important to you?

Base: all respondents n= (1304)

- ■ Increase passenger service capacity at Sea-Tac airport and other airports in the region
- ■ Invest in high speed rail to provide an alternative to flying

County	Increase passenger service capacity	Invest in high speed rail
King (n = 411)	45%	55%
Pierce (n = 231)	54%	46%
Snohomish (n = 342)	53%	47%
Kitsap (n = 320)	53%	47%

0%   50%   100%
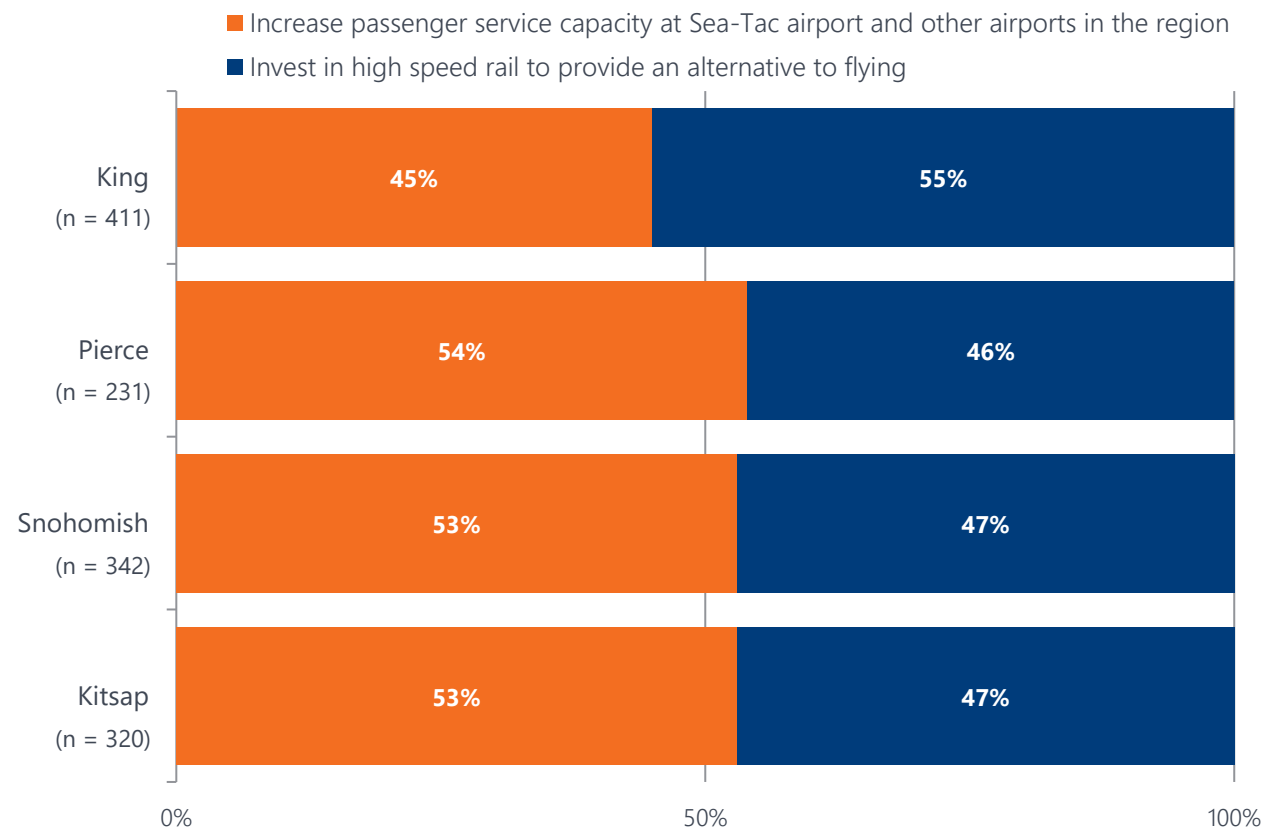
Increasing passenger service capacity at other regional airports is more important to people than increasing capacity at Sea-Tac; Snohomish respondents are more enthusiastic about this than other counties

Which is more important to you?

Base: all respondents n= (1305)

- ■ Increase passenger service capacity at Sea-Tac
- ■ Increase passenger service capacity at other regional airports
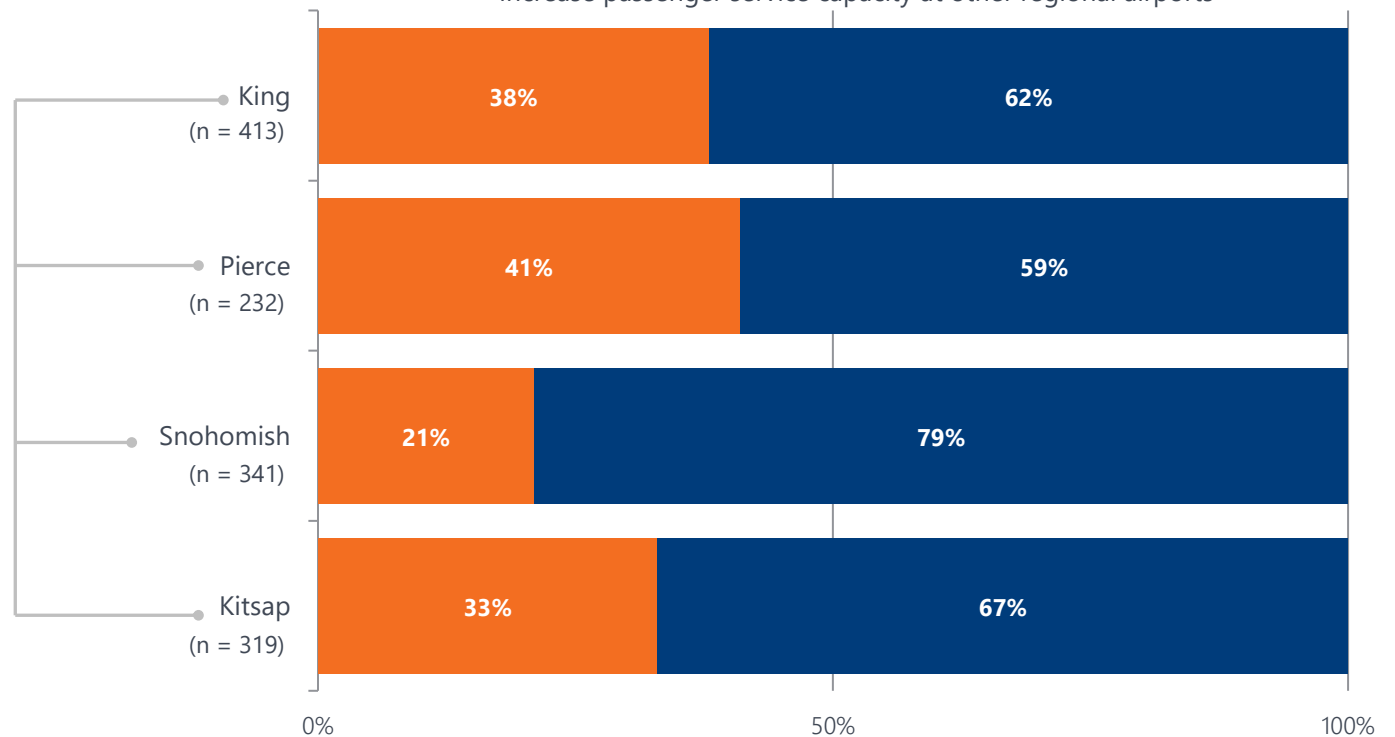
Differences

Snohomish County residents were more likely to support increasing passenger service capacity at other regional airports compared to King (-16), Snohomish (-19%) or Kitsap (-12%).

County	Sea-Tac	Other regional airports
King (n = 413)	38%	62%
Pierce (n = 232)	41%	59%
Snohomish (n = 341)	21%	79%
Kitsap (n = 319)	33%	67%

0%   50%   100%

- The % differences among counties indicate the actual proportion differences within trade-off .
- Paine Field in Snohomish newly opened for passenger service

PRR

Appendices

Appendix A: Demographics comparison between Census and survey

	King		Pierce		Snohomish		Kitsap	
	Census	Survey	Census	Survey	Census	Survey	Census	Survey
Male	50%	55%	50%	53%	50%	54%	51%	58%
Female	50%	44%	50%	45%	50%	46%	49%	41%
18-24	10%	3%	12%	3%	10%	1%	12%	1%
25-34	23%	13%	20%	11%	19%	12%	18%	8%
35-44	19%	17%	18%	17%	18%	14%	15%	12%
45-54	16%	18%	16%	19%	18%	19%	15%	13%
55-64	15%	24%	16%	22%	17%	24%	17%	30%
65-74	10%	18%	11%	21%	11%	24%	14%	26%
75+	7%	7%	7%	8%	7%	7%	8%	12%
American Indian or Alaska Native	2%	1%	3%	1%	3%	3%	3%	2%
Asian or Asian American	22%	13%	10%	6%	14%	9%	9%	4%
Black or African American	8%	3%	10%	3%	5%	1%	4%	2%
Native Hawaiian or Pacific Islander	1%	1%	3%	0%	1%	1%	2%	0%
White	69%	78%	80%	83%	80%	84%	88%	88%
Race(s) not listed here	5%	6%	3%	5%	4%	2%	3%	5%
Latinx - Yes	10%	9%	11%	7%	10%	4%	8%	7%
Less than $15,000	7%	2%	6%	3%	6%	2%	7%	1%
$15,00 to $24,999	5%	1%	6%	3%	5%	3%	6%	4%
$25,000 to $49,999	14%	11%	19%	15%	15%	8%	18%	10%
$50,000 to $74,999	14%	10%	18%	18%	17%	15%	17%	14%
$75,000 to $99,999	12%	16%	15%	14%	14%	21%	15%	23%
$100,000 to $149,999	19%	18%	20%	26%	23%	23%	20%	24%
$150,000 to $199,999	12%	18%	9%	12%	10%	13%	8%	12%
200,000 or more	17%	24%	7%	9%	10%	14%	9%	13%

The highlighted cells indicate the differences between census and survey are >9%

PRR

Appendix A Survey respondent demographics in **King County**
Part 1

Gender (n = 406)

Male	55%
Female	44%
Gender(s) not listed	1%

Income (n = 398)

Less than $15,000	2%
$15,00 to $24,999	1%
$25,000 to $49,999	11%
$50,000 to $74,999	10%
$75,000 to $99,999	16%
$100,000 to $149,999	18%
$150,000 to $199,999	18%
$200,000 to $250,000	11%
More than $250,000	14%

Ethnicity (n = 411)

Hispanic, Latinx, or Spanish origin	9%

Race (n = 402)

White	82%
Asian or Asian American	14%
Black or African American	3%
American Indian or Alaska Native	1%
Native Hawaiian or Pacific Islander	1%
Race(s) not listed	3%

Age (n = 417)

18-24	3%
25-34	13%
35-44	17%
45-54	18%
55-64	24%
65-74	18%
75+	7%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
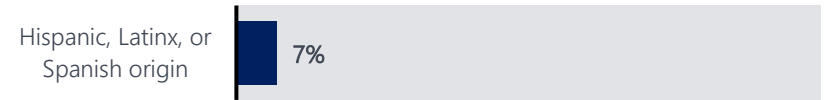- *Appendix A (page 64) shows demographics comparison between census and survey*

PRR

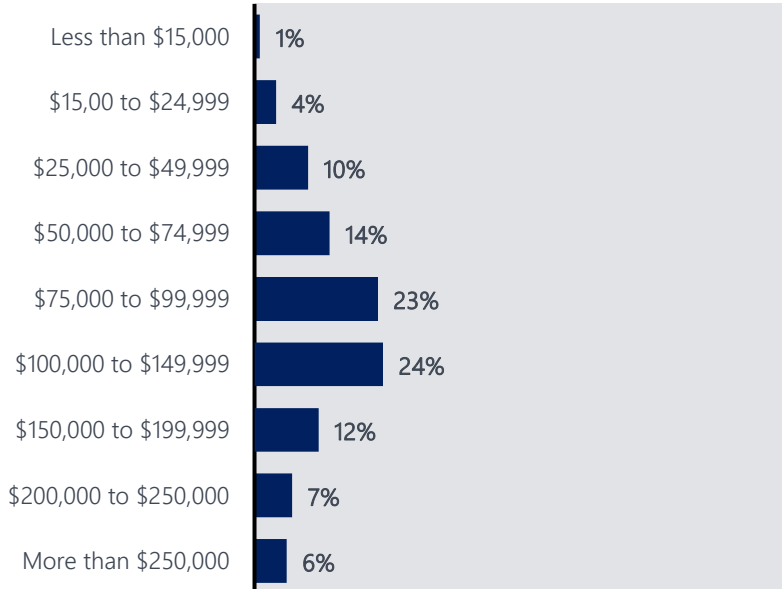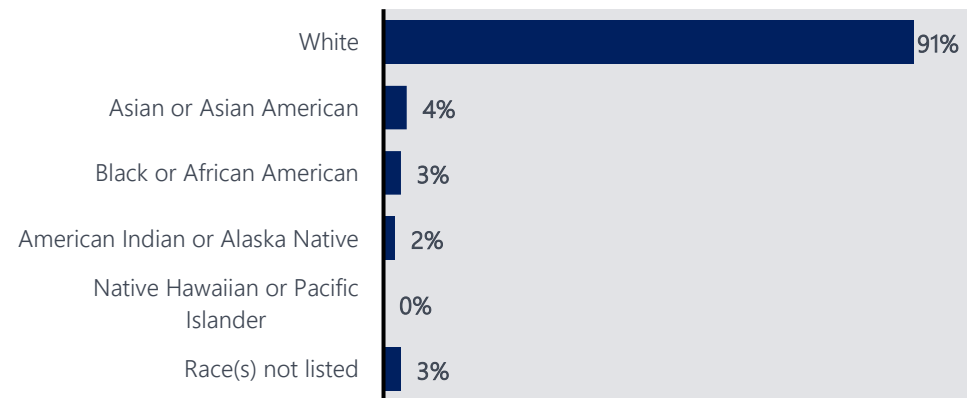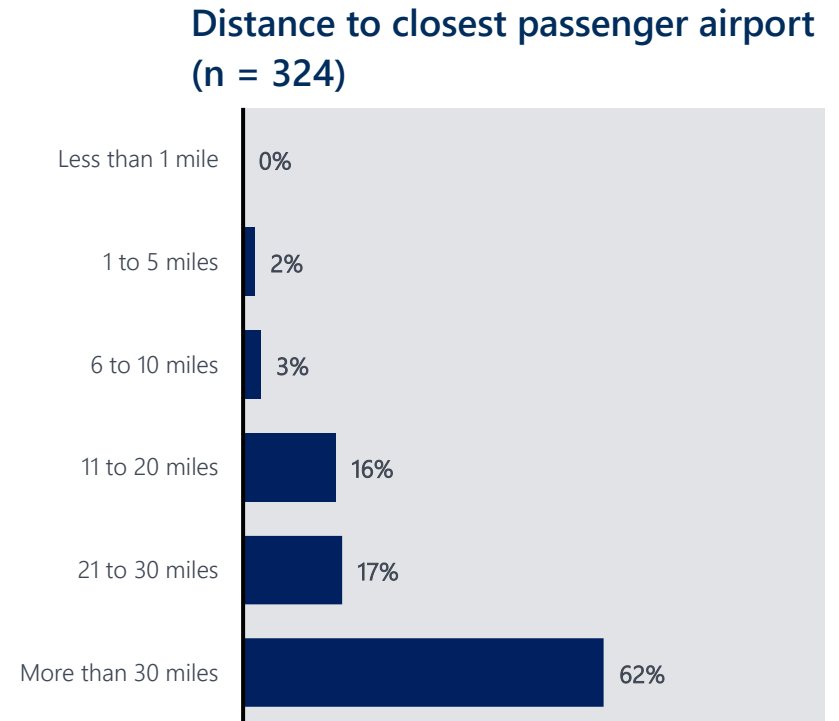# Appendix A: Survey respondent demographics in **King County**
Part 2

Community

Suburban	50%
Urban	44%
Rural	6%

Distance to closest passenger airport

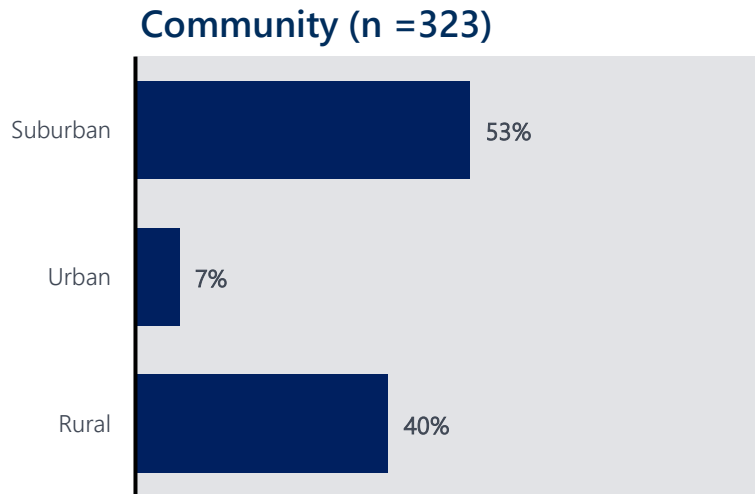|	
Less than 1 mile	0%
1 to 5 miles	7%
6 to 10 miles	20%
11 to 20 miles	47%
21 to 30 miles	21%
More than 30 miles	5%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
- *Appendix A (page 64) shows demographics comparison between census and survey*

PRR
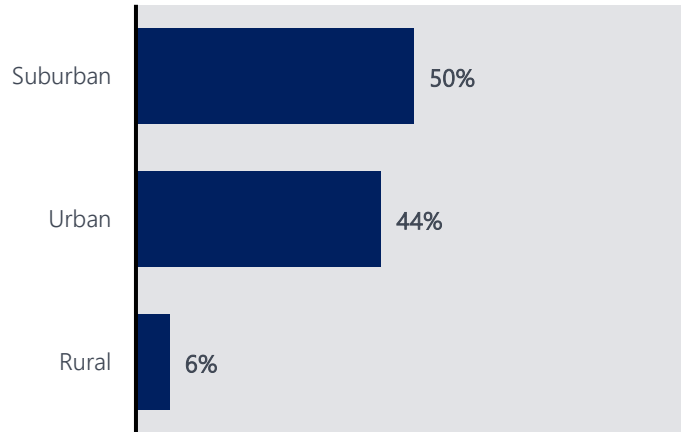
Appendix A: Survey respondent demographics in **Pierce County**
Part 1

Gender (n = 231)
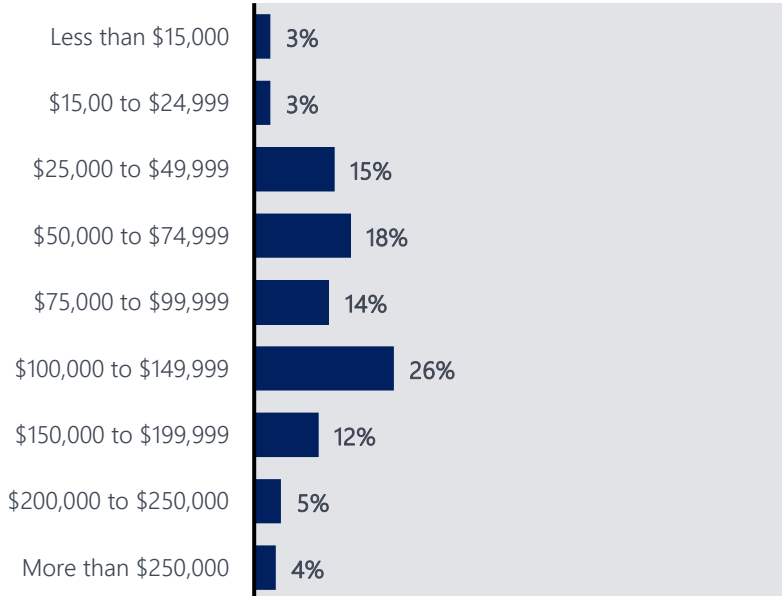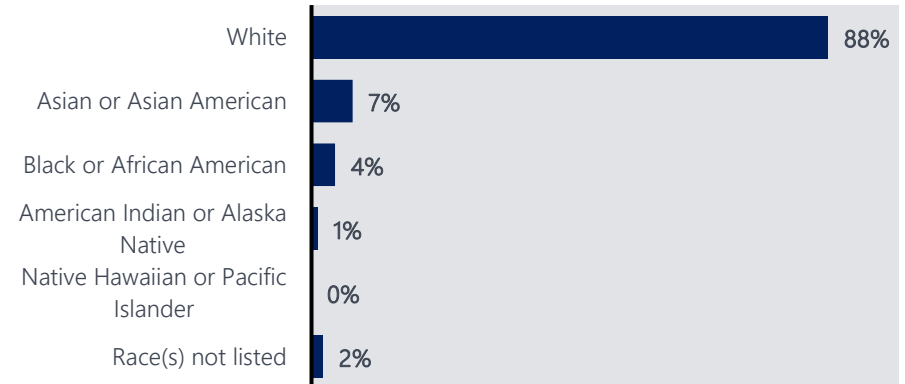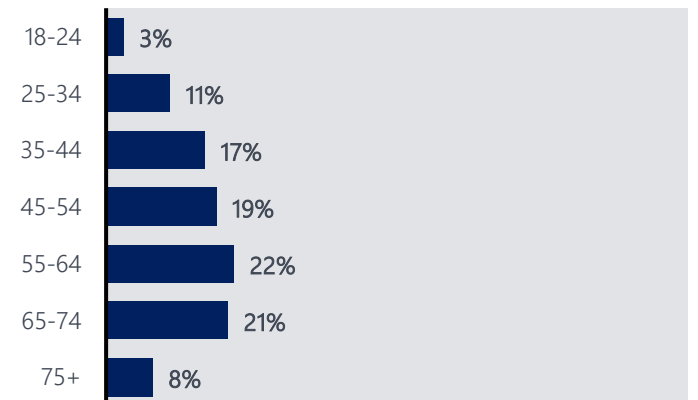
Male	53%
Female	45%
Gender(s) not listed	1%

Income (n = 226)

Less than $15,000	3%
$15,00 to $24,999	3%
$25,000 to $49,999	15%
$50,000 to $74,999	18%
$75,000 to $99,999	14%
$100,000 to $149,999	26%
$150,000 to $199,999	12%
$200,000 to $250,000	5%
More than $250,000	4%

Ethnicity (n = 229)

Hispanic, Latinx, or Spanish origin	7%

Race (n = 226)

White	88%
Asian or Asian American	7%
Black or African American	4%
American Indian or Alaska Native	1%
Native Hawaiian or Pacific Islander	0%
Race(s) not listed	2%

Age (n =233)

18-24	3%
25-34	11%
35-44	17%
45-54	19%
55-64	22%
65-74	21%
75+	8%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
- *Appendix A (page 64) shows demographics comparison between census and survey*

Appendix A: Survey respondent demographics in **Pierce County**
Part 2

Community (n = 232)

Suburban	61%
Urban	27%
Rural	12%

Distance to closest passenger airport (n = 231)

Less than 1 mile	0%
1 to 5 miles	0%
6 to 10 miles	3%
11 to 20 miles	20%
21 to 30 miles	45%
More than 30 miles	31%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*

- *Appendix A (page 64) shows demographics comparison between census and survey*

PRR
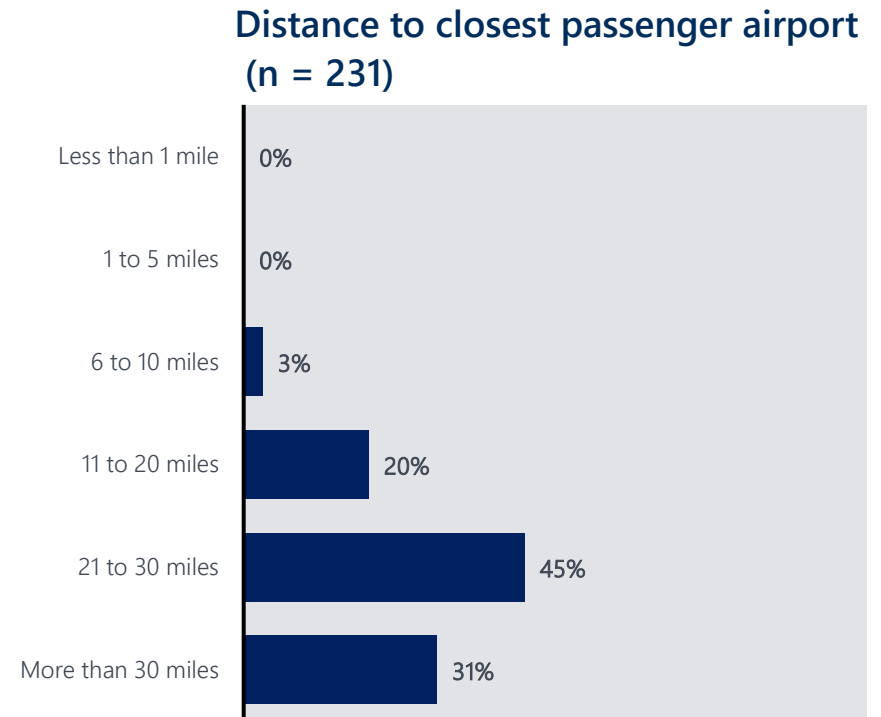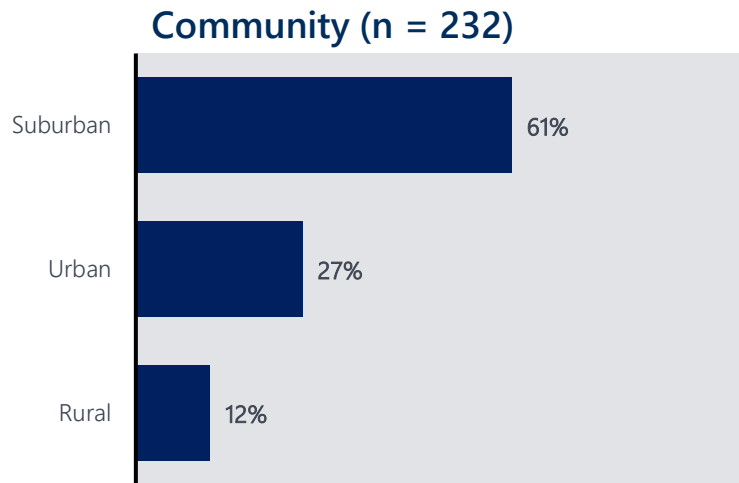
Appendix A: Survey respondent demographics in **Snohomish County**
Part 1

Gender (n = 336)
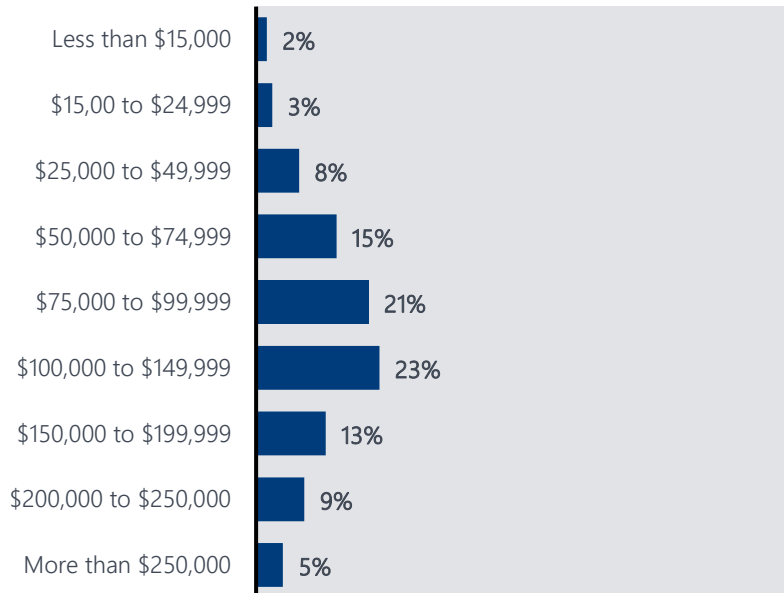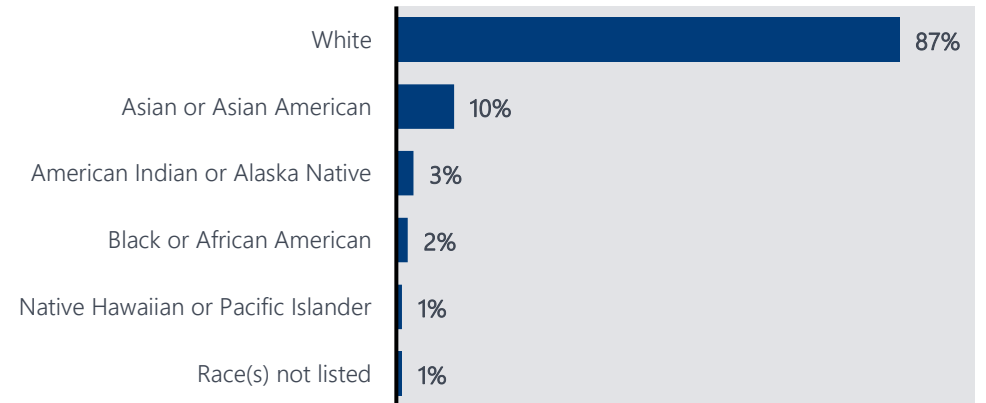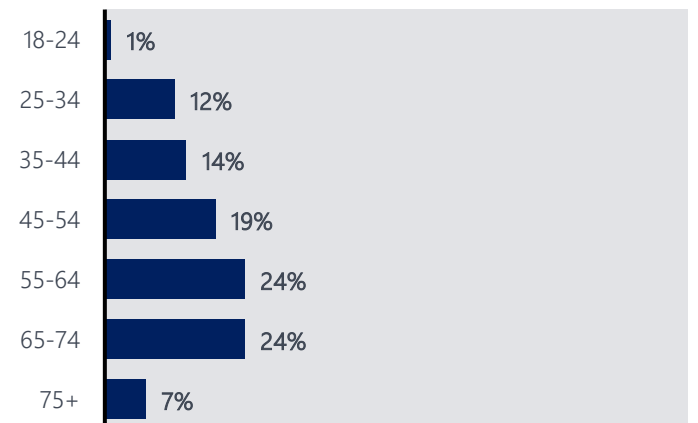
Male	54%
Female	46%
Gender(s) not listed	1%

Income (n = 330)

Less than $15,000	2%
$15,00 to $24,999	3%
$25,000 to $49,999	8%
$50,000 to $74,999	15%
$75,000 to $99,999	21%
$100,000 to $149,999	23%
$150,000 to $199,999	13%
$200,000 to $250,000	9%
More than $250,000	5%

Ethnicity (n = 318)

Hispanic, Latinx, or Spanish origin	4%

Race (n = 318)

White	87%
Asian or Asian American	10%
American Indian or Alaska Native	3%
Black or African American	2%
Native Hawaiian or Pacific Islander	1%
Race(s) not listed	1%

Age (n = 323)

18-24	1%
25-34	12%
35-44	14%
45-54	19%
55-64	24%
65-74	24%
75+	7%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
- *Appendix A (page 64) shows demographics comparison between census and survey*

PRR

Appendix A: Survey respondent demographics in **Snohomish County**
Part 2

Community (n = 323)

Community	Percentage
Suburban	61%
Urban	27%
Rural	12%

Distance to closest passenger airport (n = 324)

Distance	Percentage
Less than 1 mile	2%
1 to 5 miles	21%
6 to 10 miles	29%
11 to 20 miles	31%
21 to 30 miles	12%
More than 30 miles	6%
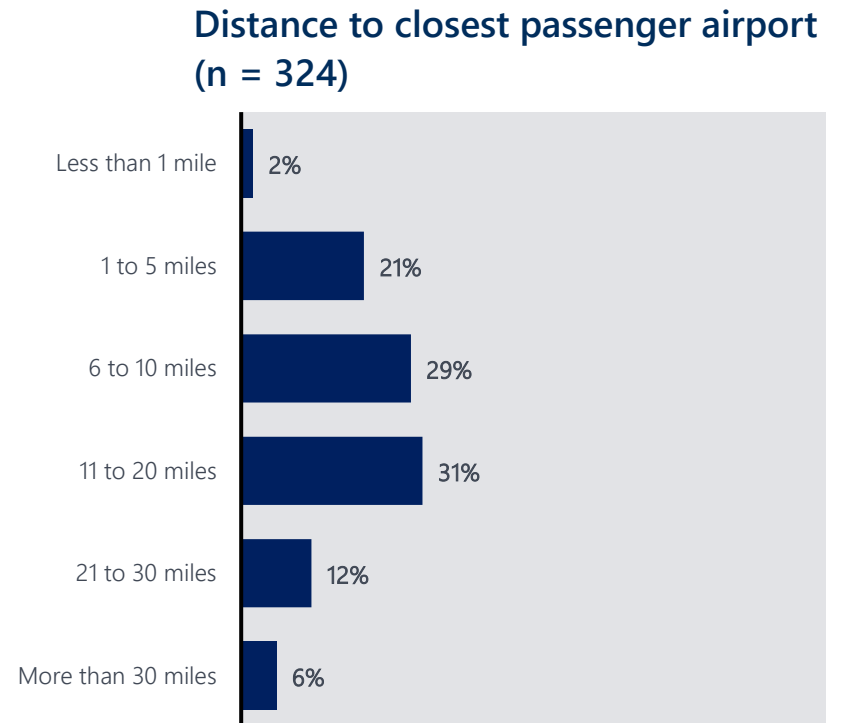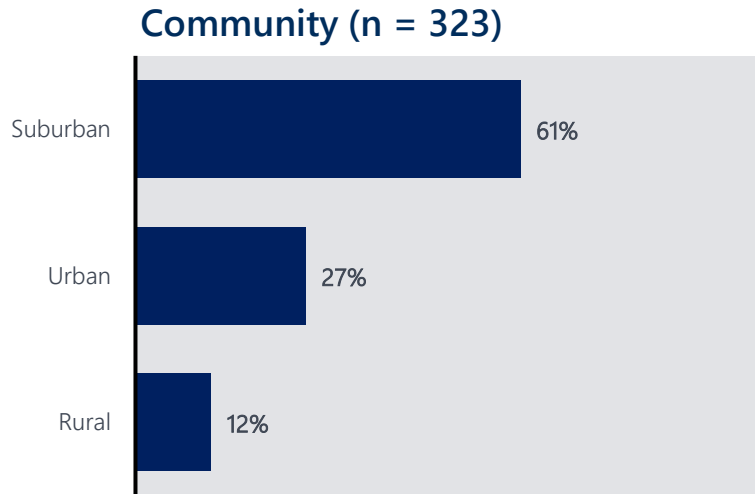
- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*

- *Appendix A (page 64) shows demographics comparison between census and survey*

Appendix A: Survey respondent demographics in **Kitsap County**
Part 1

Gender (n = 318)
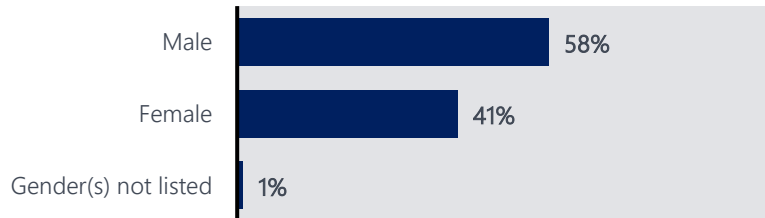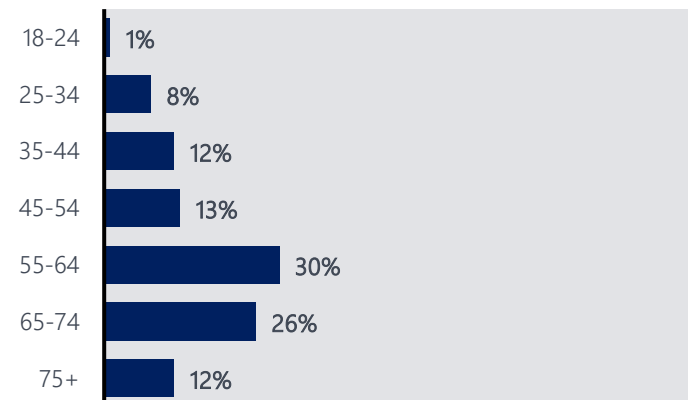
Male	58%
Female	41%
Gender(s) not listed	1%

Income (n =309)

Less than $15,000	1%
$15,00 to $24,999	4%
$25,000 to $49,999	10%
$50,000 to $74,999	14%
$75,000 to $99,999	23%
$100,000 to $149,999	24%
$150,000 to $199,999	12%
$200,000 to $250,000	7%
More than $250,000	6%

Ethnicity (n = 318)

Hispanic, Latinx, or Spanish origin	7%

Race (n = 318)

White	91%
Asian or Asian American	4%
Black or African American	3%
American Indian or Alaska Native	2%
Native Hawaiian or Pacific Islander	0%
Race(s) not listed	3%

Age (n = 323)

18-24	1%
25-34	8%
35-44	12%
45-54	13%
55-64	30%
65-74	26%
75+	12%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
- *Appendix A (page 64) shows demographics comparison between census and survey*

PRR

Appendix A: Survey respondent demographics in **Kitsap County**
Part 2

Community (n =323)

- Suburban: 53%
- Urban: 7%
- Rural: 40%

Distance to closest passenger airport (n = 324)

- Less than 1 mile: 0%
- 1 to 5 miles: 2%
- 6 to 10 miles: 3%
- 11 to 20 miles: 16%
- 21 to 30 miles: 17%
- More than 30 miles: 62%

- *Due to rounding, or options where participants could select multiple answers, percentages may not sum to 100%. Rounding occurs on all demographic slides.*
- *Appendix A (page 64) shows demographics comparison between census and survey*

Appendix B: Survey instrument

Puget Sound Regional Council

English ⌄

We hope you are staying safe in the midst of the COVID-19 situation and that you can take a few minutes to share your ideas about something related to the quality of life in the central Puget Sound region (King, Pierce, Snohomish, and Kitsap counties). **Please think beyond the current unusual travel restrictions as you answer the survey questions.**

The number of passengers who board a plane in the central Puget Sound region is projected to more than double from 22,000,000 in 2017 to 55,000,000 in 2050. This survey is an opportunity for you to share your ideas about how to improve the passenger aviation system in the central Puget Sound region.

Your household was selected randomly as one of a limited number of households being surveyed. Your input is very important and your responses are confidential.

Please complete the survey no later than July 8, 2020

We thank you in advance for your participation!

Appendix B: Survey instrument, continued

If someone new to the area asked you before the current COVID-19 situation what are the top three (3) **benefits** passenger aviation provides to the central Puget Sound region, what would you have told them?

What if that same person asked you before the current COVID-19 situation what the top three (3) **impacts** of passenger aviation are to the central Puget Sound region, what would you have told them?

Overall, how well do you think the passenger aviation system in the central Puget Sound region was working prior to the COVID-19 situation?

○ Not well at all
○ Slightly well
○ Moderately well
○ Very well
○ Extremely well
○ Don't know

Appendix B: Survey instrument, continued

For each item below, please rate how important it is to you, and if it has gotten better, stayed the same, or gotten worse in the last three years. Please use landscape view if completing this question on a mobile device.

	How Important to You?	Worse, Same, or Better in Last 3 Years?
Cost of flying	⌄	⌄
Parking availability at airports	⌄	⌄
Environmental impacts (air pollution, greenhouse gas emissions)	⌄	⌄
On-time performance	⌄	⌄
Getting through security lines	⌄	⌄
Access to airports (ground transportation, traffic congestion)	⌄	⌄
Amount of service to a variety of destinations	⌄	⌄
Noise impacts	⌄	⌄
Economic benefits (including aviation-related jobs, aerospace manufacturing, etc.)	⌄	⌄

Over the past few years, passenger aviation activity has increased in the central Puget Sound region by 18% (from 42 million to 52 million passengers). How has this impacted you?

How important do you think it is for the central Puget Sound region to be able to accommodate growing future demand for passenger aviation service?

○ Not at all important
○ Slightly important
○ Moderately important
○ Very important

Random - Intro

Demand in the central Puget Sound region is projected to grow to 55 million passengers boarding planes by the year 2050. That is roughly twice the amount that Sea-Tac Airport accommodates today. Paine Field currently accommodates about 1% of projected demand and does not currently have plans to increase capacity.

Meeting this growing demand may mean trade-offs. Trade-offs refer to situations where you can gain something you want, but in order to do so you have to sacrifice something else you want. The following questions present two choices. In each question please choose the one that is more important to you.

Random 1

Which is more important to you?

○ Increase passenger airline service at Sea-Tac Airport and other airports in the region
○ No increase to aviation's impacts to surrounding communities

Which is more important to you?

○ No increase in aircraft noise levels and aircraft greenhouse gas emissions
○ Increase in airport economic benefits and job growth

Which is more important to you?

○ Increase parking capacity at airports
○ Improve transportation options (such as transit or ride-share such as UBER) to airports

Which is more important to you?

○ Accommodate additional passenger service at a brand-new airport in the region
○ Accommodate additional passenger service at existing airports in the region

Which is more important to you?

○ Distribute environmental and noise impacts around several airports in the region
○ Consolidate environmental and noise impacts around one airport

Which is more important to you?

○ Increase passenger service capacity at Sea-Tac airport and other airports in the region
○ Invest in high speed rail to provide an alternative to flying

Which is more important to you?

○ Increase passenger service capacity at Sea-Tac
○ Increase passenger service capacity at other regional airports (such as Paine Field in Everett, etc.)

Appendix B: Survey instrument, continued

Demographics

We'd like to ask a few questions about you. These questions help us to make sure we hear from a mix of people from the central Puget Sound region.

How often do you typically fly each year for **personal** travel?

- ○ Never
- ○ Less than once a year
- ○ 1 to 4 times a year
- ○ 5 to 8 times a year
- ○ 9 to 12 times a year
- ○ 13 to 16 times a year
- ○ 17 to 20 times a year
- ○ 21 to 24 times a year
- ○ More than 24 times a year

How often do you typically fly each year for **business** travel?

- ○ Never
- ○ Less than once a year
- ○ 1 to 4 times a year
- ○ 5 to 8 times a year
- ○ 9 to 12 times a year
- ○ 13 to 16 times a year
- ○ 17 to 20 times a year
- ○ 21 to 24 times a year
- ○ More than 24 times a year

PRR

Appendix B: Survey instrument, continued

What is your home zip code?

[   ]

In which county do you live?

○ King
○ Pierce
○ Snohomish
○ Kitsap

Do you consider your community to be urban, suburban or rural?

○ Urban
○ Suburban
○ Rural

How far is it from your home to the closest passenger airport?

○ Less than 1 mile
○ 1 to 5 miles
○ 6 to 10 miles
○ 11 to 20 miles
○ 21 to 30 miles
○ More than 30 miles

How old are you?

○ Under 18
○ 18-24
○ 25-34
○ 35-44
○ 45-54
○ 55-64
○ 65-74
○ 75+

How do you identify?

○ Male
○ Female
○ Gender(s) not listed here

Are you of Hispanic, Latinx, or Spanish origin?

○ No
○ Yes

How do you identify? (please select all that apply)

☐ American Indian or Alaska Native
☐ Asian or Asian American
☐ Black or African American
☐ Native Hawaiian or Pacific Islander
☐ White
☐ [   ] Race(s) not listed here (please specify)

PRR

What was your total household income in 2019 before taxes?

○ Less than $15,000
○ $15,00 to $24,999
○ $25,000 to $49,999
○ $50,000 to $74,999
○ $75,000 to $99,999
○ $100,000 to $149,999
○ $150,000 to $199,999
○ $200,000 to $250,000
○ More than $250,000

We will be conducting focus groups after it is safe to meet in person or we may conduct online focus groups. The focus groups will allow us to learn even more about the aviation needs of the central Puget Sound region. You would be compensated $100 for your participation.

Also, as a thank you for participating in this survey, you can enter a sweepstakes for a chance to win one of ten $100 gift cards.

Are you interested in participating in this sweepstakes or providing your contact information for the focus groups? Please select all that apply.

☐ No
☐ Yes, to provide my contact information for the focus groups (This choice will redirect you to a separate survey to keep your survey answers confidential)
☐ Yes, to enter the sweepstakes (This choice will redirect you to a separate survey to keep your survey answers confidential.)

Appendix C: Recruitment materials (English)

Puget Sound Regional Council
1011 Western Avenue, Suite 500
Seattle, WA 98104-1035

Puget Sound Regional Council
1011 WESTERN AVENUE, SUITE 500 \\\ SEATTLE, WA 98104 · 1035 \\\ PSRC.ORG \\\ 206 · 464 · 7090

1 / 1-1-1

Current Resident
212 156th Pl SE
Bothell WA 98012-1232
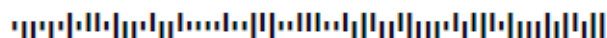
(Dhabarka Dambe)
(简体中文版请翻阅背面)

Greetings from the Puget Sound Regional Council:

We hope you are staying safe in the midst of the COVID-19 situation and that you can take a few minutes to share your ideas about something related to the quality of life in the central Puget Sound region.

The Puget Sound Regional Council (PSRC) develops policies and coordinates decisions about regional growth, transportation and economic development planning within King, Pierce, Snohomish and Kitsap counties. Aviation plays a critical role for people and businesses in the growing Puget Sound region, which is currently home to 29 airports of varied sizes and functions. We are leading a baseline study to provide a clear picture of the aviation activities and needs in the region and set the stage for future planning efforts.

The number of passengers who board a plane in the central Puget Sound region is projected to more than double from 22,000,000 in 2017 to 55,000,000 in 2050. This survey is an opportunity to share your ideas about how to improve the passenger aviation system in the central Puget Sound region.

Your household was selected randomly as one of a limited number of households being surveyed. Your input is very important, and your responses are confidential.

Please complete the survey by July 8, 2020. You could win your choice of one of ten $100 gift cards.
You can participate in the survey in English, Spanish, Somali, or Chinese at https://bit.ly/psrcsurvey

When prompted, please enter this case-sensitive Access Code exactly as it appears here: **XXX368**

The Puget Sound Regional Council hired PRR, Inc. (an independent firm) to conduct an objective survey process. If you have any questions about the survey, please contact them at research@prrbiz.com.

Thank you for your participation!

Sincerely,

Josh Brown
Executive Director

PRR

Appendix C: Recruitment materials (Spanish)

Saludos desde el Consejo Regional de Puget Sound:

Esperamos que se estén manteniendo seguros durante la situación con COVID-19. También esperamos que tenga unos minutos para compartir sus ideas sobre algo relacionado con la calidad de vida en la región central de Puget Sound.

El Consejo Regional de Puget Sound (PSRC, por sus siglas en inglés) desarrolla políticas y coordina decisiones sobre el crecimiento regional, el transporte y la planificación del desarrollo económico en los condados King, Pierce, Snohomish y Kitsap. El sector de la aviación desempeña un papel fundamental para las personas y para las empresas en la creciente región de Puget Sound, que actualmente alberga 29 aeropuertos de diferentes tamaños y con distintas funciones. Estamos liderando un estudio de referencia para ofrecer una imagen clara de las actividades y necesidades de aviación en la región y para estar preparados para futuros esfuerzos de planificación.

Se estima que el número de pasajeros que abordan un avión en la región central de Puget Sound, aumente de 22 millones en el 2017 a 55 millones para el 2050. Esta encuesta es una oportunidad para que comparta sus ideas de cómo mejorar el sistema de aviación de pasajeros en la región central de Puget Sound.

Su hogar fue seleccionado de forma aleatoria como uno de un número limitado de hogares encuestados. Su opinión es muy importante, y sus respuestas son confidenciales.

Por favor complete la encuesta antes del 8 de Julio, 2020. Puede ganar una de las diez tarjetas de regalo de $100. Puede tomar la encuesta en inglés, español, somalí, o chino en https://bit.ly/psrcsurveyes

Cuando se le indique, por favor ingrese este **Código de Acceso**, sensible a mayúsculas y minúsculas, exactamente como aparece aquí: **XXX368**

El Consejo Regional de Puget Sound contrató a PRR, Inc. (una empresa independiente) para llevar a cabo un proceso de encuesta imparcial. Si tiene alguna pregunta a cerca de la encuesta, por favor comuníquese con ellos en research@prrbiz.com.

¡Gracias por su participación!

Atentamente,

Josh Brown
Director Ejecutivo
Consejo Regional de Puget Sound

Appendix C: Recruitment materials (Somali)

Salaan ka timid Golaha Maaumulka ee heer gobo lee Puget Sound:

Waxaan rajeyneynaa in aad nabad qabtaan xilligan lagu guda jiro xaalada COVID-19 oo waqtigaaga na maahiso dhawr daqiiqado si aad noola wadaagto fikradahaaga ku saabsan waxyaabaha la xiriira tayada nolosha ee bartamaha degaanka Puget Sound.

Golaha Maamulka ee Heer Gobol ee Puget Sound (PSRC) wuxuu horumariyaa nidaamka, wuxuuna isku xiraa go'aamada ku saabsan koboca gobolka, gaadiidka iyo horumarinta qorsheynta dhaqaalaha ee gudaha degmooyinka King, Pierce, Snohomish iyo Kitsap. Duulimaadka ayaa door muhiima ah u leh dadka iyo ganacsiyada gobolka Puget Sound oo sii kordhaya, oo hadda hoy u ah 29 garoon diyaaradeed oo xajmi iyo adeeg kala duwan leh bixiya. Waxaan hogaamineynaa daraasad asaas ah si aan u bixino sawir cad oo ku saabsan howlaha duulista iyo baahida ka jirta gobolka oo aan u dejinno marxaladda dadaallada qorsheynta mustaqbalka.

Tirada rakaabka raacaya diyaaradda ee bartamaha Puget Sound waxaa la saadaaliyay in ay ka badan yihiin laba jibaar laga min 22,000,000 sanadka 2017 ilaa 55,000,000 ee sanadka 2050. Sahankan wuxuu fursad u yahay in lagula wadaago fikradahaaga ku saabsan sida loo hagaajinayo nidaamka duulista rakaabka ee bartamaha Gobolka Puget Sound.

Qoyskaaga waxaa loo si teelteel ah iyadoo aad tahay ka mid ah qoysaska tiro yar oo ka qeyb qadanaya sahankan. Waxyaabaha aad soo gudbiso waa kuwa aad muhiim u ah, jawaabahaaguna waa qarsoodi.

Fadlan buuxi xog ururinta Juulaay 8, 2020. Waxaad ku guuleysan kartaa mid ka mid ah toban kaararka hadiyaha ee ah $100.

Waxaad uga qeyb qaadan kartaa sahanka luqadaha Ingiriisiga, Isbaanishka, Soomaaliga, ama Shiineyska halkan ku yaal
https://bit.ly/psrcsurveyso

Markii la gaaro, fadlan gali erayga sirta ah sida uu halkan uga muuqdo: **XXX368**

Golaha Maamulka Heer Gobol ee Puget Sound wuxuu shaqaaleysiiyay PRR, Inc. (waa shirkad madax banaan) si ay u qabtaan ujeedada howsha sahamintan. Haddii aad qabtid wax su'aalo ah oo ku saabsan sahamintan, fadlan kala xiriir cinwaanka emailka: research@prrbiz.com.

Waad ku mahadsantahay ka qeyb galkaaga!

Mahadsanidiin,

Josh Brown
Agaasimaha Fulinta
Golaha Maamulka Heer Gobol ee Puget Sound

PRR

Appendix C: Recruitment materials (Chinese)

来自普吉特海湾地区委员会(Puget Sound Regional Council)的问候:

我们希望您在 COVID-19 (新型冠状病毒) 疫情中确保安全,并且希望您可以花几分钟时间分享与普吉特海湾(Puget Sound)中部地区生活质量相关的想法。

普吉特海湾地区委员会 (PSRC) 制定政策并协调决定有关金郡 (King),皮尔斯郡 (Pierce),斯诺霍米什郡 (Snohomish)和基萨普县郡 (Kitsap) 的区域增长,交通运输和经济发展计划。在不断发展的普吉特海湾 (Puget Sound)地区,航空业对于个人和企业都起着至关重要的作用,该地区目前拥有 29 个规模和功能各异的机场。为了能清楚地显示该地区的航空活动和需求,并为未来的计划工作奠定基础,我们正在开展一项基线调研活动。

在普吉特海湾 (Puget Sound)中部地区登机的乘客数量预计将会从 2017 年的二千二百万人次增加到 2050 年的五千五百万人次,数量将增加超过了一倍以上。这份问卷调查为您提供了一个分享您对如何改善普吉特海湾 (Puget Sound) 中部地区航空客运系统想法的平台。

您的家庭是在有限的调查对象中被随机抽选出来的家庭之一。您的意见非常重要,并且您的回复将会是保密的。

请于 2020 年 7 月 8 日之前完成问卷调查。您可以有机会赢得一张$ 100 礼品卡 (共 10 张)。

您可以在 https://bit.ly/psrcsurveyzhs 用英语,西班牙语,索马里语或中文参与问卷调查。

出现提示时,请按照此处显示的方式(注意有区分大小写字母区分)输入访问代码: **XXX368**

普吉特海湾地区委员会 (PSRC) 聘请了 PRR, Inc. (一家独立顾问公司) 来开展中立的问卷调查。如果您对调查有任何疑问,请通过 research@prrbiz.com 与他们联系。

感谢您的参与!

Josh Brown
执行董事
普吉特海湾地区委员会 (PSRC)

PRR

Appendix C: Recruitment materials (Reminder postcard)

The Puget Sound Regional Council needs your thoughts about the passenger aviation system in the central Puget Sound region. If you have already completed the survey, thank you! If not, you can complete the survey online at https://bit.ly/psrcsurvey until **July 8. Your answers are confidential.**

- When prompted, please enter this case-sensitive **Access Code:** **BFX927**

El Consejo Regional de Puget Sound necesita su opinión sobre el sistema de aviación de pasajeros en la región central de Puget Sound. Muchas gracias si ya completó la encuesta, de lo contrario, la puede completar en línea en https://bit.ly/psrcsurveyes.Tiene hasta **8 de julio** para hacerlo. **Sus respuestas son confidenciales.**

- Cuando se le indique, por favor ingrese este **Código de Acceso**, sensible a mayúsculas y minúsculas: **BFX927**

Golaha Degaanka ee Puget Sound waxey u baahan yahiin fikradahaaga ku saabsan nidaamka duulista rakaabka ee bartamaha gobolka Puget Sound. Haddii aad horey uga qeyb qaadatay sahanka, mahadsanid! Haddaysan ahayn, waxaad ku buuxin kartaa sahanka barta internetka ah oo https://bit.ly/psrcsurveyso ilaa **Luulyo 8. Jawaabahaagu waa qarsoodi.**

- Marka ugu horeysa, fadlan geli erayga sirta ah ee aad ku geleyso una qor sida uu dhigan yahay: **BFX927**

普吉特海湾地区委员会（Puget Sound Regional Council）想要了解您对普吉特海湾 （Puget Sound）中部地区的航空客运系统的看法。 如果您已经完成问卷调查，感谢您的参与！ 如果还没有，您可以在 https://bit.ly/psrcsurveyzhs 7 月 8 日前完成调查。**您的答案将是完全保密的。**

- 出现提示时，请输入**访问代码**(注意有区分大小写字母区分)：**BFX927**

Thank you for your participation!
Sincerely,

Josh

Josh Brown
Executive Director
Puget Sound Regional Council

PRR

APPENDIX 2

FOCUS GROUP INTERVIEW REPORT

In-depth Interview Report

Puget Sound Regional Council Regional Aviation Baseline Study

DRAFT December 2020

Table of Contents

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1501 Fourth Ave. Ste. 550, Seattle, WA 98101

PRR

INTRODUCTION

This study is designed to support the Regional Aviation Baseline Study, which the Puget Sound Regional Council (PSRC) conducted to provide a clear picture of the different roles and purposes of the various aviation activities at each of our Region's airports, how these activities interact, and identify future needs in the central Puget Sound region (King, Kitsap, Pierce, and Snohomish counties). The baseline study is expected to inform the region's stakeholders and the product of this study will be helpful in informing future decision making of the region's aviation needs and options for policy makers to consider for meeting those needs in the future.

PRR conducted in-depth interviews to further explore findings from the PSRC Regional Survey conducted June 23-July 8, 2020. As can be seen in Appendix A, the interview questions aimed to:

- Highlight nuances of public attitude regarding trade-off questions from the survey
- Understand motivations for priorities identified in the survey
- Identify potential motivators and barriers for traveling to airports other than Sea-Tac

KEY FINDINGS

Several key findings emerged through interviews:

- Most participants said it was very important for the region to meet growing demand for air travel.
- Most participants use cars to travel to the airport but thought transit connections to the airport were important.
- Participants cited jobs and the economy as well as travel experience as primary reasons for supporting meeting the growing demand for air travel.
- Environmental impacts were the top concern for participants.
- When asked to weigh different benefits and impacts, most participants said the issues were not mutually exclusive and instead discussed a balance of consumer and economic benefits and pollution mitigation or a shift to new technologies with fewer environmental impacts.
- Most participants favored expanding service at airports around the region rather than concentrating service at one airport.

Read on for more detail about interview methods, participant profiles, and findings.

INTERVIEW METHODS

PRR conducted 22 interviews between October 6 and 16, 2020.

We recruited participants from survey respondents who expressed interest in participating in follow-up research. We emailed a link to a screener survey to all interested potential participants asking for demographic information. Thirty of the 151 screener survey respondents were selected to participate in an interview. Priority populations included respondents who are between the ages of 18 and 34

and/or non-white respondents. We also selected participants to create a mix of income levels, genders, proximity to closest airport, flying frequency, and county of residence.

All interviews were conducted in English over the phone. Interviews lasted about 30 to 45 minutes. We paid participants with $100 gift cards for their time.

As can be seen in Appendix B, interview respondents across all four counties were more likely to:

- Range in age between 35-54 years old

- Live in King County or Snohomish counties, followed by Pierce, and Kitsap counties, respectively

- Travel by air 1 to 4 times per year for leisure (pre COVID-19)

- Travel by air never or less than 5 times per year for business (pre COVID-19)

- Live between 1 to 5, 6 to 10, or more than 30 miles away from the closest passenger airport

- Identify as female

- Identify as non-Hispanic

- Identify as white

- Have a 2019 household income between $50,000 and $149,999

The purpose of the phone interview was similar to the survey conducted a few months prior: to provide an opportunity for residents of the Puget Sound region to share their ideas and/or provide feedback about the ways the PSRC can address the region's growing aviation needs, including whether to expand existing airports or build new ones. Initial questions posed to interviewees centered around their current travel behavior including how often they fly, the reasons why they fly, how they travel to the airport, and the reasons why they choose to travel to the airport via a certain method. Questions then progressed to asking respondents for the general benefits and drawbacks for the region meeting growing demand for aviation. Additionally, respondents were asked to weigh three issues that may come up in decisions about how to adapt the current aviation system: economic benefits, increased traveler choice and improved traveler experience, and noise and environmental impacts. In a series of follow-up questions, respondents were asked to expand on why they weighed one of these priorities as either more or less important than the others. Finally, respondents were asked to choose between two scenarios of either concentrating new capacity and the impacts and benefits associated with that into one brand new airport, or expanding capacity across three regional airports with the impacts and benefits more spread out across those areas. A full transcript of the interview questions is available below in Appendix A.

Given the number of interview participants, we use qualitative descriptions (e.g. "some", "many", or "most") throughout the report rather than percentages to indicate how many people expressed a particular point of view. The table below summarizes how we defined each qualitative description.

Qualitative Description Definitions	
Description	**Definition**
• Few	• 1-2 people
• Some	• 3-6 people
• Many	• 7-11 people
• Majority	• 12-17 people
• Most	• 19-21 people
• All	• 22 people

FINDINGS

Flying behavior and attitudes toward air travel

- Most participants use Sea-Tac Airport for all their aviation needs. Participants, especially those living outside of King County, were familiar with nearby regional airports but maintained that Sea-Tac was their preferred airport.

- Only a few participants named an airport they used besides Sea-Tac and that was Paine Field. These participants lived in Snohomish and northern King County.

- Participants mostly used cars to travel to the airport whether by driving and parking at or near the airport, using ride-hail services, or having someone else (family, friends) drop them off and/or pick them up from the airport.

- Participants appreciated the convenience cars provided for traveling to the airport, with many saving time and money compared to being transported to the airport in a car by someone else. Others stated it was worth driving and paying for parking at the airport to catch an odd-hour flight or have their car easily accessible to them after a return flight.

- A few participants used light rail to travel to the airport, mainly for the lower travel costs and to avoid paying for parking. These same participants also stated they wish the light rail stations were closer to home and travel times to the airport were shorter.

General benefits and drawbacks to meeting growing demand for air travel

Most participants said it was very important for the region to meet growing demand for air travel.

How important do you think it is for the region to meet growing demand for air travel?
Base: All participants interviewed

- Very important
- Important
- Neither important nor unimportant
- Unimportant
- Very unimportant
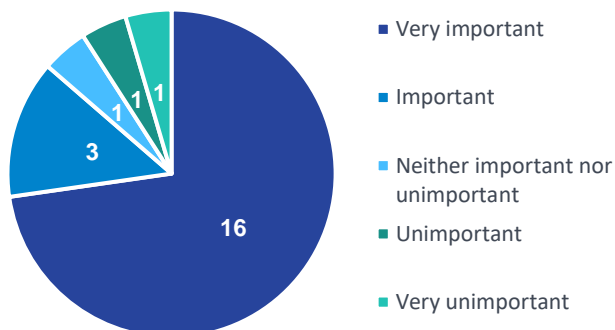
Comparison to Survey Results

- Most phone interviewees agreed with survey respondents that it is very important to meet growing demand for air travel.

Benefits and drawbacks to adapting current aviation system to meet growing demand

Participants explained their perspective on the benefits and drawbacks of adapting the current aviation system to meet growing demand. These perspectives are summarized in the table below.

Benefits and Drawbacks to Meeting Demand	
Benefits	**Drawbacks**
• Attract more businesses to the region	• Increased traffic congestion
• Boost to hospitality industry through increased tourism and international travelers: hotels, restaurants, stores, and other local industries will benefit	• Expanded footprints into nearby communities and protected lands
• A more efficient airport experience	• Increased air, noise, and light pollution
• Expanded public transit networks	• Costly for taxpayers
• Increased traveler choice: More airlines and flights	• Not equitable to certain communities near this infrastructure

Benefits to adapting the current aviation system to meet growing demand

When asked about the importance of meeting the growing demand for air travel, participants overwhelmingly stated that it was very important for the region to meet that demand. Typically, participants concluded there were far more benefits to meeting this demand than any potential drawbacks.

Several people said the region, specifically Seattle, is a technology hub with major corporate headquarters and jobs to match. To remain competitive in a global economy, participants believed the region needs to invest more in airports to attract new businesses and boost the regional economy to help support the existing industries in the region.

Another benefit of meeting the growing demand for air travel that came up very often was the potential for expanding the region's public transit networks. Participants were far more likely to travel to the airport by car due to the lack of nearby public transportation options, poor connection options, and longer travel times. They said they assumed that part of meeting growing demand involved expanding mass transit so that travelers could more easily get to the airport.

> **Comparison to Survey Results**
> - Phone interviewees valued parking availability less highly than survey respondents, who valued transit connections to the airport as an important feature for the regional aviation system.

Overall, participants relayed that the Puget Sound region is rapidly growing, and airports are experiencing the effects of that growth. Sea-Tac is reaching capacity and will have more difficulty managing current issues such as long security lines, traffic congestion, and limited space if infrastructure is not adapted to meet the growing demand.

Drawbacks to adapting the current aviation system to meet growing demand

While most participants viewed it as very important for the region to adapt the current aviation system to meet growing demand, there were a few who did not find it important. One participant stated that air travel does not provide any healthy impacts on the environment and so the focus should not be on expanding current aviation systems. A couple of participants said how adapting the current aviation system to meet growing demand will negatively impact underserved and BIPOC communities the most.

Participants who found it important to adapt the current aviation system still saw potential drawbacks. Some participants were wary about the costs associated with meeting the growing demand for air travel, and they considered the increase in environmental impacts on the surrounding communities. However, participants stated that decision-makers will need to analyze these factors when deciding how to meet the growing demand for air travel.

There was similarly high support for considering all three factors (economic benefits, increased traveler choice and improved traveler experience, and noise and environmental impacts) in adapting the current aviation system to meet growing demand. Participants did not view these factors as an "either/or" situation and did not overwhelmingly believe one factor had to be sacrificed over another. Much of the discussion centered on how, and to what extent, the region can address all factors and how many of the factors have a mutual relationship.

Priorities for meeting demand
High-Level Comparisons

The table below shows how participants ranked the three high-level priority categories presented to them: Noise/environmental impacts, economic benefits, and increased traveler choice/improved traveler experience. This portion of the interview focused high-level priorities. Later in the interview, participants shared more detail about these priorities and trade-offs.

Importance of Priority Categories	
Importance	**Priority**
More Important	Noise and environmental impacts
	Economic benefits
Less Important	Increased traveler choice and improved traveler experience.

More Important Priorities

Noise and environmental impacts

A slight majority of participants said that reducing noise and environmental impacts were the top priority in adapting the current aviation system. However, when asked to elaborate, participants emphasized that concern about environmental impacts drove their decision to rank this priority so highly; they were less concerned about noise impacts.[1]

Many viewed environmental impacts as the most important priority due to the lasting effects pollution has on the surrounding communities; they believe mitigation strategies to help reduce air and noise pollution would improve the health and quality of life for residents near airports. Some participants mentioned the need to shield protected lands and natural habitats from environmental impacts that may occur through aviation infrastructure expansion.

Economic benefits

Economic benefits were the second most important factor among participants, but only by one vote. Participants who selected this as the most important factor expressed that the region cannot solve any other issue without a strong economy in place. Some stated that options to reduce environmental impacts

Comparison to Survey Results

- Both phone interviewees and survey respondents and phone interviewees agreed that noise impacts were less important than consumer benefits and pollution.

- Survey respondents ranked environmental impacts as much more important than economic benefits, while phone interviewees ranked them about evenly.

---

[1] The interview question asked about noise and environmental impacts together, as one single priority, but participants saw the two issues (noise and environment) as separate.

cannot happen without a strong tax base and other investments to pay for them. A few others stated everyone benefits from growing demand and economic growth.

Increased traveler choice and improved traveler experience.

When evaluating the issue from a viewpoint of how it would personally impact them and their preference, participants were more likely to rank traveler choice and improved traveler experience as the most important factor. When they considered what would benefit most of society and not just their personal preference, it dropped in the rankings. Some mentioned that increased traveler choice would naturally increase economic benefits as it provides greater access to the global economy. Others ranked traveler choice and experience as most important because they believe they do not have as much control over the two other factors; participants stated that government officials and the free market are the main parties to regulate those factors.

Less Important Priorities

As explained in the section above, participants were asked to rank three high-level priority categories: Noise/environmental impacts, economic benefits, and increased traveler choice/improved traveler experience. This section details explanations respondents provided for why the ranked certain factors as less important.

Noise and environmental impacts

As explained in the "more important priorities" section above, many participants thought about noise and environmental impacts as two separate issues and considered environmental impacts very important, but noise impacts less important. Some of these participants stated noise pollution did not concern or impact them as much as it would for residents closer to major airports such as Sea-Tac.

A few participants did say they were less concerned about environmental impacts. They noted it was ultimately up to government officials to come up with ways to alleviate environmental impacts and meeting demand for aviation will not be the make or break factor in solving that issue. Others stated society is already taking steps to protect the environment (they pointed to efforts to curb noise pollution as an example), so it is a lower priority for them. *Economic benefits*

Few participants said this factor was the least important. For those who did rank it as less important, many considered the economy as a self-regulating entity. A few stated that economic benefits will happen organically; if you build new aviation-based infrastructure, people will use it. One person stated we can provide economic benefits through other parts of the economy, not just through air travel services that may impact the region long-term. Another participant said focusing mainly on economic benefits is placing profits over people.

> **Comparison to Public Meetings**
> - At all three virtual public meetings, participants ranked environmental benefits of the aviation system as least important.
>
> - While the interview findings are somewhat different from the public meeting findings, the questions were not posed in the same way, and the meeting dynamics could have influenced the responses received.

Increased traveler choice and improved traveler experience.

Specific features and benefits to increased traveler choice and an improved traveler experience were appealing to many of the participants. However, most did not want these benefits to take precedence over environmental impacts or economic benefits. Many found increased choice and improved traveler experience to be a "nice to have" but did not see a greater societal benefit relative to the other two factors.

The table below summarizes explanations provided for why participants said a factor was either more or less important.

Factors in Weighting Categories as More or Less Important	
Economic benefits	
MORE important	**LESS important**
- Benefits more people in the region - A strong economy will solve the other two factors	- Economic benefits will happen organically - Economic benefits can develop from other parts of the economy besides aviation
Traveler choice and experience	
MORE important	**LESS important**
- Access to the global economy - Personal benefits: most likely to improve their own travel experience, but not necessarily for everyone	- Not a need/necessity - Does not greatly benefit most of society in comparison to the other two factors
Noise and environmental impacts	
MORE important	**LESS important**
- Greatest impact to quality of life and health for nearby residents - Long-lasting and long-term effects	- Society is currently taking steps to protect the environment - Government should do more to solve issues concerning the environment, not necessarily airports themselves

Detailed Comparisons of Priorities

We then asked participants to weigh specific priorities against each other compared to the general comparisons above. We asked participants to explain their thinking about how they weighed economic benefits versus other factors, such as noise impacts and pollution. Next, we asked them to explain their thinking about how they weighed consumer benefits versus other factors. Below, is a summary of the top factors participants cited to illuminate their thought process.

Top factors used to weigh economic benefits versus <u>noise impacts on surrounding communities</u>

- Noise pollution was not a major concern for most participants. They weighed economic benefits and traveler choice more heavily than noise impacts since many are not directly impacted or affected by airplane noise.

- Most participants stated that the region should prioritize economic benefits over noise impacts since noise impacts would mostly only directly affect those living in the immediate area while economic growth benefits a wider audience.

- Many participants stated they are not concerned about noise impacts because they believe residents make the choice to live close to the airports, and therefore, should be prepared to self-mitigate any impacts.[2]

- A few participants viewed noise impacts as minimal or less noticeable over time.

- Others weighed economic benefits more heavily but were still concerned about noise impacts in nearby neighborhoods. Some suggested regulating flight paths and managing the times that planes can take off and land to help reduce noise impacts.

Participants listed advancement in aerospace technology as a factor in helping to reduce noise impacts, although some participants say it will take a while for planes to significantly reduce noise emissions. Some said technology should ideally reduce the number of noisy planes, but the economy should not suffer in the process. Some participants said they would have weighed noise impacts more evenly with economic benefits if they lived closer to a busy airport or were not already accustomed to the sounds of living in a busy urban area.

Top factors used to weigh economic benefits versus <u>pollution from increased air travel</u>

- Unlike noise pollution, most participants weighed pollution from air travel as a slightly higher priority than economic benefits. Many participants weighed air pollution higher than economic benefits since air pollution is a constant and abrasive force against the environment. They suggested people can adjust as a society to help the economy, but consistent damage to the environment through air pollution may be irreversible.

- Some participants viewed these two factors as being co-dependent and not a binary choice. They viewed reducing air pollution as very important but said it would take an expanded tax base in a strong economy to help pay for possible solutions.

Comparison to Survey Results

- Survey respondents were split on how they prioritized noise and air pollution versus economic benefits.

- Survey respondents said it is more important to increase consumer benefits than prevent no impacts to surrounding communities; some phone interview participants agreed with that position but stated it depends on the level of impact to the surrounding communities.

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[2] This is the opinion expressed by interview subjects. Many people live near airports because of affordability or other factors.

- The choice for some included consideration of immediate benefits vs. long-term impacts (there was not a correlation between those who prioritized economic benefits vs those who prioritized minimizing environmental impacts). One participant stated communities would benefit more from a strong economy compared to pollution from an aviation facility.

- Some participants had a hard time weighing these two factors against each other since potential impacts or benefits are unclear.

- Participants agreed that weighing these two factors is complicated, and it is up to decision-makers to find the right balance.

Top factors used to weigh consumer benefits versus <u>noise impacts on surrounding communities</u>

- Participants overwhelmingly weighed consumer benefits as a higher priority over noise impacts on surrounding communities since they said they believe many people are not impacted by noise; they said they would personally benefit more from traveler choice, an improved airport experience, and other consumer benefits in the long run since they believe most noise impacts can be mitigated.

- A few participants suggested that nearby communities may be more accepting of airplane noise if it meant more travel choices.[3]

- A few, when considering the noise impacts on surrounding communities, suggested that airports place time restrictions on flights and introduce larger planes to reduce the number of flights.

Top factors used to weigh consumer benefits versus <u>pollution from increased air travel</u>

- Participants weighed pollution from increased air travel as a higher priority than consumer benefits.

- Some participants weighed pollution from increased air travel as a higher priority due to the difficulty of trying to reverse environmental damage once it happens.

- A few others stated these two factors need to be balanced; people are going to travel regardless of existential factors, so the answer is to try to mitigate impacts without seeking to significantly reduce air travel.

- Consumer benefits weighed more heavily for several participants because they determined that not much can be done about environmental impacts; if choice and flights are stagnant or decrease people will just find alternative ways to travel, which can pollute the environment even more by adding more cars to the road.

- Ultimately, many participants concluded that a healthy balance of consumer benefits and pollution mitigation can develop over time as airplane technology progresses and decision-makers enact regulatory measures to manage flight schedules and plane sizes.

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[3] This response comes from focus group participants, who are not necessarily representative of communities near airports.

Attitudes towards expanding capacity through concentrated vs. dispersed impacts

When asked about whether they would rather see expanded capacity at one airport with concentrated benefits and impacts or expanded capacity at several regional airports impacts (one new runway at three regional airports) with dispersed benefits and impacts, most participants selected the latter option. Only a few said their choice would depend on which area or which airports would see the expanded capacity. Two participants said they believed environmental studies should be done first, and a rough list of locations should be provided before they could formulate an opinion. For the smaller group of participants who preferred a brand-new hub with concentrated benefits and impacts, they believed that a new hub would increase traveler choice which they considered important.

While most participants supported expanding capacity by dispersing benefits and impacts, many could not definitively say if they would travel to these regional airports; they would have to consider certain scenarios before deciding on their departure point. Most participants said they would travel from a regional airport if it had the right airline with the flight they needed. They would also use the regional airport if traveling somewhere in the general area. Participants said they would value the savings in time and costs when traveling to a regional airport. Traveler experience was an important factor among many participants, who generally agreed that traveler experience is better at smaller and regional airports than at bigger and busier hubs.

However, some participants stated they would still use Sea-Tac since they live close to that airport. Others wanted to know if transit connections would be added to these regional airports before they can confirm if they would use them, while others needed to know which regional airports would be expanded. Overall, participants concluded that no matter which option is selected, public transit connections to the airport should be improved to reduce costs, decrease traffic congestion and pollution impacts, and increase travel options for the region.

Comparison to Survey Results

- Interview respondents agreed with survey respondents that it is better to expand capacity across several regional airports with dispersed benefits and impacts, rather than increase capacity at a single new airport.

- When given the option, survey respondents were divided on whether to expand capacity at airports or focus on investing in alternatives to flying such as high-speed rail; some survey respondents thought alternatives to flying may potentially reduce noise and environmental impacts.

The table below summarizes participant's perspectives on expanding capacity in a way that *concentrates* benefits and impacts and their perspectives on expanding capacity in a way that *disperses* benefits and impacts.

Perspectives on Concentrating or Dispersing Expanded Capacity	
Expanded Capacity with Concentrated Benefits and Impacts	
Benefits	**Drawbacks**
- Bigger increase in traveler choice - Environmental impacts will affect a smaller population of people - Economic benefits will trickle outside of the area with the new airport - A new hub will create more long-term jobs and commercial services overall	- Possibly not accessible for many people across the region without good transit connections - Lack of equity when certain populations are burdened the most with negative impacts
Expanded Capacity with Dispersed Benefits and Impacts	
Benefits	**Drawbacks**
- Less impact on the environment due to expanding an already existing infrastructure - Diminishes issues around accessibility as people have more options closer to them - Decreases highway traffic and car emissions since people would not have to travel as far to reach Sea-Tac - Expands jobs and services to more areas, benefitting a wider range of communities - Decreases travel time to airport	- Current residents may be wary of increased traffic and noise near their residential neighborhoods - Traveler choice may still be limited in terms of the number of direct flights and the availability of international flights

APPENDICES

APPENDIX A

PSRC Interview Guide

Introduction (2 min)

[Interviewer says hello and thanks the person for their time]

As a reminder, I'm talking to you today on behalf of the Puget Sound Regional Council (PSRC).

PSRC is conducting a study of the existing condition of aviation in the Puget Sound region, including projecting future demand and looking, from a purely technical standpoint, at existing airports in the region that meet technical requirements to begin offering commercial service or expand. This study is not designed to make recommendations about whether or not the region should expand aviation service, or identify solutions for how to accommodate demand.

The information gathered through this study will help regional decision makers plan for the future of aviation. For example, we will provide information to the Commercial Aviation Coordinating Commission as they make recommendations on ways to address the region's aviation needs, including whether to expand existing airports or build new ones.

A couple more things I want to mention before we start the interview:
- There are no right or wrong answers; we're interested in your honest ideas and opinions.
- Our conversation is totally confidential. We will not use your name in any report.
- Our conversation today is being audio recorded so that I can refer to the recordings for my notes. These recordings allow us to write a more complete report and make sure we accurately reflect your opinions.
- Please be as specific as possible about your experiences.
- Just stop me if anything I'm talking about is unclear. It's a complicated topic and there's a lot of industry terms that most people don't use in their everyday lives.
- As you know, we'll be paying you a $100 gift card as a thank you for your time. At the end of the call I'll ask you a couple questions about what kind of gift card you would like.

Do you have any questions before we begin?

Warm-Up (3 min)

Ok, I'd like to start out by getting to know more about you and your typical air travel.

1. What is the general area where you live ("Everett", "Renton", "Bremerton", etc.) and how often do you travel by plane?

2. Which airport do you typically use and why?

3. For a typical trip, how do you get to the airport?

   a. Probe: And why do you get to the airport by_____?

General benefits and drawbacks (7 min)

4. How important do you think it is for the region to meet growing demand for air travel? Would you say very unimportant, unimportant, neither important nor unimportant, important, or very important?
   a. Probe: Why did you say __?
   b. Probe if they said neither important or unimportant, or very/unimportant: Would you like to see the region at least somewhat meet growing demand? Or perhaps meet this demand in the future?

5. What do you see as some of the general benefits and drawbacks of adapting the current aviation system (meaning airports and the supporting infrastructure and services) to meet growing demand? Tell me first about the benefits.

   And now, how about the drawbacks?

[ACKNOWLEDGE THE BENEFITS, DRAWBACKS THEY MENTION. CONNECT TO ECONOMIC BENEFITS, CONSUMER CHOICE, ENVIRONMENTAL IMPACTS WHERE POSSIBLE.]

Priorities for meeting demand (15 min)

Here are some of the common themes that come up in conversations about how to meet growing demand for air travel. You may want to write these down because we'll talk about them for the next few questions.
- Economic benefits of meeting this demand (it's good for business and local tax revenue)
- Increased traveler choice and improved traveler experience (more flights, cheaper flights, shorter security lines, fewer flight delays, shorter wait time for bags)
- Noise and environmental impacts (greenhouse gas emissions, noise impacts on surrounding communities)

6. How would you weigh these three issues in decisions about how to adapt the current aviation system (for example, in decisions about building a new airport vs. expanding capacity at regional airports)? Which of these three is <u>more</u> important to consider in this decision-making? Which is <u>less</u> important? Why?

[FOR QUESTIONS 7-8] Probe on the why, the factors they consider, the assumptions they make

7. I'm curious to know what you think in general about balancing economic benefits and environmental impacts. Can you say a bit about what that means to you?

   A. More specifically, how do you weigh economic benefits versus <u>noise impacts on surrounding communities</u>?

   B. And, how do you weigh economic benefits versus <u>pollution from increased air travel</u>?

8. And what do you think in general about balancing consumer choice and environmental impacts. Can you say a bit about what that means to you?

    A. More specifically, how do you weigh consumer benefits versus <u>noise impacts on surrounding communities</u>?

    B. And, how do you weigh consumer benefits versus <u>pollution from increased air travel</u>?

[FOR QUESTION 9] Probe them to talk through their thought process. Listen for factors they consider, assumptions they make, benefits or impacts that stand out for them.

There are different ways to meet growing demand. I want to get your opinion on one way in particular: expanding capacity, which basically means add more runways.

Now, you could focus on concentrating new capacity, for example, by building a new airport with three runways, or you could spread out new capacity, for example, by adding one runway to each of three different airports. In other words, you could create another hub like Sea-Tac or you could expand capacity at other regional airports, like Paine Field did.

If you build a new airport with three runways, you concentrate the environmental and noise impacts, as well as flight choices and number of destinations, in that area.

If you add runways to different airports, you spread out the environmental and noise impacts. Spreading out service across multiple airports would also limit traveler choice at each of those airports because the number of flights and destinations served by each airport would be limited.

9. What do you make of these two options? Would you rather see expanded capacity at one airport, or as few airports as possible, with concentrated benefits and impacts, or would you rather see expanded capacity at several regional airports, with benefits and impacts spread out? Why?

10. *[If they chose expanded capacity at several airports]* Would you be willing to travel to one of these regional airports with expanded capacity? Why or why not? *[Tie this back to where they currently say they fly from and where they live.]*

Wrap-up (3 min)

Well, those are all the questions I had. Thank you so much for your thoughtful ideas! You've given us a lot to think about as we share what we've heard with the Puget Sound Regional Council.

11. Before we go, is there anything else you think PSRC should consider about how the aviation system can meet growing demand for air travel in the region? What else should they know?

Great. Thank you! We appreciate you taking the time to talk with us today. Let's talk about your gift card now.

You can either have a physical Visa gift card mailed to you, or an electronic gift card emailed to you. Electronic gift cards are available as Visa gift cards, Amazon gift cards, and a few other stores (like Best Buy). What would you prefer?

- [If they choose physical, ask for their mailing address. _____]
- [If they say electronic, confirm the email address on file. _____]

If you have any questions, please email research@prrbiz.com. And keep an eye out for the [email/letter] with the gift card. It may take up to 30 days to arrive.

Appendix B: Participant profile

	Count (n = 22)
How old are you?	
25-34	3
35-44	6
45-54	6
55-64	2
65-74	5
In which county do you live?	
King	8
Pierce	4
Snohomish	7
Kitsap	3
Before the stay-at-home order in March, how often did you typically fly each year for personal travel (visit friends or family, vacation, go to events, etc.)?	
Less than once a year	2
1 to 4 times a year	10
5 to 8 times a year	6
9 to 12 times a year	2
17 to 20 times a year	1
More than 24 times a year	1
Before the stay-at-home order in March, how often did you typically fly each year for business or work-related travel?	
Never	5
Less than once a year	5
1 to 4 times a year	7
5 to 8 times a year	3
17 to 20 times a year	1
21 to 24 times a year	1
How close is it from your home to the closest passenger airport?	
Less than 1 mile	1
1 to 5 miles	5
6 to 10 miles	5
11 to 20 miles	2
21 to 30 miles	4
More than 30 miles	5
How do you identify?	
Female	13
Male	8
Gender(s) not listed here	1
Are you of Hispanic, Latinx, or Spanish origin?	
No	18
Yes	4

How do you identify? *Multiple responses allowed. Counts may sum to more than the total number of respondents.*	
American Indian or Alaska Native	1
Asian or Asian American	8
Black or African American	0
Native Hawaiian or Pacific Islander	1
White	13
Race(s) not listed	2
What was your total household income in 2019 before taxes?	
Less than $15,000	2
$15,00 to $24,999	0
$25,000 to $49,999	2
$50,000 to $74,999	4
$75,000 to $99,999	4
$100,000 to $149,999	5
$150,000 to $199,999	2
$200,000 to $250,000	1
More than $250,000	2

APPENDIX 3

PUBLIC MEETING REPORT

Puget Sound Regional Council - Regional Aviation Baseline Study

Virtual public meeting and online open house report

November 2020

Background

PSRC is leading a baseline study to provide a clear picture of the aviation needs in the region and set the stage for future planning efforts.

Aviation plays a critical role for people and businesses in the growing central Puget Sound region, which is currently home to 29 airports of varied sizes and functions. Continued, coordinated planning is essential for ensuring that the regional airport system can support existing and future demand. As part of these efforts, PSRC has launched the Regional Aviation Baseline Study, funded by a $1.6 million grant from the Federal Aviation Administration.

As part of the study, PSRC is engaging with community members to understand their priorities and concerns about how the region proceeds in managing anticipated growth in demand for aviation. PSRC hosted three virtual public meetings and an online open house to provide venues for community members to hear from the project team and provide input on the study.

Format and notification

Virtual public meetings

PSRC hosted three virtual public meetings over a two-week period:

- Wednesday, Sept. 23, 5-6:30 p.m.
- Tuesday, Sept. 29, 11:30 a.m.-1p.m.
- Wednesday, Sept. 30, 8-9:30 a.m.

All meetings were hosted on ZoomWebinar. Meetings included a roughly one-hour presentation that included several poll questions, and a thirty-minute question-and-answer session.

See Appendix B for the full presentation; not all information in the presentation is detailed in these notes. Attendee information for each meeting is included in Appendix C; transcriptions of poll results, chat questions, and Q&A questions are included in Appendix D.

Online open house

PSRC hosted an online open house on the project website from September 21 through October 30, 2020. The online open house included similar information to what was presented in the virtual public meeting, with greater detail on some technical topics.

There were 14,253 page views for the online open house, lasting an average of 2 minutes 31 seconds. The online open house included a comment box and four questions, matching the poll questions asked at the virtual public meetings; 390 users left a comment and/or answered the questions.

See Appendix E for the full online open house. Poll results and comments are included in Appendix F.

Notification

The team notified community members in the four-county region through mailed postcards, online advertising, and email.

- Postcards were mailed to 209,962 addresses the week of September 14
- Online ads were placed on Facebook, Instagram, and through Google Ads from September 21 through October 19
- PSRC emailed 713 members of its email listserv on September 18

PSRC also reached out to specific groups and jurisdictions, including:

- Communities of Opportunity
- Puget Sound Partnership
- Regional Tribes
- Transportation Choices Coalition
- Emerald Alliance
- 350 Seattle
- County Health Departments
- Forterra
- Washington Environmental Council
- Climate Solutions
- Puget Sound Sage
- The Nature Conservancy
- Futurewise
- Cascade Bicycle Club
- El Centro De La Raza
- Vashon Island Fair Skies
- Quiet Skies Puget Sound
- Quiet Skies Coalition

- League of Quiet Skies Voters
- Pierce County
- Snohomish County
- King County
- Gig Harbor
- Port of Bremerton
- Arlington
- Everett
- Mukilteo
- Edmonds
- Lynnwood
- Tukwila
- Des Moines
- Burien
- Normandy Park
- City of Sea-Tac
- Federal Way

See Appendix A for the notification report and copies of notification materials.

Virtual public meeting summary

Welcome

Josh Brown, PSRC Executive Director, greeted attendees and introduced the project background and purpose. He explained that the study is part of an effort to ensure the regional airport system can support existing and future demand, and is funded by a grant from the FAA. He noted that the study is meant to help the public and policy makers plan for demand and capacity changes between now and 2050. This study represents a baseline – it does not include solutions or recommendations.

Lynsey Burgess with PRR reviewed the agenda and technical details for the meeting. She re-introduced Josh and introduced Mark Kuttrus and Bridget Wieghart with WSP.

Overview

Bridget Wieghart, WSP, began the presentation with a poll question, asking which airport participants most frequently fly out of. For each meeting, Sea-Tac was the airport selected by a large majority of participants. *See Appendix C for detailed poll results.*

Bridget then shared a project overview, including the project purpose, and explained that even though the COVID-19 pandemic has caused a significant dip in air travel, the team still expects the long-term forecast to be accurate, showing past dips in air travel from causes like recessions compared to the consistent long-term growth pattern.

Study overview

Bridget Wieghart, WSP, gave an overview of the study, explaining each topic the team studied, project timeline, and the airports included in the study area.

2050 forecast

Mark Kuttrus, WSP, presented the 2050 forecast. He explained that Sea-Tac is the eighth busiest passenger airport in the nation for enplanements, and the central Puget Sound region hosts major manufacturing and operations of Boeing, the largest aerospace company in the world. He also gave an overview of major airlines for which the region is home base or a major hub.

The aviation forecast showed that regional demand for enplanements is expected to grow from 24 million in 2018 to between 49.3 million and 55.6 million by 2050. This is an unconstrained forecast, meaning these numbers reflect growth without taking into account potential constraints.

Mark also explained that the team expects air cargo demand to grow by 136%, from 552,000 metric tons handled in 2018 to 1,300,000 metric tons handled in 2050; the team expects general aviation to grow from 1,351,000 operations in 2018 to 1,806,000 operations in 2050.

The anticipated growth in commercial aviation is the region's biggest aviation challenge.

Mark explained that as annual aircraft operations grow, average delay times increase. He also said increased demand without expanding capacity would mean higher ticket prices, longer wait times for security, more congestion accessing the airport and difficulty parking, and more frequent flight delays. He also noted that there are regional benefits and impacts related to meeting expanded demand: expanding service would bring economic benefits, but also more noise impacts and greenhouse gas emissions.

Challenges and opportunities to meet demand

Mark Kuttrus, WSP, shared some of the challenges and opportunities the team studied. The team studied commercial, air cargo, and general aviation, but because the projected growth in demand for commercial service is the biggest issue, Mark focused on commercial service in the presentation.

The projected gap between demand and availability of commercial service in 2050 is about the same as the number of passengers the region currently serves.

Ways to accommodate demand

Scenarios

Mark Kuttrus, WSP, explained that the study team presented three scenarios to meet demand.

Scenario 1: Meet 50% to 60% of demand

- This scenario reflects the existing commercial capacity and current plans to expand service at Sea-Tac. This scenario assumes that Paine Field will maintain its current capacity of 24 flights per day.
- This would result in a gap of 22 to 27 million annual enplanements by 2050.

Scenario 2: Meet 80% of demand

- This scenario reflects the existing commercial capacity and current plans to expand service at Sea-Tac. This scenario assumes that Paine Field will maintain its current capacity of 24 flights per day.
- This scenario would require significant development at one or two existing airports to accommodate 11 million annual enplanements.

Scenario 3: Meet 100% of demand

- This scenario reflects the existing commercial capacity and current plans to expand service at Sea-Tac. This scenario assumes that Paine Field will maintain its current capacity of 24 flights per day.
- This scenario would require significant development at two or three existing airports, totaling three runways.

Technical analysis

Next, Mark explained the technical analysis the team conducted to determine which existing airports in the region have the technical capabilities to expand, reminding viewers that this study does not make any recommendations about expanding or changing service offerings at specific airports in the region, but simply conducted the technical analysis to determine where expansion might be possible.

The technical criteria were:

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

The majority of the airports in the region did not meet these criteria. Four airports did meet the technical criteria for potential expansion:

1. Arlington Municipal Airport

2. Bremerton National Airport
3. Paine Field
4. Tacoma Narrows Airport

Mark noted that before any of these airports could offer commercial service or expand, there would be many steps for the airport, sponsor, and partner jurisdictions to go through.

Impacts of meeting demand

Mark Kuttrus, WSP, explained that meeting the projected demand would come with economic benefits as well as noise and environmental impacts. There are several factors that make the noise and environmental impacts more difficult to quantify at this stage, but the team recognizes that these impacts are very important.

Fuel economy has steadily improved – fuel consumption has decreased by 49% since 1960 – and FAA NextGen will increase efficiency further. The Puget Sound region is also leading the way on electric aircraft. At this time, we cannot predict what fuel consumption will be in 2050.

Newer aircraft models have lower noise emissions. A higher volume of operations means that airport-impacted communities experience more consistent noise at lower decibels. However, noise impacts vary greatly by location and density of residences and businesses. Without knowing a location for expansion of commercial air service, we cannot quantify noise impacts.

Mark added that environmental impacts of aviation are both micro and macro, impacting the global climate crisis and local communities. For example, elevated levels of PM 2.5 are often found near airports, caused both by aviation emissions and diesel vehicles.

The economic impact of expanding aviation is easier to quantify. Based on the economic impact of Sea-Tac to the region, as well as direct and induced jobs, the team estimates the following economic benefits for each scenario:

Scenario 1: Meet 50% to 60% of demand

- Additional $4 to $9 billion in economic activity
- 27,000 to 61,000 added jobs

Scenario 2: Meet 80% of demand

- Additional $20 billion in economic activity
- 135,000 added jobs

Scenario 3: Meet 100% of demand

- Additional $31 billion in economic activity
- 209,000 added jobs

Mark also reviewed a summary of the benefits and impacts of each scenario.

Scenario 1: Meet 50% to 60% of demand	Scenario 2: Meet 80% of demand	Scenario 3: Meet 100% of demand
460,000 – 540,000 annual operations	720,000 annual operations	900,000 annual operations
2 commercial airports	2-4 commercial airports	2-5 commercial airports
0 additional runways	2 additional runways	3 additional runways
5% - 24% increase in activity (related to noise and environmental impacts)	65% increase in activity (related to noise and environmental impacts)	106% increase in activity (related to noise and environmental impacts)
28 – 33 million enplanements	44 million enplanements	55 million enplanements
22 – 27 million unmet enplanements	11 million unmet enplanements	0 unmet enplanements
$4 - $9 billion added annual benefit	$20 billion added annual benefit	$31 billion added annual benefit
27,000 – 61,000 added jobs	135,000 added jobs	209,000 added jobs

Bridget Wieghart, WSP, presented additional polling questions, asking:

- In considering the region's plans to manage the growing demand for aviation, what is most important to you?
  - On-time, easy-to-access passenger service
  - Maximizing economic benefits of the aviation industry
  - Minimizing noise and environmental impacts of aviation
- In considering the region's plans to manage the growing demand for aviation, what is least important to you?
  - On-time, easy-to-access passenger service
  - Maximizing economic benefits of the aviation industry
  - Minimizing noise and environmental impacts of aviation
- Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:
  - Prioritize meeting future demand for aviation
  - Meet some, but not all, future demand for aviation
  - Not expand capacity at all
  - Unsure
- Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?
  - Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports as possible
  - Disperse new aviation service – and associated benefits and impacts – at multiple airports
  - Don't know

See Appendix C for poll question results.

Timeline and next steps

Bridget Wieghart, WSP, presented the timeline and next steps. She explained that if any airport were to begin offering commercial service of expand, there would need to be an airline interested in offering service out of the airport, the statewide airport system plan would need to be updated, the airport would need to conduct a master plan in conjunction with FAA and WSDOT, FAA would determine National Environmental Policy Act requirements, the airport would conduct an FAA Benefit-Cost Analysis, and there would need to be federal and state funding.

For next steps for this study, Bridget explained that the technical report is complete. The project is currently collecting public input through the virtual public meetings as well as an online open house, focus groups, and a statistically valid public survey that was completed this summer. This public input will be part of the project's final report.

Q&A

Lynsey Burgess, PRR, facilitated the question and answer session.

Study process and next steps
How will this study be used?

PSRC is a regional planning agency. The Executive Board is overseeing this project. We'll share this among the Executive Board and our membership. We expect this study to be used by airports who are creating new master plans, the State Commercial Aviation Coordinating Commission, and other policy makers and sectors of the air travel industry as they plan for the future. The goal of this study is to provide a common understanding of the current status and projected demand for aviation in the region. This study will not recommend specific solutions to addressing demand.

How will noise and environmental impacts be evaluated and mitigated if commercial service in the region expands capacity to meet projected demand?

This study is simply a baseline. We are not looking to propose a solution to this problem in this report. Without a specific recommended solution in this report, it is impossible for us to model noise impacts, community impacts, traffic, and other valid concerns that communities may share. Many of those impacts are localized. As airports update their master plans, they must consider and analyze these important community impacts. Should a greenfield site be one of the potential options that policy makers pursue, they will closely study those impacts and work with neighboring communities. So, if you're seeing gaps in terms of community impacts, it's because we don't have a specific solutions or recommendations to model. We must defer to individual airports to use their master planning process to make a determination that works for their communities.

How would airport expansion be financed?

A vast majority of airports in the U.S. are owned by local governments. Local taxpayers do not directly subsidize the airports. For example, the Port of Seattle, collects property taxes, but those property taxes are not used to subsidize the airport. Rather, each airport is operated as an enterprise fund based on charges to airlines, tenants and passengers. Airports must compete for federal dollars from the FAA to fund improvement projects, whether it's renovating the terminal or repaving a runway. There are specific programs and limitations that apply to

federal dollars and airport user fees, including fees on the airlines and passengers. As customers of the airport, we subsidize investments in the airport.

Has PSRC conducted any prior baseline studies?

PSRC was involved with several planning efforts in the late 1980s through the 1990s. Some aspects of those efforts were very similar to the work we're doing in this baseline study, and some aspects were related to siting. That timeframe, about 30 years ago, was the last time the region was confronted with a similar forecast as today's related to projected capacity challenges.

Has PSRC cooperated with similar organizations in regions neighboring the central Puget Sound to study aviation demand?

The scope of this project includes the four-county region of King, Pierce, Snohomish, and Kitsap counties. PSRC includes representation from each of those counties and local communities within the counties; we'll share information about this study with all of PSRC's membership. Additionally, we are working closely and sharing this information with our partners at WSDOT's aviation division as they lead the Commercial Aviation Coordinating Commission. The Commercial Aviation Coordinating Commission looks beyond the four-county region and across Western and Central Washington.

Impacts of aviation

How much do you expect the environmental impact of aviation to change by 2050?

Doubling aviation service by 2050 would not double environmental impacts as they are today because of changes in aviation standards and advances in technology, but we don't know how much these changes will reduce aviation emissions and noise impacts. Each new generation of engine or aircraft is quieter and more efficient than the last. The aviation industry is making strides to reduce aircraft noise and increase fuel efficiency, and is also exploring new engine types, including electric aircraft and hydrogen engines. We cannot predict today when those technologies will come online.

Could you site an airport outside of dense urban areas where fewer people would be affected by impacts?

The big challenge with siting an airport outside of dense urban areas is finding a location with enough land –thousands of acres are needed to support an airport – a reasonable amount of community support, and proximity to jobs and population centers to allow access to the airport. For example, we've mentioned Denver International Airport as the only new greenfield airport built in the U.S. in the last several decades, and the airport is located quite far from downtown Denver. In the 1990s, before the decision to add a third runway at Sea-Tac, there were a number of planning efforts that looked at siting a new airport. At that time, many locations that were viewed as too remote would not be viable locations today because of population growth in those areas. The four airports that we identified in this study as meeting technical criteria required to expand all come with significant challenges. A greenfield site, like the one in Denver, would need to be located far away from people, jobs, and communities with the trade-off of a longer drive to access the airport.

How will you address specific impacts on neighborhoods and communities near airports that expand or begin offering passenger service?

This study looked at impacts generally, to the extent possible when studying a regional perspective, but did not identify specific neighborhood- or community-level impacts. The purpose of this study is to provide a baseline look at the region's existing aviation infrastructure and forecast demand in 2050, not propose specific solutions to address that demand. Without a specific site identified for increasing service, it's very difficult to quantify specific impacts. If an airport sponsor made a decision to begin offering commercial service or expand capacity, that airport would work with its community through a master planning process to identify and analyze impacts.

Did the study consider the cost of health events caused by the aviation industry?

This report considers regional-level environmental and community impacts based on existing information, but because this study is not an environmental impact statement for a specific site, we could not evaluate the cost of health events with a high level of site-specific detail. Other studies in the region consider these issues, and the final report will include links to these relevant reports for more information.

Did the study analyze the impact of fine particulate matter to the health of communities around airports?

We recognize that these are important health impacts, and we take the issue seriously. This study provides information about the region's existing aviation infrastructure and forecasted demand for 2050, but does not propose specific solutions to address that demand. Without a specific site identified for increasing service, we cannot model the related health impacts. Our final report will include links to relevant studies, like the recent University of Washington study on air quality. Additional studies of community, noise, and pollution impacts would be conducted as part of environmental analysis for any future airport expansion.

Forecast

Did you consider different growth scenarios in forecasting demand?

The forecast in the study is unconstrained. We included a low and high range for demand for 2050. As we looked at the scenarios to meet different percentages of the demand, we used the high range of 55.6 million annual enplanements. The low forecast was 49.3 million enplanements.

Does the forecast differentiate between tourist, business, pleasure, and other aviation passengers?

No. The type of travel does not influence the forecast. It is based on historic factors, trends, and demographics. In our public opinion survey, we asked about type of travel to correlate types of travel with opinions on managing aviation demand.

What is the projected population growth for the region between now and 2050?

There are 4.2 million people living in the Puget Sound region today. We expect the population to grow to 5.8 million people by 2050.

Where is population growth expected to be highest?

Looking forward to 2050, we expect to see about half of the forecasted population growth in King County. Outside of the central part of the region, we expect 24% of growth to happen in Snohomish County, 21% in Pierce County, and 5% in Kitsap County.

What industries will grow to catalyze this increase in demand?

The IT and software industries will play a large role in increased demand, but we expect to see continued growth across all sectors.

How much of the forecasted demand could divert to high-speed rail?

The Washington State Department of Transportation (WSDOT) studied high-speed rail between Portland, Seattle, and Vancouver. Most trips that would shift to rail come from car trips. High-speed rail would divert some existing air trips between Seattle and Portland or Seattle and Vancouver; based on WSDOT's study, that diversion would be 65,000 to 135,000 trips out of a projected gap of 22 to 27 million annual enplanements.

How long will it take for aviation demand to return to pre-COVID-19 levels?

As of fall 2020, most forecasters are saying three-to-five or three-to-four years if a vaccine is developed and implemented next year. Most flights during the COVID-19 pandemic are leisure flights; there is very little business travel during the pandemic.

Given COVID-19's impact on air travel, do you still expect the forecasted 55 million annual enplanements in 2050?

Yes. Over the long term, we've seen aviation demand steadily rise since the 1970s, both nationwide and at Sea-Tac, even with dips during events like recessions. There will certainly be a significant dip in 2020, but we do expect demand to return to pre-2020 levels and continue rising over the long term.

Current events can impact long-term forecasts. Since the start of this study, the pandemic has impacted how many people see the future of travel due to more people using things like virtual meeting platforms, and Boeing recently announced plans to move 787 production out of Washington state. How will you account for these changes?

PSRC is always forecasting 20 to 30 years into the future. We're in a highly unusual period with profound impacts on the aerospace industry, but we're studying the long-term trends. Since airline deregulation in the United States in the 1970s, we've seen air travel rates grow faster than the rate of population growth. Since the 1970s, the aviation industry has experienced dips during recessions, but trends have inevitably swung back. We acknowledge that this forecast was completed pre-COVID-19. We originally forecasted 2027 to be the year demand outpaced capacity; unless things come back very quickly, this marker will likely be later than 2027. Overall, we expect this 30-year forecast to remain consistent.

Technical analysis of scenarios

If service is dispersed across multiple airports, would there be a higher number of flights serving the same destinations, or would there be increased ground transportation to provide access between airports that serve different destinations in the Puget Sound region?

Most cities that have multiple commercial service airports have different airports that service different destinations. For example, in Los Angeles, Long Beach and John Wayne airports offer more regional service while Los Angeles International offers national and international service. In a multiple airport scenario, it's likely that Sea-Tac would continue to provide more international service while smaller airports would likely provide more regional service. Some service might shift but it's unlikely that airports would replicate service.

How are air traffic routes determined and can they be managed to help accommodate additional demand?

The FAA is responsible for managing rules and regulations to make sure we all have safe flights while also managing airspace. We looked at adding this amount of volume to airspace in the region and determined that, with the move to NextGen, the regional airspace can accommodate demand if it is managed properly.

How were air traffic routes considered in the technical analysis of different airports in the region?

In the technical analysis of airports in the region, we considered how additional service would conflict with existing airspace limitations, like existing service at Sea-Tac and geographic obstacles like Mount Rainier.

Why was adding a joint-use runway at McChord Air Force Base ruled out?

We applied the same technical criteria to McChord Air Force Base as we did to the rest of the airports in the region. McChord was ruled out because of ownership: Adding commercial air service to a military base facility comes with added complexity. There are a number of facilities in the United States that operate as a joint facility. Charleston, for example, provides both military and commercial service, and is home to a Boeing plant. Portland and Minneapolis are examples of large facilities that have National Guard components. Those are established facilities, though, and converting a military base to joint use and opening it up to the public is a very different process. Our final report will note some of the benefits and challenges to considering McChord. For example, McChord has a long runway and is close in proximity to jobs and population centers, but adding commercial services would be complex and require Department of Defense support as well as an act of Congress. We have toured the facility and are in touch with base leadership through the State's Commercial Aviation Coordinating Commission; there is a representative from the Department of Defense participating in the Commission.

How did you consider drive time and roadway and transit infrastructure when studying existing airports?

We considered drive time and roadway and transit infrastructure in the technical criteria applied to each airport in the region. Specifically, for each airport, we studied how much of the region could access that airport within a 60-minute drive today and in 2050. We also looked at existing roadway infrastructure and technical feasibility to improve that infrastructure, as well as existing transit access to the airport and, again, technical feasibility to provide or improve that service in the future.

Advances in aviation technology

How will advances in electric aircraft affect this forecast?

Studies to date show that electric aircraft are not practical for long ranges. We will likely see electric aircraft used for regional connecting flights. While demand will be the same whether passengers are flying in an electric or conventional aircraft, impacts from electric aircraft would be different than impacts from conventional aircraft. In terms of the environmental impacts discussed in this report, we studied what we know today because we can't predict what new technology will be in place by 2050.

How will new techniques for airspace management affect this forecast?

There are two main techniques FAA is implementing that will affect airspace in the region. The first is NextGen, which is FAA's new air navigation system that will allow more efficient routing. Second, Sea-Tac is on the list to be studied as a Metroplex. This is FAA's effort to increase efficiency for airspace above metropolitan areas with congested or complex airspace.

Will new technology and procedures allow for more flights?

There are techniques being implemented now and in the future that would allow for more flights, such as FAA's NextGen air navigation system. Other tactics, such as shifting flights out of peak period, are more challenging. The airlines need to be on board with any new tactic, and shifting flights out of peak periods, for example, is problematic because airlines want to meet demands for times that passengers will want to fly. A last resort would be a slot control system, where FAA limits the number of flights.

Paine Field

All scenarios assumed Paine Field maintained its current 24 flights per day. With expansion for the region to meet capacity, would there be expansion of more flights at Paine Field?

We looked at master plans for existing airports, including Paine's which allows for 24 flights per day. Paine Field is one of the four airports we identified that meets technical criteria to go beyond its existing capacity. We are not suggesting or recommending that Paine Field, or any other airport in the region, expand. Any future expansion of service at Paine Field would be decided by the airport and Snohomish County.

What is Paine Field doing to update its master plan?

As of fall 2020, Paine Field is beginning the process to update its master plan. The master plan will consider a new terminal, but Paine Field and Snohomish County would need to consider many factors before planning any expansion.

How many flights is Paine Field considering adding?

Paine Field is just beginning the process to update its master plan. The environmental assessment from Paine Field's last master planning effort allows 600,000 enplanements per year, or roughly 24 flights per day. Paine Field only has two gates; this physical infrastructure is also a limitation. If Paine Field and Snohomish County want to increase capacity, they could study the consideration in the master planning process they are starting in 2020 or in the future.

What is the role of outside organizations, like PSRC, in the master plan process for Paine Field?

The master plan process primarily includes the FAA, Paine Field, and Paine Field's airport sponsor, Snohomish County. The FAA is primarily concerned with the decisions made by the airport sponsor.

Regionally, what influences growth at Paine Field?

Airlines are private business; they aim to make a profit. Airlines choose the airports to fly out of, and destinations those flights will serve, based on demand. In the region, we are seeing demand for flights out of Paine Field especially for people who live further north and can avoid driving south to Sea-Tac if Paine offers a flight that meets their needs.

Closing

Lynsey Burgess, PRR, thanked participants for joining and encouraged anyone with additional input to visit the online open house to submit comments.

Appendix A: Notification

Advertisement	Ad platform
	Run dates
	Reach
	Mailed postcard
	Reached mailboxes approximately Sept. 14, 2020
	Mailed to 209,692 addresses
	Google Display Network
	Sept. 21 through Sept. 29, 2020

The postcard content:

Puget Sound Regional Council

PRSRT STD
US POSTAGE
PAID
SEATTLE, WA
PERMIT NO. 1046

Join us to learn more about the future of aviation in the Puget Sound region and share your feedback!

Join us to learn more about the future of aviation in the Puget Sound region

The number of passengers flying in and out of the Puget Sound region has increased in recent years, along with air cargo demand. And while many of us are staying close to home today, we expect aviation demand to continue increasing long term.

Aviation plays a critical role for people and businesses in the growing Puget Sound region. Continued, coordinated planning is essential for ensuring that the regional airport system can support existing and future demand.

Puget Sound Regional Council (PSRC) is leading a study to provide a clear picture of the aviation activities and needs in the region and set the stage for future planning efforts.

Join us to learn more and provide input!

Online open house
www.psrc.org/aviation-baseline-study
Available September 21 through October 19, 2020.

Virtual public meetings
Wednesday, September 23, 5 – 6:30 p.m.
Tuesday, September 29, 11:30 a.m. – 1 p.m.
Wednesday, September 30, 8 – 9:30 a.m.

Visit www.psrc.org/aviation-baseline-study for the meeting phone number or to join on your computer or smartphone. The same presentation will be given at each virtual public meeting. We will host breakout rooms to discuss the study near the end of each public meeting. The online open house and virtual public meetings will cover the same topics, and both will offer opportunities to provide feedback.

Title VI Notice: PSRC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, or to obtain a Title VI Complaint Form, call 206-402-1334. العربية | Arabic, 中文 | Chinese, Deutsch | German, Français | French, 한국어 | Korean, Русский | Russian, Español | Spanish, Tagalog, Tiếng việt | Vietnamese, Call 206-402-1334. TTY Relay 711.

	TBD
	Facebook, Instagram
	Sept. 21 through Oct. 18, 2020
	TBD
	Facebook, Instagram
	Sept. 21 through Oct. 18, 2020
	TBD
	Facebook, Instagram boosted post
	Sept. 21, Sept. 22, 2020
	TBD

	Facebook, Instagram boosted post
	Sept. 23 through Sept. 29, 2020
	Google Display Network
	Sept. 30 through Oct. 18, 2020
	TBD
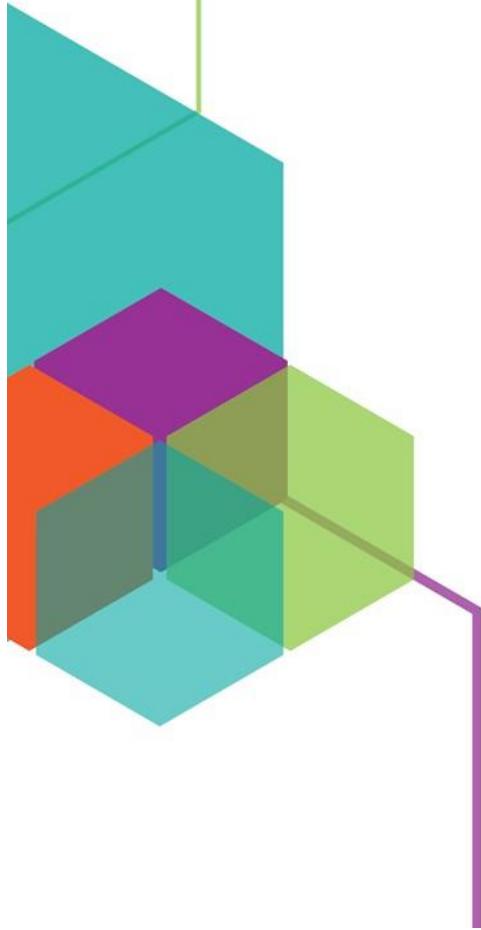
Regional Aviation Baseline Study

Virtual Public Meeting #1
September 23, 2020

Puget Sound Regional Council

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

- 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.

Agenda

- Welcome and overview
- Aviation forecast
- Challenges and opportunities to meet demand
- Ways to accommodate demand
- Impacts of meeting demand
- Q&A

Using ZoomWebinar

Puget Sound Regional Council

- Participants are automatically muted
- For technical issues, chat
- For questions, use the Q&A function
- Participate in a poll:
  - Polls will launch in the main meeting screen
  - Select your answer and then click "submit" at the bottom of the poll box
  - You must have the latest version of Zoom installed on your computer to participate in the polls
  - If you don't have Zoom installed, you can answer poll questions and leave feedback through the Comment box at the end of the online open house at psrc.org/aviation-baseline-study-open-house

*Please note, this meeting will be recorded

Presenters

Puget Sound Regional Council

Josh Brown
Executive Director
PSRC

Mark Kuttrus
Project Manager
WSP

Bridget Wieghart
Deputy Project Manager
WSP

Project overview

WHAT DO YOU THINK?

Puget Sound Regional Council

- What airport do you most frequently fly in or out of?
  - Sea-Tac
  - Paine Field
  - King County International
  - Other

COVID-19 travel impacts
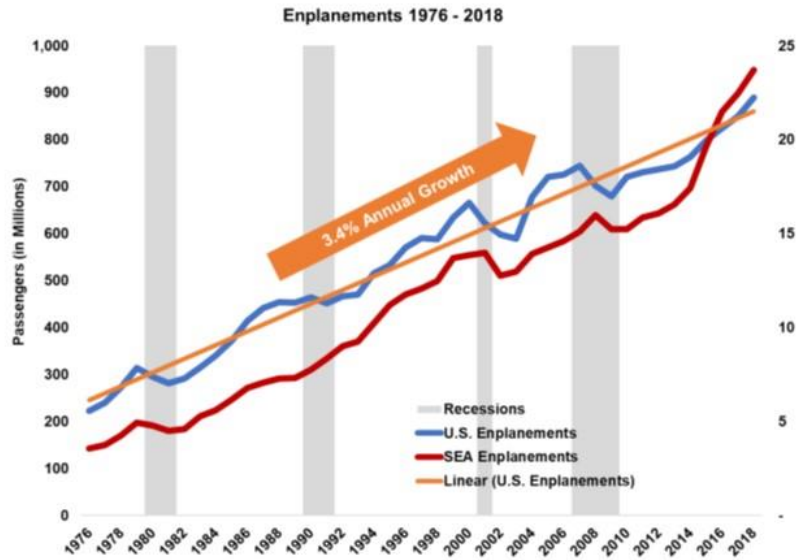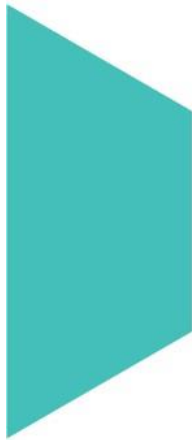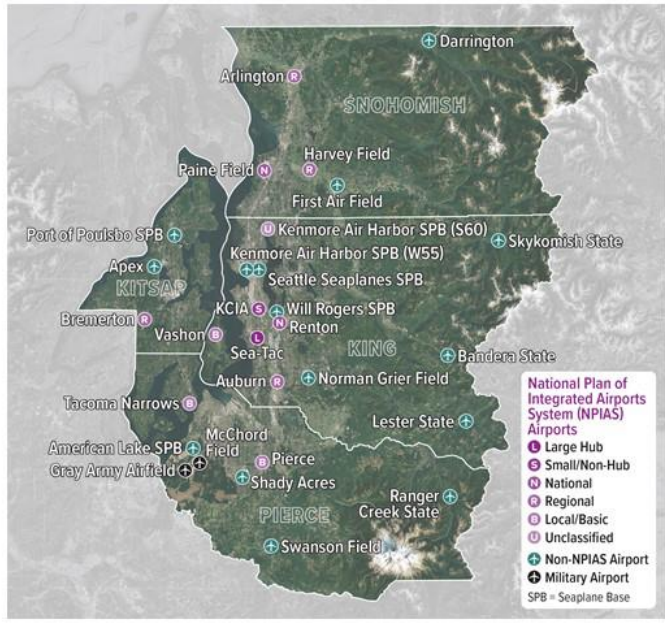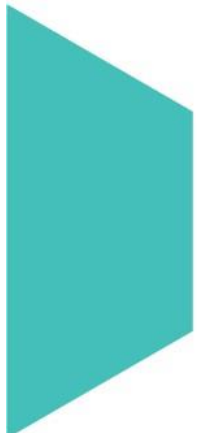
Puget Sound Regional Council

Enplanements 1976 - 2018

3.4% Annual Growth

Recessions
U.S. Enplanements
SEA Enplanements
Linear (U.S. Enplanements)

Source: International Civil Aviation Organization (ICAO) for the U.S. Total, FAA Terminal Area Forecast (TAF) for Sea-Tac.

Study overview
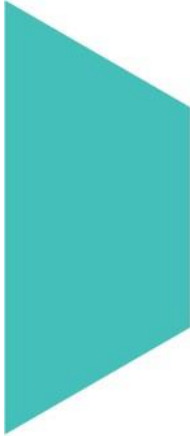
- Three components:
    - Airport and Aviation Activity Analysis
        - Existing conditions and constraints
        - Market trends
        - Regional forecasts
    - Future Aviation Issues Analysis
        - Capacity needs
        - Major challenges
    - Scenarios Definition and Evaluation
        - Identify and analyze scenarios
        - Identify potential next steps

Study overview

National Plan of Integrated Airports System (NPIAS) Airports
- **L** Large Hub
- **S** Small/Non-Hub
- **N** National
- **R** Regional
- **O** Local/Basic
- **U** Unclassified
- ⊕ Non-NPIAS Airport
- ⊕ Military Airport

SPB = Seaplane Base

Aviation forecast

Passenger enplanements in the central Puget Sound region (millions)

55.6 (high forecast)

49.3 (low forecast)

24.0

2018

2050
Unconstrained

User consequences of increased demand

Puget Sound Regional Council

Projected Sea-Tac commercial service delay

Average annual aircraft delay (minutes per operation) vs Annual aircraft operations

- Existing
- PAL 1
- PAL 2 — Operations in 2018
- PAL 3
- PAL 4 — Projected "baseline" in 2050
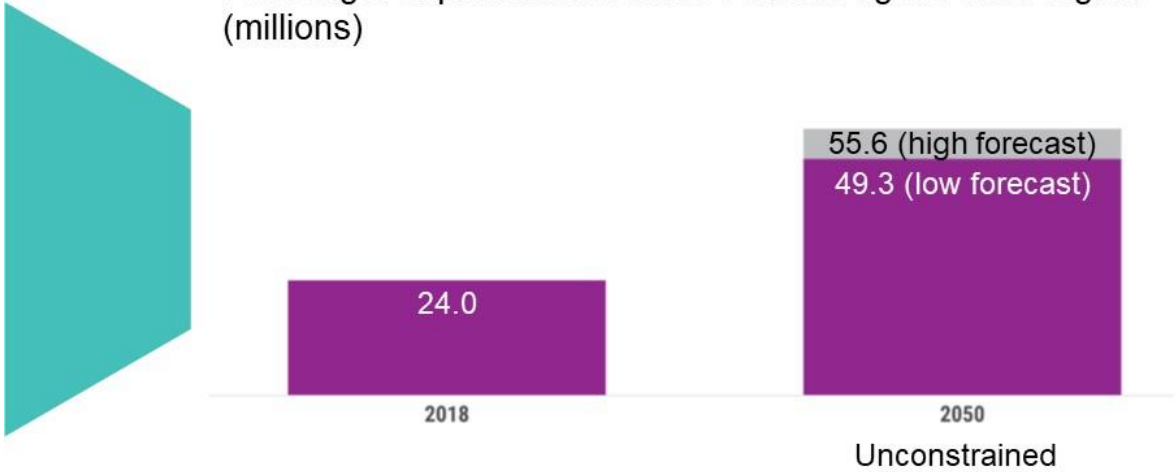
If demand increases and capacity does not, travelers can expect:

- Higher ticket prices
- Longer wait times for security
- More congestion accessing the airport and difficulty parking
- More frequent flight delays

Regional consequences of increased demand

If capacity expands to meet demand, the region will experience:

- Increased jobs and economic benefits from the aviation industry
- More noise impacts from aviation activity
- More greenhouse gas emissions from airplanes and supporting activities (such as passengers driving to the airport)

Challenges and opportunities to meet demand

Study topics
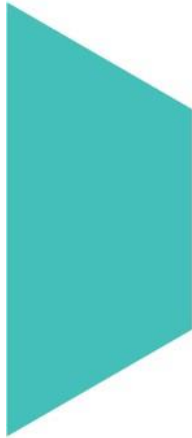
Commercial

Scheduled passenger service

Air Cargo

Freight and mail carried in the lower hold of passenger aircraft and on dedicated freighters

General Aviation

Business, flight instruction, medical, emergency, law enforcement, recreation, and tourism
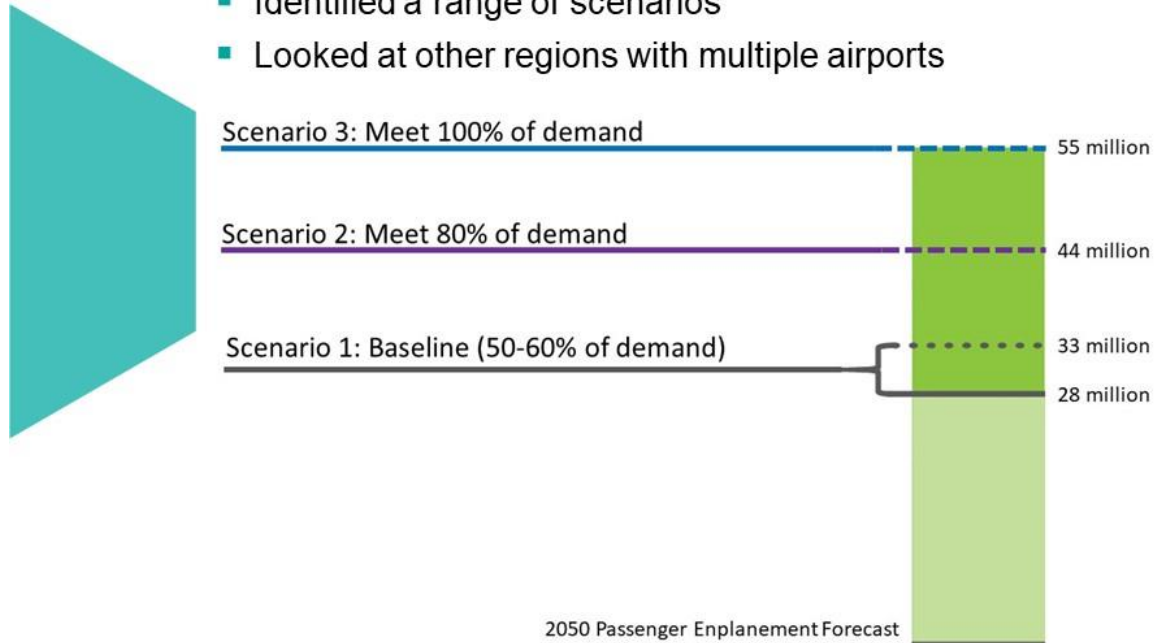
Passenger service

- Projected gap in 2050 is roughly equivalent to the amount of passenger service that moved through Sea-Tac in 2019
- Existing commercial service airports – Sea-Tac, King County International Airport, and Paine Field – are limited in their ability to expand
- As drive times increase, there is lack of reliable airport access for Kitsap and Pierce counties and eastern Snohomish and King counties
- High-speed rail could divert some trips away from air travel, but only a very small number (0.46% or less of projected gap in service)

Ways to accommodate demand

Source: Gulfstream

Scenarios

- Identified a range of scenarios
- Looked at other regions with multiple airports

Scenario 3: Meet 100% of demand — 55 million

Scenario 2: Meet 80% of demand — 44 million

Scenario 1: Baseline (50-60% of demand) — 33 million — 28 million

2050 Passenger Enplanement Forecast

Scenario 1: Meet 50% to 60% of demand

- Existing commercial capacity and plans already in place
  - Sea-Tac near-term projects (Sustainable Airport Master Plan)
  - Sea-Tac long-term projects (needs environmental review)
  - Paine Field maintains current capacity of 24 flights per day
- Gap of 22 to 27 million annual enplanements by 2050
- Paine Field's permits allow for 24 flights per day, which is the number used in this study. The airport is updating its master plan and could eventually accommodate more flights per day.

Proposed SAMP Near-Term Projects — Port of Seattle, SEATTLE-TACOMA INTERNATIONAL AIRPORT

Scenario 2: Meet 80% of demand

Puget Sound Regional Council

- Assumes Sea-Tac near- and long-term projects
- Paine Field maintains current capacity
- Would require significant development at 1 or 2 existing airports to accommodate 11 million annual enplanements

One airport with two runways
(examples)

San Jose International

Sacramento International

Two airports with single runway
(examples)

John Wayne

Bellingham International

Scenario 3: Meet 100% of demand

Puget Sound Regional Council

- Assumes Sea-Tac near- and long-term projects
- Paine Field maintains current capacity
- Would require significant development at 2 or 3 existing airports, totaling 3 runways

One airport with three runways
(example)

Sea-Tac International

Multiple airports totaling three runways

Ways scenarios could be achieved

Puget Sound Regional Council

- Study purpose was not to make recommendations about expanding or changing service offerings at specific airports in the region
- Only looked at existing airports, not new locations
- Identified airports with technical criteria required to expand in the future

Technical criteria

- Technical criteria required for existing airports to potentially expand in the future:
  1. Ability to accommodate single or parallel runways
  2. Existing airspace constraints or conflicts
  3. Impact to Sea-Tac aircraft operations (airspace)
  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

Technical analysis of existing airports

- Most existing airports were eliminated after criteria 1-5
- Four airports were determined to have potential to provide commercial capacity:
  - Arlington Municipal
  - Bremerton National
  - Paine Field
  - Tacoma Narrows
- Learn more about how criteria were applied at our online open house at psrc.org/aviation-baseline-study-open-house

Impacts of meeting demand

Source: KOMO News

Environmental impacts of aviation

Puget Sound Regional Council

- Aviation industry's environmental impacts are changing quickly:
  - Improved navigation systems increase airspace efficiency
  - Fuel economy is improving
  - The Puget Sound region is leading the way on electric aircraft
- Environmental impacts of aviation are more difficult to quantify than economic impacts – but no less important

Environmental impacts of aviation: fuel consumption

Puget Sound Regional Council

FUEL EFFICIENCY GAIN SINCE 1960
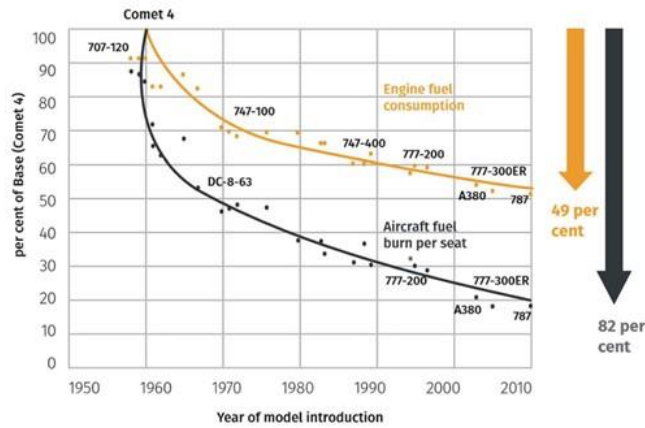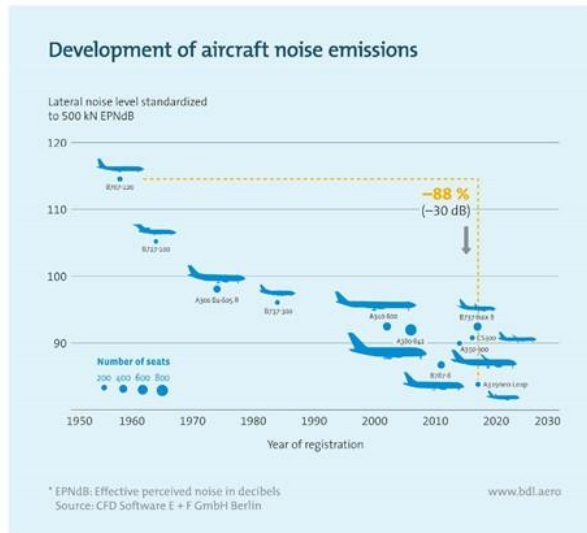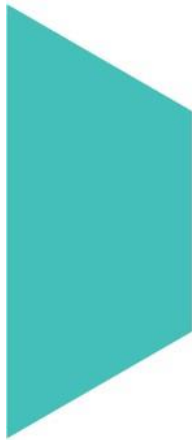

Source: AirlineRatings

Since 1960:

- Engine fuel consumption has decreased by 49%
- Future fuel types and efficiency should reduce fuel consumption

2015 estimated regional GHG aviation emissions*:

- 654,600 tonnes
- Reflects approximately 2% of total regional emissions and 5% of regional transportation emissions

* Source: Puget Sound Clean Air Agency Greenhouse Gas Emissions Inventory

Environmental impacts of aviation: noise

Development of aircraft noise emissions

Lateral noise level standardized to 500 kN EPNdB

−88 % (−30 dB)

Number of seats
200 400 600 800

Year of registration

* EPNdB: Effective perceived noise in decibels
Source: CFD Software E + F GmbH Berlin

www.bdl.aero

- Newer aircraft models have lower noise emissions
- Higher volume of operations mean that airport impacted communities experience more consistent noise at lower decibel levels
- Noise impacts depend on the location of aviation activity

Economic impacts of the aviation industry

Puget Sound Regional Council

- **Scenario 1: Meet 50% to 60% of demand**
  - Additional $4 - $9 billion in economic activity
  - 27,000 – 61,000 added jobs
- **Scenario 2: Meet 80% of demand**
  - Additional $20 billion in economic activity
  - 135,000 added jobs
- **Scenario 3: Meet 100% of demand**
  - Additional $31 billion in economic activity
  - 209,000 added jobs
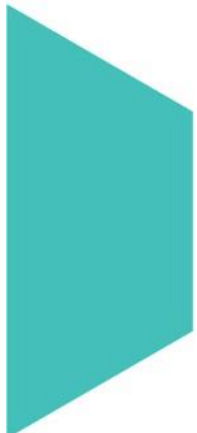
Benefits and challenges of meeting demand

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Scenario 1: Baseline 50-60% of 2050 demand met	Scenario 2 80% of 2050 demand met	Scenario 3 100% of 2050 demand met
460-540k annual operations	**720k** annual operations	**900k** total operations
2 commercial airports	**2-4** commercial airports	**2-5** commercial airports
0 additional runways	**2** additional runways	**3** additional runways
5%-24% increase in activity (related to noise & environmental impacts)	**65%** increase in activity (related to noise & environmental impacts)	**106%** increase in activity (related to noise & environmental impacts)
28-33 million enplanements	**44m** enplanements	**55m** enplanements
22-27 million unmet enplanements	**11 million** unmet enplanements	**0** unmet enplanements
$4-9 billion added annual benefit	**$20 billion** added annual benefit	**$31 billion** added annual benefit
27-61k added jobs	**135k** added jobs	**209k** added jobs

Comparisons are to 2018

WHAT DO YOU THINK?

- In considering the region's plans to manage growing demand for aviation, what is most important to you?
  - On-time, easy-to-access passenger service
  - Maximizing economic benefits of the aviation industry
  - Minimizing noise and environmental impacts of aviation

WHAT DO YOU THINK?

Puget Sound Regional Council

- In considering the region's plans to manage growing demand for aviation, what is least important to you?
  - On-time, easy-to-access passenger service
  - Maximizing economic benefits of the aviation industry
  - Minimizing noise and environmental impacts of aviation

WHAT DO YOU THINK?

Puget Sound Regional Council

- Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:
  - Prioritize meeting future demand for aviation
  - Meet some, but not all, future demand for aviation
  - Not expand capacity at all
  - Unsure

WHAT DO YOU THINK?

Puget Sound Regional Council

- Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?
  - Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports as possible
  - Disperse new aviation service – and associated benefits and impacts – at multiple airports
  - Don't know

Timeline and next steps

Source: Pierce County

Next steps

- 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.

Project timeline

- Two additional virtual public meetings
  - September 29, 11:30 a.m. – 1 p.m.
  - September 30, 8 – 9:30 a.m.
- Online open house live through October 19 at psrc.org/aviation-baseline-study-open-house
- Public survey is complete; focus group interviews are taking place now
- Public input gathered through virtual public meetings, online open house, survey, and focus group interviews will inform final report
- Final report will be developed this fall/winter
- Final report will be shared with PSRC's board and on website in the spring

Q & A
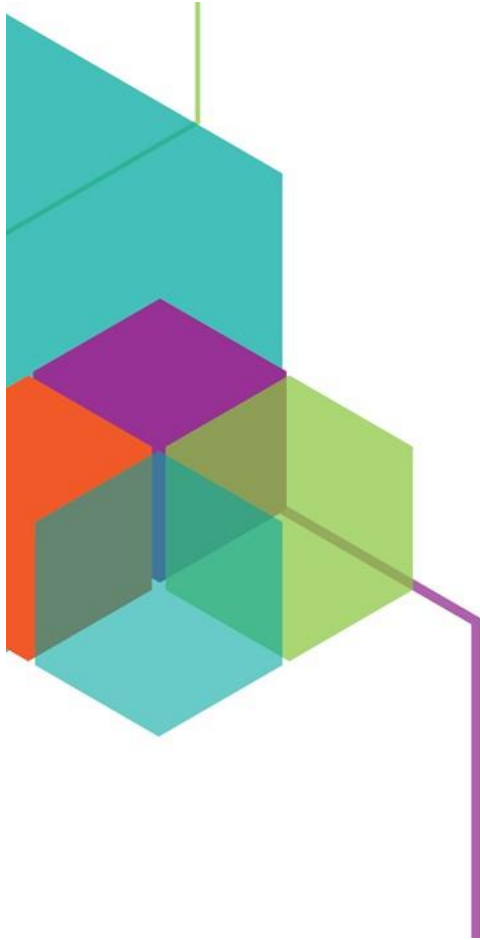
Thank you

Learn more and visit our online open house through October 19 at:

psrc.org/aviation-baseline-study-open-house

Additional virtual public meetings will be held on September 29 and 30

Puget Sound Regional Council

Appendix C: Virtual public meeting attendee information

Meeting 1: Sept. 23, 2020, 5-6:30 p.m.				
Total attendees	**Attendees by county**		**Attendees by zip code**	
	County	**Number**	**Zip**	**Number**
65	1	Fairfax, VA	20100	1
	1	Kandy, KY	20000	1
	24	King, WA	98003	5
			98023	1
			98034	1
			98070	3
			98075	1
			98103	1
			98104	2
			98144	3
			98155	1
			98166	2
			98198	4
	12	Kitsap, WA	98310	1
			98340	2
			98346	1
			98367	3
			98370	2
	1	Kittitas, WA	98926	1
	7	Pierce, WA	98329	1
			98335	6
	12	Snohomish, WA	98087	7
			98201	2
			98203	1
			98204	2
			98223	2
			98275	7
	1	Wake, NC (1)	27601	1

Meeting 2: Sept. 29, 2020, 11:30 a.m.-1 p.m.				
Total attendees	**Attendees by county**		**Attendees by zip code**	
	County	**Number**	**Zip**	**Number**
76	Denver, CO	1	80202	1
	Douglas, NE	2	68116	1
			68130	1
	Fairfax, VA	1	20100	1
	Kandy, KY	1	20000	1
	King, WA	29	98003	3
			98023	2
			98034	1
			98070	3
			98104	1
			98108	1
			98116	1
			98121	1
			98122	1
			98144	2
			98155	1
			98158	1
			98166	2
			98188	3
			98198	6
	Kitsap, WA	12	98110	2
			98310	2
			98311	1
			98312	2
			98340	2
			98359	1
			98367	1
			98392	1
	Kittitas, WA	1	98926	1
	Pierce, WA	3	98335	3
	Snohomish, WA	24	98012	1
			98036	1
			98087	3
			98204	3
			98208	1
			98223	2
			98241	1

			98275	12
	Spokane, WA	1	99224	1
	Wake, NC	1	27601	1

Meeting 3: Sept. 30, 2020, 8-9:30 a.m.				
Total attendees	**Attendees by county**		**Attendee by zip code**	
	County	**Number**	**Zip code**	**Number**
35	Douglas, CO	1	80202	1
	Douglas, NE	1	68130	1
	Fairfax, VA	1	20100	1
	Kandy, KY	1	20000	1
	King, WA	15	98002	1
			98023	1
			98034	1
			98040	1
			98070	1
			98092	1
			98101	1
			98104	1
			98122	1
			98144	1
			98166	3
			98188	1
			98198	1
	Kitsap, WA	5	98312	1
			98337	1
			98340	1
			98342	1
			98366	1
	Kittitas, WA	1	98926	1
	Snohomish, WA	8	98087	1
			98201	1
			98203	1
			98204	2
			98275	2
			98296	1
	Thurston, WA	1	98502	1
	Wake, NC	1	27601	1

Appendix D: Virtual public meeting poll answers, chat, and Q&A

Poll answers

1. What airport do you most frequently fly in or

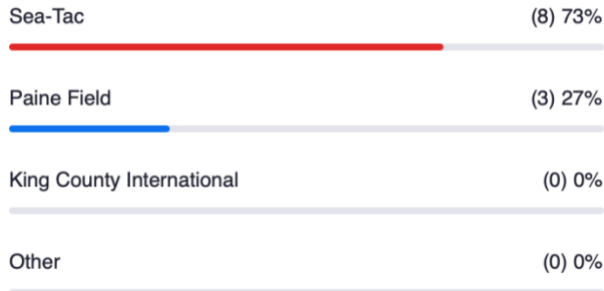|	
Sea-Tac	(31) 89%
Paine Field	(1) 3%
King County International	(0) 0%
Other	(3) 9%
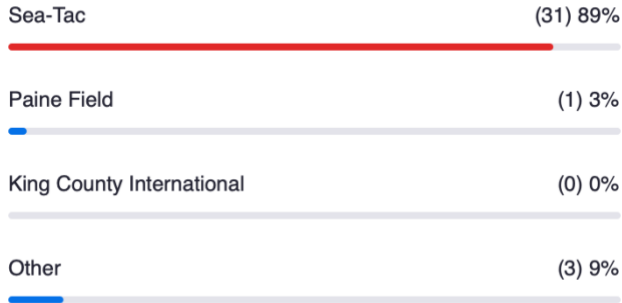
Virtual public meeting #1

1. What airport do you most frequently fly in or out

Sea-Tac	(25) 81%
Paine Field	(5) 16%
King County International	(0) 0%
Other	(1) 3%
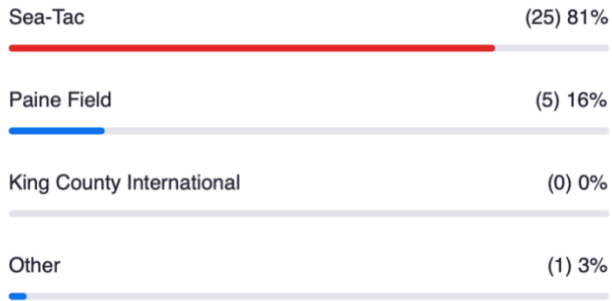
Virtual public meeting #2

1. What airport do you most frequently fly in or out

Sea-Tac	(8) 73%
Paine Field	(3) 27%
King County International	(0) 0%
Other	(0) 0%

Virtual public meeting #3

1. In considering the region's plans to manage the growing demand for aviation, what is most important to you?

On-time, easy-to-access passenger service (11) 35%

Maximizing economic benefits of the aviation industry (4) 13%

Minimizing noise and environmental impacts of aviation (16) 52%

Virtual public meeting #1

1. In considering the region's plans to manage the growing demand for aviation, what is most important to you?

On-time, easy-to-access passenger service (11) 28%

Maximizing economic benefits of the aviation industry (6) 15%

Minimizing noise and environmental impacts of aviation (22) 56%

Virtual public meeting #2

1. In considering the region's plans to manage the growing demand for aviation, what is most important to you?

On-time, easy-to-access passenger service (3) 21%

Maximizing economic benefits of the aviation industry (1) 7%

Minimizing noise and environmental impacts of aviation (10) 71%

Virtual public meeting #3

1. In considering the region's plans to manage the growing demand for aviation, what is least important to you?
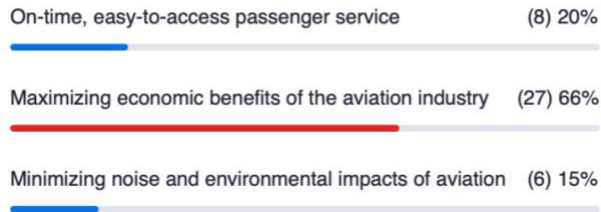
On-time, easy-to-access passenger service (4) 13%

Maximizing economic benefits of the aviation industry (20) 67%

Minimizing noise and environmental impacts of aviation (6) 20%

Virtual public meeting #1

1. In considering the region's plans to manage the growing demand for aviation, what is least important to you?

On-time, easy-to-access passenger service (8) 20%

Maximizing economic benefits of the aviation industry (27) 66%

Minimizing noise and environmental impacts of aviation (6) 15%

Virtual public meeting #2

1. In considering the region's plans to manage the growing demand for aviation, what is least important to you?

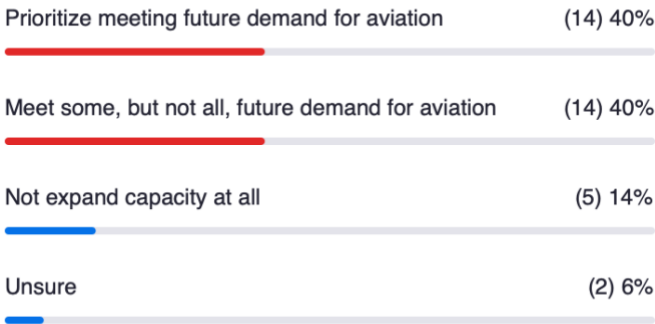On-time, easy-to-access passenger service (5) 36%

Maximizing economic benefits of the aviation industry (8) 57%

Minimizing noise and environmental impacts of aviation (1) 7%

Virtual public meeting #3

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:

Prioritize meeting future demand for aviation	(14) 40%	
Meet some, but not all, future demand for aviation	(14) 40%	
Not expand capacity at all	(5) 14%	
Unsure	(2) 6%	

Virtual public meeting #1

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:

Prioritize meeting future demand for aviation	(12) 31%	
Meet some, but not all, future demand for aviation	(18) 46%	
Not expand capacity at all	(9) 23%	
Unsure	(0) 0%	

Virtual public meeting #2

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:

Prioritize meeting future demand for aviation	(4) 31%	
Meet some, but not all, future demand for aviation	(6) 46%	
Not expand capacity at all	(3) 23%	
Unsure	(0) 0%	

Virtual public meeting #3

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?

Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports   (8) 24%

Disperse new aviation service – and associated benefits and impacts – at multiple airports   (21) 64%

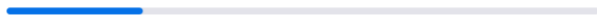Don't know   (4) 12%

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?

Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports   (14) 33%

Disperse new aviation service – and associated benefits and impacts – at multiple airports   (25) 60%

Don't know   (3) 7%

1. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, as well as access to the airport, which option would you prefer?

Consolidate new aviation service – and associated benefits and impacts – at one airport, or as few airports   (3) 23%

Disperse new aviation service – and associated benefits and impacts – at multiple airports   (10) 77%

Don't know   (0) 0%

Virtual public meeting #1 chat transcript

17:01:46   From Debra Hoheisel   to   All panelists : is there audio ?

17:02:09   From Kay Morrison   to   All panelists : Is there supposed to be audio?

17:02:26   From Debra Hoheisel   to   All panelists : got it

17:04:33   From Isaac Alexander   to   All panelists : Thank you for organizing these online meetings!

17:12:13   From Boris Zaretsky   to   All panelists : Did you consider Vancouver BC and Portland?

17:14:42   From Marianne Markkanen   to   All panelists : will this presentation be available to the public?

17:16:06   From Ben Bakkenta (PSRC)   to   All panelists : This presentation is being recorded and will be posted on the project website after the meeting. The same presentation will also be given twice next week - the dates and times are on the project website.

17:17:11   From Marianne Markkanen   to   All panelists : TY

17:17:54   From Boris Zaretsky   to   All panelists : I am still questioning the demand.   Central Puget Sound area serves as a capture area for a number of communities outside this area.   If the air traffic in and out of these areas is increased, the Central Puget Sound demand will decrease.

17:18:08   From Kevin Z   to   All panelists : How will increases in noise (pollution) be better mitigated? Are there hardware mechanisms which could added to planes which could better quell the engine noise from departing planes?

17:23:02   From Kevin Z   to   All panelists : What's the potential increase of Paine flights, up from 24? Double? Triple?

17:28:38   From Warren Hendrickson   to   All panelists : Per PAE website: "...The number of scheduled commercial flights from Paine Field remains 24 departures and arrivals each day..." That's 48 operations.

17:32:47   From Kim Benson   to   All panelists : what about the impact of the noise to neighborhoods and school?

17:33:14   From Boris Zaretsky   to   All panelists : Electric airplanes are limited to general aviation for the moment

17:46:56   From Marianne Markkanen   to   All panelists : survey popped up then disappeared

17:49:21   From Artie Nelson   to   Marianne Markkanen and all panelists : The poll questions are available on the online open house, and you can answer and leave feedback there.

17:58:22   From Martin Ciucci   to   All panelists : how can we look at different flight patterns for Paine field. especially land ing to the north.

17:58:42   From Boris Zaretsky   to   All panelists : I am an aerospace engineer and can answer the noise/emission question.   But your answer is OK

17:58:54   From Martin Ciucci   to   All panelists : and times for louder , bigger aircraft

18:06:15   From Collene Gaolach   to   All panelists : was happening with PDX and Spokane when Everett was on line

18:31:42   From Marianne Markkanen   to   All panelists : thank you very good meeting

Virtual public meeting #1 Q&A transcript

- How were the forcast enplanement numbers calculated
- With the pandemic, this is going to make a huge difference in the airline industry.
  I think you need to address this.
- I notice you mention GHG but not lead from fuel. Are you taking lead contamination into account, or do you anticipate clean fuels in this projection?
- Is a flight = one takeoff + one landing?
  Or is flight = a takeoff or landing
- how many more flights and enplanements is Paine Field considering to add? and when would that be decided?
- What percentage of passengers who enplain in one of the Central Puget Sound airports actually reside in Central POuget Sound?
- Why are you not conisdering growth at Paine field?
- the noise and pollutiion at Sea Tac would grow. How would you lower/compensate residents?
- Where is population growth predicted to be highest - North Puget sound or Southern portion of puget sound?
- How will increases in noise (pollution) be better mitigated? Are there hardware mechanisms which could added to planes which could better quell the engine noise from departing planes?
- WIth Paine fielding coming on line, the communities of Lake Forest Park, Kenmore, and near-by are now getting noise from both SEA and Paine field to having several 3-5K foot fly overs per hour. Expansion of either will make this significantly worse - how will you mitigate property value loss and quality of life decrease for these residents?
- Have you cooperated with similar organizations in regions neighboring Central Puget Sound?
- increasing air space capacity and efficiency puts LOTS of planes into the same landing flight path - dramatically increasing noise as planes enter the landing flight path.
- if you lessen the environmental impact would it still be less than the current amount if you the increase of flights
- Under the criteria to expand why is there no mention of how this will effect the people and the neighborhoods that any expansion will effect. Also how the added pollution will effect things like schools and the ability of children to play outside! Home owners to sit outside on their patios! I live under third runway no longer able to sit outside of my house!
- Why was adding a joint use runway at McChord AFB ruled out? Did PSRC reach out to JBLM? It seems like a good strategic location to improve access to commercial flights for Pierce and Thurston Co residents with less community impact than Tacoma Narrows Airport.
- Currently where I live you cannot have conversations outside due to the airplane noise as it is
- How do you define the jobs == What kind of jobs?
- Are the jobs construction or permanent?
- I am still questioning the demand, which is at the core of the study.   Will I have an opportunity to speak or is Q&A the only way to ask questions?
- the emissions turn our sidewalks black right now

- The area in and around the Tacoma Narrows Airport is experincing some salt water intrusion in existing wells and some permits for new wells have been denied by the Pierce county Health Department. As you may no the only source of water on the Peninsula is ground water. A forcast of water aquifers should be considered
- I live near Paine Field. Additional road traffic needs to be addressed.
- what is the N for these poll questions?
- Not enough information for this poll question.
- if we disperse service to multiple airports, won't we need to increase overall flights so someone can to/from similar desinations (eg SEA to LA; Paine to LA) or ground tansportation between airports?
- With airlines laying many workers this fall how can you go forward with this plan?
  This doesn't make any sense. This study needs to be done after COVID is over.
  The background you are stating is not real time.
- how many peiple participated in this session
- I think covid will affect demand long-term. Many business and leisure travelers will change old habits.
- The Bremerton and Narrows airports seem ideal in the location sense. Are either of those big enough to handle commercial aircraft? This may be out of the scope of your study.
- where was Bellingham , the new commercial airport for Delta, on the map?
- What kind of regulations will be put in place to avoid airplanes flying low above nearby neighborhoods? Some of the ones from Paine fly very low over my neighborhood in Lynnwood.
- Does your forecast differentiate between tourist, business, pleasure and other aviation passengers?
- Would the future airport be require public funds for development and operation, or privately developed and operated like Paine?
- Yes, carriers want to go to where they anticipate business. What is the business case for airports that are not in dense urban areas? In other words, the impacts in a sparsely populated area might be less than in a crowded urban area.
- When Sea Tac added the third runway it now goes down my street. We didn't recieve airport windows or anything. The airports don't really seem to care about the environment
- How were the forcast enplanement numbers calculated
- Road traffic around Paine: too much congestion already.

Virtual public meeting #2 chat transcript

11:48:48   From Tim Toerber : A-CDM efforts underway at SEA to move schedules away from peak hours combined with FAA slot control will allow for siginicantly greater capacity at SEA

12:14:54   From Mary Vigilante : I am on zoom but not seeing a poll

12:16:58   From Artie Nelson   to   Mary Vigilante and all panelists : You may need to update Zoom; you can also answer the poll questions at our online open house here: https://www.psrc.org/aviation-baseline-study-open-house-6

12:27:28   From Mike Shea : Speaking of impact, at Paine Field an EA was performed rather than a full EIS. Many of us consider this study to have been inadequate. Airport community members need to be vigilant as to what type of study is being proposed for their local airport, and hold their local leaders accountable.

12:29:48   From Lawrence Krauter   to   All panelists : Mike, the FAA ultimately determines the level of environmental review (CATEX, EA or EIS), not the airport sponsor.

12:34:32   From Mike Shea : Electric passenger aircraft are a long ways off. Good idea though, eventually.

12:35:59   From Mike Shea : Existing general aviation facilities as well. Thank you Mark.

12:37:18   From Josh Brown, PSRC   to   Warren Zimmerman and all panelists : HI Warren! You can add your question here. Make sense?

12:37:32   From Lawrence Krauter   to   All panelists : Mike, that is definitely true and I think it is likely that General Aviation aircraft will be first followed by smaller cargo and passenger aircraft.

12:39:32   From Tim Toerber : https://nari.arc.nasa.gov/sites/default/files/attachments/Kirsten%20Bartok%20AirFinance%20Nasa%20Supply%20Chain%20Working%20Group%20Presentation%20Sept%2010%202020.pdf

12:46:55   From Mike Shea : Travel volume: Perhaps also hesitancy to travel inside a confined space with others (planes, trains, busses, etc.) Less hesitancy to drive yourself and/or family in a car.

12:47:43   From Barbara McMichael   to   All panelists : Thanks for your time - much appreciated! And I encourage PSRC to take a vigorous lead on considering environmental impacts throughout our region.

12:50:06   From Lawrence Krauter   to   All panelists : Nice work Josh and PSRC staff and WSP consultants!

12:54:34   From Artie Nelson   to   Warren Zimmerman and all panelists : Do you have a question? Feel free to ask here or Q&A

12:55:43   From Mike Shea : Environmental studies (i.e. EIS) are very important to determine mitigations that need to be implemented for the local communities around the proposed airports.

12:58:33   From Dave Kaplan   to   All panelists : Thank you

Virtual public meeting #2 Q&A transcript

- we use Paine Field
- Does the study cover flight paths and impact of noise pollution?
- Re: future growth trends in aviation - isn't there any reconsideration at this point, considering climate change and the fuel inefficiencies of aviation compared with other modes of transport/travel?
- Did the study also look at airports south of Pierce County - ie, Chehalis area.
- What does "WSP" stand for?
- Mark, will FAA impose an operational cap on the airport and basically have slot control once delays exceed 16 mins. on average?
- If "economic benefits" mean increased greenhouse gases - that ultimately is not really an economic benefit, right?
- I recalled that there are restrictions to the noise factor for planes, how will you be able to control it so like the planes will have silencer... are the restrictions already lapsed?

- It looks as though this study has not (yet?) included any work on the externalities (community impacts). Will that become a part of this report... and if so... what will that look like?
- Can you tell us more about why you project such a small percentage of impact if we were to place more emphasis on high speed rail?
- Has the study considered the emerging electric aircraft revolution which will pick up much of the regional air travel to and from regional airports other than SEA? This future trend will leave SEA runway slots for more of the transcon or international flight activity.
- For the "baseline" of flight paths & procedures, will those in place for the 70 years pre-NextGen be considered, or only the brand new NextGen ones enacted without any outreach to the communities most impacted by them?
- You mentioned Renton and Boeing Field aerospace manufaturing impact criteria. What about Paine Field? ...manufacturing
- Environmental and social justice impacts are more difficult to quantify - but I would argue are even MORE important - what can you do to study this? Just acknowledging that it's important without truly addressing it is insufficient. We need a holistic study, not just an economic one.
- Currently, homes on Beacon Hill, Seattle, 10 miles north of SeaTac, experience noise levels of 70-90 dB for every aircraft that passes overhead, which occur as often as every 80 seconds, peak periods, pre-pandemic.
- Mark, are connecting passengers included in the total enplanement numbers, or are the numbers just O&D based on population?
- What industries will grow in the coming decades that require this much flight demand? We know the Software/IT industry is increasing for the last decade. What are other industries increasing now and in the future?
- The slide on benefits does not include the cost of health events due to emissions like the fine particlate matter and noise, effects include heart attacks, strokes, auto-immune diseases, fetal development problems, slower learning in schools, and more. The aviation industry in not paying for these issues and now the public needs to pay.
- How can you project out future growth without taking GHG and global impacts into account. How else would you address the demand for growth?
- Re the final question about consolidating or dispersing - a lot would depend on best choices regarding environmental impact.
- Just a comment on the noise pollution issue and to Mark's point on it being location dependent - because I live under one of the main Seatac flight paths, noise pollution is still very disruptive even living 15 miles away. When looking at community impact, communities under the designed flight paths need to be considered.
- Do you think it will take 5 years ffor seatac to get back to whree it was pre covid?
- Who is your "airspace expert"?
- Has the option of adding a new additional regional or international airport outside the the Puget Sound area?
- If things push thru, would you be issuing debt or bonds, or grants available to finance the expansion? Our preference is grant and revenue funded rather than bonds that the residents will pay for it.
- I did not note when you said before. What are the population projection numbers? Will the population increase from 42 million from now to 58 million population increase by 2050?
- Your current estimate of cost benefits does not include estimate of health costs local community members need to pay. Should any cost benefit not be adjusted for these costs?
- Will the recording be posted on psrc.org?

Virtual public meeting #3 chat transcript

08:49:58   From Tony Mace   to   All panelists : All scenarios considered leaving Paine Field at the existing 24 flights daily. With expansion for the region to meet capacity, would there be expansion of more flights at Paine Field?

Virtual public meeting #3 Q&A transcript

- what is unconstrained
- Mark - did you know that your background plane wings look like they're coming out of your ears? it's funny....but a bit distracting.
- For the technical criteria to increase capacity to existing airports, how about shifting passengers to other modes - trains?
- thank you! =)
- Who's on the technical working group? Who selected the participants? I couldn't find the names.
- Have you thought about having a high, medium and low growth scenario? What year do you use for a starting point at demand for future operations, and what assumptioins do you use for number of seats per plane? If you have a 150 person plane you don't need as many flight ops as if the plane is 100
- I don't think you are addressing the fine particulate matter imipacts to the health of communities around airports. For example did you take into account the recent UW study on air quality impacts caused by SeaTac. Other airport communties have some up with similiar results. I think you may be mimizing those health impacts. Paul
- How about an effort to design planes that are smaller and still fit the same number of passengers?
- How do today's responses compare to the two previous webinars?
- Current events can impact long-term forecasts. Likely since you started this study the coronavirus crisis has impacted how many people see the future of travel due to more people using things like Zoom.
- I meant - minimizing - you did address, just seemed to discount the impacts. There are a lot of people in the Seatz community that are concerned about airport airquality.
- Will PSRC be posting links to the master/comprehensive plan update contacts on their page as it relates to the airport planning?
- This is connected to Q above...   Yesterday Boeing announced moving 787 out of WA. That will have huge impact on Paine Field and potentially opening up capacity there too. Will study be updated for such impacts as Covid and Boeing moving?
- The study presented here is based on uncontrained scenarios for growth, what does the data look like with constraints as this will reflect realities that will dictate growth.
- Why did the airport in Olympia not make the final list of regional airports?
- will you present the results of this study to the Port of Seattle,etc?
- related question - how will this study be used? I probably missed this....
- thank YOU!
- is there a prior baseline study done by you?
- Well done =) Very informative.
- The virtual open houses have been wonderful as they provide access and opportunity to those that can't make the traditional inperson meetings.

Appendix E: Online open house

Puget Sound Regional Council

OUR WORK   WHAT'S HAPPENING   DATA AND RESOURCES   ABOUT   CONTACT CENTER

Our Work

Regional Aviation Baseline Study Online Open House

Aviation plays a pivotal role in the central Puget Sound region.

Paine Field

العربية | 中文 | Deutsch | Française | 한국어 | Русский | Español | Tagalog | Tiếng việt

Welcome

We're hosting this online open house and a series of virtual public meetings to provide an opportunity for you to review the work we've done for the Regional Aviation Baseline Study and

share your feedback. This online open house will be live through **October 19, 2020**.

Jump to section...

About PSRC

The Puget Sound Regional Council (PSRC) develops policies and coordinates decisions about regional growth, transportation, and economic development planning within King, Pierce, Snohomish, and Kitsap counties. PSRC is composed of over 80 jurisdictions, including all four counties, cities and towns, ports, state and local transportation agencies, and tribal governments within the region.

Project purpose

PSRC is leading a baseline study to provide a clear picture of the aviation needs in the region and set the stage for future planning efforts.

Aviation plays a critical role for people and businesses in the growing central Puget Sound region, which is currently home to 29 airports of varied sizes and functions. Continued, coordinated planning is essential for ensuring that the regional airport system can support existing and future demand. As part of these efforts, PSRC has launched the Regional Aviation Baseline Study, funded by a $1.6 million grant from the Federal Aviation Administration.

Population, employment, and income growth has driven regional aviation demand and this long-term trend is expected to continue even considering the short-term effects of COVID-19. The Seattle-Tacoma International Airport is also a growing hub for connections to Asia. Globalization and e-commerce are international trends that are driving dramatic air cargo growth, which is also expected to continue.

Commercial Aviation Coordinating Commission

In a separate effort, the state Legislature created the Commercial Aviation Coordinating Commission. Managed by the Washington State Department of Transportation (WSDOT), the Commission will develop recommendations to meet the state's critical aviation system capacity needs. The Commission has been tasked with recommending ways to accommodate capacity needs at other facilities. You can learn more about this effort on WSDOT's website.

COVID-19 impacts to aviation

This study began in 2019, before the COVID-19 pandemic began to impact aviation. Many of us are staying close to home right now, and growth in passenger traffic at Sea-Tac has slowed as a result. There have been dips in aviation growth over the past 40 years, particularly in line with recessions, but long-term aviation growth has remained consistent. We expect the long-term forecasts outlined in this open house to remain representative of the long-term demand of the region.
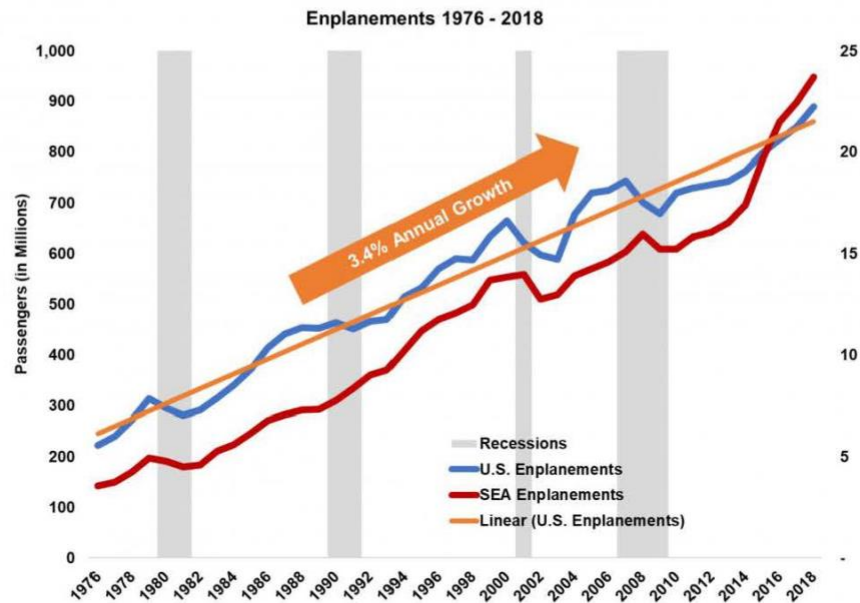
Enplanements 1976 - 2018

Source: International Civil Aviation Organization (ICAO) for the U.S. Total, FAA Terminal Area Forecast (TAF) for SEA.

Study overview

The study team worked through three main phases:

Existing Airport and Aviation Activity Analysis – Summer 2019

> Existing conditions and constraints

> Market trends

> Regional forecasts

> Airspace flow and analysis

Future Aviation Issues Analysis – Fall 2019

> Future regional landside and airside capacity needs

> Future needs by activity and by airport

> Major challenges

Scenarios Definition and Evaluation – Spring-Fall 2020

> Identify and analyze scenarios

> Identify potential next steps

> Public survey

> Open houses

> Publish final report

Study outreach

The study team briefed the PSRC Executive Board on progress after each phase. The project team also convened a Technical Working Group made up of representatives from local airports, airlines, air cargo, and the aerospace industry. The Technical Working Group convened during each phase.

Public survey

During the Scenarios Definition and Evaluation phase, the project team conducted a statistically valid survey of the four-county region to determine priorities of residents. Survey invitations were sent by mail and online, and the survey was available in English, Chinese, Spanish, and Somali. Across the region, 1,416 people completed the survey.

Some of the key findings from the survey include:

> Survey respondents use airports more for personal travel than business travel.

> Respondents across all four counties said the aviation system is working well, and they think it is important for the region to accommodate growing future demand for passenger aviation service.

> Participants acknowledged both positive and negative impacts of passenger aviation in the region, including employment, travel options, and economic benefits, as well as environmental impacts.

> Participants ranked cost of flying, getting through security lines, access to the airport, and on-time performance as the most important features of the regional aviation system.

> Participants across all four counties said the cost of flying, environmental impacts, noise impacts, and parking availability have gotten worse in the last three years.

> Respondents ranked increasing passenger service as more important than minimizing aviation impacts and prioritized increased passenger service capacity at other regional airports versus increasing capacity at Sea-Tac.

Next: Existing conditions and aviation demand forecast

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Open House: Existing conditions and aviation demand forecast

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Existing conditions

Aviation plays a pivotal role in the central Puget Sound region. Seattle-Tacoma International Airport (Sea-Tac) is the eighth busiest airport in the nation for enplanements. The central Puget Sound region hosts major manufacturing and operations of Boeing, the largest aerospace company in the world. The region is home base for Alaska Airlines, the fifth largest U.S. airline by revenue for 2018, and is the Asia hub for Delta Air Lines, the second largest U.S. airline by revenue in 2018. The aviation industry supports high-paying jobs and opportunities for economic development in the central Puget Sound region.

Enplanements are a measure of aviation use. One enplanement is one passenger boarding a flight.

The team studied current use of the 29 airports located in the four-county region. Within the study area, there are three commercial service airports:

1. Sea-Tac is the region's large hub airport serving 50 million passengers annually with an economic impact of $22.5 billion in 2017.

2. Paine Field recently began commercial service and hosts large aircraft manufacturing; the airport has an estimated economic impact of $20 billion annually.

3. King County International Airport is one of the nation's busiest non-hub commercial service airports and contributes $3.5 billion in annual economic impact; King County International also hosts large aircraft manufacturing.

The four-county region is also home to 24 general aviation airports (including seaplane bases) and two military airports.
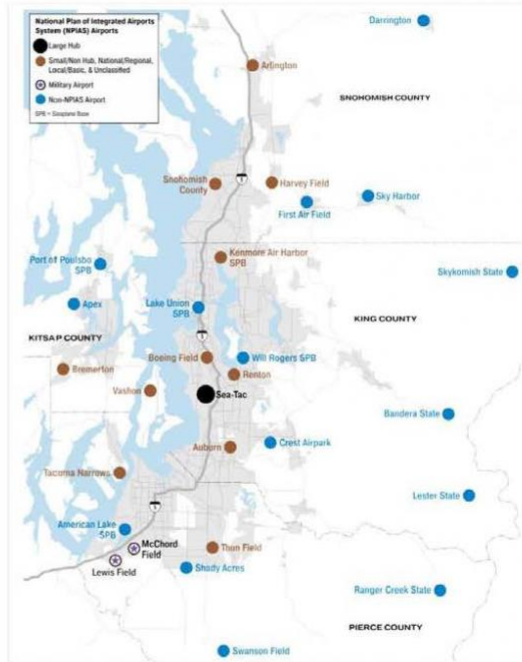
Hub airports serve as major connecting facilities for one or more airlines. *Primary airports* offer commercial service and have more than 10,000 passenger boardings each year. *General aviation airports* do not offer scheduled passenger service; they typically serve private/business aircraft and small charters. *Military airports* serve military functions.

2050 forecasts for aviation demand

Commercial aviation demand forecast

Regional demand for passenger service is closely tied to national and regional economic and demographic trends. Continued population, employment, and income growth in the region is driving aviation demand and this trend is expected to continue, in spite of temporary decreases in demand due to the COVID-19 pandemic. In addition, the region is an expanding hub for connections to Asia, further increasing demand for flights.

Enplanements in the Central Puget Sound Region (millions)

55.6 (high forecast)
49.3 (low forecast)

24.0

2018   2050 Unconstrained

Regional demand for enplanements is expected to grow from 24 million in 2018 to between 49.3 million and 55.6 million by 2050. This reflects an increase of between 105% and 132%.

Demand for takeoffs and landings in the region is expected to grow from 438,000 in 2018 to between 810,000 and 914,000 by 2050. This reflects an increase of between 85% and 109%.

Operations in the Central Puget Sound Region
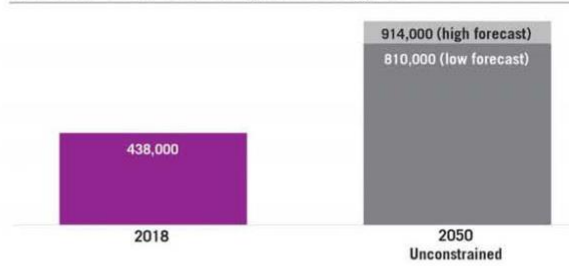
General aviation demand forecast

General aviation encompasses aviation activities for business, flight instruction, medical, emergency, law enforcement, recreation, and tourism. Recreational flights have seen a gradual decline for decades nationally, due to increasing costs, competition from other activities, and lower commercial airfares. Business and for-profit aviation are forecast to increase.

**General Aviation Operations in the Central Puget Sound Region**
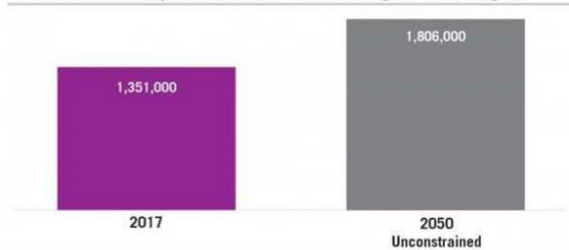
Demand for general aviation operations is expected to grow from 1,351,000 in 2017 to 1,806,000 by 2050, an increase of 34%.

Air cargo demand forecast

Air cargo includes freight and mail carried in the lower hold of passenger aircraft as well as cargo on dedicated freighters. Globalization and e-commerce are international trends that are driving dramatic air cargo growth. Strong state exports and increasing international flights are also driving regional air cargo growth.

Commercial Air Cargo Handled in the Central Puget Sound Region (metric tons)
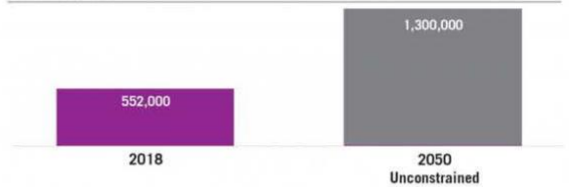
Demand for regional air cargo capacity is expected to grow from 552,000 metric tons in 2018 to 1,300,000 by 2050, an increase of 136%.

Access to regional airports

Good roadway and transit connections to the interstate highway system, state highways, and public transportation are essential to a thriving airport system. The region is expected to see 16.6

million more vehicle miles per day by 2040, increasing hours of delay and drive time to airports in the region.

The number of people in the four-county region within an hour's drive of Sea-Tac and Paine Field is forecast to drop from 83% of residents in 2017 to 70% in 2050.

What is 60-minute drive-time coverage? 60-minute drive-time coverage is the ability to access an airport that offers commercial service in an hour or less, by car. While this gives an overall measure of commercial service access, it does not measure access by level of service. For example, a single-runway airport will offer service to fewer destinations than Sea-Tac, so someone who can access a single-runway airport within 60 minutes may still have to travel more than an hour to reach specific destinations only serviced by Sea-Tac.

Sea-Tac & Paine Field in 2017
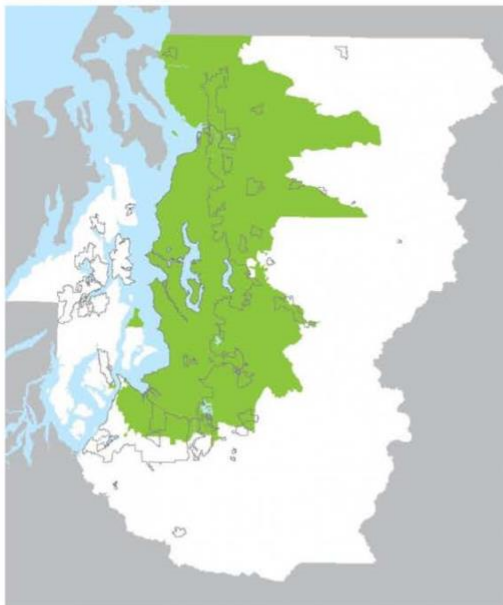
People within an hour	People outside an hour
3,355,813	710,187
83%	17%

Sea-Tac & Paine Field in 2050
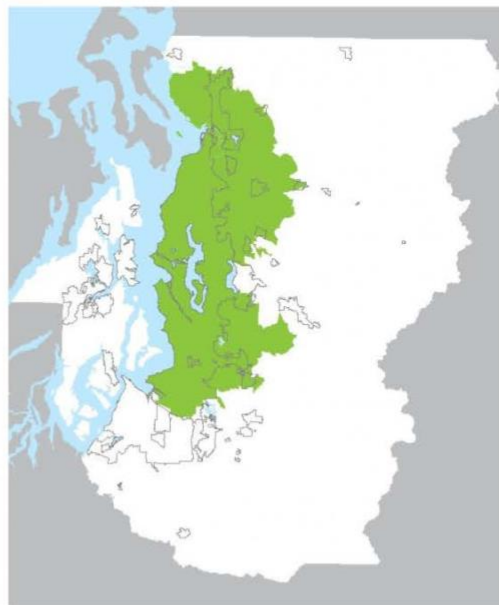
People within an hour	People outside an hour
4,090,318	1,733,682
70%	30%

Next: Challenges and opportunities to address demand

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Open House: Challenges and opportunities to address demand

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As we begin examining the options available to the region to address growing aviation demand, there are challenges and opportunities for commercial service, air cargo, and general aviation. Because the biggest factor in addressing aviation demand is the projected increase in commercial passenger service, we will limit discussion of air cargo and general aviation issues in this open house. There is more detail on both of those topics in the presentations on the project homepage.
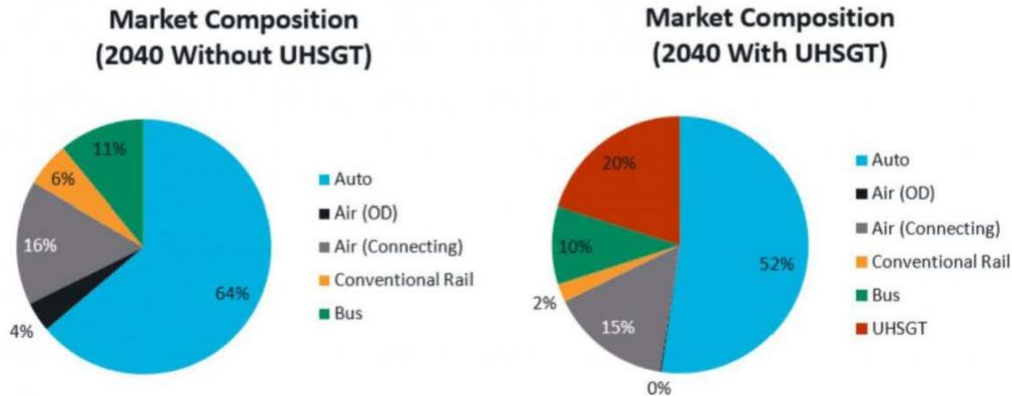
Commercial service challenges and opportunities

The biggest challenge to managing demand is in commercial (passenger) service. The projected gap in service by 2050 is roughly equivalent to the amount of passenger service that moved through Sea-Tac in 2019. Without expanding capacity, the private market – airlines – will respond to limited capacity by raising ticket prices, delays will become more frequent, it will take longer to move through security, and parking and airport access will become more difficult for most travelers.

Existing commercial service airports – Sea-Tac, King County International Airport, and Paine Field – are limited in their ability to expand. However, there are several general aviation airports in the region that could support future commercial passenger service.

Additionally, as drive times increase, there is a lack of reliable airport access for Kitsap and Pierce counties and eastern Snohomish and King counties.

High-speed rail is often discussed as an opportunity to divert trips away from air travel. The Washington State Department of Transportation (WSDOT) completed an Ultra-High-Speed Ground Transportation Business Case Analysis in 2019 and found that high-speed rail could replace air trips for 68,000 to 124,000 passengers between Seattle and Vancouver, B.C., or Portland annually by 2040 – that number represents 0.46% or less of the projected gap in service by 2050.

Market Composition (2040 Without UHSGT)

- Auto
- Air (OD)
- Air (Connecting)
- Conventional Rail
- Bus

Market Composition (2040 With UHSGT)

- Auto
- Air (OD)
- Air (Connecting)
- Conventional Rail
- Bus
- UHSGT

Estimated 1.7 - 3 million annual intercity trips by 2040

Source: WSDOT Ultra-High-Speed Ground Transportation Business Case Analysis (2019)

Air cargo challenges and opportunities

Air cargo is a factor that could be managed to help accommodate overall demand. Challenges to meeting regional air cargo demand primarily involve limited space for increasing air cargo capacity at Sea-Tac and King County International airports.

However, there are several opportunities to increase capacity for air cargo, such as:

> Make better use of space and facilities at Sea-Tac and accommodate air cargo warehouse and distribution at off-airport facilities

> Develop air cargo facilities at Paine Field

> Use Grant County Moses Lake International Airport during cherry season

> Shift peak season traffic to Spokane International Airport

> Develop non-urban airports as ground-based logistics/distribution centers

> Build multi-story logistics facilities

> Create a regional cargo community system to increase efficient use of available facilities

There are additional opportunities to increase capacity as autonomous aircraft use is adopted in the future.

Next: Ways to accommodate demand and impacts

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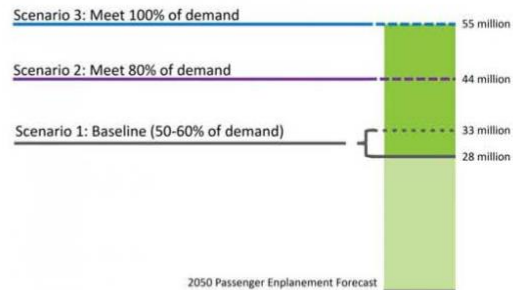
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Open House: Ways to accommodate demand and impacts

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The study team identified a range of scenarios that could accommodate varying levels of projected demand. These scenarios draw on the experience of other regions and how they accommodate service through one or multiple airports. The Los Angeles region, for example, is served by five commercial airports of varying size, and brings lessons learned on factors that influence an airport's success.

The study team looked at scenarios to meet 50% to 60% of demand, 80% demand, or all of the projected demand.

Scenario 3: Meet 100% of demand — 55 million
Scenario 2: Meet 80% of demand — 44 million
Scenario 1: Baseline (50-60% of demand) — 33 million / 28 million
2050 Passenger Enplanement Forecast

Scenario 1: Baseline, Meet 50% to 60% of demand

The baseline scenario reflects the existing commercial service capacity, as well as plans already in place to expand capacity at Sea-Tac. In the baseline scenario, Sea-Tac would implement a range of near-term and long-term projects to increase aircraft gates from 83 to an estimated 105 to 113, and Paine Field would maintain its current capacity of 24 flights per day with its two gates.

The baseline scenario would result in a gap of 22 to 27 million annual enplanements of unmet demand by 2050.

Scenario 2: Meet 80% of demand

This scenario includes Sea-Tac's near-term and long-term projects, Paine Field would maintain current capacity, and there would be significant development at one or multiple existing airports to accommodate 11 million annual enplanements.

To accommodate 11 million annual enplanements, one airport would need two parallel runways of at least 7,000 feet with a separation of at least 4,300 feet, or two airports would each need a single runway that is at least 7,000 feet long.

Proposed SAMP Near-Term Projects — Port of Seattle

Long-Term Vision — Port of Seattle
Additional development needed to meet demand beyond 2027
Long-Term vision not ripe for environmental review

One airport with two runways
(examples)

San Jose International

Sacramento International

Two airports with single runway
(examples)

John Wayne

Bellingham International

This scenario would result in a gap of 11 million annual enplanements of unmet demand by 2050.

Scenario 3: Accommodate 100% of projected gap

This scenario includes Sea-Tac's near-term and long-term projects, Paine Field would maintain current capacity, and there would be significant development at one or multiple existing airports, totaling three new commercial service runways.

To accommodate demand at one airport, that airport would need three parallel runways, each at least 7,000 feet long. This configuration would be similar to Sea-Tac today.

This scenario could also be achieved using two or three additional airports: one airport with two parallel runways plus one airport with a single runway, or three airports with single runways.

One airport with three runways
(example)

Sea-Tac International

Multiple airports totaling three runways

Ways scenarios could be achieved

The study purpose was not to make recommendations about expanding or changing service offerings at specific airports in the region, but to identify airports with technical criteria required to expand in the future. Those criteria were:

1. Ability to accommodate single or parallel runways

2. Existing airspace constraints or conflicts

3. Impact to Sea-Tac aircraft operations (airspace)

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

Technical analysis of existing airports

The team rated each airport in the region on its ability to meet the technical criteria.

It's important to note that this study is identifying airports with technical criteria required to offer commercial service. However, for an airport to begin offering commercial service, it must have a commercial airline interested in expanding to that location. Any change in status from a general aviation airport to a commercial service airport would need to be driven by the market and would also require support from that airport and the FAA.

Criteria 1: All seaplane bases, all state airports, Gray Army Airfield, Auburn Municipal, Renton Municipal, Darrington Municipal, and Swanson were all eliminated due to inability to feasibly accommodate a longer runway or parallel runways. Boeing Field, Norman Grier Field, Pierce County, and Shady Acres were eliminated because they are unable to accommodate commercial service needs. After this initial review, nine airports remained for further study.

Criteria 2 and 3: Apex Airpark, First Air Field, and Vashon Municipal were all eliminated due to existing airspace constraints or conflicts and impacts to existing Sea-Tac airspace operations.

Criteria 4: Harvey Field was eliminated due to flood zone hazards.

Criteria 5: McChord Field was eliminated as an option because it is owned by the military and already busy with military use.

After the five criteria were applied, four airports remained for more detailed study. These four airports, Arlington Municipal, Bremerton National, Paine Field, and Tacoma Narrows, meet the technical criteria required to add some level of commercial service.

Arlington Municipal Airport

Bremerton National

Paine Field

Tacoma Narrows

Should demand be met?

The aviation industry provides economic benefits to the region, but expanding aviation service to meet demand also comes with environmental impacts. The aviation industry is moving rapidly to address these impacts through navigation systems that will increase airspace efficiency, better fuel economy, use of electric aircraft, and quieter engines. While we don't have the information to quantify how these systems will improve over the next 30 years, we do know that the environmental impact of aviation in 2050 will be different than it is today.

While the economic impact of the aviation industry can be more readily quantified than shifting environmental impacts, we understand that the environmental impacts – including noise impacts – are no less real.

As of 2019, WSDOT's Airport Economic Impact Study estimated that Sea-Tac contributed 151,400 jobs, $7 billion in labor income, and $22 billion in business revenue to the regional economy. The Puget Sound Clean Air Agency Greenhouse Gas Emissions Inventory estimated that 654,600 metric tons of GHG were emitted in the region as a result of air travel in 2015. This amount reflects approximately 2% of total regional emissions and 5% of regional transportation emissions.

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Benefits and challenges to meeting passenger enplanement demand compared to baseline

	Benefits	Challenges
Scenario 1: Baseline, Meet 50%-60% of demand	No additional increase in potential 2050-level noise and GHG impacts, single-occupancy vehicle trips to airports	No additional increase in airport economic impact and jobs by 2050
Scenario 2: Meet 80% of demand	Would increase 2050 airport economic impact and jobs by nearly 60% Would increase business and consumer choices more than the baseline and long-term vision scenarios	Would increase 2050-level noise and GHG impacts, single-occupancy vehicle trips to airports by nearly 60% over baseline, assuming no improvement in current aircraft efficiency, noise emissions, and fuel types
Scenario 3: Meet 100% of demand	Would increase 2050 airport economic impact and jobs by almost 100% Provides the most business and consumer choice compared to other scenarios	Would increase potential 2050-level noise and GHG impacts, single-occupancy vehicle trips to airports by almost 100% over baseline, assuming no improvement in current aircraft efficiency, noise emissions, and fuel type

Economic impact of the aviation industry

	2050 passenger demand/capacity met	Percent of 2050 demand met	Resulting annual passenger enplanement gap	Estimated annual economic impact	Estimated regional job creation
Scenario 1: Baseline, Meet 50% - 60% of demand	28,000,000 – 33,000,000	50% - 60%	27,000,000 – 22,000,000	$4 - $9 billion due to impact of Sea-Tac short-term and long-term projects	27,000 – 61,000 due to impact of Sea-Tac short-term and long-term projects
Scenario 2: Meet 80% of demand	44,000,000	80%	11,000,000	$20 billion	135,000
Scenario 3: Meet 100% of demand	55,000,000	100%	0	$31 billion	209,000

This study was not intended to advocate for meeting all projected future demand, but to identify that demand so that legislators and other decision-makers can plan for growth. Key questions and issues for further study will be the cost versus benefits of consolidating impacts at one airport or spreading impacts across multiple airports, and if a meaningful level of service would be offered should commercial service be dispersed across multiple single- or two-runway airports.

Next: Next steps

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Open House: Next steps

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The project team has completed technical information gathering, and will draft the final paper for the study later this year. Part of that paper will be input from the public through the public survey that was conducted during summer 2020, and through this online open house and a series of virtual public meetings.

The information gathered through this study will help regional decision makers and airports as they plan for the future. It will also be provided to the Commercial Aviation Coordinating Commission as they make recommendations on ways to address the region's aviation needs.

Virtual public meetings

While we originally intended to hold four public meetings, one in each of the PSRC counties, due to the COVID-19 pandemic we will hold these meetings virtually instead.

These meetings will cover the same content that was presented in this online open house.

Watch a video of one of the virtual meetings:

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Regional Aviation Baseline Study: Virtual Open House #2 - Sep 29, 2020

Meeting #1: September 23, 2020

Meeting #2: September 29, 2020

Meeting #3: September 30, 2020

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Next: Share your thoughts

3. Email Address *

Enter your answer

4. Zip Code *

Enter your answer

5. What airport do you most frequently fly in or out of?

○ Seattle-Tacoma International Airport

○ Paine Field

○ King County International Airport - Boeing Field

○ Other

6. What is most important to you?
Rank in order of importance, with 1 being most important and 3 being least important.

On-time, easy-to-access passenger service

Maximizing economic benefits of the aviation industry

Minimizing noise and environmental impacts of aviation

7. Considering the tradeoffs presented in this open house, which option would you prefer?

○ Concentrate new aviation service at one airport, or as few airports as possible

○ Distribute new aviation service at multiple airports

○ Don't know

8. Considering factors like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:

○ Prioritize meeting the full demand for aviation

○ Meet some, but not all, demand for aviation

○ Not expand capacity at all
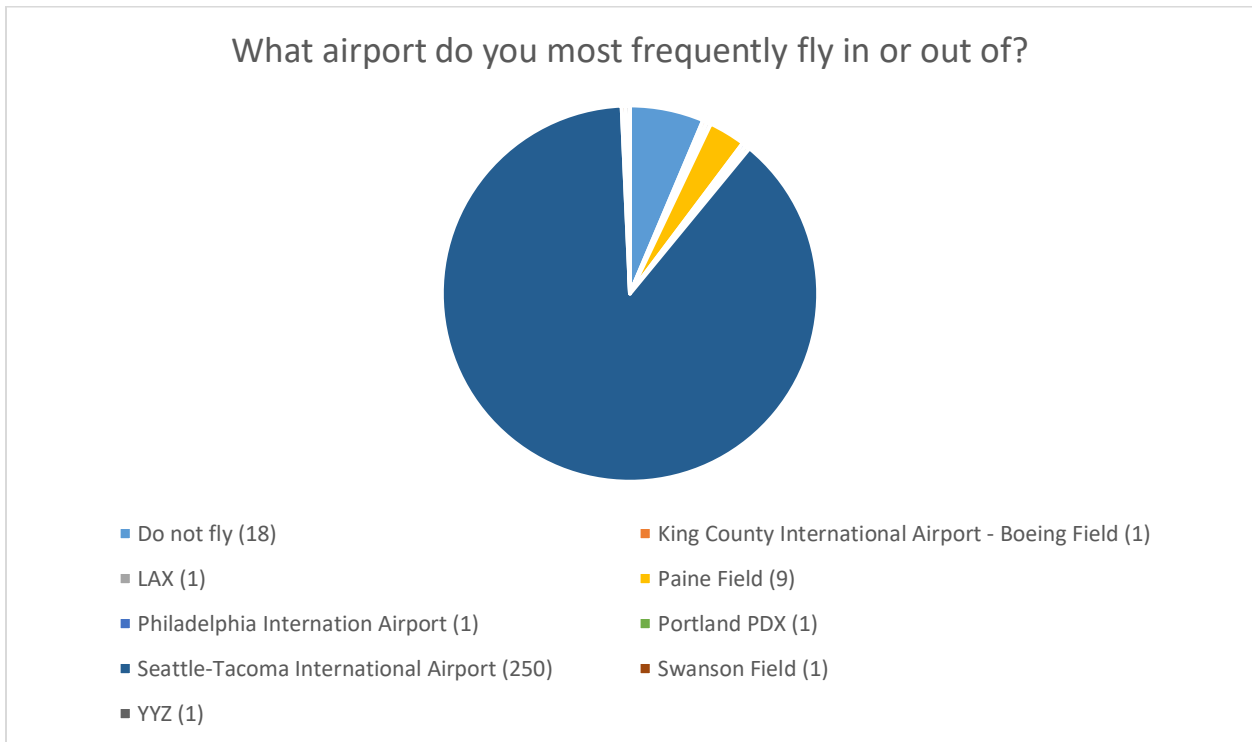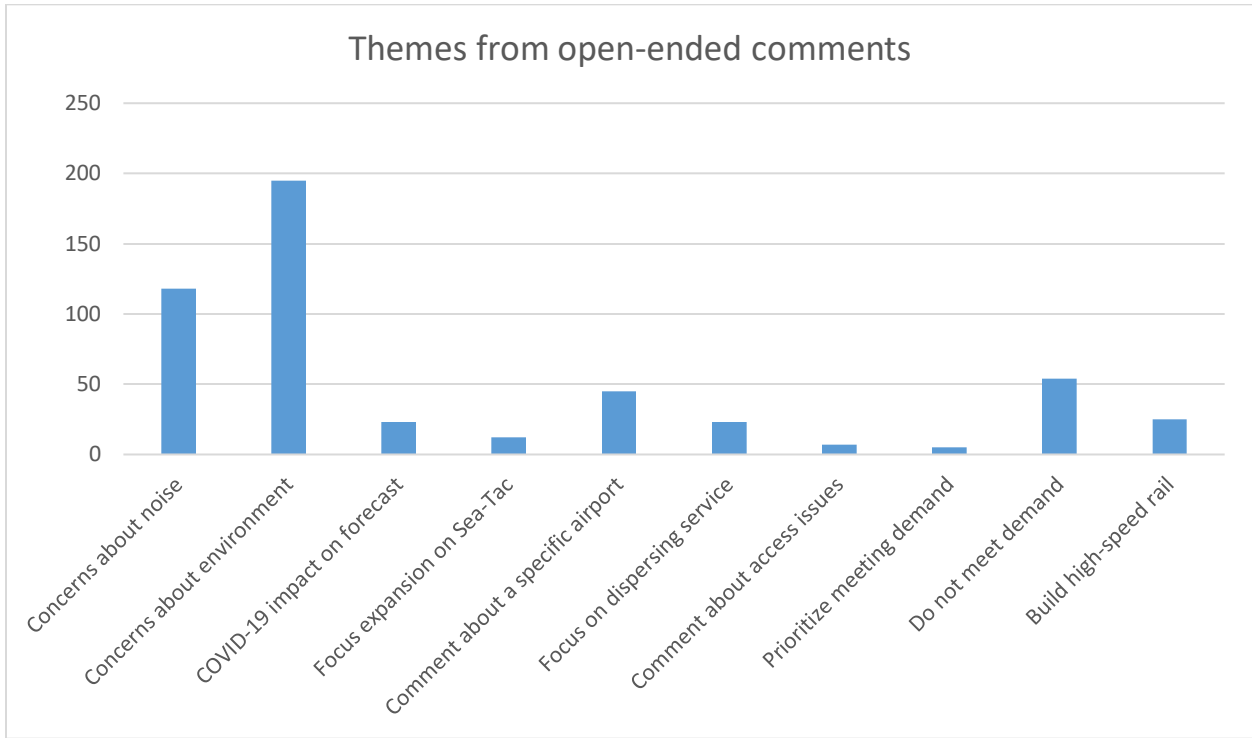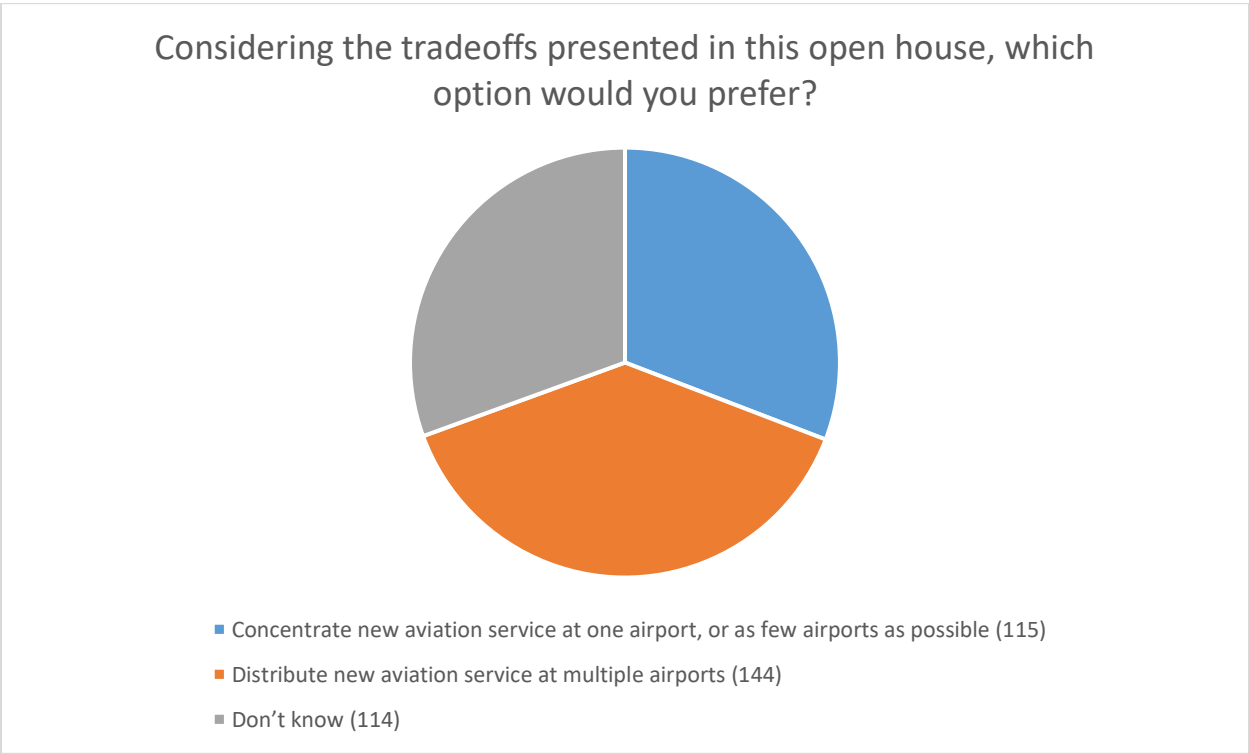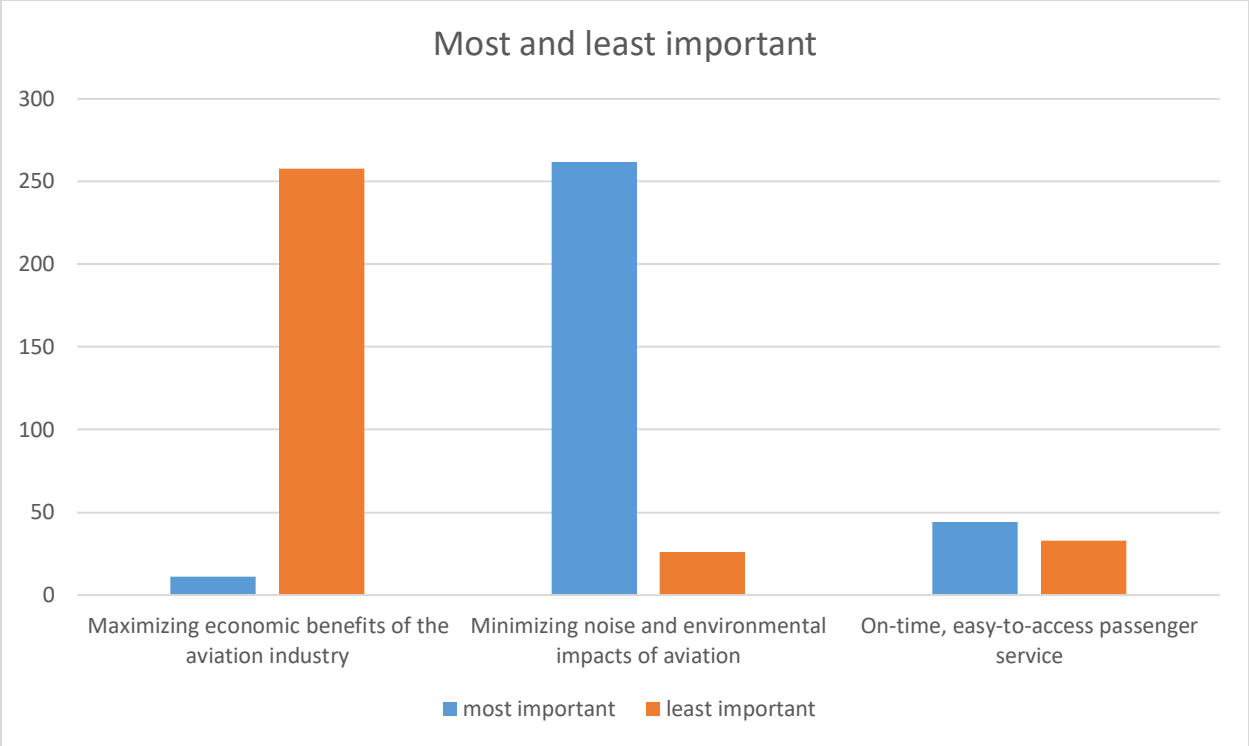
○ Unsure

9. General Comment

Enter your answer

Submit

Appendix F: Online open house poll answers and comments

Themes from open-ended comments

Bar chart showing themes from open-ended comments:
- Concerns about noise: ~118
- Concerns about environment: ~195
- COVID-19 impact on forecast: ~23
- Focus expansion on Sea-Tac: ~12
- Comment about a specific airport: ~45
- Focus on dispersing service: ~23
- Comment about access issues: ~7
- Prioritize meeting demand: ~5
- Do not meet demand: ~54
- Build high-speed rail: ~25

What airport do you most frequently fly in or out of?

- Do not fly (18)
- King County International Airport - Boeing Field (1)
- LAX (1)
- Paine Field (9)
- Philadelphia Internation Airport (1)
- Portland PDX (1)
- Seattle-Tacoma International Airport (250)
- Swanson Field (1)
- YYZ (1)

Most and least important

Chart categories (left to right): Maximizing economic benefits of the aviation industry; Minimizing noise and environmental impacts of aviation; On-time, easy-to-access passenger service

Legend: ■ most important ■ least important

Considering the tradeoffs presented in this open house, which option would you prefer?

■ Concentrate new aviation service at one airport, or as few airports as possible (115)
■ Distribute new aviation service at multiple airports (144)
■ Don't know (114)

Considering factor like ease of flying to a variety of destinations, economic impacts, and noise and environmental impacts, should the region:
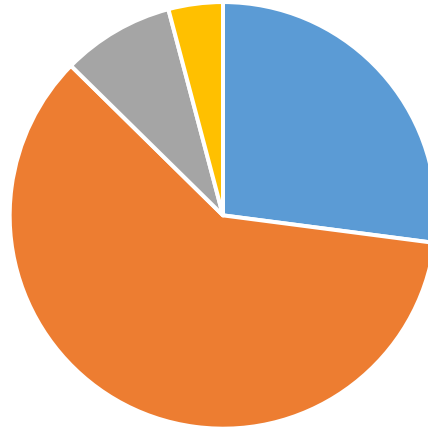
- Meet some, but not all, demand for aviation (105)
- Not expand capacity at all (234)
- Prioritize meeting the full demand for aviation (33)
- Unsure (16)