

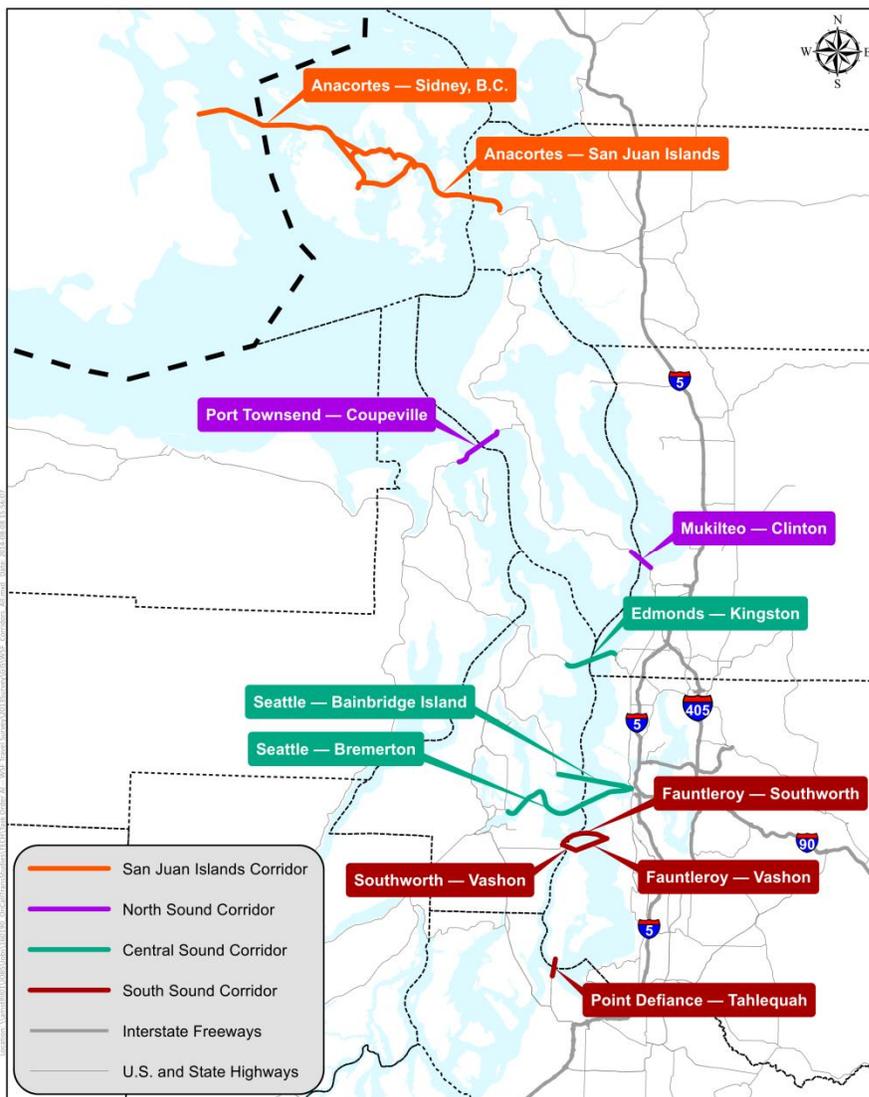
1 EXECUTIVE SUMMARY

1.1 Overview

The Washington State Ferries (WSF) operates the largest ferry system in the United States. Twenty-two ferries cross the inland waterways of Puget Sound, carrying nearly 23 million passengers and 10 million vehicles system-wide to 20 different ports in 2013. The 10-route system serves 12 counties within the state of Washington and the province of British Columbia (See Figure 1-1).

Whether managing existing demand, programming service to meet future travel patterns, securing new capital funds, reducing operating costs, or maintaining its aging fleet and terminal facilities, WSF must understand the needs and travel patterns of its customers to achieve its vision of providing unparalleled ferry transportation performance, exceptional customer service, and a rewarding working environment.

Figure 1-1. Corridor travel markets for the Washington State Ferries system



To this end, WSF embarked on a comprehensive, system-wide travel survey in the fall of 2013. The survey represents an update and expansion of the 2006 Origin-Destination Survey along with previous survey efforts in 1993 and 1999, and was executed with a methodology and questions similar to those of the previous surveys to allow for tracking of trends over time. The 2013 survey is of critical interest to WSF, as other data sources have begun to indicate some significant shifts in the demographics and travel characteristics of WSF riders. Understanding these significant shifts in their customer base will help WSF to better match services with customer needs, run an efficient ferry operation, and update data inputs to the ferry travel model for use in the upcoming update of the WSF Long-Range Plan.

The travel survey was administered to a sample of ferry users during weekdays and Saturdays during the month of October. Average daily ridership levels in the months of May and October are close approximations of annual average daily ridership. In contrast, ridership during the summer months is higher due to additional tourist traffic, while mid-winter ridership is the lowest of the year. A specific sampling plan was developed for conducting a census of all weekday PM peak-period riders on each route for a selected survey day, as well as a sample of vessel sailings to capture the representative travel patterns of weekday non-PM peak period and Saturday users.

Approximately 17,500 survey questionnaires were collected system-wide from weekday and Saturday passengers on the sampled vessel sailings. The questionnaires were screened for completeness and accuracy, and used to develop a comprehensive database of ferry user characteristics, including geographically coding the locations for each respondent's trip origin and destination to facilitate the mapping of travel patterns. Of the questionnaires collected, 16,027 records (92 percent) were sufficiently complete for tabulation and analysis. The product of the travel survey is a complete and organized survey dataset available to the public and WSDOT staff for operational and planning purposes. This report presents the results and major findings from this survey research effort, including trend comparisons with previous surveys.

1.2 Previous Survey Efforts

The 2013 travel survey represents an update to previous surveys, including the 2006, 1999, and 1993 onboard surveys conducted by WSF. The percentage of usable survey responses collected as a percentage of survey-month ridership is compared by time period in Table 1-1. As seen in the table, total survey month ridership peaked around 2000 and has declined somewhat in most of the period since then due to a combination of factors discussed in the report. Recently the trend has flattened, with slight ridership increases in 2010, 2012 and 2013.

There also was a previous onboard survey in 1984. In addition, WSF conducted a small sample survey in 2003 for the South Sound routes. These surveys are described below.

Table 1-1. Comparison of survey response and usable surveys to previous years by survey month ridership

Category	May 1993	May 1999	Oct 2006	Oct 2013
Total Ridership during Survey Month	1,983,746	2,268,643	1,925,352	1,754,257
Surveys Returned	15,750	18,000	13,801	17,527
Usable Surveys	13,832	15,082	11,844	16,027
Usable Surveys as % of Survey Month Ridership	0.7%	0.7%	0.6%	0.9%

Each route was surveyed on one weekday and one weekend day per route.

In May and August of 1984, an onboard origin-destination survey of ferry users was conducted on all WSF routes. Both weekday and weekend users were surveyed. The tabulations of origins and destinations from this survey were not coded to a fine level of geographic detail and are not comparable to current 2013 survey results.

In 1993, an onboard origin-destination survey of ferry users was conducted on WSF routes during May and August. In May, ferry riders were surveyed during the PM peak period on a Tuesday and Sunday on all ferry routes to capture both weekday and weekend travel patterns. A follow-up survey was then administered to PM peak-period riders in August on the five most tourism/recreation-oriented northern routes. A total of 15,750 questionnaires was completed and returned in this survey and, of these, 13,832 surveys (88 percent) were usable for analysis.

In May 1999, an onboard origin-destination survey of ferry users was conducted on all WSF routes. Surveys were collected on one midweek day (Tuesday, Wednesday, or Thursday) and a Sunday. Travel information was collected for the weekday PM peak period, the remaining weekday non-PM peak period hours of the day, and Sunday. A total of 18,000 questionnaires were completed and returned for this survey and of these, 15,092 (84 percent) were usable for analysis.

The WSF 2003 South Sound Survey was undertaken to collect travel information during the weekday PM peak period and focused on five South Puget Sound routes. Two main objectives of the 2003 PM half-day survey included examining whether ferry-user travel patterns have changed since 1999 and providing data to help understand how ferry travelers align themselves on the mainland with respect to the ferry terminals in West Seattle and Downtown Seattle. The data from the 2003 survey are not comparable to the 2006 survey because it was not a system-wide, comprehensive survey and inconsistencies in survey methodology make direct comparisons problematic.

In October 2006, an onboard origin-destination survey of ferry users was conducted on all WSF routes. The survey was conducted during the weekday PM peak period for weekday travel, and during the AM peak period on Saturdays for weekend travel to capture behavior for the highest ridership periods. A total of 13,801 questionnaires were completed and returned for this survey and, of these, 11,844 (86 percent) were usable for analysis.

1.3 2013 Key Findings

As a precursor to reading and reviewing the extensive analysis results and findings presented in the following chapters, this section highlights some of the key findings identified in analyzing the 2013 survey, including noteworthy differences between the 2013 survey results and those of the 2006 survey. In addition, most of the following key findings relate to system-wide trends or broad-reaching results, although some corridor-level and route-specific results are also presented.

1.3.1 System-wide Findings

Despite a steady increase in overall population in the 12-county WSF service area (3.9 million in 1999, 4.3 million in 2006, and 4.6 million in 2013), system-wide ridership has decreased over much of the past 15 years (72,200 per day in 1999, 65,300 per day in 2006, and 61,700 in 2013), and has only shown signs of flattening in the most recent three years. Multiple factors likely contribute to this:

- Significant fare increases well in excess of general inflation (the base cross-sound fare for a vehicle and driver increased from \$6.50 in 1999 to \$11.25 in 2006, to \$12.90 in 2013).
- Service reductions resulting in fewer sailings compared with 1999 and 2006.
- An aging population of riders (average age in 1993 was 42, 48 in 2006, 49 in 2013). Approximately 18 percent of riders are retired and another 14 percent are planning on retiring in the next five years. Furthermore, the percentage of survey respondents age 65 or older grew from 13 percent in 2006 to 18 percent in 2013.
- Increases in people telecommuting (25 percent of weekday travelers reported that they telecommute at least one day per week compared to 20 percent in 2006).
- A shift in trip purposes away from frequent commuter ridership as a result of the above trends (weekday: 58 percent work/school in 2006, 54 percent in 2013; Saturday: 59 percent recreation/shopping in 2006, 67 percent in 2013).
- The recession toward the end of the last decade is also credited with having negatively impacted ridership.
- Of respondents with a valid home location provided, 92 percent live within the 12-county WSF service area. Thus, regional economic and demographic trends would have much more influence on ridership than national tourism trends.

These factors vary by corridor and individual route, and are discussed in more detail in the following sections.

1.3.2 Corridor-level Findings

The corridor analysis focuses on ridership travel-sheds and the geographic characteristics that segment the WSF market based upon the patterns of trip origins and destinations exhibited on groups of one or more similar routes. The corridor groupings align with the same four corridors used in the 2006 survey. Below are a few of the key corridor-level findings for the four multi-route corridors; additional analysis results and details are provided in Chapters 4 through 8.

San Juan Islands Corridor

The San Juan Islands Corridor is comprised of the Anacortes–San Juan Islands route (including inter-island routes) and the Anacortes–Sidney, British Columbia international ferry route. Due to limited other options, the majority of visitors and residents to and from the islands travel via WSF.

- Weekday trip frequency is much lower for the San Juan Islands Corridor than the other corridors (two trips per week vs. three to five for the other corridors), as is the percentage of work/school trips.
- The largest trip purpose share of total trips has shifted since 2006 from work/school trips (40 percent in 2006) to recreational/shopping trips (40 percent in 2013).

- The average age of survey respondents increased from 50 in 2006 to 53 in 2013, with a greater percentage of survey respondents over the age of 64, and almost a quarter of the respondents indicating that they are retired.
- The percentage of weekday ferry travelers making a round-trip on the same day versus some other day grew from 48 percent in 2006 to 56 percent in 2013 for the corridor; this parallels an increase by 6 percent in non-motorized boardings in which a vehicle was parked at the terminal on weekdays.
- Same day round-trips for weekend trips decreased from 61 percent in 2006 to 48 percent in 2013.
- Of respondents riding on routes serving the San Juan Islands, 53 percent who provided a valid home location live on the San Juan Islands. Only riders riding from Anacortes–San Juan Islands or Inter-Island routes were considered, not those riding from Anacortes–Sidney, B.C. If including Anacortes–Sidney, B.C. riders, the statistic becomes 51 percent of riders live on the San Juan Islands.

North Sound Corridor

The North Sound Corridor is comprised of the Port Townsend–Coupeville and Mukilteo–Clinton ferry routes. While Whidbey Island does have a bridge at the north end that provides non-ferry access, the length of the island (36 miles) and the limited capacity of the bridge mean that WSF provides the main access route via the Mukilteo–Clinton and Port Townsend–Coupeville routes.

- The trip purpose share of weekday work/school trips has decreased from 52 percent in 2006 to 43 percent in 2013, while the share of recreation/shopping trips has increased from 26 percent to 32 percent.
- Recreational/shopping Saturday trips increased from 57 percent in 2006 to 71 percent in 2013, which corresponds with the number of round-trip patterns doubling from 2006 Saturday trips in the North Sound Corridor.
- More than half of walk-on boardings during the PM peak period access or egress the ferry by transit, while the vast majority of walk-on boardings during non-PM peak period and Saturdays access or egress by vehicle.
- Saturday North Sound Corridor routes exhibited an almost 20-point increase in the percentage share of responses that indicated they parked a vehicle prior to walking aboard the ferry, which was specifically attributed to the changes on the Mukilteo–Clinton route.

Central Sound Corridor

The Central Sound Corridor is comprised of the three central cross-sound routes: the Seattle–Bainbridge Island, Seattle–Bremerton, and Edmonds–Kingston ferry routes. The corridor serves Kitsap County, Bainbridge Island, and the Olympic Peninsula via the Hood Canal Bridge.

- Central Sound continues to be the highest-traveled corridor in the WSF system, with 12.4 million riders per year, down from 13.2 million passengers in 2006 and a peak was in 1999 with 14.4 million passengers.
- More than 60 percent of trips are associated with a work/school purpose, with a frequency of five trips per week on weekdays as compared to three trips per week for the North Sound.

- Since 2006 the Seattle–Bainbridge Island route has exhibited a more rapidly aging rider profile than any route in the corridor, with the number of passengers over age 64 increasing from about 8 percent to 17 percent between the 2006 and 2013 surveys.
- The Seattle–Bremerton route remains stable as the route with the youngest rider population, with an average age of 39 years old.
- The Central Sound Corridor has exhibited a shift in trip frequency from high frequency use patterns in 2006 toward a more moderate trip frequency in 2013.
- The decrease in vehicle boardings from 2006 to 2013 ranged from 9 percentage points on the Seattle–Bremerton route, to 7 points on the Seattle–Bainbridge Island route, to 3 points on the Edmonds–Kingston route. This is consistent with annual ticket sales statistics, which show a similar yet less substantial trend in decreased vehicle boardings.
- There is some increase in the number of trips with origins and destinations nearer to the terminals on all of the routes in this corridor, and a corresponding decrease in trips to/from points farther away from the terminals on each side of the crossing.

South Sound Corridor

The South Sound Corridor is comprised of the Fauntleroy–Vashon, Fauntleroy–Southworth, Southworth–Vashon, and Point Defiance–Tahlequah ferry routes. The corridor provides connectivity between Downtown Seattle via Fauntleroy in West Seattle, the north end of Vashon Island, and Southworth in Kitsap County. This corridor also connects the south end of Vashon Island with Tacoma. Historically, WSF operated a passenger-only ferry service between Downtown Seattle and Vashon Island, facilitating transfers to Southworth at Vashon. King County officially took over operation of this service in 2008.

- The South Sound Corridor, like others in the system, is experiencing an aging population, a corresponding reduction in the frequency of commuter trips, and a slow shift toward recreational and shopping trips.
- Although driving is still the predominant method of use on South Sound routes (more than 80 percent of weekday trips), the percentage of non-motorized trips in which a vehicle was parked at the terminal increased significantly between 2006 (26 percent) and 2013 (40 percent).
- The number of trips to areas around the terminals on all of the routes in this corridor increased, and trips farther away from the terminals on each side decreased.

1.4 Report Organization

The report is organized around four main sections following this introduction:

- Chapter 2—Survey Methods and Results
- Chapter 3—System-wide Market Trends
- Chapter 4—Corridor Travel Markets
- Chapters 5 through 8—Individual Corridor and Route Analyses and Survey Results

Chapter 2 covers WSF system-wide trends through the presentation of overall survey results segmented by weekday versus Saturday travel, peak versus non-PM peak times, user trip purposes, travel modes, frequency of use, and other relevant characteristics. Where possible, comparisons to 2006 survey results are included in the 2013 system-wide analysis. The focus in this chapter is on the different system-wide WSF market segments rather than on the geographic and route differences within market segments, which are covered in subsequent chapters.

Chapter 3 discusses survey results and market trends for the four travel corridor markers: the San Juan Islands Corridor, the North Sound Corridor, the Central Sound Corridor, and the South Sound Corridor. Identified corridors consist of two or more routes grouped by common characteristics. The emphasis is placed upon geographic and modal factors that segment WSF markets, and also considers the ferry and non-ferry travel alternatives of the corridors. However, information on travel characteristics and demographics is presented in this analysis as well.

Chapters 4-7 present key survey tabulations and analyses presented for each corridor and at the individual route level. Routes are generally defined as ferry service between any two departure and arrival terminals, except in the San Juan Islands, where service has been aggregated across multiple domestic and international island destinations to simplify the presentation of results. A range of tabulated results from general ferry rider characteristics to detailed travel patterns regarding access, boarding, and egress modes by direction are provided for both the corridor and route level.

Chapter 8 summarizes the survey approach, methodology, and results applications to familiarize the interested reader about the survey process, including questionnaire development, sample design, survey periods, question coding, and data analysis. Various survey precision levels based upon question type and data subset are presented. Additional information about the survey databases, including the data contained and the available formats, are also provided, along with general guidelines regarding the application of the survey data and results. Finally, Chapter 8 also touches on the geographic information system elements of this survey, including the geocoding of key addresses to latitude–longitude (x–y) coordinates and the revisions made to the existing WSF Transportation Analysis Zone system.

For key survey tabulations and analyses presented in Chapters 2-7, survey period responses have been expanded to survey period ridership (unless otherwise noted). More information regarding expansion methods can be found in Chapter 8.

Survey forms used in the data collection effort are provided in Appendix A. District and traffic analyses zone maps are provided in Appendix B. Detailed survey database documentation is provided in Appendix C.