

Section 5

Manage growth

Leverage vessel, terminal and technology investments to provide strategic service enhancements for operational efficiencies while encouraging walk-on passengers.

The Puget Sound region has experienced significant population and job growth over the past 20 years. This growth is expected to continue over the 20-year planning horizon, as is ridership on WSF routes. In addition to ridership growth, people are increasingly choosing different ways to travel to and from their destinations, such as using transit or rideshare options, bicycling, or walking as opposed to driving their own vehicles. WSF's goals are to move more people and manage demand during typical peak periods.

Each WSF route has unique landside terminal infrastructure, which creates differences in operations, route demand, schedule flexibility, and community needs and desires. For example, downtown Seattle faces much different constraints than a rural island community such as Lopez Island.

WSF and local communities adjacent to ferry terminals are interested in encouraging more customers to choose transit, walking and biking rather than personal vehicles to access ferry terminals and vessels. Strategies for encouraging this mode shift include improving infrastructure for transit, bikes and pedestrians; adjusting fare pricing to spread out trips; and providing expanded options for parking and walking onto the ferry. Many communities are working to prioritize and improve bicycle infrastructure and transit connections to the ferry through local plans and policies. Additionally, the expansion of passenger-only ferry service in King and Kitsap counties and potential introduction of this option in other areas will increase opportunities for promoting alternatives to personal vehicles.

The Plan reviewed the WSF system holistically, including how WSF manages growth through terminal and vessel infrastructure, communication to customers, information technology and other adaptive growth management strategies. Because of limited available resources, WSF takes a conservative approach to increasing how many people they can carry through the ferry system. They consider opportunities for improving existing operations through adaptive growth management strategies before turning to more expensive capital investments.

Service Schedules and Loading/Offloading Times

Vessel crossing times and the amount of time it takes to offload and load a vessel shape service frequency and the amount of ridership that can be accommodated. As ridership builds and congestion around terminals increases, it takes longer to load and offload vessels. Continuous improvements to vessel offloading and loading will be necessary to keep current service frequencies and overall route capacity.

Although implementation of some adaptive management strategies can have an associated cost, that cost is far lower than building larger vessels or increasing the service fleet size. These management strategies have two main goals:

1. **Increase walk-on ridership** by providing opportunities and incentives for customers to leave their cars at home and use transit, rideshare, walking or biking to access the ferry.
2. **Spread out demand** and maximize WSF's existing assets by using pricing and operational strategies to encourage customers traveling in vehicles to sail outside of peak travel times.

To date WSF has implemented the following adaptive management strategies:

Vehicle reservation system: A vehicle reservation system was the primary demand management strategy recommended by the 2009 Plan. WSF implemented the Save A Spot reservation system on the Port Townsend/Coupeville route in 2012. WSF also currently offers reservations on the westbound Anacortes/San Juan Islands and Anacortes/Sidney, B.C. routes, along with some legs of eastbound Anacortes/San Juan Islands routes. WSF's analysis has shown that traffic caused by vehicles waiting for ferries has decreased since implementation of the reservation system, but there is no way of knowing how many people are not sailing because they cannot get a reservation or perceive they cannot get a reservation. Additionally, WSF faces constraints in adding reservations for every route because of physical space limitations at terminals, operational challenges with handling vehicles arriving early to their ferries, and the need for additional staff. The map on the next page shows which routes already accept reservations and identifies candidates for reservations.

Transit enhancements: By working with transit agencies to coordinate and improve connections for commuters who rely on the ferry, WSF has helped provide more options for taking transit, rather than relying on personal vehicles, to access ferry terminals.

Pricing strategies: Two pricing strategies that resulted from the 2009 Plan are widening the gap between vehicle and passenger fares, which incentivizes walk-on passengers, and offering a discounted rate for vehicles under 14 feet in length, which allows WSF to transport a greater total number of vehicles.

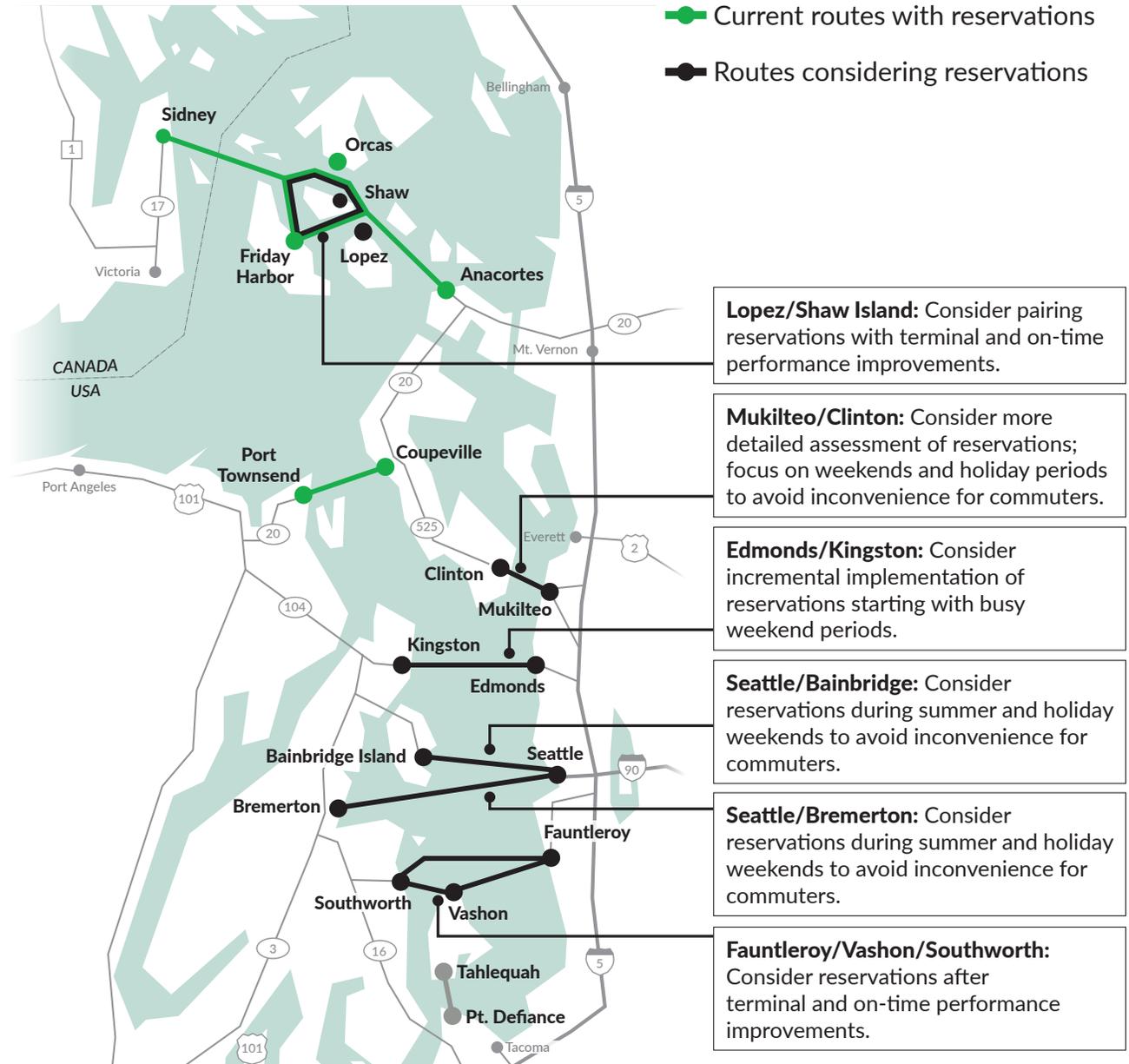
Enhanced user information: WSF has provided more information about vessel space availability and terminal line lengths on its website to help customers make informed travel decisions.

Regional passenger-only ferries

Since the 2009 Plan, passenger-only ferry operations have expanded in the Puget Sound region. King County operates two passenger-only ferry routes from Vashon Island to downtown Seattle and from West Seattle to downtown Seattle. Kitsap Transit launched service from Bremerton to Seattle in 2017 and plans to launch service from Kingston to Seattle and later Southworth to Seattle.

As traffic congestion in the Puget Sound region continues to grow, other communities may continue to explore passenger-only ferries as another option for travelers. Partnering with regional passenger ferry operators supports the regional transportation system by moving more people.

Map of reservations by route



Plan recommendations

To manage growth, this Plan focuses on the following recommendations:

- Refine existing metrics and define new metrics to offer better data for future system planning that prioritizes the movement of people and improves the customer experience.
- Maximize existing system utilization through the advancement of adaptive management strategies that make operations more efficient, spread out demand beyond peak travel times, and prioritize walk-on and bike-on passengers through better connectivity at the terminal.
- Provide system capacity enhancements through modest increases in service hours and by leveraging new vessel construction, terminal improvements and existing infrastructure modifications.

The next sections outline specific strategies for each recommendation.

Refine existing metrics and define new metrics to offer better data for future system planning that prioritizes the movement of people and improves the customer experience

As a division of WSDOT, WSF has a long history of measuring and monitoring the performance of its system. WSF tracks Legislatively-required performance measures over time and against set goals.

Internally, WSF tracks systemwide average congestion through a congestion management decision framework. This framework, also referred to as Level of Service standards, is a common metric among transit and roadway systems. For the ferry system, this decision framework measures service congestion on a route-by-route basis during low-, middle-, and high-ridership seasons. WSF uses a two-tiered approach that monitors only vehicle congestion levels. The congestion levels for Tier 1 and Tier 2 are based on a notable percentage of total vehicle capacity over the entire month. Once a route reaches the Tier 1 Level of Service standard, WSF explores adaptive management strategies to address congestion. If a route reaches the Tier 2 Level of Service standard, WSF looks to capital investments to increase capacity.

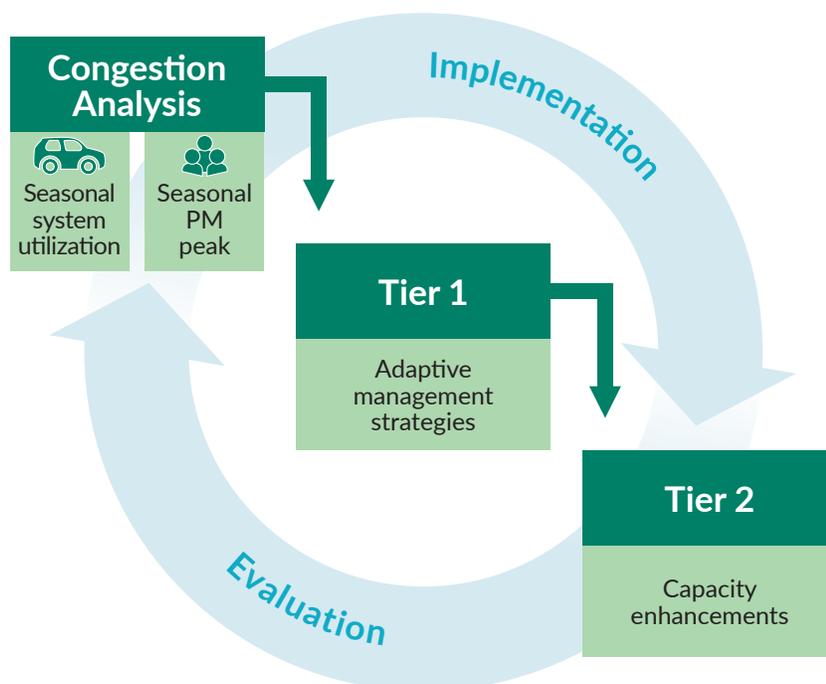
Level of Service and performance metrics can be useful tools for identifying trends, adjusting operations, identifying needed investments, and communicating ferry system performance to stakeholders. Although high performance is the goal, performance measures should also be defined as a way to communicate to decision-makers the need for investments and adjustments within the system to ensure optimal performance and efficiencies.

The ridership growth projections through 2040 include a significant increase in walk-on and bike-on passengers. These forecasts indicate that some of the Central Puget Sound routes would exceed their existing passenger carrying capacity during the evening peak period. To strengthen the priority of moving more people, the Plan recommends creating Level of Service standards for passengers that mirror the existing vehicle standards, as described in more detail below.

The Plan recommends the following strategies to track and monitor system use and capacity during the growth expected through 2040:

- Establish a passenger Level of Service standard:** Much like the existing vehicle congestion management framework (Level of Service standards), passenger standards would also take a tiered approach. They would vary by route, based on the passenger carrying capacity of the vessel serving that route. The first tier would cover the seated capacity of the vessel. Reaching capacity on this tier would indicate that the customer experience is becoming more challenging, especially on longer routes where customers would be more likely to desire seats. Reaching capacity on the first tier would also signal to WSF that capacity improvements will be needed in the future. The second tier would cover the maximum passenger occupancy of the vessel as allowed by the U.S. Coast Guard certificate of inspection. Reaching the certified capacity would require capacity improvements, which could mean the alteration of a vessel to expand the passenger cabin, adding additional staff and life boats, or increasing service hours. The Level of Service graphic below illustrates this tiered passenger capacity Level of Service and its relationship to vehicle capacity.

Level of Service (LOS) process



- **Adjust capacity standards on routes with reservations:** On routes with reservations, WSF should align the capacity calculation in the congestion management decision framework with the actual vehicle capacity available for reservations. This available capacity is typically smaller than 100 percent of the vessel's available vehicle space. Making this small adjustment in calculating capacity would provide more accurate information that WSF could use when considering service enhancements and vessel needs.
- **Establish vehicle wait time as a performance metric:** Making peak period wait times a reported performance measure would add a layer of accountability and transparency. Performance measures are tracked quarterly, along with 17 other WSF-specific metrics, and reported to the Legislature. WSF could implement wait-time tracking in the short term through the use of cameras or other automated detection devices. In the future, WSF could expand this approach to include user-sourced data, after they launch online ticketing and other technology upgrades. Better understanding customer wait times would help to inform new infrastructure investments and operational efficiencies.

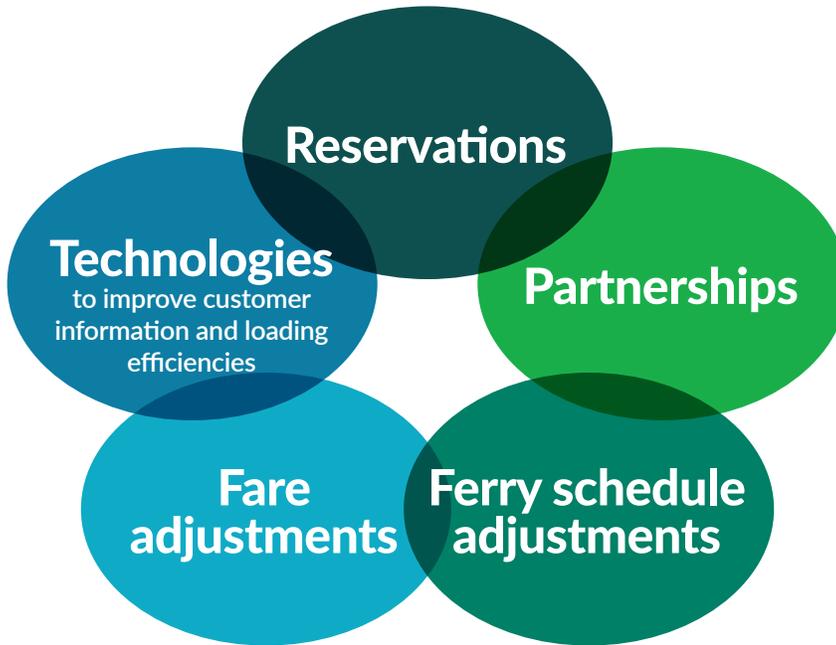
As WSF invests in technology for fare collection, enhanced customer information and operational efficiencies, data gathered from this technology can serve as another valuable tool to track and monitor system capacity and utilization. For example, queue detection technologies outlined in the Customer experience section can assist WSF in monitoring wait times. Additionally, technology upgrades to the reservations system would enhance the customer experience and aid future service planning by allowing WSF to monitor the available capacity of reservations.

Maximize existing system utilization through the advancement of adaptive management strategies that make operations more efficient, spread out demand beyond peak travel times, and prioritize walk-on and bike-on passengers through better connectivity at the terminal

Before modifying existing assets to manage growth, WSF first looks to improving existing operations through adaptive management strategies to improve operational efficiencies. Adaptive management strategies include reservations, fare collection and pricing strategies, improving customer information, and promoting mode shift.

WSF has implemented adaptive management strategies based on the tiered Level of Service standards. Once congestion levels have reached the first tier, adaptive growth management strategies should be applied. WSF's best practice is to implement growth management strategies that require very little investment on an ongoing basis. When the second tier is reached, WSF considers modifications to assets to add capacity, as discussed later in the Plan.

The toolbox of adaptive growth management strategies includes:



This Plan recommends adaptive management strategies focused on the same general categories outlined in the 2009 Plan, while using advancements in technology to improve on and expand what WSF has already achieved. Specific strategies to improve system utilization and operational efficiencies to manage growth through 2040 include:



Expand vehicle reservations

Many factors affect the success of reservations on a given route. WSF uses criteria to assess whether reservations on a given route may successfully address demand management concerns. The initial screening criterion is whether the congestion decision framework (Tier 1 or Tier 2 Level of Service) has been reached, which signals significant congestion on a route. The second and third criterion include the route's ability to meet the on-time performance metric goal of 95 percent and whether there is enough holding space at the terminal to accommodate the staging of vehicles with reservations. The Plan recommends that the following routes be further analyzed as candidates for reservations and notes needed actions before implementation could occur. All of these routes discussed below have met or will in the future meet the Tier 1 Level of Service, which means that WSF must examine adaptive management strategies such as reservations.

- **Edmonds/Kingston:** This route meets the on-time performance goal for much of the year except for the summer months. Although overall demand has not yet reached Tier 1 Level of Service, the forecasted demand could reach that level in 2030, making the route a candidate for incremental implementation of reservations. As a start, reservations could begin during high-demand weekend periods only and expand further after WSF has addressed capacity constraints at the terminals.

Implementation needs: Increased vehicle holding capacity.

- **Mukilteo/Clinton:** Because this route is expected to meet all three criteria once the new Mukilteo terminal begins operations in 2020, it would be a candidate for a more detailed reservations assessment. The vehicle holding lane capacity and configuration could make reservations difficult to implement. If WSF considers reservations, focusing on weekends could reduce the inconvenience reservations may cause commuters.

Implementation needs: Increased vehicle holding capacity at Clinton terminal and potential reconfiguration of long, linear queuing lanes at the Mukilteo terminal.

Criteria for reservations

- **Criterion 1:** Has this route reached the Tier 1 Level of Service regularly, indicating that there are frequently more vehicles needing space than what is available?
- **Criterion 2:** Does the ferry on this route leave on schedule at least 95 percent of the time? The reason for this criterion is that a reservation should offer a reasonable assurance of travel reliability, which a frequently-delayed sailing cannot do.
- **Criterion 3:** Does this terminal have enough holding space to accommodate at least one full vessel of vehicles? Again, with reservations, the reasonable assumption for customers is that they will be able to board the sailing for which they have a reservation. However, if there is not sufficient holding space, there is a risk that customers can lose their spot on the vessel by getting caught in line before reaching the tollbooth.

- **Lopez Island and Shaw Island:** These terminals are the only locations within the San Juan Islands route that do not currently offer eastbound reservations. Reservations in these locations could be successful and offer consistency and continuity among the other stops on the Anacortes/San Juan Islands routes, if paired with operational and terminal infrastructure enhancements.

Implementation Needs: Increased vehicle holding space.

- **Seattle/Bainbridge Island:** This route has not reached Tier 1 Level of Service standards overall but experiences periods of high demand on summer and holiday weekends. WSF could consider offering reservations only for these high-demand periods. Focusing on weekends would also alleviate any inconvenience reservations could cause for the large number of weekday commuter customers on this route. Additionally, the number of vehicle holding lanes and the configuration of vehicle queuing at each terminal is not currently conducive to managing reservations.

Implementation needs: Improved on-time performance and increased vehicle holding at the Bainbridge Island terminal.

- **Seattle/Bremerton:** Similar to Seattle/Bainbridge Island, this route has not reached Tier 1 Level of Service overall but experiences periods of high demand on summer and holiday weekends. WSF could consider offering reservations only for these high-demand periods. Focusing on weekends would also alleviate any inconvenience reservations could cause for the large number of weekday commuter customers on this route.

Implementation needs: Improved on-time performance.

- **Fauntleroy/Vashon/Southworth:** The Fauntleroy/Vashon/Southworth route has insufficient terminal space to hold a full sailing of vehicles and does not meet the on-time performance goal. However, reservations could be successful if evaluated in tandem with other demand management strategies, plus operational and terminal infrastructure enhancements.

Implementation needs: Improved on-time performance and increased vehicle holding capacity at each terminal.

Fare structure and pricing strategies

The Plan recommends pricing strategies to accomplish two goals: promoting mode shift and minimizing dwell times for vessels. The Plan also recommends further analysis of demand-based pricing, such as higher fares for weekend sailings on popular recreational routes, and fare structure simplification. For this approach to be successful, WSF would need to educate customers in advance of any fare changes.

Demand-based pricing could incentivize travelers to change their travel patterns by decreasing fares during less popular times. Implementing this strategy would require WSF to determine what would be considered “peak hours” for a given route, then adjust the prices accordingly.

Simplifying the fare structure could include eliminating non-driver fares for customers traveling on the ferry with a vehicle. Customers purchasing fares in advance would be able to simply purchase a vehicle fare without concern for how many passengers will be traveling with them that day. This approach could allow for more rapid processing at the tollbooth, although passenger counts would still be needed for U.S. Coast Guard regulations. This approach may also help to encourage carpooling, provide equity for traveling families and offset potentially higher peak fares.

The dilemma that WSF faces when considering making changes to the current fare structure and pricing is that it is already very complex. Adding new types of fares would increase this complexity, and removing fares may affect other types of fares or the populations that these fare types originally intended to serve. As with the other categories of adaptive management strategies, WSF would need to conduct a more thorough analysis of the potential effects of any fare structure and pricing strategies. Proposed changes would also need to receive approval from the Washington State Transportation Commission, which oversees WSF ferry fares and policies.

Additional adaptive management strategy areas

With investments in technology there are a variety of other adaptive management strategies to manage growth using existing terminals and vessels, such as enhancement of user information and multimodal connections through schedule synchronization and infrastructure improvements.

Provide system capacity enhancements through modest increases in service hours and by leveraging new vessel construction, terminal improvements and existing infrastructure modifications

WSF considers making capacity enhancements if a route reaches the Tier 2 Level of Service criterion. Adding capacity can occur through expanding service hours, increasing service frequency, and altering vessels to increase their carrying capacity. To date, no routes have reached the current Tier 2 Level of Service standards that would necessitate reviewing capital improvements to manage demand.

This Plan looked for opportunities to enhance service with the most efficient addition of service hours. The analysis involved adding hours in a way that work within existing crew work windows and existing schedule structure to move more vehicles and passengers. In many cases, enhancements recommended in the Plan are the reinstatement of service hours that were cut because of loss of funding enacted by Initiative 695 in 1999. This Plan also recommends many vessel replacements to replace the aging fleet. WSF has the opportunity to leverage these capital investments in vessels to provide enhanced capacity to customers, based on the route’s current needs and future projected demand.

For ferry systems, the ability to provide on-time service relates to the system capacity—how many vehicles and passengers can be carried. Many factors can contribute to increasing the system capacity including:

- **Enhanced service hours:** Service hours indicate the number of sailings provided on a route. The number of sailings on a route depends on the transit time as well as the number and size of vessels assigned to a route. Service hours on each route are consistent throughout the year with additional hours provided in the summer months, except for the Anacortes/San Juan Islands route that varies by season. If WSF increases service hours, there is generally an increase in overall passenger and vehicle capacity.

Service capacity enhancements are in part limited by the overall fleet size. As outlined in the Reliable service section of the Plan, the existing fleet with current service levels does not have enough out-of-service time for needed maintenance to be performed. Therefore, until the fleet grows in size to provide adequate relief vessels, WSF does not have the resources to add service hours and also maintain service reliability.

- **Increased carrying capacity (through size of the vessels):** Vessel capacity, which refers to the number of vehicles and passengers carried per sailing, is based on the vessels assigned to each route

Generally, all new vessels constructed during the next 20 years will be designed with flexibility in mind, with passenger cabin spaces that can grow and shrink with passenger demand, allowing cost efficiencies through incremental crewing requirements.

and the entire fleet configuration. The Plan recommends a vessel program that provides sufficient vessels for required service and maintenance relief as well as the flexibility to accommodate more passengers in the future. As discussed in the Reliable service section, vessels constructed over the next 20 years will be designed to have expandable passenger cabin space to meet future needs.

- **Terminal operational efficiencies:** Operational efficiencies determine how quickly vehicles and pedestrians can be loaded and unloaded at the terminal. These factors include vessel slip availability, vehicle holding capacity and configuration, pedestrian and vehicle loading, and activities adjacent to the terminal.
 - When multiple vessels operate on one route, a second operational slip provides flexibility and redundancy to maintain operations when the other slip is unavailable because of schedule delays or maintenance. If a terminal only has one slip, there are periods of time when loading or unloading takes longer, and the other vessel must wait for the delayed vessel to depart that terminal.
 - Vehicle holding capacity and configuration can affect how long it takes to load and unload. A single long line of vehicles takes longer to load than multiple lanes located closer to the vessel. The configuration of queuing and holding can also affect the effectiveness of reservations.
 - Loading and unloading passengers and vehicles separately takes longer. Overhead passenger loading walkways allow for vehicle and passenger loading to occur simultaneously, reducing the time needed to load both customers.
 - Other factors, such as pedestrian activity, exit lane configuration and traffic signals, can affect the flow of vehicles exiting the ferry. Partnerships between WSF and local agencies can help identify and implement solutions.

The Plan recommends some level of capacity enhancement opportunities to each route in the system. The Implementation, investment and financial outlook section outlines more details on service capacity enhancement timeframes for implementation.

The Plan's recommendations include the following strategies for capacity enhancements on specific routes, including two scenarios for managing growth on the Edmonds-Kingston route.

Seattle/Bremerton

Ridership on this high commuter route is expected to increase significantly by 2040, with the most growth occurring in walk-on and bicycle traffic. The Colman Dock terminal is currently undergoing a major preservation project, and Alaskan Way in Seattle will be reconfigured in the near term to encourage pedestrian and bicycle activity. The Plan's recommended capacity improvements for the Seattle/Bremerton route include:

- **Vessel capacity modifications:** Increase passenger capacity from 1,500 passengers to 1,800 passengers per vessel through the addition of life rafts and enclosure of

deck space. The figure below compares forecast peak sailing ridership with the capacity increase.

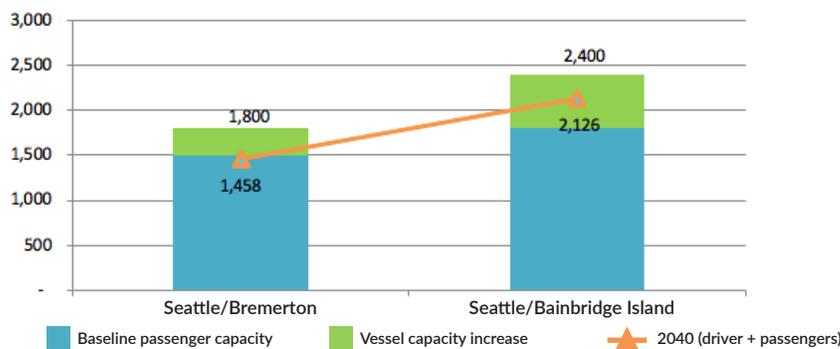
- **Terminal operational efficiency enhancements:** The new Colman Dock Multimodal Terminal will include more bike and pedestrian connections. When preservation projects are completed, WSF should explore ways to incorporate operational efficiencies and opportunities to encourage mode shift to transit, walking and biking at the Bremerton terminal.

Seattle/Bainbridge Island

Similar to the Seattle/Bremerton route, walk-on and bicycle traffic is expected to grow at a high rate by 2040. Traffic exiting the Bainbridge Island terminal adds to congestion along State Route 305, and encouraging greater use of transit, walking and biking could help relieve this congestion. The Plan’s recommended capacity improvements for the Seattle-Bainbridge Island route include:

- **Vessel capacity modifications:** Increase passenger capacity from 1,800 passengers to 2,400 passengers through addition of life rafts and enclosure of deck space. A comparison of forecast peak sailing ridership with the capacity increase is provided in the figure below.
- **Terminal operational efficiency enhancements:** Replace the existing overhead loading walkway to increase passenger throughput and improve safety.

Seattle/Bremerton and Seattle/Bainbridge Island passenger capacity increases on 2040 projected afternoon peak sailings



The Seattle/Bainbridge Island and Seattle/Bremerton routes are the only routes in the system projected to approach or exceed current certified passenger capacities on WSF vessels. To help meet WSF’s goal of shifting more customers to non-vehicle modes, this Plan recommends that WSF establish a passenger Level of Service planning metric to meet peak period walk-on passenger demand.

Fauntleroy/Vashon/Southworth

The Fauntleroy/Vashon/Southworth route currently experiences lower on-time performance compared to other WSF routes. The Fauntleroy terminal currently has less than one vessel's worth of vehicle holding space, a single vessel slip, and no overhead loading for pedestrians, which causes challenges for queuing and loading the vessel for multiple destinations. Additionally the Southworth terminal only has a single slip, which limits operational flexibility. The Plan's recommended capacity improvements for the Triangle Route include:

- **Service enhancements:** Extend the summer service schedule by adding more weekend hours in May and October with a 124-car capacity Issaquah Class vessel. Enhance winter service by adding a third 124-car capacity Issaquah Class vessel on weekends.
- **Vessel capacity modifications:** Add capacity by replacing the 90-car capacity *Sealth* with a 124-car capacity Issaquah Class vessel.
- **Terminal operational efficiency enhancements:** The preservation project at the Fauntleroy terminal facility is anticipated to improve operational efficiencies. Add another vessel slip to the Southworth terminal, potentially in partnership with Kitsap Transit for passenger-only ferry use. Look for ways to increase operational efficiencies and improve bicycle and pedestrian infrastructure when the Vashon terminal building undergoes a preservation project.

Point Defiance/Tahlequah

This route regularly meets on-time performance goals, but additional service hours and increased vehicle capacity could improve the customer experience. The Plan's recommended capacity improvements for the Point Defiance/Tahlequah route include:

- **Service enhancements:** Add two additional trips per day.
- **Terminal operational efficiency enhancements:** Improvements are planned at Point Defiance to reduce the amount of vehicles queuing along SR 163 (Pearl Street). As part of future trestle preservation projects, look for ways to increase operational efficiencies, such as vehicle holding and passenger queuing configurations.

Edmonds/Kingston

The vehicle demand on the Edmonds/Kingston route is expected to reach Tier 1 for the Level of Service standards in 2030. This route typically experiences high volumes of freight and commercial truck traffic, which are expected to increase. Each of these terminals experiences operational constraints. Because of the Edmonds terminal's downtown

location, where the vehicle holding area is separated from the vessel slip by railroad tracks and crossing, delays can occur during loading and unloading. When vehicle holding at the Kingston terminal is full, vehicles often line up along SR 104.

Because the Kingston terminal is also located on the Kitsap Peninsula, capacity enhancements on the Edmonds/Kingston route could create congestion relief for other Kitsap routes, particularly the terminals of Bainbridge Island and Bremerton, and minimally at Southworth. Because of this unique opportunity, the Plan recommends two potential options for capacity enhancements on the Edmonds/Kingston route. Each option presents a different path as it relates to the type of vessel constructed for future use on the route and would affect the make-up of the WSF fleet in 2040.

Scenario A capacity improvements for the Edmonds/Kingston route include:

- **Service enhancements:** Increase service frequency to 30-minute headways from 45- to 50-minute headways.
- **Vessel capacity modifications:** Replace the 188-car and 202-car vessel operation to operate three smaller 144-car vessels with 30-minute peak headways. This approach would increase the frequency of service and allow more traffic flow. With increased frequency, some ridership demand on other Kitsap County routes could shift to this route, relieving vehicle congestion on other high-volume ferry routes.
- **Terminal operational efficiency enhancements:** Review options for increasing terminal capacity at Edmonds to reduce operational constraints. Continue to work with stakeholders to address congestion in the town of Kingston.

Scenario B capacity improvements for the Edmonds/Kingston route include:

- **Service enhancements:** Maintain existing service hours.
- **Vessel capacity modifications:** Replace the 188-car and 202-car vessels with two 202-car vessels on Edmonds/Kingston route, with 45- to 50-minute headways.
- **Terminal operational efficiency enhancements:** Review options for increasing terminal capacity at Edmonds to reduce operational constraints.

The decision point between Scenario A and Scenario B arises when WSF must replace the two existing large vessels serving this route. WSF could replace the vessel size in-kind and maintain the same service frequency or replace the two large-sized vessels with three medium-sized vessels and increase the service frequency to 30-minute headways. While Scenario A requires more initial investment than Scenario B, Scenario A provides more opportunity for increased revenue and decreased congestion on other Kitsap routes. With a minimum of seven years for design and construction time, this decision would need to be made by 2025.

Mukilteo/Clinton

The Mukilteo/Clinton route is expected to experience modest growth by 2040. The Mukilteo terminal will be relocated and will include increased vehicle holding, overhead loading and improved transit connections. The Clinton terminal has limited vehicle holding and no overhead loading for pedestrians. The Plan's recommended capacity improvements for the Mukilteo/Clinton route include:

- **Vessel capacity modifications:** Increase vessel capacity by adding a 144-car Olympic Class vessel to replace the 124-car Issaquah Class vessel by 2019 during the peak season and by 2035 in the fall, winter and spring months.
- **Terminal operational efficiency enhancements:** Construct overhead loading at the Clinton terminal and consider options for increasing vehicle holding. Reservations would be challenging to implement on this route because of the configuration of vehicle holding at both terminals (long and linear lines at Mukilteo and capacity for holding just over one vessel's worth of vehicles at Clinton).

Port Townsend/Coupeville

The Port Townsend/Coupeville route currently accepts reservations but has already exceeded the congestion decision framework for Tier 1 Level of Service. With ridership growth, this route is projected to reach Tier 2 capacity enhancements in 2040. The Port Townsend terminal's downtown location experiences high pedestrian traffic and has limited vehicle holding space. The Coupeville terminal also has limited vehicle holding space, which makes it difficult to queue vehicles with reservations. The Plan's recommended capacity improvements for the Port Townsend/Coupeville route include:

- **Service enhancements:** Initially, add one daily round trip to the summer season. Then, once the relief vessels have come online, add four additional round trips per day in the summer and enhance spring service by extending the two-boat service in the early spring season.
- **Terminal operational efficiency enhancements:** When trestle preservation projects occur, seek opportunities for including operational efficiencies, such as increased vehicle holding space, at Port Townsend. Additionally, look for opportunities to increase vehicle holding capacity at Coupeville to better manage reservations.

Anacortes/San Juan Islands

The Anacortes/San Juan Islands route has long sailings that vary between 50 and 75 minutes in each direction. This route has low on-time performance, especially during the high-demand summer season, because of challenges with queuing and holding capacity and delays associated with high pedestrian traffic at the Friday Harbor terminal. Because sailings on this route have multiple stops, delays are compounded. All terminals on this route currently accept reservations except for eastbound sailings from Shaw Island and Lopez Island. For Lopez Island to accommodate reservations, WSF would need to expand vehicle holding. The Plan's recommended capacity improvements on the Anacortes/San Juan Islands route include:

- **Service enhancements:** Extend the summer sailing schedule into May and October. Restore the interisland service in the winter season. A two-season schedule (as opposed to the current four seasons) would simplify trip planning for customers and make it easier for WSF's transit partners to coordinate schedules. It would also align with peak period pricing that runs from May to October.
- **Vessel capacity modifications:** Increase vessel capacity by replacing the 90-car *Sealth* with a 114-car vessel for the interisland route.
- **Terminal operational efficiency enhancements:** Construct a new terminal building at Anacortes. Expand vehicle holding at Lopez Island to accommodate reservations. Construct overhead loading and convert the tie-up only slip to an operational slip that allows vehicles to drive-on the ferry at Friday Harbor.





Anacortes/Sidney, B.C.

The Anacortes/Sidney, B.C. route does not operate in the winter months and has high tourist ridership. Relocating customs to Sidney could improve vehicle and passenger movement at Anacortes and Friday Harbor. The Plan's recommended capacity improvements on the Anacortes/Sidney, B.C. route include:

- **Service enhancements:** Expand summer service into May and October.
- **Terminal operational efficiency enhancements:** Relocate all customs processing to Sidney to reduce processing time at Anacortes.

The next section of the Plan outlines the goals and strategies for greater system sustainability and resiliency. The section will focus on how each element of the Plan supports overall WSDOT agency sustainability goals and how with strategic, prioritized investments, the system will be more resilient and environmentally friendly in 2040.