Washington State Ferries

# Washington State Department of Transportation Ferries Division

# Draft Vehicle Reservation System Predesign Study

December 15, 2009

Washington State Department of Transportation

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# WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
# FERRIES DIVISION (WSF)
# DRAFT VEHICLE RESERVATION SYSTEM PREDESIGN STUDY

## EXECUTIVE SUMMARY

### 1.1 Introduction

The 2009 Washington State Department of Transportation Ferries Division (WSF) Long-Range Plan proposed a reservation system as the primary strategy to manage demand, spread peak vehicle traffic, improve asset utilization, reduce wait times, and minimize the need for costly terminal and vessel expansion projects. The first step in the process of implementing a reservation system is to conduct a predesign study, per a proviso in the 2009-11 transportation Budget.

A vehicle reservation system will reduce queuing and congestion without major terminal and vessel investments and provide enhanced customer service and increased travel predictability. The preferred alternative identified in this study will offer reservations to all vehicle customers on all but four ferry routes. On the remaining routes, where terminal capacity issues limit options for reservations, WSF would offer reservations for commercial traffic as part of its commitment to improve freight mobility. Routes proposed for full reservations account for 60% of all passengers traveling in vehicles.

In addition the preferred alternative proposes significant enhancements to communication systems for all customers on all routes, providing real-time information about congestion, expected delays, available boat capacity and departure times. The improvements to the communication system will address both the reliability of travel information collected by WSF and the means of communicating this information to the travelling public, including expanded use of highway signs, travel advisory radio and direct methods such as text and email broadcasts.

The proposed vehicle reservation system would offer reservations on select commuter-oriented routes making WSF one of the few ferry systems in the world that does this. Implementing reservations on high volume commuter routes will be challenging. Therefore, the system has been designed to be an adaptive system, complete with data gathering and analysis functions that will provide WSF with information to ensure that the system is continually monitored and adjusted as necessary to meet the needs of customers, communities and WSF.

WSF will gradually roll out and implement the reservation system, with purposeful phasing that allows for testing, education, and outreach as reservations become available on each route. WSF may also choose to implement reservations gradually on individual routes, by offering reservations first to a certain customer group (like commercial customers), for a limited number of sailings (like weekends only), or by making a small percentage of vessel capacity available. During the rollout process, the Legislature will have two major decision points, at which times it can evaluate the benefits and success of the reservation system in its funding decisions.

## 1.2 Purpose

This report has been designed to meet the requirements of a transportation predesign report as laid out in the Office of Financial Management (OFM) Transportation Budget instructions for 2009-2011. This predesign report generally follows the instructions provided by the Office of Financial Management (OFM) for transportation projects, but a predesign for a reservation system for ferry service is a unique project on many levels. This predesign has been formulated to meet the intent of a predesign report, and exact instructions were followed where possible.

## 1.3 Reservation System Goals

The overarching goal of a successful reservation system would be to improve service and meet the needs of ferry customers, ferry communities and WSF.

- Goal 1: The reservation system needs to benefit customers by being easy to use, work for all customer types, provide travel flexibility.
- Goal 2: The Reservation system needs to benefit ferry communities by reducing vehicle queues outside terminals, improving traffic flow around terminals and reducing travel uncertainty for visitors.
- Goal 3: Reservations need to benefit WSF by supporting demand management objectives, maximize the use of existing assets, integrate with fare collection and offer opportunities to increase ridership.

## 1.4 Study Approach

As envisioned in the Long-Range Plan, a vehicle reservation system would dramatically improve how most customers interact with the Ferry System, resulting in significant benefits for customers, ferry communities, and WSF. However, given the potential impacts on each of these groups, it was important to design a process that brought together the best resources from within WSF and from outside the agency to critically analyze the opportunities, challenges, and technical aspects of this project. The approach included three key elements:

**Build the design on real experiences at WSF and other ferry operators (don't reinvent the wheel).** The predesign process included research and analysis of WSF's own experiences with reservations and research from the experiences of other systems, including (1) a review of recent experience at Port Townsend-Keystone and Anacortes-Sidney B.C.; and (2) extensive outreach to other systems to understand how reservations work elsewhere.

**Engage all of the key departments at WSF in the process.** Internal WSF technical teams were organized to work through the key elements of the predesign analysis.

**Engage with customer and community representatives.** A group of stakeholders and members of the public provided perspectives on customer needs and concerns and gave feedback on potential business rules, vehicle processing, terminal operation, and information technology options.

An Edmonds-Kingston Partnership Group was formed, bringing together representatives from different customer groups (commuters, regular riders, tourism interests, commercial and freight), as well as representatives from Ferry Advisory Committees, ports, and cities in the Edmonds and Kingston areas. The Edmonds-Kingston route was selected because it provided a clear view of the likely challenges facing a successful implementation of a reservation system. It includes a mix of commuters, ferry dependent residents, recreational users, and commercial users; short turnaround in between departures, diverse terminals, and serious community congestion problems.

## 1.5 Lessons Learned

The development of the conceptual design for a WSF reservation system was significantly shaped by the following major lessons learned:

- Customers plan for trips in different ways and want flexibility to meet their needs.
- For regular customers, the return trip presents greater uncertainty around exact travel time.
- On-time performance is a necessary pre-condition to a reservation system.
- Reliable real-time communication is crucial to the success of the system.
- A reservation system can and should be implemented differently on different routes.
- Most large ferry operators have a reservation system and they generally have more terminal capacity than WSF.
- For recreational routes, there are comparable systems to learn from.
- For short, commuter routes, there are no direct comparables.
- Reservations are a key feature of the freight programs offered by other ferry operators.

To better understand the technology options available to support a reservation system, a Request for Information (RFI) was issued in May 2009. Five of the six responses received addressed the issues in the RFI and four have software currently in use by a ferry system somewhere in the world. All of the current systems were described as very flexible and customizable to meet customer requirements. All respondents provided useful information for the evaluation of options, such as system features and capabilities, ability to integrate with existing technology (i.e. fare collection), customer service issues and options, some cost information (though not very detailed), and references for current customers.

## 1.6 Key Elements of Reservation System

There are four major elements of a potential WSF reservation system: (1) A communication system, (2) business rules, (3) terminal and vehicle processing, and (4) information technology and back office systems. On-time performance is a precondition for a reservation system and WSF should focus initially on reviewing and modifying route schedules where schedule delay is a significant determinant of local terminal congestion and customer delays.

**Regional ferry information systems and improved communications.** Improved communications would be deployed system-wide and must include improvement and further development of the following: highway/ferry advisory radio, variable messaging regional highway signs, local signs, email and texts to customers regarding their specific reservations, and improvements to traveler information on the WSF website. It is particularly important to significantly increase the quality of the information delivered so customers have enough confidence to use the system to make real-time travel choices.

**Business rules.** The business rules define how the reservation system will work, including how reservations will be made, when they will be made, how much of the boat is available for reservations and what the change and cancelation policies will be. The key business rules that support the system design goals include:

- Up to 90% of the vessel available for reservations during peak and commute periods; minimum of 50% of the vessel available for reservations during off-peak periods. The share of the boat available for reservations during peak times would be phased in over time, with the share starting much

lower and gradually increasing as customers adapt to the new system. Ultimately the share will depend on when congestion at terminals is mitigated, which could be at levels below 90%.

- Reservations on commute period sailings made available 4 weeks in advance, all other sailings available up to 6 months in advance to provide extra incentives for customers with schedule flexibility to reserve non-commute period sailings.
- To address concerns that reservations will favor tourists over residents of ferry communities, there will be two Priority Access programs to provide regular users with space on all sailings. One will focus on commercial customers while the other on non-commercial regular and frequent users.
- Regular reservations (non-priority access) will require pre-payment of fare.
- There will be no extra fee for reservations.
- There will be flexibility to change or cancel reservations at no charge, though cancelation fees might apply in some cases.
- Customers would need to arrive between 15 and 30 minutes before departure to guarantee their spot on the sailing. During peak periods, a customer arriving late could lose their reservation and be directed to the drive-up queue.

**Vehicle processing and terminal operations.** Each of WSF's terminals has unique characteristics that affect how reservations will be implemented. The analysis suggests that a reservation system as described in the business rules would work best if: (1) there is at least 120%-150% of a vessel's capacity available for vehicle holding area; or (2) there is more than an hour between departures. Based on these criteria:

- Reservations can be made to work at 17 of 20 WSF terminals (all except Fauntleroy Tahlequah, and Vashon Island).
- While Edmonds does not meet this test, there are opportunities to support reservations with some modest modifications to the business rules or method of operation at terminals.
- Mukilteo currently meets the minimal operating needs however the holding area includes leased land that is available for five years. Without a long-term solution at Mukilteo, it may not be possible to effectively support reservations on this route.
- Fauntleroy presents the greatest challenge for implementing reservations due to the inadequate holding area, short headways and turnaround times on the route and multiple destinations. These challenges cannot be overcome without significant terminal expansion or operational changes, such as shifting Southworth traffic to downtown Seattle.
- Customers need to be able to make informed choices with real time information that is available through multiple communications methods.
- Prepayment of fares should be encouraged as a means of speeding the processing time at terminals.

**Information technology.** Information technology will be needed to support the reservations as defined in the business rules. While the system improvements are feasible, there will be some system development challenges, particularly around the type of enhanced communications that are necessary to make reservations work effectively on WSF's higher-volume, commuter routes.

The most critical technology link for reservations is with the ticketing system. WSF has recently invested considerable time, effort and resources into a complete overhaul of its ticketing system. Since

reservations will offer a way to provide a guaranteed trip, it is best to think of a reservation as pre-selling the space of the boat.

Currently all tickets issued in the Wave2Go system can be redeemed for travel on any sailing within a 90-day window. When a reservation is made, the issued ticket is linked to a specific sailing. If the reservation is cancelled, the ticket can also be cancelled, or its status returned to "open." The ticketing system integration will address these key requirements:

- The ticketing system is independent from the reservation system, but must be able to share information back and forth.
- At the time of vehicle processing, information available to toll booth operators needs to include reservation confirmations plus any amount pre-paid so the ticket seller can verify that the appropriate fare has been paid and complete the transaction.
- Ticket seller must have the ability to add to any prepaid amounts to account for the final transaction costs reflecting actual vehicle used for the trip and the number of passengers.
- The system must work with the existing multi-ride products.
- To facilitate and speed vehicle processing, the reservation system must accommodate the option of fully pre-paying applicable fares (vehicle and passengers).

These elements of integration will be part of the minimum requirements in any reservation system procurement or development effort.

## 1.7 Alternatives Considered & Preferred Alternative

The costs and risks associated with developing and implementing the reservation program described above will vary according to specific service and route characteristics. Predesign alternatives were thereby constructed to assess the relative costs and benefits of different deployment concepts. To demonstrate how costs, benefits, and risks change as more elements are added to the WSF reservation system, the alternatives build on each other (beginning with the easiest to the most difficult), until the final option presents an alternative with full reservations implementation on all WSF routes.

Exhibit ES-1 presents the summary assessment of the following five alternatives:

- **Alternative 1: Industry Standard Package Upgrades to Routes that Currently Offer Reservations.** WSF currently operates a basic reservation system on three routes, Anacortes-Sidney, Port Townsend-Keystone, and commercial reservations for the San Juan Islands. Alternative 1 would upgrade the current reservation system with an industry standard reservation package that encourages online bookings. It would be linked to the current ticketing system and would include enhanced communication around general travel-related information.
- **Alternative 2: Alternative 1 plus Expanding Reservations to San Juan Islands vehicle trips and Commercial Reservations System Wide.** This alternative would build on Alternative 1 by expanding reservations from commercial customers to all service on the Anacortes-San Juan Islands routes (except Interisland). Commercial reservations would be made available on all routes throughout the system.
- **Alternative 3: Alternative 2 plus Intelligent Transportation System (ITS) Communication.** This alternative would develop and build a regional ITS communication system comprised of variable messaging signage, highway advisory radio, and web cameras to notify customers at key travel

decision points of congestion at terminals and service disruptions. Alternative 3 would reduce congestion by helping customers make better decisions about which routes and sailings to take and directing them to less congested terminals. An effective real-time communication system that works on a large scale is a key factor for successful implementation of reservations in the Central Sound, and must therefore be in place before reservations are extended to additional routes.

- **Alternative 4: Alternative 3 plus Reservations Extended to Seattle – Bremerton, Seattle – Bainbridge, and Edmonds - Kingston.** This alternative makes reservations available for all vehicle traffic on routes where terminal facilities are determined to be adequate (in the case of Edmonds, with minor modifications) to support reservations. All Central Sound routes have been included in order to prevent a shifting of traffic that could potentially occur if one or two Central Sound routes had a reservation system and one or two routes did not.
- **Alternative 5: Alternative 4 plus Extend Full Reservations to All Routes.** This option includes implementation of a reservation system for all customers in the system by adding the Vashon Island and Southworth routes plus Mukilteo-Clinton.

**Exhibit ES-1**
**Assessment of Alternatives**

| | | Queue Reduction Potential | Number of Riders who Benefit | Risk | Capital Cost (2009$) |
|---|---|---|---|---|---|
| 1 | Standard Package Upgrades (current routes w/reservations) | High (on select routes) | 4% of vehicle drivers and their passengers would benefit | Low | $3.6M |
| 2 | Alternative 1 plus all San Juan Islands & commercial reservations all routes | High (on select routes) | 13% of total vehicle drivers and vehicle passengers benefit | Low | $6.4M |
| 3 | Alternative 2 plus Regional ITS communication system | Medium across the system and high on select routes | 13% benefit from reservations;<br>Most riders (including passengers) receive some benefits | Low | $18.7M |
| 4 | Alternative 3 plus full reservations extended to Central Sound routes | High on most routes, with medium on remaining routes | 60% of vehicle drivers passengers benefit from reservations;<br>Most riders receive some benefits | Medium | $24.5M |
| 5 | Full reservations & communications on all routes | High | Most riders receive maximum benefits | High | $27.0M |

**Preferred Alternative.** Alternative 4 is the preferred alternative because it results in the greatest overall benefits in terms of customer time savings and demand management potential. This option offers these benefits to the majority of the system while keeping costs per rider low and implementation risks manageable. South Sound routes and Mukilteo-Clinton, which would not have access to the full reservation program under this option, will still realize benefits through an improved communication system, reliable real-time traveler information and commercial-only reservations.

Without a relocated Mukilteo terminal or a permanent solution at the current site (the Buzz Inn property is secured for only a five year lease term) the implementation risk for full reservation deployment is too high to justify the additional terminal investments needed. If the terminal situation is resolved in such a way as to reduce the operational risks, then extending reservations to this route could be revisited at that time.

On South Sound routes, where terminal and operating constraints are greatest, supporting reservations would require either major terminal investments or major operational changes (like connecting Southworth to Colman Dock, rather than Fauntleroy). Without major investments, reservations would not be feasible at these terminals and the benefits of reservations are not sufficient to justify these much larger capital investments or operational changes.

Exhibit ES-2 shows the improvements that implementation of the preferred alternative would bring to each of WSF's terminals and routes.

## Exhibit ES-2
## Summary of Preferred Alternative Improvements by Terminal

| Terminal | Reservation Availability | Communication Improvements | | | Terminal-Related Improvements | | | |
|---|---|---|---|---|---|---|---|---|
| | | Regional VMS Signs | Highway Advisory Radio | Queue Detection | Local VMS | Traffic Management Signs | Ferry Advisory Radio | Other |
| **Anacortes** | All Customers | | X | | | X | X | |
| **Bainbridge** | All Customers | X | X | X | Existing | X | X | |
| **Bremerton** | All Customers | X | X | X | Existing | X | X | |
| **Clinton** | Commercial Only | | X | X | | X | X | |
| **Edmonds** | All Customers | X | X | X | Existing | X | X | Additional tollbooth, traffic gate |
| **Fauntleroy** | Commercial Only | X | X | | | | | |
| **Friday Harbor** | All Customers * | | X | | | X | | 3 Web cameras |
| **Keystone** | All Customers | | X | X | | X | X | |
| **Kingston** | All Customers | X | | X | | X | X | |
| **Lopez Island** | All Customers * | | X | | | X | X | 2 Web cameras |
| **Mukilteo** | Commercial Only | X | X | X | | X | X | |
| **Orcas Island** | All Customers * | | X | | | | X | 2 Web cameras |
| **Point Defiance** | Commercial Only | | X | | | X | X | 2 Web cameras |
| **Port Townsend** | All Customers | | X | X | | X | X | |
| **Seattle** | All Customers | X | X | | | | X | |
| **Shaw** | All Customers * | | | | | | X | 2 Web cameras |
| **Sidney** | All Customers | | | | | | | |
| **Southworth** | Commercial Only | X | X | | Existing | X | X | |
| **Tahlequah** | Commercial Only | | X | | | | X | |
| **Vashon Island** | Commercial Only | | X | | | | | 2 Web cameras |

** Excludes inter-island sailings*

## 1.8 Implementation

The proposed implementation program was developed based on balancing several goals: (1) a desire to minimize implementation risk; (2) to create opportunities for early successes to build customer confidence in the new system; and (3) to offer enhancements where the need is greatest. Toward these ends, the following three-phase approach is proposed:

- **Phase 1: Initial acquisition and testing of the "industry-standard" reservation system (May 2010 through June 2011).** In this phase WSF would procure an industry-standard reservation system and integrate this system with the Wave2Go ticketing system and the rest of the core IT infrastructure. The system would then be deployed on the routes that currently have reservations (likely in spring 2011) and fully tested. These include the International Routes to Sidney, the Port Townsend-Keystone route and commercial reservations in the San Juan Islands. Also, in this phase the basic information collection enhancements to accurately calculate wait times at terminals would be built.
- **Phase 2: Full implementation on the northern routes (July 2011-June 2014).** Once the initial system deployment has been fully tested (likely fall 2012), then the next step for reservations would be to extend the availability of reservations to all of the Anacortes-San Juan Island routes. This phase would also include extending reservations for commercial account customers throughout the WSF route network and implementation of the remaining portions of the regional ferry ITS.
- **Phase 3: Expansion to the Central Sound commuter-oriented routes (July 2015-June 2018).** By this time, the reservation system, including the priority access programs, should have a track record of success and the regional ITS program would be fully operational. These factors will be significant elements of a risk mitigation strategy for fully deploying reservations on the high volume and commuter-oriented routes at Seattle-Bainbridge, Seattle-Bremerton, and Edmonds-Kingston. It will likely take a year to develop the IT system enhancements necessary to support these routes. A pilot would then be tested on one of the Central Sound routes for 3-6 months, prior to extending reservations to all these routes.

One of the benefits of this phased implementation schedule is it allows for a break between Phase 2 and Phase 3. Before committing funding to the final phase where the implementation risks are highest, WSF will have more than two years of operating experience with reservations in the north sound, an understanding of the impact of the ITS investments on demand management in the Central Sound and an opportunity to revisit and refine the approach to reservations on the commuter routes based on these inputs.

**Route-level implementation measures.** Another key element of the phasing program will be close coordination with local communities and customers on routes where reservations are planned. To support the introduction and early implementation phase on a new route, WSF will organize a Partnership Group for that route as a mechanism to engage key local stakeholders in the decision making process. These Partnership Groups will be modeled on the successful process used for the Port Townsend-Keystone terminal and vessel studies and the Edmonds-Kingston group used to assist in the development of this predesign report. These groups would meet to evaluate how the system should work on their route, comment on terminal modifications/vehicle processing changes and review business rule phasing.

## 1.9 Budget Analysis

The budget analysis takes the total estimated capital investment needs and spreads these costs over the 16-year Legislative Financial Plan horizon to show both the magnitude and timing of the funding required to implement the preferred alternative. The capital cost estimate of $24.5 million shown in Exhibit ES-1 is spread out according to an implementation schedule and escalated to year of expenditure dollars, using the forecast implicit price deflator (IPD) as per OFM budget instructions.

Once escalated, total costs are estimated to be $25.9 million in year of expenditure dollars and the costs are spread over five biennia. As a point of comparison, in the Long-Range Plan, the investment needs for a WSF reservation system were estimated to be $18 million over the next five biennia, approximately $8 million less than current estimates. These estimates were included in the legislative 16-year financial plan.

There are several important differences between the preferred alternative and the Long-Range Plan assumptions, but the one change that has the biggest impact on the budget is the proposed investments in a regional Ferry ITS program. The regional highway variable message signs (VMS) in particular account for $8.9 million of this difference.

It is possible to think of the preferred alternative as two separate but related projects: (1) a $14.3 million regional ferry ITS program; and, (2) an $11.6 million reservations system. The ITS investments will have demand management benefits, irrespective of reservations, and, in fact, could proceed without the reservations element.

By contrast, the reservations investments would provide WSF a much more robust demand management capability in places where the system can reasonably be deployed. However, to maximize the effectiveness of the reservation system investments and support a smooth implementation process, the regional ferry ITS program would need to be in place prior to reservations rolling out to Central Sound routes. If these communications improvements were already in place, then reservations would be an $11.6 million project.

Another important budget-related factor is the fact that the Phase 3 funding decision does not need to be finalized until the 2015-17 Budget. The cost of deploying full reservations for the Central Sound routes is $6.5 million. Before the legislature needs to commit to this phase, WSF will be able to demonstrate both how well reservations are working and the demand management benefits of the investments in real-time information.

For the operating budget, the analysis suggests that initially the operating impacts will be relatively minor, with cost impacts of less than $1 million for each of the first two biennia. Costs are expected to jump to $1.8 million in 2015-2017 and to over $2.5 million per biennium starting in 2017-2019. Costs are based primarily on staffing impacts for terminal operations (3.7 FTE's), Information Technology support (2.0 FTE's) and additional customer service requirements, primarily related to call center support (6.0 FTE's). The biggest factor in the increased costs in later biennia is a jump in call center staffing needs related to Phase 3 of the reservation system deployment, when reservations are extended to the Central Sound routes.

During the development of the Long-Range Plan, the operating impacts of a potential reservation system were not fully evaluated. However, an annual allowance of $500,000, or $1 million per biennium, was included in the long-term financial analysis as a way to account for some unknown impacts.

## 1.10 Next Steps

This is a draft predesign report and a final report will be completed based on OFM and legislative staff review, including a review of costs estimates and the proposed phasing schedule. The final report will be transmitted to OFM and the House and Senate Transportation Committees by January 11, 2010. Subsequent steps in the implementation will be dependent on legislative action during the 2010 session. Assuming the legislature directs WSF to proceed with the preferred alternative, the steps to implementing Phase 1 will likely be as follows:

- Begin final design of the project elements
- Procure a reservation system through a request for proposal (RFP) process
- Integrate the new reservation system with WSF's existing IT infrastructure
- Convene a local Partnership Group for the Port Townsend-Keystone route to discuss implementation and phasing of the new system on that route
- Complete necessary terminal modifications at the Phase 1 terminals
- Launch the new reservation system on the routes which currently have reservations (Port Townsend-Keystone, International routes, and commercial-only in the San Juan Islands).

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# WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
# FERRIES DIVISION (WSF)
# DRAFT VEHICLE RESERVATION SYSTEM PREDESIGN STUDY

## 1.0 INTRODUCTION

*This chapter introduces the purpose of a predesign and describes how and why this study is different from a typical predesign study. It describes how this study meets the intent of a predesign report and explains how the document is structured, crosswalking the structure to OFM's Transportation Predesign outline.*

### 1.1 What is a Predesign Report?

> *"Key to the success of any capital project is a clear understanding of the need/problem to be addressed and a thoughtful analysis of available options to meet the need or solve the problem." – Office of Financial Management*

This report has been designed to meet the requirements of a predesign report as laid out in the Office of Financial Management (OFM) Transportation Budget instructions for 2009-2011, which include:

> *The predesign process is a decision making tool for large capital budget expenditures. The intent of a predesign study is to investigate alternatives for public service delivery or administration. It should assess which alternative best solves a specific problem and at what cost. This will assist decision makers in determining whether the project should proceed to design and construction.*
>
> *During the predesign process, the agency answers specific questions designed to ensure full understanding of the viable alternatives to resolve the need/deficiency that has been identified. The need should be directly related to the delivery of public service. These questions include the refinement of the scope, project management, schedule, quality, budget, and location of a project by answering the questions of who, why, what, where, when, and how much.*
>
> *The predesign study involves data collection, analysis, organization, communication, and evaluation through which viable alternatives and elements of the proposed projects design shall be explored. It includes the establishment of an agency's programmatic, qualitative, financial, schedule requirements, and limitations for a project. It should explore the physical attributes of a proposed project, as well as the design response to meet service delivery and user needs.*
>
> *While the predesign is a solid foundation from which to begin design, it does not impose constraints that cannot be altered during the design process if additional information becomes available. Reasonable flexibility, within legislative intent, during the design and construction process is expected and encouraged. Scope changes must be communicated to the agency's transportation budget analyst at OFM.*

## 1.2 Legislative Direction

The 2009 Washington State Department of Transportation Ferries Division (WSF) Long-Range Plan proposed a reservation system as the primary strategy to manage demand, spread peak vehicle traffic, and improve asset utilization, thus reducing customer wait times and minimizing the need for costly terminal and vessel expansion projects. Given the costs associated with such a system (estimated at $18 million in capital investments in the Long-Range Plan), WSF must complete a predesign study before requesting funding for design and implementation from the Legislature, as directed in the following legislative budget proviso:

> *"The department shall complete a predesign study and present the study to the joint transportation committee by November 1, 2009. This analysis must include an evaluation of the compatibility of the Washington state ferries' electronic fare system, proposed reservation system, and the implementation of smart card. The department may not implement a statewide reservation system until the department is authorized to do so in the 2010 supplemental omnibus transportation appropriations act."*

The due date was subsequently adjusted by the chairs of the House and Senate Transportation Committees so that a draft predesign report would be released by December 15, 2009, with the final report prepared in advance of the 2010 legislative session.

## 1.3 Not a Typical Predesign

This predesign report generally follows the instructions provided by OFM for transportation projects, but recognizes that transportation-related predesigns are a relatively new convention and that even within the realm of transportation projects, a predesign for a reservation system for ferry service is a unique project on many levels. This predesign has been designed to adhere to the intent of a predesign report, and exact predesign instructions were followed where possible. Some reorganization of sections and additional analysis has been undertaken where necessary to fully and coherently explain the analysis and proposed design of this reservation system.

This report differs from the OFM predesign outline because of the differences between designing traditional transportation capital projects, such as roadways, and designing a system that has both capital, operational, and customer service impacts. A reservation system is foundationally an information technology service that requires infrastructure to support its function, rather than being first and foremost a piece of transportation infrastructure.

This predesign is also different because options for addressing the demand problems and accommodating ridership during peak periods have already been weighed by the Long-Range Plan. A reservation system has already been selected as a better alternative to no action, congestion pricing, and expanding terminal facilities. This predesign walks through the decision process for selecting a preferred alternative for deploying a reservation system to best serve customers and WSF, and what the cost implications of those decisions might be.

A summary of the modifications made to the OFM standard predesign, as well as an outline of this report, can be found in Section 1.4.

## 1.4 Organization of this Report

A typical predesign report begins by identifying a problem that needs to be addressed, identifying alternatives to address the problem, and then selecting a preferred alternative. This predesign report, due to the uniqueness of the reservation system, follows instead a two-tiered decision making process.

WSF's first step, the analysis for which was completed during the Long-Range Plan, was to choose a method for addressing its demand management needs. The options were a no-action alternative, implementing reservations, expanding the system which would require a larger fleet and major terminal investments. Using a cost benefit analysis, WSF determined that a reservation system would be the most cost effective way to manage and spread its demand, as was directed by the Legislature. Details about the different alternatives and this decision making process are included in Section 2.2.

Once WSF determined that a reservation system was the best choice, the Legislature directed WSF to undertake this predesign study, which analyzes and identifies alternatives for the second tier of decisions. These decisions include the how a reservation system would really work on WSF routes and the details and choices about implementing reservations across the system.

### Report Organization

This predesign report has nine chapters, including this introductory chapter, that address the predesign elements required in OFM's Budget Instructions for Transportation guidelines, as well as other analysis that WSF determined was necessary to fully assess the options and choices available. The remaining eight chapters include:

- **Chapter 2: Background and Context**. This chapter describes the problem a reservation system is trying to address and identifies alternatives to address this problem that were analyzed in the WSF Long-Range Plan.
- **Chapter 3: Process and Lessons Learned**. This chapter explains the process undertaken by WSF to analyze the potential elements of a reservation system, including business rules, vehicle processing techniques, and IT components. It also describes the key lessons that WSF learned from its own experience, the experience of other ferry systems around the world, and from this study's stakeholder process and how each of these impacted system design.
- **Chapter 4: Program Analysis**. This chapter defines what a reservation system is, describes the basic elements of different reservation system models, and identifies the goals and objectives of a reservation system. It also discusses which reservation model elements best meet the demand management needs identified in the Long-Range Plan, as well as the more detailed goals and criteria of a WSF reservation system.
- **Chapter 5: Project Analysis**. This chapter describes the business rules, terminal operations, and IT components needed to support a reservation system on each route.
- **Chapter 6: Cost Benefit Analysis**. This chapter identifies the capital and operating costs associated with the reservation system. It walks through a cost benefit analysis to determine the most cost effective approaches to meeting project objectives and proposes a preferred alternative.
- **Chapter 7: Implementation**. This chapter describes how the reservation system would be implemented in general and at the route level.

- **Chapter 8: Budget**. This chapter describes how and when money would be spent on the reservation system, including funding sources and risk assessment.
- **Chapter 9: Policy and Regulatory Coordination**. This chapter describes how the reservation system would align with State and WSF policies and goals.
- **Appendices**. The following appendices are included with this predesign report:
  - **A: Partnership Group Meeting Summaries**. This appendix includes meeting minutes from all eight Edmonds-Kingston Partnership Group meetings.
  - **B: Public Comments Regarding the Reservation Predesign Study**. This appendix includes public comments mailed to WSF regarding the Reservation Predesign Study.
  - **C: Summary of Other Systems Research**. This appendix includes a summary of business rules and lessons learned from WSF's research into other ferry operators around the world.
  - **D: Summary of Responses to WSF's Request for Information**. This appendix summarizes the five responses that WSF received to its Request for Information from reservation system vendors.
  - **E: Detailed Information about Cost Estimates**. This appendix provides supporting information for all cost estimates presented in this report.
  - **F: Crosswalk to ISB Requirements**. This appendix shows how this predesign report satisfies the requirements of an ISB Feasibility Study.
  - **G: WSDOT Standard Project Management Process**. This appendix includes documents outlining the standard project management processes adopted by WSDOT.

These chapters do not align exactly with the order of information as requested in the OFM Budget Instructions for Transportation, although all requested information is included. Exhibit 1 provides a crosswalk that explains where each of the required elements are in this predesign report, and why they have been modified and organized this way.

**Exhibit 1**
**Crosswalk to Required Predesign Elements from OFM's Predesign Checklist**

| Elements Required by OFM | Location in this Report or Explanation of Omission |
|---|---|
| ***Executive Summary*** | Executive Summary |
| ***Project Analysis*** | |
| Discussion of operational needs | Section 2.1 (ridership growth) Section 4.1 (system goals) |
| Discussion of alternatives | Section 2.2 (demand management alternatives) Section 4.2 (reservation models) Section 6.1 (project alternatives) |
| Discussion of selected alternative | Sections 6.4 and 6.5 (cost benefit analysis) |
| Identification of issues | Section 5 (project analysis – scheduling, communications, IT, etc.) |
| Prior planning and history | Section 2.1 (LRP history) |
| Stakeholders | Section 3.1 (Partnership Group and process) |
| Project description | Section 5 (project analysis – describes the project thoroughly) |
| Implementation approach | Section 7.1 |
| Project management | Section 7.4 |
| Schedule | Section 7.2 |
| ***Program Analysis*** | |
| Assumptions | Assumptions are spelled out in various sections including in 5.2 (business rules) 5.3 (terminals) 5.4 (IT) 6.2 (capital costs) 6.3 (operating costs) 6.4 (cost benefit analysis) and 8.1 (budget analysis) |
| Functions and FTEs | Section 6.3 (Ongoing operating costs) |
| Spatial relationship between the facility and the site | 5.1 (communications – includes conceptual maps/diagrams), Appendix E (cost information and support) |
| Interrelationships and adjacencies of functions | N/A – this is a space planning requirement |
| Major equipment | Section 6.2 (capital costs – describes specific investments in major equipment) |
| Special systems such as environmental and information technology | Sections 5.1 (communications), 5.4 (IT) and 6.2 (capital costs) |
| Future needs and flexibility | Sections 6.5 (preferred alternative description) and 7.1 (approach to implementation) |
| Sustainability and energy utilization | Section 9.1 (relation to WA State policy goals) |
| Applicable codes and regulations | Section 9.2 (WAC, Coast Guard, etc.) |
| ***Site Analysis*** | **N/A - this project does not have a site selection component** |
| ***Project Budget Analysis*** | |
| Assumptions | Appendix E (detailed cost information) |
| Detailed estimates | Sections 6.2 and 6.3 (capital & operating costs); Appendix E |
| Funding sources | Section 8.3 |
| Project cost estimate | Section 6.5 |

| Elements Required by OFM | Location in this Report or Explanation of Omission |
|---|---|
| Form C-3, Benefit, and Life cycle cost analysis summary | Section 6.4 (cost benefit analysis) |
| ***Master Plan and Policy Coordination*** | |
| Impacts to existing plans | Section 9.1 (GMA and local planning); No impacts to master plans expected – not a facilities project |
| Adherence to state policies | Sections 9.1 and 9.2 |
| ***Facility Operations and Maintenance Requirements*** | |
| Assumptions | Section 6.3 |
| Operating costs in table form | Section 6.3 |
| Staffing plan (capital and operating) | Section 6.3 |
| ***Project Drawings/Diagrams*** | |
| Site plans | Appendix E (for selected terminals) |
| Building plans | N/A – no facilities proposed |
| Building volumes | N/A – no facilities proposed |
| Elevations | N/A – no facilities proposed |
| ***Appendix*** | |
| Predesign checklist | Section 1.4 |
| Project budget unit cost detail | Section 6.4; Appendix E |
| Sustainable design charrette summary | N/A – no facilities proposed |
| Additional information as needed | Appendices A, B, C, D, E, F, and G |

# 2.0 BACKGROUND AND CONTEXT

*This chapter describes the problem a reservation system is intended to address, the alternatives to a reservation system analyzed prior to this predesign study, and the approach used to develop and analyze the elements of a reservation system.*

## 2.1 Problem Statement/Statement of Need

Space on WSF's vehicle deck during peak times is a scarce commodity. Often there are more vehicles wanting to board a given sailing than can be accommodated given the available capacity. This has led to congestion in and around terminals, growing wait times for customers, and an overall level of service that has been deteriorating over time.

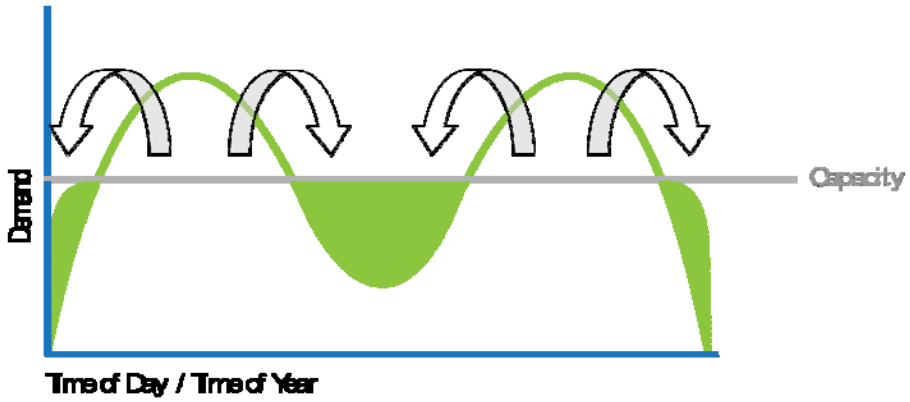
The Long Range Plan projects that demand for ferry services is expected to increase over time and that this situation will likely worsen. Expanding the fleet to add vessel capacity is a costly proposition, and one that needs to be considered in the context of other transportation infrastructure needs across the state. Expanding services would also likely trigger significant terminal capacity investments to support the higher service levels.

### Demand Management

Without additional capacity expected (at least over the 22-year long range planning horizon), WSF has been directed by the Legislature to take steps to manage its demand. ESHB 2358, passed in 2007, requires WSF to both accommodate ridership growth and to "level peak period demand." Effectively, this means WSF needs to enact strategies that will move discretionary trips currently happening during peak times to other times during the day where there is capacity. The projected ridership growth is relatively easy to accommodate if it occurs primarily on off-peak sailings.

Exhibit 2 provides an example of the ferry system's demand patterns. Vehicle demand is currently greater than available capacity during certain times of day and in peak seasons. The ferry system's challenge is to accommodate demand growth while shifting riders into time periods that have excess capacity.

**Exhibit 2**
**Shifting Peak Demand to Off-Peak Capacity**



WSF's ability to accommodate forecasted growth levels is significantly affected by the available vessel capacity during the "peak commute periods" and the capacity of terminal facilities to stage traffic during these periods. While demand for ferry services can vary widely by time-of-day, day-of-week, and season, for planning purposes it is useful to look at "typical" peak conditions.

The implications of ferry demand growth on service and terminal planning are summarized in Exhibit 3, which presents the expected growth in traffic during peak periods. The table shows trips moving through the departure and arrival terminals for the afternoon commute period on WSF's principal commuter routes and focuses on vehicles and walk-ons since these modes of access will have terminal implications. The number of in-vehicle passengers is not included in the table.

**Exhibit 3**
**Principal Commuter Routes, Westbound PM Ridership**

| | Vehicles | | | | Walk-Ons | | | |
|---|---|---|---|---|---|---|---|---|
| | 4-Hr Peak | | Peak Hr | | 4-Hr Peak | | Peak Hr | |
| | 2006 | 2030 | 2006 | 2030 | 2006 | 2030 | 2006 | 2030 |
| **Departure Terminals** | | | | | | | | |
| **Pt. Defiance** | 216 | 259 | 75 | 89 | 77 | 101 | 26 | 36 |
| **Vashon** | 45 | 98 | 13 | 37 | 14 | 24 | 7 | 8 |
| **Fauntleroy** | 899 | 1222 | 282 | 387 | 484 | 586 | 157 | 185 |
| *To Vashon* | *536* | *630* | | | *272* | *166* | | |
| *To Southworth* | *363* | *592* | | | *212* | *420* | | |
| **Colman Dock** | 1,603 | 2,102 | 600 | 785 | 3,739 | 4,742 | 1399 | 1771 |
| *To Bainbridge* | *1,108* | *1,535* | | | *2,567* | *3,476* | | |
| *To Bremerton* | *495* | *567* | | | *1,172* | *1,266* | | |
| **Edmonds** | 1,002 | 1,378 | 353 | 492 | 378 | 671 | 134 | 237 |
| **Mukilteo** | 974 | 1,155 | 281 | 340 | 487 | 908 | 138 | 264 |
| **Arrival Terminals** | | | | | | | | |
| **Tahlequah** | 216 | 259 | 75 | 89 | 77 | 101 | 26 | 36 |
| **Vashon** | 581 | 728 | 196 | 240 | 286 | 190 | 99 | 63 |
| **Southworth** | 363 | 592 | 113 | 186 | 212 | 420 | 71 | 134 |
| **Bremerton** | 495 | 567 | 198 | 228 | 1172 | 1266 | 463 | 502 |
| **Bainbridge** | 1,108 | 1,535 | 433 | 604 | 2,567 | 3,476 | 1010 | 1368 |
| **Kingston** | 1,002 | 1,378 | 353 | 492 | 378 | 671 | 134 | 237 |
| **Clinton** | 974 | 1,155 | 281 | 340 | 487 | 908 | 138 | 264 |

Source: WSF Long Range Plan, June 2009

The following are the significant demand forecast implications for service and terminal planning:

- Daily vehicle trips through these principal commuter corridors are projected to increase by nearly 1,500 trips by 2030, or approximately 31% during the 4-hour period.
- Approximately 34% of the new vehicle trips (about 500) during the peak period are expected to be on routes operating out of Colman Dock. These new trips are projected to be distributed with 86% destined for Bainbridge Island and 14% to Bremerton.

- Under the current system, automobiles queue within and around the terminals, waiting until there is adequate vehicle capacity on a vessel. This is an extremely inefficient system that has high costs in terms of lost time, unpredictability for riders, customer frustrations, and negative community impacts. Building larger holding areas would only partially improve the system, and would require significant capital investments and would increase operating costs.
- At many terminals during periods of high demand, the capacity of the terminal vehicle holding is reached and traffic begins to overflow. When the holding areas overflow, the traffic and congestion impacts are frequently severe on streets and highways surrounding the terminals. Effects are felt by the neighborhoods and businesses in the terminal area, whose business traffic is impeded. In most cities and towns served by WSF, local and county governments see this traffic impact as untenable. While most understand ferry traffic is an overall benefit to the community, when waiting ferry traffic clogs the streets, increases air pollution, and reduces commerce, it is no longer seen as beneficial and is largely deemed as detrimental.

There are a number of secondary impacts that also result from this situation, in addition to the customer inconveniences in terms of lost time, energy use, lack of predictability, frustration, as well as environmental impacts associated with unnecessary vehicle emissions while customers are spending extra time in ferry queues. The system also experiences higher operating costs for traffic control and often experiences the costs associated with the acquisition, construction, and maintenance of auxiliary holding areas to accommodate these peak conditions.

## 2.2 Discussion of Alternatives

Given this problem, WSF could pursue a number of options that range significantly in terms of management requirements and costs. These options were discussed at length in WSF's Long-Range Plan and are summarized below.

### No Action

As most of the options for addressing a situation where demand exceeds the availability of resources during certain times have substantial initial capital costs associated with them (and several have operating impacts as well), one might assume that a "do nothing" scenario is a viable, low cost option.

This is not the case. Without strategies to encourage mode shift and manage growing vehicle volume at terminals, the ferry system would experience service degradation and vehicle queuing that translates into significant costs and impacts for local communities. While these costs are difficult to quantify, they are experienced in the form of reduced profits for local businesses and negative public health impacts of pollutants generated by idling vehicles.

### Expansion of Facility and Vessel Capacity

Given that the no action scenario carries significant costs, a logical conclusion might be to build facilities and vessels that can accommodate the demand. Terminal expansion would require building larger terminal holding areas to accommodate all vehicles, including more extensive use of auxiliary and/or remote holding to accommodate vehicles during overload situations. This would move obstructive traffic away from local businesses, and reduce idling. Two or more boat loads of storage would likely be required to effectively shift vehicles and reduce traffic.

This option has the significant drawbacks of: (1) requiring very costly capital investments for terminal holding, expansion, and vessel acquisition and (2) increasing maintenance and other operating costs. In

the facility options considered, there are substantial investments in large facilities, which if located over water, can be very difficult, if not impossible, to permit.

Historically, WSF has focused on a facility expansion approach to accommodate excess demand. For example, during the 1990s, WSF pursued a multimodal terminal strategy that would have provided a significant increase in the holding capacity at a number of terminals. The total cost of this program was estimated at approximately $1 billion in year of expenditure dollars.

With respect to vessel acquisition, WSF has requested funding from the Legislature to replace aging vessels. Details of the vessel replacement program are included in the Long-Range Plan. Where appropriate, some modest size increases to existing vessel capacities have been proposed. Within the current 16-year legislative financial plan for transportation, the vessel replacements have yet to be fully funded, and beyond the 16-year window, replacement needs grow substantially. These vessel replacements take priority over any vessel acquisitions that would allow increased service levels, and given the magnitude of statewide transportation infrastructure needs, the Long Range Plan assumes no increase in the size of the WSF fleet in the next 22 years (over the life of the long range planning period).

More recently, given the significant reduction in WSF's dedicated capital funding, a much less ambitious program of improvements has been identified that would address vehicle queuing outside terminals, primarily with remote holding facilities. This approach, which is designed to mitigate terminal traffic impacts at a relatively low cost, is estimated to cost approximately $280 million in capital costs.

## Operating Strategies

For this reason, the Long-Range Plan concluded that a package of well-coordinated operating strategies designed to address the specific situations faced by each ferry terminal is a key component to addressing the problem. In most cases, these strategies would eliminate the need for additional terminal investments or even reduce the existing terminal capital program. Furthermore, they reduce and postpone the demand pressure for additional investment in new vessels.

The strategies identified as having the greatest impact on demand management and operating efficiency objectives are cost effective relative to expansion or no action alternatives and are described in further detail below.

### *Pricing*

WSF ridership and fare history has shown that demand for ferry service is sensitive to fares, and for this reason, general fare increases can also have demand management effects. As prices increase in real terms, total ferry system riders are likely to decrease. Similarly, if prices decrease, demand for services is likely to increase.

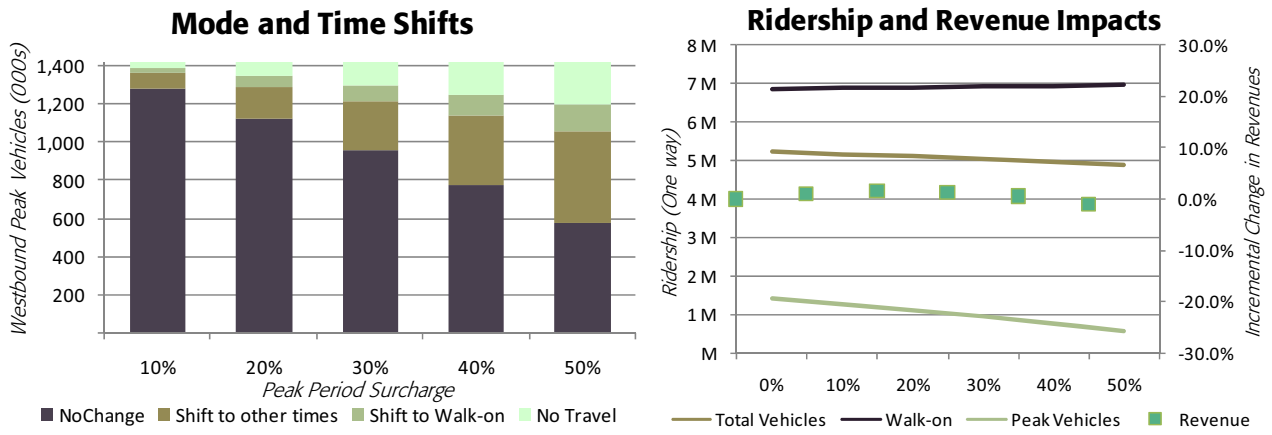
Following this logic, a number of pricing strategies ranging from peak period surcharges to small car discounts were analyzed as part of the long range planning process. The analysis relied upon the ferry system's revenue model, constructed using a long history of short-term demand responses to actual fare increases. It was augmented by elasticity coefficients and mode shift information from the Washington State Transportation Commission (WSTC) customer survey conducted in 2008.

Pricing can be a very effective tool for demand management. Take for example a time of day pricing scenario. Time of day pricing targets vehicles traveling during the most congested times of day, when capacity constraints are at their tightest. Based on survey responses, some riders have flexibility with

regard to travel times, and a time of day surcharge would be an effective way to encourage time shifts out of the peak, as well as mode shifts from vehicles to walk-on.

Exhibit 4 shows the estimated system-wide effects of a time of day surcharge. Under increasingly higher peak period surcharges, vehicles priced out of the peak would primarily move to other times, some would leave the system, and a smaller portion would shift to walk-on. While these shifting effects are large (at a 50% peak period surcharge, more than half of the vehicles normally traveling during the peak would change behavior), revenue impacts are relatively small. However, at the high end of surcharges analyzed, the revenue impacts would be negative, as riders would be priced out of the system.

**Exhibit 4**
**Estimated Effects of a Time of Day Peak Surcharge**




Because of the negative effects a time of day surcharge would have on customers (especially those unable to shift travel patterns and for lower income customers), this strategy is not currently being considered by WSF for near-term implementation. However, this is an effective demand management strategy and, as such, is something that WSF could revisit if other demand management strategies do not prove to address the problem.

Other pricing strategies that were focused on off-peak or other discounts to incent riders out of the peak showed some promise with respect to demand management goals, but all resulted in substantial revenue loss that would need to be covered by other funding sources.

***Transit Enhancements***

Transit enhancements are strategies that encourage the use of public transit systems and thereby increase mode shift. The WSTC customer survey corroborated the notion that transit enhancements are likely to have a significant mode shift impact. Particularly on commuter routes, a large portion of ferry customers identified inadequate transit connections and other transit related issues as a significant driver of mode choices.

To effectively implement a package of transit enhancements most likely to result in mode shift behaviors, WSF would need to coordinate closely with local transit agencies. It is expected some of the costs for improvements would be borne by WSF, while local transit organizations would need to provide other service improvements. Like WSF, it is recognized that local transit agencies are hard pressed for funding service enhancement. While the support of local transit agencies is desirable and provides the

biggest mode shift impact, there are still mode shift benefits to be gained by the WSF only improvements, and those will be pursued where funding is available.

***Reservation System***

In contrast to the capital investment intensive options described above, a vehicle reservation system would have more modest acquisition and operating costs. Terminal updates and information technology capital investments required to implement a vehicle reservation system were estimated in the Long Range Plan to be approximately $18 million. In addition, a vehicle reservation system was expected to require $2 million per biennium in additional operating costs. The investment in reservations was determined to have the potential to effectively mitigate the terminal congestion problem, and in comparison to the other options, was much less costly.

Furthermore, where some options, like no action or pricing to manage demand, pose significant costs to WSF customers and communities (in terms of higher prices or traffic congestion), a reservation system provides significant benefits to these groups in terms of reduced congestion and time savings and predictability for customers.

When compared to the other alternatives and considering its effectiveness with respect to demand management and benefits to communities around the ferry terminals, an $18 million initial investment in a vehicle reservation system was determined to be a cost-effective option.

The cost estimates in the Long Range Plan were based on a very conceptual understanding of what a reservation system would look like and how it would be implemented. The purpose of this predesign is to build on the work in the Long Range Plan and thoroughly assess how a reservation system would work and, based on that more detailed understanding, a much more comprehensive review of capital and operating costs developed. In the chapters that follow, a reservation system for WSF is thoroughly evaluated in terms of system design, business rules, information technology requirements, route level options, and cost benefit of reservations alternatives.

# 3.0 PROCESS AND LESSONS LEARNED

*This section explains the methodology used to analyze elements of a potential reservation system, including the process of collecting data and feedback. Work with stakeholders, discussions with the public, and lessons learned from current WSF reservation systems and other reservation systems around the world, are discussed.*

## 3.1 Process

To ensure a rigorous predesign study WSF designed a process that brought together the best resources from within WSF and from outside the agency to critically analyze the opportunities, challenges, and technical aspects of this project. The predesign process included research on the current WSF reservation system, other ferry reservation systems in the world, and reservation system vendors.

Technical teams conducted analysis of potential business rules, vehicle processing and terminal operations options, and the information technology needed to support a reservation system. A group of stakeholders and members of the public provided input about customer needs and concerns and gave feedback on potential business rules, vehicle processing, terminal operation, and information technology options. This three-pronged approach was iterative, allowing for refinement and further improvement of the potential reservation system.

### Research

Rather than design a system from scratch, WSF leveraged existing knowledge about reservation systems, by gathering information from sources both internal and external to the agency. WSF collected data from and conducted interviews with representatives from WSF's current reservation system and other reservation systems around the world. WSF also solicited requests for information from potential reservation system vendors.

***WSF's Current Reservation System***

WSF currently offers reservations in some capacity on three of its routes: (1) Anacortes-Sidney, (2) Anacortes-San Juan Islands, and (3) Port Townsend-Keystone. Each reservation system has different customers and business rules, and WSF's experience has informed the design of the reservation system presented in this draft report. The current reservation system includes:

- **Anacortes-Sidney.** WSF has successfully operated a small reservation system (about 100,000 riders in FY2008) for customers traveling between Washington and Victoria, B.C. Reservations for this route are distributed on a first-come, first-served basis to all customers, and 100% of each sailing is available for reservations. This route only serves recreational riders, as no commercial traffic is allowed.
- **Anacortes-San Juan Islands Commercial Traffic**. WSF offers reservations to customers with commercial accounts traveling between the San Juan Islands and mainland Washington. Customers can either make a single reservation or reserve a specific sailing for an entire season of travel.
- **Port Townsend-Keystone**. In 2008, WSF began offering reservations between Port Townsend (Jefferson County, Olympic Peninsula) and Keystone (Whidbey Island). This route represents WSF's first experience offering reservations to multiple customer types on the same route (recreational users, commuters, commercial freight, and local residents).

***Other Ferry Operators with Reservations Systems***

WSF researched the use of reservations on ferry systems by reaching out to ten other ferry operators, both within and outside of the U.S. For each of these systems, WSF analyzed how comparable their routes were to WSF routes, in terms of length, sailing frequency, and ridership characteristics. Each system's business rules were compiled and compared. WSF staff conducted interviews with each operator to understand their motivation for implementing reservations, how customers have responded to reservations, and the reasons behind some of their business rules. A description of business rules by operator and interview notes are included in Appendix C.

This comparative survey of ferry operators provided WSF important insight into why reservation systems were instituted, what their impacts were on customers and operators, and what challenges operators struggled with in designing their systems, given specific facility and ridership characteristics. The systems researched include:

- **Bay Ferries/Northumberland Ferries (Canada, Privately owned)** operates three routes between Canada and the Northeast United States, with service to Nova Scotia, New Brunswick, Prince Edward Island, and Maine. Their shorter routes have up to nine round trips per day, and their longest route makes only one round trip per day. Reservations are available on all routes. The majority of ridership on the Bay/NFL ferry system is from tourist traffic, although the shorter routes see up to 30% commercial traffic during some seasons. This system does not serve regular commuters.
- **BC Ferries (Canada, commercial corporation 100% owned by provincial government)** connects Vancouver, B.C., Vancouver Island, the Sunshine Coast, and the Southern Gulf Islands. Routes vary in length between one and three hours, making between one and twelve round trips per day. BC Ferries carries more than 8 million vehicles annually, though there are few routes which serve regular commuters. One route carries a high percentage of commuters, but most are foot passengers.
- **Black Ball Ferries (Canada, Privately owned)** operates one route between Port Angeles, Washington and Victoria, B.C. The crossing takes 90 minutes, and the vessel makes between two and eight round trips per day, depending on the season. Black Ball carries about 120,000 vehicles annually. Approximately 85% of this traffic is tourism, and the rest is commercial.
- **Bridgeport & Port Jefferson Steamboat Company (USA, Privately owned)** operates a single route between Bridgeport, Connecticut and Port Jefferson, New York. The crossing time is approximately 75 minutes, and most ridership is commercial or tourism. There are four daily sailings that carry commuter traffic, but most are passengers, not vehicles.
- **Caledonian MacBrayne (Scotland, Government owned)** operates 26 routes between Scotland and the Scottish Isles, and accepts reservations on 14 of these routes. CalMac carries about one million vehicles annually, including about 100,000 commercial vehicles. Only two routes have a significant number of commuters, but most are foot passengers.
- **Cape May-Lewes (USA, Government owned)** operates one route between Delaware and New Jersey with a crossing time of approximately 80 minutes. Annual ridership is about 1.3 million passengers, and this traffic is nearly 100% tourism-based.
- **Istanbul Deniz Otobusleri (Turkey, Government owned)** is the primary provider of marine commuting services in Istanbul and across the Sea of Marmara. They transport about 6.5 million

vehicles annually, on a mix of shorter and longer routes. However, most of their commuters travel by foot.

- **Red Funnel (England, Privately owned)** operates two ferry routes connecting mainland England to the Isle of Wight. The vehicle ferry route has a crossing time of about 55 minutes, and carries approximately 1.6 million passengers annually. Red Funnel serves regular vehicle commuters, and offers a frequent user program called Island Club to offer special benefits and savings.
- **Scandlines (Denmark, Privately owned)** operates 14 routes between Denmark and Germany. Reservations have been historically available on their longer routes and have been added more recently (in the past three or four years) on their shorter crossings, which serve a small number of daily commuters. Scandlines carries about four million cars and one million commercial trucks annually.
- **Steamship Authority (USA, Government owned)** operates three routes that connect mainland Massachusetts to the islands of Nantucket and Martha's Vineyard. Routes vary in length between 45 minutes and 2 hours, making between 3 and 14 round trips per day. Steamship Authority carries about 450,000 vehicles annually, of which about 25% are commercial trucks. Ridership is a mix of local and tourism traffic, with a higher proportion of tourists during the summer months.
- **Wightlink (England, Privately owned)** operates two auto and one high speed passenger-only routes connecting mainland England to the Isle of Wight. These routes vary in length between 15 and 45 minutes, making about 30 round trips per day. Wightlink carries about 1.2 million vehicles annually. About 40% of traffic is comprised of island residents, including commuters and people leaving for appointments and errands. Island residents have access to multilink tickets, tickets bought in bulk at a discount, which allows them to make reservations on any sailings but are limited on some peak sailings. About 20% of vehicle traffic is from commercial freight.

In addition to the interviews and system reviews completed, a consultant working for the State Legislature traveled to the Isle of Wight and Istanbul (at the consultant's own expense) to experience the operations of Wightlink, Red Funnel, and IDO firsthand. He met with and asked questions of ferry staff and rode commuter and recreational routes to study operations and observe how their facilities and ridership characteristics determined their business rules.

***Request for Information***

WSF solicited submissions for a Request for Information (RFI) from prospective reservation systems vendors. See Appendix D for a summary of the responses. Five vendors from around the world responded and are described below:

- **Carus**, operating since 1998 and headquartered in Finland, specializes in reservation systems for the marine transportation industry. Clients include ferry operators in Europe, the United States, and Australia, including the Cape May-Lewes Ferry, one of the ferry systems researched in this report.
- **GarageCraft, Inc.**, operating since 2005 and headquartered in Washington, develops systems for the parking access and revenue control industry, including management of some parking garages at Seattle-Tacoma International Airport.
- **Gateway Ticketing Systems**, operating since 1988 and headquartered in Pennsylvania, designs ticketing and admission systems for the transportation and entertainment industries. Their clients include ferry systems, transit providers, theme and water parks, zoos and aquaria, museums and

science centers, and tours and attractions. Gateway currently provides WSF's Wave2Go ticketing system.

- **Hogia**, operating since 1981 and headquartered in Finland, creates reservation systems for ferry operators as their core business purpose. Their clients include Bay/NFL Ferries and Red Funnel, both of which were researched in this report.
- **Revenue+**, operating since 2007 and headquartered in England, specializes in web-based reservation systems and associated technology for the travel and transportation industries. Revenue+ developed the current reservation system for Wightlink, one of the ferry operators researched in this report.

### Analysis

Staff from all relevant departments within WSF (including Terminal Operations, Customer Information, Information Technology, Marketing, and Planning), as well as outside advisors, were assigned to three technical work teams. The purpose of the teams was to analyze how examples from other systems could be applied to the WSF ferry system while designing a reservation system that best serves WSF customers. These teams were organized around the following subject matter expertise:

- **Business Rules and Policy Framework**. The purpose of this group was to develop and analyze potential business rules of the vehicle reservation system. This group was responsible for considering the needs and travel patterns of different customer types, ensuring customers would have flexibility and predictability in their travels with WSF, reducing the negative impacts of queuing outside terminals, and recognizing the unique qualities of different routes.
- **Vehicle Processing and Terminal Operations**. The purpose of this group was to determine the most efficient and effective method for processing vehicles at the terminal under the reservation system and to identify what terminal modifications, if any, would be necessary to support the system. This group analyzed vehicle processing options terminal by terminal, taking into account the business rules developed by the Business Rules team and ensuring that those rules were supported by vehicle processing and terminal operations that give customers a positive and convenient experience.
- **Information Technology and Communications**. The purpose of this group was to identify what it would take from a technical standpoint to support the business rules and vehicle processing options developed by the other two teams. This group then developed a set of IT and communication system parameters that, if met, would enable a reservation system with those business rules and vehicle processing options.

These three teams met on a weekly basis during system development. Information was shared between the teams to ensure that the business rules, vehicle processing options, and IT options were in sync and supported each other and the goals of the reservation system.

When the three teams had developed a draft set of rules and options, a Synthesis Team was formed that included members from all three technical teams. This team reviewed the pieces developed by the three work groups and synthesized the results into a cohesive reservation system, which is presented in this draft predesign study.

### Public Involvement, Input, and Feedback

This draft predesign study, particularly Chapters 4 and 5, was also developed with extensive input from the public, including a partnership group and public meetings throughout the ferry service area.

**Edmonds-Kingston Partnership Group**. WSF convened a partnership group to assist in the conceptual design efforts for this predesign report. This route was selected because it is a route that requires analysis applicable to most other routes in the system. The Edmonds-Kingston route has a variety of ridership types, including recreational, commercial, and commuter traffic, and the Edmonds terminal holding capacity is constrained. The partnership group consisted of representatives from all three customers groups, as well as representatives from Ferry Advisory Committees, ports, and cities in the Edmonds and Kingston areas. For a complete list of participants, please see Appendix A.

This community partnership process helped WSF learn more about how customers make travel decisions, understand how reservation policies might affect customers, identify how a reservation system could be adapted to the unique characteristics of different routes, and determine the feasibility of vehicle reservations on Edmonds-Kingston route. Group members contributed many hours of their time and provided thoughtful feedback including critical evaluations of and innovative ideas for business rules, vehicle processing, and IT options.

The Group raised a number of important concerns and ideas that have helped make the reservation system better tailored to customer needs The work of the Partnership Group was integral to the development of the reservation system, and WSF appreciates the time and effort of everyone involved. There were a total of eight meetings held from July to December 2009. Any member of the public could also attend these meetings to listen and provide comment. Please see Appendix A for meeting summaries of all eight meetings.

**Web page**. WSF maintained a web page where the public could access all materials developed for the Edmonds-Kingston Partnership Group meetings, as well as meeting notes and public comment summaries. It provided time and location information for upcoming meetings, as well as a WSF contact person for questions or comments. See Appendix B for comments submitted via the web page, email, or public meetings.

The web page address is: http://www.wsdot.wa.gov/Ferries/Planning/VehicleReservations.htm

**Public Meetings**. WSF holds frequent public outreach meetings in various locations throughout the ferry service area. These meetings include discussions to develop schedules that work for customers, resolve customer problems, and understand regional and local issues. During November 2009, WSF held nine public meetings where customers were provide an overview of the predesign development process and were able to ask questions regarding the reservations and identify route-specific concerns.

## 3.2 Lessons Learned

Through the iterative process of research, analysis, and partnership group feedback, WSF learned many important lessons. Some of the findings applied to demand management and the basics of a reservation system, while others were specific to business rules, vehicle processing, and information technology.

### Demand Management and Reservation System Basics

- **On-time performance is a necessary pre-condition to a reservation system**. When WSF's internal work teams analyzed the various business rule and vehicle processing options for each terminal, a common issue arose. Most of the options identified will only work effectively when sailings are departing on schedule. WSF has already recognized, outside of the work done for this reservation system predesign, that on-time performance is an important part of customer service. Sailing schedules on all routes are being reviewed, and in some cases revisions are being considered to make schedules more attainable.

Realigning sailing schedules so WSF can more consistently sail on schedule will reduce congestion at terminals and improve customers' certainty and travel experience. When sailing schedules get off track, the terminal becomes congested with traffic related to two departures. This schedule delay congestion is a feature on several routes during peak travel times and results in a reduced quality of service for customers. Schedule correction can be an effective demand management tool on its own, but it is also a necessary pre-condition to any successful reservation system.

- **Extensive, real-time communication is an essential step toward demand management.** When customers have access to real-time information regarding travel delays and cancelations, vessel availability, and estimated wait times, they can make informed travel decisions that benefit themselves and the ferry system. Customers with full information will choose sailings and routes that will get them to their destinations most efficiently, thereby reducing congestion and spreading demand across system wide capacity. This level of communication is effective for managing demand and is also an important foundational element of a successful reservation system.
- **A reservation system can and should be implemented differently on different routes.** Since the need and purpose of a reservation system is dependent on sailing capacities and route-specific ridership characteristics, the policies underlying a reservation system and the decision to implement a reservation system at all, should be determined on a route-by-route basis.
- **Some WSF routes reservations will not be necessary to manage demand if schedule correction and communication systems are implemented**. WSF's primary goal is to manage demand on each route to improve the customer experience and reduce congestion in neighboring communities. If, through the implementation of revised sailing schedules and an extensive communication network, any specific route is no longer experiencing congestion issues, it may not be necessary to implement a reservation system. This may be particularly true for shorter routes with frequent sailings like the Mukilteo-Clinton route. However, this decision should be made on a route by route basis.
- **Some WSF routes and sailings will see significant benefits from reservations, even after schedule corrections and communication system improvements have been made**. On WSF's busiest routes, it is likely that there will still be congestion issues after revising the sailing schedule and improving communication. On these routes, the next step toward demand management would be to implement a reservation system specifically tailored to each route's needs and characteristics, if the facilities are adequate to support the system.
- **A reservation system can and should be phased in over time.** WSF will implement reservations slowly, by incrementally increasing the number of reservations available on each sailing. This process allows customers to adjust to the new reservation system and to spread the need for modifications and adjustments over time. In addition to phasing in reservations on a capacity basis, they may be phased in by customer type. For example, reservations may first be made available to commercial customers, then frequent users and residents, and then to all customers.

## Reservation Models

- **Most large ferry operators have a reservation system.** Of the operators that WSF researched, all either offered or required reservations on at least one of their routes. However, among systems, policies regarding reservations are varied. Some systems require that all vehicles have reservations and reserve 100% of the space available on each sailing. Other systems recommend reservations and the amount of space on the vessel available for reservations is less than 100%. This allows some non-reserved customers to drive-up to the terminal and travel if room is available.

- **For recreational routes, there are comparable systems from which WSF can learn.** All of the operators interviewed offer or require reservations on routes with predominantly recreational ridership. These routes equate most closely to WSF's routes serving Sidney, the San Juan Islands, and Port Townsend-Keystone. Crossing times are greater than one hour, and most customers travel relatively infrequently. Reservations are an effective tool for managing demand during peak vacation periods and giving more frequent riders certainty about when they can travel.
- **For short, commuter routes, there are no direct comparables.** No operators that have routes with short headways and vehicle commuters offer reservations on those routes. There were very few of these routes identified, and those that were identified served a relatively small number of commuters. For example, Wight Link operates every 30 minutes and does have some commuters, though not many. Istanbul Deniz Otobusleri (IDO) operates two high-volume commuter routes, but the large number of vessels and lack of a set sailing schedule during peak commute times make reservations unnecessary. WSF recognizes that its commuter routes would benefit from supporting reservations and is designing a set of business rules that will work for both recreational and commuter routes.

### Customer Needs and Concerns

- **Customers plan for trips in different ways; ideally reservations would accommodate those different planning needs**. At one end of the spectrum, some vacationers would like to be able to make vehicle reservations at the same time they are making reservations for hotel rooms and booking plane flights. This can be up to a year in advance of the trip. At the opposite end of the spectrum, some commercial customers don't know they need to travel until a few hours before they would like to make a crossing.
- **Customers deal with variables that affect their ability to arrive at the terminal when they originally planned**. Each "trip" that customers take on WSF has two parts: (1) a departing trip, from the customer's home to their destination, and (2) a return trip, leaving that destination and coming back home. Partnership Group members said customers are able to accurately predict when they will be leaving home and traveling to a particular destination, and therefore will be comfortable making a reservation for their first sailing. However, there are a greater number of variables involved for their return trip, including traffic, demands at work, and other unexpected delays. Partnership Group members expressed concern that these variables could cause customers to arrive late for return sailings, which will require business rules that build flexibility into the cancelation and change policies to accommodate this return trip uncertainty.
- **Customers can make better decisions if they have access to accurate, real-time information**. Information regarding reservation availability, estimated wait times for customers without reservations, and changes to sailing schedules help customers make travel decisions that benefit themselves and WSF, by saving travel time and reducing congestion at terminals. This information should be accurate, in real-time, and available via highway information signs, the reservations website, and by phone.
- **WSF should adequately inform and educate customers about how the reservation system operates.** Policies are created for a reservation system in order to encourage and/or require customers to act in a way that creates an organized and efficient system of travel. WSF discovered that on the Port Townsend-Keystone route, customers expressed confusion or lack of awareness when informed of some policies. If customers were better informed, they could make better

possible travel decisions for themselves, and WSF could spend less time addressing customer questions and complaints.

### Business Rules

- **WSF should require a deposit for reservations**. At this point, WSF does not require a deposit to make a reservation on the Port Townsend-Keystone. This policy is resulting in a high no-show rate, which negatively impacts the customer experience and the surrounding community. Based on these experiences, WSF should require a deposit or full fare payment in order to reduce no-shows under the new reservation system.
- **WSF should make more than half of the vessel available for reservations on high demand sailings.** While the Anacortes-Sidney route requires reservations, the Port-Townsend-Keystone route initially had only 50% of deck space available for reservation on each sailing. This allocation was in response to customers' requests to have adequate non-reserved space available to last-minute travelers. However, this significant amount of non-reserved space had two negative impacts. First, it encouraged queuing during peak times. Second, it created customer confusion, because the website would tell customers that a sailing was "full," even though 50% of the vessel space was still available on a first-come, first-served basis. These problems could be helped by increasing the amount of space on the vessel available for reservations and by better informing customers about how the reservation system operates.

  In addition, looking at the various applications of reservations around the world, there are generally two models. The first offers reservations for all or almost all of the space on each sailing. These "100%" reserved systems have essentially no queuing and minimal terminal congestion issues. The other approach is to offer a relatively small share of the boat for reservations and to charge a premium for the reserved space. In this situation, the majority of the boat is still first-come, first-served and so there is still significant queuing and terminal congestion during peak periods.
- **Other systems, such as Wightlink and Red Funnel, incent freight customers, in particular.** Several ferry operators stated that commercial traffic increased when they began offering reservations. Since commercial traffic can be a steady and lucrative revenue source and supporting freight mobility is important to local economies, the operators created freight programs that incent companies to move freight using ferry systems. These programs range from offering commercial users dedicated reservation space to offering trailer transport services so drivers don't need to cross with their load.

### Vehicle Processing

- **Other high volume ferry systems have more terminal capacity than WSF**. During interviews with other operators and through on-site visits, WSF learned that most ferry systems that carry a similar volume of vehicles have significantly larger terminals. These operators can store multiple boatload of vehicles inside their terminals without mixing sailings and causing congestion in neighboring communities. WSF's terminals are constrained by neighboring communities and the geography of each terminal. This constraint poses unique operating challenges for WSF and reduces the margin of error when dealing with service disruptions and high demand sailings.
- **Terminals that can hold approximately 120%-150% of the vessel are ideal for reservations.** When staging vehicles at the terminal under the new reservation system, vehicles will need to be separated according to height, reservation, and priority load status (as described in the Washington

Administrative Code, chapter 468-300-700, on preferential loading). This separation is easiest when WSF has more than one boatload of terminal space to work with, as some lanes may only be half full with their specified vehicle type. Terminals with approximately 120%-150% of a boatload of holding space are adequate for staging all the necessary vehicle types.

- **Terminal managers have a great deal of authority and flexibility.** Although there are standard business rules and operating procedures at each terminal, a terminal manager has the authority to adjust vehicle processing due to service disruptions and other unforeseen circumstances. It is important to have a knowledgeable manager or supervisor at each terminal to deal with potential issues and ensure customers are being served fairly and efficiently during any situation.
- **WSF terminal staff needs access to frequent and accurate information about vessel capacity and available reservations**. Terminal staff members are continually making decisions regarding management of vehicles both on the dock and during vessel loading. In order to make informed decisions, it is important that they have accurate information regarding how many reservations have been made on a specific sailing. This information allows terminal staff to most effectively stage vehicles in the terminal, so they can be efficiently loaded onto the vessel.

### Information Technology

- T**he RFI respondents offered many features that would benefit WSF and its customers.** Since most large ferry operators around the world have been offering reservations for years, software providers have designed extensive reservation systems for this market. The systems described in the responses to the RFI have many features that would streamline the reservation management process on WSF's side, as well as provide customer service options to improve the experience for ferry travelers. Through activity surrounding this predesign report, features not called out in the RFI responses were identified that will require software customization or custom integration to implement.
- **The market for reservations systems as reflected in the RFI responses does not align with WSDOT "level-playing field" standards for technology and system architecture**. A key to successful long-term support and maintenance of acquired systems is having the skills in place to fully understand the system components and make appropriate adjustments as needed. WSDOT's Office of Information Technology plans and staffs projects that work within its established standards. The vendors responding to the RFI used system architectures based on the Linux operating systems (as opposed to Microsoft Windows) with Oracle, IBM Informix, or PostgresSQL databases (as opposed to Microsoft SQL Server). Supporting those elements of the system architecture will require skill sets to be developed or acquired.
- **System providers are able to customize their base software to fit the needs of any ferry system.** Many of the respondents provided reservation systems for multiple ferry operators and tailored the system to the needs of the customers. Information such as terminal size, vessel size, and crossing time all impact how the system must operate, and providers have built these variables into their systems to accommodate any route. In addition, extra features can be added to this base system to accommodate customer and operator needs.
- **Customizing a base system with extra features can increase the price considerably.** A base reservation system typically includes the ability to make reservations through a website and over the telephone by speaking to an operator. WSF wants to ensure that its reservation system is customer friendly and integrates smoothly with other operations, such as ticket sales and vehicle

processing at terminals. The respondents all offered features that will improve the customer experience and operations, but require customization of the base software. These custom options would significantly increase the price of a reservation system. It should be noted that some of these "enhanced features" are driven by the particular needs of WSF's high-volume, commuter-oriented routes.

- **Reservation systems typically include load management capabilities**. In reading the RFIs, WSF learned that load management software is integral to a successful reservation system, and therefore is included with most systems. Load management software helps a ferry operator understand and manage its reservations and vehicles arriving at the terminal.
- **A load management system is an important component of a reservation system**. Automatic, electronic load expectation reports would be able to present a real-time automated report of how much space has been reserved. This information would allow for appropriate load management, ensure that the tunnel space is not overcommitted, and be used to support the real-time communications system.
- **A membership system is an important component of a reservation system.** A membership management system is necessary to facilitate the administration and management of priority access programs. Such systems simplify the functions of these programs and provide a user-friendly online interface with customers. These types of systems are commonly incorporated throughout the online retail world.
- **A data warehouse is an important component of a reservation system.** In order to adapt and respond to actual changes in usage patterns and customer behavior, a robust capacity to store relevant information is needed in a reservation system. A data warehouse would enable WSF to learn from its experience and continue to improve the system through flexibility in how it implements its business rules.

# 4.0 PROGRAM ANALYSIS

*This chapter discusses which reservation model might best meet the demand management needs identified by the Long-Range Plan. The chapter identifies reservation system goals and describes the criteria derived from those goals. Four conceptual reservation models and their basic elements are outlined and evaluated in terms of how well they might serve WSF's diverse customer base and achieve the stated goals.*

## 4.1 Goals and Criteria

### Goals

In order to determine what reservation system model best meets WSF programmatic needs, it is necessary to establish goals and criteria.

From that purpose, the following three goal statements have been identified:

1. The system must work for WSF customers, being easy to use and offering an adequate degree of predictability, spontaneity, and flexibility.
2. The system must work for ferry communities, reducing the negative impacts of queuing outside the terminal and allowing WSF customers and local residents to access local businesses and reduce congestion in residential neighborhoods.
3. The system must work for WSF, recognizing the unique circumstances of its different routes, helping the agency manage demand, improving asset utilization, and responding to legislative direction.

### Evaluation Criteria

From the goal statements above, 12 criteria were developed by WSF and with input from the Edmonds-Kingston Partnership Group to design the best possible model for a WSF reservation system. The criteria are grouped into the following three categories:

**1. The system must work for customers**

- Recognizes that different customer types, including commuters, frequent riders, commercial freight, recreational users, and other passengers, make plans for traveling at different times and supports those different planning needs
- Provides priority access to certain customer types at certain times based on their travel needs
- Provides multiple, accessible, and easy to use, points for making, changing and cancelling reservations
- Provides flexibility to change, cancel, or make adjustments to the reservation

**2. The system must work for ferry communities**

- Reduces/eliminates congestion in communities
- Improves traffic flow and reduces/eliminates queuing around terminals
- Operates efficiently for peak and non-peak sailings, regardless of season and time of day

3. **The system must work for WSF**
   - Spreads demand from peak to off-peak sailings
   - Maximizes use of existing assets (vessels, terminal facilities, etc.)
   - Allows for growth in vehicle ridership over time without building more vessels, minimizing capital costs
   - Supports increased ridership without significantly increasing operating costs

These goals and criteria are intended to guide the design and selection of a reservation model that will work best for WSF customers, within existing terminal constraints.

## 4.2 Conceptual Reservation System Models

### Definition

A reservation system is a way to allocate a scarce resource or service. Like appointments at a doctor's office or some local DMVs, reservations help ensure a scarce resource or service is delivered in a timely, organized way, that provides predictability for the customer. Communications at the time of booking and at the time of the expected service provision are a key component to reservation systems generally. Good communications systems ensure the customer is informed about availability of alternatives and expected timeliness of service provisions so that he or she can make better choices.

It is important to note that reservation systems are not intended to *reduce* demand; in fact, the predictability they provide might actually increase customer demand. They do, however, reduce queuing by guaranteeing when a customer gets a service or resource. Reservation systems provide opportunities for customers to shift their travel by signaling that a service or resource is available at a particular time.

### Types of Reservations

There are multiple proven models for reservation systems. For purposes of discussion, these models can be organized according to whether or not the customer is charged an extra fee for reservations and by the method through which the reservations are distributed, as described below:

- **Charges for reservations**: Where there are explicit charges for the reservation itself, the reservation and the guarantee it provides is an extra service (i.e. it allows customers to pay extra for the guarantee of being able to access a scare resource when it's most convenient to them). Conversely, the reservation might be strictly a method for allocating the resource, available without an additional fee.
- **How reservations are made available:** How a customer acquires a reservation can vary across models, with common methods including reservations available on a first-come, first served basis or reservations based on price or other preference programs.

Three existing models are described below. Given the reservation system goals and criteria, and WSF's current terminal configuration, the models identified are not applicable to WSF in their entirety, though they each include applicable components.

### BC Ferries: Routes Serving Vancouver Island and the Sunshine Coast

On the routes connecting Greater Vancouver with Vancouver Island and the Sunshine Coast, ferries charges customers a fee (on top of the ticket price) for the privilege of making a reservation. They generally have less than 50% of vessel available for reservations on any given sailing, even at peak times.

Customers who have paid for reservations are allowed to "cut in line" guaranteeing them departure on the sailing for which they have made a reservation. During peak periods, customers without reservations generally have to wait in-line, uncertain on which sailing they will depart. Reservations are distributed on a first-come, first-served basis; there is no amount of space set aside for particular customer types. This is partly because BC Ferries is a government-owned commercial enterprise that operates on a for-profit basis, and the reservation system was introduced in part to increase revenue.

This model meets a number of the goals and criteria described above. It provides multiple, accessible, and easy-to-use points of booking and flexibility to change, cancel, or make adjustments to a reservation (though a $9.00 change fee applies in most instances). Given the limited space set aside for reservations on most routes, this model does very little to support the reduction of congestion in communities and queuing outside of terminals.

However, this model works in part because BC Ferries has relatively large terminals that hold many sailings worth of vehicles. The model does not explicitly try to shift peak period demand (as there is usually adequate holding to accommodate queues). The communication with customers inherent in this model might result in some demand shift (as customers without reservations might not come if wait times are long), but no other tools are used to encourage customers to travel during off-peak periods. Consequently, use of existing assets may not be fully maximized.

Furthermore, the BC Ferries does not tailor its program to different customer types on these routes. Instead, it charges a fee for reservations, making limited reservations accessible only to those who can afford or are willing to pay the additional fee.

Therefore, while this approach might meet some of the WSF criteria for a reservation system, WSF would likely need larger terminals to achieve reduction in queuing at the terminals and congestion in the community, which would result in higher capital and operating costs. Also, charging an additional fee for reservations poses an equity concern that has been raised previously, as it provides priority access only to those with the ability to pay for it.

### BC Ferries: Vancouver-Southern Gulf Islands Route Model

On the Vancouver-Southern Gulf Islands route, customers are not charged an extra fee for their reservation, and BC Ferries makes the entire vessel available for reservations. In other words, this model uses reservations to distribute scarce resources and provide its customers with a degree of predictability, similar to WSF's objectives.

The reservation and ticket are available at the same price as just the ticket. However, the full ticket fare must be paid for at the time the reservation is made. The reservations are distributed on a first-come, first-served basis, for up to 100% of the available tickets. There is no distinction made between types of customers. No one is required to get a reservation; they have a choice just to show-up and wait in line until a space is available. This is also the model used for Washington State Parks Overnight Permits, Washington Department of Motor Vehicles appointments, and the Disneyland Fast Pass.

The approach used on the Vancouver-Southern Gulf Islands route would also meet many of the WSF criteria. It provides multiple, accessible, and easy-to-use points of booking; gives flexibility to change, cancel, or make adjustments to the reservation (though again, a $9.00 change fee applies in most instances); reduces congestion in communities; and reduces queuing outside of terminals.

This model is preferable to the previous model in that it does not charge a fee for reservations, alleviating equity concerns. However, it does not make accommodations for different customer types.

## Airline Reservation Model

The Airline Reservation Model is like the Vancouver-Southern Gulf Island approach in that up to 100% reservations are available for any given departure, and the reservation does not cost extra. A purchase of a ticket automatically gets the customer a reservation. Airlines, Amtrak, and Greyhound services differ from the Vancouver-Southern Gulf Island approach in that they have special programs that give discounts to or set-aside reservation space for special customers. Airlines and Amtrak have loyalty programs for repeat customers.

The other key difference in the Airlines Reservation Model is that it also employs dynamic pricing as a way to match available supply with demand while maximizing profit – the higher the demand for a particular departure, the higher the cost of the ticket. This approach uses reservations to simplify terminal operations and to target pricing to the customers' willingness to pay, which often results in different fares for essentially the same service on the same flight.

Unlike the previous two models, the airline model recognizes that different customer types, including commuters, frequent riders, commercial freight, recreational users, and other passengers, make plans for traveling at different times and supports those different planning needs. It provides priority access to certain customer types at certain times based on their travel needs.

Like the previous two models, it provides customers with multiple, accessible, and easy-to-use points of booking and the flexibility to change, cancel, or make adjustments to the reservation (though substantial change fees frequently apply). If applied to a ferry system, the model would reduce traffic congestion and vehicle queuing around the terminal and in the neighboring communities.

As pricing is such an integral component to this model, it is quite effective at shifting demand and maximizing the use of existing assets. This model provides a framework to optimize profitability and utilization on individual sailings. However WSF is a public organization, and the complexity and potential inequity in a profit-maximizing pricing model would not be considered appropriate public policy by many stakeholders and would clearly not be viewed as in the best interest of many of its customers.

## 4.3 Comparison of Reservations Models

The table below identifies whether each of the models described above meets the criteria and programmatic requirements of WSF.

| Reservation System Criteria | BC Ferries: Vancouver Island & Sunshine Coast Routes | BC Ferries: Vancouver - Southern Gulf Islands Route | Airline Model |
|---|---|---|---|
| **1. The system must work for customers** | | | |
| Recognizes that different customer types, including commuters, frequent riders, commercial freight, recreational users, and other passengers make plans for traveling at different times and supports those different planning needs | | | X |
| Provides priority access to certain customer types at certain times based on their travel needs | | | X |
| Provides multiple, accessible, and easy to use points of booking | X | X | X |
| Provides flexibility to change, cancel, or make adjustments to the reservation | X | X | X |
| **2. The system must work for ferry communities** | | | |
| Reduces/eliminates congestion in communities | X | X | X |
| Improves traffic flow around terminals | X | X | X |
| Reduces/eliminates queuing outside of terminals | X | X | X |
| Operates efficiently for peak and non-peak sailings, regardless of season and time of day | X | X | X |
| **3. The system must work for WSF** | | | |
| Supports spreading demand from peak to off-peak sailings | X | X | X |
| Maximizes use of existing assets (vessels, terminal facilities, etc.) | | | X |
| Increases vehicles served over time without building more vessels, minimizing capital costs | | | X |
| Increases ridership without significantly increasing operating costs | | | X |

### A Hybrid Model to Fit WSF Needs

From the discussion above, it seems clear that none of the existing models reviewed will work perfectly for WSF, though all of them contain components that can be applied to WSF. Therefore the model that is most likely to meet WSF's programmatic needs will take elements from the BC Ferries and the Airlines Models.

Although the model will be applied differently on different routes and different sailings, in general 70% to 90% of space should be available for reservations on routes that have the most peak ridership during peak and congested periods. This is close to both the Southern Gulf Islands Model and the Airlines Model. The higher rate of reservations available helps discourage drive-ups, which will reduce queuing around the terminals and congestion in the community. Reservations should be available at no additional charge, but with some portion of the fare charged at the time of the reservation, as in the Southern Gulf Islands Model and the Airlines Model, to discourage no-shows.

Like the Airline Model, reserved space should be set-aside for certain types of customers and certain types of travel. However, the airline approach to pricing would not be incorporated into WSF's reservation system model.

This type of hybrid meets all of the criteria identified above: it meets customer and community needs, while containing capital and operating costs. It is important to note that forgoing congestion pricing means that communication and on-time performance are even more important tools for managing demand. The sections that follow describe in detail how this model might be applied to WSF.

## 4.4 Performance Metrics

The research and analysis outlined in Section 3.1 have guided WSF in developing a reservation system that will bring immediate benefits to ferry customers, ferry communities, and WSF. However, WSF recognizes that ferry customers and individual ferry routes are unique, and possibly have challenges and needs that could not be anticipated during this predesign study. Therefore, a successful reservation system will be one that constantly learns and improves, in order to best meet the goals discussed above.

Information is the key to understanding whether the reservations system meets the above goals. WSF will implement a reservation system that will be able to quantitatively measure when it is meeting its goals, and when changes need to be made to better reach them. This will be done using a set of performance metrics.

A performance metric is a tool used to measure the success of an organization or system. For example, WSF wants a reservation system that has enough reservations available to reduce queuing outside of terminals, to enable as many customers as would like to make a reservation. But, WSF does not want to offer more reservations than warranted to achieve the above goals, as that would begin to reduce a customer's travel flexibility and spontaneity. A performance measure such as queue length would help determine when enough reservations are being made available.

The following performance metrics are examples of measures that could be used to analyze how well the reservation system is meeting the goals described above. They are simply illustrative; a performance metric framework based on this initial discussion will be developed in full detail during the design phase of the reservation system.

### Example Potential Metrics

***The system must work for customers:***

- **Customer satisfaction**. Measuring customer satisfaction is the most effective way of determining how well the reservation system is working for customers.
- **Customer use of the reservation system**. A successful reservation system would have many repeat customers and usage would increase over time, showing that customers find it useful and beneficial to their travel.
- **Balance of reservations available to reservations made**. Knowing this measure will help determine if WSF is offering too many reservations, or if all reservations are being used, implying unmet demand for reservations.
- **Wait times**. Reducing wait times would improve the customer experience on WSF.

***The system must work for ferry communities***

- **Community satisfaction**. Measuring community satisfaction will help WSF determine if a reservation system is improving ferry-served communities' experiences.
- **Queues outside of terminals**. Measuring queue length is important in determining how many reservations WSF should offer, and when it has met the minimum number of reservations to adequately reduce queues in communities.

***The system must work for WSF***

- **Demand spread and maximum use of vessel**. WSF would like the reservation system to spread peak period demand and maximize the use of existing resources in order to reduce the need for capital and operating investments.
- **Overall ridership**. Increases in ferry ridership, especially on off-peak sailings, will show that the reservation system is working for customers, and increase revenues.
- **No-shows and last-minute cancelations**. WSF has designed business rules to reduce the number of no-shows and last-minute cancelations, which undermine the integrity of a reservation system.

These goals and criteria are intended to guide in the design and selection of a reservation model that will work best for WSF customers, within existing terminal constraints.

Exhibit 5 provides a list of example performance targets for each of the above performance metrics.

## Exhibit 5
## Illustrative Examples of Performance Metric Targets

| Sample Performance Metric | Illustrative Example Performance Target |
|---|---|
| ***The system must work for customers*** | |
| Customer satisfaction | • Average level of satisfaction with reservation system<br>• Increase in reported customer satisfaction with reservation system<br>(Both examples could be broken out by customer type and route) |
| Customer use of the reservation system | • Increase in number of reservations made over time<br>• Number of customers making repeat reservations;<br>• Number of Commercial account customers<br>• Increase in Commercial account customers<br>• Number of Premier account customers<br>• Increase in Premier account customers<br>(All examples could be broken out by customer type and route) |
| Balance of reservations available to reservations made | • Average percentage of available reservation space reserved<br>(Example could be broken out by customer type and route) |
| Wait Times | • Average wait time; broken out by sailing<br>• Decrease in wait time<br>(Both examples could be broken out by terminal and route) |
| ***The system must work for ferry communities*** | |
| Community satisfaction | • Average level of satisfaction with reservation system<br>• Increase in reported local business satisfaction with reservation system<br>(Both examples could be broken out by terminal and route) |
| Queues outside of terminals | • Average number of cars waiting outside of terminals;<br>• Decrease in average number of cars outside of terminals<br>(Both examples could be broken out by terminal and route) |
| ***The system must work for WSF*** | |
| Demand spread and maximum use of vessels | • Average daily volume to capacity ratio<br>• Increase in daily volume to capacity ration<br>(Both examples could be broken out by sailing and route) |
| Overall ridership | • Average ridership on routes with reservations available compared to those without reservations available<br>• Ridership increase on routes with reservations available compared to those without reservations available<br>(Both examples could be broken out by sailing) |
| No shows and last minute cancelations | • Rate of no-shows per reservation made<br>• Rate of cancelations within 24 hours of departure per reservation made<br>(Both examples could be broken out by customer type and sailing type) |

# 5.0 PROJECT ANALYSIS

*Having identified the preferred reservation model in the previous chapter, this chapter describes the schedule and communications infrastructure improvements, business rules, terminal operations, and information technology components needed to support the reservation system on each route and identifies remaining route-level and system options.*

WSF plays a unique role in the state's highway network and transit system, and any reservation system for WSF would need to be designed in a way that recognizes its multiple roles and the varying types of customers it serves. As such, the reservation system described here is complex and includes multiple, inter-connected components.

The components of the reservation system can generally be broken down into four categories:

1. Communication system
2. Business rules
3. Terminals and vehicle processing
4. Information technology and back office systems

As identified through research of other systems and Partnership Group input, on-time performance and communication with customers about sailing status and reservation availability are essential components of a reservation system. In addition, these are strategies that on their own help reduce queuing at the terminal, congestion in communities, and provide more predictability and certainty to customers.

The business rules are a set of policies that define how the customer will interact with the reservation system and how WSF will manage the reservation system to allocate vehicle deck space to its customers. The business rules drive the customer experience and must be supported by all other system components. Scheduling improvements and the communication system provide a platform for implementing the business rules successfully. Terminal/vehicle processing needs and IT/back office requirements have been analyzed and designed to specifically support the business rules.

## 5.1 Communication System

A robust communication system is essential for helping customers make informed decisions about the best travel options available to them. There are three parts of a communication system: general information about sailings, general reservations related communication, and personalized communication with a reservation holder. Elements of a communication system that can help WSF manage demand while improving service are described below.

### General Information Communication

General information communication helps reduce congestion by notifying customers which routes and sailings are on schedule and which terminals have shorter wait times. Better communications alone will not be sufficient to reduce all congestion for all routes; however, it has system wide demand management benefits and is necessary for successful implementation of a reservation system.

The General Information Communication system has two parts, information collection and information sharing.

***Information Collection***

WSF currently collects information about its real time activities through its ticketing system, the GPS system which monitors vessel locations and schedule performance, and a series of web and highway cameras to show status in and outside selected terminals. The current implementation of these measures suffers from several limitations, including incomplete coverage and a lack of integration of these data collection systems in a way to facilitate timely communications. These shortcomings have led to a situation where customers are either unaware that some of this information is available or there is a lack of confidence in the information. In either case, WSF is not getting as much as it could from its current systems.

To improve both coverage and reliability, a regional communication system would require extending the data collection more thoroughly throughout the system and more fully integrate the various data sources. A key element in this effort will be to expand the number of webcameras and installing a loop system outside some terminals to provide much better real time information about terminal conditions.

***Information Sharing***

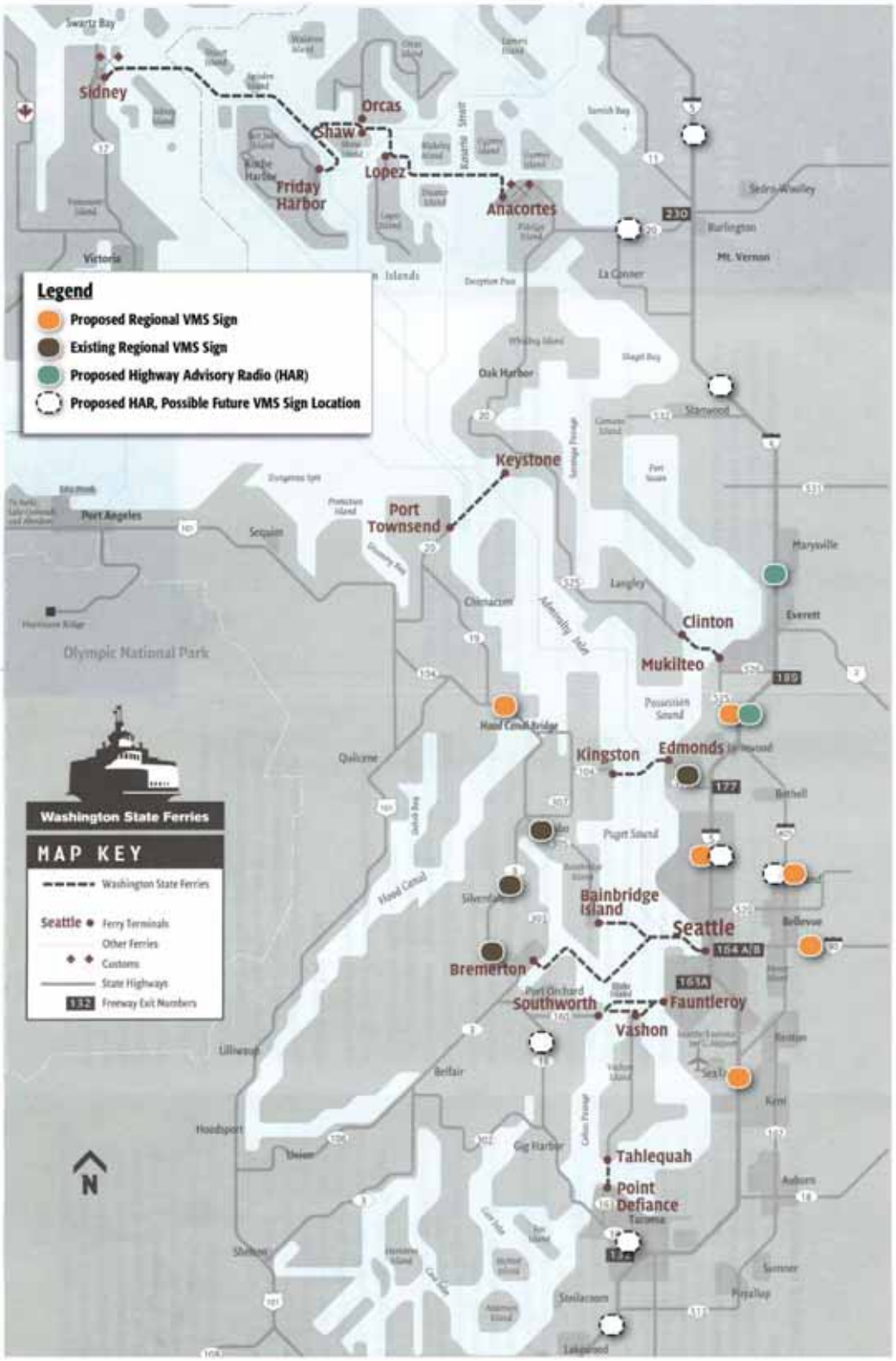
**Highway Advisory Radio.** Low-power AM radio broadcasts will provide information about departure times, drive-up wait times, and alternative route options where customers have choices (i.e. at the Hood Canal Bridge approach, customers could tune in to learn whether Kingston, Bainbridge, Bremerton, or the Tacoma Narrows Bridge offered the best alternative for a west-east crossing.) While elements of the system are already in place, they will need to be significantly improved and more broadcasts will need to be added.

**Variable Messaging Highway Signs.** These signs will display, for multiple routes, predicted departure time for the next sailing and drive-up wait times to help direct drive-up traffic to terminals with the most available capacity. Exhibit 6 provides an illustrative example of the information that might be included on such regional signs. Final design and information provided will ensure reasonable readability while driving on a highway.

**Exhibit 6**
**Conceptual Regional Highway Sign**

A map of where such signs might be located is shown in Exhibit 7 below. This is simply an example of where signs could be located to allow drivers the opportunity to make decisions about which ferry crossing or drive around option to take. Assuming approval of the reservation predesign, the actual placement of the signs will be determined during the design phase of the system.

**Exhibit 7**
**Map Identifying Potential Locations for Regional VMS Signs**



**Local Signs.** Located in proximity to WSF terminals, these signs would display the next sailing, drive-up wait times, and vehicle processing directions for the local terminal. The signs should be placed far enough from the terminal that in the event of a delayed sailing, an individual could make a more informed choice about his or her travel decision (i.e. he or she could delay his or her drive to the terminal and instead enjoy more leisure time in the ferry community). Exhibit 8 provides an illustrative example of the information that would be provided on signs in the local. For the purposes of the predesign, it was determined that the initial program would make use of the few existing local signs in WSF's network and not propose any new signs.

**Exhibit 8**
**Sample Local Community Sign**

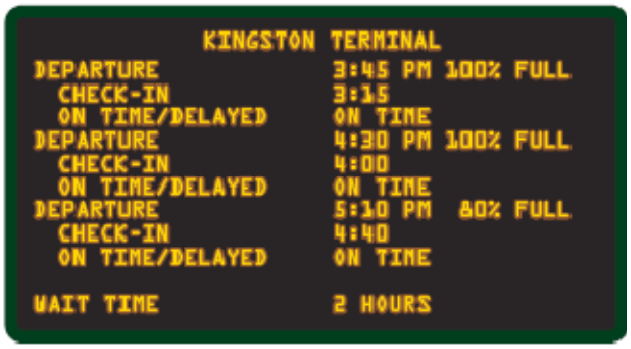



Exhibit 9 provides an illustrative example of a sign directing traffic into the correct lanes as customers approach the terminal. These would be necessary at all terminals wherever WSF intends to fully deploy reservations.

**Exhibit 9**
**Sample Terminal Traffic Sign**

## Reservations-Related Communication

A robust communication system is a foundational component of a reservation system. The communications infrastructure described above will ensure the demand management potential of the reservation system is maximized and provide significant customer benefits through reduced congestion and better information about terminal conditions. In addition to the general travel information provided by highway radio, regional highways signs, and local signs, customers with reservations will receive specific information about their reserved sailing, including:

- **Email** – reservation holders will be sent alerts and updates via email about their individual reservations, potentially including information on delays and cancelations, and optional regular reminders

- **Text message** – reservation holders will be sent alerts and updates by text message about their individual reservations, potentially including information on delays and cancelations, and optional regular reminders

Email and text message alert systems could also be provided in the absence of a reservation system to voluntary subscribers, much as WSDOT provides for other parts of its system. This would provide yet another method for communication about service exceptions and travel delays.

## 5.2 Business Rules

A vehicle reservation system is foundationally a set of business rules that work together so customers, communities, and WSF have a seamless reservation and travel experience. Business rules are a group of policies, procedures, and constraints that define how a given system will operate. The business rules for the vehicle reservation system were designed to work with each other to meet the goals identified in Section 4.1, summarized as follows:

- **The system must work for WSF customers**. It must be easy to use and offer an adequate degree of spontaneity, flexibility, and certainty.
- **The system must work for ferry communities**. It must reduce the negative impacts of queuing outside the terminal, and allow WSF customers and local residents to access local businesses.
- **The system must work for WSF**. It must recognize the unique circumstances of its different routes, help the agency manage demand, improve asset utilization, and respond to legislative direction.

The business rules developed to meet these goals have been derived from the lessons learned through research, discussions with the Partnership Group and public input, and technical team analysis (described in Section 3.2 above). The system was designed to balance simplicity with the level of detail necessary to achieve the factors for success listed above.

Where possible, business rules will be uniform across all routes and all sailings in order to keep the customer experience consistent and minimize potential points of confusion. However, route-level differences will be required in some instances to accommodate unique ridership patterns and individual terminal characteristics. Supporting different types of customers' travel planning needs is a particular focus of the reservation system business rules.

There are three main categories of business rules that are the foundation for how the system operates and how customers interact with the system:

- **Share of vessel made available for reservations**. On each sailing, a specified number of vehicle spaces will be available for customers to reserve. The rest of the vehicle spaces will be available on a first-come, first-served basis. Percent of space available for reservations will be determined in part by the type of sailing, time of sailing, history of congestion, and will differ for different routes.
- **Priority access programs**. WSF will create two customer loyalty programs that will give commuters, frequent users, ferry community residents, and commercial customers priority access to reservations on high-demand sailings. Customers that choose not to join a loyalty program will have limited access to reservations on peak and commute sailings, but greater access to reservations on off-peak sailings. This set of business rules includes minimum eligibility requirements to join the priority access programs, reservation space set-aside for those customers, and payment policies.

- **Changing, canceling, and using reservations**. This set of business rules includes policies regarding how and when customers can change and cancel their reservations, and when customers must arrive at the terminal to use their reservation.

## Share of Vessel Made Available for Reservations

The share of each vessel that is made available for reservations is a business rule that plays a large part in determining to what extent a reservation system will meet the goals described above. The percentage of space available for reservations helps to spread demand and reduce congestion at terminals and can be adjusted to accommodate different ridership needs.

As much as possible the reservation system should meets the needs of all different customer types—including commuters, frequent riders, commercial freight, and recreational users — and operate efficiently for peak and off-peak sailings. To meet these two criteria, the reservation system would need to be flexible to adjust the number of available reservations to accommodate those differences rather than establishing one common percentage for all routes and sailings. This is a more customer friendly, albeit more complicated approach, which necessitates grouping sailings by their ridership characteristics and analyzing how business rules might differ between these groupings.

### *Types of Sailings*

Ridership characteristics include how full a sailing has historically been, what percentage of its ridership has historically been commuters, and what percentage of its ridership has historically been commercial freight. Once these characteristics were determined, business rules were defined for each type of sailing to balance the importance of customer service with the legislative direction to spread demand.

The analysis of ridership characteristics showed there were three primary types of sailings:

- **Peak Commute Sailings**. These are sailings that have historically been used by commuters traveling back and forth between home and work multiple days each week. Commute sailings are typically full or almost full. Customers who want to travel during the commute period currently must arrive early for their desired sailing, or risk having to wait until the next boat. This can cause long queues at terminals during commute periods that disrupt local traffic and businesses.

  Commuters are important customers to WSF. The business rules on peak commute sailings are designed so that commuters will be able to travel on their preferred sailings and will have the flexibility to change their reservations due to unforeseen circumstances.

  Peak commute sailings will be defined on a route by route basis, but there are typically two peak commute periods during each weekday on heavy commuter routes: a morning commute (from approximately 6:00am to 9:00am) and an evening commute (from approximately 3:00pm to 7:00pm). Not all routes will have both a morning and an evening commute period, and some routes will have no commute periods.

- **Other Peak Sailings**. These are sailings that have historically been full or nearly full, but do not occur within the commute windows of their particular route. These sailings are typically used by recreational customers and ferry community residents traveling between home, tourist destinations, errands, and recreational activities. High demand for these sailings results in long customer wait times and causes queuing in local communities.

  Generally a peak sailing is one that is consistently 80% or more full and is preceded and/or followed by a sailing that is 80% full. Peak sailings will be defined on a route by route basis and will be chosen

based on how full each sailing has historically been. These sailings will vary by day of week and season of year.

- **Off-Peak Sailings**. These are sailings that have historically had unused capacity and do not occur during the defined commute windows of their particular route. These sailings are typically used by recreational customers and ferry community residents. Wait times are low, and there are not congestion issues in local communities before these sailings.

  WSF designed business rules that will encourage customers to make discretionary trips on these off-peak sailings. This will spread demand—per legislative direction—and also decrease customer wait times and the negative community impacts of queuing.

The amount of space available for reservations will be determined on a route by route basis and by sailing type. This amount will be defined as a percentage of the total vehicle space available on each vessel. During the analysis process, the following questions were considered to help determine this business rule:

- **How can this rule be used to help reduce congestion and long lines at terminals**? One of the keys to reducing congestion around terminals is to reduce the number of vehicles that are showing up for each sailing, so that arrival patterns align with available space on sailings. Reservations accomplish this goal by apportioning the majority of sailing space to specific customers. There is a relationship between the percent of vessel space reserved and how many vehicles show up for a sailing.

  If 100% of a vessel is reserved, the exact number of vehicles necessary to fill up the boat would show up for each sailing, and terminal backups would be eliminated. Non-reserved customers would not arrive for the sailing because they would know it was already full. However, reserving 100% of a vessel also has some negative implications. If less than 100% of the boat is reserved, some drive-ups will arrive for each sailing in hopes of filling unreserved space. The lower the percentage of space available for reservations, the more drive-ups will arrive and wait in line, increasing congestion.

- **How can this rule help spread demand into off-peak sailings**? Reservations can act as a signal to customers, informing them which sailings are full and which have space available. Customers who have discretion about when they can travel will be able to select reservations on emptier sailings during off-peak times, therefore spreading demand. This works especially well when incorporated with a communication system that can inform customers about reservation availability and estimated wait times for non-reserved customers.

- **How can this rule allow customers to plan trips in advance, while still allowing some same-day travel decisions**? WSF recognizes that different customer types plan travel in different ways and at different times. It is important to offer enough reservations that customers who want to plan in advance will be able to reserve vessel space if it is available. If reservation amounts are too low, customers who would have made reservations will be forced to drive up to the terminal and wait in line for their desired sailing on a first-come, first-served basis.

  On the other hand, not all customers know when they need to travel; they can be uncertain about when their return trip will be. It is important that customers who make last-minute travel arrangements, or have emergencies that require them to travel immediately, are able to drive up to the terminal and have a reasonable chance of making a sailing relatively soon after they arrive.

Taking into account these three considerations, as well as the potential for tweaking business rules across sailing types, the following reserved percentages were identified as a base for WSF's reservation system. These percentages will be tailored to each individual route, but serve as general principles.

- **On Peak and Commute Sailings, 70-90% of the vessel will be available for reservations**. As noted above, reserving 100% of a vessel eliminates congestion and queuing around terminals during high demand periods. However, WSF recognizes that many customers need flexibility around same-day travel, either due to preference or to unforeseen emergencies. Having at least 10% of each vessel available for drive-up customers will keep drive-up traffic to a minimum, while still giving drive-up customers access to sailings. Additionally, WSF will start with a lower percent of the vessel space available for reservations and increase that percentage as customers adapt to the system, if further queue reduction is needed, or there is customer demand for more reservation space.
- **On Off-Peak Sailings, between 50% and 90% of the vessel will be available for reservations**. During off-peak sailings, congestion and queuing are not a problem at most terminals. For these sailings, WSF might only reserve 50% of available vessel space. This will allow customers who want to plan their travel in advance to make reservations, but will also allow flexible travel during off-peak periods for customers without a reservation. Higher shares of sailings might be made available for reservations if demand warrants it.

It is important to note that allowing up to a certain percentage of vessel space to be reserved does not mean that all of these reservations will be taken. Although 50% of each off-peak sailing might be available for reservations, customers may learn over time that demand is low enough during off-peak sailings that reservations aren't necessary and will choose to drive up instead. Again the portion of space available for reservations on off-peak sailings will vary by route and by sailing in order to best accommodate ferry communities while still meeting the goals of the reservation system.

### Priority Access Programs

Through its work with the Edmonds-Kingston Partnership Group and internal analysis, WSF identified three groups of customers that can be categorized by trip frequency and purpose of trip:

- **Frequent Users**. This category consists of regular ferry commuters and residents of ferry-served communities that travel on WSF for many of their regular trips, such as errands, doctor's appointments, and recreation. These customers rely on ferries as part of their lives and make up a significant portion of annual trips on WSF.

  These customers have less discretion about when they can travel because their trips are often to and from work or other appointments.
- **Commercial and Freight**. Commercial and freight customers vary in frequency of use, but their trip purpose is uniquely business-related. Examples include shipping service trucks that frequently transport packages arriving at Seattle-Tacoma International Airport to west sound communities and infrequent stock trucks that carry food and supplies to island communities.
- **Infrequent Users**. Infrequent users are those who travel on WSF a few times or less per year. Their trip purpose is most often recreational, and they have more discretion about when they can travel.

WSF has two options for addressing the different customer types that it serves on its routes. The first option would be to treat all customers the same with regard to reservations, and let anyone make reservations on a first-come, first-served basis until all space available for reservations is full. This is the

simplest form of a reservation system and would help WSF spread demand and reduce congestion. However, this method does not address concerns that some customers have, especially among commercial users and residents of ferry-dependent communities.

Both commercial users and ferry community residents expressed concern with allowing a high percentage of each sailing to be reserved. Many of their trips are necessary and must be made within certain windows. They were worried that sailings would fill up before they made their travel plans, resulting in their trips being pushed to undesirable sailing times. WSF recognizes that commercial and frequent users comprise a significant portion of ferry customers and are an important and loyal customer group. Additionally, it recognizes the importance of its service in supporting the State's freight mobility goals. In order to ensure that these customers have a positive experience and priority access to high-demand sailings, two priority access programs were developed.

Priority access programs provide enrolled customers additional benefits over un-enrolled customers. A well known example of a priority access program is an airline frequent flyer program. Frequent flyer programs are used by airlines to reward loyal customers with simple ways to make reservations, easy check-in at terminals, and access to flights and seats not sold to general customers.

While WSF will have the option in the future of expanding the scope of its priority access programs, their purpose for now is to ensure that space is available for commercial and frequent users on the sailings that they prefer. The two priority access programs are described below.

***The Premier Account***

**Description**. The Premier Account was designed to ensure that the reservation system works well for commuters and frequent users during peak and commute sailing times.

**Eligibility**. Any WSF customer may enroll in the Premier Account by doing one of the following:

- Setting up an online reservation account using a credit card or
- Depositing and maintaining a minimum dollar value in their account.

**Payment**. Premier Account holders can make reservations without being charged for the reservation until the reserved sailing departs. They can choose whether to have that trip paid for by a credit card, their *Good To Go!* account, or a multi-ride revalue card.

**Program Benefits**. The primary benefit is that account holders will have access to space on vessels reserved solely for Premier Account members. A portion of the total space allocated for reservations can only be reserved by Premier Account holders up until 24 hours in advance of the sailing. (Within 24 hours of the sailing, this space will be made available to all customer types to help ensure a more full sailing). Additional benefits include:

- Premier Account holders will not be required to pay for the ticket in order to hold the reservation. Having a credit card, or a *Good To Go!* or multi-ride account number stored in their account plus an account minimum balance, will be sufficient.
- Premier Account holders will be able to make multiple reservations at one time
- Premier Account holders will be given greater flexibility to change and cancel reservations

**Program Rules**. The following rules reflect a system where WSF gives Premier Account holders the above privileges and advantages described above over other customers. In return, WSF expects Premier

Account holders to proactively manage their accounts and communicate changes and cancelations to WSF in a timely manner.

- The amount of reserved space set aside for Premier Account holders will vary by route, but generally it will be allocated by sailing type, according to the following principles:
  - On Commute Sailings, up to 90% of the vessel will be reserved, and the majority of this space will be set aside for Premier Account holders.
  - On Peak Sailings, up to 90% of the vessel will be reserved, and this space will be balanced between Premier Account holders and general customers.
  - On Off-Peak Sailings, the majority of reserved space will be available for general customers.
- Premier Account holders will be able to make reservations in general customer space once all dedicated Premier Account space on a sailing is full.
- Premier Account holders will be expected to make reservations only for trips they intend on taking. Excessive cancelations or changes will result in removal from the program.

Over time, as WSF learns more about the frequency and trip patterns of its most frequent users, tariff policies around volume-based discounts or other incentives might be refined to better align with the ridership patterns of frequent riders.

***The Commercial Account***

**Description**. The Commercial Account was designed to meet the needs of freight and other commercial customers. It is similar to the Premier Account outlined above.

**Eligibility**. Customers may enroll in the Commercial Account if they meet the following eligibility requirements:

- Customers must meet WSF's current commercial account eligibility minimums, including passing a credit screen
- Customers must set up an account with the commercial program and make reservations using their WSF commercial account number.
- Customers must pay a small annual fee (also required by the current commercial program).

**Payment**. Commercial Account holders will be billed at the end of each month based on that month's ridership.

**Program Benefits**. The primary benefit is that account holders will have access to space on vessels reserved solely for Commercial Account members, including space for vehicles over 7'6" tall. This space will be held for Commercial Account holders up until 30 minutes before sailing time, when it will be released to all customers. Additional benefits include:

- Recognizing the importance of commercial customers, WSF will work through the current commercial program to provide more and better services related to reservations.
- Commercial Account holders who travel frequently will be guaranteed a reservation on their preferred sailing as long as they make the reservation an hour or more in advance of the sailing.

- Commercial Account holders will not be required to make a deposit to hold a reservation. Their commercial account information is sufficient, and they will be billed for all travel at the end of the month.
- Commercial Account holders will not be limited to a certain number of roundtrips during peak commute windows.
- Commercial Account holders will be able to make multiple reservations for multiple vehicles in their fleet.
- Commercial Account holders will be given greater flexibility to change and cancel reservations

**Program Rules**. The Commercial Account program is similar to the Premier Account program, in that they both provide priority access and advantages over general customers. In exchange for these privileges, WSF will require that Commercial Account holders proactively manage their accounts and communicate with WSF in a timely manner.

- Again the amount of reserved space set aside for Commercial Account holders will vary by route, but generally it will be allocated by sailing type, according to the following principles:
    - On Commute Sailings, up to 90% of the vessel will be reserved, and a portion around 10% (based on historical commercial ridership) will be set aside for Commercial Account holders. This will be tunnel space, which accommodates tall vehicles. The amount set-aside will grow as the commercial program grows.
    - On Peak Sailings, up to 90% of the vessel will be reserved, and a portion around 10% (based on historical commercial ridership) will be set aside for Commercial Account holders. This will be tunnel space, which accommodates tall vehicles. The amount set-aside will grow as the commercial program grows.
    - On Off-Peak Sailings, Commercial Account holders will receive a portion around 15%, more space than is historically used by commercial riders and more than will be set aside for Premier Account holders. This will be tunnel space, which accommodates tall vehicles. The amount set-aside will grow as the commercial program grows.
- Commercial Account holders will be able to make reservations in general customer space once all dedicated Commercial Account space on a sailing is full.

## Making, Changing, Canceling, and Using Reservations

These business rules govern how customers will interact with WSF's reservation system. They were designed with extensive input from WSF staff and customers through the Edmonds-Kingston Partnership Group. The purpose of these policies is to balance the customer's need for flexibility and ease of use with WSF's need to minimize behaviors that negatively affect the reservation system and can cause boats to leave with extra capacity. Business rules have been designed to support commuter, commercial, and general customer travel; this, however, leads to more complex rules, particularly around making, changing, and canceling reservations.

### *Making Reservations*

The customer's first interaction with the system will be in finding their desired sailing and placing a reservation or deciding to travel on the sailing without a reservation. This section details when and how a customer can make a reservation with WSF.

*How can I access space on the vehicle deck of a vessel?*

Under a reservation system, customers will be able to access vessel space in five ways. Three of the methods involve having a reservation:

- Customers can join the Premier Account and make a reservation using a linked credit card, *Good To Go!* account, or multi-ride revalue card.
- Customers can join the Commercial Account and make a reservation using their commercial account billing information.
- Customers can also make a reservation in general customer space without joining a priority access account.

The other two methods for accessing vehicle deck space do not require reservations:

- Drive-up customers can arrive at the terminal at any time without a reservation and wait to travel on a first-come, first-served basis. Customers will be able to drive onto any sailing that is not full without a reservation.
- Emergency vehicles, or customers requiring emergency service as defined in the priority load WAC, can arrive at the terminal without a reservation and be given priority loading before other drive-up customers, using the at least 10% of unreserved space that will be available on all sailings.

*How far in advance can I make a reservation?*

The earliest date before the scheduled sailing a customer will be permitted to hold a space on a ferry will vary by sailing type. This differentiation recognizes that different customer types plan travel differently and is designed to spread demand away from commute sailings.

On off-peak and non-commute peak sailings, a customer will be able to make a reservation six months in advance. The Partnership Group informed this decision, telling WSF that customers planning recreational travel typically begin planning their trips up to six months in advance and would like to make reservations at that time. This will allow travelers who may also be planning hotel reservations and airplane tickets to book their desired ferry sailing at the same time they are making their other travel plans.

On commute sailings, a customer will be able to make a reservation 30 days in advance. Customer input identified that generally, commute customers do not need to make their travel plans more than 30 days in advance. Additionally, delaying the availability of reservations on commute sailings will help spread demand because customers that need to make reservations farther in advance will make them on non-commute (on-peak and off-peak) sailings.

*How close to departure can I make a reservation?*

At the latest, customers will be able to make reservations 30 minutes in advance. This is the minimum amount of time that WSF needs to process a new reservation through the system and be ready to check in the customer at the terminal. Customers will be able to drive directly onto any sailing that is not full without a reservation.

*Will I have to pay a deposit for my reservation?*

This business rule varies based on customer type. Customers making a reservation outside one of the priority access programs will be charged for the full price of the ticket when they make their reservation.

This business rule was informed through the research of other ferry systems worldwide, as well as WSF's own experience operating reservations on its Anacortes-Sidney route. These references determined that requiring a deposit reduces the instance of customers making reservations that they do not intend to use.

Premier Account holders will not be required to pay a deposit for their reservations since WSF will have access to a credit card, *Good To Go!*, or multi-ride account number to charge them for their trip upon travel.

Commercial Account holders will not be required to pay a deposit for their reservations, and instead will be billed for all travel at the end of the month using their commercial account billing information.

*How many reservations will I be able to make at one time?*

All customers will be able to make multiple reservations at one time.

*How many reservations will I be able to make for the same day?*

Customers will be allowed to make unlimited reservations for the same day on off-peak and non-commute peak sailings. Premier Account and un-enrolled customers will be limited to one trip in each direction on commute sailings per day. Commercial customers will be able to make multiple round trip reservations on peak commutes on the same day.

*How do I make a reservation?*

Customers will be able to make reservations online, through an automated phone service, with a WSF operator, and at a WSF Kiosk.

***Changing and Canceling Reservations***

WSF understands that customers' travel plans may change after they have already made a reservation. Meetings that run long or short, traffic, or just the desire to stay on the other side of the water for a longer period, mean that sometimes customers have uncertainty about when they will make their return trip. The following business rules will determine how and when a customer can make a change or cancelation and what the implications will be. These business rules are designed to balance meeting customer service needs with the cost to WSF of changes and cancelations. Depending on the payment method and timing of a change or cancelation, there may be substantial financial impacts to WSF.

*How do I cancel my reservation when I do not want to switch to a different sailing?*

There are two impacts that reservation cancelations have on WSF. The first is a financial impact and is specific to reservations where deposits are paid with a credit card. There is a transaction cost associated with refunding purchases made with credit cards. Minimizing cancelations minimizes those transactions costs, and therefore WSF wants to keep the number of those types of cancelations low.

The second impact is on space utilization. One of WSF's priorities for implementing the reservation system is to efficiently utilize existing assets, which includes making sure that sailings are leaving as full as possible. When customers cancel reservations close to sailing time, there is a higher probability that boats will be sailing below capacity.

While it is important that customers have incentives to cancel rather than simply not show up for a reserved sailing, last minute cancelations will result initially in boats sailing below capacity and later in

increased queuing as people learn that they can drive-up to boats that are mostly reserved because many of those reserved spaces will be available due to cancelations.

In order to reduce credit card transaction fees, maximize vessel capacity, and minimize the number of reserved spaces that become available at the last minute, the cancelation policies will be applied as follows:

- General customers typically pay reservation deposits using a credit card, and there are associated transaction costs with refunding credit card purchases. If there are few cancelations the impact to WSF will be minimal and no fee will be charged. However, if there are frequent cancelations by general customers, WSF reserves the option to require a cancelation fee for all reservation cancelations.
- Priority access customers are not paying a deposit toward their reservation so there is no transaction fee associated with a cancelation. Therefore, customers will likewise not be charged a cancelation fee. However, if a customer cancels reservations excessively, they will be removed from the priority access program. Additionally, if in the future WSF experiences a large number of cancelations it may impose a cancelation fee on priority access customers as well to discourage them from making reservations they do not intend to keep.

Cancelations will only be allowed up to 30 minutes in advance of a sailing. After 30 minutes, a customer will either be considered a late arrival or a no-show. The business rules for these two scenarios are discussed below under "Using Reservations."

*How do I change my reservation to a different sailing?*

WSF wants to give customers the flexibility to change their reservations when their travel plans change. Unlike cancelations, there is not a direct financial cost to WSF when customers change reservations to a different sailing because no monetary transaction takes place. The cost to WSF is instead dependent on how customers choose to change their reservation. If a significant number of customers change reservations via phone, WSF may need to increase its staff, thus also increasing its operating costs.

To allow customer flexibility and to minimize changes by phone, the following business rules will apply:

- For all customer types, WSF will allow changes to be made up to 30 minutes in advance of a sailing at no charge if they are made online, at a WSF kiosk, or through an automated telephone service. After 30 minutes, a customer will either be considered a late arrival or a no-show. The business rules for these two scenarios are discussed below under "Using Reservations."
- If the volume of calls to WSF operators for changes or cancelations is very high even after the reservation system is well established, WSF has the option of allowing changes or cancelations through a WSF operator but charging for the change or cancelation if an operator is used.

***Using Reservations***

The last step in customer interaction with the reservation system will be completing the reserved trip. This section outlines when a customer must arrive at the terminal, what the implications are of arriving late for a sailing, and what the implications are of choosing not to use a reservation. Flexibility and convenience for the customer was balanced against time needed for vehicle processing and the desire to fill the boat as much as possible before departure.

*How far in advance can I show up and wait for my sailing?*

The earliest time at which a customer is allowed to show up and get in line for their reserved sailing will vary significantly by route, because it is dependent on the amount of time between sailings at each terminal. The main considerations for this business rule are how it would impact lines at the terminal and congestion in surrounding communities, and how it would complicate vehicle processing if vehicles from more than one sailing were overlapping in the terminal.

Generally, terminal holding will be available to customers up to an hour before the sailing.

*How close to departure can I arrive and still use my reservation?*

The latest time at which a customer will be able to show up and retain their reserved spot on the boat is up until 15 minutes in advance of the reserved sailing on all domestic routes, and 60 minutes in advance on international routes. International travelers need to arrive farther in advance than domestic travelers because of the time it takes to check travel documents such as passports.

Through its work with the Partnership Group, WSF recognized that customers would like the time they need to arrive in advance of their sailing to be as short as possible. However, WSF needs a certain amount of time to process vehicles at the terminal, and the 15 minute minimum was determined through two main analyses:

- **The amount of time WSF needs to check in and load a vehicle**. WSF typically begins loading a vessel 10 minutes before its scheduled departure time. At this time, WSF needs to have all reserved vehicles checked in through the tollbooths and staged on the dock, ready to be loaded. Requiring vehicles to arrive an hour to 15 minutes in advance, depending on the terminal, ensures that WSF will have adequate time to process and load all vehicles without causing sailing delays.
- **The amount of time WSF needs to notify drive-up customers whether or not they can travel on the sailing**. For many sailings, WSF will have customers without reservations who have driven to the terminal in the hopes of traveling on the next boat. WSF cannot inform these customers whether or not they will travel on the sailing, and therefore begin processing them through the tollbooths, until WSF knows how many reservation holders have checked-in for the sailing. Once the 15-minute cutoff time has passed, all reservation holders who have not yet checked in will lose their spots on the vessel, and WSF can inform the correct number of drive-up customers that they will be traveling on the next sailing. This 15 minute minimum ensures that WSF will have adequate time to process enough drive-up customers so the vessel leaves full, therefore serving as many customers as possible.

*What happens if I show up after the 15 minute minimum arrival time, and do not notify WSF of my change in advance?*

If a reservation holder fails to show up more than 15 minutes in advance of their reserved sailing and does not notify WSF, the customer will lose their reserved spot on the vessel.

The customer will then be placed at the end of the drive-up line, where he will be loaded on a first-come, first-served basis as space becomes available on a future sailing. This penalty of additional wait time will likely be enough to discourage this behavior, and a financial penalty should not be necessary. For general customers the deposit made toward the fare will still be valid, and the balance will be charged once vessel space becomes available and the customer is processed through the tollbooths. For

priority access customers, the trip will not be deducted from their account until they are processed through the tollbooths.

If an excessive number of late arrivals occur on a route or system wide, WSF may charge a monetary penalty for late arrivals.

*What happens if I don't travel on the day of my reserved sailing and do not notify WSF of my change or cancelation in advance?*

When a customer does not show up for their reserved sailing and does not show up to travel for the rest of the day, WSF will consider them a "no-show." WSF has the option of defining a "day" as the 24 hour period following the reserved departure or as that business day. Minimizing the number of no-shows on each sailing is important to WSF because they have a twofold negative impact on the system:

- **A high rate of no-shows will cause vessels to sail below full capacity**. No-shows impact both customers and WSF. One of WSF's priorities in implementing a reservation system is to maximize the use of its assets, including all vessel space. When customers do not show up for sailings in significant numbers, there will not be adequate drive-up customers to take their place. Therefore, sailings will be leaving below capacity. This is a lesson learned from the reservation system on the Port Townsend-Keystone route.

  Additionally, a high rate of no-shows implies that customers have made reservations that they did not intend to use. This negatively impacts other customers, who may have wanted reservations on the sailing, but were unable to make them because it was already full.

- **A high rate of no-shows will encourage drive-up traffic**. One of the goals of the reservation system is to reduce congestion and wait times at terminals. Having a high percentage of each vessel available for reservations during peak times is expected to reduce drive-up demand at these times and thus reduce queuing. However, if business rules are not in place to prevent significant numbers of no-shows, more vehicles than desired will be accepted as drive-ups, and therefore encourage drive-up behavior and terminal congestion.

Given the negative impacts of no-shows, WSF developed business rules that encourage customers to either travel on their reserved sailing, or notify WSF in advance if they have a change in plans. Therefore, any customer who does not arrive in time for their reserved sailing, does not attempt to travel for the rest of the operational "day", and does not notify WSF will lose his reserved spot on the vessel. The customer will also be charged the full fare for the reserved trip.

## Modifying Standard Business Rules during Service Exceptions

The above business rules will allow WSF to run efficiently and to effectively serve customers during most operational hours. However, throughout the year, exceptions can occur that disrupt service and will necessitate business rule modifications in order to adjust for circumstances and continue serving all customers fairly. These service exceptions include delayed sailings, canceled sailings, and vessel changes and substitutions due to planned and unplanned maintenance periods.

### *On-time Performance*

During a service day, sailings can get behind schedule due to many reasons, including inclement weather, traffic congestion at the loading terminal, and vehicles that fail to start during unloading. Most of WSF's sailing schedules have a buffer built in so vessel operators can get back on schedule, but there still may be a block of sailings during the day that are running late.

WSF has already begun to address this issue independently of this predesign study by beginning a review process of sailing schedules on certain routes and determining if schedules should be revised to be more realistic, and if longer buffer periods should be built in so sailings can get back on schedule as quickly as possible. While this will help reduce periods of delayed sailings, exceptions will still occur. During these times, WSF will take the following actions to ensure that customers are served as well as possible and receive real-time information about how the delays will affect their travel.

During a period of delayed sailings, WSF will continue to operate under regular business rules as long as possible. Changes will be made once sailings get significantly behind, when traffic arriving for the next sailing is interfering with traffic arriving for previous sailings that have not yet departed. This causes terminal congestion and queuing in communities. This will mainly be a concern during high-demand sailings.

Once this backup becomes big enough, WSF will switch to a first-come, first-served model for reservation holders. Under this scenario, all customers arriving at the terminal who have a reservation for a sailing that day will be loaded in the order they arrive, instead of according to their actual reservation time. This will allow WSF to more efficiently manage traffic at the docks and ensure that customers travel as soon as possible after arriving at the terminal. No new reservations will be taken and no drive-up customers will be allowed to travel until all current reservation holders have been served.

In addition to addressing the congestion at the terminal through business rule modifications, WSF will reduce congestion by informing reservation holders of delayed sailings. The communication system will send out notification messages, either via email or text message, to all reservation holders alerting them of the revised schedule. These messages will include information on how late each sailing is likely to be and advise customers to stay away from the terminal until their new estimated departure time. If customers affected by the delays choose to cancel their reservation, not show up for their sailing, or move their reservation to a different sailing, they will not be charged a fee. Those who paid their fare will receive a refund.

***Capacity Reductions***

Capacity reductions occur when vessels are unable to operate, either due to mechanical issues or planned maintenance. When maintenance is planned, WSF knows months in advance when it will occur and what size vessel will be used in place of the one in maintenance. When mechanical issues occur, they are usually unforeseen and can cause same-day capacity reductions that affect customers. A vessel that is out of service may be replaced by a smaller vessel, therefore reducing the number of customers that can be carried, or it may be out of service until repairs can be made, which causes canceled sailings.

**Same-Day Capacity Reductions***.* Same-day capacity reductions are an issue because WSF has already sold reservations on sailings that are now either served by a smaller vessel, or are canceled. When one of these scenarios occurs, WSF will send out notifications to all affected reservation holders by either email or text message, explaining what has occurred, and how each customer is affected. Customers who choose to cancel their reservation, not show up for their sailing, or move their reservation to a different sailing will not be charged a fee.

To best serve customers that still want to travel, WSF will load reservation holders on a first-come, first-served basis as vessel space is available. No new reservations will be accepted, and drive-ups will not be accepted until all current reservation holders have been served.

**Capacity Reductions with Advance Warning**. In some instances of capacity reduction, WSF will have advanced knowledge of the situation and will be able to inform customers in advance. The most common type of capacity reduction with advance warning occurs when WSF learns that planned maintenance is going to take longer than expected. The vessel is typically already out of service when this happens, and its return date is pushed back. WSF is usually informed of these situations many days in advance.

When these reductions occur, WSF's first priority will be to make sure as many customers as possible who already have reservations will still be able to travel on or near their original sailings. To accomplish this goal, WSF will allow up to 100% of the replacement vessel space to be reserved in order to accommodate as many existing reservations as possible. If not all reservation holders fit onto the replacement vessels, priority will be given based on the order of when reservations were originally placed. No new reservations will be allowed on these sailings unless there is space available after existing reservation holders have been served.

WSF will send notification to reserved customers informing them of the situation and offering assistance in rescheduling bumped reservations on other sailings or routes. All cancelation fees will be waived for customers who decide not to travel on an alternate sailing. Those who paid their fare will receive a refund.

***Sailing Cancelations on Routes with 2+ Boats***

Many of WSF's routes are served by more than one vessel. On these routes, it is possible for one vessel to be out of service while one vessel is still running. This results in every other sailing being canceled. In this scenario, WSF will send out notifications to all reservation holders on canceled sailings letting them know their reservation has been canceled.

The reservation system will support the re-allocation these canceled reservations to future sailings as space is available, reserving up to 100% of the remaining vessel to accommodate as many customers as possible. Reservations will be rescheduled in the order in which they were originally placed. Notifications will also let customers know that all no-show and cancelation fees will be waived if they choose to cancel their reservation, not show up for their sailing, or move their reservation to another sailing or another route. Those who paid their fare will receive a refund.

## 5.3 Terminal Operations and Vehicle Processing

Each of WSF's terminals has unique characteristics that affect how reservations will be implemented at that terminal and on routes served by that terminal. The most significant characteristic that determines how reservations will work is terminal holding capacity, which is the number of vehicles that can be held at a specific terminal inside the processing tollbooths.

The analysis done below is organized terminal by terminal in order to document where reservations might be feasible and what sort of terminal or business rules modifications might be needed. On routes where all terminals are determined to be able to support reservations, then reservations would be operationally feasible from a terminal and vehicle processing perspective. Where one or more terminals is determined to be inadequate, the operational feasibility of implementing reservations on that route would become more difficult and potentially impractical. A discussion of how the feasibility of reservations at each terminal informs the feasibility of reservations for different routes is discussed in section 6.1.

A terminal that can hold between 120%-150% of the vessel serving that route is ideal for reservations. This amount of space allows WSF to stage vehicles in the same manner that they will be loaded onto the vessel and hold all arriving vehicles inside the terminal while accommodating drive-ups and limited instances of customers arriving prior to their designated arrival window. Most importantly, this level of terminal capacity reduces queuing through communities. Most of these objectives can also be accomplished at terminals that can hold between 100%-120% of vessel capacity, though there is less flexibility to accommodate additional drive-up customers or early arrivals.

Given limited vessel space for tall vehicles (over 7'6"), vehicle staging for these vehicles must ensure they have access to that space, which in some instances means that tall vehicles must be held in separate lanes from standard height vehicles so they can be loaded independently onto the vessel.

Vehicle processing will also need to separate reservation holders from drive-up customers to ensure that all reservation holders can be processed and loaded while drive-ups wait for space to become available. This means that there are up to four categories of customers that must be staged for each sailing:

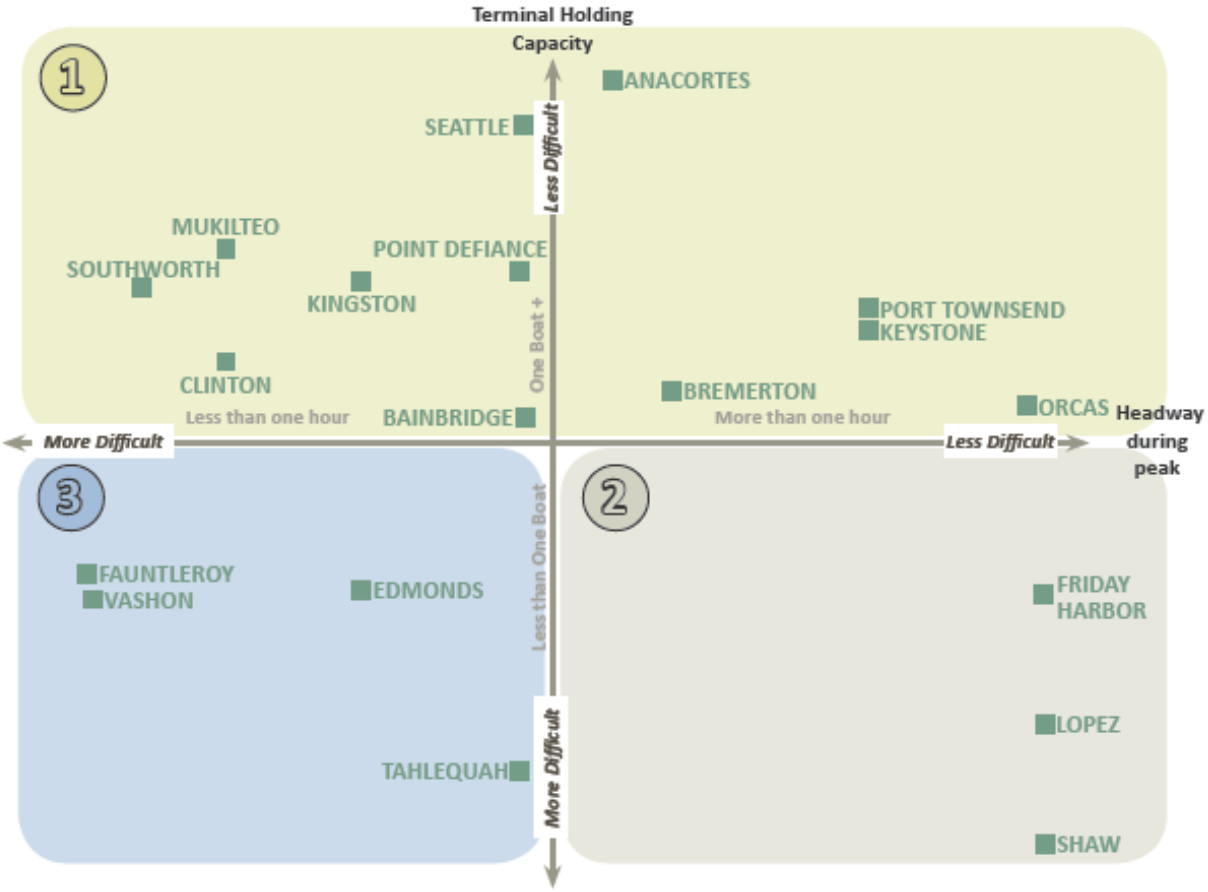
- Reserved standard vehicles
- Reserved tall vehicles
- Drive-up standard vehicles
- Drive-up tall vehicles.

The second most significant terminal characteristic that affects how reservations will operate is headway. Headway is the amount of time between sailing departures on a particular route. Headway is important because it is the amount of time that WSF has to process a full boatload before vehicles need to be loaded again. It will be more difficult to implement reservations at terminals with shorter headways, especially if terminal holding space is at or below 100%-120% of the vessel.

Exhibit 10 plots each of WSF's terminals according to their terminal capacity and average headway. Terminals on the top of the framework have adequate terminal holding capacity, defined as at least 100% of a vessel. Terminals on the bottom of the framework have less than one boatload of holding available.

Terminals on the right of the framework have headways of more than 50 minutes. Terminals on the left of the framework have short headways of less than 50 minutes.

**Exhibit 10**
**Vehicle Processing Framework**




Based on these characteristics, terminals can be grouped into three levels of difficulty, with regard to accommodating reservations:

1. **Terminals with Adequate Holding** (Terminals in the top half). These terminals have at least 100% of a boatload of holding space, which will make reservations possible with minimal terminal modifications, even for routes with shorter headways. Of WSF's 19 terminals, 12 fit in this category.
2. **Terminals with Inadequate Holding and Longer Headways** (Lower Right). These terminals have less than 100% of a boatload of holding space, but have substantially longer headways. The headways give WSF some flexibility, and reservations can be implemented at these terminals with only moderate terminal or business rule modifications. This category encompasses three of the seven remaining terminals.
3. **Terminals with Inadequate Holding and Shorter Headways** (Lower Left). Terminals in this quadrant have less than 100% of a boatload of holding space, and headways shorter than 50 minutes. Implementing reservations at these terminals presents challenges and may require extensive modifications to terminal facilities, business rules, or vehicle processing techniques. Only four of WSF's terminals fall into this category, and their constraints are discussed in detail below.

All terminals will need some terminal modifications to help identify reservation holders and help customers be in the right place and be aware of current information. These communication

modifications include signs directing traffic into the correct lanes for the four customer types listed above, as well as signs as customers approach the terminal listing reservation availability, service disruptions, and estimated wait times for non-reserved customers (discussed in Section 5.1). In addition to signage, all terminals with reservation systems will require basic technology upgrades to tollbooths.

## Terminal by Terminal discussion

The terminal framework above is useful for grouping terminals into levels of implementation risk and difficulty. It shows that 16 of WSF's 20 terminals will be able to accommodate reservations with minimal to moderate terminal modifications. WSF also recognizes that each terminal has unique constraints that require unique solutions. This section addresses terminals individually, explaining the constraints and characteristics of each.

### *Terminals with Adequate Holding*

It will be possible to implement reservations at all of these terminals with only minor modifications to terminals, business rules, or vehicle processing.

**Anacortes**. The Anacortes terminal holds approximately 560 vehicles, and is served by 124- and 144-car ferries leaving to Sidney or to the San Juan Islands. This means that there are approximately 280 vehicle spaces available for each route, which is over 100% of both vessel sizes. Additionally, Anacortes' shortest headways are about 50 minutes, which gives adequate time to stage vehicles between sailings. Reservations can be improved and expanded at this terminal with only minimal modifications to improve communication and signage and upgrade tollbooth technology.

**Bainbridge**. The Bainbridge terminal is served by two 202-car ferries and has holding capacity for approximately 225 vehicles. This gives it more than 100% of a vessel in holding capacity. Additionally, the headway is 50 minutes on average which will allow reservations to be implemented at Bainbridge without significant terminal modifications.

**Bremerton**. The Bremerton terminal holds about 195 vehicles, and is served by 124-, 144-, and 188-car ferries rotated throughout the course of the year, giving it enough space to hold more than 100% of a vessel. Bremerton also has relatively long headways, which will allow this terminal to accommodate reservations with only minimal terminal modifications to improve communication and signage and upgrade tollbooth technology.

**Clinton**. The Clinton terminal is served by a 124-car ferry and can hold 150 vehicles. This gives it greater than 100% of a vessel in holding capacity. Clinton experiences short peak headways of 30 minutes, but the adequate holding capacity will allow reservations to be accommodated with only minor modifications to terminals. Adjustments to business rules governing customers' arrival times may be necessary.

**Friday Harbor**. Including remote holding, the Friday Harbor terminal has capacity for about 255 vehicles, and is served by 124- and 144-car ferries, giving it more than 100% of a vessel in holding space. As currently envisioned, the system will only provide reservations for customers traveling to Anacortes from Friday Harbor, as interisland traffic presents significant operational challenges with respect to vehicle processing. This simplifies vehicle processing and allows Friday Harbor to take advantage of long headways between reserved sailings to process vehicles.

Friday Harbor will require basic terminal modifications to communication and signage. Beyond these basic changes, it may be necessary to add a checkpoint or tollbooth to check in customers arriving with reservations.

**Keystone**. The Keystone terminal will be served by a 64-car ferry and has capacity for 90 vehicles, giving it more than 100% of a vessel in holding space. Currently, due to four vessels being removed from service in 2007, Keystone experiences 90-minute headways. However, a second vessel will soon be added to this route and will reduce peak headways to 45 minutes. Either way, the surplus of holding space will allow reservations to be implemented with only minimal terminal modifications to communications and signage.

**Kingston**. The Kingston terminal has capacity for 288 vehicles, and is served by 188- and 202-car ferries, giving it more than 100% of a vessel in holding space. The reservation system can work within the existing footprint of the Kingston terminal because of this adequate holding space, even though headways are as short as 35 to 40 minutes between peak sailings. The Downtown Kingston Master Plan Study includes an assumption that the approach to the Kingston terminal would be relocated to NE 1st Street. The conception design proposes two lanes for access to the terminal and two lanes for egress, though it is suggested that the access lanes could be reduced to one lane. To make reservations work at Kingston, both access lanes would need to be available so drive-ups and customers with reservations can be separated before arriving at the toll booth.

**Mukilteo**. The Mukilteo terminal has holding capacity for 198 vehicles and is served by a 124-car ferry, giving it holding space for more than 100% of a vessel, assuming continued WSF access to the Buzz Inn property or relocates the terminal as proposed. Although Mukilteo has headways as short as 30 minutes during peak periods, reservations could be implemented with only minimal terminal modifications if WSF continues to have access to the Buzz Inn property or the terminal is relocated. Given the short headways and regular sailing schedule, reservations may be implemented on a limited basis on this route. Some adjustments to business rules governing arrival times for customers would need to be made, and those options will be evaluated prior to any implementation.

**Orcas Island**. The Orcas Island terminal has capacity for approximately 150 vehicles at the terminal and is served by 124- and 144-car ferries, giving it more than 100% of a vessel in holding space. Additionally, adequate headways mean that the Orcas Island terminal will only need minimal modifications in order to implement reservations.

**Port Townsend**. The Port Townsend terminal will be served by a 64-car ferry and has capacity for 90 vehicles, giving it more than 100% of a vessel in holding space. Currently, Port Townsend experiences peak headways of approximately 90 minutes, but headways will be reduced to approximately 45 minutes when a new vessel comes online. Under either headway, the terminal's surplus of holding space will allow reservations to be implemented with only minimal terminal modifications to improve communication and signage and upgrade tollbooth technology and location.

**Seattle**. Colman Dock holds vehicles traveling to both Bremerton and Bainbridge Island and has a total holding capacity of 545 vehicles, or about 270 vehicles per route. Neither route is served by a vessel larger than 202 vehicles, therefore Colman Dock can hold more than 100% of a vessel for each of its routes, giving it adequate terminal capacity.

Additionally, headways to Bremerton and Bainbridge Island are long enough that they will not complicate vehicle processing. Reservations can be implemented at Colman Dock after minimal terminal modifications to improve communication and signage and upgrade tollbooth technology.

**Sidney**. WSF contracts out for operations support at the Sidney terminal. Reservations are currently required out of the Sidney terminal, and WSF expects that the new reservation system can be implemented at Sidney without any terminal modifications.

**Southworth**. The Southworth terminal has holding for 160 vehicles and is served by 87- and 124-car ferries, giving it more than 100% of a boatload of capacity. However, it experiences short headways of 30 minutes between peak sailings. These short headways may necessitate minor adjustments to business rules governing customers' arrival times, but reservations could still be implemented with only minimal terminal modifications to improve communication and signage and upgrade tollbooth technology.

***Terminals with Inadequate Holding and Longer Headways***

These terminals will be able to accommodate reservations with moderate modifications to terminal facilities, business rules, or vehicle processing.

**Lopez Island**. The Lopez Island terminal has holding capacity for approximately 75 vehicles, while the route is served by 124- and 144-car ferries. This is significantly less than 100% of a vessel in terminal capacity (though where allotments are less than a full boat, the holding capacity may be adequate). Headways are sufficiently long, but moderate terminal and business rule modifications may be necessary to implement reservations here, including some infrastructure additions.

**Point Defiance**. The Point Defiance terminal can hold 50 vehicles and is currently served by a 48-car ferry, but will have 64-car ferry by 2012, giving it more than 100% of a vessel in holding capacity in the short-term and less than 100% of a vessel after 2012. Point Defiance also has headways in excess of 50 minutes at all times. Basic terminal modifications to allow for reservation implementation would include signage directing customers into the correct lanes and communication signs.

**Shaw**. The Shaw dock has holding space for 15 vehicles for routes served by 124- and 144-car ferries. Although only a small portion of those boats will be used to carry vehicles traveling from Shaw, business rules at Shaw will need to be modified to accommodate reservations. Shaw does not currently have a checkpoint or WSF staff available to manage traffic at the terminal.

***Terminals with Inadequate Holding and Shorter Headways***

These three terminals will prove the most challenging when trying to implement reservations. Their level of operational risk and difficulty varies based on the insufficiency of vehicle space, the geography of the surrounding community, the number of destinations departing from the terminal, and the length of headways.

**Edmonds**. The Edmonds terminal holds about 155 vehicles and is served by 188- and 202-car ferries, giving it less than 100% of a vessel in holding capacity. In addition, short headways of approximately 35 to 40 minutes between peak sailings complicate vehicle processing. WSF and the Edmonds-Kingston Partnership Group worked together to compile options that would allow reservations to be accommodated at this terminal. The cost estimates for these options are included in Appendix E.

**Fauntleroy**. The Fauntleroy terminal will need the most modifications in order to support reservations. A mix of inadequate holding space (only 84 vehicles, for 87- and 124-car vessels), short headways (as little as 20 minutes), and sailings with mixed destinations create a challenging situation. In addition to mixed destination sailings, Fauntleroy also serves direct sailings to Vashon and to Southworth. This mixing of destinations creates vehicles processing challenges at the Fauntleroy dock, as vehicles for future sailings are often arriving as vehicles for the current sailing are being loaded.

WSF's internal work teams identified options for vehicle reservations at Fauntleroy, all of which would require significant investment or operational changes.

**Tahlequah**. The Tahlequah terminal is served by a 48-car ferry, but only has holding capacity for approximately 10 vehicles. It will be served by a 64-car vessel beginning in 2012. Additionally, the Tahlequah terminal does not have tollbooths or staff that could be used as a checkpoint to process reservation holders. Tahlequah would require significant terminal modifications or changes to business rules to support reservations.

**Vashon Island**. The Vashon Island terminal has very limited holding capacity. Additionally, short headways complicate vehicle processing and a lack of infrastructure, such as tollbooths and reservation checkpoints, would require significant improvements.

## 5.4 IT/Back Office Core System Description

This is a predesign study for a project that has a significant technology component. A major technology project has its own technology requirements, as laid out by the Washington State Department of Information Services. Appendix F demonstrates how this predesign study satisfies both the OFM predesign requirements and the ISB requirements.

### Existing WSF Reservation System

As discussed earlier, WSF currently provides reservations on a very limited basis. There are two routes – Port Townsend-Keystone and the International service to Sidney – where reservations are available to all customers, and in the San Juan Islands there is a special reservations program for commercial customers only. These routes account for less than 4% of all vehicles carried on Washington State Ferries and primarily serve an infrequent/tourist ridership base (in the case of the International Route, all of the trips are recreation/tourism related).

The reservation system that supports these programs was developed by a third party over ten years ago and has since been enhanced by WSF staff; it offers basic functionality, but it was never designed to be a platform to launch a more extensive use of reservations throughout the ferry system. In fact, there is not one but three different reservation "systems" that have grown out of the original system to service each of these three routes. Each one was designed to fit the narrow requirements of the route.

- **The International Route.** Reservations have been available on this route for more than ten years. The system is relatively simple, with customers able to make reservations online or by phone, but cancelations and changes are only possible by phone. Reservations must be secured by a deposit. The reservation system holds information about the customer and links to both the scheduling system and the ticketing system. On the day of sailing, a list of reservation holders is delivered to the terminal. As customers are processed, they are confirmed to be on the list and then pay the applicable fare, less their deposit.
- **Port Townsend-Keystone.** In 2008 reservations were offered on the Port Townsend-Keystone route on an emergency basis to help mitigate the impacts of a significant reduction in service in response to the loss of the Steel-Electric vessels. Reservations can be made online (through a different online interface than the one used for Sidney) or by phone, but can only be canceled or changed by phone. There is no deposit requirement currently, which has led to significant operational challenges due to a high number of no-shows. There is no connection between the Port Townsend-Keystone reservation and the ticketing system; customers pay for and receive their tickets in a completely separate operation from making a reservation.

- **San Juan Islands Commercial.** The reservations for the San Juan Island commercial customers are available for registered commercial account holders only. Reservations are made for an entire schedule season at one time, with commercial account holders submitting preferred sailing times and WSF staff matching requests with availability. Once the season schedule is set, customers are notified of their individual sailing schedules. This is a predominantly manual process involving significant staff time. Customers pay an extra fee to participate in this program.

**What the current solution can do.** The current systems are able to support the very limited approach to reservations that is currently offered and have the ability to support minor upgrades to the existing program rules. For example, the system for Port Townsend-Keystone can be improved to require pre-payment of the fare at the time the reservation is made (this change is expected to have a dramatic effect on the number of no-shows who hold reservations). Methods are also under development to provide ways for customers to cancel reservations without needing to speak with an information agent by phone.

**What the current solution cannot do.** There are many features that are common to reservation systems elsewhere in the world that the current WSF systems cannot reasonably support including: (1) increasing the volume of reservations beyond its current load, effectively limiting expansion to other routes; (2) providing fully-automated methods for changing or canceling reservations online; and (3) integrating deposits with WSF frequent user products, such as the multi-ride discount card.

With WSF considering making reservations a permanent feature of the Port Townsend-Keystone route, and given the operational challenges that still need to be addressed it appears that the current system has reached the limits of its effectiveness.

### Information Technology System Requirements

The business rules (Section 5.3) describe a reservation system where most vehicles traveling during peak periods would likely have a reservation. This describes a very different operational approach than the current first-come, first-served approach and requires that a reservation system be designed to handle a large volume of activity, place a premium on customer ease-of-use, and provide real-time information to facilitate two way communications between the ferry system and customers to make, change, or cancel reservations. To minimize operational cost impacts, it will be important that communication options are developed that minimize the reliance on telephone interactions with customer support staff.

In addition, the system must support the needs of the two priority access programs, be flexible such that business rules may be tailored to route-level needs, and support ongoing analysis of system performance so business rules can be adjusted to better fit actual use patterns. Toward these ends, the following have been identified as core features to be introduced incrementally, and that will need to be supported by the IT and back office systems to effectively deliver the business rules identified earlier.

These requirements are based on the specific challenges of implementing reservations across all WSF routes, however, it is worth noting that many of the more intensive communication requirements are driven by the particular challenges involved in deploying reservations on WSF's high-volume, commuter-oriented routes. In the other parts of WSF route structure, implementing the business rules is not nearly as complex. In fact, the additional requirements of the commuter-oriented routes would push some aspects of this reservation system beyond what other operators have typically done.

- **Real-time Information**. The reservation system would be able to process and present summary data within two minutes of changes being made. This process includes reservations activity being logged

in the system (including changes or cancelations), and showing the resulting space availability to customers and staff.

- **Multiple customer options for working with reservations**. To improve ease-of-use and offer flexibility to customers while minimizing staff support requirements, customers would be able to manage reservations via:
  - Phone operator – customers would be able to call in and speak to an operator to make, change, or cancel reservations.
  - Touch-tone phone – customers would be able to call in and make, change, or cancel reservations using a touch-tone phone service (with no contact with support staff).
  - Voice-Operated Phone – customers would be able to call in using a hands-free device to make, change, or cancel reservations using voice commands instead of their touch-tone keypad (with no contact with support staff, e.g. "press or say 2").
  - Online – customers would be able to access a WSF Reservations website where they could make, change, or cancel their reservations using an easily navigable web interface.
  - WSF kiosk – customers would be able to make, change, or cancel reservations at WSF kiosks.
- **General information communication with customers.** Customers will be able to receive information about travel-related updates via:
  - Regional Highway Signs – will provide next sailing information, including drive-up wait times, for multiple routes to help direct drive-up traffic to the terminal with the most available capacity.
  - Local Signs – will provide next sailing information, including drive-up wait times, as well as vehicle processing directions.
  - Highway advisory radio – will provide information about schedules, drive-up wait times, and information about alternative route options where customers have choices (i.e. approaching the Hood Canal Bridge, customers without reservations would learn whether Kingston, Bainbridge, Bremerton or the Tacoma Narrows Bridge offered the best alternative).
- **Reservation-specific communication with customers.** Customers will be able to receive information about their reservations via:
  - Email – reservation holders would be sent alerts by email about their individual reservations, potentially including service exceptions and optional regular reminders.
  - Text message – reservation holders would be sent alerts by text message about their individual reservations, potentially including service exceptions and optional regular reminders.
- **Account Set-up and maintenance**. Customers in the priority access program would have the ability to manage their personal account information, and review travel history and the status of current reservations.
- **Different website screens for different customers.** The online interface would be tailored to offer different screens and different reservation availability to different customer types (commercial, premier, general). It would also have a page for priority access account management.
- **Assign barcode and confirmation number to each reservation.** The reservation system would associate each individual reservation with a specific barcode and confirmation number to be used

for checking in at the tollbooth, or looking up a reservation to cancel or change. This information would be linked to the ticketing system.

- **Reservations would have a date and time stamp.** All reservations would be stamped with the date and time they were made to facilitate load management adjustments when there are service disruptions, such as a canceled sailing or a vessel being replaced with a smaller-capacity vessel due to unscheduled maintenance needs.
- **Automatic, electronic load expectation reports.** The system would present a real-time automated report of how much space has been reserved. To do this, the system needs to collect vehicle size information at the time of the reservation, including length and height. This information would allow for appropriate load management, ensure that the tunnel space is not overcommitted and be used to support the real-time communications system so customers are aware of space available either for the purposes of making or changing a reservation or to make more spontaneous drive-up decisions. The system will also need to be able to verify and change this information at time of processing to assure accurate load management.
- **Database reporting and metric tracking**. The system needs to keep data on all aspects of the performance of the reservation system, such as how quickly reservations were taken, cancelation and change rates, etc. This would require having a data warehouse and management analysis system to evaluate actual performance and to support periodic modifications of business rules to maximize the effectiveness of reservations in meeting the goals of demand management, reduced community impacts, and increased vessel utilization.
- **Exception reporting and customer behavior auditing.** An important system element will be the ability to automatically report events that WSF is interested in, such as excessive cancelations and changes, and other abusive behaviors. The business rules are designed to make using reservations as customer-friendly as possible, so behaviors which are counter to the effectiveness of the system overall and which negatively impact other customers need to be flagged. Once identified, WSF would have options to issue warnings and/or other penalties to discourage continuation of these practices.
- **Reservations and load management during service exceptions.** Service exceptions include canceled sailings, schedule delays, or substitution of an out-of-service vessel with a smaller vessel. When one of these events occurs, the reservation system needs to be able to support the reallocation of existing reservations to fit the new available space, notify customers of changes to their reservations, and offer options for changing or canceling.

In addition to these system requirements, a number of other features were identified as either desirable or potential customer-friendly enhancements which are otherwise not necessary to support the business rules. These optional or potential extra features generally would also add complexity to the system requirements and costs for system procurement and development. These potential **extra features** include:

- **Text message receive and respond.** The system would allow customers to confirm changes or cancelations to their reservations via simple text commands.
- **Managing reservations via voice-commands using keywords.** The core requirements would include a more basic voice command system, such as “if you want to make a reservation say 1.” That approach allows customers to use a phone to make or change a reservation without talking to a

person, but it can be slow and frustrating. In a more advanced system customers would be able to call in and make, change, or cancel reservations using voice commands and keywords, such as "Bainbridge or Tuesday" instead of simple number choices.

- **Managing reservations via dataphone application.** Customers would be able to download and install an application on their dataphone (iPhone, Blackberry, etc.) where they could make, change, or cancel a reservation through this custom interface. It is likely that this feature could be developed by a third party and made available to customers, as many other dataphone applications are today.
- **Individualized homepages for priority access members.** As a customer convenience it may be desirable to offer customizable online homepages for priority access customers. In this way a customer can set their interface to focus only on their route of choice or automatically pull up certain customer information as standard homepage content.
- **Rolling Reservations.** Priority access customers (both premier and commercial account holders) could have regular reservations for the same sailings automatically roll over each week as new sailings become available for reservations. The customer would still need to confirm sometime before travel, but confirmation could be sent via email, significantly simplifying the process of making reservations for regular customers.
- **Wait list**. Customers would be held in a virtual queue for specific sailings, and then automatically be assigned a reservation if space becomes available. For example, if a customer wanted to take the 12:15 to Orcas but the only space available was on the 3:30, they could take the later reservation but go on a wait list for the earlier one. In the event of a cancelation on the earlier sailing, if the customer were first on the wait list, they would automatically get moved to their preferred sailing.

### Integration with Wave2Go (EFS) and ORCA (Smart Card) Systems

A specific legislative requirement of this predesign effort is to document how the proposed system enhancements will be integrated with the existing electronic fare collection system and the implementation of the regional smart card program. Working with the IT staff at WSF, there was extensive discussion of how a reservation system with the features described above would integrate with existing systems.

The most critical link between the proposed system elements and the existing WSF technology infrastructure is with the ticketing system. WSF has recently invested considerable time, effort and resources into a complete overhaul of its ticketing system. Since reservations would essentially offer a way to provide a guaranteed trip, it is best to think of a reservation as pre-selling the space on the boat.

Currently all tickets issued in the Wave2Go system are essentially "open" tickets that can be redeemed for travel on any sailing within a 90-day window. When a reservation is made, the issued ticket is linked to a specific sailing. If the reservation is canceled, the ticket can also be canceled, or its status returned to "open." Whether or not there is an actual pre-payment, the ticketing system will be integral to how reservations are managed. In particular, ticketing system integration will address the following key requirements:

- The ticketing system is different and independent from the reservation system, but must be able to share information back and forth
- Final fare transactions at the toll booth need to be integrated with reservation confirmation and include amounts paid (either as a deposit or prepaid fares) and date and time of reservation

- Has to show amount paid so the ticket seller can verify that the appropriate fare has been paid
- Ticket seller must have the ability to add to any prepaid amounts to account for the final transaction costs reflecting actual vehicle used for the trip and the number of passengers
- The system must work with the existing multi-ride products and has to be able to deduct trips as a deposit requirement or where pre-payment of fares is required for reservations
- To facilitate and speed vehicle processing, the reservation system must accommodate the option of fully pre-paying applicable fares (vehicle and passengers) whether this is a business rule requirement or simply an option offered for customer convenience

These elements of integration will be part of the minimum requirements in any reservation system procurement or development effort. The ticketing system must be at the center of the broader customer-oriented IT systems and connectivity and effective integration established are core operating requirements.

Beyond the WSF Wave2Go system, there are two other ticketing-type systems that were considered in the assessment of system compatibility and integration requirements: (1) the regional smart card program (ORCA); and (2) the WSDOT *Good To Go!* system.

**Regional smart card (ORCA).** The regional smart card program is principally a transit product that is designed to facilitate transfers among all of the transit partners in the central Puget Sound region. As a partner in this program, WSF is bound to ensuring reasonable integration of its products and policies with the regional system. The card allows customers to load various fare products offered by the partner agencies and to then use a single card interchangeably throughout the region.

When considering the opportunities to link ORCA with the prospective reservation system, it quickly became apparent that there is a mismatch between the basic goals and functionality of these two systems. The ORCA card is first and foremost a transit product and is designed to work with WSF's passenger fare products. The reservation system is fundamentally a demand management tool for WSF customers traveling in vehicles.

As of this writing, special modifications to ORCA are being implemented to allow its use as a form of payment for vehicle fares at WSF tollbooths. This work will enable ORCA to be similarly used to pay for tickets that include a reservation. No deeper integration of the Reservations system with ORCA is foreseen. ORCA will remain the key regional product for WSF customers that are principally using transit connections to move around, and will be a convenient way to pay for occasional ferry reservations for some customers.

**Good To Go! (WSDOT).** The *Good To Go!* system is the electronic tolling program for WSDOT. The program was initiated as part of the implementation of toll collection for the new Tacoma Narrows Bridge and has since been extended to the HOT lanes on SR 167 and is intended to be the core customer program for all of the WSDOT's tolling operations in the future. As the Ferries Division of WSDOT, WSF is essentially the largest current component of the WSDOT tolling universe. As such, there are a number of interesting and attractive opportunities that would flow from integration of WSF reservations with the WSDOT *Good To Go!* program. In particular:

- The *Good To Go!* program is a vehicle based system and not a passenger-based system like ORCA

- There are a number of WSF customers who are already enrolled in this program and would benefit from the flexibility of using their *Good To Go!* accounts for ferry travel along with travel on other WSDOT tolled facilities.
- As tolling becomes more widely used, especially in the Puget Sound region, more and more residents will have *Good To Go!* accounts and could benefit from the option of using these accounts for ferry travel as well.
- Integration with *Good To Go!* will further the goal of integrating the WSF into the broader active management programs at WSDOT.
- Addressing integration now will allow WSF to take advantage of future development of the back end tolling infrastructure that WSDOT is currently planning and designing.
- Integration could also provide opportunities for economies of scale to the extent that elements of the WSF program (reservations, ticketing, accounting, and reporting) can be built on existing or developing WSDOT platforms.

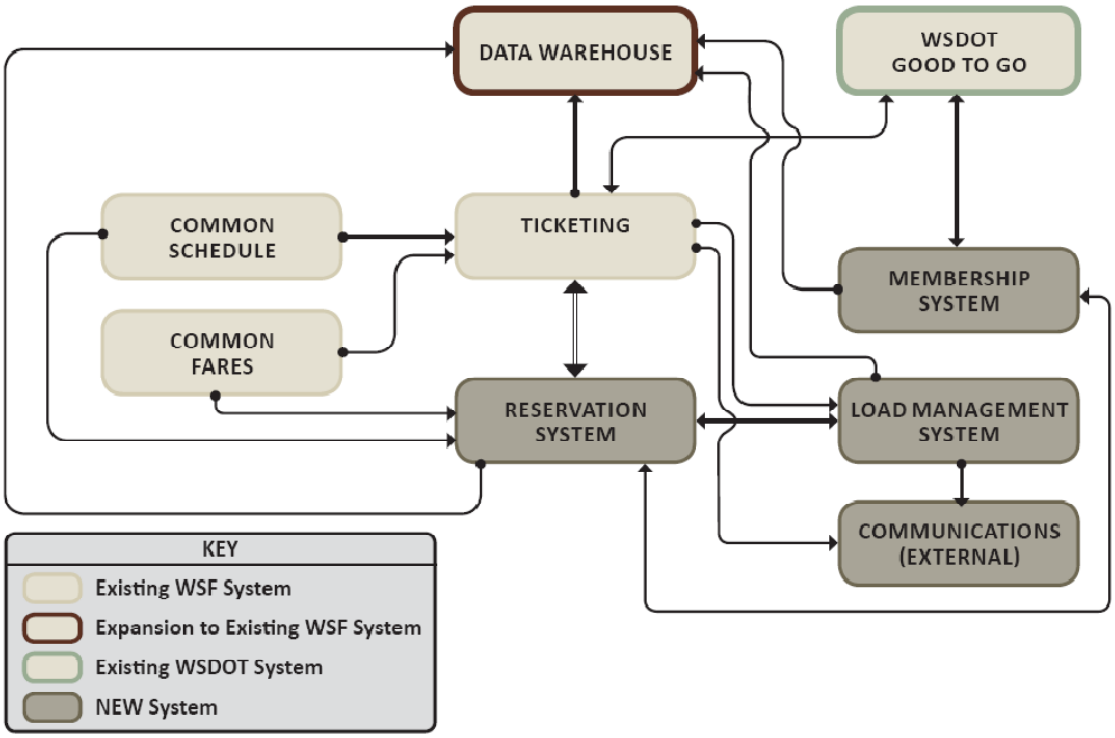
In thinking about *Good To Go!* integration it is important to note that there are really two distinct aspects of potential integration: (1) integration of the back end account system to allow *Good To Go!* account holders to access reservations and pay for ferry travel with their account; and (2) integration with *Good To Go!* vehicle identification systems, like transponders and/or vehicle license plate recognition. From the point of view of the reservation system, the majority of the benefits would come from offering the former as opposed to the latter.

At this time, it is expected that fully integrating the vehicle identification technology at WSF terminals would not provide a meaningful improvement in the terminal and vehicle processing capabilities and so the significant additional costs would not be justified. As a result, the best approach to integration at this time is with the back end account system to provide interchangeability for customers in the *Good To Go!* program who also ride ferries on a frequent or even infrequent basis.

### Proposed System Enhancements

Building on the identified core system features and the requirements to effectively integrate with existing systems, the proposed reservation system would actually be comprised of five basic elements, four of which represent new systems and one which represents an increase in the functionality and capacity of an existing system. Exhibit 11 shows each of these new and expanded system components and how these elements would need to be integrated with the existing core IT infrastructure. These new and expanded elements would be housed at the WSF headquarters building in Seattle and maintained by WSF IT staff.

**Exhibit 11**
**Flow Chart about Integration with Other Systems**




As depicted in this flow chart, the existing ticketing system (Wave2Go/EFS) is really the central element of the WSF IT infrastructure that will support reservations, with all other elements either directly or indirectly connecting to this system. Making the ticketing system the core of the reservations system greatly simplifies the eventual integration issues surrounding the WSDOT tolling back office project. As WSDOT migrates to a new system for its tolling operations, the principal point of connectivity and integration with WSF will be through the ticketing system. The proposed new and expanded elements include:

**Reservation Management System.** The reservation management system would provide industry-standard functionality to support making, changing, and canceling reservations. This system would need to connect with the schedule, fare, and vessel information as well as ticketing and the other new elements. The reservation system would allow for the various interface options with the customer, including online, dataphone, and WSF kiosk.

**Load Management System.** The load management system is where individual sailing details would be held including how much of a vessel is available for reservations and what portion of the reserved space has been taken. This system would need to connect with the reservation system, ticketing and the data warehouse. A key functional element of this system is to ensure that the vessel is not overbooked and that overheight space (tunnel space) is appropriately accounted for. Also, the load management system will need to actively support reallocation of reserved spaces in the event of service exception situations, such as canceled sailings, significant schedule delays, and unscheduled maintenance events where there is a loss of vehicle capacity because the replacement vessel is smaller.

**Communication Management System.** As discussed at some length in previous sections, communications and real-time information are absolutely central to any efforts to meaningfully address demand management, and are a critical building block for delivering the type of reservations system envisioned in this predesign. The communication management system will be the hub for WSF communications externally, including via email and text messaging. This element would likely be the conduit for communications through the highway message signs, highway radio and communications with terminal operations personnel.

**Membership Management System.** To facilitate the administration and management of the priority access programs, it is likely that a membership management system would be necessary to simplify these functions and provide a user-friendly online interface for customers. These types of systems are commonly incorporated throughout the online retail world. The membership system will primarily need to connect with the reservation system.

**Analytics/Business Intelligence System**. WSDOT currently employs a data warehouse structure to collect, organize, and store mission critical information for later analysis and reporting. Since a key aspect of the reservation system is the ability to adapt and respond to actual changes in usage patterns and customer behavior, it is critically important to have a robust capacity to store relevant information about how reservations are used so WSDOT can analyze and learn from its experience and continually improve the system through the flexibility in the business rules.

### System Sizing Requirements

In addition to the specific operational requirements of the reservation and associated systems, a key element in sizing the necessary information technology systems will be the expected volume of transactions. Toward this end, an analysis of current ridership was conducted to determine the probable range of participation in the various program elements. Given the business rules and the conceptual IT system design, the key operational metrics include the likely range of annual reservations, the number of reservations during a peak summer day and hour, and the likely number of participants in each of the priority access programs.

The total number of potential annual reservations was based on an analysis of ridership patterns and the proposed business rules. The **high end** of the range assumes that all available reservations are made when there is sufficient demand. For example on a peak sailing where 90% of the vessel is made available for reservations, if that sailing were 100% full, then all reservations are assumed to have been filled and the additional trips are drive-up trips. If that same peak sailing were only 85% full then the assumption is that all of the vehicles traveled with reservations and there were no drive-ups. In the off-peak, where reservations would not be necessary to ensure space on the vessel in most cases, it is assumed that 50% of the vehicle drivers would make reservations and the remainder would drive-up.

On the **low end** of the range, the assumption was made that only 70% of peak period sailings were occupied by reservation holders, which could be the result of limiting available reservations to 70% of the boat or that not all available reservations are taken on these sailings. On the off-peak sailings, the assumption was made that only 10% of the sailing was taken up by reservations even though 50% was available for reservations. The off-peak assumptions in this scenario are probably going to be closer to the reality of reservations, since most regular customers will know which sailings they are most likely to need reservations and which ones will not and only make reservations when there is a real need to do so.

As shown in Exhibit 12, if reservations were implemented on all routes in the system, the likely range of annual reservations is between 3.7 million and 6.9 million. These values can be compared with current vehicle ridership of approximately 10.6 million per year, suggesting reservations might make up between 35% and 65% of total vehicle trips. It is important to note that these estimates assume that reservations are deployed system wide and that the standard business rules would apply everywhere as this would represent the maximum potential number of reservations. If reservations are limited to certain routes, or the percent of the vessel that is made available for reservations is limited to reflect local route conditions, then the volume of reservations would be correspondingly less.

Clearly the high end of the range is most likely to overstate the number of reservations, since it assumes that there are drive-ups only in situations where all of the reservations have been taken. On the low, end, it is likely that the reservations on the peak and commute sailings are understated. Since the most important number in a system sizing context is the high end, the fact that this estimate is likely too high should ensure that the system can accommodate the likely number of reservations with some margin for error.

**Exhibit 12**
**Potential Number of Reservations (Annual)**

| | Low Estimate of Expected Reservations | | | | High Estimate of Expected Reservations | | | |
|---|---|---|---|---|---|---|---|---|
| | Off-Peak | Peak | Commute | Total | Off-Peak | Peak | Commute | Total |
| **Edmonds-Kingston** | 89,000 | 427,000 | 328,000 | **844,000** | 444,000 | 610,000 | 468,000 | **1,522,000** |
| **Mukilteo-Clinton** | 69,000 | 506,000 | 330,000 | **905,000** | 344,000 | 723,000 | 471,000 | **1,538,000** |
| **Seattle-Bainbridge** | 83,000 | 359,000 | 301,000 | **743,000** | 414,000 | 513,000 | 429,000 | **1,356,000** |
| **Fauntleroy-Vashon-Southworth** | 88,000 | 153,000 | 319,000 | **560,000** | 440,000 | 218,000 | 455,000 | **1,113,000** |
| **Seattle-Bremerton** | 39,000 | 18,000 | 171,000 | **228,000** | 193,000 | 26,000 | 245,000 | **464,000** |
| **Anacortes-San Juan Islands** | 42,000 | 163,000 | - | **205,000** | 209,000 | 232,000 | - | **441,000** |
| **Point Defiance-Tahlequah** | 27,000 | - | 73,000 | **100,000** | 135,000 | - | 104,000 | **239,000** |
| **Port Townsend-Keystone** | 17,000 | 35,000 | 60,000 | **112,000** | 83,000 | 50,000 | 86,000 | **219,000** |
| **Anacortes-Sidney** | 4,000 | - | - | **4,000** | 18,000 | - | - | **18,000** |
| **TOTAL SYSTEMWIDE ESTIMATES** | **458,000** | **1,661,000** | **1,582,000** | **3,701,000** | **2,280,000** | **2,372,000** | **2,258,000** | **6,910,000** |

Another key factor in system sizing is the peak number of reservations for a given day or hour. This metric is important as an indicator of the level of activity on any given day in terms of communications with the terminal staff, potential for customer-initiated contacts for changes and the number of contacts seeking real-time travel information. Exhibit 13 presents the results of the peak day and peak hour analyses and suggests that, if reservations were deployed system wide, then a peak day could involve between 13,300 and 25,100 reservations and at the peak hour, between 940 and 1,200 reservations would be processed throughout the system. The “peak hour” estimate is based on one peak sailing, and is understated for routes that have more than one departure during the peak hour.

**Exhibit 13**
**Peak Day and Peak Hour Reservations**

| | Peak Day | | Peak Hour | |
|---|---|---|---|---|
| | Low | High | Low | High |
| **Edmonds-Kingston** | 3,100 | 5,600 | 180 | 220 |
| **Mukilteo-Clinton** | 3,100 | 5,200 | 140 | 180 |
| **Seattle-Bainbridge** | 2,600 | 4,800 | 140 | 180 |
| **Fauntleroy-Vashon-Southworth** | 1,900 | 3,900 | 100 | 130 |
| **Seattle-Bremerton** | 900 | 1,800 | 100 | 130 |
| **Anacortes-San Juan Islands** | 800 | 1,700 | 90 | 110 |
| **Port Townsend-Keystone** | 600 | 1,100 | 60 | 80 |
| **Point Defiance-Tahlequah** | 300 | 800 | 90 | 110 |
| **Anacortes-Sidney** | - | 200 | 40 | 60 |
| **TOTAL SYSTEMWIDE ESTIMATES** | **13,300** | **25,100** | **940** | **1,200** |

The third relevant system sizing metric is the potential number of priority access customers. A key component of the reservation system is the priority access program, where WSF will be able to offer additional security regarding access to reservations and other potential special benefits to regular customers and residents of ferry dependent communities. The potential number of participants in these programs will be a determinant of the system requirements. The priority access programs are divided into a commercial customer program (Commercial Program) and one targeting regular customers and ferry community residents (Premier Account Program). The estimates of potential program participation are summarized in Exhibit 14.

**Exhibit 14**
**Potential Number of Priority Access Program Customers**

| | High Estimate | Low Estimate |
|---|---|---|
| **Estimated Premier Accounts:** | | |
| **Kitsap County and Olympic Peninsula** | 22,000 | 13,000 |
| **Island County** | 13,000 | 8,000 |
| **Vashon Island** | 4,000 | 2,000 |
| **San Juan Islands** | 2,000 | 1,000 |
| **Other** | 4,000 | 2,000 |
| **Total Premier Account Holders** | 45,000 | 26,000 |
| **Commercial Program** | 2,000 | 1,000 |
| **Grand Total Priority Access Programs** | **47,000** | **27,000** |

For system sizing purposes, it was determined that total participation could be between 27,000 and 47,000 customer accounts, with the majority of these being Premier Account holders. The Premier Account program participation rates were developed based on current ridership for customers using the frequent user multi-ride card and information from the WSTC customer survey in 2008 about frequency of use. The participation rates were also compared with households in these ferry communities, and as one might expect, the more a community is dependent on the ferry the higher the share of expected participation. The commercial account participation was based on a review of the participation in WSF's current commercial account program.

A final factor to be considered in system sizing and the technology buildout required to support Ferries Reservations is the changes or "churn" in tickets and reservations that arise from two sources: changes in customer plans and changes driven by service disruptions. From observing other systems and also noting the pattern of no-shows the current Port Townsend-Keystone route, we expect that 16%-18% of reservations will be changed or cancelled by customers. Service disruptions driven by weather, mechanical failures, and crewing issues impact would further impact a portion of scheduled sailings, and each of these requires active re-distribution of the vehicle load across remaining sailings.

Each of these changes, or the "churn," engenders additional records in the reservation and ticketing systems data bases. Therefore, the expected system transaction load must be upsized by a factor of 1.2 to 1.25 to more accurately reflect the true compute requirement. This churn effect is likely to be particularly impactful on the high-volume, commuter-oriented routes.

### System Development and Procurement Options

Many of the system elements identified above are readily available from multiple potential vendors. As the RFI process demonstrated, there are several systems that have been developed and successfully deployed by ferry systems around the world that would be able to support the business rules and program elements in this predesign. As a result, it is most likely that the process of implementation would include a combination of procurement of key system components and a process of building the necessary connectivity to integrate the new systems into WSF's existing infrastructure. Exhibit 15 briefly identifies some preliminary concepts for how these system elements might be developed.

**Exhibit 15**
**Approach to System Development**

| System Component | Build/Procure | |
|---|---|---|
| Reservations | Procure | There are a number of systems available which will support the program design. |
| Load management | Procure | A number of load management systems are available, many of which are part of a more robust reservation system. |
| Membership management | Procure | There are many membership management systems available. |
| Communications | Build/procure | It is likely that the communications enhancements will be a combination of procure and build. Some of the build elements will involve integration with WSDOT' system. |
| Data warehouse and Business Intelligence System | Build | This is an enhancement of the existing WSDOT data warehouse. |

# 6.0 COST BENEFIT ANALYSIS

*This chapter identifies the capital and operating costs associated with reservation system options. It analyzes the costs and benefits of the various options and identifies a preferred alternative.*

## 6.1 Identification of Project Alternatives

For the purposes of estimating project costs, analyzing options, and conducting a cost benefit analysis, five specific reservation system alternatives have been identified. These alternatives differ in how many and which routes would receive reservations, how extensive the supporting communication network is, and the level of IT development required. To compare these alternatives and conduct a cost-benefit analysis, the following variables provide useful measures of benefits and risks:

- **Queue reduction and demand management benefits**. Queue reduction provides two primary benefits: (1) it effectively decreases wait time for customers, and (2) it reduces the negative impacts of traffic and congestion in ferry communities. All alternatives identified are expected to reduce queues to some degree, while some are expected to be more effective.

  For example, alternatives that include a robust, regional communication system will have queue reduction benefits in that passengers can make better decisions about which route to take, and in many instances may choose to not to go to terminals that are already congested. Alternatives that include a reservation system have the greatest queue reduction and demand management benefits, as described previously in this report.

- **Number of riders impacted**. Some alternatives include system wide improvements, while others are targeted at specific routes or travel sheds.

- **Implementation risk**. While all alternatives that include a reservation system component include some implementation risk associated with the new system, where terminal constraints are greatest, the risk of operational issues and contingency events that offset other system benefits become much greater.

While it is possible to think about the communications and Intelligent Transportation System (ITS) improvements as a stand-alone project, the investment options have been integrated into the broader development of logical reservations-based alternatives. This was a conscious decision which was primarily based on the fact that this is a predesign study for a potential reservation system and these communication enhancements are necessary to support reservations, though not to the same degree throughout the system. To more clearly show the relative costs and benefits of the core communications and ITS improvements, these are the focus of one of the reservations alternatives.

Five distinct demand management alternatives that include varying levels of reservation system implementation on different routes are described below, and the table presented in Exhibit 16 below assesses these alternatives against the factors described above.

For any one of these alternatives, there are a number of ways in which reservation system business rules or vehicle processing might be modified to reflect route or terminal-specific needs or help achieve better outcomes once the system has been implemented. The alternatives are intended to identify where the basic infrastructure for a reservation might be built, allowing flexibility in how (i.e. for which sailings and customer types, business rule modifications, etc.) a reservation system is implemented at any given route.

1. **Alternative 1: Industry Standard Package Upgrades to Routes that Currently Offer Reservations, ITS Enhancements for those Routes.** WSF currently operates a basic reservation system on three routes, Anacortes-Sidney, Port Townsend-Keystone, and commercial reservations for the San Juan Islands. Alternative 1 would simply upgrade the current reservation system with an industry standard reservation package linked to the current ticketing system and enhance communication around general travel-related information, to better match the service needs on these routes.

2. **Alternative 2: Alternative 1 plus Expanding Reservations to San Juan Islands vehicle trips and Commercial Reservations System Wide.** This alternative would build on Alternative 1 by expanding reservations from just commercial customers to all service on the Anacortes-San Juan Islands routes. Commercial reservations would be made available on all routes throughout the system.

3. **Alternative 3: Alternative 2 plus Intelligent Transportation System (ITS) Communication.** This alternative would develop and build a regional ITS communication system comprised of variable messaging signage, highway advisory radio, and web cameras to notify customers of congestion at terminals and service disruptions. Alternative 3 would reduce congestion by helping customers make decisions about which routes and sailings to take and directing them to less congested terminals. This alternative will not be sufficient to reduce all congestion for all routes; however it has system wide demand management benefits and is necessary for successful implementation of a reservation system.

4. **Alternative 4: Alternative 3 plus Reservations Extended to Seattle – Bremerton, Seattle – Bainbridge, and Edmonds - Kingston.** This alternative makes reservations available for all vehicle traffic on routes where terminal facilities are determined to be adequate to support the program rules. All Central Sound routes have been included in order to prevent a shifting of traffic that could potentially occur if one or two Central Sound routes had a reservation system and one or two routes did not. This would include Edmonds-Kingston, Seattle-Bainbridge, and Seattle-Bremerton.

   As currently configured, the Edmonds terminal does not have adequate holding to support the preferred business rules identified in Section 5.3 above. Under the current configuration, a reservation system at Edmonds would only support reservation being available for approximately 70% of the spaces on the vessel, even during peak times. Options have been identified to moderately expand holding by re-aligning SR104 to make room for an additional holding lane, thus increasing the amount of reservations that could be made available. Alternative four assumes the system would be implemented without these modifications. If the reservation system is not meeting congestion reduction and customer service goals at Edmonds, terminal modifications will be re-evaluated.

5. **Alternative 5: Fully Deploy Reservations on All Routes (Alternative 4 plus remaining routes).** This option includes implementation of a reservation system for all customers on all routes in the system.

   At this point in time, it is unclear to what extent reservations may be beneficial to Mukilteo-Clinton riders, particularly given the tight, 30 minute headway on that route and regular sailing frequency. Another risk factor in extending reservations to this route is the uncertainty as to WSF's continued access to the Buzz Inn property without which the Mukilteo terminal has

inadequate holding space for reservations. Alternative 2 includes reservations for commercial traffic on this route, and Alternative 3 includes ITS improvements that would benefit this route. Alternative 5 recognizes that reservations for all vehicle traffic would likely be beneficial on this route, but more outreach and feasibility testing would be required first.

On South Sound routes, where terminal and operating constraints are greatest, this alternative assumes either major terminal investment or major operational changes would be required (like connecting Southworth to Colman Dock, rather than Fauntleroy). Without major investments, reservations would not be feasible at these terminals. However, the investments would have benefits that reach well beyond implementation of a reservation system and are therefore unlikely to be justifiable in the context of a reservation system alone.

**Exhibit 16**
**Assessment of Alternatives**

| | | Queue Reduction Potential | Number of Riders who Benefit | Risk | Capital Cost (2009$) |
|---|---|---|---|---|---|
| 1 | Industry Standard Package Upgrades to Routes that Currently Offer Reservations | High (on select routes) | 4% of total vehicle drivers and vehicle passengers receive maximum benefits | Low | $3.6M |
| 2 | Alternative 1 plus Expanding All Reservations to San Juan Islands and Commercial Reservations System-Wide | High (on select routes) | 13% of total vehicle drivers and vehicle passengers receive maximum benefits; | Low | $6.4M |
| 3 | Alternative 2 plus Regional Intelligent Transport System (ITS) Communication System | Medium across the system and high on select routes | Most riders (including passengers) receive some benefits;<br>13% of total vehicle drivers and vehicle passengers receive maximum benefits | Low | $18.7M |
| 4 | Alternative 3 plus Reservation Extended to Central Sound Routes | High on most routes, with medium on remaining routes | 60% of total vehicle drivers and vehicle passengers receive maximum benefits;<br>Most riders receive some benefits | Medium | $24.5M |
| 5 | Alternative 4 and Extend Reservations Systemwide | High | Most riders receive maximum benefits | High | $27.0M |

## 6.2 Capital Costs

The capital costs associated with each of the alternatives described above include several components:

- **Regional Communications System**. The regional communication system includes:
  - Variable Messaging Signs (VMS) in six locations throughout the Puget Sound region (see Exhibit 7, page 33) that will inform drivers of the status and expected wait times at terminals in the region.
  - Highway Advisory Radio coverage at locations throughout the Puget Sound region to alert drivers of conditions at terminals
  - A queue detection system at eight terminals (Port Townsend, Keystone, Edmonds, Kingston, Bainbridge, Bremerton, Mukilteo, and Clinton) to provide accurate wait times for display on VMS signs or broadcast over Highway Advisory Radio.
  - Web cameras where there is no queue detection to display terminal holding areas and the road approaching the terminal, providing terminal employees, information staff, and customers another input and method for conveying congestion levels.
- **Technology Investments**. The IT system and its required features and connectivity are described in detail in Section 5.4. Costs associated with the IT system include hardware and software acquisition, customization expenses, license renewal expenses, project management staff time costs, WSDOT programming staff time costs, and costs associated with the procurement process for IT systems. IT costs are presented in two phases: (1) purchase and integration of an industry standard reservation system, and (2) system build-out and additional customization needed to accommodate larger volumes and commuter requirements. Ongoing software and infrastructure support related to IT is discussed in Section 6.3 below.

Terminal investments include the following standard components.

- **New Tollbooths**. At terminals that don't currently have tollbooths - Friday Harbor, and Lopez – a tollbooth would be required to operationalize a reservation system at these terminals. Given significantly lower traffic volumes, Shaw would not require a tollbooth. To implement reservations on this route, a remote check-in system would be instituted instead. Edmonds would likely require an additional tollbooth on the shoulder of the road leading to the terminal, prior to the vehicle queuing that occurs there.
- **Terminal-Specific IT Investments**. New tollbooths will need to be equipped with the current Wave2Go machinery that will read reservation bar codes. New and existing tollbooths will be upgraded with new software that provides access to reservation system information (and the ability to enter a reservation confirmation code, if necessary)
- **Reader Boards at the Terminal**. New directional signage at the terminals that helps with the staging of reserved and drive-up vehicles will be required
- **Reader Boards near the Terminal**. Where traffic sorting needs to occur prior to the terminal, directional signage will be installed on the road directly approaching the terminal
- **Reservation Kiosks**. To facilitate the making, changing and canceling of reservations away from the tollbooth, kiosks will be required at locations convenient to the terminals; new reservation software will be integrated with the existing ticketing kiosks installed at many terminals.

- **Ferry Advisory Radio**. Connectivity with local radio to broadcast terminal conditions is an important component of a robust communications network and assumed for each of the terminals. Ferry Advisory Radio will be used in close proximity to the terminals to broadcast terminal conditions and help with vehicle processing.

In addition to the standard components, some terminals require site-specific investments.

- **Edmonds**. Cost estimates include a traffic gate to control access of these vehicles to the terminal and an additional tollbooth prior to the shoulder holding area to facilitate timely vehicle processing. Even with these improvements, modifications to the business rules to adjust for limited vehicle holding within the terminal are required. Additional improvements (widening SR 104 to create another lane of holding space, plus retaining wall and street improvements that would be required) have also been considered but are not included in the alternatives at this time.
- **South Sound Routes**. Fauntleroy, Vashon, Point Defiance, and Tahlequah would all require significant capital investment to allow for successful implementation of a reservation system at these routes. Costs of terminal expansions for these locations have not been estimated for this report, as they are expected to be high and are not included within the preferred alternative.

Exhibit 17 below identifies the capital costs associated with each of the five alternatives identified.

# Exhibit 17
## Capital Costs of Six Alternatives

| Alternative: | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | Industry Standard Reservation System (Ana-Sid, PtTowns-Key, SJI commercial), some ITS | Alt. 1 + Expand to All San Juan Islands and commercial on all routes | Alt. 2 + Regional Communications (VMS signs network on major corridors) | Alt. 3 + Reservations on Sea-Bain/Brem, Ed-King | Systemwide Reservations |
| **Regional Communications System** | | | | | |
| Regional VMS Signage | | | $8,944,000 | | |
| Highway Advisory Radio with Queue Detection | $421,000 | $404,000 | $3,024,000 | | |
| Web Cameras | $0 | $607,000 | $294,000 | | |
| **Technology Investments for Reservation System** | | | | | |
| System Acquisition and Customization | $2,320,200 | $8,400 | | $3,490,500 | $1,079,200 |
| Terminal-specific IT investments | $192,000 | $92,000 | | $292,000 | $252,000 |

| | Total Annual Vehicle Ridership | Total Annual Vehicle Passenger Ridership | Total Annual Commercial Ridership | Terminal Specific Investments in Local Signage, Ferry Advisory Radio, Traffic Management, and Other Required Modifications | | | | |
|---|---|---|---|---|---|---|---|---|
| **Port Townsend** | 259,859 | 217,270 | 17,666 | $358,000 | $0 | $0 | $0 | $0 |
| **Keystone** | | | | $358,000 | $0 | $0 | $0 | $0 |
| **Anacortes** | 39,101 | 21,904 | 1,762 | $0 | $474,000 | $0 | $0 | $0 |
| **Friday Harbor** | 304,948 | 208,666 | 23,604 | $0 | $381,000 | $0 | $0 | $0 |
| **Orcas** | 271,392 | 198,386 | 17,438 | $0 | $155,000 | $0 | $0 | $0 |
| **Shaw** | 15,128 | 8,990 | 800 | $0 | $87,000 | $0 | $0 | $0 |
| **Lopez** | 150,096 | 102,954 | 9,356 | $0 | $586,000 | $0 | $0 | $0 |
| **Seattle/Colman** | | | | $0 | $0 | $0 | $202,000 | $0 |
| **Bainbridge** | 2,009,719 | 1,277,171 | 37,926 | $0 | $0 | $0 | $415,000 | $0 |
| **Bremerton** | 699,401 | 390,500 | 5,995 | $0 | $0 | $0 | $359,000 | $0 |
| **Kingston** | 2,234,059 | 938,741 | 76,038 | $0 | $0 | $0 | $387,000 | $0 |
| **Edmonds *** | | | | $0 | $0 | $0 | $683,000 | $0 |
| **Mukilteo** | 2,194,552 | 1,316,090 | 74,309 | $0 | $0 | $0 | $0 | $390,000 |
| **Clinton** | | | | $0 | $0 | $0 | $0 | $414,000 |
| **Fauntleroy **** | 1,109,980 | 444,296 | 28,734 | $0 | $0 | $0 | $0 | $0 |
| **Vashon ***** | | | | $0 | $0 | $0 | $0 | $0 |
| **Southworth** | 518,434 | 199,673 | 4,427 | $0 | $0 | $0 | $0 | $144,000 |
| **Pt Defiance** | 371,142 | 181,442 | 13,398 | $0 | $0 | $0 | $0 | $144,000 |
| **Tahlequah ***** | | | | $0 | $0 | $0 | $0 | $88,000 |
| **Total Incremental Investment By Alternative** | | | | **$3,649,200** | **$2,794,400** | **$12,262,000** | **$5,828,500** | **$2,511,200** |
| **Total Cumulative Investment** | | | | **$3,649,200** | **$6,443,600** | **$18,705,600** | **$24,534,100** | **$27,045,300** |
| **Total Annual Trips With Some System Improvements** | | | | **589,332** | **2,039,521** | **15,683,894** | **15,683,894** | **15,683,894** |
| **Total Annual Trips With Reservations** | | | | **589,332** | **2,039,521** | **2,039,521** | **9,469,153** | **15,683,894** |
| ***Percent of Vehicle Trips with Reservation System*** | | | | ***4%*** | ***13%*** | ***13%*** | ***60%*** | ***100%*** |

* *Edmonds estimate does not include widening of SR104*

** *Fauntleroy estimate does not include terminal expansion, which would be required under the current operating configuration*

*** *Vashon and Tahlequah assume minor upgrades (FAR and HAR) only*

## 6.3 Ongoing Operating Costs

Based on the business rules and approach to terminal operations and enhancements to the IT infrastructure, there are likely to be implications on WSF's ongoing operating costs if a reservations system is deployed. The functional areas that have been reviewed with respect to potential increases in staffing or other operating cost impacts include:

- Terminal operations
- IT department personnel and ongoing systems maintenance requirements
- Customer service and call center staffing

In all of these areas, there has been a concerted effort to identify opportunities to use technology solutions to minimize staffing needs. For example, the conceptual design elements of the reservation system include a number of technology-oriented approaches to making or changing reservations or communicating real-time information through multiple channels. Toward this end, the following is a brief discussion of each of the potentially affected cost centers, and Exhibit 18 below shows estimated staffing impacts of the five alternatives.

**Terminal operations.** The development of terminal operating concepts for each of the WSF's terminals was focused on making the best use of existing assets and staffing resources. To improve terminal operations without increasing staffing, additional signage and lane identification striping would assist in separating the drive-up traffic from those with reservations. In addition, the load management system can facilitate decisions regarding accepting and processing of drive-ups, by providing ticket sellers information about the current status of the next sailings. At terminals where there is not adequate holding area, every attempt has been made to continue to manage traffic with variable message signs and other communications approaches as opposed to additional terminal staffing. However, some additional staffing will be needed.

One of the findings from the research into other ferry systems was that the terminal manager should have discretionary authority to adjust to changes in conditions at the terminal to make traffic continue to flow in an orderly and effective manner. Given that finding and the added complexity a reservation system brings to terminal operations, it is likely that several WSF-operated terminals will need additional Terminal Supervisor staffing during peak times. Assuming full deployment of reservations on all routes, these terminals would include Anacortes[1], Edmonds, Kingston, Bainbridge, Seattle, Fauntleroy, Vashon, Point Defiance, Tahlequah, and Southworth.

Another potential impact on terminal staffing could be a reduction in traffic management needs during peak periods. As traffic backs up outside the terminal there is an increasing demand to provide additional traffic management resources to mitigate the effect of the additional congestion. Since one of the goals of the reservation system is to substantially reduce (or even largely eliminate) congestion around terminals, then it may be possible to redeploy some of the existing Washington State Patrol staffing engaged in this activity to other safety and security priorities.

**IT support functions**. In developing the cost estimates for the information technology investments there is an allowance for software and hardware licensing and support. In addition to these costs there will be

[1] At Anacortes, Terminal Supervisor labor would likely replace Traffic Attendant hours during the summer peak, resulting in a net staffing cost increase but no change in staffing levels.

a need for additional staff in the Ferries IT group to provide maintenance and operating support for the expanded IT infrastructure.

In the Ferries IT Business Support team, one additional FTE will be required to support and maintain the reservation system and the integration points between Reservations, Wave2Go ticketing, and the other internal systems that feed and consume Reservations data (Load Management system, Schedule, Fares, and Vessel info data bases).

In the Ferries IT Infrastructure Support team, one additional FTE will be required to support the additional devices and network that comprise the ITS (Intelligent Transportation Systems) elements in the Communications system.

**Customer service and call center.** It is anticipated that the function most likely to experience additional demands as a result of implementation of a reservation system is the customer service and call center at WSF. As discussed earlier, the total number of reservations is likely to be between 4 million and 7 million, with between 13,000 and 25,000 reservations on a peak, summer day. While every effort has been made to identify technology options for customers to interact with WSF without talking to a customer service representative, many additional calls are to be expected.

On a preliminary basis, it is reasonable to expect that during peak periods contacts by phone could be between 1,300 and more than 5,000 per day if reservations are implemented system-wide. The actual range will depend on the routes affected, the number of reservations that are typically made during peak periods and the portion of these reservations that will involve a customer service telephone contact.

The 1,300 – 5,000 telephone reservations per day assumes 10-20% of potential reservation holders make or change their reservation by phone and applies the assumptions that generate the low and high end ranges of total reservations discussed in Section 5.4 above. Research into the airline reservation model (a system supported by robust technology for reservations) indicated that less than 10% of all reservations are made by phone.

Currently, customer service staff working with the International route reservation system and reservations on Port Townsend-Keystone can process approximately 120 calls per day (average of 3 minutes per call). At this rate the total staffing needs in peak periods would range from 10 FTEs to as many as 35 FTEs. It is important to note that the need for additional customer service staff is primarily related to extending reservations to the high volume commuter-oriented routes.

Given this wide range, it is proposed that WSF pursue a call center strategy that is designed to minimize staffing levels by using a system of diverting calls during periods where call volumes exceed the internal staff capacity. The options for diverting the calls include:

- **Technology option.** Calls can be routed to the voice-activated phone system where customers can proceed with making, changing or canceling a reservation without the need to talk to an individual.
- **Contract call center option.** Calls can be routed to an external contract call center where WSF would be charged on a per-call basis. This would allow WSF to continue to offer a personal contact while minimizing the size of the internal support group. This would also likely be much less expensive on a per call basis than providing the additional staffing directly.
- **Call back option.** Another option would be to allow customers to request a call back when customer service representatives are available. This option has limited capacity to address truly peak period

impacts, but may be a useful addition to the technology option for certain types of calls that cannot be appropriately addressed via the touch tone or voice-activated menu system.

If these options are not feasible or are resulting in poor customer service (as measured by customer satisfaction polls), WSF might consider implementing a fee to make, change or cancel reservations by phone. The staffing estimates included in Exhibit 18 below assume call center staff at the low end of range presented here. Potential additional call center staff requirements are also shown below, though WSF will make every effort to mitigate the need for additional call center staff and will consider reservations-related revenue streams (like an extra charge for phone transactions) if the need for additional call center staff becomes apparent.

**Exhibit 18**
**Estimated Staffing Needs and Costs by Alternative**

| FTE Department and Function | Average Annual Cost per FTE ($2009) | 1<br>Industry Standard Reservation System (Ana-Sid, PtTowns-Key, SJI commercial), some ITS | 2<br>Alt. 1 + Expand to All San Juan Islands and commercial on all routes | 3<br>Alt. 2 + Regional Communications (VMS signs network on major corridors) | 4<br>Alt. 3 + Reservations on Sea-Bain/Brem, Ed-King | 5<br>Systemwide Reservations |
|---|---|---|---|---|---|---|
| **IT Ongoing Support** | | | | | | |
| Reservation software support | $100,000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Infrastructure support | $75,000 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| ***Total IT FTEs*** | | **2.0** | **2.0** | **2.0** | **2.0** | **2.0** |
| ***Total Annual Cost for IT FTEs ($2009)*** | | **$175,000** | **$175,000** | **$175,000** | **$175,000** | **$175,000** |
| **Terminal Support** | | | | | | |
| Terminal Supervisor | $113,000 | 0.0 | 1.2 | 1.2 | 2.4 | 7.4 |
| Traffic Attendant | $69,000 | 0.0 | (1.2) | (1.2) | (1.2) | (1.2) |
| Islands Terminal Agents (Contract) | $41,000 | 0.0 | 2.5 | 2.5 | 2.5 | 2.5 |
| ***Total Terminal FTEs*** | | **0.0** | **2.5** | **2.5** | **3.7** | **8.7** |
| ***Total Annual Cost for Terminal FTEs ($2009)*** | | **$0** | **$155,300** | **$155,300** | **$290,900** | **$855,900** |
| **Call Center Support** | | | | | | |
| Initial estimated staffing | $76,000 | 0.0 | 1.0 | 1.0 | 6.0 | 10.0 |
| ***Total Call Center FTEs*** | | **0.0** | **1.0** | **1.0** | **6.0** | **10.0** |
| ***Total Annual Cost for Call Center FTEs ($2009)*** | | **$0** | **$76,000** | **$76,000** | **$456,000** | **$760,000** |
| **TOTAL ESTIMATED FTEs** | | **2.0** | **5.5** | **5.5** | **11.7** | **20.7** |
| **TOTAL ESTIMATED ANNUAL FTE COST ($2009)** | | **$175,000** | **$406,300** | **$406,300** | **$921,900** | **$1,790,900** |
| Potential additional call center FTE | $76,000 | 1.0<br>$76,000 | 2.5<br>$190,000 | 2.5<br>$190,000 | 11.0<br>$836,000 | 18.0<br>$1,368,000 |

## 6.4 Cost Benefit Analysis

The alternatives are structured in a cumulative fashion, such that each alternative builds upon the one before it. In this manner, implementation begins with alternative one and can be scaled to different levels and parts of the system, as is best-suited to meet demand management and other goals.

Operational risks and total costs increase as the alternatives extend reservations to more routes, though more customers experience queue reductions in addition to the cost effectiveness benefits for WSF (i.e. IT system costs per reservation go down).

### Expected Time Savings

The primary benefit of a reservation system for a customer is the sailing time certainty it provides, and the corresponding reduction in wait time. On a moderately congested route, if a customer intends to catch the 5:00pm sailing, he or she might plan to arrive at 4:00pm knowing that boarding the prior sailing is unlikely, but there is a strong chance that his position in line will get him on the 5:00pm sailing. With a reservation system, that customer now needs only to arrive 20 minutes in advance of the scheduled sailing, so he has effectively reduced his wait time by 40 minutes. Over time, these time savings can accumulate into a significant benefit for customers.

Exhibit 19 below applies this idea on a route by route basis, using average wait times based on time stamp arrival information collected in May 2006 and estimating what a similar arrival pattern would look like in 2030 (using ridership growth assumptions from the Long-Range Plan). It is important to note that there are limitations to how useful this data might be for this analysis, given that it is based on a single snapshot in time. However, the purpose of this analysis is to provide a general assessment of potential customer benefits and is not the only factor in the evaluation of alternatives or the selection of the preferred alternative.

San Juan Islands routes are not included in the table as time stamp arrival data was not collected for these routes. Given the highly seasonal ridership patterns in the San Juan Islands, it is expected that a reservation system will result in significant wait time reductions during the summer peak times on those routes and no noticeable impacts during non-peak times.

**Exhibit 19**
**Estimated Time Savings Provided by a Reservation System**

| Route | Expected Wait Time with Reservations (minutes)* | 2006 Average May 2006 Wait Time (minutes) | 2006 Reduction in Wait Time (minutes) | 2006 Total Time Saved for Every 10 Trips | 2030 Estimated Estimated 2030 Wait Time | 2030 Estimated Reduction in Wait Time (minutes) | 2030 Estimated Total Time Saved for Every 10 Trips | |
|---|---|---|---|---|---|---|---|---|
| Pt. Townsend-Keystone | 30 | 61 | 31 | 5 hours | 125 | 95 | 16 hours | Alternative 1 |
| Seattle-Bainbridge | 30 | 51 | 21 | 4 hours | 140 | 110 | 18 hours | |
| Seattle-Bremerton | 30 | 70 | 40 | 7 hours | 88 | 58 | 10 hours | |
| Edmonds-Kingston | 30 | 20 | none | | 50 | 20 | 3 hours | Alternative 4 |
| Mukilteo-Clinton | 30 | 27 | none | | 62 | 32 | 5 hours | |
| Fauntleroy-Vashon | 30 | 21 | none | | 22 | none | | |
| Fauntleroy-Southworth | 30 | 75 | 45 | 8 hours | 218 | 188 | 31 hours | |
| Pt. Defiance-Tahlequah | 30 | 26 | none | | 26 | none | | Alternative 5 |

* 30 minute "wait time" represents reservation requirement to arrive 20 minutes prior to departure plus an additional 10 minutes, reflecting average expected arrival time

Starting with Alternative 1, customers begin to benefit from wait time reductions. While the time benefits at the customer level are substantial, only a small portion of WSF vehicle customers (3%) receive these benefits.

By the time the system has been ramped up to the levels identified in Alternative 4, 80% of vehicle customers are expected to benefit from significant time savings, especially as ridership continues to grow over time. Alternative 5 reaches all vehicle customers, though time savings are uncertain for customers on two of the three South Sound routes added.

## Environmental Benefits

All of the alternatives contain environmental benefits as they are designed to reduce wait time and queuing that currently results in idling traffic and harmful emissions that accumulate from this idling. Alternatives 1 and 2 target these environmental benefits at a few communities during peak summer times (namely Port Townsend, Keystone, and the San Juan Islands). Alternative 2 has the added benefit

of targeting commercial vehicles in all communities and therefore reducing idling emissions from those vehicles. Many of these are diesel powered and currently emit more toxic diesel particulate matter.

Alternative 3 extends some additional, though minimal, environmental benefits throughout the system as the ITS system is expected to have some demand management impact. Alternatives 4 and 5 have the greatest environmental benefits as they are expected to significantly reduce or eliminate queues at terminals that have frequent delays and are located in areas that are more densely populated.

### Freight Mobility Benefits

By including commercial reservations system wide, Alternatives 2, 3, 4, and 5 specifically address the mobility needs of freight. The commercial account's priority allotment provides greater predictability and convenience for freight and helps facilitate the smooth flow of goods through the state.

Freight mobility is critical to Washington's economy. The state's freight system is comprised of: (1) international and national trade flows; (2) movement of goods made in the state; and (3) the state's local retail and wholesale distribution system. Mobility— facilitating the movement of people and goods to contribute to strong economy and a better quality of life for citizens— is one of five stated transportation policy goals of the Washington Transportation Plan.

### Other System Benefits and Costs

Alternatives 1 and 2 have many advantages, but do not bring the benefits of a reservation system to many riders – a relatively small portion of WSF ridership benefits. In Alternative 1, only Port Townsend-Keystone and Anacortes-Sidney riders benefit, and these routes currently do not experience the greatest terminal congestion and customer delay. Alternative 2 reaches a slightly higher proportion of ridership (13% versus 4% in Alternative 1), vastly improving some routes where there are extremely long delays during the summer weekend peak and improving wait times for commercial customers on all routes. However, by only reaching 13% of the vehicle traffic, the costs per rider of implementing the reservation system are still relatively high.

Alternative 3 provides system benefits on its own as it would promote more informed decision making by customers through improved communication about ferry travel options. But it would not do enough to meet the goals established for a reservation system – While routes may experience some decrease in congestion, it is not expected to be substantial enough to reduce community impact during peak times, especially as ridership grows over time.

While maintaining manageable implementation and operating risk levels, Alternative 4 would result in the greatest overall benefits in terms of the number of customers affected, time savings from reduced/eliminated multi-sailing terminal waits, and reduced congestion in host communities. Also, there are cost efficiencies in this alternative, as much of the IT investment is required for any reservation system, and IT and terminal upgrade costs can spread over a much larger base of reservations in this alternative. This alternative represents an investment level of approximately $1.80 per vehicle trip (if total system costs were distributed over one year, and vehicles trips include riders who benefit from the regional ITS network but not necessarily reservations directly).

Risks and costs in Alternative 5 are too great to propose proceeding at this time. Exhibit 17 above does not show the full capital costs of this option (i.e. terminal expansion at Fauntleroy), though they are expected to be high and would undoubtedly drive the cost per rider well above the $2 level in Alternative 5. Furthermore, annual operating costs nearly double from Alternative 4 to Alternative 5

considering the additional Terminal Supervisor time that would be required at the South Sound terminals and the call center impacts of adding these additional reservations.

If there are future decisions regarding either expansion of the Fauntleroy Dock or moving the Southworth service to Colman Dock, then extending reservations to the South Sound could be reconsidered. However, the benefits of reservations alone do not justify these operational or terminal investment decisions.

## 6.5 Preferred Alternative

Given this assessment, Alternative 4 emerges as the preferred alternative because it results in the greatest overall benefits in terms of time savings and demand management. It spreads these benefits to the majority of the system while keeping capital costs per rider low, annual operating costs at a moderate level (less than the $1 million per year anticipated in the Long Range Plan), and implementation risks manageable.

Under this alternative, 9.5 million riders per year (vehicle drivers and passengers in vehicles) would have access to a reservation system that would guarantee which sailing they could board and reduce current wait times. This represents approximately 60% of all annual vehicle driver and vehicle passenger trips.

South Sound routes and Mukilteo-Clinton (which would not receive a reservation system under this option) will still realize some benefits through an improved communication system and a reservation system for commercial traffic. An additional 6.2 million riders would see benefits from these improvements.

Furthermore, the preferred alternative retains some flexibility in how reservations might be implemented on certain routes, allowing WSF to continue to work with its customers and stakeholders to find the best possible solutions for each of its routes.

Exhibit 20 shows the improvements that implementation of the preferred alternative would bring to each of WSF's terminals and routes.

## Exhibit 20
## Summary of Preferred Alternative Improvements by Terminal

| Terminal | Reservation Availability | Communication Improvements | | | Terminal-Related Improvements | | | |
|---|---|---|---|---|---|---|---|---|
| | | Regional VMS Signs | Highway Advisory Radio | Queue Detection | Local VMS | Traffic Management Signs | Ferry Advisory Radio | Other |
| **Anacortes** | All Customers | | X | | | X | X | |
| **Bainbridge** | All Customers | X | X | X | Existing | X | X | |
| **Bremerton** | All Customers | X | X | X | Existing | X | X | |
| **Clinton** | Commercial Only | | X | X | | X | X | |
| **Edmonds** | All Customers | X | X | X | Existing | X | X | Additional tollbooth, traffic gate |
| **Fauntleroy** | Commercial Only | X | X | | | | | |
| **Friday Harbor** | All Customers * | | X | | | X | | 3 Web cameras |
| **Keystone** | All Customers | | X | X | | X | X | |
| **Kingston** | All Customers | X | | X | | X | X | |
| **Lopez Island** | All Customers * | | X | | | X | X | 2 Web cameras |
| **Mukilteo** | Commercial Only | X | X | X | | X | X | |
| **Orcas Island** | All Customers * | | X | | | | X | 2 Web cameras |
| **Point Defiance** | Commercial Only | | X | | | X | X | 2 Web cameras |
| **Port Townsend** | All Customers | | X | X | | X | X | |
| **Seattle** | All Customers | X | X | | | | X | |
| **Shaw** | All Customers * | | | | | | X | 2 Web cameras |
| **Sidney** | All Customers | | | | | | | |
| **Southworth** | Commercial Only | X | X | | Existing | X | X | |
| **Tahlequah** | Commercial Only | | X | | | | X | |
| **Vashon Island** | Commercial Only | | X | | | | | 2 Web cameras |

** Excludes inter-island sailings*

## Life Cycle Cost Analysis

The standard predesign format for life cycle cost analysis is not a useful decision-making tool for the alternatives discussed here because these alternatives all build upon each other. Comparing the present worth cost savings of each alternative relative to another shows that each alternative is more expensive than the previous one, both in terms of total investment and life cycle costs. The cost-benefit analysis in this section has been designed to identify which alternative provides the best value to customers and WSF while mitigating implementation risks.

In any case, it is important to understand the complete costs of the alternatives, both operating and capital. Exhibit 21 below includes total capital and operating costs through 2025, both in total year of expenditure dollars and in present worth dollars. For the purposes of this analysis, capital costs are incurred according to the schedule discussed in the Implementation Section, and estimates in today's dollars have been escalated at 1.7% annually. Operating costs (salaries and benefits and the O&M allowance) have been escalated at 3% annually, and a 5% discount rate was assumed.

**Exhibit 21**
**Life Cycle Cost Analysis Summary ($000s)**

| | Alternative 1 | | Alternative 2 | | Alternative 3 | | Preferred Alternative 4 | | Alternative 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Estimated Cost ($YOE) | Present Worth | Estimated Cost ($YOE) | Present Worth | Estimated Cost ($YOE) | Present Worth | Estimated Cost ($YOE) | Present Worth | Estimated Cost ($YOE) | Present Worth |
| **Initial Costs** | | | | | | | | | | |
| IT - purchase and integration | $2,329 | $2,261 | $2,329 | $2,261 | $2,329 | $2,261 | $6,196 | $5,129 | $7,485 | $5,915 |
| Terminal specific enhancements | $912 | $885 | $2,743 | $2,535 | $2,743 | $2,535 | $5,403 | $4,378 | $7,144 | $5,390 |
| Communications: | | | | | | | | | | |
| Queue detection and HAR | $423 | $410 | $828 | $804 | $3,948 | $3,615 | $3,948 | $3,615 | $3,948 | $3,615 |
| Web cameras | $0 | $0 | $609 | $591 | $913 | $864 | $913 | $864 | $913 | $864 |
| VMS Signs | $0 | $0 | $0 | $0 | $9,395 | $8,064 | $9,395 | $8,064 | $9,395 | $8,064 |
| ***Total Initial Cost*** | ***$3,664*** | ***$3,556*** | ***$6,509*** | ***$6,191*** | ***$19,328*** | ***$17,339*** | ***$25,855*** | ***$22,050*** | ***$28,885*** | ***$23,848*** |
| **Replacement Costs** | | | | | | | | | | |
| *N/A - Capital Components have 20-50 year life cycles* | | | | | | | | | | |
| **Annual Costs** | | | | | | | | | | |
| Staffing | $2,795 | $1,753 | $6,739 | $4,291 | $6,739 | $4,291 | $13,076 | $7,985 | $19,445 | $11,377 |
| Allowance for maintenance & utilities | $906 | $596 | $906 | $596 | $1,360 | $894 | $1,813 | $1,192 | $2,719 | $1,789 |
| ***Total Annual PW Cost*** | ***$3,701*** | ***$2,349*** | ***$7,645*** | ***$4,887*** | ***$8,099*** | ***$5,185*** | ***$14,889*** | ***$9,177*** | ***$22,164*** | ***$13,166*** |
| **Grand Total PW Costs** | **$7,365** | **$5,905** | **$14,154** | **$11,078** | **$27,427** | **$22,524** | **$40,744** | **$31,227** | **$51,049** | **$37,014** |
| **PW Cost Savings** | | **$25,322** | | **$20,149** | | **$8,703** | | **$0** | | **($5,787)** |

# 7.0 IMPLEMENTATION

*Having identified the preferred scope of the reservation system in the previous chapter, this chapter (7) describes how the reservation system would be implemented. A general framework for implementation, as well as the route-level implementation process is discussed. Customer education and advertising options are identified. Project management and schedule are explained.*

## 7.1 Approach to Implementation

There are many steps to implementation once the reservation system is approved. The preferred alternative, #4, includes a regional ITS network, localized communication improvements, and reservations, all of which may be applied in different ways on different routes. In addition, the introduction of reservations on the scale envisioned in this predesign will change how WSF interacts with its customers and how its customers use the ferry system. These sorts of changes cannot be implemented in one quick step.

For reservations to become an effective demand management tool and deliver benefits to customers and communities the system will need to be phased in gradually. This will allow WSF to learn as it goes and make improvements in the business rules and operational support functions to maximize the effectiveness of the system. Also, this approach offers customers the opportunity to gradually adjust to the new system and integrate reservations into their decision making process so they can get the most of the new system. It will be important to build confidence and loyalty in the new approach.

As a result, it is best to implement along two separate but connected tracks: (1) the physical development and implementation of the information technology, communications and terminal modifications necessary to support reservations; and (2) gradual implementation introduction and ramping up of reservations on a route-by-route basis, where reservations might start out modestly ( e.g. limit the share of the vessel available for reservations, limit to peak periods only, summer only, commercial only) and then grow the program as customers gain confidence in the systems.

**General approach and sequencing of activities.** The proposed implementation program was developed based on the desire to minimize risk, build-out in a logical progression, and maximize the opportunities to learn and improve as the system is developed. Also, there are logical decision points where progress can be evaluated before the next increment of investment is committed to the project without compromising the integrity of the earlier work.

In developing an implementation sequence, the proposed progression is intended to start with the simpler element for which there are examples in other ferry systems worldwide and build up to the more challenging aspects of the preferred alternative. Additionally, routes that have longer wait times are targeted for earlier implementation where possible. The San Juan Islands have been addressed among the earlier routes to receive reservations in Phase II because of the extremely long wait times in the summer. Currently these waits discourage some tourists from traveling to the San Juan Islands in the first place. Toward this end, the following three-phase approach is proposed:

*Phase I—Improve Reservations on Existing Routes*

- Purchase, build-out, and integrate reservation system with existing WSF and WSDOT systems
- Terminal modifications at Anacortes, Keystone, and Port Townsend

- Begin ITS enhancements, including queue detection and HAR, system-wide
- Reservations related communication available to customers at Anacortes, Keystone, and Port Townsend

This is the least risky phase. By beginning with the routes that already have reservations and making improvements, WSF will be able to build on the experience and lessons learned from earlier reservation efforts in the same communities. This phase will also allow the entire system to benefit from improved queue detection and better communication about ferry departures and wait times. This phase should begin in spring of 2010 with the release of funding following approval of this predesign feasibility study and continue through the end of the FY 09-11 biennium. The new reservation system will be available on all of the existing reservation routes by spring of 2011.

*Phase II—Partially Expand Reservations*

- Terminal modifications on the San Juan Islands
- Open reservations of all kinds to San Juan Islands
- Open reservations to commercial customers systemwide
- Add VMS signs systemwide for further ITS enhancement

This second phase would expand the pilot to include all customers in the San Juan Islands. At this stage WSF would have implemented reservations on all of the routes that are most compatible with reservations (heavy recreational/tourist traffic and small commuter segment). Commercial reservations would become available systemwide and VMS signs would be built throughout the system providing further benefits to all WSF customers. While the request for funding would be made in spring 2011 the funds would not need to be released until spring 2012.

*Phase III—Expand Reservations to Most of Central Sound*

- Further reservation technology customization and development
- Terminal modifications at Bainbridge, Bremerton, Colman, Edmonds, and Kingston
- Open reservations on Central Sound Pilot Route
- Open reservations on all Central Sound Routes except Mukilteo-Clinton

This third phase would begin with a further build out of the reservation technology to accommodate the increased volume of reservations needed and the anticipated needs of heavy commuter routes. WSF would wait to submit a request for Phase III until 2015. This would allow for the most learning and data gathering to determine whether Phase III is necessary and worth the risks associated with implementing a reservation system for commuters on routes with short headways, something that has never been done before. If approved, Phase III would begin in summer 2015 and a pilot central sound route would open reservations for all customers in spring 2016. Assuming successful implementation on the pilot route, reservations would be rolled out to the remaining two Central Sound routes the following year.

**Route-level implementation measures.** As reservations are introduced on a new route, the business rules will also be phased in to support orientation and building customer knowledge and comfort with the new system. To support the introduction and early implementation phase on a new route, WSF would organize a Partnership Group for that route as a mechanism to engage key local stakeholders in the decision making process. These Partnership Groups will be modeled on the successful process used

for the Port Townsend-Keystone terminal and vessel studies and the Edmonds-Kingston group used to assist in the development of this predesign report. These groups would meet to:

- Work through how the system will operate and how it will work on their own routes
- Discuss opportunities to tailor the system to unique features of the route
- Review and comment on terminal modification/vehicle processing changes
- Discussion of the route-specific phasing in of business rules
- Assist WSF with public information materials and outreach to customers and communities served by the route

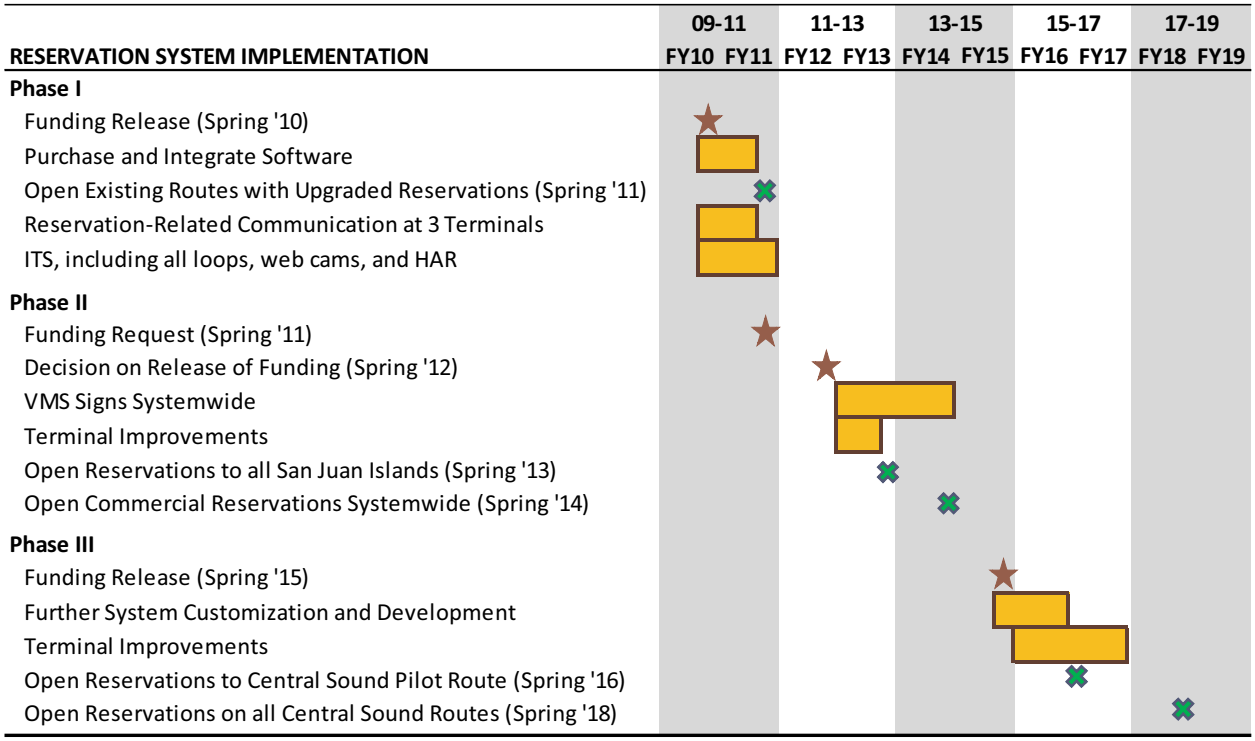
## 7.2 Proposed Schedule for Implementation

The preferred alternative has identified a system of improvements that will provide congestion relief and customer benefits on every route in the system. This alternative deploys two key active management strategies where these strategies can be the most effective and where the costs and benefits support implementation. These are:

- **Communication system improvements.** WSF customers would greatly benefit from a significantly expanded communication system to provide real-time information about traffic and sailing conditions. With better information, terminal congestion can be reduced and customer experience and predictability improved. These investments are an extension of the WSDOT Active Management System approach to managing congestion on state highways. These improvements would be developed systemwide and benefit all routes.
- **Reservations.** On most routes in the system, a reservation system is a cost effective enhancement to the demand management challenge and would provide significant customer and community benefits. The details for how reservations will be implemented on these routes will be determined in cooperation with local community stakeholders. On the routes where no reservations are proposed, the operational impacts and capital cost requirements were too great to justify the investment. On these routes, the travel demand benefits will be limited to possible schedule modifications and the improvements in real time information and communications.

Exhibit 22 presents a proposed schedule for how implementation of these system improvements might be deployed. The schedule and phasing allows for different decision points regarding whether or not to continue with reservation implementation. The Legislature would have information about implementation progress and the benefits of reservations before releasing the funds for phase II and phase III.

**Exhibit 22**
**Proposed Schedule for Implementation**




## 7.3 Project Management

All phases of the Reservations project will be actively managed by the WSDOT Office of Information Technology with appropriate oversight as determined by the Information Services Board guidelines.

**Roles and responsibilities**. A Project Manager will be assigned and dedicated to all phases of the project, from completion of an investment plan, requirements definition and needs assessment, through risk assessment, request for proposals, vendor selection, and project delivery.

**Decision-making process**. After approval of the investment plan, broad responsibility for decisions will be handled by an Executive Project Committee, comprising the WSDOT Assistant Secretary for Ferries, the Director of Ferries Operations, and the WSDOT Deputy Director of the Office of Information Technology for Ferries. Technology changes will be submitted through the Change Management and Control structure established within the WSDOT Office of Information Technology.

**Management qualifications**. The project will be managed by staff accredited by the Project Management Institute.

**Project team organization**. At this time, specifics of the project team are being developed to assure adequate staffing, decision making purview and quality assurance.

WSDOT has adopted as a standard practice a process to manage projects and provide a method to meet the WSDOT Management Principles. WSDOT's project management process requires the application of skills, knowledge, tools, and techniques to deliver the project on time, within budget, and according to specifications. There are proven industry standards for project management, such as the Project

Management Body of Knowledge (PMBOK) through the Project Management Institute. The project management process, as adopted by WSDOT, is based upon those industry standards.

Appendix G contains more details about WSDOT's standard management practices, including the Secretary of Transportation's Executive Order Number E 1032.01 related to project management.

# 8.0 BUDGET

*Having identified the capital and operating costs as well as a potential implementation schedule, this Chapter discusses the project budget for the duration of the 16-year Legislative financial plan, highlighting funding sources, existing budget, and cost risks.*

## 8.1 Project Budget Analysis

Based on the implementation schedule presented in Exhibit 22 above, the following table shows how capital expenditures would be distributed by biennia. This expenditure pattern is based on the project phases described in Section 7.1 above.

The VMS sign portion of the preferred alternative has been distributed evenly across the 2011-13 and 2013-15 biennia. In fact, WSF has some flexibility in this piece of the project as long as a regional communications network is in place prior to deployment of reservations on any Central Sound routes. It could start these efforts as soon as fiscal year 2011, and scheduling may be dependent, in part, on the availability of any federal grant money for ITS projects.

**Exhibit 23**
**Proposed Capital Expenditures by Biennia for Preferred Alternative**

| | 2009-11 | 2011-13 | 2013-15 | 2015-17 | 2017-19 | 2019-21 | 2021-23 | 2023-25 |
|---|---|---|---|---|---|---|---|---|
| **Phase I** | | | | | | | | |
| Purchase and Integrate Software | $2,320,200 | | | | | | | |
| Terminal-specific enhancements | $908,000 | | | | | | | |
| Regional Communication Network | $1,432,000 | $3,318,000 | | | | | | |
| **Phase II** | | | | | | | | |
| Terminal-specific enahancements | | $1,775,000 | | | | | | |
| Regional Communication Network: VMS Signs | | $4,472,000 | $4,472,000 | | | | | |
| **Phase III** | | | | | | | | |
| IT System Development | | | | $3,490,500 | | | | |
| Terminal-specific enhancements | | | | $677,800 | $1,660,200 | | | |
| **Total Capital Budget Requirements ($2009)** | **$4,660,200** | **$9,565,000** | **$4,472,000** | **$4,168,300** | **$1,660,200** | **$0** | **$0** | **$0** |
| **Total Capital Budget Requirements ($YOE)** | **$4,678,841** | **$9,868,689** | **$4,780,568** | **$4,617,017** | **$1,909,230** | **$0** | **$0** | **$0** |

In a similar fashion, operating costs have been distributed by biennium in the table below. With respect to operating expenses, larger increases corresponding to call center staffing are scheduled for later biennia, when reservations are rolled out to more routes. It is important to note that WSF will have gone through testing and implementation at a smaller scale before this point, providing the Legislature a few key decision points along the way before requesting the operating (and capital) funding shown in the 2015-17 and 2017-19 biennia.

In addition to staff costs, WSF is assuming ongoing maintenance and utilities costs related to the ITS components and terminal improvements required to support reservations. These costs begin in the 2011-13 biennium, after installation of several capital components. For the preferred alternative, the maintenance and utilities allowance is estimated at $100,000 per year in 2009 dollars.

**Exhibit 24**
**Proposed Operating Expenditure by Biennia (Preferred Alternative)**

| | 2009-11 | 2011-13 | 2013-15 | 2015-17 | 2017-19 | 2019-21 | 2021-23 | 2023-25 |
|---|---|---|---|---|---|---|---|---|
| **Staffing** | | | | | | | | |
| IT - Maintenance and Support | $0 | $0 | $350,000 | $350,000 | $350,000 | $350,000 | $350,000 | $350,000 |
| Terminals | $0 | $155,300 | $310,600 | $367,100 | $581,800 | $581,800 | $581,800 | $581,800 |
| Call Center | $0 | $76,000 | $152,000 | $532,000 | $912,000 | $912,000 | $912,000 | $912,000 |
| ***Total Staffing*** | **$0** | **$231,300** | **$812,600** | **$1,249,100** | **$1,843,800** | **$1,843,800** | **$1,843,800** | **$1,843,800** |
| **Operations & Maintenance** | | | | | | | | |
| Allowance for maintenance, utilities, etc. | $0 | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 | $200,000 |
| ***Total O&M Allowance*** | **$0** | **$200,000** | **$200,000** | **$200,000** | **$200,000** | **$200,000** | **$200,000** | **$200,000** |
| **Total Operating Budget Requirements ($2009)** | **$0** | **$431,300** | **$1,012,600** | **$1,449,100** | **$2,043,800** | **$2,043,800** | **$2,043,800** | **$2,043,800** |
| **Total Operating Budget Requirements ($YOE)** | **$0** | **$464,430** | **$1,156,786** | **$1,756,256** | **$2,627,860** | **$2,787,897** | **$2,957,680** | **$3,137,802** |

The Long-Range Plan assumed $1 million in operating and maintenance costs per biennium. Inflated at 3% per year, this comprises the 16-year plan estimates shown in Exhibit 25 below. For the first two biennia, WSF is estimating operating costs below the levels assumed in the Long-Range Plan. By the 2015-17 and 2017-19 biennia, as reservations are rolled out to Central Sound routes, the call center and terminal support staff assumptions described in Section 6.3 above increase biennial operating cost estimates above those assumed in the Long-Range Plan.

**Exhibit 25**
**Estimated Operating Costs as a Percentage of Total WSF Operating Budget**

| | Estimated Operating Costs | 16-Year Plan Estimates | Difference |
|---|---|---|---|
| **2009-11** | $0 | $515,000 | -$515,000 |
| **2011-13** | $464,430 | $1,076,814 | -$612,384 |
| **2013-15** | $1,156,786 | $1,142,391 | $14,394 |
| **2015-17** | $1,756,256 | $1,211,963 | $544,293 |
| **2017-19** | $2,627,860 | $1,285,772 | $1,342,088 |
| **2019-21** | $2,787,897 | $1,364,075 | $1,423,822 |
| **2021-23** | $2,957,680 | $1,447,147 | $1,510,532 |
| **2023-25** | $3,137,802 | $1,535,279 | $1,602,524 |
| **Total** | $14,888,710 | $9,578,441 | $5,310,269 |

## 8.2 Risk Assessment of All Costs

The project budget information presented here has been prepared based on cost estimates. Cost estimates, by their nature, contain risks, and these risks are higher during this predesign stage of the project where complete scoping has not been undertaken in most instances. WSF has used estimating techniques to mitigate this risk, some of which are discussed below. For more detail on the cost estimates and specific contingencies, please see Appendix E.

Capital costs are discussed according to their major function:

- **Capital IT Costs.** A large IT system acquisition and integration project such as this has inherent risk of scope changes and unforeseen issues. Based on WSF experience with the Electronic Fare System, and given the complexity of this project with respect to information technology, contingencies have been built into the IT budget of approximately $1,300,000 to address this risk. Furthermore, implementation and funding requests for the IT components of this project have been spaced over multiple biennia to allow for logical, step-wise implementation of different IT components, as well as adequate testing and reassessment of costs, if necessary.
- **Capital Terminal Costs.** The terminal capital estimates contain less risk than the IT components as they are primarily for acquisition of standard items that WSDOT has bid histories for. Furthermore, the terminal improvements will not involve any shoreline permitting, which might otherwise drive costs up. Standard WSDOT engineering and design contingencies have been included in the estimates (see Appendix E for more detail).

**Operations and Maintenance (O&M).** The O&M estimates include two additional IT staff starting in the 2013-15 biennium and 3.7 Terminal FTEs to be hired incrementally as reservations are rolled out to additional terminals. Call Center staffing has been budgeted at the lowest end of a range, and there is risk in this number. As WSF doesn't have experience with this type of system yet, it is difficult to predict call center needs. However, there are a number of steps that WSF intends to take to keep staffing increases minimal (see Section 6.3). Furthermore, larger increases in call center staffing are not expected until later biennia (phase 3 when reservations are fully deployed in the Central Sound), by which time WSF will have some experience with the reservation system and supporting technology to make more informed decisions about call center staffing and other technology-based options that might be able to better substitute for additional call center staff.

## 8.3 Funding Sources

Based on Long Range Plan estimates, the 2009 Legislature allocated funding for a reservation system in the 16-year plan.

**Exhibit 26**
**Reservations Capital Estimates and 16-Year Plan Estimates**

| | Capital | 16-Year Plan Estimates | Difference |
|---|---|---|---|
| **2009-11** | $4,678,841 | $5,557,000 | -$878,159 |
| **2011-13** | $9,868,689 | $6,180,000 | $3,688,689 |
| **2013-15** | $4,780,568 | $1,399,000 | $3,381,568 |
| **2015-17** | $4,617,017 | $1,119,000 | $3,498,017 |
| **2017-19** | $1,909,230 | $3,746,000 | -$1,836,770 |
| **2019-21** | $0 | $0 | $0 |
| **2021-23** | $0 | $0 | $0 |
| **2023-25** | $0 | $0 | $0 |
| **Total** | $25,854,345 | $18,001,000 | $7,853,345 |

In the 2009-11 biennium, there is adequate capital funding to begin work on the reservation system as described here. In future biennia, additional capital funding will be needed. Much of the difference in

current estimates relative to estimates in the 16-year plan is related to the Regional ITS network that has been proposed. As federal funding for ITS projects has increased in recent years, WSF will make every effort to explore federal funding opportunities for this aspect of the program. If successful, this could fund a portion of the difference shown above.

# 9.0 POLICY AND REGULATORY COORDINATION

*This chapter describes how the reservation system will align with State policy goals and WSF policies and procedures. Changes to the WAC are suggested.*

## 9.1 Relation to Washington State Policy Goals

### Greenhouse Gas Emissions Goals

In March 2008, Washington was the fourth state in the nation to adopt statewide limits on greenhouse gas emissions. According to RCW 70.235.020, the state's reduction of greenhouse gas emission goals are as follows:

- By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels;
- By 2035, reduce overall emission of greenhouse gases in the state to 25% below 1990 levels;
- By 2050, the state will do its part to reach global climate stabilization levels by reducing overall emission to 50% below 1990 levels, or 70% below the state's expected emissions that year.

**Connection to the Reservation System.** In Washington, transportation accounts for almost half of all total greenhouse gas emissions (WSDOT). The WSF reservation system supports the State's goals of greenhouse gas reductions by significantly reducing vehicle congestion at and around ferry terminals. By spreading demand more evenly across peak times, the reservation system reduces the number of vehicles queuing outside of ferry terminals.

### Growth Management Act

The Growth Management Act, passed by the Washington Legislature in 1990, is a policy framework for local comprehensive planning and land use regulation. The Act identifies 14 state planning goals, including sprawl reduction, regional transportation, and environmental protection.

WSF cooperates with local planning processes in its setting of level-of-service (LOS) standards. Local and regional planning organizations make policy decisions to shape growth and development in their jurisdictions; the resulting pattern of future trips is a consideration in ferry service planning, with the understanding that future growth is closely tied to maintaining LOS standards. WSF must balance local needs with its role as a state agency, as described in state law: "Although [WSDOT] shall consult with local governments when setting level of service standards, the department retains authority to make final decisions… [The] department shall consider the necessary balance between providing for the free inter-jurisdictional movement of people and goods and the needs of local communities using these facilities" (RCW 47.06.140). WSF LOS standards are measured in average minutes of wait time, as outlined in the *WSF Draft Long Range Plan 2006-2030*.

For Highways of Statewide Significance (HSS), which are arterials identified as connecting major communities in the state, LOS is set by law. Ferry routes to Whidbey Island (Clinton/Mukilteo and Port Townsend/Keystone), Seattle/Bainbridge Island, and Seattle/Bremerton are designated as HSS.

**Connection to the Reservation System.** The introduction of the reservation system may affect the provision of LOS on some routes. The general intent is to improve LOS on all routes, and where planning impacts may be anticipated, WSF will work with local partners, to incorporate any required changes into local planning documents.

## Clean Air Act

The U.S. Clean Air Act is a federal law protecting and improving the nation's air quality through regulation of air pollutants. Originally passed in 1963, Congress's last overhaul and major expansion of the Act occurred in 1990. The Act identifies and regulates air pollutants that cause harm to human health and the environment.

The Clean Air Act gives the Environmental Protection Agency (EPA) the authority to set limits on certain air pollutants and regulate some sources of air pollutants. State, local, and tribal governments take the lead in implementing the Clean Air Act through monitoring air quality, inspecting facilities in their jurisdiction, and enforcing Clean Air Act regulations. All states have to develop State Implementation Plans (SIPs) outlining how they will control air pollution. The EPA works with state, tribal, and local agencies to approve plans for reducing air pollution and provides technical and funding assistance.

In 1967, the Washington State Legislature adopted its own Clean Air Act (RCW 70.94), which acts as the basis for state and local air pollution regulations. State regulations must be as protective as or more protective than the federal Clean Air Act. The Washington State Department of Ecology and seven local clean air agencies monitor and enforce air quality regulations. Because automotive traffic is a major source of air pollutants, the development and implementation of transportation demand management is a component of the State's Clean Air (RCW 70.94.52).

**Connection to the Reservation System.** By reducing vehicle queuing and traffic congestion at and around ferry terminals, the reservation system helps Washington comply with federal and state Clean Air Act air pollutant regulations to achieve better air quality.

## Freight Mobility Goals

Freight mobility is critical to Washington's economy. The state's freight system is comprised of: (1) international and national trade flows; (2) movement of goods made in the state; and (3) the state's local retail and wholesale distribution system. Mobility— facilitating the movement of people and goods to contribute to strong economy and a better quality of life for citizens— is one of five stated transportation policy goals of the Washington Transportation Plan.

As the steward of the state's interstate, highway, and ferry system, WSDOT is responsible for preserving, maintaining, and improving the state's highway and ferry system to meet freight transportation and general mobility needs.

**Connection to the Reservation System.** The reservation system specifically addresses the mobility needs of freight through its Priority Access program and by including system-wide commercial reservations early in the sequencing of reservations implementation. Commercial freight would be allotted a certain percentage of space on peak and off-peak sailings, based on a route's historical freight space usage; the percentage space reserved for freight is higher on off-peak sailings. Freight customers would be eligible to sign up for a Priority Access commercial account, which enables customers to set up an online reservation account and access the reserved commercial space. The commercial account's priority allotment and early implementation of reservation provides greater predictability and convenience for freight and helps facilitate the smooth flow of goods through the state. Furthermore, increased benefits for commercial customers, which in turn might yield increased commercial ridership, could provide additional revenue to WSF, reducing pressure on the farebox.

## 9.2 Relation to WSF Policies and Regulations

### Tariff

WSF's tariff policy is the set of fares, fees, and fare structures that outline the price for every specific trip and fare category systemwide. The reservation system proposed in this Draft Report will be separate from the tariff, but tariff changes will need to be made to accommodate some of the business rules included in this proposal. Since this Draft Report does not require an additional fee to make a reservation, changes to the Tariff will be minor, and may include the following:

- **Change and Cancelation Fees**. This Draft Report proposes a reservation system that may charge change and cancelation fees, depending on customer type and advance notice given to WSF. The preferred option for these charges is included in Section 5.2. If these charges become part of a final reservation system, the tariff will need to be modified to include the amount of each charge, and the rules governing it.
- **Priority Access Account Discounts**. The current proposal for the Priority Access accounts does not include any volume-based discount for members, except those paying with a linked multiride card. In the future, based on ridership trends, volume-based discounts may become part of these programs. In that scenario, the tariff will need to be modified to formally incorporate those discounts.

For either of these changes to be implemented, they will have to be considered through the annual tariff review process, which includes analysis and review by WSF, the Washington State Transportation Commission (WSTC), Ferry Advisory Committees, and the public. The WSTC has the final authority to implement changes to the tariff.

### Washington Administrative Code

The reservation system will require multiple changes to the Washington Administrative Code (WAC), all of which will be subject to the public rule-making process. The WAC was already modified during the 2009 Tariff Review cycle to give WSF permission to take a 25% - 100% deposit to hold a reservation on any route. This language was written to include any future routes on which reservations will be offered, and will not need to be modified to implement the proposed reservation system in this Draft Report.

Other significant WAC changes will include the following:

- **Priority Load WAC**. The Priority Load WAC currently allows registered carpools and vanpools, motorcycles, transit vehicles, emergency vehicles, and customers who cannot medically wait in line to receive preferential loading on WSF ferries. This means that regardless of when they arrive at the terminal, they will be loaded onto the next sailing.

  Under a reservation system, carpools, vanpools, and motorcycles will be required to make a reservation in order to provide WSF with accurate information about how much space is available on any given sailing. WSF will work with carpools and vanpools to schedule these reservations in blocks, which would not be subject to any of the allotments defined by priority access programs.

  The Priority Load WAC will need to be modified to remove these three types of vehicles from the preferential load list, though operationally, very little would change for carpools and vanpools.
- **Priority Loading for Reservation Holders**. Under the reservation system, customers arriving at the terminal who have reservations will be loaded prior to customers without reservations, regardless of

arrival time. The WAC currently allows for vehicles to be loaded on a first-come, first-served basis, and will need to be modified to give WSF the authority to load vehicles in order of reservation status.

- **Reservation System Business Rules**. Many of the specific program and reservation system business rules may need to be incorporated in some fashion within the WAC. As a point of reference, many of the rules governing WSDOT's *Good to Go!* program is defined within the WAC.

### Security and Coast Guard

A review of the requirements of the Alternate Security Plan (ASP) and WSF's Coast Guard obligations under sub chapter W reveals no conflicts with a vehicle reservations system. The agency shall continue to meet all screening requirements regarding vehicles within our holding lanes, as well as maintain our ability to count passengers on each required departure as well as monitor passengers in all public access areas, as is done currently.

# APPENDIX A
# PARTNERSHIP GROUP MEETING SUMMARIES

## Introduction

WSF convened a partnership group to better understand customer needs with respect to a reservation system, with a specific focus on the Edmonds-Kingston route. The partnership group consisted of 17 representatives from all three customers groups, as well as representatives from both sides of the water, including:

- Dick Anway, Reserve police officer
- Steve Bauer, Kitsap County Commissioner, Kitsap Regional Coordinating Council Vice Chair
- Marianne Burkhart, Port of Edmonds Commissioner
- Vern Chase, Edmonds Chamber of Commerce Member
- Greg Cioc, Kitsap County Public Works, Transportation Planning Manager
- Stephen Clifton, City of Edmonds Community Services & Economic Development Director
- Lynne Danielson, Daily vehicle commuter from Kingston
- Pete DeBoer, Port of Kingston Commissioner
- Steve Dolan, Boise Cascade
- Ken Jones, Edmonds Ferry Advisory Committee
- Paul Lundy, Kingston Ferry Advisory Committee
- Diane Schostak, Olympic Peninsula Visitors Bureau Executive Director
- Jerry Swanson, Weekend vehicle traveler
- Tom Waggoner, Kingston Lumber
- Jerry Weed, Frequent ferry user and resident of Sequim
- Patricia Willestoft, Port Townsend Paper
- Sonny Woodward, Realtor and Kingston Chamber of Commerce Member

This community partnership process helped WSF learn how customers make travel decisions, understand how reservation policies affect customers, identify how a reservation system could be adapted to the unique characteristics of different routes, and determine the feasibility of vehicle reservations on Edmonds-Kingston route.

The Group raised a number of important concerns and ideas that have helped make the reservation system better tailored to customer needs The work of the Partnership Group was integral to the development of the reservation system, and WSF appreciates the time and effort of everyone involved. There were a total of eight meetings held from July to December 2009. Any member of the public could also attend these meetings to listen and provide comment.

This Appendix includes meeting summaries for all eight meetings in chronological order.

**MEETING SUMMARY #1**
**WSF EDMONDS / KINGSTON PARTNERSHIP MEETING**
**EDMONDS CITY HALL, EDMONDS, WA**
WEDNESDAY, JULY 15, 2009 6:00 – 8:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items

Washington State Department of Transportation Ferries Division (WSF) to:

- Provide information on route ridership, including overloads, ridership data, etc. for sample weeks in summer, winter, spring
- Provide information on the 2006 Origin and Destination Survey (http://www.wsdot.wa.gov/ferries/planning/odsurvey) and the 2008 Washington State Transportation Commission (WSTC) survey (http://wstc.wa.gov/FerryCustomerSurvey )
- Seek additional representative from other side of Hood Canal Bridge. *Completed with the participation of Jerry Weed.*
- Review "lessons learned" from other reservations systems world-wide.
- WSF to make available recent public meetings summaries (http://www.wsdot.wa.gov/Ferries/Planning/PublicMeetings )
- Review traffic issues associated with Google Maps, MapQuest and GPS systems that direct users to the dock instead of to the holding lanes in Edmonds
- Hold meetings at 5:00 p.m. *Completed. Next meeting scheduled for August 19 at 5:00 p.m.*
- Share participant contact information with other partnership members.

## Welcome and Introduction

WSF Assistant Secretary David H. Moseley

David Moseley, Assistant Secretary for Washington State Ferries, welcomed everyone and thanked them for participating. He also specifically thanked Stephen Clifton and the City of Edmonds for the use of the facility.

David described how a partnership effort helped WSF after the loss of the Steel Electric class vessels on the Port Townsend / Keystone run. The community interest in ways to mitigate the loss by providing certainty about getting a boat was very helpful. As a reservation system was worked on, WSF went through all the issues with the community which worked very well and led to the idea of forming Community Partnership Groups as reservations are looked at on a route specific basis. Every route is different depending on the size of the boats, the schedules, and the variety of users such as commuters, commercial interests, and recreational users. If reservations are going to work, WSF must take into

consideration all of the factors involved, which will be what this group will be discussing over the next several months.

David went on to say that WSF identified reservations in the Long-Range Plan as a key operational strategy to spread out the demand and utilize the space available. The plan was brought to the Legislature; they had a lot of questions, and charged WSF to conduct a pre-design study. We need to look into the available technology and all the elements to support the system and make it flexible enough for our users, and we need to demonstrate to the Legislature how reservations would work on a specific route in the system. The route to be chosen needed to be a complex route with a varied customer base as well as some community interest in seeing reservations work. We chose the Edmonds / Kingston run to apply the study due to the intricacies of the route. David stressed the point that the Legislature has not funded implementation of a reservations system, only the pre-design study. There has been no assumption that because reservations may work on other routes that it will work everywhere.

David stated that the focus of this month's meeting was to focus on providing the group with basic background information to help them understand why they are here and also to hear any questions or concerns that the group members would like WSF to consider. Any thoughts that the group members may have are important to WSF – if the Legislature authorizes us to go forward we want it to be successful, and to help our customers and the system as a whole.

David briefly described the meeting materials – each member was given a binder to keep ongoing handouts in. The agenda for the evening was discussed, and the other WSF staff members were introduced.

**Partnership Member Introductions**

Jerry Swanson introduced himself as a ferry commuter who owns a retirement home in Port Townsend and works at Boeing. He agreed to join the Partnership Group because he is intrigued by the potential benefit of reservations.

Lynne Danielson introduced herself as a 5-day a week ferry commuter who has refillable cards for every possible way to ride the ferry: walk-on, car, and motorcycle. She has been commuting on the ferry for 13 years and is participating in the Partnership Group because she is very interested in how this will work. She works in an office 3 ½ miles from the Edmonds terminal and gets off work at 5. It can be anywhere from the 5 o'clock boat to the 7 o'clock boat that takes her home. It is a crapshoot and she has 12 more years before she can retire so she is interested in any way to improve the situation.

Greg Cioc introduced himself as a Transportation Planning Manager at the Kitsap County Public Works and said he agreed to join the Partnership Group because he has concerns about the impact on the community of Kingston.

Diane Schostak introduced herself as the Executive Director of the Olympic Peninsula Visitors Bureau, and a resident of Forks. She joined because of the tourism aspect relating to reservations.

Marianne Burkhart introduced herself as the Commissioner of the Port of Edmonds. She lives four blocks away from the holding lanes in Edmonds, and joined the group because she is very interested in how to get rid of long lines. She hopes WSF will be able to improve the schedule so that more commuters can walk on have a connection with the Sounder and the buses.

Sonny Woodward introduced himself as a realtor in Kingston as well as a member of the Kingston Chamber of Commerce who is very active in the WSF community. He joined because it is important to the community of Kingston that the ferry system works as well as it can. It has a huge impact on the community; there is a love/hate struggle by the people who live in ferry communities, and he would like to see an effort to move people along more effectively.

Vern Chase introduced himself as a member of the Edmonds Chamber of Commerce whose career has been Maritime and tourism related. He said he has always been impressed with WSF, but would like to make it better.

Patricia Willestoft introduced herself as affiliated with the Port Townsend Paper Company, which has an average of 750 outbound commercial trucks a month, some of which use the Edmonds / Kingston ferry run. She joined the Partnership Group because of her interest in how this will affect the business.

Steven Dolan introduced himself as affiliated with the Boise Cascade Building Company based in Maltby which services the peninsula. This company takes an average of 47 trips per month on the ferry and he is really interested in how this will help facilitate for his customers, or if it will cause an inconvenience.

Dick Anway introduced himself as someone who uses the boats, though not as a commuter. He is a reserve police officer who has worked the ferry traffic in Edmonds for over 30 years and is interested in sharing any information about traffic problems.

Ken Jones introduced himself as the chairman of the Edmonds Ferry Advisory Committee (FAC). He has been on the FAC for 10 years and is a retired police officer who has also worked ferry traffic.

Tom Wagoner introduced himself as a retired ticket taker who used to work at the Edmonds, Bainbridge, and Mukilteo terminals. He has owned Kingston Lumber for over 40 years; they average 1 to 5 trucks per day on the Edmonds / Kingston route, 80% of which also take the ferry back. His business has a large service

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area on this side of the water from Bellingham to Vancouver, Washington. He wants to know if reservations will help or hinder his customers.

Paul Lundy introduced himself as a member of the Kingston FAC, representing ferry users. He is a daily commuter that uses the ferry, the train, buses, and is currently in a vanpool. He has a vested interest in seeing how the reservation system will work because of his work with the FAC.

Steve Bauer introduced himself as the Kitsap County Commissioner. The Kingston and Bainbridge ferry terminals are included in his district. He believes the ferries are very important, in particular in Kingston because of the traffic going through town. He is interested in improving the backups in Kingston.

Stephen Clifton introduced himself as the Director of the Community Services & Economic Development for the City of Edmonds who spent 9 years on a ferry related project. He has a vested interest in the ferry system.

Pete DeBoer introduced himself as the President of the Kingston Chamber of Commerce, and the Commissioner of the Port of Kingston who is skeptical of reservations. He sold his business last year, but used the ferries spontaneously a lot. He might have received a call and needed to go immediately. On the other hand, when his daughter comes to visit and gets stuck in a long line, he thinks reservations may be a good thing. He writes an article for a Kingston paper and may be able to convey information regarding reservations through his article.

**Group Charter**
Meeting Facilitator Fauna Doyle

Fauna thanked everyone for their introductions and briefly discussed the charter. She explained that it is in draft form so if anyone would like to make any comments or changes it is not finalized. After touching briefly on the responsibilities of the members and the WSF staff, Fauna asked if there were any thoughts at this time. No comments were made.

**Why Vehicle Reservations?**
WSF Assistant Secretary David H. Moseley

David explained that the Long-Range Plan came out at the end of last year; the Legislature met and gave WSF some very clear direction. The good news is that they rejected any large scale reductions in service and provided a continuation in funding with some potential for improvement. The basic focus of the plan was to first manage the demand that we have before increasing our capacity in the size or number of terminals and boats. We need to maximize the use of the existing facilities. The key direction from the Legislature was to look at reservations as a way to spread peak vehicle demand into off-peak times. Some people think that peak times for the ferries are the same as commuter peak times, but peak times

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mean different things to each route. A peak time for Edmonds might be a Thursday evening or a Sunday morning. If we can utilize and manage the assets we have better, we may be able to delay the need to increase capacity.

WSF has been interviewing ferry systems from across the world, some large, some small, with different customer bases. All of these systems use reservations, some for over forty years. We have been bringing the concerns from our customers to them, to find out how they have dealt with these issues. This needs to work for us and our customers; if our customers don't benefit, it won't work. We need to be able to demonstrate to the Legislature to their satisfaction that this will work well and I hope we can achieve that. We have three primary goals: the first is to see if reservations will work. Can we spread demand efficiently to better utilize our assets? The second is to see if we can reduce or eliminate the negative impacts to our host communities. It's an important goal to have people arriving 15 minutes before their sailings and not 3 hours. The third goal is to create a system that will provide our customers with certainty and flexibility; if plans change we need a system that rolls with that change. Can this system work to provide better service to our customers, so that they can use their time in better ways than waiting in a long line? These are ambitious goals, but I think they are achievable.

**Questions and Comments**

1. (Steve Bauer) When you think about accommodating the needs of customers, remember that there are different classes of customers which may need to be dealt with each in a different fashion.
   *We are considering that. That is why this group is so diverse – we are exploring different points of view.*
2. (Tom Wagoner) Can you provide us with information on peak hours for this route? Overloads, ridership data, etc?
   *Yes, we will have that for the next meeting.*
3. (Tom Wagoner) Do you have any information on trucking?
   *This is the largest commercial route in the system. We see very large trucks to smaller delivery trucks. Some have very clear schedules and others are not as certain.*
4. (Sonny Woodward) Has WSF ever tracked customers by their license plates to figure out where they come from? They may be from Eastern Washington going to the peninsula. When you go after money you hear that Eastern Washington people don't want to pay. Knowing where people are coming from might be an advantage for you.
   *We have done some studies, probably not to that level of detail, but we can provide some information.*
5. (Paul Lundy) It would be nice to see the origin of people on this route.
   *There was a study done by the Transportation Commission last year; a survey of people riding the Ferries by route. We will get you the information for this route.*

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6. (Diane Schostak) When the Hood Canal Bridge was closed, you put smaller ferries on this run and we never had backups. It was impressive to see how many people live beyond the bridge. I wonder if there are adequate people here to represent those people. (Diane asked the group how many people were present from that area, 3 people raised their hands.)
   *We lost about 35% of our ferry traffic when the bridge was closed. We sent a larger boat to Bremerton because history showed us that people would drive down to Bremerton. We did talk to our FAC partners in Port Townsend and Clallam County about taking part in this group but they chose not to participate. We will look at ways to represent that area better.*
7. (Paul Lundy) The Port Townsend folks probably feel that because they already have reservations, they don't need to participate. But folks that are further into Clallam - are they represented?
8. (Sonny Woodward) Driving out of Kingston on a Sunday, I see a 3 mile backup and I wonder where all these people are from. Where do they go? Not necessarily back to Edmonds, but all over the state. In a voting situation, that is a whole block of people that needs to be discovered.
9. (Pete DeBoer) That's a captive audience you have there on Sunday evenings. The patrolmen that hand them their tally slips could possibly survey them as well.
10. (Marianne Burkhart) Ticket takers could take down their zip codes.
11. (Tom Wagoner) If you decide to do that, please pick a weekend that is active. The weekend after Seafair would be ideal. People come from all over - more information would help you deal with the Legislators from Eastern Washington.
12. (Dick Anway) If we get reservations, where are we going to put these people? That is my biggest concern. I've worked the traffic here for 25 years, and there is no where for them to go.

**Vehicle Reservations Pre-Design Report**
Project Manager Doug Schlief

Doug thanked everyone for coming and stated that he appreciates the different points of view. He said that he is under no illusion about the challenges we are facing. He explained that he has been with WSF for 31 years and rides the Southworth or Bremerton boat daily. Doug stated that the Edmonds / Kingston run was chosen because of the complexity that needs to be accommodated. He encouraged everyone to pick up his card and pass it along to people in the community who are interested; they may call or email him their questions or comments.

Doug went on to say that the plan is to make sure that what is implemented is convenient. It is meant to mitigate traffic backup and assure loading. Ideally, one would make a reservation, drive up 20 minutes before the sailing, find no

backup and get right on the boat. Backups in Kingston, especially on the weekends, are getting progressively worse. We want the host communities to enjoy having the Ferries in their neighborhood. If you knew that a certain boat had a backup, and other boats had no backup, you might plan your trip differently, as well as your return trip. During peak times we have a lot of backup, but we have a lot of space at other times that we want to use. Why not enjoy your time at home then drive down to your reserved boat?

The Pre-Design Report is a structured document by the office of project management. We are required to use a template which we have modified slightly. One of our obligations is to describe the need and look at the options. We have to go down a path and imagine what we would do. What will this cost, what is the cost-benefit analysis? This report is then a basis to solicit funding. We are not authorized to do anything but a study, then the Legislature will scrutinize our findings

**Group Discussion**

1. (Diane Schostak) Does this Pre-Design Report include a test?
   *No it does not.*

David interjects – *The system we use at Port Townsend / Keystone and Anacortes / Sydney is old, antiquated and not conducive to our customer demand. It needs to be updated. If we get a new system, we will test it out on those routes, and then pilot it on Edmonds / Kingston. Part of the challenge is that we want to make sure that we have business rules in place for when regular commuters go on vacation and will want to suspend their reservation, or when anyone may want to change their reservation – we need to be flexible. Other things will also need to be looked at – terminal design, access points, what do you do with everybody. We have to have some answers in this study; it is a very complicated report process that we need to go through. It's a lot of work. We have a tight deadline – we have gotten a two month extension until December 15th. (Fauna pointed out the schedule for the group)*

2. (Paul Lundy) You think business rules are the place to start? You are fine with this timeline of discussion?
   *Yes, we developed this order because we believe business rules will drive how the system will work.*
3. (Stephen Clifton) Will we get to review the Pre-Design Report draft before it goes to the Legislature?
   *Yes, we will get a draft form for the group to comment on.*
4. (Sonny Woodward) Will there be a special hearing for this?
   *Yes, guaranteed. Maybe more than one. They have a lot of challenges right now, but the Legislature was clear that they will have a lot of questions.*
5. (Sonny Woodward) So they won't just blow you off?

*No, we are already having conversations with them; that's how we got the two month extension.*

6. (Greg Cioc) Has WSF vetted whether there is an off-the-shelf system that will work?
   *A lot of what we have done so far is prepare a Request For Information (RFI) out to companies that do reservations systems. We have not gotten any responses but we have gotten questions from them so we know they are working on it. The responses are due July 27th.*
7. (Tom Wagoner) What percentage of the car deck will be put aside for reservations?
   *That is part of what we will be pursuing in these meetings. We have so many different customers and different expectations. That is one of the key questions that we need to answer. Everyone has different preferences; we need to weigh the pros and cons. That is a key business rule, and it may vary by route and time of day.*
8. (Tom Wagoner) This information that you are seeking – are you looking at systems that have short runs like WSF?
   *We are looking at all kinds of ferry systems; some are longer than others. The longest we have found is a 30 hour crossing – obviously that is not comparable to WSF.*
9. (Vern Chase) Have any of those systems had reservations fail?
   *There have been no failures, only revamps. We have not talked to any systems that have started reservations then stopped.*
10. (Sonny Woodward) What about having a ferry that just moves freight?
    *We are looking at ways to encourage people to ride the ferries at non-peak times; having freight do so is one idea.*
11. (Marianne Burkhart) Will you have lower rates at those times?
    *The Legislature has asked us to keep the fare box return at 70% of operating cost. It's very complex; if you push one thing, someone else has to pay more. We looked hard at congestion pricing as an operational strategy, but we got clear direction from the Legislature that they like reservations better because it doesn't sort people by what they can afford.*
12. (Lynne Danielson) When you report to the Legislature, include the need for marketing or education about what's going on. The people don't know what to do, especially recreational users. There needs to be a push so they know what to do.
    *There is a section for marketing in the Pre-Design Report. We have done outreaches but they were not sufficient. We will have to look into that.*
13. (Ken Jones) In the mid 90's, maybe earlier, there was a campaign on the radio called "Get out of line" that told folks not to come down when the ferries were busy. It ran for awhile and it was very effective. I noticed a difference in the traffic that summer. I'm sure the ferry system spent money on it.
14. (Tom Wagoner) Those people who drive from Kingston to Bremerton to catch the ferry may drive around now that the bridge is complete. That may affect your revenue. If I were a traveler and I came down expecting

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to get onboard and I can't, I would take out a map and realize I can drive around.

15. (Steve Bauer) Handling the spontaneity concern makes sense. Those lessons learned from other systems, when will we hear what has been successful elsewhere?
    *We have some data that we will share in future meetings. There are a variety of questions that we have asked; we have a matrix. We will put that on the agenda for August. That is part of what we will bring to the conversation.*
16. (Steve Bauer) There may be issues that we have not even thought about that they may have the answers to already.

*Fauna interjects to invite everyone to start thinking about their concerns and what would make up the ideal reservations system for them.*

17. (Paul Lundy) The notes from the public meetings last year in June – there are three pages of them. Almost everything that we are asking here has already been asked about. This is available to us, we should look at these meeting notes – can this be made available for the next meeting?
18. (Dick Anway) People get lost in Kingston during tourist time a lot. The biggest problem comes from people's GPS systems, Google, and Mapquest because they send everybody to the wrong place. Can anyone from the state change that with those people?
19. (Paul Lundy) I work in a business park in Bothell, and for years Mapquest sent people to the wrong place. We called them and they fixed it right away. If your IT people called them, they would fix this.
    *We will talk to our IT people.*
20. (Stephen Clifton) Have you only looked at ferry reservation systems or other reservations as well? I'm going to be traveling and have used some systems that are so user friendly and understandable, with an option to print your ticket from your computer. Have you looked at anything like that?
    *We will be looking at different systems when we get responses from the RFI. We recognize that we need easy web access.*

*Fauna asked for specifics from Stephen about the reservations systems that he used.*

21. (Stephen Clifton) The TGV Bullet Train in France - it was very clear, no extra information. You could put in a range of time and it would give you options, when you close it out it's a piece of cake.
22. (Paul Lundy) The non-tech people who don't have web access, the system needs to be easy for them over the phone. And please make sure you have signs on the roads.
23. (Sonny Woodward) Radio ads and information are good.
24. (Paul Lundy) Yes, lets reserve marketing money for the radio ads.

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25. (Greg Cioc) I think you should have your own WSF radio frequency. Also, put your road signs at decision points so people can decide before it's too late.

David addressed Diane Schostak – *For the peninsula, what does the system need to look like for them to be an advantage rather than something scary?*

26. (Diane Schostak) We need to be able to reach people in travel guides, web sites, make it easy for people to have access to information, and make it clear that if they don't have a reservation they can still get on. A marketing plan is critical and it needs to be multifaceted. Not many of us here are under 40, but out there the use of technology is so advanced that people are traveling in their palms. Things are moving that way, so whatever we do we need to make sure that we are speaking to the tech-savvy.
27. (Paul Lundy) The mobile part is as important as the non-tech side. If people are using their Blackberries, we need to explore that as well.
28. (Lynne Danielson) There is an airline that sends the barcode to your phone, so you scan your Blackberry. There is no need to print, you just hand them your cell phone.
29. (Sonny Woodward) In communities like Forks, with reservations families could plan their trip better and have some certainty that they can successfully get on the boat.
30. (Diane Schostak) The task is the technology puzzle and how the system will work in the back end - that is the most important thing. The core of the problem is the technology; we need to gather all the pieces and customize them for our situation – that's the hingepin.
    *Because that's the interface with the customer?*
    (Diane Schostak) No, because that's how the system will work.
    *How far in advance will people be making their reservations? Will that be a six month window, a three month window?*
    (Diane Schostak) The week after Christmas people are planning their summer trips. The further you're going to travel, the further in advance you plan it. We need a system that would allow reservations to be made anywhere from 6 months to 2 hours before travel.
31. (Tom Wagoner) The ferry route from Kingston is part of highway 104. How will you handle loading someone with an emergency that is not medical?
    *How do you do it now?*
    (Tom Wagoner) I come down and get on.
    *So those are low peak times?*
    (Tom Wagoner) Yes.
32. (Pete DeBoer) When handling traffic, we send emergencies to the Agent and they make the decision.

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33. (Stephen Clifton) In terms of logistics, what happens when people are queuing for reservations? What happens when people show up 10 minutes before?
34. (Pete DeBoer) How do you decide how to fill the boats depending on where people are queued?
35. (Lynne Danielson) Those rules need to take into consideration the reason for travel. If traffic delays you, how long will you have to wait? How far in advance will people have to get there?
    *That will vary based on class: commuters, freight, etc. When you make your reservation, you need to be able to specify what type of vehicle is coming, rather than just car. Is it a car with a trailer, etc.*

*Fauna asks for any other major issues that anyone wants to get out.*

36. (Steve Dolan) Flexibility. What happens if you miss a boat? How do you deal with that?
37. (Ken Jones) Will there be a financial implication for that like an airline?
38. (Steve Dolan) The 167 HOV lanes have a cost based on traffic; a higher cost may make people change their minds. You should think about that; are the Hot Lanes working, is there a similar concept WSF could use.
39. (Vern Chase) Getting the RFI back will be very good. We do a lot of traveling and there are many very good reservation systems out there. We don't need to reinvent the wheel.
40. (Patricia Willestoft) It is important for commercial truck drivers to have ease of use. Delays may make them late for a reserved ride, how can they easily adjust?
41. (Steve Bauer) If you set aside 60-80% of the boat for reservations, what do you do with the other 20%? We want people there for standby, but right now I can see that if it says the boat is full I will go anyway knowing I will have to wait. The standby needs to match. It's a tough nut to crack.
42. (Paul Lundy) Maybe low times don't need reservations.
    *We are looking at that.*
43. (Paul Lundy) What about motorcycles? Will they need a reservation?
    *They take up deck space, so yes.*
44. (Paul Lundy) What about bicycles?
45. (Lynne Danielson) When you look at Bainbridge, there are a huge amount of bicycles. That needs to be looked at.
    *We want people riding those, so we need to figure that out.*
46. (Paul Lundy) That is something to consider, how do we deal with dedicated bicyclists.

Fauna recapped the meeting and discussed what will be brought to the next meeting. In August we will tackle the business rule options.

**Establish Meeting Date #2**

DRAFT

Marta Coursey asked the group if there was any preference in the time of the next meeting. Stephen Clifton suggested meeting at 5 pm instead of 6 pm; the group agreed.

**Sharing Contact Information**
Marta asked the group if they objected to WSF sharing everyone's contact information amongst the group so that they could communicate outside of the meetings. Everyone agreed that sharing contact information is acceptable.

**Public Comments**
There were no comments from the public in attendance.

**Conclusion**
David thanked everyone for coming. Meeting was adjourned.

DRAFT

Washington State Department of Transportation

Washington State Ferries

# MEETING SUMMARY #2
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# KINGSTON COMMUNITY CENTER, KINGSTON, WA
WEDNESDAY, AUGUST 19, 2009 5:15 – 7:20 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items
Washington State Department of Transportation Ferries Division (WSF) to:

- Provide peak ridership data at Edmonds/Kingston
- Explain the reason for the change in the percentage of the boat available for reservations on the Port Townsend/Keystone run
- Provide the interview information from the employees that have worked on the routes where reservations are already in place
- Post or review the main goals/objectives for the reservations system at each future meeting

## Welcome and Introductions
WSDOT Assistant Secretary David H. Moseley, WSF Communications Director Marta Coursey, Meeting Facilitator Fauna Doyle of Berk & Associates

David welcomed everyone and thanked them for attending. He informed the group that a new member, Jerry Weed, had joined the group in an effort to represent the peninsula more heavily. Jerry introduced himself as a retired Civil Engineer living in Sequim who had consulted for the City of Edmonds as well as WSF during his career. He is very familiar with the ferry system and represents citizens of the peninsula. Others in attendance briefly reintroduced themselves as well.

David mentioned that he wanted to observe more than participate in this month's meeting in order to focus on hearing the group's opinions and ideas regarding the business rules.

Marta briefly discussed the July meeting summary and asked the group if there were any issues or questions regarding the minutes. The group had no comments.

Fauna went over the agenda and thanked everyone for being willing to extend the length of the meeting. The handouts were discussed and Fauna mentioned her intention to keep the discussion focused on the specific business rules on the agenda rather than bringing up other issues for the time being.

**Business Rules Overview**
Fauna Doyle & Michael Hodgins of Berk & Associates

Michael introduced the business rules discussion by saying that the direction of the meeting should focus on what would be desirable in a reservations system rather than focusing on the constraints. He asked the group to think about how they would want the system to be designed in order to work for them or the people that they represent. In September the group will talk about limitations.

Michael then defined business rules as a set of parameters that answer key questions such as how much of a boat should be reserved, what happens if a sailing gets canceled, should there be a fee if a reservation is missed, etc. He explained that the object of this meeting was to tackle the major business rules and get the various perspectives that the group can offer. The answers to these questions may be different for everyone depending on their usage which is why this chosen group is so diverse. Michael then asked the group if there were any questions about the overview.

**Questions and Comments**

1. (Steve Bauer) Thanks for the information you have provided on other ferry systems, but it seems like apples and oranges to me; the nature of the system really affects the business rules. Our system is predominantly high frequency, short runs, not like Blackball or BC Ferries. Maybe we need different policies based on the nature of our users. 100% reserved may not work for us – has anybody looked at systems comparable to us?
   *That's a great point. It's pretty clear that there are not a lot of comparables out there for WSF. Some are similar, like the system in Turkey and the Isle of Wight in England; they are close but not a perfect match. What we are trying to do is look at what we think will work here. Some systems reflect what will work for some parts of our system; we will have a mix.*
2. (Tom Wagoner) None of these systems are considered to be part of a major highway like we are here, is that correct?
   *BC Ferries operates as an extension of a highway system.*
   But those are one and a half hour ferry rides.
   *Yes, the short run, high frequency system that we have is fairly unique.*

3. (Lynne Danielson) I lived in Scotland for two years; the ferry there was similar to Edmonds/Kingston. It was a two hour drive around versus a thirty minute sailing. They didn't have a reservations system but they did have priority loading for commercial users.

Fauna and Michael interjected to say that unfortunately, there is no perfect comparison out there and we need to think about designing this system for ourselves.

**Group Discussion and Brainstorm**
Facilitated by Fauna Doyle of Berk & Associates

Fauna began the group discussion by saying that the conversation would be a difficult one that will not be solved in one night. The focus for this meeting is to hear everyone's ideals for the business rules. Every route and every sailing will be different, take a step back and don't look at specific routes, just focus on generalities. Fauna then went through the following business rules by customer type.

**How far in advance will customers be able to reserve a space on a sailing?**

1. (Jerry Weed) How will you differentiate between regular riders and recreational riders when someone calls up?
   *That's an IT issue which we are not worrying about yet. There is a group inside WSF that is looking at these problems and we will take these questions to them, but for tonight's discussion we are focusing on what we would like to see rather than the problems.*
2. (Paul Lundy) When is the new schedule put out?
   *Every three to four months.*
   What's the point of having reservations booked far out if the schedule is going to change?
   *We need to understand how far in advance we need to look out – is 90 days enough?*
3. (Lynne Danielson) Less.
   *When do you decide?*
   30 days.
4. (Paul Lundy) 30 to 45 days.
5. (Stephen Clifton) We need a qualifier; it may be seasonal. Summer may need a longer reservation period to ensure that you can get on a ferry the first week of August.
   *How much longer?*

If you implement this reservation system in the next two years and everyone in the country knows about it, people may need 60-90 days for summer reservations.

6. (Paul Lundy) We will be competing with recreational users.
   *Some business rules may only be used at certain times; these are some of the considerations.*
7. (Paul Lundy) I noticed that some of the reservations systems have a different system for commuters and commercial users.
   *Would you prefer that?*
   Yes, I think that would be useful. If I was a truck driver, I would want to know that I could get my truck on in advance.
8. (Jerry Weed) Commuters would like to have a reservation every day and then cancel when we have a change in schedule.
   *We will go to that question next.*
9. (Lynne Danielson) I believe you have a class missing from your matrix: the weekend resident. Someone who comes over to the peninsula every weekend, 52 trips a year, usually comes over on Fridays.
   *What does the weekend resident need?*
   It should be the same as commuters.
10. (Jerry Swanson) I am a weekend commuter; I agree with that.
11. (Steve Bauer) There may be some classes of riders like people with medical conditions that need preferential loading. If commuters tie up slots for an entire year, then maybe some people need a card and a code to give them preference for a reservation.
    *We will discuss that issue in the future, maybe at the next meeting. Tonight we want to try to get everyone's opinions on these business rules. How far in advance would commercial users need to make a reservation?*
12. (Steve Dolan) We could book out a whole year, or 30 or 90 days in advance, however it's easier to do. The trips out are more sure than the return trips.
    *So I'm getting that you could make a morning reservation a year in advance, but the return sailings are up in the air because you're not exactly sure when you're coming back.*
13. (Pete DeBoer) Sometimes I don't know until my staff comes in in the morning if we will need to use a ferry. Advance bookings would not help me.
    *So you would like to have the option to book the day of.*
    Yes.
14. (Tom Wagoner) We don't know which boat we will use in the morning. I usually have a general idea but not specific, and I have no idea about coming back. What if I get a last minute request from a customer?
    *Do you have any ideas on how to deal with that?*

You need to look at long term reservations and short term reservations available for commercial use, maybe preferential loading. The problem we face is that we have developed a customer base that is used to spontaneous trips being available. If our competition can get material there the same day and we can't we will lose business.
*How often are you not able to get on the boats as things are now?*
Coming back we wait longer, going over we don't have a problem now but we might in the future if there is a reservations system.
*So you're asking for same day and preferential loading for commercial users.*

15. (Lynne Danielson) Yes, and consider the same thing for commuters. Preferential loading would be nice, but I also sympathize with the people that are not commuters or commercial that have been waiting for hours.
*How close to a sailing would you want to be able to make a reservation?*
I think weekend commuters and daily commuters should get preferential loading.

**How close to departure will customers be able to reserve a space on the sailing?**

Fauna asked the group if one hour in advance for commuters and commercial users is sufficient. The group said yes.

1. (Ken Jones) On Friday afternoons commercial users trying to make a reservation – where would we put the vehicles?
*We are not covering that topic today. What about recreational users? How far in advance and how close to departure would be sufficient?*
2. (Diane Schostak) 4 to 6 months. People book their flights early and should be able to reserve the ferry at the same time.
3. (Vern Chase) Even if you have to wait with a reservation, at least you know where you stand.
4. (Tom Wagoner) If recreational users are coming in 40 foot motor homes, how will that affect commercial interests? You need to plan for that.
*Maybe we will put recreational users only on certain sailings and commercial users on others, especially large vehicles. We will need to know what they are driving; we are really reserving square footage.*
5. (Pete DeBoer) We need to encourage large vehicles to use non-peak times. Recreational vehicles have more flexibility than commercial users and the system should recognize that.
*We can vary these business rules by sailing; maybe make only certain sailings available that far in advance.*
6. (Greg Cioc) Variable pricing may help.
7. (Steve Bauer) In terms of how close to departure you can make a reservation, in a perfect world it would be instantaneous, but what do you

do with the standby? At what point do you stop giving reservations and start to manage the standby? There needs to be some period of time, maybe this is more of an operational question; we are still going to have a backup to deal with.

8. (Marianne Burkhart) On the matrix, what is the difference between a regular rider and a commuter – wouldn't that be a recreational user? *That is the class of riders who are residents that don't commute but do use the ferry fairly often. Any ideas for those riders?*
9. (Jerry Weed) They fit into the commuter category – 30 to 45 days out up to one hour before.
10. (Steve Bauer) People that drive up from Oregon that don't know about the reservations need to be alerted by signage on the freeway that's placed an hour away that tells them to call for a reservation.
11. (Stephen Clifton) Washington is the #1 state for in-state tourism, so I like the idea of being able to make a spontaneous same-day reservation rather than just showing up and taking your chances like we do now.

Fauna asked the group if they can think of any other business rules that the group should discuss later.

12. (Tom Wagoner) It would be nice to know the peak travel times; we need that data.
13. (Jerry Swanson) Will there be any charge to make a reservation? *There will be a deposit, not a separate charge. The deposit needs to be enough that people are encouraged not to no-show.*

**How close to departure will customers be allowed to change a reservation?**

1. (Jerry Weed) If you're coming from the peninsula and the bridge is open, that will cause a delay.
2. (Lynne Danielson) Traffic on the Edmonds side is the same, what about 90 minutes to 2 hrs ahead of reservation?
3. (Marianne Burkhart) From a user's point of view, it would be nice to be able to change a reservation up until 5 minutes before the sailing, but that may not be reasonable. Why not allow people to change the reservation up until loading begins when you physically have to handle the customers on hand?
4. (Stephen Clifton) The time for how close you can make the reservation should be when you should be able to change it; the minimum of one should be the maximum of the other.
5. (Jerry Weed) We have to allow flexibility for people to call up 30 minutes before and make a change.

6. (Lynne Danielson) I need to be able to change at the last minute when I get stuck in traffic. Commuters have fewer options than recreational users.
   *So the group agrees that the customer should be able to make a change either up to 2 hours out, 30 minutes out, or up until the point where you can no longer make a reservation. The group also agrees that this applies to all the classes of riders.*
7. (Jerry Weed) It will cause problems if you don't allow the flexibility to make a change, because people will come too early for their reservations and we will have a problem storing them.
8. (Steve Bauer) It seems that we are operating on a series of assumptions. People will wonder what we were thinking: for example, we want a system that is convenient for the customer and fills the boats; we have talked about priorities for commercial users and commuters. At some point we need a list of priorities so that we can show that we have designed the system in order to cover those points.
   *Yes, we need to be on the same page. We want to talk about ideals first, but we did identify the basic goals at our first meeting: provide more convenience for the customer, reduce the congestion in the communities, spread the demand out more evenly, and mitigate large amounts of capital spending in the future. We need to keep those in mind; maybe we should mention them at the beginning of each meeting. As we get further into the discussion we will define specific criteria that constitute success within those goals.*
9. (Pete DeBoer) We may need a separate standby list for reservations, a waitlist maybe.

**How close to departure will a customer be allowed to cancel a reservation?**

Fauna and Michael clarified that a cancellation is different from a change, because no reservation is made in place of the one being cancelled. The decision needs to be made as to whether or not there will be a cost for not showing up, like losing the deposit.

1. (Paul Lundy) Do you want to penalize people that are cancelling well in advance versus last minute? The cancellation policy should be time based; maybe don't charge a fee if the reservation is cancelled far in advance. If a commercial business has a project cancelled on them, they will need to cancel reservations for their trucks.
   *Up until what point should there be no penalty?*
2. (Lynne Danielson) 24 hours before.
   *Other system's cancellation policies may depend on the type of ticket as well as how much time in advance. Any other ideas on how much time?*
3. (Tom Wagoner) So will there be a charge to make a reservation?

*There will be no additional charge to make a reservation, but we may charge a portion of the fare in advance as a deposit to encourage people not to no-show. We will not focus on that detail today. It seems fair to say that the group has agreed that a customer should be able to cancel 24 hours prior to a reservation without a penalty. The group also agrees that there should be a penalty if you cancel less than 24 hours before the sailing. To clarify, a cancellation is different from a change because a change means that you will be rebooking at some point, so it is not considered a cancellation. Should the penalty for a cancellation be different for commercial users?*

4. (Pete DeBoer) I think that comes back to the type of user; if you have a running reservation for a truck, and one day it doesn't go, would it be a cancellation because you are already reserved for the next day? There shouldn't be a penalty for that.
5. (Lynne Danielson) But wouldn't you know 24 hours in advance?
6. (Pete DeBoer) No, maybe 12 hours. What if we have a breakdown?
   *So let's say 24 hours no penalty, less than 24 hours would incur a penalty. We will come back and discuss this more in the future. Perhaps there should be some allowance for commercial users.*
7. (Steve Bauer) We need to weigh the competing interests of the system versus the customer.
8. (Jerry Swanson) That comes back to the rule of how much of the boat will be reserved. Airlines have non-refundable tickets and also refundable tickets that cost more – that might be something to consider.

**What happens if a customer misses his or her reserved sailing?**

1. (Lynne Danielson) They would forfeit the deposit.
2. (Marianne Burkhart) What if people do it routinely, should there be an additional penalty for that?
   *If a lot of people are no-showing, it probably means that the deposit is too low. The rules will be modified as we go.*
3. (Paul Lundy) For commercial users, I'm wondering if losing a deposit is right for them; we need to look more closely at that. Ferries should explore having different rules for heavy commercial users.
   *So the group agrees that the forfeiting of the deposit rule on cancellations may be different for commercial users. Perhaps there should be a smaller deposit taken for large commercial users. The tariff proposal wording does give us the option of a sliding scale based on vehicle length.*
4. (Tom Wagoner) We have paid over one hundred thousand dollars a year for ferry use; we are a big contributor.
5. (Pete DeBoer) What if you call for a reservation at 3 pm and can't get on until 11 pm, so you get in line for standby and manage to get on an earlier

boat – is that considered a cancellation? There should be a 24/7 phone service available.
*Hopefully the ticket taker would have been able to apply that when you got on earlier, so it would be a change, not a cancellation.*

6. (Steve Bauer) There are two different kinds of commercial users: the big trucks, then there are the business people who are in smaller vehicles. We need to be clear on the different classes of users.

**What happens if WSF has to cancel a sailing?**

1. (Lynne Danielson) Everything rolls to the next boat.
2. (?) Give a full refund.
3. (Jerry Weed) What if the next boat is fully booked?
4. (Dianne Schostak) Maybe priority standby?
5. (Greg Cioc) How do you explain that to the next group?
   *So the three options I am hearing are a full refund, rolling to the next boat, and priority standby for the next boat.*
6. (Jerry Weed) The full refund doesn't make sense because they are there and want to travel.
   *It gives them the option to leave and drive around.*
7. (Sonny Woodward) Are these comings and goings creating a logistical nightmare for the ticket sellers and traffic handlers?

At this point the group decided to try to make the next boat out of Kingston, so Fauna thanked everyone for their ideas and asked for any last comments.

8. (Jerry Swanson) On the Port Townsend/Keystone run, 50% of the boat was reserved, and then it was changed to the whole boat – which was more effective?
   *We have that information and we can provide that for you at the next meeting.*

**Summary and Next Steps**
Communications Director Marta Coursey

Marta asked the group about meeting dates and times. The group confirmed that the earlier meeting time is working for them. Stephen Clifton mentioned that the Edmonds meeting room is booked on the third Wednesday of September, so that date would not work for the next meeting.

**Public Comments**

1. It would be nice if there was a way to notify commercial users of a cancelled sailing so that they can plan to go around.
2. (Commenter stated his name: Tom Thiersch) I have a suggestion based on what I've heard here. I think we should pay attention to the lessons learned at Port Townsend/Keystone and Anacortes/Sidney. We can learn from those systems that have reservations already. We should compare and contrast and learn as much as we can. Also, the people that have worked the system, those employees who have dealt with the public, can help us contrast the hypothetical with the reality that they have experienced when things go wrong. Perhaps we should invite some of the ticket takers to one of these meetings.
   *We have interviewed those staff and we will provide that information at a future meeting.*

**Conclusion**

Fauna thanked everyone for coming. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| X | Anway, Dick |
| X | Bauer, Steve |
| X | Burkhart, Marianne |
| X | Chase, Vern |
| X | Cioc, Greg |
| X | Clifton, Stephen |
| X | Danielson, Lynne |
| X | DeBoer, Pete |
| X | Dolan, Steve |
| X | Jones, Ken |
| X | Lundy, Paul |
| | Reeder, Melanie |
| X | Schostak, Diane |
| X | Swanson, Jerry |
| X | Wagoner, Tom |
| X | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- David Moseley, WSF Assistant Secretary
- Doug Schlief, WSF Operations Manager
- Ray Deardorf, WSF Planning Director
- Marta Coursey, WSF Communications Director
- Leonard Smith, WSF Operations
- Rachel Waitt, WSF Terminal Engineering

**Public Sign-In**

- Tad Sooter, Kingston Community News
- Tom Thiersch, Jefferson County FAC

Washington State Department of Transportation

Washington State Ferries

# MEETING SUMMARY #3
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# EDMONDS CITY HALL, EDMONDS, WA

WEDNESDAY, SEPTEMBER 9, 2009 5:00 – 7:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items

Washington State Department of Transportation Ferries Division (WSF) to:

- Provide ridership data for Edmonds / Kingston during the summer of 2009
- Define "Commercial User" more clearly. Is it about the size of the vehicle or the use?

## Welcome and Introduction

WSF Operations Manager Doug Schlief, Meeting Facilitator Fauna Doyle

Doug welcomed everyone and thanked them for their effort and participation. He then introduced Steven Vandor, WSF IT Director who was in attendance in the audience.

Fauna briefly went over the agenda and each of the handouts. She asked the group if they had any questions about the packet; the group had no questions.

## Business Rules Process & Progress

Meeting Facilitators Fauna Doyle & Michael Hodgins

Fauna referenced the orange handout as she summarized the discussions from the first two meetings, noting that nothing was completely resolved in those meetings but many helpful suggestions were made. She went on to say that tonight's meeting would focus on the overarching concepts and type of reservation system, while the September 30th meeting would focus on operational business rules and the October 14th meeting on IT opportunities and challenges.

Michael then referenced the white discussion guide as he described some of the issues relating to how much space should be available for reservations on the boats. Some other systems have an "airline model" which is pretty much 100% reserved; we are thinking about using a similar model during peak times to

minimize the amount of people showing up hoping to get on a boat. We need to keep in mind what that means for spontaneity, and remember that people have built their lives around the "first come, first served" model. BC Ferries has more of a 50/50 model, but they have the terminal capacity to deal with that volume. It is also treated as a premium service with an extra charge incurred, similar to the 167 Hot Lane model. It's important to talk about the implications of reservations on our system and the operational pros and cons of reservations during peak periods. It will mean different things for different terminals. The goal for tonight is to discuss what portion of the boats should be made available for reservations versus drive-ups, and whether we should segment part of the boats for different classes of users. Different groups of riders have different preferences and different ways of making travel plans; we hope to be able to target certain customers toward certain sailings. Also, we will discuss the taking of deposits to encourage people to honor their reservations. Tonight's topics will help drive the next two meeting discussions. Michael then asked the group if they had any questions about the discussion guide; the group had no questions.

**Goals & Evaluation Criteria**

Fauna stated that at the last meeting, group members requested a clear definition of the goals and objectives of a reservation system, in order to keep them in mind during the discussions. She referenced the tan handout which lists these goals and evaluation criteria, and invited feedback from the group – is anything missing or confusing on this list?

**Questions and Comments**

1. (Walt Elliott) I saw that we have talked about spontaneous travel, but I did not see that covered in the criteria. Does the customer see a boat that is completely reserved? What about the uneducated rider? The couple from Germany that shows up and has no idea about the reservations – is there a way of not making that a totally unpleasant experience for them?
2. (Pete DeBoer) We need to be able to deal with the impact of something that happens outside of the ferry system, like the Hood Canal Bridge closure. How does that impact reservations? An accident, traffic jams; we need to be able to correct it on the fly. We might be loading standby because reserved people didn't show, then they show up at the last minute – what do we do?
   *So there should be something about the ability to correct on the fly; the system should be responsive.*
3. (Walt Elliott) Will this system work when things back up – there is uncertainty outside of the ferry system.

*Have we captured the day to day basic criteria that will work when things are going well?*

4. (Walt Elliott) There will be those people who are on the road, and they have to make a change when the office is no longer open. It needs to be dynamic, so people can be driving and call in from their cell.
   *So you need to be able to make a change in real time, on the road. In terms of communities, not customers, the main concern is congestion at their terminals. Is there anything else that we should be thinking about in terms of what would help the ferry communities? (There was no response to this query) Any comments on the list of what works for WSF? This is our list of course; do you see anything missing or have any questions?*
5. (Tom Wagoner) It seems like we blew off this graph information – this would help the ferries. It would have been nice to have had this last summer's numbers to see how many cars came and when. There are days here that you don't need a reservation; that should be factored in. There are days when no one would disagree that reservations are important, but to start with we need the facts in front of us. At Colman dock, if I have a commuter card I can go through a tollbooth that is for commuters; if I'm a commuter I would like that service in Edmonds and Kingston. We have three tollbooths; we should be able to work that somehow. In fairness to this group, we need a printout to see vehicle data for last summer; maybe we don't need reservations in winter, but we need it for summer. I know that you have to go the Legislature, so instead of a grandiose project, what if you went to them with only reservations on Fridays and Saturdays for the pilot route?
   *Question #3 deals with whether we need reservations on every sailing; we will get to that.*
6. (Walt Elliott) Ferries should manage the implementation so that it's not an overnight change. It should be managed in a better way. Switching completely and suddenly overnight is very risky from a service perspective.
   *(David) We had cameras at Kingston this summer 24 hours a day in 4 or 5 locations. It may be helpful to look at that to see where the congestion is, combined with our summer ridership data. That may help us answer the question of when reservations would be most useful.*
7. (Tom Wagoner) We should look at other times too. Is it needed year round?

**Reservation System Overarching Concepts**

Fauna outlined the goal for the discussion: we will talk about each question on the agenda, and then take feedback about each. Think about the type of system given what our goals are and what that means for each of these options.

**What portion of vehicle space should be available for reservations on a peak sailing? What portions for standbys?**

Michael stated that when the discussion about the feasibility of a reservations system began, there were concerns about how much of the boat would be able to be reserved, and if it should vary by time, date, or route. We need to match the business rules with demand and the characteristics of the route.

**Group Discussion**

1. (Walt Elliott) Don't switch to a new system overnight; a gradual change would be better
   *In terms of designing this system, the goal is to layer reservations on top of the system that we already have in place, leaving some room available for drive-ups. There will be terminal implications during peak times. So are we thinking that for peak sailings we should reserve 50-75% of the deck space?*
2. (Paul Lundy) 30-40% of your ridership looks to be prepaid, from the multi-ride cards. You would want to at least match that because you have a guaranteed base there. During peak times start with what you see already.
   *Like the "frequent flyer" model.*
   (Paul Lundy) You don't want to penalize the people that already use the system regularly.
3. (Marianne Burkhart) That would make sense Monday-Friday, but not for the weekends for recreational users. If I know that 60% is not reserved, I'm going to get in line, which is exactly what you don't want. 75-80% during peak times is better.
4. (Walt Elliott) It's hard to make comments without data; the next survey you do should include questions about reservations, to get more information. You spend a lot of money on those surveys; you should get something out of them.
   *So do we want mostly reserved or not during peak sailings? Are some of you saying less is better?*
5. (Marianne Burkhart) That's what we have now and it doesn't work.
6. (Pete DeBoer) There is still the traffic issue – where do you put people?

*We have a team working on that issue; we need to know your thoughts on these questions. Are there any thoughts about how much space is available for reservations that would make the situation better or worse?*

7. (Dick Anway) Use the dock only for the reservations; that's all you can use. We have very limited space; it won't work to sort them at the booth.
   *If most of the boat is reserved, would that make it easier?*
   (Dick Anway) How do you sort them up the hill?
   *They won't come if the don't have a reservation.*
8. (Pete DeBoer) If 60% is reserved and 40% is left available, how will they get up there?
   *We will talk about that in future meetings.*
   (Pete DeBoer) 75% reserved.
9. (Sonny Woodward) We could get this perfect on paper, but when people are trying to load the boat and keep a schedule, it will get confusing.
   *We will talk that through in future meetings. So the group is saying no less than 75% of the deck space should be available for reservations during peak times.*
10. (Jerry Swanson) It works in Port Townsend where I live. There are some backups sometimes; the dilemma is getting through the tollbooths, which can be fixed. Once it is communicated well it may reduce the number of people just showing up, but people will come at peak times – that's what makes them peak times. We still face the flow, we just need to flow a boatload at a time which means reserve the whole boat. That's presupposing that there will be no spontaneous riders, so maybe 75-80%.
11. (Jerry Weed) The closer to 100% the better during peak times; it makes more sense. Maybe a variable rate of 100% during peak and 80% off peak. There will be operational concerns from both sides unless this is all clearly communicated. We need reservations during peak times.
12. (Paul Lundy) Most systems have reservations.
13. (Walt Elliott) We could be worse off with reservations than we are now. At least now you know you will eventually get on a boat. With reservations you may find out that the boats are full for the whole day. You need the room for spontaneous travel because driving around is not a good option.
    *If you have a boat that is nearly fully reserved you can still hold space for last minute drive-ups. So what I'm hearing is that the group thinks more space reserved during peak hours is good, leaving some space for spontaneous travel.*
14. (Walt Elliott) Do you know how much you need to allow for vehicles that take up different amounts of room?
15. (Tom Wagoner) Sundays out of Kingston you may see trailers, and Fridays you may have commercial trucks. 4 semis take up a huge amount

of space. Putting a sign up a couple miles out saying "Reservations Only" will cause people to drive around and you will lose revenue. If you're going to do this you should do it right.
*So it needs to be communicated really well in order for it to work. So approximately 70% during peak hours is what I'm hearing. The non-peak version could scale down to maybe 50%.*

16. (Lynne Danielson) What I'm hearing us all talk about is the exceptions; what if, what if. If you start changing and varying every sailing, what you're going to do is give the uninformed customer a moving target. I understand that ridership varies, but if you pick one level everyone is aware that they need a reservation. Do I want a reservation or do I want to take my chances? If it's consistent, no boat will leave the dock with people waiting when the boat is not full.
17. (Marianne Burkhart) If you have the same level peak or no peak, you will be spending money taking reservations when you don't need to.
*What's your idea for non-peak?*
(Marianne Burkhart) Next to nothing; somewhere between 0-20%. It should say on the web page: non-peak, reservation not required. Then people won't bother and you won't spend money taking reservations when you don't need to.
18. (Paul Lundy) I side with Lynne on this. Consistency is something we can all appreciate. It should be stable.
*So keep it fixed all the time and people will learn from experience when they should make a reservation.*
19. (Walt Elliott) It's easier to get your mind around requiring reservations between 8am-8pm, for example, and having no reservations at other times.
*So we would not take reservations at those times; make it unavailable?*
20. (Paul Lundy) If you're going to do it, take them all the time or it will be trouble.
21. (Lynne Danielson) There will be people who forget to make a reservation or don't know to make one. Commuters know exactly when it would not be ok to come without a reservation. If I have a reservation on the 6:30 pm boat, and I get done with whatever I'm doing early, I will park in town and spend my time in local shops rather than waiting in a ferry line.
22. (Dick Anway) I don't know if anyone knows this, but there is no such thing as a 3 hour wait anymore. We're good nowadays, we're sophisticated. The maximum is about 90 minutes I would say. You have to think about where and when people are waiting; we don't have that long of waits.
23. (Lynne Danielson) Yes we do.
*So you're saying no reservations during non-peak times?*

24. (Dick Anway) No, I didn't say that. I'm saying, looking at percentages, we don't have that long of waits anymore. We're good these days.
    *So it sounds like we have two camps: some who say we need reservations all the time, and some who say we need reservations sometimes and sometimes not.*
25. (Jerry Swanson) I have used the Port Townsend reservation system. I will make reservations in advance; I know which ones are not available and I don't try for those sailings. I know when to show up and I don't have to wait in line. Sometimes there's a queue but it works wonderfully. The technical problems can be worked out. I have not taken the Port Townsend boat on a chance since the reservations were started, so it has changed my behavior.
26. (Jerry Weed) It has changed mine too; it works.
27. (Tom Wagoner) How do commercial users fit in to this?
    *That's where we are going next.*

**How should reservation space be allotted to different customer types?**

Michael discussed how customer class affects reservations; should there be portions of the boat available to different customer types, where we would hold space up to 24 hours before the sailing for those customers to reserve. Maybe we would make a higher percentage of the boat available at certain times to some groups, or leave more room open for other classes.

Fauna mentioned that she had heard from the group in previous meetings that frequent riders and commuters should have preference because they don't have as much flexibility as other riders. How can we allot space for those riders without flexibility and push the flexible customers to other sailings; what would you like to see done there?

**Group Discussion**

1. (Paul Lundy) My feeling is that if you have a frequent user account, you should be able to make reservations long in advance, especially commuters. You know that you will fill the boats with those users, they should have preference.
   *The group said in the last meeting that commuters may not know as far in advance as recreational users; people that are making reservations far in advance want that certainty.*
2. (Walt Elliott) You need to group the users in a way you can identify.
3. (Paul Lundy) We could set a base today, and then as you pilot reservations on this route you could adjust it.

4. (Tom Wagoner) If you study commercial traffic on this route, only a very small percent are scheduled trucks. Steve tries to catch the earliest sailing. It used to be more when Safeway came across, but they drive around now. I look at the ferry as part of the highway; we have people that rely on that highway to do their thing.
   *So we should hold space for commercial users?*
   (Tom Wagoner) If you do that you should hold the whole tunnel.
5. (Lynne Danielson) How much of the boat is the tunnel?
   *4 lanes out of 12.*
   (Lynne Danielson) So 33% is the only part large enough for semis and trailers.
6. (Steve Dolan) I don't worry about mornings or weekends, I worry about trying to make a reservation when I don't know for sure when I'm coming back. Do I make the reservation for an earlier sailing and risk missing it, or make it for a later sailing and sit and wait? Coming back is the issue; it's very complex.
   *How far in advance do you know for sure when you are coming back?*
   (Steve Dolan) It's a shot in the dark.
   *Do you know an hour in advance?*
   (Steve Dolan) 30-40 minutes, maybe an hour. We can adjust; we have cell phones. I would feel bad making a reservation on a full boat and not being able to make it.
7. (Dick Anway) This is state route 104. You can't deprive people of using the highway, and you can't make them go around.
   *So someone said let's do it by time, but I'm hearing for commercial that that may not work for them. Any other groups that this might not work for?*
8. (Patricia Willestoft) Most of my experience is from the twilight ferry during the Hood Canal Bridge closure. There were 6 spaces available for large trucks and we had a standing reservation for 4 of those. It's difficult to try to make decisions far in advance for us; we had to know by 24 hours in advance and we didn't always. We made it up as we went along. We only had one instance where we didn't make our reservation out of the whole 4-5 weeks. Making a reservation is not an issue, it's what happens when things come up and you can't make your reservation.
   *For people who are not commercial users, should there be select space set aside for them or access before other users?*
9. (Walt Elliott) How do you do it in the San Juans?
   *They get booked by season and they pay for the privilege of being able to do so. The San Juans are an extreme example because of the narrow lanes and limited truck capacity. Invariable we have more demand than we have room available.*

10. (Tom Wagoner) So we can make a reservation for the San Juans.
    *It's done by season and priority is given to more frequent users; it's not for one time use.*
11. (Pete DeBoer) You have commercial users that are not in big trucks as well. We may need to go see a client maybe once or twice a month or just for a couple weeks. Lots of the morning traffic from Kingston is commercial or commuters.
    *So does that say to you that we should reserve space for those groups?*
    (Pete DeBoer) For those people it's better to know that you can have a reservation, but you still need to not make it a bad experience for tourists.
12. (Lynne Danielson) I can't think of anything worse than a tourist coming and waiting 2 hours with screaming kids in the backseat. Space needs to be set aside for commuters in the mornings and afternoons; a stable number that is easy for people to understand. It may vary based on the time of year; there are a lot of teachers coming over and they commute only during the school year.
13. (Sonny Woodward) Is there any segment of the boat reserved for military operations? We have the base in Everett and also the Banger base.
14. (Walt Elliott) The space they need is for buses. They should be treated like a commercial user or like school buses and transit.
15. (Lynne Danielson) You need to make sure the space that they can fit into is available for them. They don't have the option to go up the side of the boat.

**Should deposits be required for reservations?**

**Group Discussion**

1. (Lynne Danielson) No. I already make a deposit by buying in advance. You get the money until I use it.
   *Let's talk about this by group. Should prepaid card holders pay a deposit?*
   (Lynne Danielson) No.
2. (Marianne Burkhart) In terms or recreational users, you want people to make one reservation, not several in an attempt to keep things flexible. If there is no deposit there is no commitment and they won't take it seriously. Commuters do take it seriously.
   *Do you have a sense of how much the deposit should be?*
   (Marianne Burkhart) 25%.
   *Deposits are tied in with honoring reservations. The no-show problem is very difficult to deal with. It seems that there may be opportunities within each group to encourage people to honor their reservations other than taking deposits, but what are those tools? If you are a commuter and you*

*don't make a deposit, then you no-show without canceling and abuse the privilege, what other incentives besides a deposit would limit that? Perhaps not being able to make a reservation for a month, etc?*

3. (Walt Elliott) I think you could handle that through IT. The airlines catch you if you try to do that. The system could prevent people from making multiple reservations.
   *That's a good suggestion, but what about the people who drive 3 days and walk-on for 2? Do they make a reservation for 5 days and just miss two of them?*
4. (Paul Lundy) If you have a Wave-to-Go card, they have your account number, they can debit the trips that you miss; that would hurt.
5. (Lynne Danielson) A 100% deposit would be buying the ticket in advance. The commuter deposit is the fact that they are buying tickets; if I don't show up, I lose the ticket. Recreational users make a reservation 6 months in advance, then print it up and put it with all the other reservation items.
   *So you lose 100% if you don't show, because you have paid it all in advance.*
6. (Walt Elliott) It should be a fixed amount. That's serious money if you bring a trailer versus a car. One person forfeits $16 and another $60? That's not fair; it should be fixed.
   *So if the ticket costs $10, then you pay $10 and if you miss it you get back $5?*
   (Walt Elliott) Everyone should forfeit the same amount; you shouldn't penalize people for having larger vehicles.
7. (Paul Lundy) Almost all systems ask for money up front. A prepaid line would be nice, to get through faster.
8. (Jerry Weed) If you reserve a space, you pay for that space. If you don't show, you pay; you're out of luck.
9. (Jerry Swanson) For the 20 single trip user, there would have to be a way for me to make that reservation, and then if I don't show I lose that trip. The computer can handle that.
10. (Tom Wagoner) The tourist from Oregon, who is coming up the peninsula, calls in and pays the full fare for their reservation on a motor home, which is a lot of money. Then something happens and they can't make it, are you keeping or refunding that money? You should refund all but $10; you can't keep it all.
    *So you think there should be a flat penalty.*
    (Tom Wagoner) Yes, a small one.
    *What if he calls in time to change it?*

(Tom Wagoner) What if he decides to drive around and won't use it? It needs to be customer friendly.
*So I'm hearing that commuters using multi-ride cards will lose a ticket if they no-show unless they cancel in time. Others are saying flat rate with a minimal amount lost. Let's look at commercial, should they lose something when they no-show?*

11. (Pete DeBoer) No deposits for commercial.
12. (Steve Dolan) You have our charge account numbers; you know we are going to pay anyway. I just need to be able to move trips around.
13. (Walt Elliott) If this comes off as a mean-spirited thing, the people will shut you down. It has to appear to be a friendly thing; keep that in mind. There needs to be equitable treatment. Ferry riders will see this as unfair.
    *So you think it should be the same for everyone?*
    (Walt Elliott) Yes.
14. (Patricia Willestoft) We need to define what we are calling commercial; is there a difference between a van and a large vehicle?
    *So when we say commercial, we are talking about the people who are in our system now.*
15. (Pete DeBoer) Some need that premium space because they can only fit in the tunnel.
16. (Patricia Willestoft) Are we talking about the users that would only fit in the tunnel?
17. (Pete DeBoer) That's what we mean; are we talking about size or usage?
18. (Sonny Woodward) You shouldn't lose site of the fact that this is a highway, and truckers are paying a tremendous fee to use that highway.
    *So no penalty for commercial users?*
    (Sonny Woodward) You may have to train them a little bit.
19. (Pete DeBoer) The penalty is that if you miss the reservation, you go to standby. If you prepaid your ticket you shouldn't lose it.
20. (Lynne Danielson) We're starting to mix things up; we are talking about a no-show, no-call situation. Should there be a penalty? Yes. There is nothing in this world that you sign up for that you wouldn't lose something if you don't cancel properly.
    *So if you no-show, there should be a penalty.*
21. (Jerry Swanson) There should be equitable treatment. The minimum fee to take a car on is vehicle + driver. That should be the fee, even if the reservation is for a larger vehicle, then everyone loses the same amount.
22. (Paul Lundy) I like that.
23. (Walt Elliott) We hear about the abuse at Port Townsend with the no-shows, is there any insight on what types of users don't show? Any patterns?

*If there is no cost to make a reservation, you can make multiple reservations. Only about 7% of that run is made up of commuters. There is a 35% average rate of no-shows. It's not commercial users either, because there is only room for 4 trucks. It's a mostly recreational/tourist route. Our experience shows that if we are having a problem with no-shows when there is no penalty, applying a deposit makes a huge difference. This is something that we can say that we actually know from experience. We had this issue at Anacortes/Sidney, and when we applied a deposit the no-shows dropped to 5%. This is an area where we know there is a solution to a problem that causes huge operational issues at the terminals.*

Fauna went over what was discussed during the meeting then turned it over to public comment.

**Public Comments**

1. (Evan Stoll) I was invited to come here tonight as a result of a letter that I wrote. It states that I can see that we have a problem with congestion, but I haven't seen a good statement of goals and objectives. They need to be measurable, and show how you plan to accomplish them. How do you measure success and failure? I hear a lot of assumptions being made here that are not helpful. This issue with deposits doesn't relate back to reducing congestion; are you just trying to penalize people? Why have an all or nothing system? Why not just reserve 25% of the boat? I have seen no line-queuing theories. This information seems to be based on assumptions; it's very discouraging.

**Conclusion**
Fauna thanked everyone for coming and went over the dates of the next meetings: 9/30, 10/14, 10/28, 12/2. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| X | Anway, Dick |
| X | Bauer, Steve (Alternate Rebecca Pirtle in attendance for Steve) |
| X | Burkhart, Marianne |
| | Chase, Vern |
| | Cioc, Greg |
| X | Clifton, Stephen (Alternate Rob English in attendance for Stephen) |

| | |
|---|---|
| X | Danielson, Lynne |
| X | DeBoer, Pete |
| X | Dolan, Steve |
| | Jones, Ken |
| X | Lundy, Paul (Alternate Walt Elliott also in attendance) |
| | Reeder, Melanie |
| X | Schostak, Diane |
| X | Swanson, Jerry |
| X | Wagoner, Tom |
| X | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- David Moseley, WSF Assistant Secretary
- Doug Schlief, WSF Operations Manager
- Ray Deardorf, WSF Planning Director
- Marta Coursey, WSF Communications Director
- Rachel Waitt, WSF Terminal Engineering

**Public Participants**

- Evan Stoll, Kingston
- Darin Lang, Seattle
- Justin Sloyter, Seattle

Washington State Department of Transportation

Washington State Ferries

# MEETING SUMMARY #4
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# KINGSTON COMMUNITY CENTER, KINGSTON, WA

WEDNESDAY, SEPTEMBER 30, 2009 5:15 – 7:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items

Washington State Department of Transportation Ferries Division (WSF) to:

- Provide the group with a list of all the business rules that have been discussed
- Provide ridership data for different sizes of vehicles throughout the year
- Provide a Kingston Terminal Discussion Guide that parallels the Edmonds Terminal Discussion Guide

## Welcome & Overview of Agenda

WSF Operations Manager Doug Schlief, Meeting Facilitator Fauna Doyle

Doug welcomed everyone and thanked them for their continuing attendance and participation.

Fauna briefly went over the agenda and each of the handouts. She asked the group if they had any questions about the packet; the group had no questions.

## Review Progress to Date

Meeting Facilitator Fauna Doyle

Fauna referenced the Emerging Elements handout and discussed what WSF has heard from the group so far. Several key factors for success have been outlined by the group including the need for clear communication to the customer, system adaptability, strategies for exceptions and a high level of consistency. Next Fauna went over the business rules that have been generally agreed upon by the group, as well as some proposed parameters for vehicle processing. A lot of progress has been made, though some things will have to be brought back to the group for more discussion. Fauna stated that key points are emerging and asked the group if they have any questions or comments.

## Questions and Comments

1. (Paul Lundy) It would be nice to have a line by line listing of all the business rules that we have discussed.
   *The business rules on the handout are the ones the group has agreed to. We can provide a list of those rules that have been discussed but not agreed upon.*
   (Paul Lundy) I think its important to see them all laid out; maybe there are some that we can agree on now that we didn't agree on before.
2. (Patricia Willestoft) How will the confirmation number and barcode work for commercial truck drivers? I'm concerned about what happens if the dispatcher is the one to make the reservation and has to get that information to someone who is driving. We don't need to talk about this now; I just wanted to mention my concern. We can discuss it later.
3. (Paul Lundy) Will there be another opportunity to discuss the business rules that have not been agreed on, like refunds?
   *Definitely. We have three more meetings to finish that conversation. We kept hearing from the group that you wanted to talk about vehicle processing and then get back to business rules.*

**Group Discussion & Brainstorm (Vehicle Processing & Terminal Constraints, Edmonds/Kingston Terminal Challenges & Options)**

Fauna referenced the Framework for Vehicle Processing at Terminals handout and explained how each terminal was placed in one of the four quadrants based on holding capacity and length of headway. Some terminals have enough space and long enough headways to allow for a reservations system with little or no vehicle processing or terminal modifications. Other terminals are much more challenging and will require more modifications. These terminals will have different rules regarding reservations such as tighter arrival windows and less room for drive-ups. Edmonds falls into the most challenging quadrant defined by shorter headways and an inadequate holding area. Fauna then invited discussion.

**Group Discussion**

1. (Marianne Burkhart) What is headway?
   *Headway has to do with the time between vessel departures. Shorter headways mean that vehicles have to be processed faster.*
2. (Paul Lundy) What is remote check-in? How do you check in if you are a half mile up the road?
   *There are a variety of ways being discussed. One example is a booth that only allows check-ins placed somewhere up the road. Another is a hand-held device.*

3. (Paul Lundy) Regarding restricting the number of drive-ups, why would you do that in Kingston? I can see for Edmonds, but why Kingston?
   *That may not apply for Kingston. It is just listed as one of the potential ways to make reservations work.*
4. (Pete DeBoer) In Kingston we don't have the road capacity to sort people before they get to the holding area, and sort them within 30 minutes. It brings the town to a standstill. We need to figure out how to handle it and allow the town to have their space.
   *The theory is that people won't be backed up for hours because during peak times when reservations are in effect they will be arriving about the time that the last boat has left. If it works correctly, you won't have the backup in the community.*
   (Pete DeBoer) That would work if the boats are on time.
5. (Stephen Clifton) Framework 4 has the option of advance check-in. Would that work for 1 & 3 as well?
   *It would be easier if there were longer windows between sailings; each terminal has to be looked at individually. Nothing is being taken off the table; we will add that as a question mark.*
6. (Jerry Swanson) Signage is key; structure it so that one lane gets right to the tollbooth, then you have another lane to hold the non-reserved traffic. You have a second lane out toward the street. 2-3 of the tollbooths can handle people with reservations, and then the other can handle drive-ups. Have something similar in Kingston. If you look at the data for August, its not just weekends anymore that get backed up. Fill the boats and get them sailed. Proper signage and experience will make it work. People will learn what to do.
7. (Dick Anway) There is no way in the world that you can do that; that Port Townsend lane is for the extra when we are full. If one car comes down there people get very angry.
   *What would you do instead?*
   (Dick Anway) Send them straight to the dock.
8. (Ken Jones) The first 6 months are going to be tough.
   *Yes, there will be a roll-out period that will be tough; anytime you change things people will get upset.*
9. (Dick Anway) You can't let people pass other cars; it's not going to work.
10. (Marianne Burkhart) People will know that they have a reservation.
11. (Dick Anway) What about the people that cut in illegally?
12. (Lynne Danielson) Eventually people will learn; it goes back to consistency. I drive this drive everyday, and when it's slow it's ok to turn off Dayton into the holding lanes. It's about consistency. It will be difficult at the beginning. Ferry workers will take a lot of flack.

13. (Paul Lundy) Use the Port Townsend lane for drive-ups, then you have the inside lane free for reservations. Keep the drive-ups off to the side sequestered, and then allow reserved people to go to the left.
14. (Dick Anway) You think someone is going to let him in? We can't even get our police cars in there sometimes. I think someone needs to spend 6 hours there and watch this stuff. I've done this for over 30 years. We've got problems coming when you start passing cars.
15. (Tom Wagoner) I worry about the tourists and the guy traveling that's not aware that there are reservations. What do you tell that guy, that he's going to sit in line until there's room?
    *How does he do it now?*
    (Tom Wagoner) He knows that the boats are going back and forth and he will get on.
    *This is a lesson we learned from Port Townsend which is a very recreational route. A lot of people didn't know that there was a reservations system until they saw the sign. What we found to mitigate that issue is that you need to have very good communication with the customer. The hospitality industry was very useful. Hotels and Bed & Breakfasts would make the reservations for them. Also, local businesses near the terminal, like Windermere, let people come inside and use their computers to make reservations. We need to find a convenient place for people to make reservations.*
    (Tom Wagoner) How far up the road are you going to put signage?
    *Very far up the road.*
    (Tom Wagoner) Discovery Bay?
    *Yes, definitely prior to the Hood Canal Bridge. What happens today is that we have a two hour backup in Kingston when Bainbridge is empty, if we can communicate which boat is better we can spread that out. The key is giving people choices.*
16. (Paul Lundy) I used to love the light signage on Hood Canal. I made my decision when I saw that sign; it helped for years. In terms of kiosks for check-in, two locations are prime: Country Corners approaching Kingston, and Taco Bell approaching Edmonds.
17. (Tom Wagoner) You aren't doing everyone a favor by sending them to Bainbridge. If you have a large motor home or trailer, would you really want to go through Seattle? We need to be fair to them.
18. (Pete DeBoer) Another place for a kiosk for westbound tourists is on the ferry boat. They could plan their return; it might be that night or in two weeks, but they could do it right there on the boat. It will give tourists a good experience.
19. (Sonny Woodward) Have someone on the ferry available to do an online situation right there, some form of kiosk or person that can help with that.

20. (Steve Bauer) Regarding communication and education, the notion of letting the customer know ahead of time, status boards are good for that. The customer needs real-time information; low-frequency radio would be good. The problem is letting people know what's going on right now. Segregating lines may be a problem because people need to be able to get out. The concrete barrier poses a problem; you want to be able to get reserved people out of the lanes and down.
    *BC Ferries had multiple reader boards that you drive under that show the fullness of the boats, which is a good example of real-time information.*
    (Steve Bauer) That would cost a lot of money.
    *Yes but it may be essential. BC Ferries can store a lot more cars than we can.*
21. (Diane Schostak) Visitor Centers are a natural place to put kiosks.

Fauna directed the group to the Edmonds Terminal Discussion Guide to focus the discussion on the challenges of the Edmonds terminal. The current holding capacity at Edmonds is 155 cars inside the booths, with 7 holding lanes and three tollbooths. There is less than 50 minutes of headway during peak times, and not enough space to store 120% of the vessel capacity. There are three main options: the first, which is not legislatively scoped, would be to buy more land and expand the terminal. This would make it easier to have less restrictive business rules while also meeting the goal of reducing congestion in communities. This is also the most expensive option. If this option is not possible, we have two options left. We could simply not offer reservations leaving Edmonds. There would be no modifications made; this is the least expensive option. However, congestion problems would continue to grow. The third option is to modify vehicle processing at the existing facility to allow for a reservations system. Fragment the lanes, differentiate the vehicles, reserve 70-95% of the vessels during peak sailings, etc. There would be tight arrival windows because we wouldn't want people to show up too close to departure or too far in advance of departure while vehicles are still staging for a prior sailing. Customers wouldn't be able to cancel, change, or make a reservation during a one hour window before each departure if this is going to work. There would need to be schedule modifications to allow for catch up time.

**Group Discussion**

1. (Lynne Danielson) Does that mean sailings will be cut?
   *Yes.*
2. (Jerry Swanson) If you have the capacity for 155 cars, then only allow 155 cars to reserve for each sailing, up to the 20 minute cutoff, or whatever time the cutoff is. All the reserved vehicles would drive up to all 3 tollbooths, while those without reservations are held in the right hand lane.

Have lots of signage. You know how many vehicles you can get on each boat, so have some sort of marker in the non-reserved lane saying whether they will make the boat. Have some sort of changeable sign on the tollbooths that say "Reservations Only" or "Reserved and Non-Reserved". There are details that need to be worked out, but it seems to me that there is a natural flow there. With good signage, people will have a sense to decide whether to get in the standby line or not.

3. (Steve Bauer) If you set a target of 70% of the vessel reserved, and someone is that 70% plus one, are you going to tell them no?
   *That is still in question.*
4. (Steve Bauer) One goal of this reservation idea ought to be increasing efficiency. If it works properly, we should be able to get more people through. If you reduce sailings, you are moving less people. I don't think we should work on that assumption. We should strive to maintain or enhance the schedule.
5. (Stephen Clifton) I just ran the numbers, and the 155 vehicles that fit beyond the tollbooths equal 77% and 82% respectively of the 202 car vessel and the 188 car vessel. So that does appear to be a logical baseline for reservations out of Edmonds.
6. (Vern Chase) Have you exhausted all possibilities of modifications to the terminals?
   *We have not exhausted any possibilities. There are different terminal modifications that could help out. Rearranging things or buying land and expanding. We own some land that we don't use. There are things we wouldn't have to spend a lot of money on, all the way up to things that would cost a lot of money. We have to analyze the cost relative to the benefits.*
7. (Tom Wagoner) Before you get all excited about the 155 vehicles on the dock, what if you get 3 buses, and a couple trucks and trailers. Are you setting aside space for commercial users?
   *We are still working on ways to set aside space, segregating traffic to save that tall space.*
   (Tom Wagoner) We talked about saving the tunnels, how do you stage for that?
   *There is so much square footage on a boat and the dock should mirror that. The 155 car spaces should really be looked at as square footage.*
   (Tom Wagoner) If I'm sending a truck over, and it takes up 80 feet, can I call an hour ahead and reserve for that truck?
   *Yes.*
4. (Pete DeBoer) Is the data available as to the over-sized vehicles on these routes? It would be interesting to see a graph that shows that throughout the year and how it affects capacity.

*We have that information and we will bring it to you. You will be able to see what kind of space is taken up with different kinds of vehicles.*

5. (Pete DeBoer) Regarding Jerry's example of reserving only 155 vehicles, at what point do you start moving the people to take up the space available if you only have 60 of the 155 reserved?
   *That is why we realized for Edmonds that you would not be able to make a reservation in that window; we need real-time information to use so that we can direct the cars in.*
   (Patricia Willestoft) I'd like to point out that with a reservation system, you may have more commercial trucks using the ferries if they know they can get on. Commercial trucks need to be talked about specifically at some point.
   *Most ferry systems around the world have very extensive freight systems; it does draw traffic to a system.*
6. (Tom Wagoner) To reinforce what Steve said about reducing the number of crossings, this is the second highest money generating route. How do you explain to the public that you're cutting back on money?
   *The issue is not cancelling routes. We have problems meeting the schedule that we have now. So in effect, we are cancelling routes already, as we fall further and further behind. With the trains coming through, it's not unusual to drop a route on a day. What the FAC has been working on for us is setting a realistic schedule that will give us some time during the day to make up where we are falling behind. We need to have that conversation with the ferry communities, separate from the reservation issue.*
7. (Paul Lundy) People that ride everyday see that the boats don't run on time anymore. We are not meeting the schedule, there is no consistency. People that are trying to make a bus or a train get really frustrated. There is a large customer base of daily commuters who want to see dependability in the boats. If we have to lose a couple of runs to do that so be it; meeting the schedule is more important.
8. (Tom Wagoner) Are the morning runs leaving late?
9. (Lynne Danielson) Yes, some of them are. It would be nice if we didn't have the 5:15 boat. The 6:20 is leaving at 6:30; it builds and builds, by 10:00 you're 20 minutes behind.
10. (Ken Jones) Logistically, you've got the 155 cars – let's call that the 75% reserved cars – then everyone behind that has to stay back. The underlying theory that we have to go by is that the boats are running on time. As soon as they get late, now we have a problem. So many of those people are already prepaid, you've got tourists coming along that need to ask questions, at what point do you send the boat away 90% full?

*The vehicle processing group is working on that now; we know we need to be able to get people through as quickly as possible.*

11. (Paul Lundy) Can we make that hour shorter? Does it have to be a one hour cutoff? Can we make reservations up to a half hour before a sailing?
    *It has to do with the headway; we have to know by the time a vessel comes in. It doesn't have to be an hour, but there needs to be enough time for the terminal staff to get ready for the next boat.*
12. (Dick Anway) The late boats are not due to weather, the crews, or the terminal staff. It's due to the people that drive onto the boats. The crews and agents are excellent; it's the patrons that screw up the schedule.
    *That's why we have a little cushion, to make time to get back on schedule after someone's battery dies onboard, etc.*
13. (Tom Wagoner) Would you hold the boats until the train goes through? If a train is coming through cars have to wait; if a boat is scheduled to leave at 8:00 will it leave on time even if it's not full due to the cars having to wait for the train?
    *What we do currently is wait for the train, which is a big reason why we are off schedule all the time. More trains over the years are causing this to happen more often; more of a time cushion will help us to maintain the schedule.*
14. (Tom Wagoner) The 8:40 boat in the evening goes across in 17 – 18 minutes because the crew is in a hurry to get home. Does the crew have the ability to speed the boats up if they get behind schedule?
    *Yes, the crew has some ability to do that. We discourage it because it elevates fuel consumption considerably. That may save a few minutes, but where we tend to lose or gain time is in the terminal.*
15. (Lynne Danielson) Another challenge in Edmonds is that the local traffic is let through. I've missed a boat because of being stopped to let local traffic through. I'm sure there's a protocol that has to be followed, but if you factor in the local traffic and the trains, it's quite a challenge.
16. (Steve Bauer) My sense is that we shouldn't stop accepting reservations at a certain percentage; arbitrary limits concern me. Also, I'm not persuaded that relaxing the schedule is the right answer. This ought to be designed with the goal in mind to increase efficiency.
17. (Paul Lundy) In response to Steve, if it can be done, all of us would love to see that.
18. (Steve Bauer) The outcome of reservations should be increased efficiency, not to use it as a reason to cut the schedule and reduce efficiency. I'm not persuaded; if you always assume there will be a train coming you will have built inefficiency into the system.

Fauna interjected to suggest discussing the schedule more at a later time, and to get a feel from the group as to whether they are for or against reservations out of Edmonds.

19. (Stephen Clifton) Considering the physical and cost restraints, I don't think we are at a point where we can say no to reservations. We need to explore the modifications.
20. (Paul Lundy) In general, yes is the answer. We need to pursue reservations.
21. (Ken Jones) You mentioned at the beginning that no ferry system has ever gone back to not having reservations once they have made the switch. I think we should leave that option open – if reservations don't work, we should go back to no reservations.

**Summary & Next Steps**

David Moseley mentioned that he had just come from a meeting with the Joint Transportation Committee where he had given a presentation summarizing the progress of the study so far. The Cedar River Group also made a presentation after having sent some staff to Istanbul, Turkey and the Isle of Wight in the UK to observe the ferry systems there. The Legislature did not pay for these trips, the Cedar River Group did this on their own dime because they though it was important enough to go see; they are a private consultant company. David mentioned that it might be valuable to have the Cedar River Group come to the next Partnership meeting and make the same presentation for the group. The group agreed that it would be of interest to them to see the presentation.

Fauna mentioned the dates of the next two meetings: October 14th in Edmonds, and October 28th in Kingston, then turned the meeting over to public comment.

**Public Comments**

1. (Walt Elliott) I don't think we've come to grips with the issue of sorting cars before the tollbooths in Kingston; how to sort them to get them into the proper sequence. Standby in town is not the answer. On the education front, it should be kept simple. If it is too complex that will be a problem. I don't know about the high density boat loading; some room should be set aside for same day reservations. We need to make sure that urgent need people don't get squeezed out by long term reservations. Also, the one hour cutoff will be problematic for changing reservations, if you want to cancel one and make another.

2. (Tom Thiersch) I haven't heard about the ability to make more than one reservation a day on a certain route; that is a business rule to consider. On the Emerging Elements page, there is a statement that all sailings will have room for reservations and drive-ups, so I see that you have ruled out the 100% reserved model. I don't understand why when so many systems operate on that model. Totally precluding that doesn't make sense to me; you should be able to go up to 100%. On the Vehicle Processing page, Port Townsend and Keystone have greater than 50 minutes of headway, but when we are restored to our normal level of service that is not accurate. I really like the signage recommendations; that is a positive suggestion. I like the idea of kiosks on the boats; that would be great for tourists. Regarding the terminal issue in Edmonds, it seems you are operating on the assumption that the Legislature will spend 0 dollars, and I'm not sure if that's true. Assuming that there will be no money artificially limits your decisions. Prove the payback to the Legislature and things will get funded, don't rule things out.

**Conclusion**

Fauna thanked everyone for coming. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| X | Anway, Dick |
| X | Bauer, Steve |
| X | Burkhart, Marianne |
| X | Chase, Vern |
| X | Cioc, Greg |
| X | Clifton, Stephen |
| X | Danielson, Lynne |
| X | DeBoer, Pete |
| X | Dolan, Steve |
| X | Jones, Ken |
| X | Lundy, Paul |
| X | Schostak, Diane |
| X | Swanson, Jerry |
| X | Wagoner, Tom |
| X | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- David Moseley, WSF Assistant Secretary
- Doug Schlief, WSF Operations Manager
- Joy Goldenberg, WSF Communications Manager
- Leonard Smith, WSF Operations
- Rachel Waitt, WSF Terminal Engineering

**Public Participants**

- Walt Elliot, Kingston FAC
- Tom Thiersch, Jefferson County FAC
- Bill Sheets, Everett Herald
- Navah Wolrich

Washington State Department of Transportation

Washington State Ferries

# MEETING SUMMARY #5
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# EDMONDS CITY HALL, EDMONDS, WA

WEDNESDAY, OCTOBER 14, 2009 5:15 – 7:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items

Washington State Department of Transportation Ferries Division (WSF) to:

- Extend the length of the October 28th meeting by an hour and a half; group prefers earlier start time rather than staying later
- Add the proposed November 12th meeting in Edmonds

## Welcome & Overview of Agenda / Handouts

WSF Communications Director Marta Coursey, Meeting Facilitators Fauna Doyle & Michael Hodgins

Marta welcomed everyone and apologized on behalf of David Moseley, who was not able to be in attendance.

Fauna briefly went over the agenda and each of the handouts. Included were a draft of the business rules that the group has discussed, ridership data showing the sizes of vehicles crossing Edmonds / Kingston in August of 2009, and a schedule for the November Community meetings. Next Fauna discussed the Emerging Program Rules handout which would serve as the discussion guide for the meeting. She cautioned the group that none of the program rules listed are set in stone, and any feedback or discussion of those rules would be appreciated. She asked the group if they had any questions about the handouts.

1. (Stephen Clifton) For any eastsiders, the Tuesday, November 10th Community Meeting listed on the agenda is in Kingston, but there will also be a presentation made to the Edmonds City Council at 7:00 pm on December 1st at City Hall.

Michael then went over the vehicle ridership handout, which had been requested by the group at the last meeting. He explained what the colors on the charts indicate, light blue being regular sized car and drivers, dark blue being senior citizen car and drivers, and purple being the oversized vehicles. The chart



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shows that a few sailings get up to 10% of the capacity filled with larger vehicles, but most are less than that. Motorcycles are in green and don't even show up; it is predominantly smaller vehicles and drivers. He asked the group if they had any questions or comments about this data.

1. (Paul Lundy) So other than the first boat out of Edmonds, the pattern for larger vehicles matches daily congestion. It fits the same pattern as normal drivers.
   *Yes, large vehicles generally return the same day similar to regular commuters.*
2. (Paul Lundy) If motorcycles don't contribute that much, would they be required to have a reservation for the pilot study?
   *This study is meant to design a reservation system that would be applied at every ferry terminal. Though it might be true on this route that motorcycles are minimal, Bainbridge has a high level of motorcycles and it's even higher in the Vashon / Fauntleroy / Southworth triangle. Motorcycles and bicycles both present challenges. We have to account for them because they do displace vehicles, though it's definitely more important on some runs than others.*

**Draft Emerging Program Rules – General Customer & Priority Account Holders**
Meeting Facilitator Fauna Doyle

Fauna requested that the group hold all questions and comments until after she was done going over the first page of the discussion guide. She then described the three types of proposed users for the reservation system: the General Customer, the Premier Account holder, and the Commercial Account holder. She went through the description, eligibility and benefits of these three groups per the handout. The direction seems to be heading toward trying to reserve different parts of the boat at different times of the day and year; this priority access for account holders is one way to attempt to take care of the frequent users, as well as funneling recreational discretionary traffic toward less congested sailings. Fauna then asked for any questions or comments.

**Questions & Comments**

1. (Stephen Clifton) If trips are not charged until the time of vessel departure, you may have the situation where people book back to back sailings to guarantee that they get on, and then just pass on getting on the ferry because they can have the next one.

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*If they make a reservation and they are a no-show, they will be charged. We will be looking later at the program rules, and we want to balance that. Clearly it is hard to make a reservation and pay up front for every ride; your feedback is key on this issue.*

2. (Paul Lundy) What is the existing fee for commercial users?
   *It is $200 for the summer season in the San Juans; it is charged by season. The rest of they year it is $100 per season, so $500 for the entire year. It is a flat $50 annual fee for Edmonds / Kingston.*
   (Paul Lundy) What are you proposing to charge annually for this Premier Account?
   *We want to hear the group's thoughts on the range that would keep people from jumping in and taking advantage of the space that we are trying to keep reserved for our frequent riders. Or do you even think we need a fee?*
   (Paul Lundy) For the Commercial Account with monthly billing a fee makes sense, but for the Premier Account, which is what I call the existing Wave-to-Go, I think the annual fee is totally the wrong way to go. It will be viewed negatively from the customer base.
   *So for multi-ride card holders you don't think any fee is necessary. What about the e-purse option?*
   (Paul Lundy) Keep a minimum balance requirement for the account; that seems fair. The annual fee is way off base. It should be like the toll system on the Tacoma Narrows, keep a minimum of thirty dollars and if it goes below that you write them a check. The e-purse is similar to that; I say no fee.
3. (Stephen Clifton) What are the benefits and the purpose of the fee?
   *Say I have friends coming in from out of town and I want to guarantee that I can make it on a ferry to meet them during a peak time. What is to stop me from signing up for a Premier Account for that one use so that I can get on that boat? If it's easy and doesn't cost anything, what's to stop everyone from taking advantage of that reserved space that we are trying to keep available for our frequent users? If you have to pay the cost of several tickets in order to sign up, and those costs are later refunded as you use them that would be a way to prevent that. We are curious to hear what you think about that option. Another concern would be that some customers would not be able to afford to put up the cost of multiple rides up front, whereas a small annual fee might be affordable for them.*
4. (Marianne Burkhart) Having all of these options available is great. I agree with Paul that if you have to put down a minimum amount up front, you will meet people's needs and still present a barrier against abuse of the system from casual users. All of these options seem to present a barrier.

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*So if you open an account with a credit card, maybe we should require a fee, but if you have to buy 20 trips at a time that would be enough of a barrier in itself and a fee would be unnecessary. We are trying to make sure that priority access goes to the ones that it is targeted toward, or we will end up back in the same boat that we are in.*

5. (Steve Dolan) Can you design a program where you would earn the ability to be an account holder, sort of like being a "gold member"; you earn it by using 50 rides a year or so forth?
   (Stephen Clifton) That may be getting into the gift of public funds issue.
6. (Sonny Woodward) What incentive is there for commercial users to use Edmonds / Kingston more? Is there anything on the table to encourage more use, maybe some different type of aggressive marketing?
   *This would be a system wide reservation system, and if it goes forward and is implemented it could have great potential value for commercial users. Promoting the fact that reservations are available for them is part of this; reaching out to people and letting them know that we have a new program. It becomes a more meaningful thing to build ridership.*
7. (Jerry Swanson) When the customer establishes an account online, like what I already have for the Wav-to-Go, you have to give an email and pick a log-in and so forth. That in and of itself may be a barrier against people casually signing up, because people don't like to be tracked and they won't want to establish an account.
8. (Vern Chase) From a non-commuter point of view, this still seems complicated. How marketable is it if its confusing people. Can we make it simpler and easier to sell?
   *It feels complicated because of all of the and/or options you're seeing, but the pre-design phase is about talking through all those options. For the design phase not all of them will be there. The pre-design will feel more complicated because we are discussing all the options. We need to settle on one option for the Premier Account, so what do you think is the best option?*
   (Vern Chase) The credit card.
9. (Paul Lundy) You know the demographics, who would be taking part, which is 30-40% of the boat. It seems to me that internally you know that these people will take up a part of your boat everyday. How important is it that you have them in a separate account?
   *There is the possibility that over the years the population will grow and we will have more demand than we have now, and we are trying to protect that ridership base that depends on the ferries.*
   (Paul Lundy) The egocentric part of me knows that I would love to be treated as a priority, and to have the capability of knowing that I would

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make the boat, but I also know that the spontaneous needs are out there. We would be screwing the general customer.
*Are you comfortable with priority access for frequent users for a portion, with another portion that will be more fluid?*
(Paul Lundy) I'm getting more comfortable with that.

10. (Jerry Swanson) The reality is that you have quite a mix of users, and the system should continually assess and adjust with seasonal changes and other trends. There may be more people living in Kingston in the future, building homes and such. You will have the data through the reservation system, so you should adjust to changing times.
*Clearly if we set aside a certain portion of the boat 30 days in advance for reservations, and that begins to sell out faster and faster you can see the market growing, or conversely not growing. We will adjust with those changes; it will be a continuous learning experience. We are designing a system that will give us a lot more information.*
11. (Greg Cioc) Vanpools and Carpools – will they be Premier Accounts or Commercial? I know there is preferential loading for carpools now.
*As of now they are guaranteed to get on, and we usually put them on first. We envision that we would plug registered carpools into the system in advance and they would come off the top, then we would reserve what's left.*

Doug Schlief asked for clarification from Paul Lundy on what he thinks of as a spontaneous rider – is it someone who decides to travel within a 30 minute window, or do you have a different idea?

12. (Paul Lundy) I think it's within an hour. I want to protect those people. This study will be very interesting to see if it can make our situation better.
*We will always keep a percentage of the boat available for drive-ups. It will be small during the peak times but it will be there. Locals will learn when to take the chance.*

Fauna led the group through the second page of the discussion guide, which details some Emerging Program Rules, and asked the group for feedback.

**Questions & Comments**

1. (Stephen Clifton) What do you mean on the last line where you say round –trip reservations are not required?
*That means that you are not required to make reservations in pairs, if you don't know when you will be coming back.*



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2. (Paul Lundy) Why did you choose 28 days as the amount of days in advance a peak sailing is available to reserve?
   *We chose it because it is a multiple of 7 days. When you pull it up on your computer screen, available reservations would be visible in week-long blocks.*
3. (Greg Cioc) If people are in the queue waiting to be a drive-up, and somebody calls fifteen minutes ahead and makes a reservation and drives past the people that are waiting, that would be a problem.
   *We recognize that and we plan to have the system account for the people in line and only show actual availability. Also, calling a reservation in on the phone needs to be 30 minutes in advance, not 15.*
4. (Paul Lundy) How long is a typical phone transaction?
   *It depends on the volume of calls coming in. People tend to call at the last minute, so if 10 people call at once it can slow down the processing time. They can last 4-6 minutes depending on what's requested. It can also depend on how familiar they are with the system, and the type of payment. Here again the fee vs. deposit question comes in. We don't want people to sit on the phone and miss the boat.*
5. (Stephen Clifton) If you are looking at the people in line and taking them into consideration, what if someone in line gets on their Wi-Fi and makes a reservation? Would that double up the reservation?
   *We are not envisioning that. If you are in line and make a reservation, you would get out of the line and go to the terminal. At fifteen minutes prior to the sailing, after the period of time when you would be able to make a reservation passes, we would begin to process the line.*

Fauna and Michael then went over the third page of the discussion guide, detailing the final Emerging Program Rules, and asked for feedback from the group.

1. (Stephen Clifton) For a cancellation charge, why would small vehicles be charged the full amount and large vehicles only a portion? What if you are a huge SUV vs. a smart car?
   *That fee is based on standard sized vehicles vs. big rigs, which may be paying $300 for a crossing.*
   (Stephen Clifton) So it is a huge difference then.
   *Yes.*
2. (Jerry Swanson) The logic of the cancellations doesn't make sense to me. I can arrive late and not lose my money, but if I cancel I lose my money.
   *The question is how do we build a system so that we can avoid people making multiple reservations and just cancelling the unneeded ones? We*

*want people to make reservations based on when they really think they will travel, but allow for some flexibility. What would be the penalty for making 5 reservations without a fee? Another difficulty for us is that WSF currently pays well over a million dollars a year in credit card fees, and we need to be mindful of those fees. Cancelling a transaction charges us another fee, but changes can be made without a fee, even if you want us to keep pushing the reservation further and further out.*
(Jerry Swanson) So if I'm not a Premier Account holder, and I made a reservation a month in advance and then got ill and had to cancel, I'm out my money even if I cancel a week prior.
*For General Customers we talked about the possibility of having refundable tickets. If you want the secure knowledge that you would not lose your money, you could pay a premium for that. It would be a lot like the airlines, where you can't just cancel without losing some money, but you can make a change.*

3. (Stephen Clifton) What do you mean by late, what is the cutoff? At what point are you considered a no-show?
*If you get through the tollbooths and had a reservation for two sailings ago, you would not get charged twice. We think of it as a 24 hour day, so if you make a boat that day, even if you are late, you are not a no-show. You are considered late if you are not through the tollbooth 15 minutes before the sailing, so at that point we may not be able to honor your reservation for that sailing. However, you are not a no-show until the last ferry of the day departs.*
4. (Vern Chase) Be careful about comparing changing a reservation to the airlines, because they might charge $1,000 to change your flight.
*Do you think we should charge for changing a reservation?*
(Vern Chase) I don't think you should charge for cancellations.
*That would mean that we would have to charge for changes, we can't do both.*
5. (Jerry Swanson) For the overbooking issue, you already have a rule that you can only do one peak reservation a day, so you would have to open multiple accounts to be able to make too many reservations.
*The one a day limit helps, but the concern is about someone who drives on some days and walks on others. They could reserve space for a car all week but then only drive two of those days.*
6. (Sonny Woodward) The cancellation fee is fine with me. There is an implied agreement that if you make a reservation you should show up. That may also be a good source of extra money for WSF.
7. (Paul Lundy) I'm struggling with the cancellation thing; I'm a no penalty type of guy. I understand now that you have the credit card fees to deal

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with, but it seems to me that you should try to keep the fee small. It could still cover the cost of the vendor plus the internal costs. That would be fair to the customer and prevent abuse. Stay away from charging the full fare. Also, I would suggest a 24 hour grace period. So if you don't show up for whatever reason you can still use the trip within 24 hours without a penalty. That's fair and easy for you in the office.
*So you wouldn't be a no-show until 24 hours goes by. Like if you had a reservation on the 5:10 ferry and you missed it, you wouldn't be charged until 5:10 the next day.*
(Paul Lundy) Yes.

8. (Paul Lundy) The one round-trip restriction still bugs me.
*That's only for peak times; you can do as many as you want during off-peak times.*

**Next Meetings**
WSF Communications Director Marta Coursey

Marta stated that the next October meeting is critical; it is the second to last meeting before we have to report to the Legislature. We wanted to add a meeting on November 12th, but got very little feedback from the group. The Cedar River Group will be coming on October 28th to give the presentation we discussed at the last meeting, which will take about 30 minutes. We propose to lengthen the October 28th meeting by an hour and a half, and would like to know if the group is alright with that, and if so should the meeting start earlier or go later?

The group agreed that the October 28th meeting should be lengthened, and would prefer to start earlier rather than staying later. The group also agreed to add the November 12th meeting date.

**Public Comments**

1. Reading the notes from the last meeting in Edmonds about the business with the train crossing, I get the impression that you think the ferry captain pulls in, sees a train coming and is suddenly in distress, wringing his hands, not knowing how long it's going to take. The train only takes three minutes; why can't that be factored into the schedule? The impression that this is such a problem is untrue; the ferry traffic getting on is actually very smooth. Check into that; it's hard to believe it's so consistent without someone giving the order. No one will admit that Burlington Northern and WSF, who have been meeting at this intersection for 90 years, have not



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talked about this issue. Something is strange; it's too much to be a coincidence.

2. The spontaneous rider needs a finer point. There are two groups, the person who just suddenly decides to travel, and the person who doesn't know until the last minute that they need to travel, with a short notice need. The Premier system addresses another rider who does not have the frequency of travel but lives in a ferry dependent area. The cancellation fee, I don't see why you need it, because you can say that you already made the reservation but you are identified by your credit card. You can spot them by the way they pay. Multiple rides during peak, you need to look at this (handout) when you say peak. We have a camel hump peak, not a traditional peak and valley; business riders may need to take several trips during the business day. The public meeting in Kingston should be devoted to our reservation system. Our priorities for topics are the business rules, public benefits, and limitations and risks.

3. Do you have a website where I can find out more information about this group and how much it is costing and who the consultant is?
   *Yes, we will provide it to you.*
   How do you publicize this meeting?
   *We notify the press.*
   Well it must have been very small. Where and when is the next meeting?
   *It is in Kingston on October 28th.*
   This system doesn't consider tourists. And from what I've heard tonight there will be a lot of people driving and using the phone at the same time which is against the law. If you have to call and cancel a reservation while you are driving you have to break the law, which you should take into account.

**Conclusion**

Fauna thanked everyone for coming. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| | Anway, Dick |
| | Bauer, Steve |
| X | Burkhart, Marianne |
| X | Chase, Vern |



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| | |
|---|---|
| X | Cioc, Greg |
| X | Clifton, Stephen |
| | Danielson, Lynne |
| | DeBoer, Pete |
| X | Dolan, Steve |
| X | Jones, Ken |
| X | Lundy, Paul |
| | Schostak, Diane |
| X | Swanson, Jerry |
| | Wagoner, Tom |
| | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- Marta Coursey, WSF Communications Director
- Doug Schlief, WSF Operations Manager
- Ray Deardorf, WSF Planning Director
- Leonard Smith, WSF Operations
- Rachel Waitt, WSF Terminal Engineering

**Public Participants**

- Walt Elliot, Kingston FAC
- Natalie Shippen, Edmonds
- Rowena Miller, Edmonds
- Justin Sluyter, Seattle

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Washington State Department of Transportation

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# MEETING SUMMARY #6
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# EDMONDS SENIOR CENTER, EDMONDS, WA
WEDNESDAY, OCTOBER 28, 2009 4:15 – 7:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items
Washington State Department of Transportation Ferries Division (WSF) to:

- Canvas the group members to gauge their feelings about reservations now versus before the meetings began
- Invite WSF IT director to the next meeting to discuss IT issues

## Welcome & Overview of Agenda / Handouts
Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna welcomed everyone and thanked them for coming early to allow for the presentation by the Cedar River Group.

Fauna briefly went over the agenda and each of the handouts. Included were a Vessel Capacity Reference Guide and the Space Available for Reservations handout which would serve as the discussion guide for the meeting. Fauna asked the group if they had any questions about the agenda or the handouts; the group had no questions.

## Lessons Learned from Other Systems
Blair Scanlan of the Cedar River Group

Blair passed out a handout to the group and then presented on his trip overseas to visit ferry terminals in Turkey and Great Britain to observe the reservations systems currently in use in those countries. He visited IDO in Turkey, then Wight Link and Red Funnel in Britain. Blair briefly described each system and some of the lessons learned from them through their experiences with reservations. He then asked for any questions from the group.

## Questions & Comments
1. (Paul Lundy) So IDO does not have the IT solution that we are looking for.

*For payment they have a robust IT, it's the reservation system software that is the problem. A German company provided their software and they tweaked it to work for them. It cannot manipulate how much of the boat can be reserved in advance, but from a user perspective it works pretty well.*
(Paul Lundy) So you used it?
*Yes*
(Paul Lundy) How did you make your reservation?
*I didn't drive on but I did go in and make a reservation.*
(Paul Lundy) Did you try the text messaging option?
*No.*

2. (Ken Jones) For the people who get turned away because they don't have a reservation, is there another way of crossing or a hotel they can stay in for the night?
   *For the Sea of Marmara there is no other way to cross other than walking on. The only sailings that are tight on capacity are the afternoon sailings, but if you show up you will get on within a few hours.*
3. (Vern Chase) How are they doing financially?
   *They are doing pretty well; they are expanding capacity. What used to be two vessels has been replaced by four that cross more quickly.*
4. (Paul Lundy) So all three systems reserve 100% of the boat, and then rely on no-shows for standby room?
   *To some extent, yes. Wight Link has some cars arrive early for sailings and puts them on earlier boats; some cars end up being smaller than the space that was reserved for them.*
5. (Doug Schlief) So they don't charge for reservations but you have to buy your ticket 48 hours in advance?
   *Yes. There was a slight translation problem in Turkey; they think of a reservation slightly differently than we do. You basically reserve your space and then you have to buy your ticket later.*
   (Doug Schlief) How does that generate revenue for the system if there's no fee to make a reservation?
   *Some people buy their tickets at the time they make their reservation, or a few days before the sailing and then don't show up. Also, the online reservations mean there's less staff to pay, so less overall cost.*
6. (Ray Deardorf) I understand there is some sort of graduated refund?
   *Yes, if you cancel up to six hours in advance you get 100% back, within 30 minutes you get nothing back.*
7. (Doug Schlief) So you forfeit the sailing if you miss it?
   *You can get on the next boat if it's not full but after that it's a forfeit.*
8. (Tom Wagoner) How do they handle a truck and trailer that calls at 2 pm and wants a reservation for the next morning? Can they do that?

*If the boat is not full they can do it; there's not a lot of freight traffic on these routes.*

Fauna interjected to caution the group that these systems are not a complete model for WSF, just a source of information to help us design our system. We can take some pieces from each system; it's an opportunity to see what we like or do not like.

9. (Tom Wagoner) Will this presentation be given to the Legislature?
   *We have presented this to them already; we went to visit these systems at the request of the Legislature.*
10. (Doug Schlief) When you say it's better to have the entire load processed and sorted on the dock, where did you get that idea?
    *The Wight Link system, on the island side. The manager said that they have reconfigured the terminal so he can sort his cars and put the next sailing off to the side. It helps the roadway impact so that cars aren't lined up on the street.*
    (Doug Schlief) So 'sort' means reserved versus non-reserved cars.
    *Yes, there is also some flexibility there because they don't have back to back sold out sailings like we do.*
11. (Paul Lundy) The drop-trailer idea sounds good to me.
12. (Patricia Willestoft) The drop-trailer idea sounds interesting. I should also mention that the Port Townsend Paper Company is working on a roll-on roll-out barge system to Bellingham and possibly to Seattle; it's a marine highway project. I wanted to note that the last item on the last page of Blair's handout in bold, refers to freight customers. During the Hood Canal Bridge closure, when we were using the Twilight ferry, it was critical to the success of us moving freight to have someone to talk to within the system to help us. When this reservation program begins, it would be helpful to have someone to contact, even if it's not a permanent thing.

Blair then showed the group some video footage from his trip.

**Draft Vehicle Reservation Space Allotment and Releasing Rules**
Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna turned the group toward the first page of the discussion guide. This page reviews the reasons for reserving space for different types of customers at particular times, and then divides sailings into three groups: Commute Sailings, Non-Commute High Demand Sailings, and Non-Commute Lower Demand Sailings. Fauna reiterated that by defining the types of sailings, then thinking about the different customer groups and how they relate, we should be able to

draw users that have some flexibility toward sailings where we have capacity. She then asked for any questions or comments on the first page of the discussion guide.

**Questions & Comments**

1. (Steve Bauer) Can you remind me what a Premier Account holder is?
   *That is someone who signs up with an email account, a non-commercial user who rides with a certain frequency. That account is intended for ferry dependant frequent users, and we would make space available to them. 'Premier' does not mean that they are paying more than someone else.*

There were no more questions on page one, so Fauna went over the second page of the discussion guide, which is an illustrative example of space availability on different sailings. Fauna cautioned the group that these are not set in stone, they are just examples and no one has decided that this is the way it will be. She then asked for questions and comments on page two of the discussion guide.

**Questions & Comments**

1. (Tom Wagoner) If you're taking up 90% of the vessel on one trip, one truck and trailer would take up the rest of the boat.
   *We are describing how we would define the sailing; there would be a commercial priority access across all the sailings. It may vary, but the commercial piece would be within that 90%.*
   (Tom Wagoner) When does the reservation have to be made for the commercial users?
   *For Commute Sailings it would be up to 30 days in advance, Non-Commute Sailings would be up to 6 months in advance. We could do the entire boat or do it in pieces.*
   (Tom Wagoner) If I find out at noon that I need to get a truck on the 6 pm boat I'm screwed.
   *That's not a high demand sailing.*
   (Tom Wagoner) Ok so the 7 pm.
   *Is your question about how much room we would hold for standby, that one truck would take up the whole 10%?*
   (Tom Wagoner) Yes.
   *We've talked about holding some space for up to 24 hours before a sailing, we could hold some for day of.*
   (Tom Wagoner) I thought we were going to set the tunnel aside for freight; I'm not hearing that.
   *On the next page of the discussion guide we will talk about how the space is divided up.*

2. (Paul Lundy) I'm on the boat everyday and I see the same faces and the same amount of people. You should accommodate that ridership.
   *We will talk next about how space is divided up. Are there any more questions about having 90% of the boat available for reservations during commute times? We have been talking about peak and non-peak in generic terms; we are saying that we would treat high commute times differently.*
3. (Lynne Danielson) That makes sense, dividing it up. I am against the moving target on percentages of available space for reservations. It will be hard to get people to understand this. It appears from your handout that you are assuming no commute on Sundays, and I bet there is one. Those people who take three day weekends and come back on Sunday every week, how do you define them? I like the concept, and I agree that the next step is to agree on how to divide the space, in a situation where you are not going to be able to guarantee Tom a space.
   *The last time we talked there was about a 50/50 split in the group between wanting 90% available for reservations all the time, and only wanting 90% at times of high demand, and having it lower the rest of the time. Is that still how the group feels? Lynne wants 90% all the time, who agrees? (Five members of the group agreed, five disagreed; the rest were neutral)*
4. (Paul Lundy) It needs to be consistent. 90% on every boat will be less confusing.
5. (Lynne Danielson) It's confusing enough already because of the different sizes of boats on the same run, trying to figure out how many cars 90% is.
6. (Jerry Swanson) 90% all the time makes sense; it will push the demand naturally.

David asked the group if any of the data on page two of the discussion guide was surprising to them at all.

7. (Paul Lundy) No.
8. (Jerry Swanson) Looks like a typical weekend to me.
   *So on Friday from Kingston to Edmonds, full boats from 1 pm to 6 pm doesn't surprise people?*
9. (Lynne Danielson) We saw that this summer, it was backed up to the McDonalds. What changed this year I don't know, but it seemed like Fridays were bad going both ways.
10. (Tom Wagoner) It was like that years ago and it's coming back. Edmonds to Kingston in the morning is getting some pretty good action, commuters and otherwise.

Fauna then went over page three of the discussion guide, which details some examples of how space on the vessels might be divided up between different customer types depending on the type of sailing. She cautioned the group that these are hypothetical allotments, and that the actual distribution will vary by sailing and by route. We are trying to match historical use; it looks confusing but the customers will not have to remember this information. Hopefully this will provide balance, grow ridership, shift people into windows where we can accommodate them, improve the quality of service for our regular users, and provide predictability. After going over the whole page Fauna asked for questions and comments from the group.

**Questions & Comments**

1. (Paul Lundy) You know the demographic. If you start with the commuter base, you will be more successful. You know who the commuters guys are; the prepaid customer base. I agree with the concept but maybe not the numbers.
   *The numbers are still being discussed; this is just a concept. If the commuter portion sells out right away then that percentage is not correct, the balance is out of whack. The system will inform us where the demand is. We will start at a certain point and see how it reacts.*
   (Paul Lundy) From a commuter point of view that works, as long as you leave a buffer that would protect the frequent user.
2. (Steve Bauer) My goals are convenience and certainty for the riders and full boats for the system. The non-commute high-volume sailings, I'm trying to picture what happens. With these splits you have much of the space set aside for certain users, so do you refuse others up until the 24 hours before the sailing?
   *If one window is gone a week ahead we would start shifting things around. We believe that these are reasonably balanced to the demand; we would want this to reflect the underlying demand from our customers, but we don't know the exact numbers yet. The system will learn as it goes; we will make portions available and see how long it takes to fill up, then shift things around according to the activity.*
   (Steve Bauer) So at best these numbers are educated guesses.
   *Yes.*
   (Steve Bauer) I'm thinking of the next steps – are you envisioning keeping a smaller version of this group ongoing that monitors this as you guys begin?
   *(David Moseley) If the Legislature says we can proceed, I envision there being an extensive test period to see how our educated guesses are working out. During that time I would love feedback. Sound Transit found out during the ORCA card rollout that a test period was essential. It could*

*well be that applying this system's technology at Port Townsend would serve as a good test, and then we would implement it on this route before any other route.*
(Steve Bauer) My point is we can get wrapped up in percentages which are only guesses. We need to be flexible and evaluate as we go along. Find what a reasonable starting point is and then go from there.
*Flexibility and learning as we go are critical to this working. The other thing is addressing the fear of not having access on the part of ferry-dependant people. The concept is that it is important to save the space for certain groups; it will protect those people. For those people who ride the boats all the time, is this concept working as a starting point?*

3. (Steve Bauer) The release of all the categories of space 24 hours in advance is too early – it will take away some flexibility.
   *We will balance that with the response as we go.*
4. (Paul Lundy) For the locals that are concerned with wanting to be able to travel same day, that 24 hour portion release may help them.
5. (Jerry Swanson) In support of that release, it gives some equality of access. If I tried to make a reservation three months in advance but the boat was full, but there was a footnote telling me more space will be released, I might check again 24 hours in advance and be able to get on. It's similar to when I fly and have to print the tickets and see if I can get better seats 24 hours before the flight.
   *That's a good comment. There are three pieces to this that we need to balance: saving space, making sure people have access, and make it so it's not confusing for the customer. We need to balance all three of these things against each other in a way that best serves the customers, that is what we are trying to get at.*

Fauna asks the group specifically about the last part of page three, which mentions that Edmonds does not have the terminal holding capacity for 90% reservations. The cap would have to be closer to 75%, so how would the group distribute the space in this case?

6. (Lynne Danielson) Don't take the commuter space; that is what the commuter window is for. I can't change my hours because of the ferries.
7. (Paul Lundy) I agree. Don't take the commuter space.
8. (Lynne Danielson) Don't mess with the commuters or the commercial users.
9. (Diane Schostak) There should be some available for general customers. It can be small but there should be some.

*Having 90% available for reservations is the goal of the system, but terminal limitations prevent us from reaching that at some terminals, like here at Edmonds. We have to compromise and do closer to 70%.*

10. (Patricia Willestoft) I am torn between Tom's issue – he needs to travel during peak times, whereas I might be able to adjust, especially with incentives, to non-peak times – and the question of smaller contractor vehicles.
    *The data we presented two weeks ago showing large vehicle ridership at no point had more than 10% of the vessel filled with oversized vehicles. The smaller commercial vehicles may be an issue. That is part of the area where we will have to learn; not all of the commercial vehicles will be oversized, and that 10% is built around large vehicles.*
11. (Sonny Woodward) What happens if the Navy puts eight buses on at one time, how does that skew this?
    *We looked at sample days from last August, and we saw that some of the highest percentages of large vehicles are present when the boats are not full.*
12. (Jerry Swanson) Even with only 70% out of Edmonds, there will still be a benefit, because people won't see that there is 30% drive-up space available. They will just go to the system and see if there is reservation space open or not. It may change people's choices.
    *We have no doubt that even at 70% there will be a benefit.*

David Moseley asked Tom Wagoner specifically if he has trucks on the ferry every day.

13. (Tom Wagoner) I have trucks on there four to five days a week.
    *In that sense it would be in your interest to have a commercial account; your problem is that you don't know which sailings you will need to use.*
    (Tom Wagoner) When I walked in today I got a call from a bank anticipating building 1100 houses on a piece of property that they are trying to get rid of, and we have a chance to supply about half of that. That is going to take a lot of service and lots of flexibility. If we got that job we could hire more people. If I don't have flexibility I can't be counted on.
    *If you had that account, you would be able to know where you're going most days of the week; why couldn't you make a reservation?*
    (Tom Wagoner) I could do that sometimes, but they may have a demand that I need to act on quickly; I can't tell the customer that I can only come at ten at night.
    *If that happened today what would you do?*

(Tom Wagoner) I would send the truck down and know that they may wait for one boat, but they would for sure get on the next one, especially in the mornings at this time of year.
*That seems to be consistent with the chart on page two. It shows that every boat up until noon has space left on it.*
(Tom Wagoner) On that August date.
*We looked at a whole week. It seems fairly consistent with your experience, and that won't change.*
(Tom Wagoner) I've got to have the flexibility or we're shot down and can't do business.
*We want you on our boats.*
(Tom Wagoner) I appreciate that.

14. (Steve Bauer) Looking at the minutes from the last meeting, I saw a question about the vanpools and how they are given priority. What happens if you did that with tractor trailers?
*The vanpool priority loading that we have is directly from the WAC for ambulances, fire trucks, veterinary trips, and vanpools/carpools. It would require a change to the WAC as well as stringent space management from our side. Vanpools are already assigned to specific sailings, so in effect they are reserved already.*
(Steve Bauer) I think it would be interesting to do some analysis and see what would happen; we may have more latitude than we think. You may want to make them a priority.
15. (Lynne Danielson) As a commuter I'm throwing the yellow flag on that one. If Tom gets this job and decides he wants trucks on my sailing, I'm not getting on and I'm late for work.
16. (Tom Wagoner) We wouldn't have that situation. Why not leave the tunnel wide open for commercial users and leave the sides for others? If you want semis reserved maybe we could call 24 hours in advance and tell you when we want to be down there. We're working hard at this and it seems pretty simple, have a section of the boat available for large vehicles, and the tunnel is the part that can hold them.
*The tunnel is about a third of the boat. Can you get four trucks in the tunnel side by side?*
(Tom Wagoner) Maybe three.
*Worst case scenario if we can get you on within the next hour –*
(Tom Wagoner) I wouldn't do that to you.
*You said your truck driver may wait for one boat; our headway makes that about an hour wait.*
(Tom Wagoner) We need the flexibility for our customers.

17. (Jerry Swanson) That seems to fit with the 30% you can't reserve out of Edmonds – save the tunnel for freight, and then use it for drive-ups if they don't fill it up.

**Vehicle Processing and Communications**
Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna went over the next page of the discussion guide, page four, which discusses vehicle processing at Kingston. Kingston has plenty of holding capacity and will need minimal vehicle processing changes to implement reservations. She then asked for thoughts from the group.

**Questions & Comments**

1. (Paul Lundy) As far as capacity on the dock, you have it. It's pretty much what you're doing today. Lindvog is way too late for the signage. We need signs further back. The Country Corner intersection is the last chance to go to Bainbridge. It would serve people better to have your congestion signs there.
2. (Lynne Danielson) And tell them how to get to Bainbridge.
   *Coming from Port Townsend, there is a sign by Discovery Bay, one before the Hood Canal Bridge, and another right before Country Corner; Lindvog would be for holding people there so they don't come all the way down if the drive-up area is full. How does this look overall to the Kingston people?*
3. (Paul Lundy) WSDOT has proposed in the past other traffic patterns for Kingston. This would work in the short term, but the longer term goal is to mitigate traffic as a whole through our community. These yellow lines going through the boulevard downtown is what we don't want. We want that out of our walking area downtown. We need to continue to work on that; this works well for now but we need a more permanent solution.
   *So this addresses the backup, but not all the issues. You still want us to work on rerouting, but this would at least avoid the parking in front of the businesses.*

Fauna then directed the group to the last page of the discussion guide, which concerns the vehicle processing at the Edmonds terminal. There are three options on the table for making reservations work at Edmonds. The first is to work with the space that we have; there will be a need to modify some of the business rules to make reservations work in the existing footprint. The next two options are expansion ideas: realigning 104 or using the Antiques Mall parking lot. A new tollbooth to handle drive-up customers is proposed further up the road. Fauna asked the group for feedback.

**Questions & Comments**

1. (Paul Lundy) By using Edmonds Way, that gives you more than a boat's worth.
   *Just about a boat's worth, including the yellow drive-up lane. One reason we have looked so hard at this is Dick's point about how we will separate traffic. This seems like a way to do that.*
2. (Dick Anway) How many tollbooths are you going to have up there, only one?
   *That would be more of a check-in booth. One of the things we are looking at is how to use the existing real-estate. We're going to be looking at this space to see how much reservations we can accommodate. The gate and other options are out there to help. Conceptually, further up the hill we will send drive-ups to the right and have reserved cars keep going straight. The drive-ups go into that yellow lane to the right; it works out to where that lane would fill up the rest of the boat because we can't hold a full boat's worth in the holding lanes.*
3. (Steve Bauer) I'm concerned with the tollbooth idea. The labor costs involved have now made the system more expensive; signage should do it. I can picture it being a problem stopping everyone and manually checking for reservations; people come down that road at 50 miles per hour.
   *We have to look at whether it's more expensive to do this or the other options we have; we need to compare benefits to the costs.*
4. (Vern Chase) The DOT lot and Skippers are hot subjects in Edmonds; how are those going to be utilized to solve these problems?
   *That gets us to the expansion options: We can realign 104 or use the Antique Mall option. Getting access to the parking space and Skipper's is operationally challenging because of turning out into that intersection as well as splitting operations onto both sides of 104. Realigning 104 flips the holding space, then it's not split down the middle.*
5. (Dick Anway) At the new tollbooth are they going to pass out a tally slip so that when the blue line gets to the seller they have something to show them?
   *That new tollbooth is for the yellow lane where the drive-ups will be directed. If you have a reservation you would just keep on going and stay to the left.*
6. (Ken Jones) I've spent many hours in the dark and the rain directing traffic, and it's very dangerous. I think option one is the most economical and the easiest to get going, but the closer you can get people the better.
7. (Dick Anway) You get a lot of cheaters; what will prevent cutters? How will the sellers know who to let through?

*If they don't have a reservation they can't get through the tollbooth. That intersection will still need traffic control; cheaters will be turned around. People will have to produce proof of a reservation.*
(Dick Anway) I think the yellow lane should be for reservations.

8. (Paul Lundy) Use the Skipper's parking lot.
   *Skipper's is tough operationally to get people out, and it's also confusing to the person that is not familiar with what we are doing with them and how they will get there. That is why we are proposing the new tollbooth to explain to people the process and how long the wait will be if they are drive-ups.*
9. (Jerry Swanson) Variable signage to show people what's going on will be necessary; they will know where to go.
10. (Paul Lundy) The Antique Mall option, will that ever happen if Edmonds wants to develop that land themselves?
    *If Stephen Clifton were here I'm sure he would say that the City of Edmonds would not support that idea; they might allow a change to 104, but nothing else.*
    (Paul Lundy) Edmonds might want to pursue the long-term goal of moving the terminal south.
    *That's not going to happen and they know that.*
11. (Vern Chase) Skipper's is for sale and sitting empty.
12. (Dick Anway) The blue line and the yellow line will both move up eventually?
    *The blue line shows the reservation access lane, which will be for about 75% of the boat because that's all we have room to hold in the holding lanes and on the dock. That lane will be continuously moving and available because we can move them right up into the holding lanes. The yellow line shows the holding lane for drive-ups, who will be held there until loading time. If that lane is full at that time it will finish filling the boat.*
    (Dick Anway) It will be a powder keg if people are being passed.
    *There's a simple explanation for that: they have a reservation and you don't.*

Fauna pointed out to the group that there are only two meetings left; we need to really pull everything together in those last meetings and look at the study as a whole. We have talked about business rules, customer types, and types of sailings. She asked the group how they feel about reservations now versus when we began; are there any big issues left to discuss?

**Questions & Comments**

1. (Paul Lundy) We have not talked about the IT solutions; we know about the RFI, and we would like to hear back about those systems.

*We're not sure if you have a specific topic in mind, but all of the business rules that we have discussed can be accommodated. We got responses from a half dozen reservation systems; two were very interesting, one in particular. We would be able to change percentages of the boat available for different groups to reserve, reserve the tunnel versus the sides of the boat, do a wait list, etc. Maybe at the next meeting we can have Steven Vandor from the WSF Information Technology department come and do a quick 20 minute presentation on that.*
(Paul Lundy) We would like to understand that side of things.
*That would be part of the "pulling together" that needs to get done in the next two meetings: to talk about the way the business rules have evolved, and the capability to manage them from the IT side.*

2. (Ken Jones) I feel much more comfortable about the entire program than I did three months ago. There will be bumps in the road but I think it will work. I want to commend WSF; it's obvious that you have done a lot of work on this. I think that the educational process to the customer, getting the word out, combined with proper signage on both sides will be the key.
3. (Vern Chase) It might be helpful to canvas us by email to find out what we think. This has been very helpful; I've never understood the ferries like I do now.
4. (Jerry Swanson) I'm very impressed and optimistic. I think it will meet my needs and give me certainty. Airline tickets can be printed at hotels; the ferries should be right there alongside them. You don't even need kiosks, the systems are in place – connect to them.

**Next Meetings**
Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna went over the next two meeting dates: November 12th in Edmonds at the City Hall, and December 2nd in Kingston at the Community Center. There will also be a presentation by WSF to the Edmonds City Council on December 1st at Edmonds City Hall.

**Public Comments**

1. Concerning staging at Kingston, while thinking about traffic management, I've heard from dock personnel and users of the system that there is some difficulty getting people channeled; that is our concern. I am a believer in the benefits of this system and how it can help. I think that we need to make it so that someone can easily make/change/cancel a reservation from their hands free cell phone

while driving at 70 miles per hour. Thank you to the group for your participation; the community appreciates this.

**Conclusion**

Fauna thanked everyone for coming. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| X | Anway, Dick |
| X | Bauer, Steve |
| | Burkhart, Marianne |
| X | Chase, Vern |
| X | Cioc, Greg |
| X | Clifton, Stephen (Bertrand Hauss in attendance for Stephen) |
| X | Danielson, Lynne |
| X | DeBoer, Pete |
| X | Dolan, Steve |
| X | Jones, Ken |
| X | Lundy, Paul |
| X | Schostak, Diane |
| X | Swanson, Jerry |
| X | Wagoner, Tom |
| | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- David Moseley, WSDOT Assistant Secretary
- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- Joy Goldenberg, WSF Communications Manager
- Doug Schlief, WSF Operations Manager
- Ray Deardorf, WSF Planning Director
- Leonard Smith, WSF Operations
- Rachel Waitt, WSF Terminal Engineering

Washington State Department of Transportation

Washington State Ferries

# MEETING SUMMARY #7
# WSF EDMONDS / KINGSTON PARTNERSHIP MEETING
# EDMONDS CITY HALL, EDMONDS, WA

THURSDAY, NOVEMBER 12, 2009 5:15 – 7:00 P.M.

*Note: This meeting summary represents notes from the Washington State Department of Transportation Ferries Division (WSF) Partnership Group Meeting, and is not a formal transcript or minutes. It is provided as a record for the staff, group members and public in attendance, and other interested parties.*

## Action Items

Washington State Department of Transportation Ferries Division (WSF) to:

- Provide names and email links for the three European IT vendors for the group

## Welcome & Overview of Agenda / Handouts

Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna welcomed everyone and thanked them for coming, then briefly went over the agenda and each of the handouts. Included were a copy of the IT PowerPoint presentation, a draft of the reservation system key features overview, a draft of the IT features and elements, some draft variable messaging signage examples with maps of potential placement, as well as some updated versions of handouts from previous meetings. Fauna asked the group if they had any questions about the agenda or the handouts; the group had no questions.

Marta apologized on behalf of David who was not able to be in attendance.

## Overview of Kingston Community Meeting

WSF Project Manager Doug Schlief

Doug discussed the Kingston Community meeting that took place earlier in the week. There was a good turnout; some of the group members were there and we would like to thank you for that. There were some very pointed questions posed, many of which we were already aware of thanks to the work that this group has done. It was a very participatory crowd; they were mostly interested in how reservations would affect spontaneous travel, and how it would impact their communities and lifestyles. We heard a few new ideas as well, but we were better prepared because of our work with this group which is greatly appreciated. We also heard from a couple of people without cell phones or computers who were worried about how they would make/change/cancel their reservations.



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When people first hear about reservations, they tend to think that the boats will always be full and they will never get on. We thought we saw them starting to grasp the idea that space will be available at times when it is available now. Does anyone else who attended have any other comments about the meeting?

**Comments**

1. (Paul Lundy) It was telling that a lot folks from the outlying areas were there; there was a lot of interest from people who didn't live right in Kingston. There were some very pointed questions from them; I heard a lot about them having to do more, and not wanting more complexity.
2. (Marianne Burkhart) We found out how many of them commute when the Hood Canal Bridge was closed.
3. (Sonny Woodward) I would concur with that, there were a lot of people from across the bridge. One person asked specifically about security, which is a big issue for some people, and it seemed like you smoothed over it very quickly. They're being asked to give you all of this personal information, and it's seemed like a good question.
   *That is definitely a significant issue, but we did not have the time on Tuesday to go over it. There are industry standards that anyone who takes that sort of information has to meet, and we already do that.*
4. (Walt Elliott) One of the issues that came up was people not knowing which boat they would be able to get one. Also they want information on alternate travel routes, like if Kingston is full they would know to go to Bainbridge.
   *That is an excellent point. Part of the broader communications that they were interested in were the variable messaging signs placed at all the decision points, and local radio stations reporting information on wait times. They want as much information as possible so they can make the appropriate decision. That is what we want as well because we are trying to mitigate that backed up line.*
5. (Walt Elliott) People were also worried that you would be sending boats that aren't full; we don't want them to think that they shouldn't try.

**Vehicle Reservation System Overview**
Fauna Doyle & Michael Hodgins of Berk & Associates

Michael went through the Draft Reservation System Overview handout, which outlined some key features that are emerging for the business rules and program design, terminal operations and vehicle processing, and the IT and external communications. He then asked for any questions or comments from the group.

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**Questions & Comments**

1. (Paul Lundy) I'm having trouble with the cancellation fee thing. It may not be hard for me to make that 48 hour deadline, but I'm here to represent other users as well.
   *I will flag that issue to discuss at the end of the meeting. Are there any other items that people would like to discuss further? I will make note of them and we will have time at the end to come back.*
2. (Jerry Swanson) Make sure there are multiple ways to make changes. Hotels have computers for other travel arrangements; have your link there for people as well.
3. (Paul Lundy) I would like some clarification on what happens if you don't show up on time. You're proposing that if you haven't shown up for your sailing by the end of the business day, you lose your money. I think a 24 hour cutoff would be more customer-friendly.
   *The challenge with that is the processes behind it are things that are generally closed out at the end of business for the day.*
   (Paul Lundy) That will stick in people's throats. We can talk more about this at the end.

**Information Technology & Communications**
WSF IT Deputy Director Steven Vandor, WSF IT Revenue Control Manager Roger Hair

Steven and Roger went through their PowerPoint presentation explaining some of the challenges presented by the IT requirements of such a complicated reservation system. There are several European vendors that we are particularly interested in, two in Finland and one in England, which specialize in this type of product. Some things we will have to change or tweak to meet our needs, but the core features that we need in order for reservations to work are available. Steven asked the group for questions and comments.

**Questions & Comments**

1. (Paul Lundy) Who are the vendors from Finland?
   *Their names are Hoggia and Carus.*
   (Paul Lundy) What experience do they have?
   *There are a lot of ferry systems in Europe that use their products. Red Funnel in England is one example.*
   (Paul Lundy) What about the one from England? I'm intending to visit their websites.
   *We will provide you with the names and email links.*
   (Paul Lundy) As far as technology, are they above the rest?



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*Of what we have seen so far they have the broadest offering. We haven't entered any kind of negotiation with anyone at this point. We may take parts of a system and not others. We'll need to see how the product would integrate with our current ticketing system. We don't know yet what their proposals would look like.*
(Paul Lundy) From what you've seen from this group so far, do you think there are some reasonable solutions for the challenges we've discussed?
*It's still very early on; we have not seen any data models. On the surface they show a great deal of promise, though none have a total solution. If we choose any of the systems we have looked at so far there will need to be a fair amount of integration; some things will have to be custom built.*

Fauna went through the Draft IT Features and Elements handout, which outlines the features that are considered to be "core" and those which are considered "extra". Core features need to be in place in order for the system to work, whereas extra features are things that would be nice to have but are not necessary. The core items that are identified are available from the vendors that we are looking at.

Steven added that the real success of a system comes from taking a staged approach. We would start simple and then go for the bells and whistles later on down the road. If we start with a strong stable core, then it becomes easy to integrate other things.

2. (Ken Jones) The two other runs in WSF that have reservations, what part of that does your department handle? Do you get online reservations for Anacortes?
   *Yes, Anacortes and Port Townsend / Keystone.*
   (Ken Jones) So you haven't outsourced that, you handle that in house.
   *The system used at Anacortes was built by a contractor over ten years ago, but we maintain it. When we lost the Steel Electrics we modified the system for Port Townsend / Keystone. So we have that experience, but that system is really different from what we are talking about here.*
   (Ken Jones) Were you overwhelmed?
   *Yes, we were overwhelmed when we integrated it at Port Townsend, and we still are somewhat in the summer. The existing system is ancient; the first step would be to replace that. It doesn't capture the data that we want; it's very fragile. It was designed to handle a couple of boats a day and what we are talking about now is thousands and thousands of reservations a day. We need a much bigger system.*

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3. (Ken Jones) Something I took away from the Kingston Community meeting was that some people are very suspicious of extra charges here and there. We should be careful of any fees.
4. (Lynne Danielson) The cost of this can be spread to users or it can be spread out over everything. Is it really convenient for commuters? Yes. Is it worth paying for? Probably not.

Fauna asked the group if the overall ideas are making sense to them; the group generally agreed that everything seems to be coming together.

5. (Vern Chase) It's nice to know that it can be done.

Fauna went over the Draft Variable Messaging Sign Examples handout which depicts some ideas for regional, local, and terminal signage. She also discussed the three map handouts which show some suggested roadside locations for the new signage.

6. (Steve Dolan) I would want to know sooner than I-5. I think I would want to know before I got to Seattle so I could drive around or go to Bainbridge. Maybe all the way down before Tacoma like the Lakewood area. Things may change before I get there but at least I would know.
7. (Sonny Woodward) I wish Kingston had this now. Would there be any widening of the road to allow for people to pull off and make a call? There is a safety element involved with people driving and trying to read a sign and grab their cell phones to make a call. Maybe you could talk to the DOT about creating a pullout area.
8. (Lynne Danielson) You have nothing on I-405. If someone was coming from Bothell they would have no notice.
9. (Steve Dolan) I agree, and it should be south of Bellevue as well.
10. (Stephen Clifton) The sign you already have by McDonalds is not easy to read at 35 miles per hour; I can't imagine being able to read this at that speed. For the amount of information you would have to put on a sign for someone to make a decision, it might be easier to use a radio station. AM 510 works for the pass; people can tune in and keep their eyes on the road.
11. (Marianne Burkhart) I agree with Stephen that I can't read the one you have now. This seems to be too much to squeeze onto a sign. What does it mean by a 2 hour wait time?
    *That refers to what your wait time is if you are a drive-up. It is telling you that it is stacked up and that's how long you will wait if you don't have a reservation.*

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12. (Jerry Swanson) I don't see anything up near Anacortes; will it expand to those areas at some point?
    *Yes, this is intended to be an example just for Edmonds / Kingston, but it will expand.*
13. (Paul Lundy) I know how these signs are operated today, and it's not pretty. You have to call a guy in Olympia and wait for him to have his cup of coffee, and then twenty minutes later it might change. Will you be controlling these signs or will it be someone in Olympia?
    *We are making some improvements so that we at the ferries can make some changes; we would want our load system to generate these messages, and have a live person making a decision what to put up. BC Ferries operates that way; as you're driving toward their terminals you can see the boat filling up. A key point is all the messages have to be similar if not the same on the text messages, the radio and the signs; it has to be a consistent message. BC Ferries also has the same information at the terminals, so you can see where you are in the line.*
14. (Sonny Woodward) What about installing small kiosks or signs at various rest stops? One north, one south. That way someone can pull off the freeway and get a feeling for what's going on, then make a call.
    *We used to offer wi-fi at rest stops for free and nobody used it so they took it down.*
    (Sonny Woodward) When I'm on I-5 I use the rest stops. I don't know if you need wi-fi, just variable signage. The ferries are such a huge part of the system; they should be accessible to everyone.
    *That's a very good idea; maybe some sort of touch-screen display that could lay out the whole system.*
15. (Patricia Willestoft) I would like to take this signage information back to some of my carriers and see if they think they could read these signs. Can I email that information to you?
    *Please do.*

**Business Rules Review**
Fauna Doyle and Michael Hodgins of Berk & Associates

Michael and Fauna went over the Business Rules for Exceptions handout which details some of the adjustments that would be required in the inventible event of delayed sailings, vessel substitutions, and canceled sailings.

**Questions & Comments**

1. (Marianne Burkhart) You say that ten minutes is not significant, but to some commuters it is, especially if you walk on and need to catch a bus.

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*Point well taken; we were looking at it from a vehicle processing standpoint. The stack up would get much worse if the delay is more than a few minutes.*

2. (Lynne Danielson) The buses here are scheduled to arrive substantially after the ferry. They have adjusted their schedules so they don't have to deal with the traffic. 10 minutes might be safe but 15 or 20 can be substantial.
3. (Sonny Woodward) What happens if you make your reservation and then turn your phone off? The average Joe driving down the road won't think about it, and then they get there and find out their sailing has been canceled.
   *The situation would still be better than the alternative; we have massive backups today when there are service disruptions.*
4. (Jerry Swanson) The regular radio will make reports as well.
5. (Sonny Woodward) Following up on that, maybe you can have more communication with the people on television so they can report more about the ferries.
6. (Paul Lundy) When we have problems and you automatically default to 100% reservations, that's not fair.
   *The thinking behind that is to honor the existing reservations. The drive-ups would be inconvenienced, but someone has to be. These are tough decisions. We could maintain 10% drive-ups and bump reservation folks, but honoring reservations seems like an important principal.*
   (Paul Lundy) Not in my mind.
   *What would you do?*
   (Paul Lundy) I might be that person in standby. I feel for them; I would keep some portion for that.
   *So if you had a reservation and we told you we were letting somebody go by you without a reservation that would be ok?*
7. (Marianne Burkhart) No, no, no. What if I'm trying to get on a plane and they're letting standby go before me? No.
   *It's a tradeoff; someone suffers either way.*
8. (Jerry Swanson) You can use the new signage to say that the next two boats are reservation only.

Fauna went back to discuss the point brought up earlier about the cancellation fee. In order to keep people from overbooking or no-showing, we have to have some incentive not to do that. There has to be something in place to stop that; if you don't like the cancellation fee, what are some other options?



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9. (Jerry Swanson) It seems to me from what I'm hearing from your IT folks that you would have the ability to discriminate from person to person. They can tell if a person has ten reservations in one day going the same way. If someone is clearly abusing the system, then warn them first and then don't allow them to use it.
   *The issue is we want to make it easy to make a reservation, but we want people to only make the reservations they need. If the bar is too low, like not charging anything up front, then it will lead to no-shows. Having to shell out money puts a stop to that. We've talked about having the penalty be fairly low, and perhaps have it become worse if the system is abused. There may also be a set of rules you agree to when you become part of the Priority Access program; regular cancellations could get you kicked out. We don't have to lock this down now; we heard the word 'elitist' used at the Kingston meeting, which is not our intention. We want to make this as accessible as possible but we can't avoid some penalty for cancellations.*
10. (Paul Lundy) I understand your dilemma. With the casual user who is paying 100% of the fare, I don't see it becoming an issue. With the Premier Access people you do have that potential, but if they do a lot of cancellations you can track that. If they abuse it they could lose their account; it's easy. I don't see it as a problem, that's why I see the fee as an issue.

Fauna suggested going around the room to get out any final thoughts from each group member. At the next meeting we will have some of the pre-design report to show you; this is one of your last opportunities to get out any feedback that you have.

1. (Sonny Woodward) I think it will be important to take baby steps with this. I'm concerned about overwhelming everybody.
2. (Patricia Willestoft) I agree with that. Also, from a large commercial vehicle point of view I just want to say that they don't do just one trip in the morning and one trip back at night. I could want one carrier to make a reservation for 4-6 trucks, everyday or only 4 days a week, or for the entire month. And I would need the easy ability to cancel them. We have concentrated a lot on commuters; I'm not sure we've looked very closely at large commercial vehicles.
3. (Jerry Weed) I'm from Sequim, and I can say that people who are infrequent users are intimidated right now. This is scary for them. They don't use Port Townsend because they think it's always full. It's difficult for infrequent users to understand; it scares them off.

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4. (Jerry Swanson) I'm an over and back kind of traveler, and I might abuse the system by making two reservations in a row so that if I miss one I could get the next one. That would be easy to track, but you shouldn't punish the people who genuinely need to cancel.
5. (Diane Schostak) If you plan on implementing this a little at a time, easing into a reservation ceiling might be a nice way to do that. You need to leave wiggle room for those infrequent users who are coming from far away.
6. (Paul Lundy) I think in terms of missing your boat and losing your ticket, rather than losing your money at the end of the business day, the 24 hour window would be more customer friendly. I understand the accounting issue at the end of the day, but you could roll it over to the next day; that would be easy to build into the ticketing system and it would be good for customers.
7. (Steve Dolan) It will be important to capture peoples' responses as you implement this. It will be crucial to understand what works and what doesn't; you need their feedback.
8. (Pete DeBoer) We've been discussing this for months, so we may have a clue about how this would work; the 4 million people who are not in these meetings have no idea. The promotion and advertising have to be thought out. This is a state highway and people need to be able to use it.
9. (Lynne Danielson) I agree with all of that. Facing a change at anytime is not easy, and you're not going to be able to make everyone happy. It will be important to shift authority to the ticket takers so that they can make decisions and deal with what's happening at the moment.
10. (Stephen Clifton) Has there been any discussion on conducting traffic modeling to see how it would flow at the peak? You could stage it and model what would happen?
    *Not as part of the pre-design, but if the Legislature gives us the nod that might make sense.*
    (Stephen Clifton) It would be interesting to watch that and see how it works.
11. (Vern Chase) Folks need to know the concern and hard work that went into putting this together. If there was an executive summary that we could show people and talk to them about that would be helpful; this shows a lot of high quality work.
12. (Marianne Burkhart) The amount and quality of your work on this and the clarity of your presentation give me hope. I'm very excited.
13. (Ken Jones) I agree with Pete; two things are crucial. The public education needs to go on for months. There is so much complexity to this system and it's a huge change from what we have had for decades. The

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other part is the IT function, from the signage to being able to make reservations; it will have to mesh and mesh well. You need to be at 99.9%, anything less than that and you will lose credibility.

**Next Meetings**
Meeting Facilitator Fauna Doyle of Berk & Associates

Fauna mentioned the date of the last meeting: December 2nd at the Kingston Community Center.

**Public Comments**

1. (Walt Elliott) Some of this signage is confusing; that needs to be resolved before we stop meeting with the traffic group and before the report gets finalized. I can't double book an airline; other systems are doing this no problem. We need a scenario for what happens when the reservations system goes down. 90% is a huge risk for you and the riders have to adapt to that; it will bring the system to it's' knees. You should do this in stages. You have goals but you don't know how to measure them; you need to be able to know if it's working or not working. You need some measure of success.

**Conclusion**

Fauna thanked everyone for coming. Meeting was adjourned.

**Group Members**

| Present | Name of Group Member |
|---|---|
| X | Anway, Dick |
| | Bauer, Steve |
| X | Burkhart, Marianne |
| X | Chase, Vern |
| | Cioc, Greg |
| X | Clifton, Stephen |
| X | Danielson, Lynne |
| X | DeBoer, Pete |
| X | Dolan, Steve |
| X | Jones, Ken |
| X | Lundy, Paul |
| X | Schostak, Diane |



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| | |
|---|---|
| X | Swanson, Jerry |
| | Wagoner, Tom |
| X | Weed, Jerry |
| X | Willestoft, Patricia |
| X | Woodward, Sonny |

**Project Team**

- Michael Hodgins, Berk & Associates
- Fauna Doyle, Berk & Associates
- Doug Schlief, WSF Operations Manager
- Steven Vandor, WSF IT Deputy Director
- Roger Hair, WSF IT Revenue Control Manager
- Ray Deardorf, WSF Planning Director
- Marta Coursey, WSF Communications Director
- Rachel Waitt, WSF Terminal Engineering

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# APPENDIX B
# PUBLIC COMMENTS REGARDING THE RESERVATION PREDESIGN STUDY

## Introduction

This appendix includes all of the public comments that were emailed to WSFplanning@wsdot.wa.gov and DavidMoseleyUpdates@wsdot.wa.gov between June and December 2009 regarding the WSF Reservations Predesign Study. This appendix does not include WSF's responses to these comments, but many of them were individually addressed. Personal contact information was removed to respect the privacy of those who submitted comments.

The comments in this appendix are organized by date, and are presented in their original format where possible.

## Comments Received June 3, 2009

### *Ferry Reservations*

Sir, I am a daily commuter from Bremerton to Everett and I travel the Kingston route 12:10P.M. Eastbound, and 10:30P.M. Westbound. This time of year, I am fortunate to be able to ride my motorcycle so that I can bypass the "dog-and-pony show" that develops during the summer months on that route.

My concern is with the use of reservations for those commuters that use the WavetoGo cards. Those cards tell the ferry system automatically that I am not a tourist with my Winnebago, and I HAVE to get to work. That being said, I hope your insight into this will concentrate on the individuals who support the ferries YEAR ROUND, and not just the summer crowds. The use of reservations should only be implemented during the high volume times of the year. How do you intend to hold a reservation for some one? If I give you my WavetoGo card #, I should be able to get on. How do I get around all the other traffic? What if some one doesn't show up? What about the larger vehicles with multiple axels. How do they pay over the phone? What if some one doesn't account for the length of their trailer and has to pay for the extra length on their trailer? That extra length could possibly bump some one else off due to miss calculations. Where do motorcycles fit into this mix? And Finally, what if some one is late for their reservation and they miss the boat? So they automatically get to load on the next boat?

I sure hope you intend to address ALL these issues in a manner that is not condescending to the commuter sector. Those of us that has to deal with this all year. Let's not forget that our Governor just got rid of a couple of brand new passenger only ferries because of the pressure that was put on her by the NIMBIES on Bainbridge. I want the tourists here as much as the next person, but I also want to be considered into the equation as well.

Thanx for your time

Fred Drewien

### *Reservations on ferries*

Are you insane? The department can't accommodate ferry traffic because it hasn't planned well for the future. It's bad enough that reservations (which I have already complained about) are required at Pt. Townsend/Keystone. But, to require reservations on all the runs is ridiculous and a real disservice to the taxpayers.

Lana Brennan

### *June 2, 2009 Meeting*

Gentlemen:

Thank you for holding the meeting last evening. I felt the agenda was appropriate and the time allotted to each topic was adequate. It was also appreciated that the timeframe was adhered to for the most part. (Of course, when public comment is invited, you can never be sure what will happen to your scheduled agenda.)

My husband and I were disappointed that the meeting notice provided via the internet stated incorrect times for this meeting. Although we did stay until the conclusion of the meeting, the error in communicating the time was an inconvenience for us.

You have once again invited public comment, so I offer the following:

1. Fare proposal: you have stated that you anticipate a 2.5% annual increase to be applied equally on all routes (except Anacortes). You have further stated that the legislature has directed that any

increase be applied consistently to both autos and passengers. I am curious; have you looked at what fares would need to be in order to cover operating costs (not capital improvements)? In business, when setting prices, this is a key initial element to be considered. I would be interested in more information on this process.

2. Reservation system: I know this is a "hot topic". My husband and I do not have any huge problems with this as long as it is not exclusively reservations and the system is "user friendly" and consistently accurate. I, however, do not believe that it will guarantee less traffic in the communities in waiting lanes. Of course, this differs greatly depending upon what community we look at. We were visitors to Whidbey Island (from out of state) for many years before we became residents. We did not know how the ferries worked the first few times we came here…in fact we did not fully understand the traffic patterns until we lived here. I imagine that would be the same for many visitors as well. And the visitors may not even know about reservations until they are here. So, I must ask, are reservations focused at primarily the commuter traffic and weekend regulars or the occasional visitor? Or is it simply a way to appease the communities near the ferry terminals?

Many of the communities of ferry riders carry a lot of baggage from past problematic operations of the ferry system. I believe that is the primary cause of opposition you are facing. However, I believe you are on the right path to turning things around. Clear and consistent communication…along with resulting improvements in operations, will ease much of the concerns. Your efforts are appreciated.

What is the role of the Ferry Advisory Committees? How does one become a member? And what is the role of the "Executive Council" derived from these groups?

I truly hope someone can respond thoughtfully to this message. A generic or "company line" response tells me that I am wasting my time. So please do not respond to this communication with a generic message. If this cannot be accomplished, please do not respond at all.

Cindy

## Comments Received June 4, 2009

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***NO! NO! to a ferry reservation system***

Please, Please.... can the insanely DUMB reservation idea and let me drive up to the ferry

1) after I've managed to get the kids dressed and into the car (when's that?)
2) after I've managed to finish up the 1 hour chore that unexpectedly took 2 hours and had to be finished before I left for the ferry
3) after I've finished dinner because I decided at the last minute that would be better eating than starving on the ferry waiting to get to the other side.
4) when I just decided on the spur of a sunny weekend, I want to go see the Olympics.

You get the idea, I hope. Unless you're a work commuter, the ferry is a spontaneous happening for most of us that could backfire and reduce total trips on the system if you require the world to premeditate their lives.

It's like owning a car. I just get in and go when I want to. I don't have to "reserve" the car like you're thinking of making us do. That's nutso.

I can't begin to tell you the number of times I was intending to go at a certain time, but was not able to make that particular ferry.

What happens to those that miss their reservations? Do they take the next ferry? Do they "bounce" someone with a reservation on the next ferry?

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***Reservation System Proposal***

Dear Ms. Coursey,

I have been riding the Washington State Ferry system for over 60 years, before it was a State run system. I use the Cross-Sound runs several times a week to get between my home in Seattle and my home in Port Ludlow.

The reservation system that was implemented during the Hood Canal Bridge closure worked well and was the only logical course given the very limited capacity of the five night, single sailings between Edmonds and Port Townsend. This was a very special circumstance and it was necessary but to have a reservation system for normal conditions will take all of the flexibility and comfort out of Cross-Sound travel. I am very much against the possibility of a reservation system for our Ferry System!

As it is now one never needs to even consult a ferry schedule, you always know that if you miss one there will be another boat in a fairly short time. If "life" intervenes and you somehow miss your scheduled reservation you may very well be out of luck for the foreseeable future, hours and possibly days with no hope of getting on a ferry. First come, first served puts everyone on an equal footing and allows for life's inevitable missteps. You get in line, wait your turn and you get there, it's something that you can count on.

I often used the reservation system during the Bridge closure and it worked well but took on far more importance to me than it should. I found that I'd actually wait at the terminal much longer than usual in the dread fear that I might miss the reservation. For a regular ferry customer, a commuter if you will, a reservation system is not what we want. It would only disrupt the normal flow of traffic and be an onerous burden on everyone involved

If you want to make improvements to the system get the electronic fare system to work! Why has that been such a problem for so long? There has been hardware hanging on the toll booths for years just going to waste.

Please take this request seriously. A reservation system for our public transportation system is counter productive and intrusive. Don't implement a reservation system for our ferry system.

Respectfully,

Ross Budden

## Comments Received June 5, 2009

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***Re: WSDOT Ferries Division Assistant Secretary David Moseley's Weekly Update***

A few comments following the Vashon meeting:

1. I fly for a living and if the reservation system becomes the nightmare like that of air travel , it will decimate ferry travel as well. Example: You have a reservation and the doctor is late and you have to re-make a reservation...$100 change fee and wait for several boats to get home. The reservation line is busy, you wait on hold (on a cell phone). You can't get online while on a ferry because WA Ferry System has blocked internet access unless you pay $9.95/mo. Apparently a sign of the tactics we can expect from a customer-unfriendly system.

2. Going to a reservation system clearly assists you to shuffle people to other boats but is a mandate going completely in the opposite direction for the customers that ferries serve.

3. These meetings appear to be letting the users have a "perception" of input...then you all go right on and do what you want anyway to reduce costs at all cost.

4. You did not answer my question, "How will you weight customer satisfaction in the benchmarks of a reservation system?"

5. Like any business budget and long term planning process, where are the staffing, building project, and management cuts needed to meet the shortfall, or does the department build the empire and then declare a shortfall for new ferries?

Thank you

Sandra Champion

## Comments Received June 7, 2009

***Re: WSDOT Ferries Division Assistant Secretary David Moseley's Weekly Update***

well i was going to take a trip to Port Townsend.. Normaly i would of just gone and came back... but OH NO not with this reservation .. after i'd been on hold for almost an hour they told me.. the weight of the trailer is to much. So much for on the spur of the momet stuff. Hope you get enogh people to hire for your reservations. You wont need any boats with this kind of stuff your trying/

## Comments Received June 11, 2009

***Ferry Reservations on Mukilteo/Clinton***

Dave, sorry I was out of town and unable to attend the meeting in Clinton last week. Obviously something needs to be done short of just throwing money at the problem. I think a reservations system would certainly be better than just show up and wait in line. Obviously need to study the details, that will make or break the proposal.

I have a concern that may be easier to resolve and has a potentially larger impact. From what I have read the city of Mukilteo is in the process of closing approximate 450 parking stalls. Today my wife and I leave 1 car on each side and walk on and off the ferry. If we lose the

ability to leave a car on each side and we need to add 300~400 cars a day back on the ferry this would just exacerbate the current problem of trying to have people look at alternatives other that just show and pull into line without reservations. In our current situation we take 1 round trip a week with the car (off the island Monday 5:00 am, and back on the island Saturday afternoon 4:00 pm) all of the other days we walk on and off the boat.

Is WSF looking into near term possible resolutions to add back any parking lost caused by the city of Mukilteo?

Regards:
Michael G. Parent

## Comments Received June 12, 2009

***San Juan Ferry Meeting, June 11th***

Thank you for the ferry meeting on June 11th. I thought it was interesting.

The below are my comments:

1) Vehicle Reservations: I cannot emphasize how strongly I am against reservations for the ferry system, not only for the San Juan Islands, but for all Wash. St. Ferry (WSF) routes.
COST, time and maintenance issues are the primary reasons.
I feel it is a poor use of State money in these difficult times to even think about spending more money regarding vehicle reservations. It certainly will not save any time. Cost of new computer equipment and maintenance of the system will also be expensive and ongoing.

2) Capital Equipment:
New ferries should be the highest priority of WSF. All Federal stimulus requests from WSF should be for new ferries, and maintenance and improvements of the existing ferries.

3) I just read David Mosley's weekly update email
that 26 million dollars of Federal stimulus money was requested for updating the Anacortes terminal.
The Anacortes terminal 'works' the way it is. In the summer, yes, it is crowded, but most people are outside. In the winter, the terminal is almost empty. I feel this is a poor use of Federal funds.

I am not commenting on the Coast Guard mandate of 12 out of 24 hours for WSF employees. I hope the Coast Guard has a meeting in the San Juans regarding the change in plans.

Sincerely,

Barbara Fulton

## Comments Received June 19, 2009

### *WSF Reservation "campaign" AND Reality ! – Please read & reply !*

Hi !

I thot I would share (2) recent experiences we had vis-a-vis the "wsf reservation system"...

I made round-trip reservations ( via phone ) for the Keystone - Port Townsend run ... leaving Keystone on Tuesday 6/9 at 1:30 ---
and returning on Saturday 6/13 at 5:15.

These reservations were for our pick-up truck and our 21' travel trailer.

I received confirmation #'s for both reservations & recorded them.

When we arrived at the Keystone ticket booth on 6/9 - the WSF attendant could find NO RECORD of our reservation - he searched by our confirmation # & our name.... no soap !

He seemed very frustrated & perplexed -- apologized & sold us our ticket and we were able to make the crossing.

Then on 6/13 - when we arrived at the Port Townsend ticket booth - the WSF attendant could find NO RECORD of our reservation - he too searched by our confirmation # & our name... no soap ! He commented..."I am not surprised - this system is a joke ! And they think they are going to make this reservation system work ?!? This happens all the time ! "

He too was VERY frustrated ... he too apologized - sold us our ticket and we were able to make the crossing.

Having attended meetings here on Whidbey Island about our WSF system = (2) mtgs with David Moseley - (1) with Rep.Norma Smith - (1) with Sen. Haugen ... and having heard the unanimous opposition to any/all plans for a "reservation system" ... I ask you why David Moseley persists to push & tout this idea ?

Our recent experience is yet another reason to scrap any/all plans to implement such a system.

We look forward to your response.

Thank you !

Wayne & Lynn Flaaten

### *Re: WSDOT Ferries Division Assistant Secretary David Moseley's Weekly Update*

RE: Linda that saved the day ARTICLE.. told those folks it was reservations ONLY>> There are to many people that think its RESERVATIONS ONLY WHEN ITS RECOMMENDED. I believe you loose more rider ship like this. Seems a big waste of money all this trying to see if its going to work. why not spend all that money you plan on useing for expermintal purpose to see if it will work when it most surely will not. Just Build another FERRY> Seems to me you want less rider ship and more office people talking reservations and all the extra people it will take to go ahead with this. It will slow down the economy.

## Comments Received August 14, 2009

### *On Vehicle Reservation design report*

Joy Goldenberg

I read the WSF David Moseley Update today including the reservation pre-design report. I live on Whidbey Island and as you may know, the idea of ferry reservations presented here by David was not very well accepted by this community. While I remain unconvinced on this issue and with many unanswered questions, I would really like to know more and understand this issue better..

To this end, I think it might be very helpful if you were to video tape the upcoming "reservation" meetings with the Edmonds/Kingston Community Partnership and make these available online for Whidbey and other communities to see how the business and community issues are addressed and worked through. Perhaps this will help Whidbey Islanders and other Island Communities better see how a reservation may work for them as well.

I would appreciate your consideration on this.

Jerry Valade

## Comments Received August 20, 2009

### *Reservation System*

Dear Mr. Moseley,

I've been using the cross Sound Ferry system multiple times a week since it was operated by Blackball and the possibility of Washington State starting to broadly use a reservation system for passage on our ferry system is very alarming. Under the current system of first come, first served the system operates very smoothly and you can feel comfortable knowing that if you should miss a boat you know that you'll get on the next one. I haven't consulted a ferry schedule in decades.

During the closure of the Hood Canal Bridge I used the Edmonds to Port Townsend "twilight" runs using the reservation system and to say that it was stressful is a gross understatement. The normal relaxed routine of ferry travel was gone only to be replaced with the literal terror of somehow missing or being bumped from the ferry. Four of my reservations were somehow mishandled and I was almost bumped until a deep investigation found each of my confirmations. Being concerned about missing the reservation time I found myself arriving a full hour and a half ahead of each sailing. With traffic conditions being what they are today it wouldn't take much to have a traffic knot cause you to miss a reservation and possibly alter your plans for then next several days. I can see the terminal employees taking a huge amount of grief over difficulties with people missing reservations or being bumped. It will become a very stressful environment.

I have talked to a great many people, including many of the employees of ferry system particularly people in the ticket booths and I've yet to find a single person that thinks that using a reservation system is a good idea. It might work for someone that is making a once a year vacation trip or a tourist but it is counterproductive for regular system users.

If the system is instituted first on the Edmonds/Kingston run it will drive anyone that reasonably can to Colman Dock. Right now I use the ferry cameras to make the decision on which terminal to use based on the back-up but

with a reservations program at Edmonds I'll just go straight to Colman Dock. I never again want to be subjected to the restrictions of a ferry reservation system. Life has "bumps" and bumps cause people to miss reservations of all kinds but it shouldn't cause you to miss the "next ferry".

I know that this thing is in motion, I don't know how it got such impetus and it needs to be full vetted by the users not by local business concerns that may benefit from having people capture in their cars with nothing to do for the hours that they'll be waiting at the terminals.

There are lots of improvements that can be made by tweaking the system that is mostly in place right now. That "Wave & Go" system or whatever the ferry system was calling their version, has had card readers hanging on the tollbooths for years without working. Just having an automated payment system in operation and designated priority lanes to serve pre-ticketed vehicles would drastically speed the process. Fill the lots as quickly as possible and all of the people waiting both in and out of the lot could actually shut their engines off. Hold the lines until the ferry is loaded and then re-start the lines again until the lot is full again. Under the current system cars are lined up for blocks (sometimes miles) and usually only one or two of the tollbooths are staffed because there is no feeling of "need" or urgency since the boat has just sailed and the next one won't need to be loaded for at least another 45 minutes so every vehicle in the line is idling and moving twenty feet every few minutes. Those are only two small measures that would go along way to improve the efficiency of vehicular traffic, terminal congestion and would certainly cut down on local pollution.

Please talk to the users not the business interests.

Respectfully,

Ross Budden

## Comments Received August 21, 2009

***reservation system concerns***

Mr Moseley,
I have a couple of concerns regarding the planned reservation system for the Edmonds-Kingston ferry. If they have already been addressed, then perhaps you can explain how they system will work. If they have not yet been addressed, I hope you will bring them up at future meetings.

First, if the reservation system will require a deposit that will be some portion of the fare, how will that work for commuters that have multiride cards? Second, if I, as a commuter, make my reservation (with a deposit) and miss the ferry because of a accident on I-5, but make a following ferry, will my deopist disappear?

I am a regular user of the Edmonds-Kingston run Sept - June, and user of the Port Townsend - Keystone run July - August. I enjoy the use of the reservation system now in place, and appreciate the fact that it is free. I've only missed one reservation this summer (and called ahead to let the ferry service know), but do not have the same kind of traffic worries for that run. I am concerned that a system that requires deposits may favor the tourists over the commuters--meaning the system is not properly serving its customers.

Thank you for addressing my concerns.
Respectfully,
Rachel Wade

## Comments Received September 2, 2009

### *WSF Kingston Reservation System*

To: Joy Goldenberg; Communications Manager, WSF Communications

From: Evan Stoll; Kingston resident

Date: Sept 2, 2009

Joy,

The following is the letter that I am sending to the local newspapers. Hopefully you will find it constructive. I will plan to attend the meeting at 5:00pm on Wed. the 9th at the Edmond's City Hall.

Evan Stoll

WSF Kingston Reservation System

The September Community News says that, "In its 2009 session, the Legislature ordered WSF to develop a pilot project to test a reservation system." In fact, the Legislature simply ordered WSF to, "conduct a pre-design study on vehicle reservations to identify the technology and needed capabilities for a vehicle reservations system …, if found appropriate." That process is still ongoing and I am told that no decision on whether to proceed with a test will be made until the Legislature meets in 2010. Never-the-less WSF is proceeding with planning for a reservation system test on the Edmond-Kingston run.

Good management practices require the establishment of goals (e.g. reduced congestion), measurable objectives (e.g. waiting times of less than 20 minutes for 90% of ferry traffic), and activities (e.g. establishing a reservation system). These goals and objectives should be defined in the pre-design study. Only then should the activities start being established. Otherwise, the decision to "test" a reservation system may be based more on the test planning than on study results.

I understand the desire to be "ready to go" but shouldn't knowing what we need come first? In particular, before test planning continues, WSF should provide the community with information regarding (1) what specific problem(s) is the reservation system designed to solve; (2) how have those problems been measured and what do the measurements show; (3) what criteria are established to measure the success of the test; (4) what problems will the reservation system cause and what steps have or will be taken to mitigate them. Since the answers to these questions will determine the locations that might benefit from a reservation system they should be addressed independently of location. They will then serve to determine which run(s) might benefit from a reservation system as well as the best location to test such a system. Until these management steps and issues are answered I believe that testing a new system on the Edmonds-Kingston, the most diverse and heavily traveled vehicular route in the WSF system, is not a good idea.

Evan Stoll

## Comments Received September 18, 2009

***Letter to David Moseley re reservation system concerns***

Dear Mr. Moseley,

It seemed to me following the Sept. 9th WSF Reservation System Partnership Meeting that we just weren't communicating. Consequently, I thought it might be useful to explain the management framework I was using to assess the reservation system planning process. That framework is based on the principle of first setting goals, then objectives for meeting the goals, and finally activities to carry out the objectives. I found in a career with GAO that many of the problems that occurred in government agencies had resulted from a lack of clarity regarding project goals and objectives. Instead, organizations focused on activities; assuming that they had accomplished something when the activities were completed. In a nut shell this is the old adage, "When you're up to your neck in alligators it is hard to remember that your objective is to drain the swamp."

My definitions for goals and objectives are based on a "Management by Objectives" outlook. However, I don't think that the management philosophy really matters. Newer approaches such as Six-Sigma or Total Quality Management still require a clear statement of where you are going.

Goals: A goal is a long-range aim for a specific period. It must be specific.

Objectives: An objective is a specific step or milestone which enables you to accomplish a goal. Among other things, objectives must be focused on a result, not an activity, be specific, and be measurable. Saying that we want to reduce congestion is a nice goal, but insufficient as an objective because it doesn't establish a measurement for success and don't tell managers (or advisory committees) what to do.

Activities: Activities are the procedures used to meet the objective.

The management process, of course, involves several layers of goals, objectives, and activities. For example, a WSF goal may be to reduce ferry traffic congestion while maintaining (or improving) service and income. One objective for doing so could be to spread out the arrival times for vehicles so that backups exceed ½ of a ferry load on less than 10 days per year. Activities, as you have already considered, could be time of day pricing or a reservation system. Once it is decided to put a reservation system into place the process of establishing goals, objectives and activities begins for that activity. This is the point at which I have concerns.

My original concern stemmed from news articles stating that a test of a WSF reservation system was to be made on the Edmonds-Kingston run. Planning for a reservation system test seemed to be premature since it was being done before completion of the pre-design study, which is suppose to gather information on the feasibility of reservation system. In particular I was concerned about, (1) what specific problem(s) is the reservation system designed to solve; (2) how have those problems been measured and what do the measurements show; (3) what criteria are established to measure the success of the test; (4) what problems will the reservation system cause and what steps have or will be taken to mitigate them.

While attending Edmonds-Kingston Partnership Group meeting last week I became even more concerned about the clarity of goals and objectives for the reservation system, as well as how the activities (no-show penalties, percentage of vessel reserved and when, etc.) relate to the objectives. For example, the document titled "Draft goals and Evaluation Criteria" cited four "goals" for the reservation system. Summarized, these are that the system must work for WSF customers, for ferry commuters, for WSF; and it must be adaptable to different travel sheds. These "goals" definitely do not meet the standard of being specific. They appear to me more of a mission statement.

The "goals" were followed by a series of "criteria". However, the criteria aren't readily (if at all) measureable. The statement "Minimizes wait time" comes closest to a measureable objective, but what that means is not defined. What are the wait times now? What is the target wait time? What is the arrival time curve and how will it change with a reservation system? To me, the "evaluation criteria" listed are actually system specifications, not evaluation criteria because they don't lend themselves to measurements that can be used to evaluate the success or failure of the new system. Even if they could somehow be qualitatively measured I have not heard about a standard for saying what constitutes success. Incidentally, your "Level of Service" standard in the Long Range Plan establishes "percent of total sailings filled to capacity" as the "indicator of the service customers are receiving as well as how utilized the system is." The LOS standard is not listed in the "evaluation criteria".

What really bothered me at the meeting, however, is the amount of discussion with no linkage to a desired goal or objectives. For example, there was a long discussion about what penalty was needed for "no-shows". A variety of opinions were stated, but not one person asked what impact a particular option would have on an objective (perhaps not surprising since objectives hadn't been defined). When someone finally asked Michael about the problem they were trying to solve, his answer was that, "no-shows cause a lot of problems". You provided me with some insight on the no-show problem after the meeting but it is not clear that the partnership group had that information.

My point is that reducing "no-shows" is not the objective – it is simply one means towards achieving the objective(s). If the penalty for no-shows is too little it could results in too many cars arriving without reservations, and resulting congestion. If the penalty is too large it could result in people deciding not to use the ferry and a loss in revenue. Obviously the question of no-show penalties should not simply be punitive, but should be couched in terms of what is needed to achieve competing objectives. Maybe the results would have been no different given the lack of information for basing such a decision, but at least they would have been considered.

The discussion of what percentage the set aside for reservations had the same problem. The answer will depend on how much traffic can be diverted if customers would prefer to take an earlier or later ferry rather than wait in line. It should not be a matter of guesswork with no consideration of the impact on the objectives (e.g. number of cars without reservations, revenue stability, etc.). Taking such considerations into account might provide different answers, or allow for flexible percentages depending on the time of day, day of week, etc. rather than the one-size-fits-all approach that I think was finally set down. What you don't want to do is reduce revenue because customers decide to forgo use of the ferries because they can't get a reservation.

I am not opposed to a reservation system. It would be great to be able to call up and get an assured spot on a ferry rather than waiting in line. However, the reservation systems needs to have clearly stated objectives so that success or failure can be quantified (at least on major aspects) and not subject to the desires of some politician. The system parameters to accomplish the objectives need to be related to their effect on the objectives and neither arbitrary nor penal. And the system needs to be fair to all users (admittedly a qualitative judgment) and not favor particular classes.

I am also concerned about why the Edmonds-Kingston run was chosen for the test. Saying that it is the most diverse and heavily traveled run is a statement of fact, not a justification. Yes, if it works here, it will probably work elsewhere. But, what if it doesn't work? What does that say? Does it mean it was a bad idea or just that it wasn't implemented correctly? Does it mean that it wouldn't work elsewhere?

I am concerned about the usefulness of the "partnership" group to establish the system's parameters at appropriate levels. Community groups are typically very good at indentifying problems and can be useful for brainstorming possible solutions. However, they are not generally good at finding the best solution because they usually don't have the technical skills needed to do so and because they are motivated by their personal agendas. Their recommendations could end up being used as support for system parameters that have no link to the objectives simply because, "this is what you community representatives recommended." I would much prefer that your staff find solutions to the problems identified by the partnership group and then defend them based on solid analysis.

I could go on with the problems I foresee, but hopefully the gist of my concerns has been expressed. I don't pretend to have answers. I only hope that the search for the answers can be advanced in a more data driven manner, with the focus on the objective(s) rather than being arbitrarily set for each activity.

Sincerely,

Evan L. Stoll, Jr.

## Comments Received October 3, 2009

***Re: WSDOT Ferries Division Assistant Secretary David Moseley's Weekly Update***

Hello,
Two questions.
Is the musician being paid by the ferries? If so, I feel this is unnecessary in this day and age since most people use ipods with their personal music. The money can be better spent elsewhere.
It is my main concern regarding the reservation system and it appears to be proven correct. Keystone run had a 35% no show. People were told that the reservations were full so they cancelled their trip and would not risk waiting. Even if you require a token payment to hold a reservation, people will forfeit. And again, the daily commutor is not being protected.
Thanks for reading,
L M

## Comments Received October 20, 2009

***Reservations risk***

David

Kingston's FAC appreciates the effort that you've put into bringing our community into the reservation design process. We all feel good about the progress made in developing the system business rules. When addressing the JTC you mentioned that the report would also address the limitations and risks of the system. While this has not a part of the Partnership's discussions we would like to share our thoughts on the that we believe will need to be considered and mitigated.

Traffic management: While Kingston may not have the holding lot constraints that Edmonds has, the impact of even small traffic overflows directly affects our downtown. When that happens with a reservation system the situation becomes more problematic than the current system. This is true because cars will needed to be sorted before they get to the toll booths. To be successful to the community, and to achieve the goal of eliminating investment in more holding lots or more infrastructure, reservations must significantly reduce or eliminate use of the downtown road and highway in Kingston as a holding area, sorting area, or traffic management area for the Ferry.

Overall Risk Management: As well as the "knowns", that we're pointing out, there will likely be "unknown unknowns" in implementation. Given several million riders here, even a small error rate in reservations will affect thousands of customers. If a large part of the boat is reserved, a significant system interruption or malfunction could bring our ferry route service to its' knees. We think that to manage those risks reservations should start with a small, proven increment, such as voluntary commercial riders, and slowly increase reservation coverage to other groups as experience is gained and the system is proven.

Customer Adaptation: Presently we have a 100% spontaneous system. We believe that shifting a large part of that overnight to a non-spontaneous system will be difficult for many sectors of riders. Incremental implementation, or some similar way of transition is a way for the community to adapt.

Increased System Complexity: The added complexity of reservations adds cost and vulnerability to unforeseen consequences. It will be more difficult for riders to understand and use, workers to manage, and it could exacerbate existing problems. For example, when boats run late, the current effect on the queue is straightforward, but it may be a different and more difficult problem with reservations.

WSF's customer service role: While many will make reservations on-line it's also likely that most changes will be by phone. A single reservation may likely include several transactions. Even if only a million riders on the route use reservations that may mean handling several million phone calls annually. (Walt, what does this mean?) Also consider negotiating a no-show refund if a penalty is pursued. This also means finding a support organization with proven skills and experience in this area.

Software risk: Software projects are notorious for scope creep and running over budget and behind schedule. This system, with the mandate to interface other fare systems, will be vulnerable. Implementation should consider starting with the minimum number of interfaces and selecting a system already successfully implemented and in use at other ferry transportation systems.

Public Support: At this point we don't think that the case for reservations has been convincingly made to the public on how it will benefit them. Today, reservations appear to be driven from top down not bottom up. On other reservation routes customers really either didn't have a choice in whether or not to adopt reservations, or like Port Townsend, the city was involved in initiating the process. We think that ultimately there will need to be a plurality of community support for the legislature to approve the system for Kingston-Edmonds. Presently it is not clear that the cost, in service, benefit, labor, or dollars offsets of the proposed costs WSF is looking to avoid. We think that to gain public support the case should be made that the costs in infrastructure and operating expense for reservations is less than the cost of what is seen as needed traffic improvements in Edmonds and Kingston.

This may be a worst case list but nonetheless may be useful in considering of risk. Please understand that we support WSF's efforts in this study and provide this input in that spirit. Please contact me if we can be of any further help in this area.

Walt Elliott

## Comments Received November 8, 2009

### *Reservation Pre-Design Study*

Sir, I am not able to attend the meeting on Tuesday, but would like to add my two cents worth into the mix. In the mornings during the week, I leave my home in BREMERTON around 10:30-11AM and travel up Hwy 3 to the Kingston turn off, passing the reader board on the northbound side that seems to be fixed on the time delay for

the Hood Canal bridge. Not one damn word about what is going on in the Kingston Edmond's route ever gets out on that board unless its during the summer, and the obvious slowdowns going into Kingston and the long lines for the sailing are displayed. I have no patience for a multi million dollar system that is SUPPOSE to give real time information to the traveling public,and instead, it's display is nothing more then a stale electronic billboard, spewing out old information without any date stamp or indication that the information is current. You see, David, I can go to a Mariners game, and on their billboards,see current information that's happening half way around the world, and yet I have BOUGHT this transportation reader board for my safety and data gathering and all it ever is used for is whether the Hood canal bridge is open, or how long the lines are in Kingston with out any indication of how current this info is. Hell, for all I know, the last time the board was updated, the guy doing it could be dead, sitting at the keyboard! There should be some form of time date stamp indicating how current the information is. You can send signals to Mars, I am sure that the some is true for a reader board in Kitsap County. If you can't, then I guess Boeing is right to move it's manufacturing to South Carolina, because we have some very naive leaders using my money to buy equipment that doesn't work worth a damn. Also, in the event that this RESERVATION DESIGN STUDY BECOMES A WAY OF LIFE, I FOR ONE WOULD LIKE THE DECK HANDS WHO WORK THE TRAFFIC, TO BE ALLOT MORE ASSERTIVE IN THEIR DIRECTING THE VEHICLES ON AND OFF THE BOAT.I HAVE SEEN SEVERAL OCCASIONS WHERE A DECKHAND WAS SO LACKLUSTER ABOUT DIRECTING CARS THAT HE WOULDN'T EVEN TAKE HIS OTHER HAND OUT OF HIS POCKET TO GET THE TWO LINES OF VEHICLES GOING IN OPPOSITE DIRECTIONS. ONE LADY GOT SO CONFUSED SHE ALMOST STARTED A ACCIDENT, AND IT DELAYED THE BOAT..... THIS HAS GOT TO STOP! GIVE THOSE PEOPLE A WHISTLE AND SOME LIGHTED WANDS TO GET THE VEHICLES MOVING.... I AM NOT SEEING THE SO CALLED ASSERTIVE ATTENTION TO DETAIL THAT I AM SUPPOSE TO BELIEVE IN, IN CASE OF A TRUE EMERGENCY. I know that the trains run on a certain schedule through Edmonds each day, and I believe the ferry system knows that too. If not, well your office needs to get on the ball and find out. I don't see where a ferry schedule that changes fees every 3 months, can't also change it's timetable in order to accommodate the traffic congestion caused by the two modes meshing at one time there in Edmonds

Thanx for your time

Fred Drewien

## Comments Received November 11, 2009

***WSF Reservation option for the security of data question raised at the Nov 10 public meeting in Kingston***

FYI David

Additional information on Data Security options for WSF Reservation System.
The question was raised at the Nov 10 public meeting in Kingston on the new WSF Reservation System.

Attached is a DoD memorandum
**"Subject: Encryption of Sensitive Unclassified Data at Rest on Mobile Computing Devices and Removable Storage Media".**

You may apply the same principle to all computing devices used for the WSF Reservation System.
The Navy policy is if the data is not being used by a person or machine than it is to be encrypted.
The only exceptions are when data is being displayed to a monitor or being printed.
Also data in RAM may be unencrypted.

Data passing through the network must be encrypted.
Data in storage (hard drive, optical drive, tape, etc.) must be encrypted.

There are several commercial applications that will encrypt data.

The public needs to be reassured that WSF Reservation Data is secure from unauthorized access.
Please include "Encryption of Data" in the RFP.

Microsoft operating systems uses BitLocker to encrypt the data on hard drives.

I hope this helps with the Public's question of can I trust my reservation data to WSF.

Note: Last year a Kitsap Sun delivery person used "**stop delivery information"** to identify Kitsap residents who were going on vacation, their homes were burglarized.

If you have any questions please feel free to contact me.

Thanks.

Douglas A. Rauh

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### *The Reservation System*

To Whom It Concerns,
I have one concern about the reservation system that I would like a answer to, and that is WHY you don't have a system which registers the vehicles size instead of registering the driver. It makes a lot of sense to know how large the vehicle is that the reservation is being made for, instead of the driver and passengers alone. I have to get to work in Everett every day and I will be quite upset with this reservation system if I get displaced by some looky-lou with a Winabago, just because he reserved his place before me and the system has no idea how large the vehicle is.....your going to have some real fights on your docks if the vehicle sizing issue is not addressed!

Fred Drewien

## Comments Received November 19, 2009

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### *Vehicle Reservations Pre-Design Study*

To Whom It May Concern;
Your reservation system might work for the carnival Cruise lines and some weekend island hoppers, but not for people who have to commute on a daily base. My wife and I have to run a business in the Seattle area and we feel more and more that living on an island puts us on a disadvantage to competitors. As we visited all the meetings were held to improve the ferry system, we realize that customer input is not really taken into account. We urge you not to put any more hardship on the daily commuters; it is tough as it is.

I don’t see a need to expand ferry terminals and holding areas to accommodate current and projected increases in vehicle traffic. As far as Edmonds –Kingston run is concernd there is one holding lane completely blocked off, even in peak travel time like Friday and week ends. Why not use what we have and make this a pre ticket line which we were promised 2 years ago.

Furthermore how much money will this reservation System cost us? I think the cost of a ferry ride is already unbelievable high, wondering what other Washington residence would say if they would have to pay 30 $ to use a bus or paying for the car trip to work.

Sincerely,
Klaus Himmler, Melinda Lagerquist
Commuter since 2000

## Comments Received November 27, 2009

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***Mukilteo-Clinton Route Ferry Reservations System***

**Introduction**

This document contains comments on the possible application of a vehicle reservations system to the Mukilteo-Clinton route. It has been prepared following a WSF community meeting in Clinton on 19th November 2009. The author is a resident of Langley and an irregular commuter1 on this route. The background to this is the mandate of the state Legislature to WSF to conduct a pre-design study of vehicle reservations for all of its routes and the initial adverse reaction of a significant segment of the South Whidbey community to this concept. The goal is to suggest a way in which WSF could work more effectively with the community to find a solution that meets WSF's operating and financial realities while addressing the legitimate issues of the affected community. The comment begins with a discussion of the underlying policy issues involved because, in the author's opinion, there is a danger that these will become lost in the inevitable focus on operating detail that is involved in this study. It then discusses the nature of the problem faced by WSF as it applies to this route. Following this it presents a combination of targeted reservations and market incentives concepts that the author believes are worth serious consideration. Finally it proposes a mechanism for moving this debate forward. This comment refers specifically to the Mukilteo-Clinton ferry route. As discussed more fully below, the author believes that circumstances surrounding other routes in the system are likely to be significantly different and that different approaches may well be more appropriate in those cases.
1 This term is further defined on page 5

**Underlying Policy Issues**

The majority of the population of South Whidbey live there as a matter of choice. In making that choice, people were obviously aware that it is a ferry dependent community where ferry-related constraints have to be taken into account in planning both routine and non-routine travel activities. However, when they made this choice, the community believed that the ferry system was conceptually and legally part of the state highway system, albeit subject to tolls.

All citizens of Washington state are impacted by financial realities when it comes to the availability of highways. The state can no more afford to spend unlimited sums on highways than it can afford unlimited expenses for education, health or other public services. Moreover, both international experience and experience from elsewhere in the United States has shown that it is impossible to construct sufficient highway capacity to cope with peak demand. Consequently, the fact that South Whidbey residents periodically have to wait for ferry space is no different from the fact that other state residents periodically have to wait for highway space in the rush hour. This is a reality that is obvious to South Whidbey residents and, for the most part, they successfully adapt their lives to it

It is also the case that all state residents are exposed to the potential for tolls. These exist on the Tacoma Narrows Bridge and will probably be applied to other expensive parts of the highway infrastructure in the foreseeable future. Many other parts of the United States apply tolls to bridges and highways. The author submits that most reasonable people understand that the pricing of scarce road space is a legitimate traffic management and funding tool that is increasingly likely to be applied given the continuous growth in the vehicle population and competing claims on public funds from an ageing population.

What is fundamentally different about the reservations proposal is that it introduces a new concept on a public highway – the requirement to plan in advance. One of the most basic freedoms afforded by the automobile is that it offers instantaneous on-demand point-to-point transportation. A reservations system curtails that freedom. Moreover it does so in a way that is discriminatory. People elsewhere in the state may eventually be faced with tolls, but they are never going to be required to make reservations to use the highway.
The freedom of Washington state citizens to access the public highway system instantaneously on demand is not, of course, a constitutionally protected freedom. Nevertheless it is a freedom that people on South Whidbey currently enjoy at 30-minute intervals, except for a short period in the middle of the night. Abridging this freedom represents a change of the rules that does not apply to other people in the state, and which those who chose to live on South Whidbey cannot reasonably be expected to have anticipated.

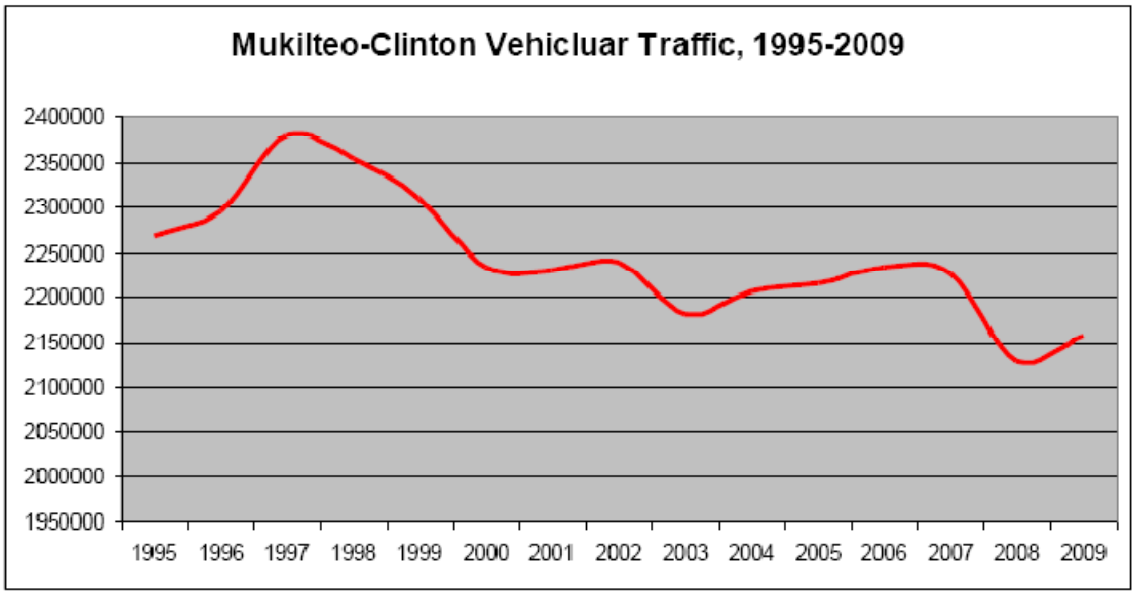
WSF (and the Legislature) need to recognize the legitimacy of this fundamental point. It may very well be that financial realities require some further restriction on the mobility of people in ferry-dependent communities, but it is surely incumbent on the Legislature to do so in a manner that has the least possible discriminatory impact. In this context it would be helpful if the Legislature were to reiterate that WSF is fundamentally part of the state highway system (rather than a public mass transit agency) and must, to the greatest extent practicable, be treated as such from a funding and management perspective.

At the community meeting, Assistant Secretary Moseley indicated that some communities had expressed support for the reservations concept and others had expressed more qualified opposition than that evident in South Whidbey. He also indicated that WSF was open to the concept of different solutions for different routes. However, the current planning and consultation process involves using the Kingston-Edmonds route as a test case. While the author agrees that this route presents a representative cross section of challenges, it cannot reasonably be assumed that the interests of that community are identical to ours. WSF should, therefore, make a clear commitment to engage each affected community independently in a genuine consultation process that is dedicated to developing a broader consensus on this matter.

**Identifying the Problem**

WSF's 2030 long-range plan identifies a reservations system as a "demand management strategy." This implication is that, without such a strategy, demand for ferry service will increase. Because WSF does not have the funding to expand service, this will have a number of undesirable effects including longer waits, more traffic congestion in port communities, more pollution from idling vehicles, a need for larger holding areas and so forth. This basic proposition rests on a two propositions that can be challenged, namely: that demand for ferry service is increasing, and that no other demand management strategies are available.

As far as the Mukilteo-Clinton route is concerned, the available statistical data does not, in fact, support the belief that demand is increasing. The following graph portrays the trends in total vehicle loadings on this route since 1995.




Further insight into what is happening can be obtained by examining the details behind these aggregate numbers. Trends in the past 5 years are set out in the table on the following page. Data for 2009 has been estimated based on the actual figures for the first three quarters of the year.

**Mukilteo-Clinton Vehicle Traffic by Fare Type**

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Total | 2214222 | 2232664 | 2224979 | 2127654 | 2157266 |
| Regular | 823591 | 821911 | 896822 | 869692 | 918407 |
| Commuter | 1147670 | 1154781 | 1040550 | 963617 | 929629 |
| Oversize | 67568 | 70381 | 77212 | 70494 | 66052 |
| Other Discount | 175393 | 185591 | 210395 | 223851 | 243179 |

The most striking feature of this table is the decline in commuter traffic. This probably reflects national economic trends to greater telecommuting and more flexible working schedules of all kinds.

The “other discount” category has increased substantially. This mainly involves the purchase of multiple voyage tickets that represent the most cost effective fare option for island residents who go frequently, but less regularly, to the mainland. Residents who have flexible work arrangements and commute three or fewer days per week probably account for some of this increase. However, because these tickets allow for 10 round trips in a three-month period, they are also suitable for people from the mainland who spend summer weekends at their second homes on Whidbey Island.

The regular fare category has also increased. This is the type of ticket that is most probably purchased by occasional visitors to the island and by tourists. The poor 2008 figures may have been caused by the relatively poor summer weather experienced that year. WSF is not drawing the appropriate conclusions from its own data. First, there is no evidence of long-term demand growth on this route. Consequently, there is no fundamental pressure to expand ferry service. The problem, if there is one, relates to peak demand on the system. Moreover, whether

this peak is caused by visitors (more likely) or island residents (less likely because they probably know how to adapt to the peak hour problem), one thing is abundantly clear – it is certainly not the commuters who are responsible. This may explain why they are upset with the WSF proposal.

Faced with this evidence, the only demand management strategies that are needed are ones to encourage people with flexible schedules to avoid peak periods. Moreover, these peak periods are, by and large, only a serious issue in the summer months, and even then only over part of the week. The most significant of these problems is westbound on Thursday and, particularly Friday, afternoons between 4th July and Labor Day.

**A Targeted Approach**

By far the most effective demand management tool in this circumstance is not a reservation system at all, but the use of pricing incentives. For example it is now common for airlines to offer substantially lower prices on flights that depart at less attractive times of days (or days of the week) than on more popular flights. This strategy has been remarkably successful in increasing the average percentage of seats occupied on each flight. This has increased the level of efficiency with which the fleet is being used and allowed fare prices to remain affordable, even though underlying costs have been increasing. Some public transit systems around the world have adopted similar policies – for instance prohibiting the use of certain discount tickets during peak periods.

One way forward for WSF might be a combination of a highly targeted reservation system and price incentives. This has the potential to achieve WSF's goals of avoiding investments in new ferries and terminals and using their existing capital more effectively while at the same addressing the legitimate concerns of ferry dependent communities like South Whidbey.

The starting point is to recognize that there are four distinct kinds of ferry customers, namely:

- daily commuters; while declining in relative importance, they still represent over 40% of the vehicle traffic on the Mukilteo-Clinton route,
- irregular commuters; these are people who probably travel 2-3 times per week for some combination of work, education, health care or commercial reasons; they almost all purchase multi-trip tickets,
- weekly commuters; these are people who travel no more than once per week, most probably in connection with visits to a second home; some but by no means all of them purchase multi-trip tickets, and
- occasional users; the vast majority are tourists or people on more extended visits to family and friends.

A targeted reservation and price incentive system should be narrowly focused on encouraging the last two of the customer categories to avoid peak sailings.

First, two different kinds of reservation could be made available. One would be a commuter reservation facility. This would apply to specific sailings on every working day of the year – peak morning sailings eastbound and peak afternoon sailings westbound. A fixed portion of every sailing in the peak period would be available for reservation by daily commuters. They would be required to purchase a monthly commuter ticket some weeks in advance in order to be eligible to make these reservations. If more people wanted reservations than space available, priority would be given to car pools. Commuters whose hours were such that they did not use peak sailings would be unaffected. They would still be able to buy the same commuter ticket as at present. This part of the package would provide a real benefit to commuters during the summer when they are often subject to boat overload delays, particularly on the homeward trip. If a commuter missed their reservation for any reason, they would go into the unreserved line. Arguably they would be no worse off than today.

A second, single use reservation system would also be available. This would only operate on peak days in summer months and perhaps on certain holidays such as Thanksgiving. As with the commuter reservation system, it would only apply to certain sailings. A significant proportion of the people opposed to reservations system on Whidbey Island are concerned primarily with their return journey. They fear missing their reservation if they get stuck in traffic or if appointments run late and so forth. WSF's response is that they can then go on standby (just as they do today). This is not seen as a realistic response. People feel, probably rightly, that if a significant portion of a ferry is

reserved, then the resulting standby lines for the unreserved portion will be longer than they are today. They do not want to wait longer. Hence they are against the reservation system.

The targeted reservations concept is that reservations can only be made in shoulder periods either side of the peak sailing times. For instance, it might be possible to make westbound reservations only before 2.30 pm and after 8.30 pm on Thursdays and Fridays in summer. People willing to commit to catching those sailings would be guaranteed a space and thus attracted away from the peak period.

This system could be provided with further incentives by the imposition of a peak sailing fee in addition to the regular fare. This would not be a seasonal fee – it would be very specific as to time of day and day of week. For instance it might apply to all sailings out of Mukilteo between 2.30 pm and 8.30 pm on Thursdays and Fridays. Commuters would not pay this. Their tickets would be priced the same regardless of whether or not they were on peak sailings and whether or not they had reservations. Users with multiple tickets would be offered a slightly different choice – a 10 round trip book with a 2-month validity or a 10 round trip book with a 3-month validity at the same price. The 2-month validity book would work as normal on a peak sailing. The 3-month book would require the customer to pay the peak sailing fee if the ticket was used on one of those sailings. This approach is intended to differentiate between irregular commuters and weekly commuters and encourage the latter to avoid peak sailings.
All occasional customers (and commercial traffic) would have to pay the peak sailing fee if they chose to travel at those times. This would be an economically meaningful amount.

The concept is to create a very sharp and targeted incentive aimed at relatively infrequent customers with schedule flexibility. They would be able to both save money and avoid waiting by committing to travel on specific sailings.

The funds raised by the peak sailing fee would be used to reduce the individual passenger charges. This fee represents economic nonsense, as vessels on the Mukilteo-Clinton run are never remotely full from a passenger perspective. WSF should be encouraging an increase in the average number of passengers in a vehicle, since it is vehicle space that is the scarce resource.

**Engaging the Community**

In the author's opinion, the strong opposition to a reservations system from the South Whidbey community reflects the belief that WSF has already decided that this is the best available policy and is merely going through the motions of the public consultations that it is required to conduct. WSF has clearly stated that this is not the case. However, the message delivered by Assistant Secretary Moseley to the effect that WSF is willing to consider unique route-specific arrangements tailored to the individual communities involved has not been heard by the vast majority of ferry users on South Whidbey. It needs to be considerably reinforced. One way to do this, in the author's opinion, would be to ask the local FAC to set up a task force composed of concerned local citizens, ferry users and business interests to brainstorm potential consensus solutions to the problem with a very clear instruction to think "outside the box".

Such a task force should be encouraged to consider the entire range of demand management options, including the reservations system. The only limitations on its mandate would be the following:

- it is only to consider the Mukilteo-Clinton route,
- it must work within the assets allocated to this route by the long-term plan, and
- any financial proposals it makes must generate revenues sufficient to cover the percentage of this route's operating costs implied by the long-term plan.

In other words the terms of reference would prevent the task force from becoming an advocate for lower fares or more boats and require it to focus on the challenge of maximizing the efficiency with which WSF uses its Mukilteo-Clinton assets while minimizing the adverse impact on ferry-dependent communities.

The author's experience in talking to neighbors is that most people are initially opposed to a reservations system. However, in conversation it turns out that what they are really opposed to is a government mandated change in their lifestyle involving a loss of spontaneity, along with the unfairness of a perceived change in the rules, not applicable to the rest of the state. The author believes that WSF has options, such as, but not limited to, those outlined in this comment, that could address these legitimate concerns while still meeting the goals set by the Legislature.

Robin G Adams

## Comments Received December 4, 2009

***Re: WSDOT Ferries Division Assistant Secretary David Moseley's Weekly Update***

David,
I attended the South Whidbey Island meeting with my wife Catherine on 12-19-09. My comments were one of the few supporting reservations. I am personally surprised that the folks opposing the system cannot articulate "WHY".

I fully support your efforts specifically related to the reservation system studies which represent a good solution to the challenge of balancing service and budget.

If I can be of any assistance please let me know.

Best Regards,
Tony Billera

# APPENDIX C
# SUMMARY OF OTHER SYSTEMS RESEARCH

## Introduction

This appendix is a summary of the information gathered during research about other ferry systems. WSF interviewed and researched ten ferry operators from around the world. This appendix includes summary profiles of the operators that are most similar to WSF, as well as the complete interview notes from all of the operators that were interviewed:

- Bay Ferries/Northumberland Ferries
- BC Ferries
- Black Ball Ferry Line
- Bridgeport-Port Jefferson Steamboat Company
- Caledonian MacBrayne
- Cape May-Lewes
- Istanbul Deniz Otobusleri
- Scandlines
- Steamship Authority
- Wightlink

## FERRY OPERATOR INTERVIEW NOTES

### Bay Ferries/Northumberland Ferries

Conducted: April 20, 2009 at 9:00 am PDT
With: Danny Bartlett and Jeff Gaudet
By: Ray Deardorf and Tim Payne

*Bay Ferries Limited ("Bay") and Northumberland Ferries Limited ("NFL") are wholly owned subsidiaries of NFL Holdings Ltd of Charlottetown Prince Edward Island. NFL Holdings is a private company owned by thirty (30) individuals, most of whom are descendents of four (4) families who originally founded the business in 1941. NFL was incorporated in 1939 in Halifax and commenced operating the Prince Edward Island to Caribou, Nova Scotia ferry service in 1941. This company has continued its eight (8) month per year operational contract with Transport Canada to this date. Current service between Caribou, Nova Scotia and Wood Islands, Prince Edward Island to very similar to service that WSF operates to Friday Harbor.*

*In 1997 Bay began operating on the Bay of Fundy (Southern Nova Scotia), having been chosen as the successful proponent to take over services previously operated by Marine Atlantic. This followed a formal RFP conducted by the Government of Canada in which local and international companies participated. The Saint John - Digby service has been operated since 1997 with the PRINCESS OF ACADIA, a conventional ferry. The Digby - Saint John service operates 12 months per year.*

*The Yarmouth to Bar Harbor service was served by the conventional ferry BLUENOSE in the summer of 1997. In 1998, Bay acquired "The Cat", a 91 meter high-speed ferry. In 2002 Bay Ferries introduced a new high speed ferry by acquiring a 98 meter Evolution 10B design fast ferry, the largest and most modern vessel ever built by Incat. The Yarmouth/Bar Harbor and Portland service operates approximately six (6) months per year. The vessel operates two routes with rotating days of service between Yarmouth, Nova Scotia and Bar Harbor, Maine and Yarmouth and Portland, Maine.*

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce?

**Response:** PEI to Nova Scotia: 90% non-commercial and 10% Commercial. Of the 90% non-commercial, about 50% is tourism based for the six month operating season at peak tourism season, June –Sept, it is 75% tourism. (Note this service only operates 8 months a year due to ice)

St. John to Digby (year around service, New Brunswick to Nova Scotia): 25 to 30% commercial, remaining traffic is 40 to 50% tourism based.

Bar Harbor/Portland to Yarmouth (six month season, Maine to Nova Scotia) is nearly 100% tourism although there is some two residence movement between Maine and Nova Scotia.

2) How long have reservations been used on your routes?

**Response:** Bay of Fundy routes have been on reservations for more than 30years. PEI service is just starting the 3rd year of reservations.

3) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience? Are you able to stage an entire vessel load of cars at your terminals?

**Response:** For us this is more of a customer convenience, although vessel operations has found the system very useful for load management.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**Response:** Early on with PEI there was some user push back. Bay Ferries had an "Assured Loading" ticket (essentially buy your way onto the boat for an additional $15) that locals liked. But this was an operational problem as it became impossible to determine who was going to get on the sailing until almost the last minute. The tickets still exist, but we are working toward phasing them out as people have begun to adopt the reservation system. Note the tariff is structured in the same way the toll bridge tariff is structured, a charge for only the car ($68.00 one way) all passengers are included. We do charge a $5.00 premium for use of the reservation system although that does not seem to be discouraging use as the % of reserved traffic is growing.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**Response:** We began reserving 20 out of 140 spaces on the vessel (about 15%). In recent times the demand for reservations has continued to grow so we continue to increase the % of the vessel reserved. Currently about 25% of all traffic is reserved (2008 season), but this number grows steadily. The other three routes all operate at nearly 100% reservations, so we are expecting to get there eventually with the PEI service.

6) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**Response:** This is not a large issue for us. There is a no-show fee ($100 on the CAT, $25 on PEI and St.John-Digby) that seems to be effective. There is also a cancellation fee for cancels close to the sailing on the CAT ($50 if cancel is within 48 hours of sailing). These fees did not exist until a few years ago when no shows became a larger problem.

Has practically stopped the issues. Even if someone misses their sailing we will honor their ticket on the next sailing as a stand-by at least on PEI and Digby. Not clear that was the case with the CAT as it only runs on trip per day in one direction.

7) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**Response:** This is not a big issue for use as there are very few day trippers on any of our routes. The drive around alternative for PEI is nearly 3.5 hours from Caribou. It is not common for them to see reserved "shrinkage" on the final sailing as there are not that many sailings to chose from and the sailings are a long way apart, so it is not a matter of an early arrival by an hour to pick up an earlier sailing.

8) Have you changed reservation systems? What kind of improvements do you make between versions?

**Response:** in 1997 the system was a non-supported system built by a single shingle shop. In 2004 the system was upgraded to Hogia which has worked very well as it is a real time system that is well supported. Prior to this Bay Ferries/NFL had a number of standalone systems for reservations, ticket sales and terminal operations. This system has allowed combining all of those into one robust, redundant system.

9) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**Response:** We run a call center through a 3rd party. Reservations run 70% call-in and 30% on-line, but on-line reservations are growing

10) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**Response:** No real issues. Staffing is definitely based on call volume. There isa staff of about 60 people, mostly part-time, at the call center. At peak times there may be as many as 35 people on the phones. Out call volume during peak season is around 3,000 call per day. Our call center runs on a performance based contract. They are required to answer 80% of calls within 20 seconds, with no more than 5% dropped or abandoned calls. Average call length is on the 3.5 to 4 minute range (interviewee could not recall precise statistic) and they get about 22 to 23% upgrade rate, that is people calling in for one item get upgraded to something more expensive. [Author's note: In some respects, it is this last item that likely keeps the % of call handled through the call center high. This is an unusual situation for an on-line service.]

11) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?

**Response:** Check in is accomplished with the confirmation code, or name or phone, any number of fields contained in the reservation system. There is a brief check for the correct fare category for the auto and the passenger count, then a boarding pass is issued. Boarding passes are checked as the vessel is loaded with a barcode reader. Finally the boarding passes are collected on the vessel (except on the PEI route where only a random collection is accomplished. This results in three different manifests: Booked (what is on the sailing prior to the beginning of check in), Checked (indicating that these have been checked into the holding area), embarked (loaded on the vessel and collected boarding passes verified against the bar code generated manifest). The latter is very useful for the Maine/Nova Scotia International routes for security clearance. The new system has greatly simplified this operation.

12) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**Response:** Hogia of Finland, There are no issues with the system, even though we are running on the last generation of systems which is UNIX-based (newer version is dot.net). We run the system with two servers and a fully redundant network with an ISDN back up. The entire network is Cisco based and we maintain spare routers and switches at all locations. Problems are minimal. Database is Informix (very expensive). Software systems cost:
$5,000 Euros support and maintenance
$65,000 Euros one time license fee at acquisition.

Final note, due to the make-up of traffic and relative sailing frequency, the PEI route might make an excellent case study for implementation in the San Juans.

**BC Ferries**

Conducted: April 30, 2009 at 9:45 am PDT
With: Brian Anderson and Roberta Chartier
By: Ray Deardorf and Tim Payne

*On April 2, 2003, after intense examination by the provincial government and BC Ferries' Board of Directors, the corporation was officially re-launched as a new, independent commercial company and renamed British Columbia Ferry Services, Inc.*

*It is an exciting change for many reasons; in its former state as a crown corporation, BC Ferries had weak financial underpinnings for the service it was required to deliver. Over the next 15 years, approximately $2 billion will be required to upgrade and modernize the aging ferry fleet and ensure that terminals keep pace with traffic demands.*

*The new company is designed to attract private-sector investment and establish innovative partnerships that respond to the marketplace. While legislated to protect consumers, the new structure has enough flexibility to encourage entrepreneurial ingenuity that focuses more on the customer and in a way that meets solid business objectives. The legacy of all this effort is frequent, convenient, year-round service on 25 routes throughout coastal British Columbia*

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight?

**RESPONSE:** One route that has a fairly high percentage of commuters from Gabriola Isl. to Nanaimo, although they tend to be more walk-ons than autos. The mainland routes, while having lots of frequent user, do not really have daily commuters. Freight on the mainland routes is quite high and in recent years we have made efforts to target island freight traffic to Tsawwassen-Duke Point to try to keep the commercial traffic in less congested areas around the terminals.

2) Which routes currently have reservations? Do you intend to extend reservations to more of your routes with the new system?

**RESPONSE:** The three main routes, Tsawwassen to South Gulf Island and the North Routes. While the new system would have the capability to bring reservations into the entire system, we have not yet made a decision on whether to move that direction. We have several unstaffed terminals that add some additional challenges in thinking through how this might be accomplished.

3) How long have reservations been used on the routes where they are available?

**RESPONSE:** The North Routes and Mainland to South Gulf Islands prior to 1986. Note that these routes require the payment of the full fare before confirming the reservation.

The Main routes were added in 1997. These have had an additional fee required (currently, 15.00, 7 days or more in advance; $17.50 less than 7 days in advance) prior to confirmation of the reservation. Fare is due then vehicle comes to the terminal.

4) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience?

**RESPONSE:** There is an acknowledgment, internally, that reservations have made a difference in capital investment. However, as we have also had to maintain significant "show and go" capacity and "assured loading" capacity in the terminals, it has overall made terminal operations more complex. We have made one attempt to eliminate assured loading tickets, but that was not successful, too many businesses depend on paying more to be able to cross whenever they want. We have had to maintain Show and Go in substantial numbers to offer people avoidance from the reservation fee. If we had to start over again we would have a full reservation system and variable pricing. The system would work smoother and our terminal operations would be less complex.

5) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now? What type of requests do you receive from customers regarding improvements to the reservation system?

**RESPONSE:** In the South Gulf Islands it was broadly recognized as a necessity. We would routinely get far more traffic than we had capacity to handle. On the main routes it has had a more checkered history. At first there was a good deal of discussion about creating a two class system due to the reservation fee, although that has largely subsided in its focus on reservations and settled on the "assured loading" system (note: full fare car Vancouver to Victoria is $45.00, reserved w/ fee is $62.50, assured loading is $125.00.) . Today we receive very little negative feedback on reservations, if anything people want more vessel space allocated to reservations, not less.

6) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**RESPONSE:** On the South Gulf Island and North routes we are nominally at 100%, although we always allow some "fudge" space on the vessel and standbys are allowed. On the Main routes, we regularly dial up and down the amount of reserved space depending on the day of week, time of day, and time of year. The reserved space range is in the 40 to 60% range. In addition, we will move some vehicle classes up and down in reserved space while leaving others constant. We have four classes of space: regular height, over height, commercial, and buses. Each vehicle class has a separate allocation of space. Within some classes we may reach as high as 80% reserved on some sailings, such as freight traffic to and from Duke Point.

7) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**RESPONSE:** With the non-refundable reservation fee we have a very low no show rate, it does happen, but it is minimal. It has dropped even further since we implemented a way for people to modify their reservation (payment of a $9.00 fee). The base fee is non-refundable, but this allows people to save a few $$'s in case of they need to change. Changes can be made up to 60 minutes ahead of sailing time. Reservations can be made up to 150 minutes ahead of sailing time. Cancellations are a little less clear but it appears a cancellation can be made more than 7 days prior with no penalty fee after that there is a penalty for a reservation cancel.

8) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**RESPONSE:** We have a medical assured loading policy that has rendered this issue fairly minimal for medical appointments. The change fee has allowed people to modify their reservation in a timely manner and very often move to an earlier sailing. If someone shows up early without a change they essentially forfeit their reservation and move to "Show and Go" status. If capacity is available when they do that, the gamble is fairly minimal as only an assured loading ticket will bump them from the sailing. As far as the overall trend in reservations and changes, we see the later sailings booking decline throughout the day of operation, we do not see a cascading effect to the last sailing. In fact it is commonplace, except on some holidays or special events for the last sailing to be at only 30 to 40% capacity.

9) We know you are in the process of improving your reservation system. What kind of improvements do you intend to make with the new version?

**RESPONSE:** We are looking for several improvements but two are key drivers: 1.) Replace our current Sybase system with a supported and open database like Oracle, which is our company database spec. 2.) Integrate our fare and reservation system which requires we replace our fare collection system. Related to this is the customer check-in process at the terminals, it is manual and subject to error. We also want to allow for self check-in with full fare payment. As secondary, but also important, we want to offer some new features for customers within reservations and we want access to better data about customer behavior.

10) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**REPSONSE:** The vast majority of our reservations are made on-line (except the northern routes which must be done by phone). 80% of main route and South Gulf Isl. reservations are made on-line, 10 to 15% on phone and balance are done in-person. We have had zero issues with on-line reservations.

11) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**RESPONSE:** Yes, we absolutely staff the call center based on call volume metrics, our primary measure of success is overall cost per call answered. However , we also use average call length, average time to answer and abandoned calls. Reservations really have not posed any particular issues for the call center (Note: Roberta recently was promoted from Call Center Supervisor to PM the reservation system project, so these characterizations are very accurate from the frontlines.)

12) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process? Are there features in the new system designed to enhance this function?

**RESPONSE:** Today the system is completely manual. We look up the reservation based on confirmation code or other customer unique identifiers, collect fares due and send them on to the holding area. If a customer misses their reserved sailing they forfeit the reservation fee and are directed into the "Show and Go" line. In the new system we are looking to automate check-in with a self-service device such as bar code or even PDA/cell phone enabled check in. Our intent would be to make as many check-ins as possible unstaffed and to reduce fare transactions at the auto toll plazas.

13) Who provided your current software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**REPSONSE:** Our current software was written and is support in–house. This is good and bad. The good is that we have been able to customize our system to meet our precise needs. The downside is that we have been able to customize the system to meet our precise needs. The latter leads us down the path of vesting expertise with a complicated system in the hands of a few people, who, over time change. Finally, there is the issue of people with Sybase expertise. This is as rare a commodity in software as people who can still write in COBOL.

14) Have you made an announcement yet about your selection for a new reservation system vendor? If so, what is the name of the firm?

**RESPONSE:** No, we have not made an announcement. We are definitely moving ahead, we are currently discussing whether to build our own, or buy it. One way or another we will have a new system, the how is still to be determined. (Note, we did not explore the reasons they are now considering an in-house build versus an outside vendor.)

15) Can you describe the acquisition process you have followed? Did you issue a Request for Information (RFI), then a Request for Proposals (RFP)? Would it be possible for us to obtain a copy of one or both of these documents?

**RESPONSE:** Yes, we issued an RFI. Yes, we issued and RFP and Yes we would be happy to share both documents. (Note: We now have these two documents in hand.)

16) Are you contemplating making any modifications to terminals as a result of the new reservation system? If so, what might those be?

**RESPONSE:** Yes, we are looking at modifying the vehicle entrance area to the terminals to facilitate more automated in-processing of vehicles.

17) Are you contemplating any changes with respect to charging a fee for reservations? Are you considering further integration of reservations with the toll collection system?

**RESPONSE:** Yes, we are considering a change in terms of charging a fee versus the entire fare, but not anytime soon. Yes, as we said earlier, integration of reservations and fares is one of the major improvement drivers we are looking for in a new system.

Other – Are you able to use the reservation system as a predictive tool to know when you should add capacity to routes?

**RESPONSE:** Yes and No. Reservation system makes a great advanced warning system and we are able to track reservation making habits in advance of particular events and holidays. However, we do not have a lot of flexibility to just "add" vessel to a route. Once in a while we will have a situation where we have a crew available for an extra sailing, they made one trip and are available for a second. These are "terminal agent discretion" sailings. Occasionally, this will bail us out on a really nice weekend where traffic comes later than anticipated, etc, but our ability to couple that with the reservation system is difficult. We find that weather can be a substantial travel behavior modifier, so it somewhat limits how effective historical information derived from the reservation system might be.

**Black Ball Ferry Line**

Conducted: April 13, 2009 at 11:00 am PDT
With: David Booth
By: Ray Deardorf and Tim Payne

*Black Ball is a single route operator with the 100 car ferry Coho (built in 1959) operating an international route between Port Angeles and Victoria, BC. The company is privately owned and based in Seattle. Black Ball has operated this route since the late 50's when the service was acquired from Puget Sound Navigation. Sailings are two per day in the dead if Winter, four per day in early spring, six per day in Spring/Summer shoulder season and eight per day in Summer. The route is normally shut down for a month in Winter for maintenance on the vessel.*

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce?

**Response:** 85% or our traffic is tourism-based, the other 15% is commercial. 80% of the tourist based traffic are autos, 15% are RV's, motorcycles, etc.

2) How long have reservations been used on this route?

**Response:** We started May 4, 2005

3) Do you believe that having reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience? Are you able to stage an entire vessel load of cars at your terminals?

**Response:** First reason was as a customer convenience. Port Angeles is a long way from the major population center, so people want some assurance of being able to cross to Victoria before committing to making the trip. (Note: in the peak season 12 to 24 hour waits were not uncommon). The second reason is as a revenue producer, we charge a fee (on-line: $11 one way, $16 roundtrip; telephone: $16 one way, $26 roundtrip). Finally, as a much lower priority, to help resolve traffic control issues in Port Angeles. Yes, we can stage an entire load at both terminals.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**Response:** There has been no resistance, it is viewed as a positive by customers and the community.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**Response:** We started out very conservatively with about 30% of each sailing reserved. We are now at 70% based on demands for reservations, (vessel capacity is 100 cars +/-). Overall about 50% of our total traffic is in reserved status.

6) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**Response:** We average 5 no shows per sailing (about 7%). People who no show forfeit the reservation deposit (see above). Interestingly, most of the no-shows are people who have booked on-line.

7) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**Response:** Not much perspective on this as few of our customers are auto day trippers.

8) Have you changed reservation systems? What kind of improvements do you make between versions?

**Response:** No, but we have made some improvements in the system over time, especially to include tour packaging options.

9) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**Response:** About 75% of our reservations come in on-line. We have had some level of issues with the on-line system in terms of double charging or confirmation e-mails that are scrambled.

10) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**Response:** We do vary our staffing levels during peak seasons to enhance our ability to serve customers we are set up to also have some of our seasonal terminal employees act as information agents.

11) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?

**Response:** We print out a check-in list that is verified by the customer signing the list. Pre-arrival times are 60 minutes for Port Angeles and 90 minutes for Victoria. The time difference is for US Immigrations at Victoria.

12) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**Response:** Emerald City Software, Inc. David Clark, et al. They have an on-going support agreement for $4,000 per month and a $12,000 per year licensing fee. Company assessment is that the reservation system has been a good thing but may be time to acquire more sophisticated system that allows more options for pricing and packaging tourism-based activities.

**Bridgeport - Port Jefferson Steamboat Company**

Conducted: May 13, 2009 at 8:00 am PDT
With: Carol Koutrakos and Dennis Duswalt
By: Ray Deardorf and Tim Payne

*Bridgeport and Port Jefferson Steamboat Company is a privately held corporation that provides ferry and bus tour service in the New England area. The company operates a single ferry route between Bridgeport, Connecticut and Port Jefferson, New York. This is about the middle of Long Island Sound with a crossing time of 1h15 minutes, 17 nautical miles. The ferry route operates 365 days per year with up to three vessels. Off-peak the service is operated by two vessels and the third is available for maintenance. The tour company, New England Tours is a wholly owned subsidiary of the Steamboat Company. The company and its predecessor companies have been providing ferry service in this location since early in the 20th century.*

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight?

**RESPONSE:** Most of our traffic is recreational in nature. We do have some commercial traffic and there are four daily sailings that do have commuter traffic. The majority of this traffic is walk-on traffic, but some is auto based.

2) How long have reservations been used on the route?

**RESPONSE:** At least 15 years

3) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience?

**RESPONSE:** Our original system was a fully manual system. But one day we had a huge mix up and lost a whole bunch of reservations. That caused us to acquire a computerized reservation system. Commentary: Not sure the question was really understood, but not sure that it mattered.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now? What type of requests do you receive from customers regarding improvements to the reservation system?

**RESPONSE:** Customers have always viewed the reservation system as a benefit. When we first started there was no fee or deposit required. That was abused so we went to a $10 deposit. That was still not 100% satisfactory, so in 2005 we went to full payment at time of booking, currently $51 for car and driver. We give people up to 3 hours before sailing to cancel or change. If they travel on the same day we assess no penalty. If they no show, we charge a $15.00 fee and the balance is either applied to future travel or refunded.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**RESPONSE:** We reserve about 90% to 92% of the vessel or about 95 spaces, leaving about 15 spaces for load flex and "show ups." We always have a little space for "show ups."

6) Roughly, on an annual basis, what percentage of your vehicle traffic uses the reservation system?

**RESPONSE:** On an annual basis about 50% of our traffic travels on a reserved basis.

7) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**RESPONSE:** People usually call to cancel. Prior to the deposit days, no shows were a substantial problem. However, we still do not assess a penalty if someone uses their ticket on the day of the reservation, even if they did not show up for their scheduled time and failed to notify us.

8) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**RESPONSE:** This is a minimal concern for our customers. There is an alternative with a drive around time of about 2 hours. If on foot, the rail time is about 3 hours and involves 2 transfers. Most day trip activity originates from Port Jefferson. There people tend to show up for the sailing they reserved. At Bridgeport people tend to arrive earlier than their reservation. Last sailing sees declining reserved space from start of day to sailing time.

9) We believe that the Bridgeport and Port Jefferson Steamboat Company may be using a fare collection system similar to the one used by WSF. Can you briefly describe your fare collection system?

**RESPONSE:** No, we are not currently using the Galaxy ticketing system (see below). All tickets are purchased on board the vessel from purser staff. You must show a "debarking" pass to exit the vessel in the arrival port. Commercial traffic and vehicles longer than autos are all

reserved in full auto equivalents and deposits charged accordingly. On board the staff then adjusts based on the actual length of the vehicle. This simplifies the reservation system to only needing a single item and declaration of how many of those items you wish to purchase. Note the reservation system looks very much like an internet store with a "shopping cart." There is only one item available for purchase, so a roundtrip is two units, a oversize vehicle might be up to four or six units, etc.

10) What issues did you need to overcome to integrate the fare collection system with reservations?

**RESPONSE:** None we use a manifest printed two hours ahead of sailing. We really do not have a "ticketing" system, as such.

11) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**RESPONSE:** 65% of reservations are made on-line. We offer out to 30 days in advance, although if we are not going to modify process we go even further into the future.

12) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**RESPONSE:** Really no specific issues. The call center staff does increase over the summer. We tend to use college students for summer fill in. Since on-line reservations became available in 2005 the call center staff has shrunk 40 to 50% during peak times.

13) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process? Are there features the reservation system designed to enhance this function?

**RESPONSE:** We use the printed manifest and check people off as they arrive. At peak times we limit the number of standbys we allow into the holding area and will send people away once we reach the stand by limit. Each passenger or group must go see the purser on board to purchase tickets, otherwise they are unable to de-board, or are greeted by the local police at arrival.

14) Who provided your current software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**RESPONSE:** Gateway Ticketing System's Galaxy 2005 Order Entry and E-commerce solutions. We had some initial issues with the system, but it now seems to be operating well.

15) Can you describe the acquisition process you followed?

**RESPONSE:** We purchased the product off the shelf, just like MS Office.

## Caledonian MacBrayne

Conducted: May 12, 2009 at 1:00 pm PDT
With: Alasdair Henderson
By: Ray Deardorf and Tim Payne

*CalMac Ferries Ltd., which was incorporated in May 2006 (SC302282), is a wholly-owned subsidiary of David MacBrayne Ltd, which is wholly owned by Scottish Ministers. As a result of corporate restructuring which took place in October 2006 as part of the preparation for the tender process for the Clyde & Hebrides Ferry Services, CalMac Ferries Ltd. took over operation of these services as successor to Caledonian MacBrayne Ltd. As a separate element of this corporate restructuring, Caledonian MacBrayne Ltd had its name changed to Caledonian Maritime Assets Ltd. (CMAL) and retained ownership of the vessels and piers which are required for the operation of the Clyde & Hebrides Ferry services. Under the new arrangements, CMAL leases the vessels and piers to the operator of the Clyde & Hebrides Ferry services (currently CalMac Ferries Ltd.). CMAL is also wholly owned by Scottish Ministers and is based in Port Glasgow, Inverclyde. All employees of Caledonian MacBrayne Limited transferred their employment to CalMac Ferries Limited in October 2006.*

*CalMac Ferries Limited has two wholly owned subsidiaries: Caledonian MacBrayne Crewing (Guernsey) Limited, which employs and supplies all sea going staff (approx 770) to CalMac Ferries Limited. The second subsidiary company, David MacBrayne HR (UK) Limited, which is based in Gourock, provides comprehensive HR services to CalMac Ferries Limited, which employs approximately 390 shore-based staff and to Caledonian MacBrayne Crewing (Guernsey) Limited.*

*All of the services currently operated by CalMac Ferries Ltd require subsidy (36% of operating is from fares, 64% subsidy) as the normal operation of market forces would not ensure a sufficient service level to the communities all the year round at acceptable fares levels. This subsidy is provided to support approved services which, in the opinion of Scottish Ministers, are necessary to maintain the economic or social conditions in the Highlands and Islands. In 2007-8 it was £110 million, including a special £10 million allocation for excess fuel costs.*

*CalMac Ferries Ltd currently charters a fleet of 29 vessels from CMAL to provide passenger, vehicle and shipping services to the islands off the West Coast of Scotland and in the Clyde estuary. Two other vessels are retained on separate charters. There are currently 26 routes within the network. In the year ended December 2008, 5.1 million passengers, 1.2 million cars, commercial vehicles and coaches were carried. Note, in terms of geographic spread and number of terminals, this I steh most extensive ferry system interviewed to date.*

1) Realizing this will vary widely by route what is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce?

**RESPONSE:** This varies widely by route as some of the routes are simply lifeline services while others connect high population centers. Only two of the routes have any significant numbers of daily commuters most of whom are foot passengers, with a few auto commuters represented. Many of the foot passengers are two car commuters with vehicle on either side of the firth.

2) Do you have routes, with reservations, where there is a substantial market of daily commuters?

**RESPONSE:** Only one route Ardrossan-Brodick, has any volume of commuters AND a reservation system.

3) How many of your routes have reservations available and which two are the highest volume, vehicle traffic-wise, routes.

**RESPONSE:** Of the 26 routes operated, 14 have reservations. Currently under consideration, extending reservations to some of the high frequency/volume routes, about 5, as they have begun to experience more brushes with capacity issues with peak traffic (summer weekends, can you say Port Townsend-Keystone). These have not had reservation systems in the past as capacity limitations are rare, leaving limited value for the extension of the cost and complexity of reservations. It is very likely some of the low volume routes will never have reservations as they are not capacity constrained and operate more like the WSDOT Keller Ferry route on Lake Roosevelt, with a landing craft type ferry that puts down a ramp on a concrete slip, (in fact they call them "slip" routes) with unstaffed terminals.

4) How long have reservations been used on your routes? Again, realizing this may vary by route, what routes have been most recently added?

**RESPONSE:** At least 16 years on most routes, although we have only had linkage between fare payment and reservations since 2005. However, there remain significant cracks in the system which create opportunities for abuse. If you reserve more than 10 days in advance, your tickets are essentially "purchased" and mailed (or "posted" as they say in the UK) to you. Within 10 days, a confirmation credit card is taken and the tickets placed on will call. In this case no encumbrance is actually placed on the credit card until someone shows up to claim the reservation at the terminal. This sometimes leads to confusion as people think they are being charged twice. We have yet to actually encumber a credit card in the circumstance of a no show. Then there are the multi-ride tickets, of which there are several different combinations. With those we allow people to reserve without confirmation or deposit. If they no show, there is no penalty. Long term they are looking at the use of a "smart card" to contain multi-ride tickets, where the card number would be associated with the reservation. If the person did not show for a reservation, the next time they traveled a fare would be deducted from the card automatically.

5) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience? Are you able to stage an entire vessel load of cars at your terminals?

**RESPONSE:** Most of the ports are not under the control of CalMac (see above) and are constrained in size. Terminal development is not really an issue. Reservations have been provided as a convenience and assurance to customers and have had great benefit in terms of load planning for the vessels. This is particularly true as many of the vessels have moveable gallery decks with variable ship capacity, so knowing the load ahead of time is very beneficial.

6) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**RESPONSE:** In the initial development there was very little resistance. In 2005 when we coupled fare payment to reservations we got a little more push back. For various reasons mostly because it upset the way people had used the system with no strings attached as a personnel

travel assurance program. For example, it used to be common for spouses to each make a reservation on two different sailings and then use whichever one best suited their travel, leaving a no show in the other. Attaching a name, credit card and single household business rule to reservations for the same day in the same direction has stopped that and some people were not very happy about it.

7) Roughly what percentage of the autos crossing the routes identified in question #2 are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**RESPONSE:** We book based on lane-meters of capacity and we essentially book up to the capacity of the vessel. We do not really have a good handle on the overall percent of traffic travelling on reservations. At peak times it is very high and at other times much more "turn up and go." (if this were Ireland, it would be "turnip and go"☺) Our regular customers have gotten very savvy about when they need to make reservations and when they can just go to the ferry dock. We also have a "waitlist" system which allows people priority for the first standby spaces. This occasionally causes some friction in the "marshalling yard" (holding area) as people on "turn up and go" will get offset by waitlisted people who show up after them. So regular customers who do not like to make reservations really do not like the waitlist system too much.

8) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**RESPONSE:** No specific number, but feels it is around 20%. We are trying to become more sophisticated in looking at this data and bring down the %. First order of priority is the commercial traffic, because a "no show" in that traffic classification can cause under-utilization of the gallery decks due to the flexible nature of the deck space. Next priority is the multi-ride card holders. We have begun work on the commercial traffic as we have a very good working relationship and are able to sell the concept as mutually beneficial. The multi-ride ticket holders are another matter and will likely wait until we can implement some other technology like smart cards.

9) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the

dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**RESPONSE:** We have activity that is more based on people living on an island. People will come in for a day in Glasgow and return the same day. We are very accommodating in terms of re-booking their passage if need be. Typically they arrive back earlier than anticipated, not later. But we really do not have the sophistication to fully analyze the situation. Very seldom, even under poor weather conditions, are people unable to return home the day they planned.

10) Have you changed reservation systems? What kind of improvements do you make between versions?

**RESPONSE:** We have had the same vendor for 16 years now, but the system has undergone continuous development, for example fare sales connected to reservations, internet bookings, etc. over the entire time. The current system is quite different than what we began with 16 years ago.

11) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**RESPONSE:** On –line reservations have grown substantially in the past several years with increases of 30% per year until this past year when we hit 50 to 60% per year growth. Currently about 40% of all reservations are completed on-line. The large increase is coupled to when we began allowing people to reserve on-line for different vehicle sizes. Prior to last year, if you wanted to reserve for anything other than a standard auto, it had to be done by phone. You can now reserve on–line for a variety of personal vehicles. All commercial reservations are made on the phone through the terminal of departure. This is to ensure we know as much about the space requirement as possible and may be able to steer the traffic to under-utilized space.

12) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**RESPONSE:** Call in reservations do not present any sort of issues for us. We operate and extensive phone network with a virtual call center. Currently terminal employees at any of 17 terminals can become call agents on demand. Many terminals have low sailing frequency, so this provides fill in activity for the terminal staff. Call volume is about 250,000 calls per year and we have 7 to 8 seconds average call pick up times. Our call center hours are 8 am to 8 pm Monday through Saturday and 9 am to 7 pm on Sunday. We are also moving to a full IVR system that will allow people to reserve on the phone without speaking directly to an agent. We have a person in the main office who monitors call volume. When the volume exceeds certain limits we have the ability to "plug in" additional resources from the main office.

13) How is your reservation system and fare/ticketing system integrated?

**RESPONSE:** Currently the two systems are completely independent. This allows us to have standalone ticketing capability at all terminals as sometimes the network has reliability issues.

We are moving to a system of 100% charge for reservations at time of booking (vehicle and passenger fare, presently only the vehicle fare is charged). It is unlikely that we will be able to fully integrate ticketing and reservations any time soon due to the remoteness of some of terminals.

14) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?

**RESPONSE:** This is a completely manual process. We print off a manifest and check people off the list as they arrive. Minimum check in time varies by route, but most are around 30 minutes. Note: minimum check in times are published on each timetable. We also identify passengers with special needs at check in so that we are able to stage them in such as way as to meet their requirements, e.g. close to a lift, extra door opening space, etc. One other practice we have adopted is to pre-print all tickets for a sailing prior to beginning the check in process. This helps really move the process along.

15) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**RESPONSE:** A local company from Glasgow called Maxima. We were their first ferry customer. However, he believes that other ferry systems may now be using the application. At the time we also looked at Versonics and Hogia systems. Our system is extremely resilient it never goes down on-line. We have full duplicate servers and an off-site crisis backup system that we can bring on line within 24 hours.

One of the requirements of our service contract with the Scottish government is performance reporting. We have been able to conduct much of that reporting through the database attached to the reservation system.

SMS communication (text communication) is very big in UK. We are working on expanding our SMS capability to be full duplex communication instead of using it as we currently do for status notifications.

Our reservation system has a feature we call "intelligent placing." This allows us to set up a reservation for someone based on who they are (personal, commercial, frequent user), what they want to take (small car, car with trailer, truck), and when and where they want to go. This allows us the best fit for moving traffic to the most appropriate locations and helps direct people to the most advantageous fares. Some of our "Hop Skotch" tours are fully reservable and some are not. "Hop Skotch" is a multiple island loop tour, of which there are several varieties. On some tours, however, some of the routes are not reservable.

## Cape May-Lewes Ferry System

No Interview Conducted

**Istanbul Deniz Otobusleri**

1) Realizing this will vary widely by route what is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce?

2) Do you have routes, with reservations, where there is a substantial market of daily commuters?
For daily commuters we do not have reservations

3) How many of your routes have reservations available and which two are the highest volume, vehicle traffic-wise, routes.

Yes we have 4 main ferry routes with reservation
Yenikapı-Bursa,Yenikapı-Bandırma,Yenikapı-Yalova,Pendik-Yalova,

4) How long have reservations been used on your routes? Again, realizing this may vary by route, what routes have been most recently added?
Since 2000 we have reservation system. Yenikapı-Bursa Feryy routes has recently added (2007).
5) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience? Are you able to stage an entire vessel load of cars at your terminals?
Eskihisa-Topçular ferry routes do not have reeservation system. In a heavy traffic holding space cannot be enough for cars. But routes with reservations need much less holding space . Reservation of course minimize the holding space but not fisible for short trips. Eskihisar-Topçular,Sirkeci-Harem,Pendik Yalova ferry routes are all short trip and commerce routes and working withut reservations.

6) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?
I do not know well about the intial development of reservation system and resistance . But I guess it. But after the initial development there is a satisfication form customer base. They make their reservations from call-center-web and get their ticket form idomatik machine with their credit cards.
7) Roughly what percentage of the autos crossing the routes identified in question #2 are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?
8) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?
Some of ofr ticketing rules are like this;
   - Reservations are only available for 48 hours after reservation time and 48 hours before trip time. In this period of time customer should change their reservations to ticket.

- Tickets are refundable before 6 hours to trip without penalty, 30min-6 hours %30 penalty, less than 30min %100 penalty for customers.

9) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?
   As mentioned #8 customer ticketing rule , they have cancel option from call-center without coming to terminals.
10) Have you changed reservation systems? What kind of improvements do you make between versions?
   Yes recently(2009). We improve refund process with penalties, this minmize our cancellation rate and also operation cost. And and penalty
   And another important topic dynamic costing systen base. Which we are not start to use yet.
11) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?
12) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?
   For now our staffing is not based on call volume but next year we intend to do that with call volume base.
13) How is your reservation system and fare/ticketing system integrated?
   As mentioned above questions .
14) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?
   First security audit, then manuel ticket audits
   We try to force to customer to take their ticket form idomatic machines which gives ticket automatically with credit cards. Ticketing vehicles form terminal slows the process.
15) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?
   - We developed our ticketing system with SAP. And it is intgrated to all our financials process.
   - Integration and functionality is satisfiable, but we have some dissatifications from perfomance issues .

## Scandlines

Conducted: April 23, 2009 at 8:00 am PDT
With: Jutta Just
By: Ray Deardorf and Tim Payne

*Scandlines consists of a parent company, **Scandlines AG**, and under this parent company a German subsidiary named **Scandlines Deutschland GmbH** and a Danish subsidiary named **Scandlines Danmark A/S**. Scandlines as a whole operates 17 lines for passenger and freight in and between Denmark, Germany, Sweden, and the Baltic countries.*

*Scandlines used to be co-owned by the Danish Ministry of Transportation (50%) and Deutsche Bahn AG (50%)[3], but as of June 2007, it is owned by a consortium consisting of 3i Group of Copenhagen and Frankfurt (40%), Allianz Capital Partners of Munich (40%) and Deutsche Seereederei of Rostock (20%). The corporate headquarters are located in Rostock, Germany.*

*For purposes of this interview, we concentrated on 9 ferry routes. Three of the routes are analogous to services provided by WSF, Rodby, Denmark, to Puttgarden, Germany (crossing time is 45 minutes, service operated with 30 minute frequency) and Helsingor, Denmark to Helsingborg, Sweden (crossing time is 20 minutes, service operated with 20 minute frequency, and Rostock, Germany to Gedser, Denmark, 1:45 crossing time, 18 sailings per day, about 2 hour frequency. The next shortest route, Rostock, Germany to Trelleborg, Sweden (6 hour crossing time with 6 daily sailings). Note that there are also several small routes internal to Denmark that are similar to the San Juan Islands.*

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce?

**RESPONSE:** This varies widely by route, but our business is passenger cars and freight (truck and rail) with some commuter traffic on the shorter routes. Helsinger to Helsingborg has daily commuters, there are also a few on Rodby-Puttgarten, but they tend to be once a week commuters rather than daily.

2) How long have reservations been used on your routes?

**RESPONSE:** Many routes have had reservations for years, although only within the last three to four on the shorter routes.

3) Do you believe that having a reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience? Are you able to stage an entire vessel load of cars at your terminals?

**RESPONSE:** Auto queues approaching the terminals make reservations somewhat impractical on the shorter routes. Few people choose to use the system because they often cannot reach the

terminal. Commercial traffic tends to use the reservation system more as a method of accounts payable/receivable rather than a time issue. Perhaps one of the reasons reservations are not popular is due to the preexistence of a premium fare which allows auto commuters to arrive at the terminal within 5 minutes of sailing and be guaranteed a place on the vessel. There are three fares, essentially, Standard, 10 ride and "Exclusive." For example, on the Rodby-Puttgartten the single fare is 64 Euro (this is a standard car with up to 9 passengers, interestingly, due to the existence of a bridge, they have adopted a bridge-like fare structure), the 10 ride fare (10 rides within 12 months on this route on the H-H route 10 rides in 6 months) is 58 Euro, a 10% discount. The "Exclusive" fare is 84 Euro, a 31% surcharge, although the surcharge is lower on the H-H route at only 10% and at a mid-point on the Rostock, Germany to Gedser, Denmark at 23%. These fares are now available through use of a transponder system which sends an invoice for each use of the transponder. The standard, 10 ride, and exclusive fare are available through magstripe media, as well.

Also interesting is that many regular system users carry two fare instruments, using the discounted fare when there is no wait or it is short, and using the "Exclusive" fare when traffic is heavy to guarantee timely passage. Note also that these fares have a day of week change in the summer season on two routes where the fare above is good Mon-Thurs, then a higher fare Fri-Sun. The standard fare increases the most at 17%, the 10 ride fare increases 12% and the "Exclusive" fare increases 13%. On the H-H route the seasonal fare increase is not based on day of week and fare rise is calculated on different basis with the standard fare increasing 11%, the 10 ride remaining constant and the "Exclusive" fare increasing by 21% . The Rostock-Gedser route also has a day of week differential with weekend fares rising 36% for the standard and 10 ride fare and the "exclusive fare rising by 45%. The purpose of laying this all out is to demonstrate that these folks have clearly figured out how to maximize profit and control demand through pricing. On theses shorter routes, pricing is really used as more of a demand control method, than are reservations.

One final note regarding port facilities, pictures of their terminals leave little question that terminal space is not an issue. Their terminals are huge, with separated facilities for rail, trucks, cars and passenger vehicles as well as walk-on passengers. The size is almost certainly the result of working with rail cars which require lots of space. Pictures also suggest ultra-modern infrastructure at the terminals, many even on the short Rodby-Puttgarten route, with double level auto loading.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**RESPONSE:** As long as systems work as advertised customer feedback is fairly minimal. Sometimes it is necessary to hatch a longer term strategy to bring about changes slowly. A reservation-fare requirement was added to internet bookings about three years ago as the internet was introduced, then the reservation-fare requirement was added to all reserved transactions over time.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**RESPONSE:** This varies widely from route to route and season to season. On the longer crossings it is nearly 100%. On the shorter local crossings reservations have not been offered that long, so the percentages are quite low.

6) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**RESPONSE:** When we first introduced the system on the short routes you could just make a reservation, there was no financial obligation. The no show rates were over 25% on the shorter routes. Trelleborg was lowest at 10 to 15%. Once we tied charging a fare to the reservation, the no-show rate dropped to under 5%.

7) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island or peninsula in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**RESPONSE:** For most of our routes this simply is not a problem. If people are late for their reservation we simply put them in the "show and go" line for the next sailing, or even later, if they are later. They do not lose their fare, only their priority. We have zero problems with getting everyone back to where they want to go. In fact, our evening and end of day sailings on the more frequent routes often appear to have lots of bookings on them at the start of the day, but by day's end typically have about half the number of booking they started with. Traffic tends to arrive earlier than expected, rather than later than expected.

8) Have you changed reservation systems? What kind of improvements do you make between versions?

**RESPONSE:** Since 1994 we have had 3 versions of the reservation system. The older versions were central computer/terminal systems. The new version is a networked system with full internet functionality. The newest system now almost four years old, operates on an Oracle database and has several new features including more capability in flex-pricing and the capacity to handle invoicing for use of the transponder cards.

9) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**RESPONSE:** When we first introduced internet reservations it was only about 5 to 10% of all reservations, but has now grown to 50% and is continuing to grow. People have grown confident in the system and it saves them time compared to trying to reach us on the phone. Early on before we tied reservations and fares together we did have some problems with individuals who would make a reservation on every sailing, thus feeding the no show problem. We also continue to face the questions about personal information security, "are you going to sell my e-mail address to someone who will fill my inbox with junk e-mail?"

10) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**RESPONSE:** We do add some seasonal staff from May to August. However German labor laws really restrain how much of this we can actually do. If a person works a certain number of hours you must guarantee them on-going employment for x number of months and have a certain number of hours per week, etc. The law is written to ensure the vast majority of employees are non-seasonal and full time.

11) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?

**RESPONSE:** We have made every effort to make entrance into the terminal as flexible as possible and as automated as possible. On the longer routes we are approaching 100% automated chick in. On the shorter routes it is 50 to 60%, but growing. We offer a number of automated options:

- Magstripe fare card (note this is available in all three flavors of fare, standard, 10 ride and "exclusive") with PIN, auto approaches swipes card, enters pin, ticket and receipt are printed.

- Transponder, vehicle approaches, ticket and receipt are printed almost before they get to the printer. Note we are also headed toward hooking transponders to reservations, which is not done now. Currently transponders are only a form of fare payment.

- Printed booking, has a barcode, barcode is scanned, ticket and receipt printed.

Manual check in, person has confirmation number, name, e-mail, phone number, etc. reservation is looked up by attendant, ticket and receipt printed.

12) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**RESPONSE:** Our current system, 2005, was custom written by a software company called ST & M, a German software company. Software works well, but every time we want to add a feature it takes a task order and more cost. System is very stable with Oracle database.

## Steamship Authority

Conducted: April 7, 2009 at 8:30 am PDT
With: Wayne Lamson, General Manager and Gina Barbosa, Reservation and Customer Service Manager
By: Ray Deardorf and Tim Payne

The Steamship Authority is a **public instrumentality** created by the Massachusetts legislature to provide for adequate transportation of persons and necessaries of life for the islands of Nantucket and Martha's Vineyard. The enabling legislation empowers the Authority to acquire, maintain and operate a boat line between the mainland ports of Woods Hole (Falmouth) and Hyannis (Barnstable) on the one hand, and the islands of Martha's Vineyard and Nantucket, on the other. The Authority's statutory mission is to serve as the "Lifeline to the Islands" and it is the only ferry service for the Islands that carries both passengers and vehicles, including commercial freight trucks. The Authority is governed by a five-member board appointed through various local authorities to ensure representation of all interested and dependent parties.

The Authority has its principal office in Woods Hole, Massachusetts with ferry terminals in Woods Hole and Hyannis on Cape Cod, terminals at Vineyard Haven and Oak Bluffs on the island of Martha's Vineyard, and a terminal on the island of Nantucket. The Authority owns and operates year-round parking lots in Woods Hole and Hyannis, and operates seasonal off-site parking lots in Falmouth, Bourne and Hyannis as well. The Authority also has a vessel maintenance facility in Fairhaven and a receiving warehouse in Falmouth. There are two reservation offices in rented property in Edgartown and Mashpee.

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce? Are there differences between the two auto/passenger routes Woods Hole – Martha's Vineyard, and Hyannis - Nantucket?

**Response:** Summer months traffic is about 2/3 tourist and 1/3 local, winter season is 1/3 tourist and 2/3 local. Note local residents (by proof of voter registration) are entitled to a special fare that is about ½ the fare of the general public. It is a ten ride book that must be used within one year of purchase.

2) How long have reservations been used on these routes?

**Response:** Reservations have been around for more than 35 years (the people interviewed were both 35 year veterans of the authority and reservations pre-date their employment). However, about 10 to 12 years ago the system became a 100% reservation system *on peak days* to ensure traffic control at the ferry terminals.

3) Do you believe that having reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience?

**Response:** Our terminals have been on the same footprint for 30 to 40 years. We are not allowed to spill traffic onto local streets at any of our terminals. So, what began as a customer service has become a tool to manage traffic queuing.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**Response:** When we went to 100% reservations there was a good deal of apprehension on the part of islanders about their ability to travel freely given the overabundance of tourists. The fear was the tourists would book up everything and there would be no place for the islanders to travel. A few things have helped to mitigate their concerns:

a) At peak seasons we operate additional service
b) Residents (in this case defined by those who can prove they hold property on the island full time and part time) are entitled to reserved space that is held back and accessible to them only. The preferred space is released in two blocks, about ½ 7 days ahead of sailing and the other ½ the day before sailing. This set aside amounts to about 10% of daily capacity, or 120 to 140 spaces per day. Any of the 7 day space unused by residents 4 days ahead of sailing is released to the general public, any unused space the day of sailing is also released for general availability.
c) Early start – each schedule period, before space is released to the general public, residents are allowed to book up to 5 roundtrip sailings for the period (it appears they have 4 schedule periods per year). Up to 3 of these sailings may be used by tenants of a part time resident.
d) Preferred standby line – Based on the customer profile, we allow about 15 cars per day access to a preferred standby line. This is only available to people who qualify for the preferred hold back reservation space.
e) "Wait List" is an option open to everyone, but offers the ability to be electronically in-line for any space that comes open up to 48 hours in advance of the sailing due to cancellations, reservation changes or release of held back space. Except at the very peak season most customers are able to get exactly the sailing they desire using the wait list feature.

These actions seem to make the situation livable for island residents. That does not mean they do not complain, but the situation seems manageable. The islands have also developed a considerable contingent of citizenry who desire to limit the number of vehicles on the islands at any one time. They see the reservation system as one way to throttle demand.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**Response:** See above, at peak times, in essence we do not hold any standbys, although we always allow a few cars five to ten depending on conditions, to sit at the terminal on a standby basis. We also reserve a space or two on every sailing to accommodate emergency vehicles. Most of the time, due to the dynamics of arrivals, car size, etc, we can get up to five standby's on a sailing even though the sailing is fully reserved. At off peak times we leave it

to the terminal manager to determine how many standbys should be allowed for any given period or sailing. Peak or non-peak, if the terminal appears to be full, we turn people away and ask them to return later for standby, or try to make a reservation, which often works due to cancellations. We also have a tool that allows people to leave their car behind and continue travel as a foot passenger. When space allows we load it onto the boat for them and notify them it will be available at the terminal at a particular time.

6) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**Response:** We have less than 5% of traffic no show and it is usually due to getting on an earlier sailing on standby. The ability to call and cancel up to one hour before sailing really enables people to keep us informed. If people are late we do try to be accommodating with respect to the use of their fare.

7) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**Response:** We advise people to book later than they think they will need to ensure they do not miss a sailing. If they arrive earlier, we are almost always able to help them make an earlier sailing. The fact that we have nearly real time reservations also allows people to work within the reservation system to make changes to their reserved travel. The last sailing is a problem in that it frequently appears to be fully booked, yet due to the dynamics of the day may have less than ½ a load. So the last sailing at peak season may appear to be fully booked at the beginning of the day, as the day wears on, the final sailing creeps down to fewer and fewer reservations. We continue to tweak our set asides, truck traffic, cars as freight policies, etc. to try to get more cars on the final sailing. In summary, we try to work with people to get them where they need to go. While this may have been a concern when we first went to 100% reservations, it does not seem to be something people focus on today. So, the answer is no, people with reservations do not get to the point where they cannot get home.

8) Have you changed reservation systems? What kind of improvements do you make between versions?

**Response:** We have been on the same system for 10 to 15 years now. Our previous system was essentially a one man shop, The current system has essentially become the same thing as the company has downsized. Not sure what we will do about that, but it is a risk factor.

9) What has been your experience with call in reservations versus on-line reservations since they became available? Are there particular issues about on-line reservations that you are particularly concerned about?

**Response**: About 35 – 40 percent of reservations are made on the web. Other than some customer concerns about credit card confidentiality, no issues have arisen with on-line reservations.

10) What issues do reservation present for the phone center, is your staffing based on call volume or is the level of staffing the same regardless of call volume?

**Response**: The reservation phone center is staffed 23 hours a day. Staffing levels vary with seasons – more staff in summer when traffic is much heavier, less in winter. The staffing levels are based on the previous years' experience.

11) How do you check in vehicles as they approach the terminal? Are there operational revisions you have made to speed up the process?

**Response:** Hand scanners are used when a vehicle enters the terminal. Vehicles are scanned again as they board the vessel from the terminal.

12) Who provided your software? Are you engaged in an on-going support contract? Are there any significant system operating issues with the hardware?

**Response:** As noted in question 8, the same system has been in place for 10-15 years. This system is an off the shelf design but modified considerably – and still needs "tweaking".

**Wightlink**

Conducted March 26, 2009, 7:00 am PDT
With: Matthew Litscomb, Business Development Manager
By: Ray Deardorf and Tim Payne

We put forth a series of questions to Matthew Litscomb, Business Development Manager for Wight Link, which serves the Isle of Wight in the English Channel from the southern England area.

1) What is your traffic make up – proportion of commuters, tourism/recreation, commercial/freight, medical, other commerce? Are there differences between the two auto/passenger routes Portsmouth-Fishbourne and Lymington-Yarmouth?

**Response:** About 40% of all their ferry traffic originates from island residents, the remaining 60% is generated off-island. In the traditional peak periods traffic is certainly heavier, although the increase seems to be related more to freight than commuters. Wight Link also operates a passenger ferry route (Fast Cat, crossing time is 18 minutes compared to 40 for the parallel auto ferry) from Portsmouth to Ryde which does attract a very large number of daily commuters. While there appears to be some daily, or near daily, commuter traffic in the vehicle mode, it is not as noticeable as the passenger traffic. However, there are large volumes of island residents who leave the island each day for various appointments.

2) How long have reservations been used on these routes?

**Response:** Reservations outdate Wight Link, but have been in place for 25 to 30 years, although the reservation systems have evolved considerably in that time.

3) Do you believe that having reservation system has made a difference in necessary capital investments in auto holding space at your terminals, or is it strictly a customer convenience and competitive choice?

**Response:** The presence of a reservation system heavily impacts on how we operate the system. While we do maintain some land based auxiliary holding space for extraordinary circumstances (sailing cancellations, special events, etc) we are able to operate within our shore side facilities. (There is a little more discussion of the auxiliary holding further on, but this is basically maintained to ensure peaceful relationship with the ferry terminal communities.)

Secondly, and perhaps most importantly, the reservation system allows us to operate the system in a way that optimized profit through fare revenue generation (in the same way as yield management used by airlines – the more a sailing gets booked up, the higher the price goes). While we have been able to accomplish some of this with the current system, the new generation system will allow us much greater flexibility and ability to optimize profit by varying fares.

4) In the initial development of a reservation system, did you have any resistance from the customer base? What is the view of the customer towards the reservation system now?

**Response:** The reservation system has been in place so long that there is little memory of the issues at implementation. Today however, people, particularly residents do like access to the cheaper fares the system affords (they travel cheaper if they use the reservation system versus stand-by) and the peace of mind that occurs because they know they have a space on the vessel. Naturally, there are always some issues of dissatisfaction with some circumstances present in the system, but no one is advocating abolition of the reservation system.

5) Roughly what percentage of the autos crossing each of these routes are doing so on a reserved basis, or, if it is more straightforward, on a stand-by basis? Do you hold a particular level of standby space on each sailing? Does it vary from sailing to sailing?

**Response:** We book to 100% of vessel capacity on every sailing, we do not overbook, however.

6) Is the "no show" rate substantial? That is people reserve and pay for passage, then just don't show up (no cancellation phone call, etc.), until sometime later, then want a refund or want to travel on a reserved basis?

**Response:** Overall, we have about 2% of vehicle traffic that does not show up for their reserved sailing. This includes traffic that arrives early and makes an earlier sailing, and traffic that arrives late and gets on a later sailing. A small percentage of customers never show up at all. With respect to people who miss their sailing, we are typically able to work them into the standby on the next sailing and get them accommodated. Once in a while they may have to wait for another sailing, but very seldom past that. Our objective is to retain their fare and get them to the other side of the water.

7) In our public discussions on the concept of vehicle reservations, a concern has emerged from commuters and non-commuters (especially people traveling off-island for medical appointments) on the uncertainty of their return trip home. That is, they can plan with certainty (and therefore have no anxiety about reservations) for the trip off the island in the morning but do not know if they have to work late, get stuck in traffic, or get delayed at the doctor's office and miss their return reservation home. The fear then is, if the other sailings in the evening are already booked up, they may not be able to return until it is extremely late or even the next day. Have you had this concern expressed and have you been able to address it in the design of your system? Or is the dynamic of cancellations and re-bookings sufficient that some people move to earlier sailings and some to later sailings and the two essentially balance out?

**Response:** We do get some concern from island residents about their ability to complete their travels, either through inability to book a sailing or late arrival for their reserved sailing. Yes, each individual can call, cancel and re-book, which many do, although this is also related to the fare they have purchased as there may be a fee for re-booking. This sometimes discourages residents, in particular, from re-booking. Instead they just tend to show up. We understand the need to maintain peaceable relationships with island residents and try to operate with a degree of flexibility to allow us to meet some of the island resident's needs.

The concern about cascading cancellations, and no-shows with over full boats at the end of the day is not something we experience. In fact, we see the later sailings typically appear as fully booked on paper, but in reality, leave with space on board the vessel. Mostly this is due to people arriving and taking an earlier sailing throughout the day. So the issue is reverse of what most people fear. More people arrive early for their sailing than late for their sailing. I do not remember an instance where, other than weather-related conditions, customers have not been able to reach their homes on the day they wished to do so.

8) We understand (and again appreciating your time during what must be a very busy undertaking for you) that you are rolling out a revised reservation system? What kind of improvements are you making in this version?

**Response:** The new system has better, more user friendly software for internal usage, improved management reporting, much greater ability to vary fares, revise timetables and generally allow us to operate with a higher degree of flexibility. The system also interfaces with profit optimization system allowing opportunity to improve profitability.

The system, "Revenue Plus," (http://www.revenue-plus.com) is provided by an offshoot of a software developer called Annite systems.

This was the end of our prepared questions, Tim asked another question about their relationships with terminal communities and issues of traffic management within those communities. It seems as little as four years ago, Wight Link had a reservation system, but also had no policy with respect to when people could arrive for a boat, nor did they place limitations on how many autos they would allow to wait for a particular sailing. Consequently, particularly at peak times, the system acted very much like a first come-first serve system.

The largest mainland terminal is at Portsmouth, which is located on an island connected to the mainland by three bridges. Under heavy traffic conditions it was not unusual for us to block traffic all the way across two of these three bridges. Suffice it to say the town council and local police were very unhappy about the situation and the residents of Portsmouth would complain with regularity about their ability to get to their homes or businesses. As a result, we had to modify our operating practices. At peak times, we are now "ruthless" about not allowing people to hang around the terminal if they do not have a reservation or are arriving early for their reservation. We allow a small number of standbys and then tell people they will have to leave and come back. We also modified our check-in time from "60 to 30 minutes ahead" of sailing to "40 to 20 minutes ahead" of sailing. We have provided a great deal of marketing material to encourage people to 1.) Have a reservation and 2.) Not arrive early. For those who do when we are not able to accommodate them within our facility we have prepared some materials we can give them that provide ideas about what to do in the community while they wait for their ferry. These actions have all but eliminated, except during sailing cancellations, our impacts on local streets. During sailing cancellations we maintain some remote space for off-street storage of autos so that we do not impact the streets in Portsmouth.

Note: This last point is very crucial. It is not the presence of the reservation system alone that reduces impact on terminal communities, it is also the operating policies that go along with it.

Ray asked a question about the impact of the economic downturn on ferry traffic. Matthew offered that their market has shrunk by about 2%, this year over last year.

## Selected Operator Profiles

### Bay Ferries/Northumberland Ferries

## History

NFL was incorporated in 1939 in Halifax, and began operating ferry services in 1941. Bay Ferries began in 1997, taking over the Bay of Fundy services previously operated by Marine Atlantic. Bay Ferries and Northumberland Ferries are subsidiaries of NFL Holdings Ltd of prince Edward Island.

## Ridership

From Nova Scotia to Prince Edward Island:

- 10% commercial
- Remaining traffic is 50% tourism during off-peak season, 75% tourism during peak season

From Nova Scotia to New Brunswick:

- 25-30% commercial
- Remaining traffic is 40-50% tourism

From Nova Scotia to Maine:

- Nearly 100% tourism

## Revenue

Not available online

## Routes

The system operates three routes:

1) **Nova Scotia – Maine**

   3 hours (Bar Harbor – Yarmouth)

   5.5 hours (Portland – Yarmouth)

   1 trip/day

2) **Nova Scotia – New Brunswick**

3) **Nova Scotia – Prince Edward Island**

   75 minute crossing

   Up to 9 trips/day

## Fleet

**4 vessels total:**

- The Princess of Acadia.
- The CAT (high speed ferry)
- Confederation
- Holiday Island

## Reservation System

**Why Reservations?** – Mostly instituted for customer convenience, but vessel operations has also found it useful for load management.

**Deposit/Fee** – $5 fee for using the reservation system. Credit card numbers are taken in case cancellation fees are charged.

**Portion Reserved** – Up to 100% reserved, except on the Prince Edward Island route which is about 25% reserved. Will be ramped up to 100% eventually.

**Motorcycles** – Reservations accepted for motorcycles

**Other** – Customers must declare vehicle height and length when making reservations.

**Cancellation Policy** – If canceled before 48 hours, no fee. If canceled fewer than 48 hours before departure, $50US fee on the CAT. No-shows are charged a $100US fee on the CAT, and $25 on the other routes.

## History

British Columbia Ferry Services (BC Ferries) began in 1960 as a two-vessel, two-terminal operation. It was originally operated by the British Columbia Ferry Authority, under mandate from the provincial government. In 2003, the corporation was re-launched as an independent commercial company, designed to attract private-sector investment and partnerships to better respond to the market place. Although a private company looking to meet business objectives, operations are still legislated to protect consumers.

## Ridership

Over 20 million passengers annually

8.1 million vehicles

Mainland routes have many frequent users, but not daily commuters. The Gabriola Island-Nanaimo route has a high percentage of commuters, most of whom are walk-ons.

Mainland routes have a high percentage of freight traffic.

## Revenue

Approximately $680 million CDN (2009)

## Routes

The system accepts reservations in three main travel sheds:

### 1) Vancouver – Vancouver Island

- Travel between Vancouver-Victoria, Vancouver-Nanaimo, and West Vancouver-Nanaimo
- Crossing times between 1.5 and 2 hours
- 6 – 12 round trips per day

### 2) Vancouver – Sunshine Coast

- Travel between West Vancouver and the Sunshine Coast
- Crossing time 1.7 hours
- 6 round trips/day

### 3) Vancouver – Southern Gulf Islands

- Travel between the BC mainland and Mayne, Pender, Galiano, Saturna, and Salt Spring Islands
- Crossing times between 1 and 3 hours
- 1 – 2 round trips per day

## Fleet

36 vessels total, ranging in size from 560-foot, 470-vehicle boats, to 111-foot, 16-vehicle boats

## Reservation System

**Why Reservations?** – Primarily for demand control for the South Gulf Island routes

**Deposit/Fee** – On the main routes there is a $17.50 fee that must be paid in advanced. On other routes, there is no additional fee, but 100% of the fare must be paid to make a reservation.

**Portion Reserved** – 40% - 60% on main route. South Gulf Island and North Routes up to 100%

**Payment** – Online, by phone, or in-person

**Motorcycles** – Reservations are not accepted for motorcycles

**Other** – Customers must declare if they are bringing an underheight or overheight vehicle at the time of purchase (7' cutoff), and must specify length if it is over 20 feet

**Cancellation Policy** – Cancellations made more than 7 days in advance suffer no penalty fee. After that, there is a penalty for a reservation cancellation

**Change Policy** – There is a $9.00 fee for making a change to a reservation

**When to Arrive** – Customers are required to arrive 30 minutes (but not more than 60 minutes) in advance of their scheduled sailing

**Black Ball Ferry Line**

## History

Black Ball Transport was originally formed as a subsidiary of Black Ball Freight Service, a freight company that carried commercial freight between Seattle, Port Townsend, Port Angeles, and Victoria. In 1973, Black Ball Freight was sold to another company. Black Ball Transport continued to operate its one ship, the M.V. Coho, to carry passengers and vehicles between Victoria and Port Angeles.

## Ridership

85% of traffic is tourism, 15% is commercial. About 80% of the tourist traffic is vehicles, and 15% is RVs and motorcycles.

About 120,000 vehicles annually

400,000 passengers

## Revenue

Not available online

## Routes

Black Ball operates one route: Port Angeles – Victoria.

The crossing takes 90 minutes.

2 trips/day in winter, 4 trips/day in spring, 6 trips/day in shoulder, 8 trips/day in summer

Reservations are offered for vehicles and passengers

## Fleet

Black Ball operates just one vessel, the M.V. Coho. She is 342' long, and carries 110 vehicles and 1,000 passengers.

## Reservation System

**Why Reservations?** – Customer convenience. Before reservations, 12 to 24 hour waits during peak season were not uncommon. Now people can be assured of their departure time when they leave for Port Angeles from population centers.

**Deposit/Fee** – For vehicle reservations, they charge a separate reservation fee. For passengers, the full fare is charged when the reservation is made, but there is no additional fee.

**Portion Reserved** – Up to 70%. They started conservatively with 30%, then ramped it up as demand dictated.

**Payment** – Pay reservation fee online or by phone using credit card.

**Motorcycles** – Reservations accepted for motorcycles

**Other** – Customers must declare vehicle length (over or under 18 feet) or motorcycle, including trailers, at the time of reservation. Misquoting vehicle length by more than 5 feet may cause you to forfeit your reservation.

**Cancellation Policy** – The reservation fee for vehicles is non-refundable. If you cancel your reservation, you lose the fee. The cost of tickets is refundable, except for the cost of a single one-way adult fare when cancelling passenger reservations.

**Change Policy** – One change to a reservation is allowed without charge. After that, it is counted as a cancellation, subject to the above policies, and a new reservation must be made.

**When to Arrive** – Vehicles must arrive 60 minutes in advance at Port Angeles, and 90 minutes in advance at Victoria. Passengers must arrive 20 minutes in advance.

## Caledonian MacBrayne

Caledonian MacBrayne
Hebridean & Clyde Ferries

### History

Caledonian MacBrayne began operating in 1851, with interruptions in service only during the Second World War. In 1964, the Government first provided financing to commission new ferries. In 1969, the Scottish Transport Group was formed to operate the system. Finally in 1990, Caledonian MacBrayne began wholly owned by the Secretary of State for Scotland.

LEWIS
Stornoway
HARRIS
Tarbert
Leverburgh
Berneray
Lochmaddy
Benbecula
SOUTH UIST
Lochboisdale
Eriskay
Barra
Castlebay
Uig
SKYE
Portree
Armadale
Mallaig
Canna
RUM
Eigg
Muck
Coll
Tiree
Kilchoan
Tobermory
Lochaline
Fishnish
Craignure
MULL
Oban
Iona
Colonsay
Port Askaig
ISLAY
Port Ellen
Tayinloan
Kennacraig
Rhubodach
Colintraive
Portavadie
Rothesay
Claonaig
Tarbert
Lochranza
Brodick
ARRAN
Campbeltown
Ardrossan
Largs
Wemyss Bay
Gourock
Dunoon
Ullapool
Kinlochbervie
Lochinver
Gairloch
Kyle of Lochalsh
Mallaig
Fort William
Oban
Tyndrum
Crianlarich
Tarbert
Campbeltown
Girvan
Stranraer
Cairnryan
Newton Stewart
NORTHERN IRELAND
SCOTLAND
CLASGOW
ATR
Tiree
Islay
Jura
Arran
Bute
Cumbrae
Great Cumbrae
Cighe
Eigg
Muck
Rum
Canna
Raasay
Scalpay
Berneray
Benbecula
Eriskay
Barra
Gigha
Colonsay
Iona
Tiree
Coll
Mull
Lismore
Raasay
Skye
Eigg
Muck
Rum
Canna
Berneray
Scalpay
Gigha
Colonsay
Iona
Tiree
Coll
Mull
Lismore
Skye
Raasay

**Deposit/Fee** – No deposit on multi-ride tickets. Single tickets purchased more than 10 days in advance have a full deposit and are mailed out. Single tickets purchased less than 10 days in advance have no deposit and are held at the Port of Departure. The fare is charged once they are picked up.

**Portion Reserved** – Up to 100%

**Payment** – Online or by phone using credit card, or in person

**Motorcycles** – Reservations are accepted for motorcycles

**Other** – If a customer is traveling with a trailer longer than 8 meters, a motorhome, or a commercial vehicle, they cannot make their reservation online and must contact a staff member. When making a reservation for a car, they must designate make and model.

**Cancellation Policy** – Reservations can be amended or cancelled, but not online. Customer must contact a Reservations Team member. Refunds will be given if a refundable ticket was purchased.

**Change Policy** – No fee for changes unless it re

**When to Arrive** – Required check-in times vary by route.

## Cape May-Lewes Ferry

### History

The Cape May-Lewes Ferry is operated by the Delaware River and Bay Authority (DRBA). Operations began in 1964.

### Ridership

Approximately 1.3 million passengers annually

### Revenue

Not available online

### Routes

The system operates one route between Delaware and New Jersey.

Crossing time is about 80 minutes

### Fleet

**5 vessels total**

Average vessel capacity is up to 100 vehicles and 1,000 passengers.

- Twin Capes
- Cape May
- Delaware
- New Jersey
- Cape Henlopen

### Reservation System

**Deposit/Fee** – Fares are charged at the time of booking.

**Portion Reserved** – Up to 100%

**Payment** – Pay by credit card online or by phone. Customers making reservations using ticket books must do so by phone.

**Motorcycles** – Reservations accepted for motorcycles

**Other** – Customers must declare vehicle length and number of passengers when making a reservation.

**Cancellation Policy** – A non-refundable $5 cancellation fee is charged.

**When to Arrive** – Customers are required to arrive 30 minutes in advance of their scheduled sailing.

## Scandlines

### History

Scandlines was originally operated by the Danish national rail company, DSB, starting in 1872. Scandlines was separated from DSB in 1995 and established as an independent company named DSB Rederi A/S. The Danish Ministry of Transport was the sole shareholder. In 1997, the name was changed to Scandlines Danmark A/S. The subsequent merger with former shipping partner DFO resulted in Scandlines formation in 1998. In 2007, the Danish Ministry of Transport sold its shares, and Scandlines is now owned for a consortium of investment funds and Deutsche Seerederei GmbH.

### Ridership

Over 17.3 million passengers annually

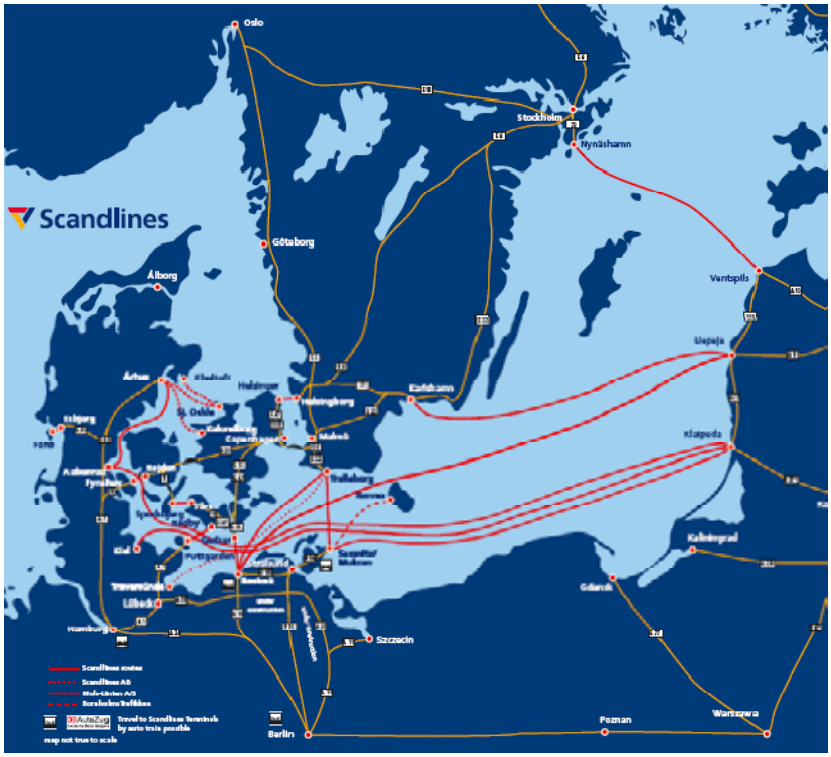
4 million cars

1 million commercial trucks

84,000 railcars

68,000 buses

Ridership is mostly passenger cars and freight (truck and rail), with some daily commuter traffic on shorter routes.




### Revenue

Approximately EUR 584 million

### Routes

Scandlines operates 14 ferry routes. Reservations have been available on longer routes for a long time, and are more recent (past 3 or 4 years) on shorter crossings.

### Fleet

17 vessels, ranging in length from 87 to 200 meters.

## Reservation System

**Why Reservations?** – Reservations are necessary on the long routes. Terminal space is not an issue, and customers don't tend to make reservations on shorter routes

**Deposit/Fee** – Fares are tied to reservations. The fare is paid when the reservation is made. There is no additional fee

**Portion Reserved** – Up to 100% on longer sailings, lower on shorter routes where reservations are more recent

**Motorcycles** – Reservations accepted for motorcycles

**When to Arrive** – Check in time varies by route, but is generally about 60 minutes. If customers are late they get put in a standby line with no financial penalty.

## Steamship Authority

### History

The Steamship Authority has been operating since 1818. It is a public company, created by the Massachusetts legislature, to provide transportation for the islands for Nantucket and Martha's Vineyard.

### Ridership

About 2.7 million passengers annually

450,000 vehicles

140,000 commercial trucks

Summer traffic is about 67% tourist and 33% local. Winter traffic is about 33% tourist and 67% local.

### Revenue

Not available online

### Routes

The system operates three routes:

**1) Woods Hole – Martha's Vineyard**

Vehicle reservations only

45 minute crossing

14 trips/day

**2) Hyannis – Nantucket**

Vehicle reservations only

2 hr, 15 minute crossing

6 trips/day (summer); 3 trips/day (winter)

**3) Hyannis – Nantucket High-Speed Passenger Only (April – December)**

Passenger reservations only

1 hour crossing

6 trips/day (summer); 3 trips/day (winter)

## Fleet

9 vessels, ranging in size from 255' to 154'

## Reservation System

**Why Reservations?** – It was originally planned to improve customer service, but has the added benefit of traffic management in limited terminal space

**Deposit/Fee** – A 100% deposit is required – effectively just prepayment of the fare.

**Portion Reserved** – Up to 100%

**Payment** – Cash, Check, and Credit Card are accepted for advance reservations. Payments can be made online, by phone, at ticket offices, and via US Mail

**Motorcycles** – Reservations are not accepted for motorcycles

**Other** – When making reservations, customers must provide year, make, and model of vehicle, as well as license plate number. Reservations are non-transferable

**Cancellation Policy** – Reservations can be cancelled by phone. There is a $10 fee for all cancelled reservations. A minimum of 14 days is required to receive a refund

**Change Policy** – Reservations can be changed by phone. The first change is free; subsequent changes are $10.

**When to Arrive** – Customers are required to arrive 30 minutes in advance of their scheduled sailing

**Wightlink**

## History

Originally publicly owned by the British Railways Board and called Sealink UK Limited, the ferry service was de-nationalized in 1984. Ownership changed hands among private owners a couple of times, and the system was acquired by the current owner, the Macquarie Group, in 2005. The Macquarie Group is one of the biggest domestic ferry operators in the UK.

## Ridership

Over 5 million passengers annually (1.8 – 2 million walk-ons)

1.2 million vehicles

200,000 freight vehicles

17,000 buses

40% of traffic is made up of island residents. There is some commuter traffic and people leaving for daily appointments.

## Revenue

Approximately £51 million annually (~$85 million)

## Routes

The system operates three routes:

1) **Lymington – Yarmouth**

   30 minute crossing

   36 trips/day; 500 trips/week

2) **Portsmouth – Fishbourne**

   40 minute crossing

   39 trips/day; 500 trips/week

3) **Portsmouth – Ryde Pier** (high speed, passenger only catamarans)

   18 minute crossing

   34 trips/day; 450 trips/week

## Fleet

**11 vessels total:**

St Clare (86m, 186 cars and 878 passengers)

St Faith, St Helen, St Cecilia, St Catherine, (77m, 142 cars, 771 passengers)

Wight Light, Wight Sky, Wight Sun (62m, 65 cars, 360 passengers)

FastCat Shanklin, FastCat Ryde (40m, 361 passengers)

## Reservation System

**Why Reservations?** – It allowed for better traffic management at the terminals and implementation of a new, fare optimization system.

**Deposit/Fee** – A deposit is required. Some low fares are non-refundable but more expensive ones can be refunded. Even residents (who pay lower fares) go cheaper with a reservation than without.

**Portion Reserved** – Up to 100%

**Payment** – Pay online or by phone using credit card (cash tickets can be purchased at the terminal for day of travel only, and a surcharge applies)

**Motorcycles** – Reservations accepted for motorcycles

**Other** – Customers must declare type of vehicle they will travel with at the time of reservation (vehicle dimensions, car racks, etc.), and failure to correctly declare vehicle type can lead to surcharges, or in some circumstances, refusal of boarding at the terminal

**Cancellation Policy** – Cancellations must be made 24 hours in advance of the sailing. Depending upon the fare paid and how far in advance the cancellation is made, cancellations result in a fee that ranges from £5 (~$8) to the full price of the ticket.

**Change Policy** – All tickets are allowed one free alteration (though additional fare may be required), some tickets require a fee of £5 (~$8) for additional changes.

**When to Arrive** – Customers are required to arrive 30 minutes (but not more than one hour) in advance of their scheduled sailing

# APPENDIX D
# SUMMARY OF RESPONSES TO WSF'S REQUEST FOR INFORMATION

## Introduction

As part of the predesign process, WSF solicited submissions for a Request for Information (RFI) from prospective reservation system vendors. Five vendors from around the world responded. This appendix includes a table summarizing the features available in their responses.

## Response Summary Table

Exhibit D-1 summarizes whether or not the systems of the five respondents meets the features that WSF identified as required and preferred during its analysis, and whether or not the feature is included as part of a "standard" system or would require a custom build.

**Exhibit D-1**
**RFI Response Summary Table**

| | Gateway | GarageCraft | Revenue+ | Carus | Hogia |
|---|---|---|---|---|---|
| **WSF Identified Needs** | | | | | |
| Customers have to be able to make/change/cancel reservations online | Make: Yes<br>Change: Yes<br>Cancel: No | Not addressed | Not addressed | Make: Yes<br>Change: Yes<br>Cancel: Yes | Make: Yes<br>Change: Yes<br>Cancel: Yes |
| Customers have to be able to make/change/cancel reservations by automatic telephone system | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| Easily navigable web interface | Yes (Standard) | Not addressed | Not addressed | Not addressed | Yes |
| Easily navigable call-in automated phone interface | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| Flexibility in ticket delivery methods (by email, by postal mail, confirmation numbers) | Yes (Standard) | Yes | Not addressed | Yes | Yes |
| Ticketing system integration | Yes (Standard) | Possibly - need more info | Not addressed | Minimal - prefer own ticketing system | Possibly - prefer own ticketing system |
| Must operate in real time – must immediately process reservations and update available space for other users and for WSF to see | Yes | Yes | Not addressed | Not addressed | Yes |

| | Gateway | GarageCraft | Revenue+ | Carus | Hogia |
|---|---|---|---|---|---|
| Must be able to release particular types of reserved space (commuter, commercial, tall) over time | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| Allow flexibility for WSF to make changes to pricing, schedules, sailings | Yes (Custom) | Not addressed | Not addressed | Not addressed | Not addressed |
| Must stop taking reservations at a specific time before the sailing | Yes (Standard) | Not addressed | Not addressed | Not addressed | Not addressed |
| Must have an automated process for moving reservations from one vessel or sailing to another when vessels are switched or sailings are canceled | Yes (Custom) | Not addressed | Not addressed | Not addressed | Yes (not fully automated, but almost) |
| A solid backup system and/or redundancy so the system can operate during malfunctions | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| The system should eliminate single points of failure | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| The system should have electronic, automatic, and real-time reservation manifests | Yes | Not addressed | Not addressed | Not addressed | Not addressed |
| It should have a management interface for robust reporting capabilities | Not addressed | Not addressed | Not addressed | Yes | Yes |
| It should interface with the existing point-of-sale software | Yes (Standard) | Possibly - need more info | Not addressed | Has own POS software | Not addressed |

| | Gateway | GarageCraft | Revenue+ | Carus | Hogia |
|---|---|---|---|---|---|
| It should be able to take less than 100% of the fare as a deposit | Not addressed | Yes | Not addressed | Yes | Yes |
| There should be easy mass refunds for canceled sailings | Not addressed | Not addressed | Not addressed | Not addressed | Not addressed |
| **Additional Features Offered** | | | | | |
| Mobile phone purchasing | Yes ($262,500) (web-based) | Not addressed | Not addressed | Not addressed | Not addressed |
| Multiride payment support | Yes (Custom) | Not addressed | Not addressed | Not addressed | Yes |
| ORCA payment support | Probably (Custom) | Not addressed | Not addressed | Not addressed | Not addressed |
| Automatically reject early arrivals | Yes | Not addressed | Not addressed | Not addressed | Not addressed |
| Agile Development | Yes | Not addressed | Not addressed | Not addressed | Not addressed |
| Real-time schedule and availability via mobile phone | Not addressed | Yes | Not addressed | Not addressed | Not addressed |
| Recommended routes based on availability and mobile GPS location | Not addressed | Yes | Not addressed | Not addressed | Not addressed |
| Text/voicemail/email/mail event notification | Not addressed | Yes | Not addressed | Not addressed | Yes |
| Customer Rewards/frequent traveler discounts | Not addressed | Yes | Not addressed | Yes | Not addressed |
| Remembering customer information for faster reservations | Not addressed | Yes | Yes | Yes | Yes |
| Different business rules for different tickets | Not addressed | Not addressed | Yes | Not addressed | Not addressed |

| | Gateway | GarageCraft | Revenue+ | Carus | Hogia |
|---|---|---|---|---|---|
| Provides source code to WSF | Not addressed | Not addressed | Yes | Not addressed | Not addressed |
| Multilangual interface | Not addressed | Not addressed | Not addressed | Yes | Yes (Custom) |
| Advisory text on tickets | Not addressed | Not addressed | Not addressed | Yes | Not addressed |
| Terminal lane management | Not addressed | Not addressed | Not addressed | Yes | Not addressed |

# APPENDIX E
# DETAILED INFORMATION ABOUT COST ESTIMATES

## Introduction

This appendix includes supporting information for the capital cost estimates included in this study. In lieu of the Predesign Capital Project Request Report Summary, C-3 Form, and C-100 Form, which are organized around facilities projects, WSF has included cost estimation detail that conforms with WSDOT standards for all of the proposed terminal improvements. Tables in the main report document that refer to capital costs have been developed using this supporting detail.

IT systems and terminal IT estimates are also included in this appendix. These costs are based on information received from an RFI process and modified to reflect recent WSF experience with large IT projects.

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | | Unit Price | Quantity | Contract Unit Cost Extension | Contract Miscellaneous Item Allowance in Design Subtotal ($) | Contract Mobilization Costs Subtotal ($) | Contract Sales Tax Costs Subtotal ($) | Contract Estimated Contract Total ($) | Construction Eng. CE - Construction Engineering Subtotal ($) | Contingency CN Change Order Contingency Subtotal ($) | CN Construction Phase (CN) Total ($) | PE Preliminary Engineering Phase Total ($) | ROW Right-Of-Way Phase Total ($) | Project Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | | (12) | |
| | | | | (1) X (2) | (3) X M.I.A. D. % | [(3) + (4)] X Mob.% | [(3) + (4) + (5)] X Sales Tax % | (3) + (4) + (5) + (6) | (7) X CE% | (7) X COC % | (7) + (8) + (9) | (7) X PE% | | (10) + (11) | |
| **Systemwide** | | | | Mark-ups | Varies | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | 40% | | | | | | | | | | |
| Highway VMS Signs (5 lanes wide) | | $500,000 | 6 | $3,000,000 | $1,200,000 | $420,000 | $438,900 | $5,058,900 | $860,013 | $202,356 | $6,121,269 | $758,835 | | $6,880,104 | |
| Sign Bridges | | $150,000 | 6 | $900,000 | $360,000 | $126,000 | $131,670 | $1,517,670 | $258,004 | $60,707 | $1,836,381 | $227,651 | | $2,064,031 | *Toll booth upgrades % of core reservation system* |
| | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | WSDOT transponder lane equip "Wave-to-GO" |
| | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *New directional signage at tollbooths* |
| | X | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Highway VMS @ SR 104 WB prior to SR 99* |
| | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Upgarde for network access& automated updates* |
| | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Proposed HAR | | $36,000 | 10 | $360,000 | $144,000 | $50,400 | $52,668 | $607,068 | $103,202 | $24,283 | $734,552 | $91,060 | | $825,612 | |
| Optional Additional HAR | | $36,000 | 3 | $108,000 | $43,200 | $15,120 | $15,800 | $182,120 | $30,960 | $7,285 | $220,366 | $27,318 | | $247,684 | |
| ***Base system needs*** | | | | $4,368,000 | $1,747,200 | $611,520 | $639,038 | $7,365,758 | $1,252,179 | $294,630 | $8,912,568 | $1,104,864 | | $10,017,431 | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Edmonds** | | | | Mark-ups | Varies | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | 35% | | | | | | | | | | |
| Vehicle sales booth | | $110,000 | 1 | $110,000 | $38,500 | $14,850 | $15,518 | $178,868 | $30,408 | $7,155 | $216,431 | $26,830 | | $243,261 | |
| Basic technology upgrades | | $127,000 | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Toll booth upgrades % of core reservation system* |
| Transponder lanes | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | WSDOT transponder lane equip "Wave-to-GO" |
| Reader boards -- terminal (booth designations) | | $11,545 | 3 | $34,635 | $12,122 | $4,676 | $4,886 | $56,319 | $9,574 | $2,253 | $68,146 | $8,448 | | $76,594 | *New directional signage at tollbooths* |
| Reader boards -- near terminal (traffic management] | X | $11,545 | 2 | $23,090 | $8,082 | $3,117 | $3,257 | $37,546 | $6,383 | $1,502 | $45,431 | $5,632 | | $51,063 | *Highway VMS @ SR 104 WB prior to SR 99* |
| Reader boards - software/network (Included in Misc Item Allowance) | | | 1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Upgarde for network access& automated updates* |
| upgrade | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | | $65,000 | 1 | $65,000 | $22,750 | $8,775 | $9,170 | $105,695 | $17,968 | $4,228 | $127,891 | $15,854 | | $143,745 | *Signs located prior to shoulder holding lane* |
| Cantilever Sign Bridge (for local VMS signs) | | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Signs located prior to shoulder holding lane* |
| Queue Detection | | $162,500 | 1 | $162,500 | $56,875 | $21,938 | $22,925 | $264,237 | $44,920 | $10,569 | $319,727 | $39,636 | | $359,363 | |
| CMS \ Electronic lane assignment signs | | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Placed on cantilever sign(res \ drive -ups)* |
| FAR | | $36,000 | 1 | $36,000 | $12,600 | $4,860 | $5,079 | $58,539 | $9,952 | $2,342 | $70,832 | $8,781 | | $79,613 | *local advisory radio* |
| HAR | | $36,000 | 1 | $36,000 | $12,600 | $4,860 | $5,079 | $58,539 | $9,952 | $2,342 | $70,832 | $8,781 | | $79,613 | |
| Second Access Lane | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | $40,250 | 1 | $40,250 | $14,088 | $5,434 | $5,678 | $65,450 | $11,126 | $2,618 | $79,194 | $9,817 | | $89,011 | |
| ***Base system needs*** | | | | $507,475 | $177,616 | $68,509 | $71,592 | $825,192 | $140,283 | $33,008 | $998,483 | $123,779 | | $1,122,262 | |
| Operations Support | | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | | |
| **Total Subproject (ITS Upgrades) Cost by Phase** | | | | | | | | | | | **$1,013,483** | **$133,779** | **$0** | **$1,147,262** | |

**Option 1: expand holding \ realign SR 104 west to provide additional holding lane**

**Option 1A - "Port Townsend Lane" Regrade** 30%

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Kingston** | | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | | |
| Vehicle sales booth | | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Toll booth upgrades* |
| Basic technology upgrades | | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | WSDOT transponder lane equip "Wave-to-GO" |
| Reader boards -- terminal (booth designations) | | $11,545 | 3 | $34,635 | $17,318 | $5,195 | $4,915 | $62,062 | $10,551 | $2,482 | $75,096 | $9,309 | | $84,405 | *New directional signage at tollbooths* |
| Reader boards -- near terminal (traffic management) | | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,276 | $41,375 | $7,034 | $1,655 | $50,064 | $6,206 | | $56,270 | *Larger information signs showing status of sailings* |
| Reader boards - software/network (Included in Misc Item Allowance) | | | 5 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Existing signs requiring network upgrade and ability* |
| upgrade | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,224 | $116,474 | $19,800 | $4,659 | $140,933 | $17,471 | | $158,404 | |
| Cantilever Sign Bridge (for local VMS signs) | | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | | $81,250 | 1 | $81,250 | $40,625 | $12,188 | $11,529 | $145,592 | $24,751 | $5,824 | $176,166 | $21,839 | | $198,005 | |
| CMS \ Electronic lane assignment signs | | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *local advisory radio* |
| HAR | | $36,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *assumes existing WSDOT HAR's can be usea* |
| Second Access Lane | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *e.g. Realignment of toll booths (See attached,* |
| ***Base system needs*** | | | | $239,975 | $119,988 | $35,996 | $34,052 | $430,011 | $73,102 | $17,200 | $520,314 | $64,502 | | $584,815 | |
| Operations Support | | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | | **$535,314** | **$74,502** | **$0** | **$609,815** | |
| **Seattle - Colman Dock** | | | | Mark-ups | 50% | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | | |
| Vehicle sales booth | | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | | $11,545 | 4 | $46,180 | $23,090 | $6,927 | $7,239 | $83,436 | $14,184 | $3,337 | $100,957 | $12,515 | | $113,473 | |
| Reader boards -- near terminal (traffic management) | | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Need to verify with WSDOT on existing systems* |
| Reader boards - software/network (Included in Misc Item Allowance) | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for local VMS signs) | | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | X | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | *local advisory radio* |
| HAR | | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | *Need to verify with WSDOT on existing systems* |
| Second Access Lane | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | | $30,000 | 2 | $60,000 | $30,000 | $9,000 | $9,405 | $108,405 | $18,429 | $4,336 | $131,170 | $16,261 | | $147,431 | |
| Other modifications | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | | $178,180 | $89,090 | $26,727 | $27,930 | $321,927 | $54,728 | $12,877 | $389,531 | $48,289 | | $437,820 | |
| Operations Support | | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | | **$404,531** | **$58,289** | **$0** | **$462,820** | |
| **Bainbridge Island** | | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | | |
| Vehicle sales booth | | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | | $11,545 | 4 | $46,180 | $23,090 | $6,927 | $6,553 | $82,750 | $14,067 | $3,310 | $100,127 | $12,412 | | $112,540 | |
| Reader boards -- near terminal (traffic management) | | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,276 | $41,375 | $7,034 | $1,655 | $50,064 | $6,206 | | $56,270 | Prior to Clearwater Casino |
| Reader boards - software/network (Included in Misc Item Allowance) | | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *SR 305 & SR 3* |
| upgrade | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,224 | $116,474 | $19,800 | $4,659 | $140,933 | $17,471 | | $158,404 | |
| Cantilever Sign Bridge (for local VMS signs) | | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | | $113,750 | 1 | $113,750 | $56,875 | $17,063 | $16,141 | $203,829 | $34,651 | $8,153 | $246,633 | $30,574 | | $277,207 | |
| CMS \ Electronic lane assignment signs | X | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *local advisory radio* |
| HAR | | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *Prior to Clearwater Casino* |
| Second Access Lane | | | 1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | | $320,020 | $160,010 | $48,003 | $45,411 | $573,444 | $97,485 | $22,938 | $693,867 | $86,017 | | $779,884 | |
| Operations Support | | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | | **$708,867** | **$96,017** | **$0** | **$804,884** | |

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bremerton** | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,276 | $41,375 | $7,034 | $1,655 | $50,064 | $6,206 | | $56,270 | |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,276 | $41,375 | $7,034 | $1,655 | $50,064 | $6,206 | | $56,270 | SR 16 NB prior to SW |
| Reader boards - software/network (Included in Misc Item Allowance) | | 1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *SR 3 southbound* |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,224 | $116,474 | $19,800 | $4,659 | $140,933 | $17,471 | | $158,404 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $32,500 | 1 | $32,500 | $16,250 | $4,875 | $4,612 | $58,237 | $9,900 | $2,329 | $70,466 | $8,736 | | $79,202 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Located on canopy* |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *SR 3 SB \ SR 16 NB prior to SW* |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $215,680 | $107,840 | $32,352 | $30,605 | $386,477 | $65,701 | $15,459 | $467,637 | $57,972 | | $525,609 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$482,637** | **$67,972** | **$0** | **$550,609** | |
| **Mukilteo** | | | Mark-ups | 50% | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 3 | $34,635 | $17,318 | $5,195 | $5,429 | $62,577 | $10,638 | $2,503 | $75,718 | $9,387 | | $85,104 | |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,619 | $41,718 | $7,092 | $1,669 | $50,479 | $6,258 | | $56,736 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Existing signs on SR 525 & 526* |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $10,189 | $117,439 | $19,965 | $4,698 | $142,101 | $17,616 | | $159,717 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $32,500 | 1 | $32,500 | $16,250 | $4,875 | $5,094 | $58,719 | $9,982 | $2,349 | $71,050 | $8,808 | | $79,858 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | |
| Second Access Lane | | 1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | Provides access to tollbooths for res and drive ups |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $227,225 | $113,613 | $34,084 | $35,618 | $410,539 | $69,792 | $16,422 | $496,752 | $61,581 | | $558,333 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$511,752** | **$71,581** | **$0** | **$583,333** | |

**Option 1: Relocate Terminal**

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

**Option 2: Minimum Build Alternative**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CLINTON** | | | Mark-ups | 50% | 10% | 8.40% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 4 | $46,180 | $23,090 | $6,927 | $6,401 | $82,598 | $14,042 | $3,304 | $99,943 | $12,390 | | $112,333 | SR 525 EB |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,200 | $41,299 | $7,021 | $1,652 | $49,972 | $6,195 | | $56,166 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,009 | $116,259 | $19,764 | $4,650 | $140,673 | $17,439 | | $158,112 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,009 | $116,259 | $19,764 | $4,650 | $140,673 | $17,439 | | $158,112 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,990 | $64,390 | $10,946 | $2,576 | $77,911 | $9,658 | | $87,570 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,990 | $64,390 | $10,946 | $2,576 | $77,911 | $9,658 | | $87,570 | |
| Second Access Lane | | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | Not Being Persued at this time per Leonard Smith |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $271,270 | $135,635 | $40,691 | $37,598 | $485,194 | $82,483 | $19,408 | $587,084 | $72,779 | | $659,863 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$602,084** | **$82,779** | **$0** | **$684,863** | |
| **Port Townsend** | | | Mark-ups | 50% | 10% | 8.40% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,200 | $41,299 | $7,021 | $1,652 | $49,972 | $6,195 | | $56,166 | |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,200 | $41,299 | $7,021 | $1,652 | $49,972 | $6,195 | | $56,166 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,009 | $116,259 | $19,764 | $4,650 | $140,673 | $17,439 | | $158,112 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $32,500 | 1 | $32,500 | $16,250 | $4,875 | $4,505 | $58,130 | $9,882 | $2,325 | $70,337 | $8,719 | | $79,056 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,990 | $64,390 | $10,946 | $2,576 | $77,911 | $9,658 | | $87,570 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,990 | $64,390 | $10,946 | $2,576 | $77,911 | $9,658 | | $87,570 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $215,680 | $107,840 | $32,352 | $29,893 | $385,765 | $65,580 | $15,431 | $466,776 | $57,865 | | $524,641 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$481,776** | **$67,865** | **$0** | **$549,641** | |

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Keystone** | | | Mark-ups | 50% | 10% | 8.40% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,200 | $41,299 | $7,021 | $1,652 | $49,972 | $6,195 | | $56,166 | |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,200 | $41,299 | $7,021 | $1,652 | $49,972 | $6,195 | | $56,166 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $9,009 | $116,259 | $19,764 | $4,650 | $140,673 | $17,439 | | $158,112 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $32,500 | 1 | $32,500 | $16,250 | $4,875 | $4,505 | $58,130 | $9,882 | $2,325 | $70,337 | $8,719 | | $79,056 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,990 | $64,390 | $10,946 | $2,576 | $77,911 | $9,658 | | $87,570 | *local advisory radio* |
| HAR | $36,000 | 2 | $72,000 | $36,000 | $10,800 | $9,979 | $128,779 | $21,892 | $5,151 | $155,823 | $19,317 | | $175,140 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $251,680 | $125,840 | $37,752 | $34,883 | $450,155 | $76,526 | $18,006 | $544,687 | $67,523 | | $612,211 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$559,687** | **$77,523** | **$0** | **$637,211** | |
| **Anacortes** | | | Mark-ups | 50% | 10% | 8.20% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 4 | $46,180 | $23,090 | $6,927 | $6,248 | $82,445 | $14,016 | $3,298 | $99,759 | $12,367 | | $112,125 | |
| Reader boards -- near terminal (traffic management) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,124 | $41,223 | $7,008 | $1,649 | $49,879 | $6,183 | | $56,063 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | 1 | $65,000 | $32,500 | $9,750 | $8,795 | $116,045 | $19,728 | $4,642 | $140,414 | $17,407 | | $157,821 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,871 | $64,271 | $10,926 | $2,571 | $77,768 | $9,641 | | $87,408 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,871 | $64,271 | $10,926 | $2,571 | $77,768 | $9,641 | | $87,408 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | $25,000 | 1 | $25,000 | $12,500 | $3,750 | $3,383 | $44,633 | $7,588 | $1,785 | $54,005 | $6,695 | | $60,700 | office space for supervisor |
| ***Base system needs*** | | | $231,270 | $115,635 | $34,691 | $31,291 | $412,886 | $70,191 | $16,515 | $499,592 | $61,933 | | $561,525 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$514,592** | **$71,933** | **$0** | **$586,525** | |
| **Friday Harbor** | | | Mark-ups | 35% | 10% | 7.80% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | 1 | $110,000 | $38,500 | $14,850 | $12,741 | $176,091 | $29,936 | $7,044 | $213,070 | $26,414 | | $239,484 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 3 | $34,635 | $12,122 | $4,676 | $4,012 | $55,445 | $9,426 | $2,218 | $67,088 | $8,317 | | $75,405 | 3\Lots A, B & C |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | Access into City |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for local & lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *3 locations Lots A,B,C* |
| FAR | $36,000 | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *3 locations Lots A,B,C* |
| HAR | $36,000 | 2 | $72,000 | $25,200 | $9,720 | $8,340 | $115,260 | $19,594 | $4,610 | $139,464 | $17,289 | | $156,753 | Access into City |
| Second Access Lane | $20,965 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 3 | $90,000 | $31,500 | $12,150 | $10,425 | $144,075 | $24,493 | $5,763 | $174,330 | $21,611 | | $195,942 | *3 locations Lots A,B,C \ 2 per site* |
| Other modifications | $30,500 | 1 | $30,500 | $10,675 | $4,118 | $3,533 | $48,825 | $8,300 | $1,953 | $59,079 | $7,324 | | $66,402 | *Electronic Gate access to terminal (enter with reserv* |
| ***Base system needs*** | | | $337,135 | $117,997 | $45,513 | $39,050 | $539,696 | $91,748 | $21,588 | $653,032 | $80,954 | | $733,986 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$668,032** | **$90,954** | **$0** | **$758,986** | |

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Orcas Island** | | | Mark-ups | 40% | 10% | 7.80% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for local & lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $14,400 | $5,040 | $4,324 | $59,764 | $10,160 | $2,391 | $72,315 | $8,965 | | $81,279 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $14,400 | $5,040 | $4,324 | $59,764 | $10,160 | $2,391 | $72,315 | $8,965 | | $81,279 | |
| Second Access Lane | $249,623 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 2 | $60,000 | $24,000 | $8,400 | $7,207 | $99,607 | $16,933 | $3,984 | $120,525 | $14,941 | | $135,466 | |
| Other modifications | $32,625 | 1 | $32,625 | $13,050 | $4,568 | $3,919 | $54,161 | $9,207 | $2,166 | $65,535 | $8,124 | | $73,660 | *Electronic Gate access to terminal (enter with reserv* |
| ***Base system needs*** | | | $164,625 | $65,850 | $23,048 | $19,775 | $273,297 | $46,461 | $10,932 | $330,690 | $40,995 | | $371,684 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$345,690** | **$50,995** | **$0** | **$396,684** | |
| **Lopez Island** | | | Mark-ups | 35% | 10% | 7.80% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | 1 | $110,000 | $38,500 | $14,850 | $12,741 | $176,091 | $29,936 | $7,044 | $213,070 | $26,414 | | $239,484 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 2 | $23,090 | $8,082 | $3,117 | $2,675 | $36,963 | $6,284 | $1,479 | $44,725 | $5,544 | | $50,270 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for local & lane assignment signs) | $65,000 | 1 | $65,000 | $22,750 | $8,775 | $7,529 | $104,054 | $17,689 | $4,162 | $125,905 | $15,608 | | $141,513 | |
| CMS \ Electronic lane assignment signs | $90,000 | 0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $12,600 | $4,860 | $4,170 | $57,630 | $9,797 | $2,305 | $69,732 | $8,644 | | $78,377 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $12,600 | $4,860 | $4,170 | $57,630 | $9,797 | $2,305 | $69,732 | $8,644 | | $78,377 | |
| Second Access Lane | $37,215 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 2 | $60,000 | $21,000 | $8,100 | $6,950 | $96,050 | $16,328 | $3,842 | $116,220 | $14,407 | | $130,628 | |
| Other modifications | $35,000 | 1 | $35,000 | $12,250 | $4,725 | $4,054 | $56,029 | $9,525 | $2,241 | $67,795 | $8,404 | | $76,200 | *Electronic Gate access to terminal (enter with reserv* |
| ***Base system needs*** | | | $365,090 | $127,782 | $49,287 | $42,288 | $584,447 | $99,356 | $23,378 | $707,181 | $87,667 | | $794,848 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$722,181** | **$97,667** | **$0** | **$819,848** | |
| **Shaw Island** | | | Mark-ups | 50% | 10% | 7.80% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for local & lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $4,633 | $64,033 | $10,886 | $2,561 | $77,480 | $9,605 | | $87,085 | *local advisory radio* |
| HAR | $36,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 2 | $60,000 | $30,000 | $9,000 | $7,722 | $106,722 | $18,143 | $4,269 | $129,134 | $16,008 | | $145,142 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Electronic Gate access to terminal (enter with reserv* |
| ***Base system needs*** | | | $96,000 | $48,000 | $14,400 | $12,355 | $170,755 | $29,028 | $6,830 | $206,614 | $25,613 | | $232,227 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$221,614** | **$35,613** | **$0** | **$257,227** | |
| **Option 1: Add tollbooth** | | | | | | | | | | | | | | |
| Tollbooth cost (capital only) | $110,000 | 1 | $110,000 | $55,000 | $16,500 | $14,157 | $195,657 | $33,262 | $7,826 | $236,745 | $29,349 | | $266,094 | *See detail attached* |
| ***Option 1, incremental cost*** | | | $110,000 | $55,000 | $16,500 | $14,157 | $195,657 | $33,262 | $7,826 | $236,745 | $29,349 | $0 | $266,094 | |
| Operations Support (Included in Base Cost Above) | | | | | | | | | | | | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$236,745** | **$29,349** | **$0** | **$266,094** | |

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Fauntleroy** | | | Mark-ups | 50% | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | Check with WSDOT on existing ITS components |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | Prior to tollbooths |
| ***Base system needs*** | | | $36,000 | $18,000 | $5,400 | $5,643 | $65,043 | $11,057 | $2,602 | $78,702 | $9,756 | | $88,458 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$93,702** | **$19,756** | **$0** | **$113,458** | |

**Option 1: Split Route (Fauntleroy -Vashon and Southworth Downtown)**

**Option 2: Expanded Holding at Fauntleroy (120% capacity)**

**Option 3: Reservations on Southworth direct boats only**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Vashon Island** | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *local advisory radio* |
| FAR | $36,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| HAR | $36,000 | 2 | $72,000 | $36,000 | $10,800 | $10,217 | $129,017 | $21,933 | $5,161 | $156,110 | $19,353 | | $175,463 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 2 | $60,000 | $30,000 | $9,000 | $8,514 | $107,514 | $18,277 | $4,301 | $130,092 | $16,127 | | $146,219 | |
| ***Base system needs*** | | | $132,000 | $66,000 | $19,800 | $18,731 | $236,531 | $40,210 | $9,461 | $286,202 | $35,480 | | $321,682 | |
| Operations Support | | | | | | | | | | | | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$286,202** | **$35,480** | **$0** | **$321,682** | |

**Option 1: Add tollbooth**

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Southworth** | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 2 | $23,090 | $11,545 | $3,464 | $3,276 | $41,375 | $7,034 | $1,655 | $50,064 | $6,206 | | $56,270 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $95,090 | $47,545 | $14,264 | $13,493 | $170,392 | $28,967 | $6,816 | $206,174 | $25,559 | | $231,733 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$221,174** | **$35,559** | **$0** | **$256,733** | |
| **Point Defiance** | | | Mark-ups | 50% | 10% | 9.30% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | 1 | $11,545 | $5,773 | $1,732 | $1,772 | $20,821 | $3,540 | $833 | $25,193 | $3,123 | | $28,316 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | 2 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Cantilever Sign Bridge (for local VMS signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Queue Detection (loops) | $5,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,524 | $64,924 | $11,037 | $2,597 | $78,558 | $9,739 | | $88,297 | *local advisory radio* |
| HAR | $36,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | 2 | $60,000 | $30,000 | $9,000 | $9,207 | $108,207 | $18,395 | $4,328 | $130,930 | $16,231 | | $147,162 | |
| ***Base system needs*** | | | $107,545 | $53,773 | $16,132 | $16,503 | $193,952 | $32,972 | $7,758 | $234,682 | $29,093 | | $263,775 | |
| Operations Support | | | | | | | | | | $15,000 | $10,000 | | | |
| Right Of Way Acquisition Costs | | | | | | | | | | | | | | |
| **Total Project Cost by Phase** | | | | | | | | | | **$249,682** | **$39,093** | **$0** | **$288,775** | |

**TERMINAL COST ESTIMATES**
**RESERVATION SYSTEM PREDESIGN**

| | Unit Price | Quantity | Unit Cost Extension | Miscellaneous Item Allowance in Design Subtotal ($) | Mobilization Costs Subtotal ($) | Sales Tax Costs Subtotal ($) | Estimated Contract Total ($) | CE - Construction Engineering Subtotal ($) | CN Change Order Contingency Subtotal ($) | Construction Phase (CN) Total ($) | Preliminary Engineering Phase Total ($) | Right-Of-Way Phase Total ($) | Total Cost | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tahlequah** | | | Mark-ups | 50% | 10% | 8.60% | | 17.00% | 4.00% | | 15.00% | | | |
| **Base system needs** | | | | | | | | | | | | | | |
| Vehicle sales booth | $110,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Basic technology upgrades | $127,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Transponder lanes | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- terminal (booth designations) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards -- near terminal (traffic management) | $11,545 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Reader boards - software/network (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| upgrade | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Larger information signs showing status of sailings* |
| Reservation Kiosk (Included in Misc Item Allowance) | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | *Proposed location/Communications/Agreements?* |
| Cantilever Sign Bridge (for local & lane assignment signs) | $65,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| CMS \ Electronic lane assignment signs | $90,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| FAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | *local advisory radio* |
| HAR | $36,000 | 1 | $36,000 | $18,000 | $5,400 | $5,108 | $64,508 | $10,966 | $2,580 | $78,055 | $9,676 | | $87,731 | |
| Second Access Lane | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Web Cameras | $30,000 | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| Other modifications | | | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | | $0 | |
| ***Base system needs*** | | | $72,000 | $36,000 | $10,800 | $10,217 | $129,017 | $21,933 | $5,161 | $156,110 | $19,353 | | $175,463 | |

## RESERVATIONS PREDESIGN REPORT

**Base System Components Lifecycle replacement Costs (Generic) and Estimated Life Cycles**

| No. | Base System Needs Component | Item | Quantity | Unit Price | Unit of Measure | Contract Unit Cost Extension | Contract Miscellaneous Item Allowance in Design Subtotal ($) | Contract Mobilization Costs Subtotal ($) | Contract Sales Tax Costs Subtotal ($) | Contract Estimated Contract Total ($) | Construction Eng. CE - Construction Engineering Subtotal ($) | Contingency CN Change Order Contingency Subtotal ($) | CN Construction Phase (CN) Total ($) | PE Preliminary Engineering Phase Total ($) | Total Replacement Cost | Source of Pricing | Lifecycle | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (1) | (2) | (2a) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (13) | | | |
| | | | | | | (1) X (2) | (3) X M.I.A. D. % | [(3) + (4)] X Mob.% | [(3) + (4) + (5)] X Sales Tax % | (3) + (4) + (5) + (6) | (7) X CE% | (7) X COC % | (7) + (8) + (9) | (7) X PE% | (10) + (11) + (12) | | | |
| | | | | | | Mark-ups | 35% | 10% | 9.50% | | 17.00% | 4.00% | | 15.00% | | Source of Pricing | | |
| 1 | Vehicle sales booth | | | | | | | | | | | | | | | | | |
| | | Tollbooth | | $110,000 | EA | | | | | | | | | | | WSDOT Unit Bid Analysis (Bremerton Tunnel Project) | | |
| | Vehicle sales booth | | 1 | $110,000 | EA | $110,000 | $38,500 | $14,850 | $15,518 | $178,868 | $30,408 | $7,155 | $216,431 | $26,830 | $243,261 | | 30 yrs | WSF-defined Design Life for new structures |
| 2 | Reader boards -- terminal | | | | | | | | | | | | | | | | | |
| | | Reader boards | | $11,545 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | Reader boards -- terminal | | 1 | $11,545 | LS | $11,545 | $4,041 | $1,559 | $1,629 | $18,773 | $3,191 | $751 | $22,715 | $2,816 | $25,531 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 3 | Reader boards -- near terminal | | | | | | | | | | | | | | | | | |
| | | Reader boards | | $11,545 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | Reader boards -- near terminal | | 1 | $11,545 | LS | $11,545 | $4,041 | $1,559 | $1,629 | $18,773 | $3,191 | $751 | $22,715 | $2,816 | $25,531 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 4 | Cantilever Sign Bridge | | | | | | | | | | | | | | | | | |
| | | CANTILEVER SIGN STRUCTURE | | $60,000 | LS | | | | | | | | | | | WSDOT Unit Bid Analysis | | |
| | | BRIDGE MOUNTED SIGN BRACKET | | $5,000 | LS | | | | | | | | | | | WSDOT Unit Bid Analysis | | |
| | Cantilever Sign Bridge | | 1 | $65,000 | LS | $65,000 | $22,750 | $8,775 | $9,170 | $105,695 | $17,968 | $4,228 | $127,891 | $15,854 | $143,745 | | 50 yrs | WSF Structures Estimate - actual Lifecycle will depend on materials used (i.e. steel, aluminum, etc.) |
| 5 | Variable Message Sign (VMS) \ Electronic lane assignment signs | | | | | | | | | | | | | | | | | |
| | | VMS Sign 2.5' X8.5' X 4.5 Walk-in | | $90,000 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | VMS \ Electronic lane assignment signs | | 1 | $90,000 | LS | $90,000 | $31,500 | $12,150 | $12,697 | $146,347 | $24,879 | $5,854 | $177,080 | $21,952 | $199,032 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 6 | Ferry Advisory Radio (FAR) | | | | | | | | | | | | | | | | | |
| | | Highway/Ferry Advisory Radio. | | $36,000 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | FAR | | 1 | $36,000 | LS | $36,000 | $12,600 | $4,860 | $5,079 | $58,539 | $9,952 | $2,342 | $70,832 | $8,781 | $79,613 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 7 | Highway Advisory Radio (HAR) | | | | | | | | | | | | | | | | | |
| | | Highway/Ferry Advisory Radio. | | $36,000 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | HAR | | 1 | $36,000 | LS | $36,000 | $12,600 | $4,860 | $5,079 | $58,539 | $9,952 | $2,342 | $70,832 | $8,781 | $79,613 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 8 | Web Cameras | | | | | | | | | | | | | | | | | |
| | | Camera System with grand mount cabinet. | | $30,000 | LS | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | Web Cameras | | 1 | $30,000 | LS | $30,000 | $10,500 | $4,050 | $4,232 | $48,782 | $8,293 | $1,951 | $59,027 | $7,317 | $66,344 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |
| 9 | Queue Detection / Traffic Loops (Generic Cost per 500 Ft of Queue Length) | | | | | | | | | | | | | | | | | |
| | | Transmission equipment at each end | 1 | $5,000 | Loop | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | | Conduit per foot | 500 | $20 | LF | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | | Fiber/TWP Communication cable per foot. | 500 | $3 | LF | | | | | | | | | | | Northwest Region ITS Group Cost Database/Vendor Quote | | |
| | Queue Detection | | 1 | $16,250 | | $16,250 | $5,688 | $2,194 | $2,292 | $26,424 | $4,492 | $1,057 | $31,973 | $3,964 | $35,936 | | 20 Yrs | Per Northwest Region ITS Design Group a lifecycle of 20 yrs is typically used for ITS System Components |

Transmission equipment at each end

FROM TERMINAL ENGINEERING (REVISED 12/14)

**Queue Dection Estimate**

(Planning Level)

| Terminal | Holding Capacity (# Vehicles) | Max Vessel Capacity | Average Vehicle Length | Queue Length (FT) | Loop Spacing | # Loops | Length of Conduit | Length of Fiber Optic Cable | Cost Loops | Cost Conduit | Cost Fiber Optic Cable | Total Base Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bremerton | 190 | 188 | 20 | 1000 | 500 | 2 | 1000 | 1000 | $5,000 | $20 | $2.50 | $32,500 |
| Bainbridge | 230 | 202 | 20 | 3500 | 500 | 7 | 3500 | 3500 | $5,000 | $20 | $2.50 | $113,750 |
| Kingston | 288 | 202 | 20 | 2500 | 500 | 5 | 2500 | 2500 | $5,000 | $20 | $2.50 | $81,250 |
| Port Townsend | 90 | 64 | 20 | 1000 | 500 | 2 | 1000 | 1000 | $5,000 | $20 | $2.50 | $32,500 |
| Keystone | 90 | 64 | 20 | 1000 | 500 | 2 | 1000 | 1000 | $5,000 | $20 | $2.50 | $32,500 |
| Mukilteo | 198 | 124 | 20 | 1000 | 500 | 2 | 1000 | 1000 | $5,000 | $20 | $2.50 | $32,500 |
| Clinton | 150 | 124 | 20 | 2000 | 500 | 4 | 2000 | 2000 | $5,000 | $20 | $2.50 | $65,000 |
| Edmonds | 155 | 202 | 20 | 5000 | 500 | 10 | 5000 | 5000 | $5,000 | $20 | $2.50 | $162,500 |

**Project Title (WIN):** Reservation ITS Equipment
**WIN:**
**Terminal:** Edmonds
**Level of Estimate:** Planning
**Estimate Datum Date:** November-09
**Revision Number:** 1
**Revision Date:** December-09

## SUMMARY (Basis for Capital Cost Summary Table) w/ Markups

| | | | |
|---|---|---|---|
| **(1) Construction** (includes mobilization[2,3]) | | **$** | **558,222.50** |
| **(2) Misc. Item Allowance** - Percentage Applied to No. (1) | 35.0% | $ | 195,377.88 |
| **(3)** Sum of (2) & (3) | **Subtotal** | **$** | **753,600.38** |
| **(4) Sales Tax** - Percentage Applied to No. (3) | 9.5% | $ | 71,592.04 |
| **(5) Estimated Construction Contract Total** - Sum of (3) & (4) | **Subtotal** | **$** | **825,192.41** |
| **(6) Construction Engineering** - Percentage Applied to No. (5) | 17.0% | $ | 140,282.71 |
| **(7) Construction (Change Order) Contingency** - Percentage Applied to No. (5) | 4.0% | $ | 33,007.70 |
| **(8) Other Construction (Below-the-line items)** | | | |
| **A Flagging (State Forces) Support** | | $ | 10,000.00 |
| **B Operations Support** | | $ | 5,000.00 |
| **C** | | | |
| **(9) Construction Phase (CN) Total** - Sum of (5), (6), (7), & (8) | | **$** | **1,013,483** |
| **(10) Design Engineering** - Percentage Applied to No. (5) | 15.0% | $ | 123,778.86 |
| **(11) Other Design** | | | |
| **D Operations Support** | | $ | 10,000.00 |
| **E** | | | |
| **F** | | | |
| **(12) Preliminary Engineering (PE) Phase Total** - Sum of (10) & (11) | | **$** | **133,779** |
| **(13) Pre-Design Study (part of Design Engineering above) - If Applicable[4]** | | $ | 10,000 |
| **(14) Right Of Way (ROW) Phase Total** | | | |
| **(15) Total Project Cost - Sum of CN, PE, ROW** | | **$** | **1,147,262** |

### Inflation of Funds (If Applicable)

| | | |
|---|---|---|
| Mid-Point of PE Phase | | |
| PE Escalation Factor | | |
| Mid-Point of CN Phase | | |
| CN Escalation Factor | | |
| Mid-Point of ROW Phase | | |
| ROW Escalation Factor | | |
| **Total Inflated** | $ | - |

**Miscellaneous Item Allowance Includes:**

35% Misc Item Allowance Includes: Reservation Kiosk, Software Support for electronic reader boards, Utility Relocations (Potential High Cost), Removal of Misc Traffic Items, and other work.

1. Per *Cost Estimating Manual for WSDOT Projects* M 3034.02 (July 2009)
2. Per *Plans Preparation Manual* M 22-31.01 (November 2008)
3. Per Chapter 12, *Bridge Design Manual* M 23-50.02 (May 2008)
4. See Predesign Study Tab for Projects over $5M; Use10% of PE for improvement projects under $5M.

## Project Estimate Information

| | | | |
|---|---|---|---|
| **Project Title:** | **Reservation ITS Equipment** | | |
| **WIN:** | | **Biennium:** | |
| **PIN:** | | **Work Order:** | |
| **Estimate Date:** | **11/12/2009** | **Contract:** | |
| **Terminal:** | **Edmonds** | | |
| **SR:** | **104** | | |

### Estimate Details

| | |
|---|---|
| **Level of Estimate:** | Planning |
| **Estimate Datum Date:** | Nov-09 |
| **Misc. Item Allowance (%)** | 35.00% |
| **Terminal Sales Tax Rate (%)** | 9.50% |
| **Design Engineering (PE%)** | 15.00% |
| **Construction Engineering (CE%)** | 17.00% |
| **Construction Contingency (%)** | 4.00% |
| **Mobilization (%)** | 10.00% |

### Description of Work:

This work will use install Intelligent Transportation System (ITS) equipment and supporting infrastructure.

**Notes:**

| | |
|---|---|
| **Designed by** | S. Levengood |
| **Estimated by** | S. Levengood |
| **Checked by** | |

| | |
|---|---|
| **Revision Number** | 1 |
| **Revision Date** | 12/15/09 |

**Bid Item Report**

**Project Title** **Reservation ITS Equipment**
**Terminal** **Edmonds**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| **Bid Item Number** | **Standard Item Number** | **Bid Item Name** | **Unit of Measure** | **Cost/Unit** | **Item Quantity Total** | **Item Cost Total** |
| | | **Preparation** | | | | |
| 1 | 0001 | Mobilzation | L.S. | $ 1.00 | 50747.50 | $ 50,747.50 |
| | | **Traffic** | | | | |
| 2 | 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | 1000 | $ 1,000.00 |
| 3 | 6898 | CANTILEVER SIGN STRUCTURE | EACH | $ 60,000.00 | 1 | $ 60,000.00 |
| 4 | 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $ 5,000.00 | 1 | $ 5,000.00 |
| 5 | | Camera System with grand mount cabinet. | L.S. | $ 30,000.00 | | $ - |
| 6 | | Highway/Ferry Advisory Radio. | EACH | $ 36,000.00 | 2 | $ 72,000.00 |
| 7 | | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $ 90,000.00 | | $ - |
| 8 | | Conduit per foot | L.F. | $ 20.00 | 700 | $ 14,000.00 |
| 9 | | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 700 | $ 1,750.00 |
| 10 | | Transmission equipment at each end | EACH | $ 5,000.00 | 2 | $ 10,000.00 |
| 11 | | Queue Detection | L.S. | $ 1.00 | 162500 | $ 162,500.00 |
| 12 | | Reader boards | EACH | $ 11,545.00 | 5 | $ 57,725.00 |
| 13 | | Traffic gate for shoulder holding lane | EACH | $ 7,000.00 | 1 | $ 7,000.00 |
| | | **Other Items** | | | | |
| 14 | 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 5000 | $ 5,000.00 |
| 15 | 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $ 500.00 |
| 16 | 7736 | SPCC PLAN | L.S. | $ 1.00 | 1000 | $ 1,000.00 |
| | | **Buildings** | | | | |
| 17 | | Tollbooth | EACH | $ 110,000.00 | 1 | $ 110,000.00 |
| | | | | $ - | | $ - |
| | | | | **Total Base Construction Cost =** | | **$ 558,222.50** |

## Component Estimate Summary

**Project Title:** Reservation ITS Equipment
**Terminal:** Edmonds
**WIN:**
**Level of Estimate:** Planning **Revision Number:** 1
**Estimate Datum Date:** November-09 **Revision Date:** ######

| | | Inventory/Component/Group Description | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ITS | | | | | | | | | | | |
| LCCM Inventory ID# | | | | | | | | | | | | | |
| Base Component Construction Cost | | $558,222.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Misc. Item Allowance | 35.0% | $195,377.88 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Subtotal | | $753,600.38 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Terminal Sales Tax Rate | 9.5% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% | 9.50% |
| Sales Tax Amount | | $71,592.04 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Subtotal | | $825,192.41 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Construction Engineering | 17.0% | $140,282.71 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Construction Contingency | 4.0% | $33,007.70 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Other Construction (Prorated) | | | | | | | | | | | | | |
| 1 Flagging (State Forces) Support | | 10,000.00 | - | - | - | - | - | - | - | - | - | - | - |
| 2 Operations Support | | 5,000.00 | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Component Construction Phase Cost** | | **1,013,482.82** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | | | | | | | | | | | | | |
| Design Engineering | 15.0% | $123,778.86 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Other Design (Prorated) | | | | | | | | | | | | | |
| 1 Operations Support | | 10,000.00 | - | - | - | - | - | - | - | - | - | - | - |
| 2 | | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| Pre-design Study (Part of Design Engineering - Prorated) | | 10,000.00 | - | - | - | - | - | - | - | - | - | - | - |
| **Total Design Phase Cost** | | **133,778.86** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | | | | | | | | | | | | | |
| **ROW Phase Cost (Prorated)** | | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** |
| | | | | | | | | | | | | | |
| **Total Component Cost** | | **$ 1,147,261.68** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** |

# WSF Terminal Engineering Capital Cost Summary
# Opinion of Probable Cost

Inventory/Asset/Component/Group Description

| SI # | Bid Item Name v \ Terminal ID # > | Unit of Measure | Cost/Unit | Item Quantity Subtotal | Item Cost Subtotal | ITS | | | | | | | | | | | | Source of Unit Pricing / Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | 1000 | $1,000.00 | 1000 | | | | | | | | | | | | Typical NWR UBA |
| 6898 | CANTILEVER SIGN STRUCTURE | EACH | $60,000.00 | 1 | $60,000.00 | 1 | | | | | | | | | | | | Typical NWR UBA |
| 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $5,000.00 | 1 | $5,000.00 | 1 | | | | | | | | | | | | Typical NWR UBA |
| | Camera System with grand mount cabinet. | L.S. | $30,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Highway/Ferry Advisory Radio. | EACH | $36,000.00 | 2 | $72,000.00 | 2 | | | | | | | | | | | | Per NWR ITS Cost Data |
| | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $90,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Conduit per foot | L.F. | $ 20.00 | 700 | $14,000.00 | 700 | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 700 | $1,750.00 | 700 | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Transmission equipment at each end | EACH | $5,000.00 | 2 | $10,000.00 | 2 | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Queue Detection | L.S. | $ 1.00 | 162500 | $162,500.00 | 162500 | | | | | | | | | | | | See Attached |
| | Reader boards | EACH | $11,545.00 | 5 | $57,725.00 | 5 | | | | | | | | | | | | Quote |
| | Traffic gate for shoulder holding lane | EACH | $7,000.00 | 1 | $7,000.00 | 1 | | | | | | | | | | | | 05W061 - Low Bidder |
| 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 5000 | $5,000.00 | 5000 | | | | | | | | | | | | Typical UBA |
| 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $500.00 | 500 | | | | | | | | | | | | Typical UBA |
| 7736 | SPCC PLAN | L.S. | $ 1.00 | 1000 | $1,000.00 | 1000 | | | | | | | | | | | | Typical UBA |
| | Tollbooth | EACH | $110,000.00 | 1 | $110,000.00 | 1 | | | | | | | | | | | | C007257 |
| 0001 | Mobilzation | L.S. | $ 1.00 | 50747.50 | $50,747.50 | $50,747.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |
| | **Construction Totals (This Sheet)** | **$** | **558,222.50** | | | $ 558,223 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |

**Estimate Datum Date:** November-09
**Level of Estimate:** Planning
**Designed by** S. Levengood
**Estimated by** S. Levengood
**Checked by**
**Revision #** 1
**Revision Date** 12/15/2009

| Region | Dept |
|---|---|
| WSF | TE |
| **WIN** | **PIN** |

Washington State Department of Transportation

**Edmonds Ferry Terminal Reservation ITS Equipment**

SHEET 1A OF SHEETS

| Terminal | Sales Tax | Control Section |
|---|---|---|
| **Anacortes** | **8.20%** | 298000 |
| **Bainbridge** | **8.60%** | 188300 |
| **Bremerton** | **8.60%** | 188000 |
| **Clinton** | **8.40%** | 158000 |
| **Eagle Harbor** | **8.60%** | 188400 |
| **Edmonds** | **9.50%** | 318000 |
| **Fauntleroy** | **9.50%** | 178000 |
| **Friday Harbor** | **7.80%** | 288000 |
| **Keystone** | **8.40%** | 158100 |
| **Kingston** | **8.60%** | 188100 |
| **Lopez** | **7.80%** | 288100 |
| **Mukilteo** | **9.50%** | 318100 |
| **Orcas** | **7.80%** | 288300 |
| **Point Defiance** | **9.30%** | 278000 |
| **Port Townsend** | **8.40%** | 168000 |
| **Seattle** | **9.50%** | 178100 |
| **Shaw** | **7.80%** | 288200 |
| **Southworth** | **8.60%** | 188200 |
| **Tahlequah** | **8.60%** | 178200 |
| **Vashon** | **8.60%** | 178300 |

Effective 4/1/09

## Major Project Predesign Study Funding Standard

(For Projects with total project cost over $5M)

| Major Project Predesign Study Standard | | | | |
|---|---|---|---|---|
| | Project Cost in Millions | | | |
| **Type of Project** | **$5-10M** | **$10-20M** | **$20-40M** | **Over $40M** |
| Complicated | 1.25% | 1.00% | 0.70% | 0.60% |
| Standard Design | 1.15% | 0.85% | 0.60% | 0.50% |
| Uncomplicated | 1.00% | 0.70% | 0.50% | 0.40% |

Note: Percent is based on total estimated project cost (i.e. all phases) and is more applicable for improvement projects. Preservation projects should require less funding.

Reference: Predesign Manual for Transportation Projects 2009-11, OFM Directive 08 B-03, Page 5

**Project Title (WIN):** Reservation System
**WIN:**
**Terminal:** Friday Harbor
**Level of Estimate:** Planning
**Estimate Datum Date:** November-09
**Revision Number:** 1
**Revision Date:** November-09

## SUMMARY (Basis for Capital Cost Summary Table) w/ Markups

| | | | |
|---|---|---|---|
| **(1) Construction** (includes mobilization[2,3]) | | **$** | **393,910.07** |
| **(2) Misc. Item Allowance** - Percentage Applied to No. (1) | 35.0% | $ | 137,868.52 |
| **(3)** Sum of (2) & (3) | **Subtotal** | **$** | **531,778.59** |
| **(4) Sales Tax** - Percentage Applied to No. (3) | 7.8% | $ | 41,478.73 |
| **(5) Estimated Construction Contract Total** - Sum of (3) & (4) | **Subtotal** | **$** | **573,257.32** |
| **(6) Construction Engineering** - Percentage Applied to No. (5) | 17.0% | $ | 97,453.74 |
| **(7) Construction (Change Order) Contingency** - Percentage Applied to No. (5) | 4.0% | $ | 22,930.29 |
| **(8) Other Construction (Below-the-line items)** | | | |
| **A Flagging (State Forces) Support** | | $ | 10,000.00 |
| **B Operations Support** | | $ | 5,000.00 |
| **C** | | | |
| **(9) Construction Phase (CN) Total** - Sum of (5), (6), (7), & (8) | | **$** | **708,637** |
| **(10) Design Engineering** - Percentage Applied to No. (5) | 15.0% | $ | 85,988.60 |
| **(11) Other Design** | | | |
| **D Operations Support** | | $ | 10,000.00 |
| **E** | | | |
| **F** | | | |
| **(12) Preliminary Engineering (PE) Phase Total** - Sum of (10) & (11) | | **$** | **95,985** |
| **(13) Pre-Design Study (part of Design Engineering above) - If Applicable[4]** | | $ | 10,000 |
| **(14) Right Of Way (ROW) Phase Total** | | | |
| **(15) Total Project Cost - Sum of CN, PE, ROW** | | **$** | **804,622** |

### Inflation of Funds (If Applicable)

| | | |
|---|---|---|
| Mid-Point of PE Phase | | |
| PE Escalation Factor | | |
| Mid-Point of CN Phase | | |
| CN Escalation Factor | | |
| Mid-Point of ROW Phase | | |
| ROW Escalation Factor | | |
| **Total Inflated** | $ | - |

**Miscellaneous Item Allowance Includes:**

50% Misc Item Allowance Includes: Reservation Kiosk, Software Support for electronic reader boards, Utility Relocations (Potential High Cost), Removal of existing storm drain structures, Removal of Existing Traffic Signal System, Removal/Relocations of Luminaires, Removal of Misc Traffic Items, Excavation and other work.

1. Per *Cost Estimating Manual for WSDOT Projects* M 3034.02 (July 2009)
2. Per *Plans Preparation Manual* M 22-31.01 (November 2008)
3. Per Chapter 12, *Bridge Design Manual* M 23-50.02 (May 2008)
4. See Predesign Study Tab for Projects over $5M; Use10% of PE for improvement projects under $5M.

**Bid Item Report**

**Project Title** **Reservation System**
**Terminal** **Friday Harbor**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| **Bid Item Number** | **Standard Item Number** | **Bid Item Name** | **Unit of Measure** | **Cost/Unit** | **Item Quantity Total** | **Item Cost Total** |
| | | **Preparation** | | | | |
| 1 | 0001 | Mobilzation | L.S. | $ 1.00 | 35810.01 | $ 35,810.01 |
| | | **Traffic** | | | | |
| 2 | 6807 | PLASTIC LINE | L.F. | $ 1.00 | 250 | $ 250.00 |
| 3 | 6833 | PLASTIC TRAFFIC ARROW | EACH | $ 107.53 | 2 | $ 215.06 |
| 4 | 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | 2000 | $ 2,000.00 |
| 6 | 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | 15000 | $ 15,000.00 |
| 7 | | Tollbooth | EACH | $ 110,000.00 | 1 | $ 110,000.00 |
| 8 | 6898 | CANTILEVER SIGN STRUCTURE | EACH | $ (2.00) | | $ - |
| 9 | 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $ 5,000.00 | | $ - |
| | | | | $ - | | $ - |
| 10 | | Camera System with grand mount cabinet. | L.S. | $ 30,000.00 | 3 | $ 90,000.00 |
| 11 | | Highway/Ferry Advisory Radio. | EACH | $ 36,000.00 | 2 | $ 72,000.00 |
| 12 | | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $ 90,000.00 | | $ - |
| 13 | | Conduit per foot | L.F. | $ 20.00 | 800 | $ 16,000.00 |
| 14 | | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 800 | $ 2,000.00 |
| 15 | | Transmission equipment at each end | EACH | $ 5,000.00 | 2 | $ 10,000.00 |
| 16 | | Basic technology upgrades | EACH | $ 156,018.50 | | $ - |
| 17 | | Reader boards | EACH | $ 11,545.00 | 3 | $ 34,635.00 |
| | | | | $ - | | $ - |
| | | **Other Work** | | | | |
| 18 | 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $ 2,000.00 |
| 19 | 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | 2000 | $ 2,000.00 |
| 20 | 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 1000 | $ 1,000.00 |
| 21 | 7736 | SPCC PLAN | L.S. | $ 1.00 | 1000 | $ 1,000.00 |
| | | | | $ - | | $ - |
| | | | | **Total Base Construction Cost =** | | **$ 393,910.07** |

## Component Estimate Summary

**Project Title:** Reservation System
**Terminal:** Friday Harbor
**WIN:**
**Level of Estimate:** Planning **Revision Number:** 1
**Estimate Datum Date:** November-09 **Revision Date:** November-09

| | | | Inventory/Component/Group Description | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Tollbooth Access Lane | ITS | | | | | | | | | | |
| LCCM Inventory ID# | | | | | | | | | | | | | | |
| Base Component Construction Cost | | | $144,061.57 | $249,848.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Misc. Item Allowance | | 35.0% | $50,421.55 | $87,446.98 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Subtotal | | | $194,483.11 | $337,295.48 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Terminal Sales Tax Rate | | 7.8% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% |
| Sales Tax Amount | | | $15,169.68 | $26,309.05 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Subtotal | | | $209,652.80 | $363,604.52 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Construction Engineering | -4 | 17.0% | $35,640.98 | $61,812.77 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Construction Contingency | | 4.0% | $8,386.11 | $14,544.18 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Other Construction (Prorated) | | | | | | | | | | | | | | |
| 1 Flagging (State Forces) Support | | | 3,657.22 | 6,342.78 | - | - | - | - | - | - | - | - | - | - |
| 2 Operations Support | | | 1,828.61 | 3,171.39 | - | - | - | - | - | - | - | - | - | - |
| 3 | | | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Component Construction Phase Cost** | | | **259,165.71** | **449,475.64** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| Design Engineering | | 15.0% | $31,447.92 | $54,540.68 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- |
| Other Design (Prorated) | -4 | | | | | | | | | | | | | |
| 1 Operations Support | | | 3,657.22 | 6,342.78 | - | - | - | - | - | - | - | - | - | - |
| 2 | | | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Pre-design Study (Part of Design Engineering - Prorated) | | | 3,657.22 | 6,342.78 | - | - | - | - | - | - | - | - | - | - |
| **Total Design Phase Cost** | | | **35,105.14** | **60,883.46** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **ROW Phase Cost (Prorated)** | | | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **-** | **$-** |
| **Total Component Cost** | | | **$294,270.85** | **$510,359.10** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **-** | **$-** |

# WSF Terminal Engineering Capital Cost Summary
# Opinion of Probable Cost

Inventory/Asset/Component/Group Description

| SI # | Bid Item Name v \ Terminal ID # > | Unit of Measure | Cost/Unit | Item Quantity Subtotal | Item Cost Subtotal | Tollbooth Access Lane | ITS | | | | | | | | | | | Source of Unit Pricing / Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6807 | PLASTIC LINE | L.F. | $ 1.00 | 250 | $250.00 | 250 | | | | | | | | | | | | Typical NWR UBA |
| 6833 | PLASTIC TRAFFIC ARROW | EACH | $107.53 | 2 | $215.06 | 2 | | | | | | | | | | | | Typical NWR UBA |
| 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | 2000 | $2,000.00 | 2000 | | | | | | | | | | | | Typical NWR UBA |
| 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | 15000 | $15,000.00 | 15,000.00 | | | | | | | | | | | | Typical UBA |
| | Tollbooth | EACH | $ 110,000.00 | 1 | $110,000.00 | 1 | | | | | | | | | | | | C007257 |
| 6898 | CANTILEVER SIGN STRUCTURE | EACH | $60,000.00 | | | | | | | | | | | | | | | |
| 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $5,000.00 | | | | | | | | | | | | | | | |
| | Camera System with grand mount cabinet. | L.S. | $30,000.00 | 3 | $90,000.00 | | 3 | | | | | | | | | | | Typical NWR UBA |
| | Highway/Ferry Advisory Radio. | EACH | $36,000.00 | 2 | $72,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $90,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Conduit per foot | L.F. | $ 20.00 | 800 | $16,000.00 | | 800 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 800 | $2,000.00 | | 800 | | | | | | | | | | | Typical NWR UBA - See NWR ITS Estimate |
| | Transmission equipment at each end | EACH | $5,000.00 | 2 | $10,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Basic technology upgrades | EACH | $ 127,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Reader boards | EACH | $11,545.00 | 3 | $34,635.00 | | 3 | | | | | | | | | | | Per NWR ITS Cost Data |
| 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $2,000.00 | | 2000 | | | | | | | | | | | Typical UBA |
| 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | 2000 | $2,000.00 | 2000 | | | | | | | | | | | | Typical UBA |
| 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 1000 | $1,000.00 | 500 | 500 | | | | | | | | | | | Typical UBA |
| 7736 | SPCC PLAN | L.S. | $ 1.00 | 1000 | $1,000.00 | 1000 | | | | | | | | | | | | Typical UBA |
| 0001 | Mobilzation | L.S. | $ 1.00 | 35810.01 | $35,810.01 | $13,096.51 | $22,713.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |
| | **Construction Totals (This Sheet)** | **$** | **393,910.07** | | | $ 144,062 | $ 249,849 | $ - | $ - | $ - | $ - | $ - | $ - | $- | $ - | $ - | $ - | |

**Estimate Datum Date:** November-09
**Level of Estimate:** Planning
**Designed by** K. Butros
**Estimated by** K. Butros
**Checked by** S. Levengood
**Revision #** 1
**Revision Date** 11/17/2009

| Region | Dept |
|---|---|
| WSF | TE |
| **WIN** | **PIN** |

Washington State Department of Transportation

**Friday Harbor Ferry Terminal Reservation System**

SHEET 1A OF SHEETS

**Project Title (WIN):** Reservation System
**WIN:**
**Terminal:** Orcas
**Level of Estimate:** Planning
**Estimate Datum Date:** November-09
**Revision Number:** 1
**Revision Date:** November-09

## SUMMARY (Basis for Capital Cost Summary Table) w/ Markups

| | | | |
|---|---|---|---|
| **(1) Construction** (includes mobilization[2,3]) | | **$** | **181,087.50** |
| **(2) Misc. Item Allowance** - Percentage Applied to No. (1) | 40.0% | $ | 72,435.00 |
| **(3)** Sum of (2) & (3) | **Subtotal** | **$** | **253,522.50** |
| **(4) Sales Tax** - Percentage Applied to No. (3) | 7.8% | $ | 19,774.76 |
| **(5) Estimated Construction Contract Total** - Sum of (3) & (4) | **Subtotal** | **$** | **273,297.26** |
| **(6) Construction Engineering** - Percentage Applied to No. (5) | 17.0% | $ | 46,460.53 |
| **(7) Construction (Change Order) Contingency** - Percentage Applied to No. (5) | 4.0% | $ | 10,931.89 |
| **(8) Other Construction (Below-the-line items)** | | | |
| **A Flagging (State Forces) Support** | | $ | 10,000.00 |
| **B Operations Support** | | $ | 5,000.00 |
| **C** | | | |
| **(9) Construction Phase (CN) Total** - Sum of (5), (6), (7), & (8) | | **$** | **345,686** |
| **(10) Design Engineering** - Percentage Applied to No. (5) | 15.0% | $ | 40,994.59 |
| **(11) Other Design** | | | |
| **D Operations Support** | | $ | 10,000.00 |
| **E** | | | |
| **F** | | | |
| **(12) Preliminary Engineering (PE) Phase Total** - Sum of (10) & (11) | | **$** | **50,991** |
| **(13) Pre-Design Study (part of Design Engineering above) - If Applicable[4]** | | $ | - |
| **(14) Right Of Way (ROW) Phase Total** | | | |
| **(15) Total Project Cost - Sum of CN, PE, ROW** | | **$** | **396,676** |

### Inflation of Funds (If Applicable)

| | |
|---|---|
| Mid-Point of PE Phase | |
| PE Escalation Factor | |
| Mid-Point of CN Phase | |
| CN Escalation Factor | |
| Mid-Point of ROW Phase | |
| ROW Escalation Factor | |
| **Total Inflated** | $ - |

**Miscellaneous Item Allowance Includes:**

50% Misc Item Allowance Includes: Reservation Kiosk, Software Support for electronic reader boards, Utility Relocations (Potential High Cost), Removal of existing storm drain structures, Removal of Existing Traffic Signal System, Removal/Relocations of Luminaires, Removal of Misc Traffic Items, Excavation, and other work.

1. Per *Cost Estimating Manual for WSDOT Projects* M 3034.02 (July 2009)
2. Per *Plans Preparation Manual* M 22-31.01 (November 2008)
3. Per Chapter 12, *Bridge Design Manual* M 23-50.02 (May 2008)
4. See Predesign Study Tab for Projects over $5M; Use10% of PE for improvement projects under $5M.

**Bid Item Report**

**Project Title** **Reservation System**
**Terminal** **Orcas**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| **Bid Item Number** | **Standard Item Number** | **Bid Item Name** | **Unit of Measure** | **Cost/Unit** | **Item Quantity Total** | **Item Cost Total** |
| | | **Preparation** | | | | |
| 1 | 0001 | Mobilzation | L.S. | $ 1.00 | 16462.50 | $ 16,462.50 |
| | | | | $ - | | $ - |
| | 0310 | ROADWAY EXCAVATION INCL. HAUL | C.Y. | $ 11.00 | | $ - |
| | 5100 | CRUSHED SURFACING BASE COURSE | TON | $ 20.00 | | $ - |
| | | | | $ - | | $ - |
| | 5767 | HMA CL. 1/2 IN. PG 64-22 | TON | $ 80.00 | | $ - |
| | 5830 | JOB MIX COMPLIANCE PRICE ADJUSTMENT | CALC | $ 1.00 | | $ - |
| | 5835 | COMPACTION PRICE ADJUSTMENT | CALC | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | 6403 | ESC LEAD | DAY | $ 500.00 | | $ - |
| | 6471 | INLET PROTECTION | EACH | $ 85.00 | | $ - |
| | 6490 | EROSION/WATER POLLUTION CONTROL | EST. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | 6807 | PLASTIC LINE | L.F. | $ 1.00 | | $ - |
| | 6833 | PLASTIC TRAFFIC ARROW | EACH | $ 107.53 | | $ - |
| | 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | | SOLDIER PILE TIEBACK WALL | S.F. | $ 200.00 | | $ - |
| | 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | 10000 | $ 10,000.00 |
| | | | | $ - | | $ - |
| | 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $ 5,000.00 | | $ - |
| | | Camera System with grand mount cabinet. | L.S. | $ 30,000.00 | 2 | $ 60,000.00 |
| | | Highway/Ferry Advisory Radio. | EACH | $ 36,000.00 | 2 | $ 72,000.00 |
| | | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $ 90,000.00 | | $ - |
| | 6898 | CANTILEVER SIGN STRUCTURE | EACH | $ 60,000.00 | | $ - |
| | | Conduit per foot | L.F. | $ 20.00 | 450 | $ 9,000.00 |
| | | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 450 | $ 1,125.00 |
| | | Transmission equipment at each end | EACH | $ 5,000.00 | 2 | $ 10,000.00 |
| | | Reader Boards | EACH | $ 11,545.00 | | $ - |
| | | Tollbooth | EACH | $ 110,000.00 | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $ 2,000.00 |
| | 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | | $ - |
| | 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $ 500.00 |
| | 7736 | SPCC PLAN | L.S. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |

**Bid Item Report**

**Project Title** **Reservation System**
**Terminal** **Orcas**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| Bid Item Number | Standard Item Number | Bid Item Name | Unit of Measure | Cost/Unit | Item Quantity Total | Item Cost Total |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ -

## Component Estimate Summary

**Project Title:** Reservation System
**Terminal:** Orcas
**WIN:**
**Level of Estimate:** Planning **Revision Number:** 1
**Estimate Datum Date:** November-09 **Revision Date:** November-09

| | | Inventory/Component/Group Description | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tollbooth Access Lane | ITS | | | | | | | | | | |
| LCCM Inventory ID# | | | | | | | | | | | | | |
| Base Component Construction Cost | | $ - | $ 181,087.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Misc. Item Allowance | 40.0% | $ - | $72,435.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Subtotal | | $ - | $ 253,522.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Terminal Sales Tax Rate | 7.8% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% |
| Sales Tax Amount | | $ - | $19,774.76 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Subtotal | | $ - | $ 273,297.26 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Construction Engineering | 17.0% | $ - | $46,460.53 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Construction Contingency | 4.0% | $ - | $10,931.89 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Other Construction (Prorated) | | | | | | | | | | | | | |
| 1 Flagging (State Forces) Support | | - | 10,000.00 | - | - | - | - | - | - | - | - | - | - |
| 2 Operations Support | | - | 5,000.00 | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Component Construction Phase Cost** | | **-** | **345,689.68** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| Design Engineering | 15.0% | $ - | $40,994.59 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $- | $- |
| Other Design (Prorated) | | | | | | | | | | | | | |
| 1 Operations Support | | - | 10,000.00 | - | - | - | - | - | - | - | - | - | - |
| 2 | | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| Pre-design Study (Part of Design Engineering - Prorated) | | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Design Phase Cost** | | **-** | **50,994.59** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **ROW Phase Cost (Prorated)** | | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$-** | **$-** |
| **Total Component Cost** | | **$ -** | **$ 396,684.27** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$-** | **$-** |

# WSF Terminal Engineering Capital Cost Summary
# Opinion of Probable Cost

Inventory/Asset/Component/Group Description

| SI # | Bid Item Name v \ Terminal ID # > | Unit of Measure | Cost/Unit | Item Quantity Subtotal | Item Cost Subtotal | Tollbooth Access Lane | ITS | | | | | | | | | | | Source of Unit Pricing / Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0310 | ROADWAY EXCAVATION INCL. HAUL | C.Y. | $ 11.00 | | | | | | | | | | | | | | | NWR UBA |
| 5100 | CRUSHED SURFACING BASE COURSE | TON | $ 20.00 | | | | | | | | | | | | | | | UBA |
| 5767 | HMA CL. 1/2 IN. PG 64-22 | TON | $ 80.00 | | | | | | | | | | | | | | | UBA |
| 5830 | JOB MIX COMPLIANCE PRICE ADJUSTMENT | CALC | $ 1.00 | | | | | | | | | | | | | | | 3% HMA Cost (Per Plans Prep Manual) |
| 5835 | COMPACTION PRICE ADJUSTMENT | CALC | $ 1.00 | | | | | | | | | | | | | | | 2% HMA Cost (Per Plans Prep Manual) |
| 6403 | ESC LEAD | DAY | $ 500.00 | | | | | | | | | | | | | | | UBA |
| 6471 | INLET PROTECTION | EACH | $ 85.00 | | | | | | | | | | | | | | | UBA |
| 6490 | EROSION/WATER POLLUTION CONTROL | EST. | $ 1.00 | | | | | | | | | | | | | | | UBA |
| 6807 | PLASTIC LINE | L.F. | $ 1.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| 6833 | PLASTIC TRAFFIC ARROW | EACH | $107.53 | | | | | | | | | | | | | | | Typical NWR UBA |
| 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| | SOLDIER PILE TIEBACK WALL | S.F. | $ 200.00 | | | | | | | | | | | | | | | Bridge Design Manual (High end cost used for small quantity) |
| 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | 10000 | $10,000.00 | | 10000 | | | | | | | | | | | Typical UBA |
| 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $5,000.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| | Camera System with grand mount cabinet. | L.S. | $30,000.00 | 2 | $60,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Highway/Ferry Advisory Radio. | EACH | $36,000.00 | 2 | $72,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $90,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| 6898 | CANTILEVER SIGN STRUCTURE | EACH | $60,000.00 | | | | | | | | | | | | | | | Typical NWR UBA - See NWR ITS Estimate |
| | Conduit per foot | L.F. | $ 20.00 | 450 | $9,000.00 | | 450 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 450 | $1,125.00 | | 450 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Transmission equipment at each end | EACH | $5,000.00 | 2 | $10,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Reader Boards | EACH | $11,545.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| | Tollbooth | EACH | $ 110,000.00 | | | | | | | | | | | | | | | C007257 |
| 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $2,000.00 | | 2000 | | | | | | | | | | | Typical UBA |
| 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical UBA |
| 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $500.00 | | 500 | | | | | | | | | | | Typical UBA |
| 7736 | SPCC PLAN | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical UBA |
| 0001 | Mobilzation | L.S. | $ 1.00 | 16462.50 | $16,462.50 | $ - | $16,462.50 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |
| | **Construction Totals (This Sheet)** | **$** | | **181,087.50** | | $ - | $ 181,088 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |

| | |
|---|---|
| **Estimate Datum Date:** | November-09 |
| **Level of Estimate:** | Planning |
| **Designed by** | K. Butros |
| **Estimated by** | K. Butros |
| **Checked by** | S. Levengood |
| **Revision #** | 1 |
| **Revision Date** | 11/17/2009 |

| Region | Dept |
|---|---|
| WSF | TE |
| **WIN** | **PIN** |

Washington State Department of Transportation

**Orcas Ferry Terminal Reservation System**

SHEET 1A OF SHEETS

**Project Title (WIN):** Reservation Systen
**WIN:**
**Terminal:** Lopez
**Level of Estimate:** Planning
**Estimate Datum Date:** November-09
**Revision Number:** 1
**Revision Date:** November-09

## SUMMARY (Basis for Capital Cost Summary Table) w/ Markups

| | | | |
|---|---|---|---|
| **(1) Construction** (includes mobilization[2,3]) | | **$** | **401,599.00** |
| **(2) Misc. Item Allowance** - Percentage Applied to No. (1) | 35.0% | $ | 140,559.65 |
| **(3)** Sum of (2) & (3) | **Subtotal** | **$** | **542,158.65** |
| **(4) Sales Tax** - Percentage Applied to No. (3) | 7.8% | $ | 42,288.37 |
| **(5) Estimated Construction Contract Total** - Sum of (3) & (4) | **Subtotal** | **$** | **584,447.02** |
| **(6) Construction Engineering** - Percentage Applied to No. (5) | 17.0% | $ | 99,355.99 |
| **(7) Construction (Change Order) Contingency** - Percentage Applied to No. (5) | 4.0% | $ | 23,377.88 |
| **(8) Other Construction (Below-the-line items)** | | | |
| **A Flagging (State Forces) Support** | | $ | 10,000.00 |
| **B Operations Support** | | $ | 5,000.00 |
| **C** | | | |
| **(9) Construction Phase (CN) Total** - Sum of (5), (6), (7), & (8) | | **$** | **722,177** |
| **(10) Design Engineering** - Percentage Applied to No. (5) | 15.0% | $ | 87,667.05 |
| **(11) Other Design** | | | |
| **D Operations Support** | | $ | 10,000.00 |
| **E** | | | |
| **F** | | | |
| **(12) Preliminary Engineering (PE) Phase Total** - Sum of (10) & (11) | | **$** | **97,663** |
| **(13) Pre-Design Study (part of Design Engineering above) - If Applicable[4]** | | $ | 10,000 |
| **(14) Right Of Way (ROW) Phase Total** | | | |
| **(15) Total Project Cost - Sum of CN, PE, ROW** | | **$** | **819,840** |

### Inflation of Funds (If Applicable)

| | |
|---|---|
| Mid-Point of PE Phase | |
| PE Escalation Factor | |
| Mid-Point of CN Phase | |
| CN Escalation Factor | |
| Mid-Point of ROW Phase | |
| ROW Escalation Factor | |
| **Total Inflated** | $ - |

**Miscellaneous Item Allowance Includes:**

50% Misc Item Allowance Includes: Reservation Kiosk, Software Support for electronic reader boards, Utility Relocations (Potential High Cost), Removal of existing storm drain structures, Removal of Existing Traffic Signal System, Removal/Relocations of Luminaires, Removal of Misc Traffic Items, Excavation, and other work.

1. Per *Cost Estimating Manual for WSDOT Projects* M 3034.02 (July 2009)
2. Per *Plans Preparation Manual* M 22-31.01 (November 2008)
3. Per Chapter 12, *Bridge Design Manual* M 23-50.02 (May 2008)
4. See Predesign Study Tab for Projects over $5M; Use10% of PE for improvement projects under $5M.

**Bid Item Report**

**Project Title** **Reservation Systen**
**Terminal** **Lopez**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| **Bid Item Number** | **Standard Item Number** | **Bid Item Name** | **Unit of Measure** | **Cost/Unit** | **Item Quantity Total** | **Item Cost Total** |
| | | **Preparation** | | | | |
| 1 | 0001 | Mobilzation | L.S. | $ 1.00 | 36509.00 | $ 36,509.00 |
| | | | | $ - | | $ - |
| | 6807 | PLASTIC LINE | L.F. | $ 1.00 | | $ - |
| | 6833 | PLASTIC TRAFFIC ARROW | EACH | $ 107.53 | | $ - |
| | 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | | Tollbooth | EACH | $ 110,000.00 | 1 | $ 110,000.00 |
| | 4415 | TRAFFIC BARRIER | L.F. | $ 185.00 | | $ - |
| | | Traffic gate for shoulder holding lane | EACH | $ 7,000.00 | | $ - |
| | | | | $ - | | $ - |
| | 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $ 5,000.00 | 1 | $ 5,000.00 |
| | | Camera System with grand mount cabinet. | L.S. | $ 30,000.00 | 2 | $ 60,000.00 |
| | | Highway/Ferry Advisory Radio. | EACH | $ 36,000.00 | 2 | $ 72,000.00 |
| | | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $ 90,000.00 | | $ - |
| | 6898 | CANTILEVER SIGN STRUCTURE | EACH | $ 60,000.00 | 1 | $ 60,000.00 |
| | | Conduit per foot | L.F. | $ 20.00 | 1000 | $ 20,000.00 |
| | | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 1000 | $ 2,500.00 |
| | | Transmission equipment at each end | EACH | $ 5,000.00 | 2 | $ 10,000.00 |
| | | Reader Boards | EACH | $ 11,545.00 | 2 | $ 23,090.00 |
| | 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $ 2,000.00 |
| | 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | | $ - |
| | 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $ 500.00 |
| | 7736 | SPCC PLAN | L.S. | $ 1.00 | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |

**Bid Item Report**

**Project Title** **Reservation Systen**
**Terminal** **Lopez**
**WIN**
**Level of Estimate:** **Planning**

| Project Totals | | | | | | |
|---|---|---|---|---|---|---|
| Bid Item Number | Standard Item Number | Bid Item Name | Unit of Measure | Cost/Unit | Item Quantity Total | Item Cost Total |
| | | | | $ - | | $ - |
| | | | | $ - | | $ - |
| | | | | $ - | | $ -

## Component Estimate Summary

**Project Title:** Reservation Systen
**Terminal:** Lopez
**WIN:**
**Level of Estimate:** Planning **Revision Number:** 1
**Estimate Datum Date:** November-09 **Revision Date:** November-09

| | | Inventory/Component/Group Description | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tollbooth Access Lane | ITS | | | | | | | | | | |
| LCCM Inventory ID# | | | | | | | | | | | | | |
| Base Component Construction Cost | | $121,000.00 | $280,599.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Misc. Item Allowance | 35.0% | $42,350.00 | $98,209.65 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Subtotal | | $163,350.00 | $378,808.65 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Terminal Sales Tax Rate | 7.8% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% | 7.80% |
| Sales Tax Amount | | $12,741.30 | $29,547.07 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Subtotal | | $176,091.30 | $408,355.72 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Construction Engineering | 17.0% | $29,935.52 | $69,420.47 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Construction Contingency | 4.0% | $7,043.65 | $16,334.23 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Other Construction (Prorated) | | | | | | | | | | | | | |
| 1 Flagging (State Forces) Support | | 3,012.96 | 6,987.04 | - | - | - | - | - | - | - | - | - | - |
| 2 Operations Support | | 1,506.48 | 3,493.52 | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total Component Construction Phase Cost** | | **217,589.91** | **504,590.99** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| Design Engineering | 15.0% | $26,413.70 | $61,253.36 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Other Design (Prorated) | | | | | | | | | | | | | |
| 1 Operations Support | | 3,012.96 | 6,987.04 | - | - | - | - | - | - | - | - | - | - |
| 2 | | - | - | - | - | - | - | - | - | - | - | - | - |
| 3 | | - | - | - | - | - | - | - | - | - | - | - | - |
| Pre-design Study (Part of Design Engineering - Prorated) | | 3,012.96 | 6,987.04 | - | - | - | - | - | - | - | - | - | - |
| **Total Design Phase Cost** | | **29,426.65** | **68,240.40** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| **ROW Phase Cost (Prorated)** | | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** |
| **Total Component Cost** | | **$247,016.56** | **$572,831.40** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** | **$ -** |

# WSF Terminal Engineering Capital Cost Summary
# Opinion of Probable Cost

Inventory/Asset/Component/Group Description

| SI # | Bid Item Name v \ Terminal ID # > | Unit of Measure | Cost/Unit | Item Quantity Subtotal | Item Cost Subtotal | Tollbooth Access Lane | ITS | | | | | | | | | | | Source of Unit Pricing / Justification |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6807 | PLASTIC LINE | L.F. | $ 1.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| 6833 | PLASTIC TRAFFIC ARROW | EACH | $107.53 | | | | | | | | | | | | | | | Typical NWR UBA |
| 6890 | PERMANENT SIGNING | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| 6971 | PROJECT TEMPORARY TRAFFIC CONTROL | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical UBA |
| | Tollbooth | EACH | $ 110,000.00 | 1 | $110,000.00 | 1 | | | | | | | | | | | | C007257 |
| 4415 | TRAFFIC BARRIER | L.F. | $ 185.00 | | | | | | | | | | | | | | | Typical NWR UBA |
| | Traffic gate for shoulder holding lane | EACH | $7,000.00 | | | | | | | | | | | | | | | 05W061 - Low Bidder |
| 6899 | BRIDGE MOUNTED SIGN BRACKET | EACH | $5,000.00 | 1 | $5,000.00 | | 1 | | | | | | | | | | | Typical NWR UBA |
| | Camera System with grand mount cabinet. | L.S. | $30,000.00 | 2 | $60,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Highway/Ferry Advisory Radio. | EACH | $36,000.00 | 2 | $72,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | VMS Sign 25' X8.5' X 4.5 Walk-in | EACH | $90,000.00 | | | | | | | | | | | | | | | Per NWR ITS Cost Data |
| 6898 | CANTILEVER SIGN STRUCTURE | EACH | $60,000.00 | 1 | $60,000.00 | | 1 | | | | | | | | | | | Typical NWR UBA - See NWR ITS Estimate |
| | Conduit per foot | L.F. | $ 20.00 | 1000 | $20,000.00 | | 1000 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Fiber/TWP Communication cable per foot. | L.F. | $ 2.50 | 1000 | $2,500.00 | | 1000 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Transmission equipment at each end | EACH | $5,000.00 | 2 | $10,000.00 | | 2 | | | | | | | | | | | Per NWR ITS Cost Data |
| | Reader Boards | EACH | $11,545.00 | 2 | $23,090.00 | | 2 | | | | | | | | | | | |
| 7037 | STRUCTURE SURVEYING | L.S. | $ 1.00 | 2000 | $2,000.00 | | 2000 | | | | | | | | | | | Typical UBA |
| 7038 | ROADWAY SURVEYING | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical UBA |
| 7480 | ROADSIDE CLEANUP | EST. | $ 1.00 | 500 | $500.00 | | 500 | | | | | | | | | | | Typical UBA |
| 7736 | SPCC PLAN | L.S. | $ 1.00 | | | | | | | | | | | | | | | Typical UBA |
| 0001 | Mobilzation | L.S. | $ 1.00 | 36509.00 | $36,509.00 | $11,000.00 | $25,509.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |
| | **Construction Totals (This Sheet)** | **$** | **401,599.00** | | | $ 121,000 | $ 280,599 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | |

| | | | |
|---|---|---|---|
| **Estimate Datum Date:** | November-09 | **Region** | **Dept** |
| **Level of Estimate:** | Planning | WSF | TE |
| **Designed by** | K. Butros | | |
| **Estimated by** | K. Butros | | |
| **Checked by** | S. Levengood | **WIN** | **PIN** |
| **Revision #** | 1 | | |
| **Revision Date** | 11/17/2009 | | |

Washington State Department of Transportation

**Lopez Ferry Terminal Reservation Systen**

**SHEET** 1A **OF** **SHEETS**

## IT COST ESTIMATES FOR RESERVATION SYSTEM PREDESIGN

| | NEW BUDGET | | | | |
|---|---|---|---|---|---|
| **Project Staff** | 09-11 | 11-13 | out years | Total | |
| Project Management | 210,000 | 280,000 | | 490,000 | 1 FTE |
| Agreements (RFP, RFI, Contract) | 26,000 | 15,000 | | 41,000 | .25 FTE |
| Business Liaison (Terminals & operations staff, .5FTE) [1] | 105,000 | 140,000 | | 245,000 | .5 FTE |
| **"Industry-standard" system (Alternative 1)** | | | | | |
| Central System acquisition hardware & software | 520,000 | | | 520,000 | |
| Customization | 500,000 | | | 500,000 | |
| Pilot terminals hw & sw ("TRS") | 192,000 | | | 192,000 | |
| WSDOT staff programming | 200,000 | 200,000 | | 400,000 | 1 FTE |
| **Pilot system (proposed "Core") (Alternative 4)** | | | | | |
| Central System acquisition hardware & software | | 540,000 | | 540,000 | |
| Customization | | 800,000 | | 800,000 | |
| Pilot terminals hw & sw ("TRS") (Alt 2 = 72K + 20K addition) | 92,000 | 292,000 | | 384,000 | |
| WSDOT staff programming | | 400,000 | | 400,000 | 2 FTE |
| **Full system with all options** | | | | | |
| Central System upgrade hardware & software (Alt 5) | | | 470,000 | 470,000 | |
| Customization | | | 500,000 | 500,000 | |
| Remaining terminals hw & sw ("TRS") | | | 252,000 | 252,000 | |
| **On-going application staff support** | | | | | |
| Reservation software support | 50,000 | 200,000 | 200,000 | 450,000 | 1 FTE |
| Infrastructure support | 75,000 | 150,000 | 150,000 | 375,000 | 1 FTE |
| Software/hardware license/support | 109,200 | 123,900 | 109,200 | 342,300 | |
| Central system development contingency | 300,000 | 1,000,000 | | 1,300,000 | |
| Total | 2,379,200 | 4,140,900 | 1,681,200 | 8,201,300 | |

[1] This is IT staff who "translates" business issues from the terminals and ops staff into programmer-ese.

Additive

| | alt 1* | alt 2 | alt 3 | alt 4** | alt 5 |
|---|---|---|---|---|---|
| main system | 1,561,000 | | | 2,375,000 | 970,000 |
| terminal stuff | 192,000 | 92,000 | | 292,000 | 252,000 |
| IT support people*** | 350,000 | | | | |
| software support | 109,200 | 8,400 | | 115,500 | 109,200 |
| contingency | 300,000 | | | 1,000,000 | |
| Total | 2,512,200 | 100,400 | 0 | 3,782,500 | 1,331,200 |
| Cumulative | 2,512,200 | 2,612,600 | 2,612,600 | 6,395,100 | 7,726,300 |

* lower if not expanding to Alt 4 or 5 (half?)

** large due to unknown complications & demands of the commuter system

*** per biennium; first & second biennia charged to capital; operating thereafter

| | | ALT 1 | ALT 2 | ALT 3 | ALT 4 | ALT 5 | | |
|---|---|---|---|---|---|---|---|---|
| # Terminals | | 4 | 1 | 0 | 5 | 5 | 15 | |
| # Tollbooths | | 10 | 6 | 0 | 19 | 14 | 49 | |
| Terminal Reservation Server (TRS) unit: | | | | | | | | |
| Terminal hardware+periph | $ 10,000 | $ 40,000 | $ 10,000 | $ - | $ 50,000 | $ 50,000 | $ 150,000 | |
| Terminal SW license | $ 10,000 | $ 40,000 | $ 10,000 | $ - | $ 50,000 | $ 50,000 | $ 150,000 | |
| Per-tollboth package | $ 8,000 | $ 112,000 | $ 56,000 | $ - | $ 192,000 | $ 152,000 | $ 512,000 | |
| Terminal package | | $ 192,000 | $ 76,000 | $ - | $ 292,000 | $ 252,000 | $ 812,000 | |
| | | | | | | | | |
| Central Reservation Server (CRS): | | | | | | | | |
| Hardware+periph | | $ 40,000 | | | 40,000 | | $ 80,000 | |
| SW license | | $ 480,000 | | | 500,000 | $ 470,000 | $ 1,450,000 | $ 522,000 |

System components

# APPENDIX F
# CROSSWALK TO ISB REQUIREMENTS

## Introduction

This appendix is intended to show how this predesign report satisfies the requirements of an ISB Feasibility Study to gain approval for the vehicle reservation system project from the Washington State Department of Information Services. It includes a table outlining where each of the ISB required components are located in this report.

**Exhibit F-1**
**Crosswalk to Required Predesign Elements from ISB's Feasibility Study Components**

| Components Required by ISB | Location in this Report or Explanation of Omission |
|---|---|
| ***Executive Summary*** | Executive Summary |
| ***Background and Needs Assessment*** | Section 2.0 |
| ***Objectives*** | Section 4.1 |
| ***Impacts*** | Section 7.3, Section 9.1, Section 9.2 |
| ***Organizational Effects*** | Section 6.3, Section 7.1, Section 7.2 |
| ***Proposed Solution*** | Section 6.1, Section 6.5 |
| ***Major Alternatives Considered*** | Section 6.1, Section 6.2 |
| ***Conformity with Agency IT Protfolio*** | Section 3.2; this area will be more fully explored with ISB During the assembly of a Request for Proposal |
| ***Project Management and Organziation*** | Section 7.1, Section 7.4 |
| ***Estimated Timeframe and Workplan*** | Section 7.2, Section 8.1; a detailed workplan will be developed once the alternative is slected for implementation |
| ***Cost Benefit Analysis*** | Section 6.4 |
| ***Risk Management*** | Section 8.2 |

# APPENDIX G
# WSDOT STANDARD PROJECT MANAGEMENT PROCESS

## Introduction

The Washington State Department of Transportation (WSDOT) has adopted as a standard practice a process to manage projects and provide a method to meet the WSDOT Management Principles.

This appendix includes the following three documents:

- A summary of official WSDOT Management Principles
- A rubrick outlining the official WSDOT Project Management Process
- The Secretary of Transportation's Executive Order 1032.01 regarding Project Management, dated July 1, 2008

## Washington State Department of Transportation Management Principles

Source: http://www.wsdot.wa.gov/accountability/mgmtprinciples.htm

**Safety**

Concern for the health and safety of the people who use and work on our transportation facilities will be a paramount value in every area of our business.

**Project Delivery**

We will improve our effectiveness by delivering projects and programs of the highest quality and in a timely and fiscally responsible manner. We will manage the resources taxpayers and the Legislature entrust to us for the highest possible return of value.

**Accountability and Management**

We will be accountable to the public for all of our challenges and achievements by providing clear and concise information to the people of Washington, elected officials, and our many other transportation partners. To preserve and enhance our resources, we will manage the WSDOT organization efficiently through the use of performance information and strategic investments.

**Communication**

We will continue to break down communication barriers by delivering comprehensible, credible, and timely information, and by listening and attending to the concerns of the public, the Governor, Legislature and our employees. We will strive to make these commu¬nication standards an agency-wide practice. We will stress the importance of sharing clear, concise and timely information with WSDOT employees, elected officials, community leaders, businesses, citizens and taxpayers, others in the transportation community, and the press and other media.

**Innovation, Best Business Practices, Efficiency, and Effectiveness**

We will drive innovation within WSDOT by applying progressive technology and business management practices to the delivery of cost effective and efficient transportation programs. Accordingly, we will remain at the forefront as a national and international leader in transportation technology and practices. We will preserve and enhance the resources taxpayers and the Legislature have entrusted to us by being disciplined in our use of time and money.

**Strategic Long-Term Investment Programs**

We will provide strategic vision and leadership for Washington's transportation needs. We will balance the quest for short-term cost savings and business process improvements with the long-term need to preserve and improve the state's transportation systems. We will accomplish this through sound fiscal planning, asset management, and the development of strategic investment programs.

**OneDOT and Partnerships**

We will manage WSDOT as a unified organization with a strong work ethic and a focus on coalition building. We will build and maintain strong partnerships with other govern¬ments, tribes, and citizens to align priorities and resources.

**Environmental Responsibility**

Our work will incorporate environmental protection and improvements into the day-to-day operations of the department as well as the ongoing development of the state's transporta¬tion plans and facilities.

**Excellence and Integrity**

Our employees will work in a culture of workplace excellence and diversity that encourages creativity and personal responsibility, values teamwork, and always respects the contribu¬tions of one another and of those with whom we do business. We will adhere to the highest standards of courtesy, integrity, and ethical conduct. We will encourage and recognize our employees' professionalism and their career growth. We will strive for the effectiveness of all our employees in meeting WSDOT's communications standards.

# WSDOT Project Management Process

| The 5-step Process | Initiate and Align the Team | Plan the Work | Endorse The Plan | Work the Plan | Transition and Closure |
|---|---|---|---|---|---|
| Who is responsible? | *Project Manager | *Project Manager | *Project Manager | *Project Manager | *Project Manager |
| Who is involved? | **Project Team | **Project Team | **Project Team | **Project Team | **Project Team |
| What is it? | This step defines the what, identifies who is on the team and how and what are they going to contribute to completing the assignment | A work plan that specifically identifies who will do the work and mutually agreed upon time frames and budgets to get the work done. | An agreement of what is to be completed and by whom | Actively managing the work plan | A completed project or phase |
| What are the steps? | • Project Description<br>• Team Mission / Assignment<br>• *Team member identification and roles and responsibilities<br>• Measures of success<br>• Major Milestones<br>• Boundaries<br>• Operating Guidelines | • Task Planning using MDL<br>• Schedule<br>• Budget<br>• Risk Management Plan<br>• Communication Plan<br>• Change Management Plan<br>• QA/QC Plan<br>• Transition/Closure Plan | • Project Team Commitment<br>• Management Endorsement | • Manage the scope, schedule and budget<br>• Manage risks and opportunities<br>• Managing change<br>• Communicate progress, issues and lessons learned | • Implement transition plan<br>• Review Lessons Learned<br>• Reward and Eecognize<br>• Archive |
| What it looks like to team members? | Attends and participates in a general project kick-off and review. | Participates in development of schedule at the task and deliverable level, develops budget for deliverables they are responsible for, participates in a risk assessment. Participates in development of communication and change management plans | Reviews schedule and estimate for consistency with earlier input and says “can do”<br><br>A project management plan approved by the team and ARA or equivalent. | Regularly contacted by project manager or representative to review adherence to the project plan. Initiates contact with project manager upon discovery of potential change. Actively monitors key milestone dates for dependant activities that initiates his or her work. | Participates in lessons learned and development of phase transition plan |
| What is the outcome or work product? | An understanding of what is to be produced by whom and how they will work together. A document describes who is to be included on the team and what their responsibility is. A list of the milestones and critical success factors this team will accomplish. | A refined scope of work, a baseline schedule, a current estimate, a risk register that identifies and quantifies risk, a document on what information will be communicated to whom and when, and a document on what the team will do when change occurs. | A commitment by the individual team members and management agreeing to the: who, what, when and for how much. | Actively managed scope, schedule and budget, monthly status meetings to communicate progress and any changes to scope, schedule or budget, quarterly reports, and change management plans. Clear understanding of project status. Documents that communicate scope schedule and budget status. | A completed project phase, a transition (archive and hand off) document, a list of lessons learned. |

* The Assigned Project manager is responsible for assuring total team participation **(Including Specialty Groups).**

**A project team consists of the project manager, team members from their project office, team members from specialty groups such as Real-Estate Services, Environmental, Hydraulics, Traffic, Operations, Geotech, Bridge, Utilities, and any others that are needed to deliver the project.

Washington State Department of Transportation

# Secretary's Executive Order

**Number E 1032.01**

*/s/ Paula J. Hammond*
Secretary of Transportation

Date: July 1, 2008

# Project Management

## I. Introduction

The Washington State Department of Transportation (WSDOT) has refined its project management process for delivering Capital Transportation Projects. This process includes "best practices", tools, templates and examples and will enhance the communication process for both pre-construction and construction project management. The process, tools and templates can be found at: *http://www.wsdot.wa.gov/Projects/ProjectMgmt*

This process is supplemented by Secretary's Executive Order 1042.00 which implements the Project Management and Reporting System (PMRS) to assist with managing and reporting the status of Capital Transportation Project delivery.

## II. Supersession

This Secretary's Executive Order supersedes and replaces *Project Management* Executive Order 1032.00 dated July 1, 2005.

## III. Purpose

### WSDOT Management Principle: *Delivery and Accountability*

> *We shall manage the resources taxpayers and the legislature entrust to us for the highest possible return of value. We shall be disciplined in our use of both time and money. We shall account for our achievements, our shortcomings, and our challenges to citizens, to elected officials, and to other public agencies.*
> *http://www.wsdot.wa.gov/accountability/mgmtprinciples.htm*

## IV. Secretary's Executive Order

This Secretary's Executive Order directs WSDOT employees to deliver Capital Transportation Projects consistent with the principles and practices of the department's project management process. The project management process is defined at *http://www.wsdot.wa.gov/Projects/ProjectMgmt/.* Use of PMRS provides managers with tools to assist with making effective and efficient business decisions based on management of project scope, schedule, and cost.

## V. Information to Carry Out this Executive Order

Please refer to the project delivery information, tools and templates published on the *Project Management Online Guide*: *http://www.wsdot.wa.gov/Projects/ProjectMgmt/.*

Direction and resources to manage and report on project delivery are available in the Secretary's Executive Order *Project Management and Reporting System (PMRS)* E 1042.00.

The following clarifies the requirements for executives, project managers, project team members, and others in the department who participate in project management:

### A. Executives and Senior Managers

The following responsibilities must be measured as part of an executive and/or senior manager's performance expectations:

1. Ensure that the project managers they appoint possess the project management knowledge, skills and abilities required to deliver Capital Transportation Projects. In doing so this will be measured as a part of the project manager's performance evaluation.

2. Know the status of all of the projects assigned to them.

3. Plan for and provide appropriate resources to implement project management.

4. Review and endorse project management plans for each project.

## B. Project Managers

The following responsibilities must be measured as part of a project manager's performance expectations:

1. Plan for and provide appropriate resources to implement the project management process.

2. Lead the project management process consistent with the principles and practices defined on the Web site and the *Project Management Online Guide*. http://www.wsdot.wa.gov/Projects/ProjectMgmt/

3. Use the Project Management and Reporting System (PMRS) to manage and report business decisions related to project scope, schedule, risk, and cost.

4. Develop, document, use, and maintain a project management plan for each project assigned.

    a. Perform the roles and responsibilities as defined in the project-specific project management plan.

    b. Develop and execute internal agreements with all parties contributing to project scope, risk analysis, schedule and cost; including the design team and specialty groups.

    c. Use PMRS to manage and report on scope, risk analysis, schedule and budget as defined in the *Project Control and Reporting Manual*: M 3026.01 and the following:

        1) As they occur, all proposed project changes that break the approval threshold must be submitted through the project control process using the appropriate Project Change Request Form (PCRF).

        2) Schedule progress and key milestones must be kept up-to-date and reported compared to the planned baseline schedule.

        3) All project status reports must include at a minimum the status of the total project budget, costs, and forecasted cost-to-complete.

## C. Project Team Members

The following responsibilities must be measured as part of a project team member's performance expectations:

1. Follow the project management process consistent with the principles and practices defined on the Web site and *Project Management Online Guide*. http://www.wsdot.wa.gov/Projects/ProjectMgmt/

2. Perform the roles and responsibilities as defined in the project-specific project management plan.

3. Endorse the work plan.

## D. Specialty Groups (Region and Headquarters)

The project manager works with a variety of specialty groups at region and Olympia headquarters. Some examples include Environmental, Bridge and Structures, Materials, and the Geotechnical Services.

The following responsibilities must be measured as part of a specialty group manager's performance expectations:

1. Follow the project management process consistent with the principles and practices defined on the Web site and *Project Management Online Guide*. http://www.wsdot.wa.gov/Projects/ProjectMgmt/

2. Develop and execute an internal agreement to provide scope, schedule, risk analysis, and cost to the Project Manager.

3. Provide the project manager with a scope, schedule and estimate for the tasks assigned as identified in the PMRS procedures and processes.

4. Endorse the project management plan.

5. Perform the roles and responsibilities as defined in the project-specific project management plan.

6. Use Project Management and Reporting System (PMRS) to manage and report business decisions related to project scope, schedule, and budget.

### E. Headquarters Design, Project Control and Reporting, and Construction

Review the Project Management Plan as part of the normal process reviews for preconstruction and construction documents.

## VI. WSDOT Assistant Secretary of Engineering and Regional Operations

The Assistant Secretary of Engineering and Regional Operations is responsible for periodic review and updates to this document. All executives are responsible for informing the Assistant Secretary of Engineering and Regional Operations of changes needed for the maintenance of this document.

### Americans with Disabilities Act (ADA) Information

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