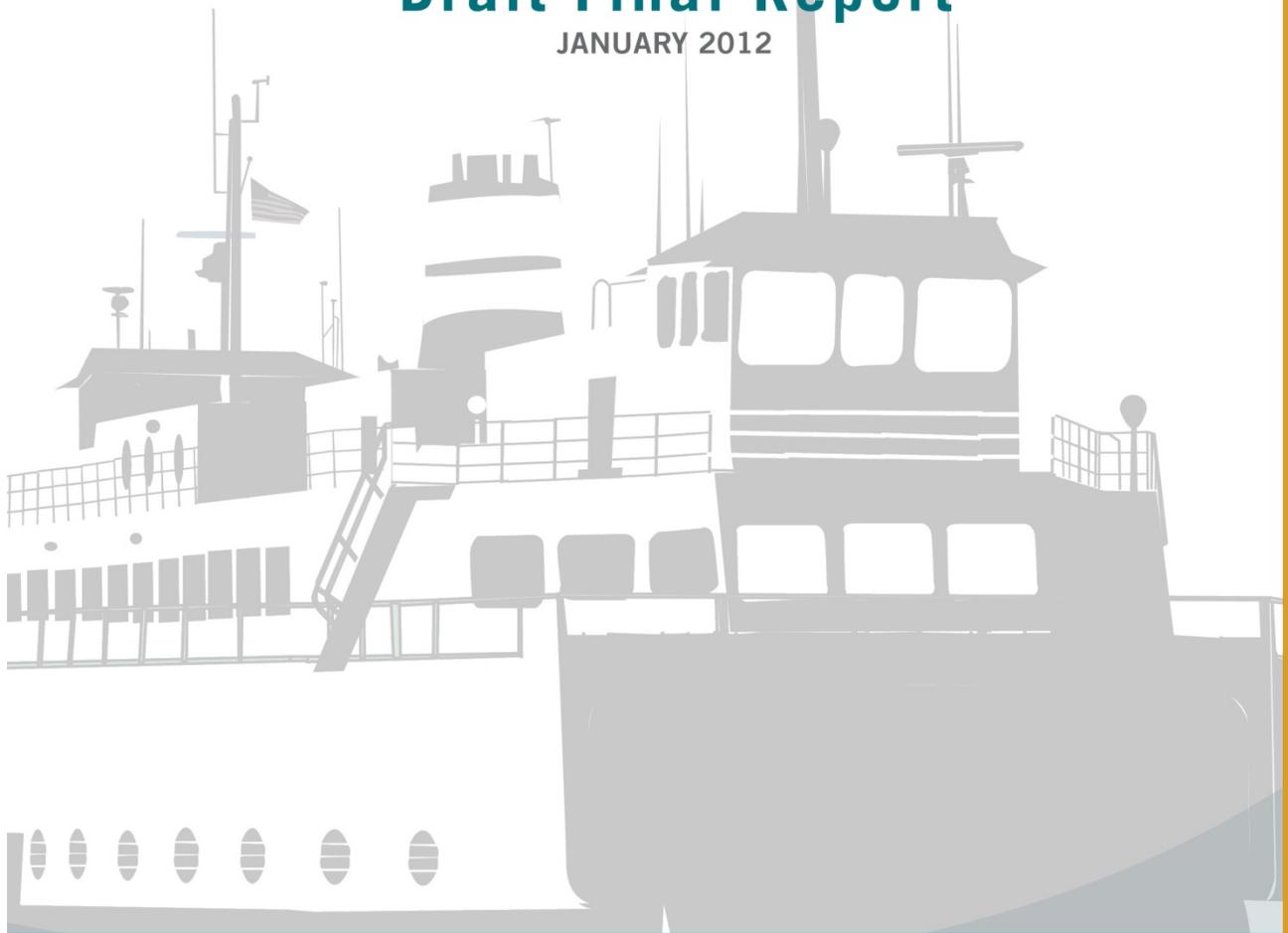


WASHINGTON STATE LEGISLATURE  
JOINT TRANSPORTATION COMMITTEE

WASHINGTON STATE FERRIES  
**Fare Media Study**  
**Draft Final Report**  
JANUARY 2012



Fare Media ■ Fare Structure ■ Interoperability



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## EXECUTIVE SUMMARY

The 2011 legislature directed the Joint Transportation Committee (JTC) to conduct a study of the Washington State Ferry (WSF) fares that recommends the most appropriate fare media for use with the reservation system and the implementation of demand management pricing and interoperability with other payment methods.

Washington State Ferries is unique – serving as both a tolled marine highway and as one of the state’s largest transit providers – and its’ fare system is complex.

WSF provides service on 10 routes in four distinct travel sheds. These travel sheds are unique in the customers they serve, meaning that in general travelers are not likely to choose a route outside their travel shed as an alternative to their normal travel.

A central focus of this study is WSF’s approximately 300,000 customers. Fare media, interoperability, fare structure, and the introduction of new programs such as reservations and demand management pricing are intertwined and affect the customer experience, customer satisfaction, and ultimately, WSF’s ridership. The Washington State Transportation Commission (WSTC) conducted a customer survey to inform this study. The study was overseen by a Policy Work Group which included legislators, Washington State Transportation Commissioners, representatives from the Governor’s Office and WSF, and a public representative.

## CUSTOMERS AND RIDERSHIP

The distinction between customers and ridership is critical when analyzing the fare system.

*Customers* are the individuals who take at least one trip on WSF, while *ridership* measures the total number of trips taken by those customers. Customers make buying decisions for themselves and their households that may result in a single ride and/or in 500+ rides a year.

Like most transit agencies, WSF tracks ridership - i.e. the total number of trips taken on the system, not the number of customers who take them. The consultants’ analysis indicates that the number of WSF *customers* increased by 10 to 22 percent from 2000 to 2008 while ridership declined 10 to 22 percent.

An expanding pool of customers ride the system less frequently, which is reflected in a reduced percentage of riders using frequent rider discounted fare products (i.e. multi-ride cards and monthly passes). Routes with heavy frequent use and commuter traffic have experienced the greatest drop in ridership.

Customer households generally have more than one person riding the ferry system. The WSTC survey found that 86 percent of all households have two or more people riding the ferries. The survey also found those households have members who ride frequently and some who ride infrequently.

WSF customers are highly segmented by the travel shed/route they use, the purpose of their trip, how they access the ferry, and whether they ride frequently or infrequently.

## FARE MEDIA AND INTEROPERABILITY

WSF uses three forms of fare media: *Wave2Go*, ORCA, and WSF commercial accounts. Commercial accounts are for freight and other commercial customers and are separate from *Wave2Go*.

The Washington State Department of Transportation (WSDOT) has a tolling system, *Good To Go!* which is not deployed at WSF terminals.

### ***Wave2Go***

*Wave2Go* includes point of sale devices at each seller booth, kiosks and internet services for direct purchase of WSF fares, and links to the ferry system's accounting systems. The system provides single ride, multi-ride cards, monthly passes, and revalue cards for full fare passengers. System limitations and issues include the complex fare determination process, and software and supplier support complications.

The WSTC survey found that WSF customer households use multiple WSF fare products, with 87 percent using between two and five fare products annually.

### **One Regional Card for All (ORCA)**

ORCA is the regional smart-card product used by seven Puget Sound region transit agencies including WSF. WSF accepts ORCA for full fares, monthly passes, and for employer purchases of monthly passes. ORCA is not accepted for multi-ride cards, although the ORCA system has the ability to store multi-ride products on regional smart cards.

The WSTC survey found that a significant percentage of WSF customers who most frequently travel on routes that are served by ORCA transit partners have an ORCA card and that for these customers having the ability to add a WSF multi-ride card to their ORCA regional smart card is important.

### ***Good To Go!***

*Good To Go!*, WSDOT's electronic toll program, enables tolls to be collected as vehicles pass through a facility at freeway speeds through the use of a transponder or license plate photo.

There are two options to implement *Good To Go!* at WSF vehicle tollbooths:

- **Accept *Good To Go!* as a form of payment.** *Good To Go!* transponders would be used to pay tolls calculated at the toll booth. No fare structure changes would be required.
- ***Good To Go!* as the only means of payment at vehicle tollbooths.** Under this arrangement, *Good To Go!* transponders and license plate photo equipment would be used exclusively to pay fares. This would require significant changes to the fare structure to mirror highway tolls with only vehicles and not passengers charged.

Initial estimates from *Good To Go!* staff are that given highway system tolling commitments, a peripheral system could not be implemented until the 2013-14 time period. The more complicated application where *Good To Go!* is the only means of payment at vehicle tollbooths cannot be implemented until the 2017-18 time period.

The WSTC survey found that approximately one-third of customers that most frequently travel in travel sheds that are near a *Good To Go!* tolled facility have a *Good To Go!* transponder and the majority of

those rate it as somewhat or very important to be able to use it on WSF. An additional one-third of customers are planning to get a *Good To Go!* transponder in the future.

## FARE STRUCTURE

### Legislative Policy Direction

In 2007 the Legislature enacted significant changes to fare policies by providing very specific direction on what WSF must consider in developing fare proposals. WSF must:

- Recognize that each travel shed is unique
- Use WSTC market survey information, public hearings and reviews with Ferry Advisory Committees
- Consider the impact on users and ferry communities
- Keep fare schedules simple
- Consider demand management
- Meet the requirements of the biennial budget.

### WSF and WSTC Fare Policies

Fare policies and pricing proposals are proposed by WSF and adopted, as they may be amended, by the WSTC.

The current fare structure is based on policies that were developed before 2007. Three guiding principles – CUBE (charging all three variables of vehicle size - length, height and width equally), Tariff Route Equity, and Passenger/Vehicle Fare Relationship - are used to establish a base fare structure, to which additional discounts and surcharges are added and which are further modified by one-point or two-point fare collection.

The discounts and surcharges have been substantially modified over time, with most of the changes affecting customers who are frequent passengers. Frequent passenger discounts have been reduced and the ability of customers to receive a refund on their unused rides has been discontinued. WSF also no longer provides an additional discount for a joint ferry/transit pass.

### Current Fares

Fares for WSF's 10 routes are divided into 12 fare groups.

Route or Travel Shed	# of Fare Groups	Route or Travel Shed	# of Fare Groups
Central Sound	1	Mukilteo-Clinton	1
Vashon Island	1	San Juans & Sidney	8
Triangle Route and Port Townsend	1		

The WSF ticketing system has 643 fares in its fare system. Of these fares, 63 percent are in the San Juan Islands travel shed, nearly half of which are for Sidney which has the most complex fare structure.

## RESERVATIONS AND DEMAND MANAGEMENT

The need for demand management is for vehicles, not for passengers.

WSF currently has two planned approaches to demand management: managing the flow of vehicles through reservations and increasing the number of riders who walk-on the ferry. Demand management pricing, while an option, may not be necessary in those terminals with vehicle reservations.

WSF is currently designing a new reservation system which will be available at routes that have reservations (Sidney and Port Townsend-Coupeville) in the summer of 2012; at Anacortes and the San Juans in 2014; and in the Central Sound (Bainbridge-Seattle, Bremerton-Seattle, and Edmonds-Kingston) in 2016.

The WSTC survey found that customers who most frequently travel on routes in the San Juan Islands and Central Sound travel sheds are very likely to make a reservation, ranging from 76 percent of customers in the San Juans to 33 percent for the Bremerton route.

## FARE REVENUE

Fare revenue provided 70 percent of the operation funds for WSF in FY 2010.

Vehicle and driver fares provide the largest source of fare revenue, accounting for 75 percent of all fare revenue. The largest share of this revenue is from standard vehicles and motorcycles (67 percent) with commercial and oversize vehicles accounting for 8 percent of all fare revenue.

Passenger revenue is 25 percent of WSF's fare revenue, which includes passengers who walk-on or are passengers in vehicles (excluding the driver).

Single-trip full fare revenue is larger than revenue from multi-ride products, accounting for 68 percent of vehicle fares and 69 percent of passenger fares.

As is consistent with the reduction in the frequency of ridership, income from multi-ride products, despite fare increases and reductions in the discount rate, has dropped from \$12.9 million in FY 2006 to \$10.9 million in FY 2010.

## FARE POLICY RECOMMENDATIONS

**Recommendation 1. WSF and WSTC should continue to modify their fare policies to bring the fare structure in alignment with legislative fare policies and with legislative direction to use adaptive management practices.**

WSF and WSTC have taken modest steps towards updating their fare policies to match the 2007 legislative direction. The legislative fare policies are part of a broader directive to WSF to use adaptive management practices, which is a process for continually improving management policies and practices, by learning from the outcomes of decisions and adapting them to improve customer service. "The significant change (from the 2007 legislative session adoption of ESHB 2358 "The Ferry Bill") in pricing policy direction is that the language in the new legislation places a greater emphasis **on the desirable outcomes of changes in fare rules.**" (WSF Long-Range Plan pgs. 7-8)

Although some adjustments have been made to account for characteristics of travel sheds, the current CUBE, tariff route equity, and passenger/vehicle ratio basis for setting base fares is largely a systemwide

approach that uses system characteristics to determine fares. With a few exceptions, it does not create incentives for customer responses consistent with the adaptive management approach now being implemented at the legislature's direction by WSF.

In some cases, the combined effect of fare policies is actually counterproductive to achieving WSF's goals. Over the last 20 years, fare policies have been adopted that eliminate transit/WSF discounted joint passes, reduce discounts on passenger monthly passes and passenger multi-ride cards and eliminate refunds on unused multi-ride cards; all of which make it less rather than more likely that customers will walk-on a vessel instead of drive-on.

**Recommendation 2. WSTC annual market surveys should include questions on customer households and the household's likely response to fare changes.**

WSTC's on-going market surveys have been used to inform WSF fare policies and WSTC fare decisions. The surveys have to date been focused on rider responses. The consultants recommend that the WSTC add questions to the surveys that would help gather more information on customer households and their buying decisions that underpin ridership.

The core question for WSF to understand is the correlation between an increasing base of customers and declining ridership, i.e. why are people riding so much less frequently that despite customer gains ridership is declining.

## FARE INTEROPERABILITY, FARE STRUCTURE AND FARE MEDIA RECOMMENDATIONS

In developing recommendations on the most appropriate fare media for use with the planned reservation system and the future implementation of demand management pricing and interoperability with other payment methods, the consultants have been guided by:

- **Customers.** The fare system has to adapt to the many different needs of WSF's highly segmented customer base.
- **Marine highway and transit service.** The fare system, including fare media, fare structure, and interoperability, has to be compatible with WSF provision of tolled marine highway and transit services.
- **Legislative direction.** These directions include the fare policies in RCW 47.60.290 and the legislature's directive to engage in adaptive management practices.
- **Phasing.** The introduction of fare system changes are proposed to be phased to synchronize with the introduction of the new vehicle reservation system on some routes and with the availability of *Good To Go!* system support.

## Long-Term Fare System Direction

Recommendation 3. In the long-term, WSF's fare collection system should be adapted to the needs of its travel sheds/routes and its customers with consideration of two fare collection systems:

1. **Account-based system.** *Wave2Go* should be replaced with an account-based fare system that offers customers a variety of fare media products and interoperable payment options through *Good To Go!*, ORCA, and emerging payment technologies.
2. ***Good To Go!* as the Only Payment Method.** Some routes, particularly those without vehicle reservations, may best serve their customers by using the *Good To Go!* tolling system exclusively.

***In the long-term, a single one-size fits all fare system may not be the best option for WSF.*** The fare collection system that is most compatible with the planned reservation system and the implementation of interoperability with other payment systems may not be the best system for the implementation of demand management pricing at terminals that are so constrained that a reservation system is not feasible.

- **Account-based system.** An account-based system is the most compatible system with the planned reservation system and the implementation of interoperability with other payment systems and it can support demand management pricing. It would allow customers to designate their preferred payment method. WSF could integrate its reservation and commercial accounts systems into this fare collection system and it would allow WSF to offer its customers a new variety of fare media products.
- ***Good To Go!* as the only payment method.** On routes which will not have reservations, and in particular on the triangle route (Southworth-Vashon-Fauntleroy), full reliance on *Good To Go!* – which will require changes to fare media and fare structures to implement - may be the best way to satisfy the routes' customers and improve operation.

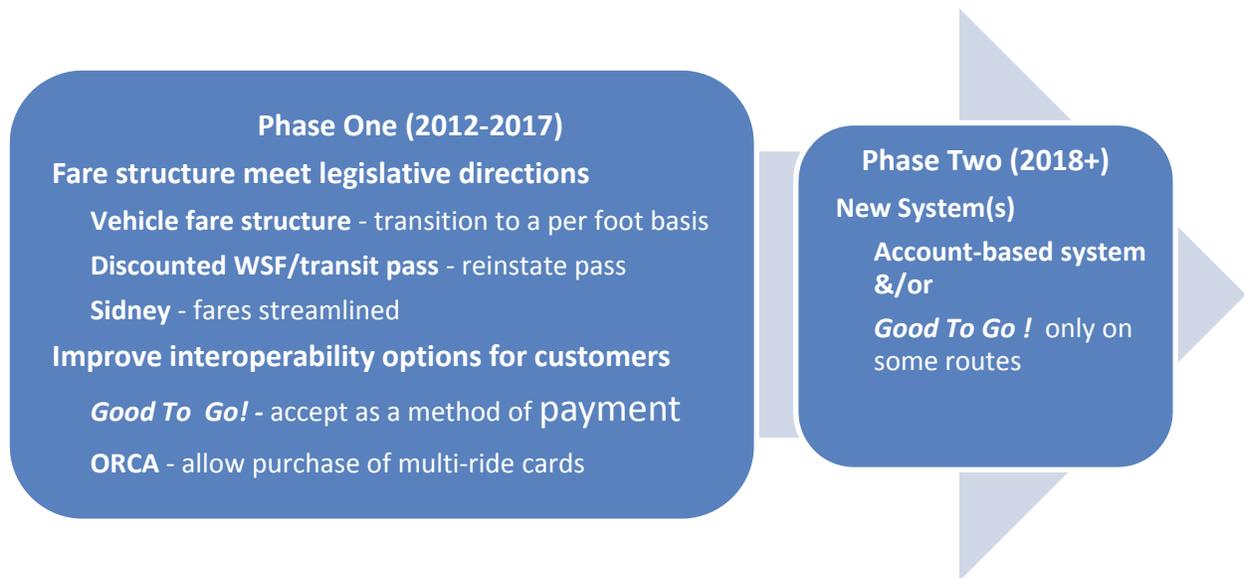
## Implementation Phases

Implementation of the fare collection system modifications identified by this study is proposed to occur in two phases.

**In the 2012-2017 time period**, WSF would lay the foundations for a new fare collection system(s) by implementing modifications to the fare structure and providing customers with greater interoperability with ORCA and *Good To Go!*.

**From 2018 onward**, WSF would build on the modifications implemented in the first phase to replace *Wave2Go* with an account-based fare system and potentially implement *Good To Go!* as the only payment method on some routes.

Phase one fare structure and interoperability recommendations are summarized below. ***The phase one recommendations are independent of one another.***



**Phase One (2012-2017) Fare Structure and Interoperability Recommendations**

Benefits	Elements	Implementation	Cost Estimate	
<p><b>Fare Structure Recommendations: <i>Make fare structure more consistent with legislative direction by streamlining it and facilitating demand management by encouraging the use of smaller vehicles and encouraging more walk-on customers.</i></b></p>				
<p><b>Recommendation 4. WSF's vehicle fare structure should be based on a per foot charge, which will require the installation of automatic vehicle length measuring devices at an estimated FY 2012 cost of \$0.9 million. The legislature should consider providing an appropriation for this amount in the 2011-13 biennium.</b></p>				
<p><b>Maximizes use of car deck space</b></p> <ul style="list-style-type: none"> <li>Length more important than height for efficient car deck utilization</li> </ul> <p><b>Resolves operational problems</b></p> <ul style="list-style-type: none"> <li>Inconsistent application of height fees</li> <li>Delay in processing while measuring</li> </ul> <p><b>Understandable</b></p> <ul style="list-style-type: none"> <li>Small car fare caused customer dissatisfaction for owners of small, but not small enough, cars</li> </ul> <p><b>Reduces number of fares</b></p> <ul style="list-style-type: none"> <li>From 643 to 245 – more than 60%</li> </ul>	<p><b>Fare</b></p> <ul style="list-style-type: none"> <li>Base fare + per foot charge rounded to the nearest dollar</li> </ul> <p><b>Automatic length measuring devices</b></p> <ul style="list-style-type: none"> <li>Installed at tollbooths</li> </ul>	<p><b>All terminals except:</b></p> <ul style="list-style-type: none"> <li>San Juan Island terminals where few vehicle fares collected</li> <li>Pt. Defiance – where no vehicle fares are currently collected (all fares are collected at Tahlequah)</li> </ul> <p><b>Vashon</b></p> <ul style="list-style-type: none"> <li>Includes equipment at Vashon terminal, even though fares are not currently collected at Vashon (all fares are collected at Southworth or Fauntleroy)</li> <li>Allow for future move to <i>Good To Go!</i></li> </ul>	<p><b>\$0.9 million</b></p> <p><b>Appropriate: 2011-13 biennium</b></p>	
<p><b>Recommendation 5. WSF should reinstate discounted joint passes with transit agencies on routes with significant numbers of commuter customers. No legislative action is required to implement this recommendation.</b></p>				
<p><b>Customers</b></p> <ul style="list-style-type: none"> <li>WSTC March 2011 survey found that customers, including those who drove-on, would be more likely to walk-on and use transit if there were a discounted joint pass</li> </ul> <p><b>Demand management</b></p> <ul style="list-style-type: none"> <li>Encourage more walk-on rather than drive-on passengers</li> </ul>	<p><b>Joint Pass</b></p> <ul style="list-style-type: none"> <li>Implement through ORCA</li> </ul>	<p><b>Central Sound</b></p> <ul style="list-style-type: none"> <li>Bainbridge</li> <li>Bremerton</li> <li>Seattle</li> </ul>	<p><b>South Sound</b></p> <ul style="list-style-type: none"> <li>Fauntleroy</li> <li>Southworth</li> <li>Vashon</li> <li>Pt. Defiance</li> <li>Tahlequah</li> </ul>	<p><b>Potential revenue loss –not possible to estimate pending transit agency discussions</b></p>

Benefits	Elements	Implementation	Cost Estimate
<b>Recommendation 6. WSF should streamline Sidney fares by establishing a single Sidney-Anacortes fare with the ability to stop in the San Juan Islands and by eliminating the separate commercial and RV fares. No legislative action is required to implement this recommendation.</b>			
<b>San Juan Island Communities</b> <ul style="list-style-type: none"> <li>Meets desire for tourists stop in the Islands</li> </ul> <b>Clarifies fares for Tourists</b> <ul style="list-style-type: none"> <li>Fares overly complex &amp; hard to follow</li> </ul> <b>Simplifies Fares</b> <ul style="list-style-type: none"> <li>Eliminates 73 fares</li> </ul>	<b>Fare Change</b> <ul style="list-style-type: none"> <li>WSF/WSTC process</li> </ul>		<b>\$0</b>
<b>Interoperability Recommendations: <i>Provide customers with access to more interoperable payment systems.</i></b>			
<b>Recommendation 7. WSF should allow its passenger multi-ride cards, and if operationally feasible its vehicle multi-ride cards, to be purchased and loaded on ORCA cards. Implementation of this recommendation is anticipated to cost \$0.3 million in FY 2012 dollars for ORCA/Wave2Go integration, which the legislature should consider appropriating in the 2011-13 biennium.</b>			
<b>Customers</b> <ul style="list-style-type: none"> <li>Many customers in areas served by ORCA transit agencies use ORCA</li> <li>Many of these customers want to use their cards for WSF multi-ride products</li> </ul>	<b>ORCA stored ride capability</b> <ul style="list-style-type: none"> <li>Activate to allow multi-ride cards at least for passengers</li> <li>Vehicle multi-ride cards may not be feasible (operation &amp; cost issues)</li> </ul>	<b>All terminals</b> <ul style="list-style-type: none"> <li>Except Sidney, which does not accept ORCA</li> </ul>	<b>\$0.3 million</b> <b>Appropriate 2011-13 biennium for systems support</b>
<b>Recommendation 8. WSF should implement <i>Good To Go!</i> as a form of payment at vehicle tollbooths. Implementation is anticipated to cost \$2.2 million in FY 2012 dollars, which the legislature should consider appropriating in the 2013-15 biennium.</b>			
<b>Customers</b> <ul style="list-style-type: none"> <li>One-third of customers have <i>Good To Go!</i> transponders and another one-third plan to get them</li> <li>Customers with transponders think important to be able to use on WSF</li> </ul>	<b>Peripheral to <i>Wave2Go</i></b> <ul style="list-style-type: none"> <li><i>Good to Go!</i> – customer can elect to use to pay fares</li> <li>Other options – ORCA, <i>Wave2Go</i> \multi-ride cards and monthly passes, cash, credit card - remain</li> </ul>	<b>All terminals except:</b> <ul style="list-style-type: none"> <li>San Juan Island terminals where few vehicle fares collected</li> <li>Pt. Defiance – no vehicle fares collected</li> </ul>	<b>\$2.1 million</b> <b>Appropriate 2013-15 biennium.</b>

## Phase One (2012-2017)

The cost of adopting all of the phase one recommendations is estimated at \$3.4 million in FY 2012 dollars. For that:

- **WSF customers would benefit.** If all of the phase one recommendations were implemented, WSF customers would have an expanded range of payment options that would allow them to consolidate more of their transportation media products including highways, transit, and ferries. Tourists traveling the Sidney route will find it easier to understand the fares and from a marketing perspective will have the advantage of free stopovers in the San Juans. Residents of the Islands who travel to Sidney would pay a higher fare. It is not known how many Island residents regularly travel to Sidney nor how many could arrange their schedule to take advantage of the free stopover.
- **The fare structure will be vastly simplified.** If fully implemented, the number of fares in the system would be reduced from 643 to 175. This would reduce the complicated fare transaction system within *Wave2Go* and could potentially facilitate demand management pricing or other new programs WSF would like to use *Wave2Go* for prior to its replacement by an account-based system.
- **The outcome of the fare structure would be improved demand management.** Customers would have an incentive to bring smaller cars onto the vessel and maximize the number of vehicles that can be served by a single sailing. The proposed discounted WSF/transit pass would encourage additional walk-on passengers.
- **Changes would synchronize with the introduction of the new reservation system.** The proposed modifications are consistent with the vehicle reservation system.

Whenever fares and fare structures are changed there are potential issues.

- **Setting the per foot vehicle fares may be contentious for some.** Vehicle per foot fares would be set to be revenue neutral, but the resulting re-distribution is likely to make people who have long vehicles unhappy and people with small cars happy. Under the proposed implementation schedule we have included having the measuring equipment functional for approximately one year prior to changing the fares. This will provide data to inform fare setting that is not currently available in the system.

## Phase Two (2018 and beyond)

The 2012-2017 phase one recommendations support the implementation of these longer-term recommendations.

**Recommendation 9. WSF should replace *Wave2Go* with an account-based fare system in the 2018 and beyond time period.**

By 2018, it will likely be time to replace *Wave2Go*. At that point, the consultants recommend it be replaced with an account-based fare collection system. The benefits of such a system are:

- **Customers.** Customers were asked in the WSTC survey conducted for this study how important is it that WSF allow customers to combine all their WSF fare products on one card or account.

More than 60 percent of respondents said they would be somewhat or very likely to participate in such a program and approximately 45 percent thought it was somewhat or very important to offer an opportunity to consolidate their household fare products.

- **Fare media options.** An account-based system would allow WSF to offer its customer a variety of products. This could include a program that provides discounts or other incentives to frequent riders rather than requiring them to pre-pay for a non-refundable multi-ride card.
- **Reservations.** An account-based system would integrate the reservation system so that customers would be able to make reservations through the same system and could have it linked to the same payment account.
- **Commercial accounts.** An account based system would allow WSF to integrate the commercial account system with its fare system.
- **Demand management pricing.** An account-based system would support any future time of day, day of week or other demand management pricing options, while preserving options to support frequent user policies.

The account-based system could either be a part of the WSDOT statewide tolling customer service center or it could be a separate WSF operation and would in FY 2012 dollars cost approximately \$23 million.

**Recommendation 10. WSF should consider *Good To Go!* as the exclusive payment option for fares on the Southworth-Vashon-Fauntleroy route (and possibly for other routes that will not have a full reservation system) in the 2018 and beyond time period.**

The additional cost of having *Good To Go!* as the exclusive payment option for fares on the Southworth, Vashon, Fauntleroy triangle route is estimated at \$0.5 million over the cost of installing *Good To Go!* as a payment option only.

This option involves extensive modifications to the current fare structure because *Good To Go!* can only collect vehicle fares, not passenger fares. Vehicles could be charged on a per foot basis but passengers either walking-on or in vehicles would be free. Discounts for multi-ride cards and for seniors would not be available.

It would be easiest to implement *Good To Go!* if the same rate applied to all parts of the route, though this is not a requirement of the new system. Currently the fares between Southworth and Fauntleroy are higher than the Vashon fares.

Vehicle fares could mirror the payment options available on SR 520 with the lowest rate for those with transponders and higher rates for those billed by vehicle license plate recognition.

The potential benefits of such a major change on this route are:

- **Southworth customers are already heavily reliant on *Good To Go!* for travel on the Tacoma Narrows Bridge.** Customers would have an opportunity to consolidate all of their transportation tolling on *Good To Go!*.
- **Customers on this route are frequent riders who can be expected to get transponders, even if they don't have one currently.** There are very few recreational or tourist riders on this route.

- **It could improve operations at Fauntleroy, one of the most congested terminals in the ferry system.** Fauntleroy has a very small holding area, short headways, and sailings with mixed destinations as well as direct Vashon and Southworth sailings. Collecting fares exclusively through *Good To Go!* would provide for a much smoother and faster processing of vehicles. The existing tollbooths could be removed which would also provide more space for cars.
- **It would potentially reduce costs by eliminating the ticket selling function since all fares would be collected automatically as they are on SR 520.** WSF estimates that eliminating the ticket selling function could reduce operation costs by \$1.0 million per year. However, it is not clear whether the same number of staff would still be required to meet the requirements of the U.S. Coast Guard approved Alternative Security Plan. As a result, it is not possible to estimate the operation cost impact.
- **It would address the traffic imbalance problem by allowing one-way fares.** The Southworth-Fauntleroy route has the highest traffic imbalance in the system with 25 percent more customers traveling on the ferry eastbound than westbound. Charging fares one-way would correct this imbalance, which is possible with *Good to Go!* without adding expensive infrastructure such as tollbooths at Vashon.
- **It would allow for demand management pricing if and when it becomes necessary.** *Good To Go!* is designed to implement demand management pricing on the highways. If WSF elects to have demand management pricing on this route, it will require collecting tolls on Vashon which can be done without tollbooths by using *Good To Go!* exclusively.
- **With no charge for passengers, customers would be encouraged to walk-on.** Having free passenger fares would encourage walk-on passengers and allow customers to take the King County passenger-only ferry from Vashon to Seattle without an additional charge if they walk-on at either Fauntleroy or Southworth and want to continue to downtown Seattle.

Not charging for passengers would involve a modification of the fare prices, which if the recommendations of this study are implemented, would involve a modification of the per foot vehicle charges to accommodate this revenue change.

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# WASHINGTON STATE FERRIES FARE MEDIA STUDY

## INTRODUCTION

The 2011 legislature directed the Joint Transportation Committee (JTC) to conduct a study of the Washington State Ferry (WSF) fares that recommends the most appropriate fare media for use with the planned vehicle reservation system and the future implementation of demand management pricing and interoperability with other payment methods.

Washington State Ferries is unique - serving as both a tolled marine highway and as one of the state's largest transit providers – and its' fare system is complex.

A central focus of this study is WSF's approximately 300,000 customers. Fare media, interoperability, fare structure, and the introduction of new programs such as reservations and demand management pricing are intertwined and affect the customer experience, satisfaction, and ultimately WSF's ridership.

This is the first study to focus on WSF's customers – those who make the household buying decisions that result in ridership. Like most transit agencies, WSF tracks ridership not customers.

The legislature has long standing concerns about the declining ridership on the ferry system – which as of FY 2010 was down 16 percent from its peak in 1999 or 4.2 million riders per year. This study found that while ridership is going down, the actual number of customers has increased. The best available information indicates that the number of customers grew 10 to 22 percent from FY 2000 to FY 2008 and is probably continuing to grow. The ridership decreases are occurring because an expanding pool of customers is riding the system less often.

The Washington State Transportation Commission conducted a customer survey for this study. It found that customers generally travel within the same group of routes during the year, have more than one person in a household that uses the system, and use multiple WSF fare products.

The survey also found that many WSF customers have a *Good to Go!* transponder and/or ORCA card in addition to their multiple WSF fare media products. There is strong interest among these customers in using their *Good To Go!* accounts or ORCA cards to pay for WSF fare products and they would like to consolidate all of their WSF household fare media products into a single account.

This study recommends policy changes and phased modifications to WSF's fare system interoperability, fare structure and fare media to address the needs of WSF customers and adhere to legislative fare direction to recognize the differences in WSF travel sheds, keep the fare schedule as simple as possible, consider demand management, and meet the revenue needs of the system.

The goal is a system tailored to the diverse and highly segmented WSF customer base. This makes the legislative direction to recognize the differences in WSF travel areas and the impacts on WSF's diverse users when considering fares vitally important. The current fare structure, based on systemwide policies, needs to transition to one that recognizes the diversity in the WSF customer base and among the communities served by WSF.



## I. PURPOSE AND APPROACH

### A. Purpose

The 2011 legislature directed the Joint Transportation Committee (JTC) to conduct a study of the Washington State Ferry fares that recommends the most appropriate fare media for use with the reservation system and the implementation of demand management pricing and interoperability with other payment methods. The study is to include direct collaboration with members of the Washington State Transportation Commission (ESHB 1175, Section 204 (1)); (Chapter 367, 2011 Laws, PV).

### B. Definitions

The following definitions are used throughout this study:

- **Interoperability.** Interoperability is the degree to which the WSF fare system accepts fare media of other systems.
- **Fare Media.** Fare media are the products that are accepted for payment.
- **Fare Structure.** The structure and policies setting the fares and to whom they are charged.

### C. Approach

This study was informed by a review of previous WSF and JTC studies and WSTC surveys and by the results of a new Washington State Transportation Commission (WSTC) survey conducted as part of this study.

#### 1. Previous Studies

WSF studies reviewed include:

- Washington State Ferries Origin and Destination Study - 2006
- Washington State Ferries Long-Range Plan – 2009
- Washington State Ferries Marketing Plan, Turning the Tide – 2009
- Washington State Ferries Marketing Plan, Turning the Tide – Technical Appendix – 2009
- Washington State Ferries Reservation System Pre-Design Report – 2010

The JTC has conducted a series of Ferry Financing Studies. Information from the following reports was used in developing this report:

- Ferry Financing Study 2007
- Ferry Financing Study Phase II – Long-Range Finances Study 2009
- Ferry Financing Study Phase II – Review of Reservations Pre-Design Report 2010

#### 2. WSTC Surveys

##### a. Prior Surveys

RCW 47.60.286 directs the WSTC to, with the involvement of WSF, conduct surveys of ferry users to help inform level of service, operational, pricing, planning, and investment decisions. The survey, which is to include recreational, walk-on, vehicle, and freight customers, must be updated at least every two years

and maintained to support the development and implementation of adaptive management of the ferry system.

WSTC surveys reviewed for this report include:

- 2008 Ferry Customer Survey
- 2010 Ferry Customer Survey Summary Report and the following 2010 surveys
  - Summer Wave Survey
  - Winter Wave Survey
  - Freight Customer Survey
  - General Market Assessment Survey
  - Mode Shift Survey
  - Capital Funding Survey
  - Seven Quick Polls
- 2011 Fare Strategies Survey

#### **b. Study Survey**

The WSTC conducted a survey of ferry customers as part of this study through its Ferry Riders Opinion Group. The survey, which was completed by 1,978 respondents, asked customers about their use of the WSF system, which WSF fare media their households purchased, how they use or might use ORCA and *Good To Go!*, and their interest in a potential combined WSF account.

#### **D. Work Groups**

This study was facilitated by the responsiveness of policy and staff workgroups. The recommendations are those of the consultants but have been refined through consultations with the workgroups.

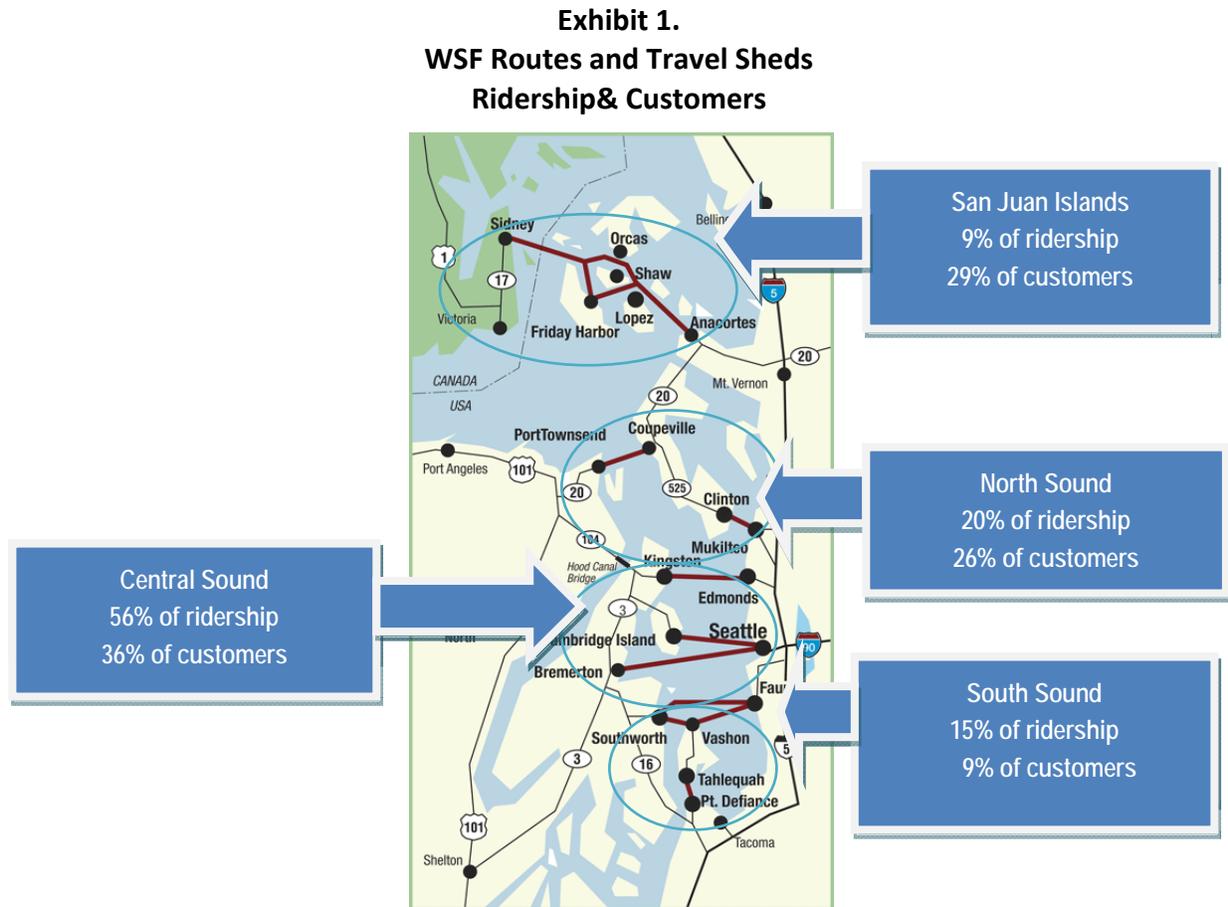
The Policy Workgroup included the four members of the JTC, WSF's Deputy Director for Administration and Finance, two WSTC Commissioners, and representatives from the Governor's Office and a Ferry Advisory Committee. Policy Workgroup members included:

Rep. Judy Clibborn	JTC Co-Chair
Sen. Mary Margaret Haugen	JTC Co-Chair
Rep. Mike Armstrong	JTC Executive Committee
Sen. Curtis King	JTC Executive Committee
Tom Cowan	WSTC Commissioner
Dan O'Neal	WSTC Commissioner
Dick Ford (alternate)	WSTC Commissioner
Teresa Berntsen	Governor's Office
Bainbridge Ferry Advisory Committee	Robert Cromwell
Tariff Subcommittee	
Jean Baker	WSF

The Staff Workgroup included staff from WSF, WSTC, the JTC, the House and Senate Transportation Committees, and the Office of Financial Management.

## II. WSF SYSTEM

WSF provides ferry service on 10 routes which, for the purposes of this report, are divided into four travel sheds. These travel sheds are distinct in the customers they serve, meaning that, in general, travelers in these sheds are not likely to choose other WSF routes as an alternative to their normal travel. For example, a traveler in the San Juans is unlikely to elect to travel on the Seattle-Bainbridge route as an alternative. The exhibit below shows the proportion of the systems total ridership and customers by travel shed.



Routes in each travel shed are:

- **Central Sound.** Edmonds-Kingston, Seattle-Bainbridge, and Seattle-Bremerton.
- **North Sound.** Mukilteo-Clinton and Port Townsend-Coupeville.
- **San Juan Islands.** Anacortes-San Juan Islands (Lopez, Orcas, Shaw, Friday Harbor), Anacortes-Sidney, and the Interisland service between islands.
- **South Sound.** Triangle route (Fautleroy-Vashon-Southworth) and Point Defiance-Tahlequah.

### III. WSF CUSTOMERS AND RIDERSHIP

The distinction between customers and ridership is critical when analyzing the fare system. *Customers* are the individuals who take at least one trip on WSF, while *ridership* measures the total number of trips taken by those customers. Customers make buying decisions for themselves and their households that may result in a single ride or in 500+ rides a year.

This section presents information on the estimated number and distribution of customers and provides information on WSF ridership trends.

#### A. Customers and Ridership Changes

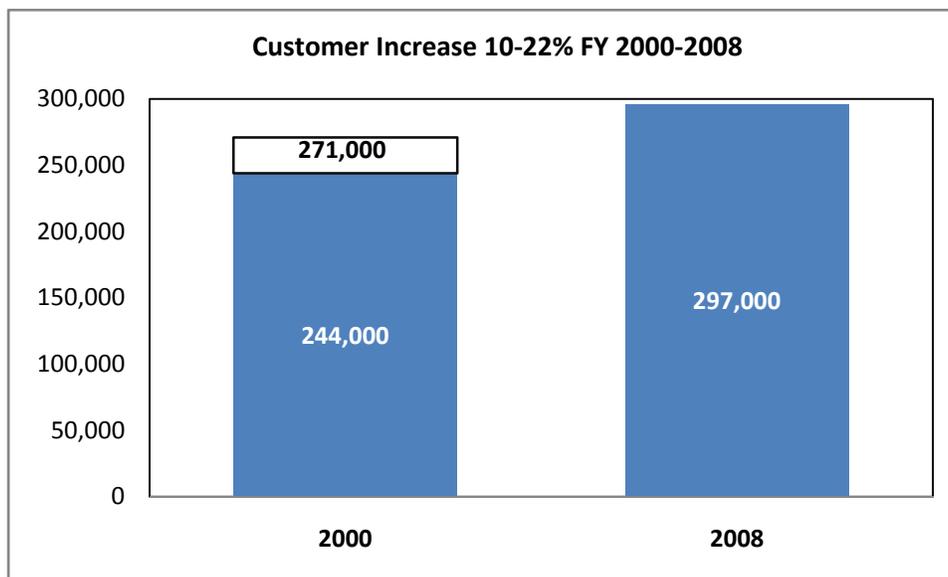
Like most transit agencies, WSF tracks ridership - i.e. the total number of trips taken on the system, not the number of customers who take them. The consultants' analysis indicates that while WSF ridership has declined 16 percent since peaking in 1999, the number of customers has increased.

##### 1. Customer Estimate

To estimate the number of WSF customers, the consultants extrapolated customer data using similar frequency categories from WSF's 1999 and 2006 origin and destination studies and the 2008 WSTC surveys.<sup>1</sup>

As shown in the exhibit below, WSF served between 244,000 and 271,000 customers in FY 2000. In FY 2008 WSF served approximately 297,000 customers, an increase of 10 to 22 percent over FY 2000.

**Exhibit 2.**  
**Estimated WSF Customers FY 2000 and FY 2008**



Source: BERK, 2011; WSTC 2008 Survey; 2000 OD Survey; WSF, 2011

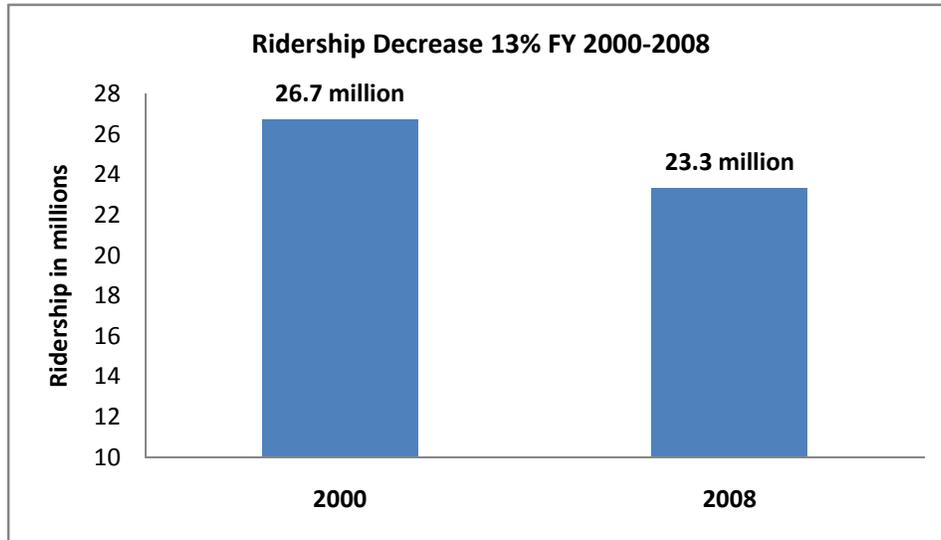
<sup>1</sup>FY 2008 was used as the base because the WSTC 2008 survey and the 2006 Origin and Destination Study have the most information that can be correlated.

## B. Ridership

The 244,000 to 271,000 FY 2000 customers took 26.7 million rides on the system, while the 297,000 FY 2008 customers took 23.3 million rides – a decrease in ridership of 13 percent.

The average trips per customer declined by approximately 20 percent from FY 2000 to FY 2008 from approximately 100 trips per customer to 80 per year.

**Exhibit 3.**  
**WSF Ridership FY 2000 and FY 2008**

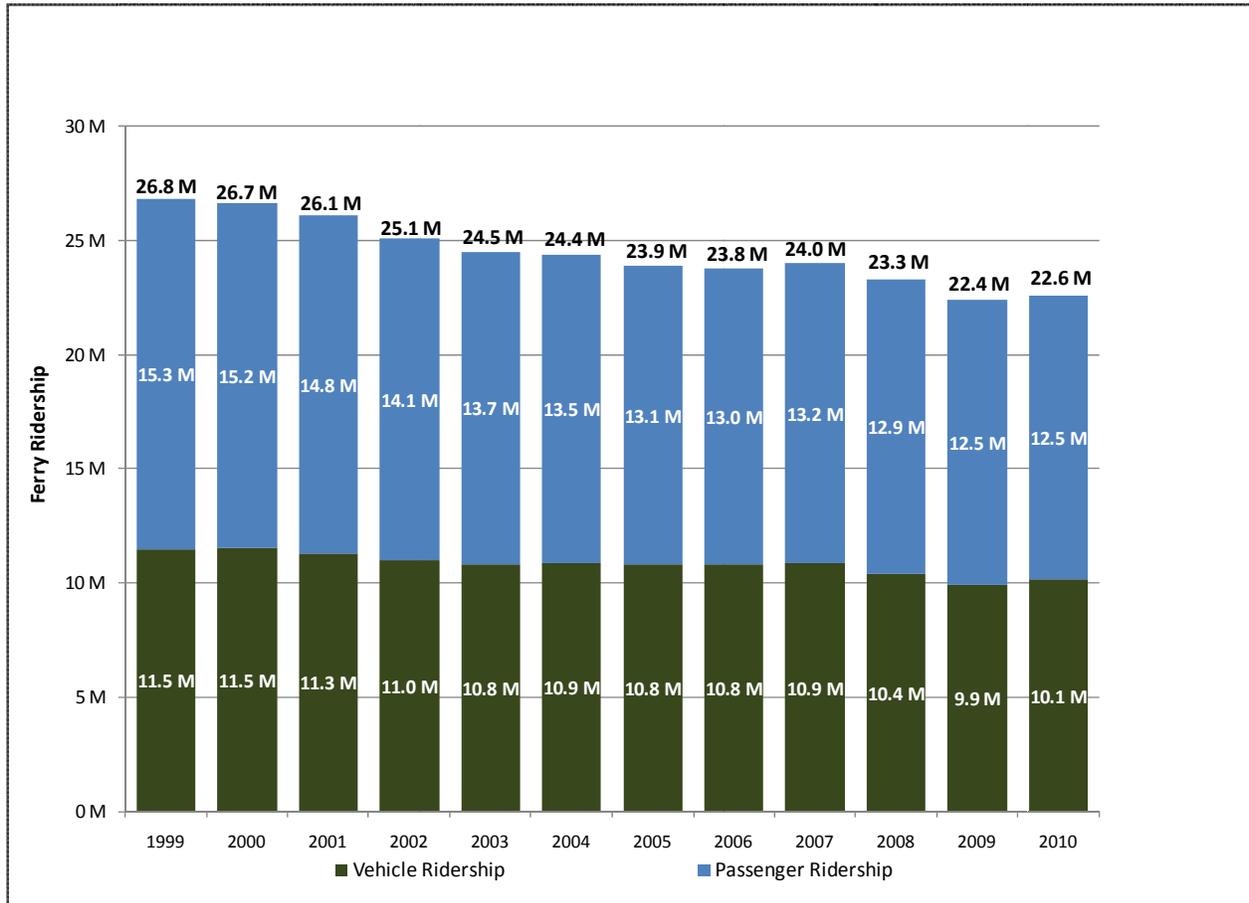


### 1. Ridership Pattern

The decrease in ridership between FY 2000 and FY 2008 is a part of a pattern of declining ridership that started from WSF's peak ridership in FY 1999 and continued through FY 2009. There was a 1 percent increase in ridership between FY 2009 and FY 2010. By FY 2010 ridership had declined 16 percent from the FY 1999 level, with 4.2 million fewer annual trips.

The composition of the ridership also changed, with vehicle/driver ridership dropping 12 percent and passenger ridership from walk-ons and additional passengers in vehicles dropping 19 percent. Of the 4.2 million fewer trips, 2.8 million are passenger trips and 1.4 million are vehicle/driver trips.

**Exhibit 4.**  
**WSF Vehicle & Passenger Ridership FY 1999 - FY 2010**



Factors that have contributed to the ridership decline, by causing customers to ride less frequently, include: fare increases starting in 2001 following the loss of motor vehicle excess tax revenue; service reductions, including the elimination of passenger-only ferry service; the opening of the expanded Tacoma Narrows Bridge; and changes in west sound demographics, including an increase in telecommuting.

Appendix A provides more detailed information on historic ridership patterns and factors that have affected ridership levels.

### C. Customer Characteristics

WSF customers are highly segmented by the travel shed/route they use. They are also segmented by the purpose of their trip, the frequency of their travel, and how they board the vessel.

#### 1. Travel Shed

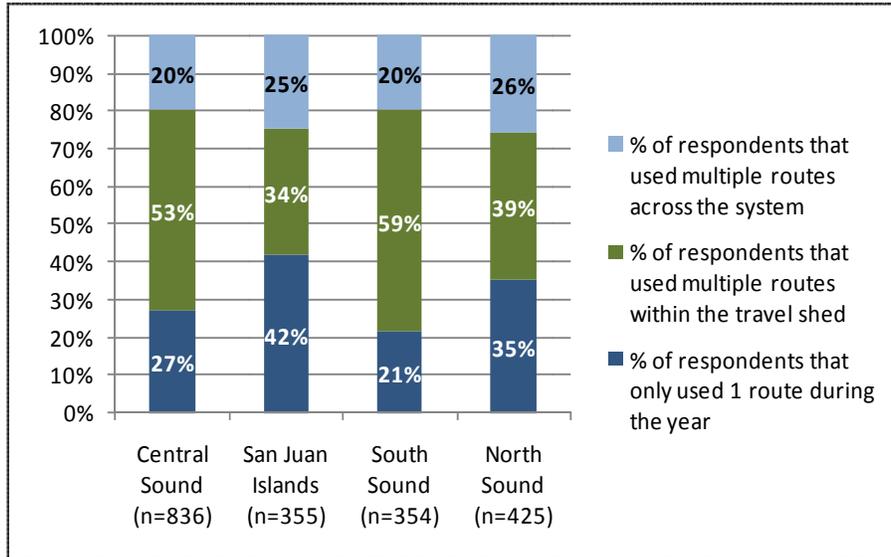
##### a. Customer Travel within Travel Sheds

Most customers travel within a single travel shed. In the WSTC survey conducted for this study, 80 percent of respondents using Central Sound and South Sound routes most frequently, 75 percent of

those using San Juan Island routes most frequently, and 76 percent of those using North Sound routes most frequently used either a single route or multiple routes within the travel shed during the last year.

**Exhibit 5.  
Customer Travel within Travel Shed**

(n= number of respondents)



**b. Travel Shed Share of Ridership and Customers**

Some travel sheds have more frequent riders and therefore have a greater share of ridership than of customers, while others have less frequent riders and a greater percentage of system customers than system ridership. These differences between travel sheds reflect the higher level of commuters in the Central Puget Sound and South Sound and the higher number of tourist, recreation, and infrequent riders in the San Juans and the North Sound.

- **Central and South Sound travel sheds have a greater share of riders than of customers.** As shown in Exhibit 1, the Central Puget Sound travel shed’s three routes (Seattle-Bremerton, Seattle-Bainbridge, and Edmonds-Kingston) have a higher percentage of the system’s ridership (56 percent) than of the system’s customers (36 percent). The two South Sound routes (Pt. Defiance-Tahlequah and the Fauntleroy-Vashon-Southworth Triangle) also have a higher percentage of ridership (15 percent) and a lower percentage of customers (9 percent).
- **North Sound and San Juan Island travel sheds have a greater share of customers than of riders.** The North Sound routes (Port Townsend-Coupeville and Mukilteo-Clinton) have a higher share of customers (26 percent) and a lower proportion of ridership (20 percent) as do the San Juan Island routes (Anacortes-Islands and Sidney) with 29 percent of the customers and 9 percent of the ridership.

**c. Ridership Loss by Travel Shed**

Ridership loss has occurred in all travel sheds but at a disproportionate rate, with some routes contributing a greater percentage of the ridership loss than would be expected from their percentage of riders.

- **Central and South Sound travel sheds have a larger share of the ridership loss than of total ridership.** The Central Sound travel shed has 56 percent of the total FY 2010 ridership. Sixty-one percent (61%) of the total loss in ridership from 2000 to 2010 has occurred in this travel shed. Within the Central Sound travel shed, the largest decrease is on the Seattle-Bainbridge Island route which has 32 percent of the ridership loss and 26 percent of the total ridership. The South Sound travel shed has 22 percent of the ridership loss and 16 percent of the 2010 ridership.
- **North Sound and San Juan travel sheds have a smaller share of the ridership loss than of total ridership.** The North Sound travel shed has 20 percent of the total 2010 ridership. Fourteen percent (14%) of the total loss in ridership from 2000 to 2010 occurred in this travel shed. The North Sound ridership loss discrepancy is greatest on the Clinton-Mukilteo route which has 7 percent of the ridership loss and 18 percent of the ridership. The reduction on the Port Townsend-Coupeville route was affected by the fact that there was one boat instead of two boat service on that route in FY 2010. The San Juan Island travel shed had 3 percent of the ridership loss which is less than its 9 percent share of ridership.

**Exhibit 6.**  
**FY 2010 Travel Shed Ridership Compared to Ridership Loss 2000 to 2010**

	<b>% Total Ridership (2010)</b>	<b>% Ridership Loss from 2000 to 2010</b>
Central Sound	56%	61%
<i>Seattle-Bremerton</i>	12%	16%
<i>Seattle-Bainbridge Island</i>	26%	32%
<i>Edmonds-Kingston</i>	18%	13%
South Sound	16%	22%
<i>Fauntleroy-Southworth-Vashon</i>	13%	17%
<i>Point Defiance-Tahlequah</i>	3%	5%
North Sound	20%	14%
<i>Port Townsend – Coupeville</i>	2%	7% (one boat service)
<i>Clinton-Mukilteo</i>	18%	7%
San Juan Island	9%	3%

## 2. Purpose of Trip

The 2009 WSF Marketing Plan divided ridership into four (4) broad categories or market segments including regular commuters, regular non-commuters, tourist/recreation riders, and business/commercial fleet customers. The exhibit below describes these customers.

**Exhibit 7.  
WSF Market Segments**

	REGULAR COMMUTERS	REGULAR NON-COMMUTERS	TOURIST/RECREATION RIDERS	BUSINESS/COMMERCIAL FLEET
DESCRIPTION	<p>Primarily use the system for transportation to and from work on a regular basis.</p> <ul style="list-style-type: none"> <li>• Comprise 30% of total WSF trips</li> <li>• They tend to ride West to East in the morning and East to West in the evening</li> <li>• The most frequent users of the ferry system: 21 or more trips per month</li> </ul>	<p>Take occasional trips for errands, shopping, and social activities.</p> <ul style="list-style-type: none"> <li>• Comprise 35% of total WSF trips</li> <li>• Reside in cities and counties that have the greatest access to the system but do not use it to commute</li> <li>• Take fewer than 5 trips per month</li> </ul>	<p>Infrequent users of the ferry system for recreational purposes.</p> <ul style="list-style-type: none"> <li>• Comprise 25% of total WSF trips</li> <li>• Live in the Puget Sound region or out of state and use WSF for tourism and recreational purposes</li> <li>• Travel is westbound towards attractions such as the Olympic Peninsula or the San Juan Islands</li> <li>• Take fewer than 3 trips per month – mainly in the summer</li> </ul>	<p>Freight, delivery services and independent construction/trade businesses.</p> <ul style="list-style-type: none"> <li>• Comprise a small percentage of total WSF trips</li> <li>• Make frequent trips, often during off-peak times or in the counter-peak flow direction</li> </ul>
AGE	Mid 30s to mid 60s	40s and older ( <i>more riders over 65 than other segments</i> )	All Ages ( <i>fairly distributed through all age ranges</i> )	N/A
INCOME	Middle to high income	Middle to upper-middle income	Middle to high income	N/A
ROUTES WITH HIGH % OF SEGMENT	<ul style="list-style-type: none"> <li>• Fauntleroy/Southworth</li> <li>• Pt. Defiance/Tahlequah</li> <li>• Seattle/Bainbridge</li> <li>• Seattle/Bremerton</li> </ul>	<ul style="list-style-type: none"> <li>• Edmonds/Kingston</li> <li>• Mukilteo/Clinton</li> <li>• Port Townsend/Keystone</li> </ul>	<ul style="list-style-type: none"> <li>• Edmonds/Kingston</li> <li>• Mukilteo/Clinton</li> <li>• Port Townsend/Keystone</li> <li>• San Juan Islands</li> </ul>	<ul style="list-style-type: none"> <li>• Edmonds/Kingston</li> <li>• Mukilteo/Clinton</li> <li>• San Juan Islands</li> <li>• Vashon Island</li> </ul>

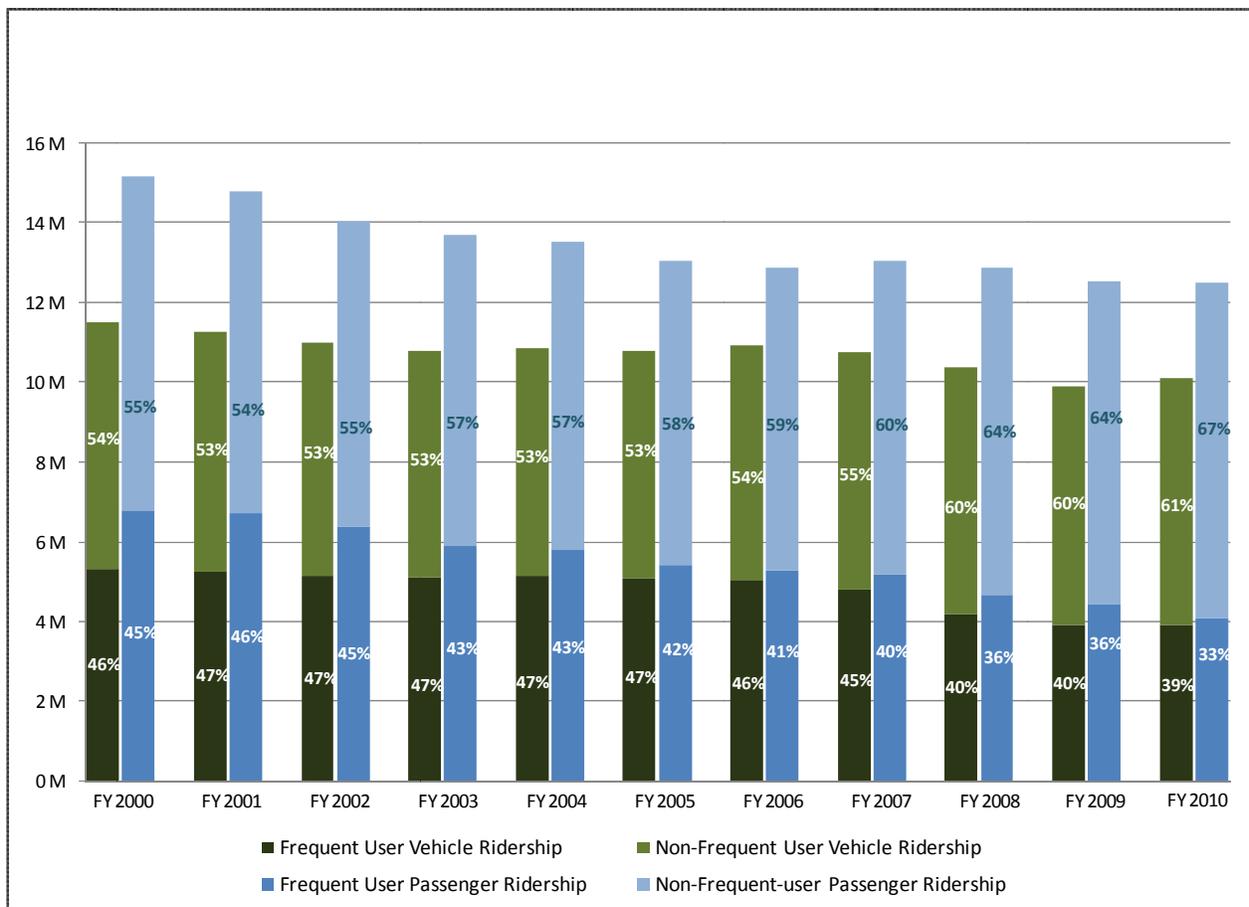
### 3. Frequency of Travel

Customers vary by how frequently they travel. For both passenger ridership and vehicle ridership, non-frequent riders are a larger percentage of total ridership in FY 2010 than was the case in FY 2000. Frequent ridership is defined for this purpose as those rider trips where multi-ride fare media is used, as opposed to single-trip fare media.

As shown in the exhibit below, in FY 2010, non-frequent riders accounted for 61 percent of vehicle ridership, compared to 54 percent in FY 2000, and for 67 percent of passenger ridership compared to 55 percent in FY 2000.

The largest switch from frequent to infrequent fare media use was from FY 2007 to FY 2008. This was likely because WSF switched from frequent user coupon books to *Wave2Go* multi-ride cards just before the start of FY 2008. Frequent user coupon books were easily transferrable and were often shared among family members or groups of travelers. After the switch to *Wave2Go* multi-ride cards, travelers were less able to share their frequent use tickets so many travelers who could not use 10 trips in 90 days with their personal travel switched to single-trip fare media.

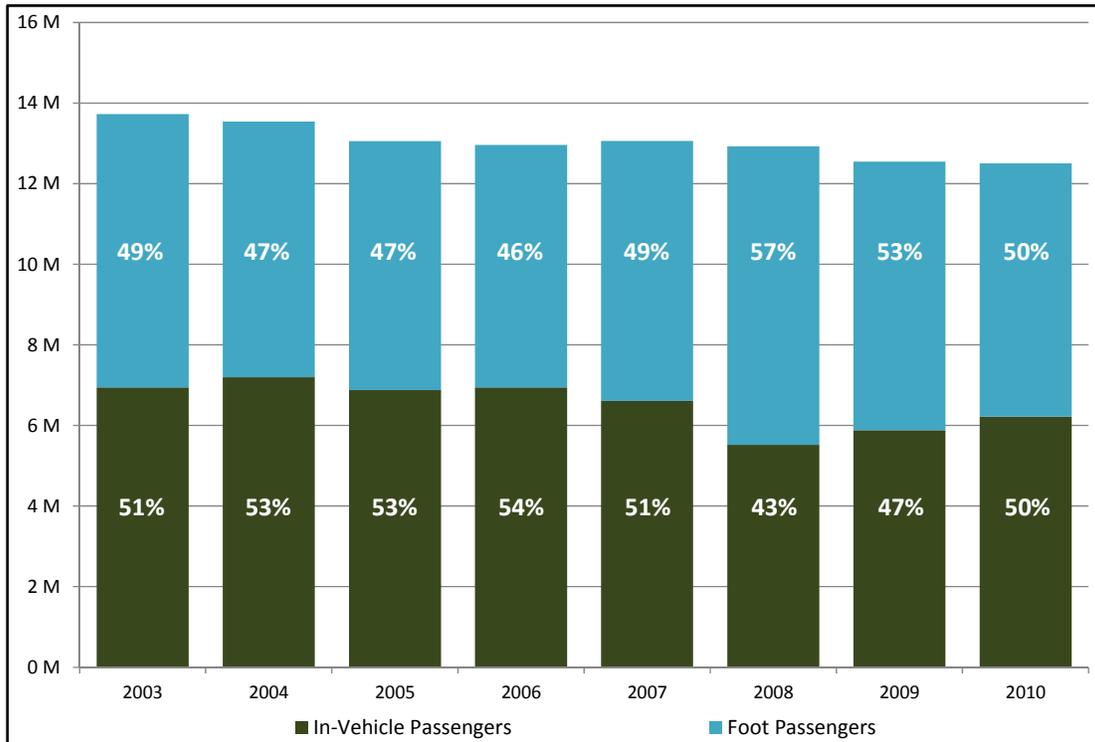
**Exhibit 8.**  
**Frequent and Infrequent Ridership**



#### 4. Ferry Access

Forty-five percent (45%) of all riders are vehicle drivers. Of the 55 percent who are passengers, the exhibit below shows that 50 percent walked on the ferry and 50 percent were passengers in vehicles in FY 2010.

**Exhibit 9.  
 Split Between In-Vehicle and Walk-On Ferry Passengers (FY 2003-FY 2010)**



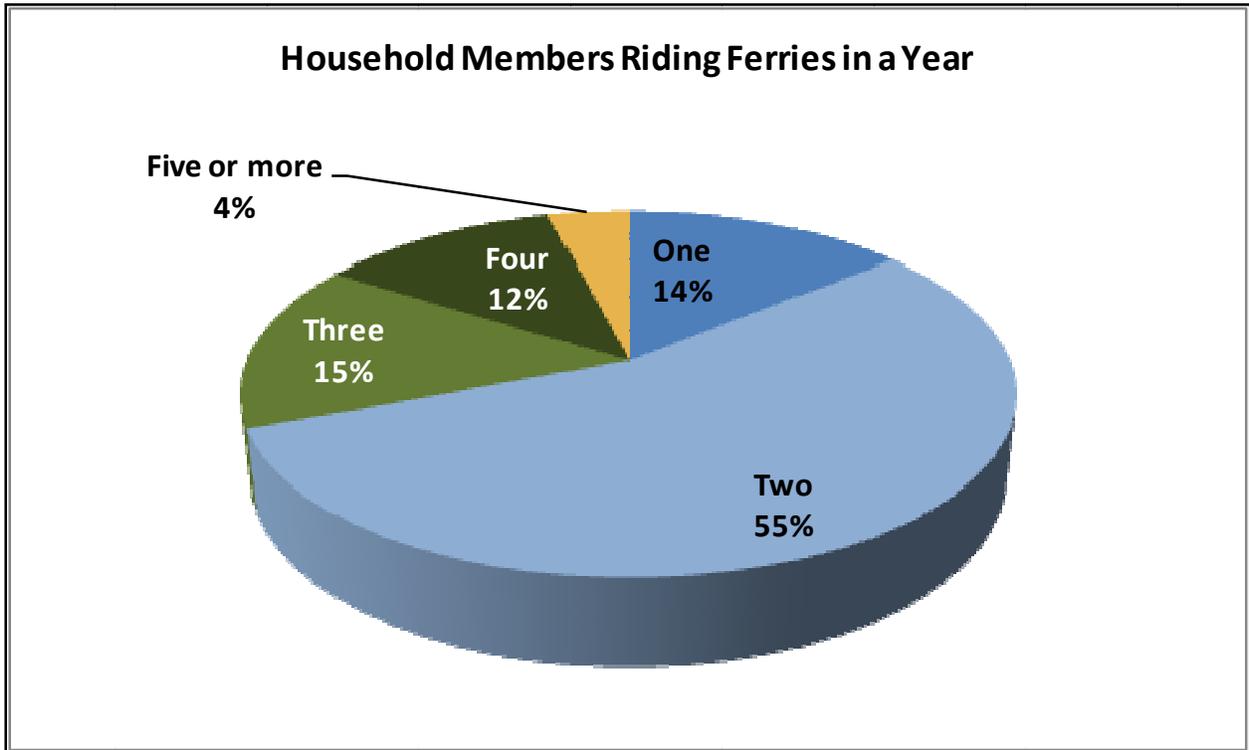
Seventy-two percent (72%) of all WSF riders access the vessel by vehicle as either a driver or vehicle passenger, which places great importance on fare structure, fare media, and interoperability that affect vehicles and their passengers.

#### D. Customer Households

The WSTC survey conducted for this study found that most customer households have more than one person who travels on the WSF system. As shown in the exhibit below, 86 percent of respondents had two or more people in their household who used the ferry system. Fifty-five percent (55%) of respondents had a total of two people in their households, 15 percent three people, 12 percent four people, and 4 percent with five or more people who used the ferry system.

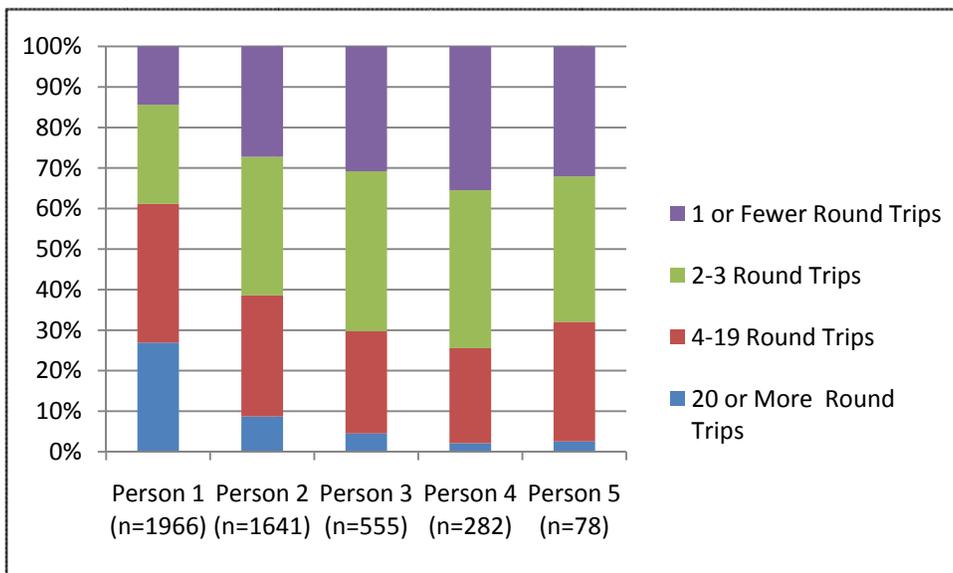
Customer households often include members who ride frequently and others who ride infrequently. This means that the household buying decisions are affected by changes in fares for frequent user discounted products (i.e. multi-ride cards and monthly passes) and for single use full fare, youth, or senior products.

**Exhibit 10.**  
**Household Members Riding Ferries**



**Exhibit 11.**  
**Number of Annual Trips by Household Member**

(n=number of respondents)



## IV. FARE MEDIA AND INTEROPERABILITY

This section reviews WSF fare media and interoperability between three systems currently used by WSF – *Wave2Go*, ORCA, and commercial accounts – and *Good To Go!*, the Washington State Department of Transportation’s highway tolling system. It includes survey information on customer use of *Wave2Go* fare products, ORCA, and *Good To Go!*

### A. *Wave2Go*

#### 1. System Description

WSF’s electronic fare system is called *Wave2Go*. The system was deployed in 2005 as a replacement for a previous point of sale system that had been operational since the early 1990’s. Among other benefits, the new system addressed a long-standing audit finding regarding separation of duties by more clearly separating fare media sales and collection functions. This was done in part by implementing new options for customers to purchase fares over the web and at unattended kiosks, whereas previously both the sales and collection functions were virtually all handled at staffed seller booths.

The system was procured through an open bid/RFP process, with Gateway Ticketing systems being the successful system supplier. WSF’s goal at the time was to procure a system that was as much off-the-shelf as possible, and then working with the vendor to tailor it to meet WSF’s ticketing needs.

Key elements of the system include:

- **Point of sale devices.** Point of sale devices (POS) are in each seller booth to sell and redeem fares. These are devices where the application runs on local workstation/server architecture. The ability to run locally is an important consideration for WSF as there are often communications network interruptions, particularly in the Islands.
- **Kiosks.** Self-service kiosks where customers can purchase WSF fares.
- **Internet.** Internet services where customers can purchase WSF fares and print tickets at home or at work.
- **Link to state accounting systems.** An interface through Microsoft BizTalk to WSF’s Great Plains (now Microsoft Dynamics GP) accounting system and software is part of *Wave2Go*. Great Plains in turn interfaces with the State accounting systems such as TRAINS. Revenue is reported in TRAINS by type of ticket sale (i.e. vehicle full fare). The distribution of revenue by route is accomplished through an interface with the WSF traffic system.

While in general the system is functioning as intended, the off-the-shelf software and systems have a number of limitations and issues:

- **Fare determination.** For WSF, the central system fare determination process can be complex when a new fare is established. It involves many steps including selection of a route (22 options), account classification -i.e. vehicle, passenger etc. - (7 options), fare type (72 options), ticket type (9 options), validity period (27 options), passenger type (15 options), and year valid (10 options), resulting in hundreds or thousands of possible combinations. This does not affect tollbooth operation.

- **Implementing fare changes.** Fare determination is driven by a series of data files in the system rather than algorithms and simple tables. As a result, implementing a fare change is a complex process. With each fare change, a new data file has to be created and tested, and copied over the old data files in order for the changes to go into effect. This makes it very difficult to support demand management pricing structures (i.e. time of day pricing) as there is a time-consuming process that needs to be followed to switch the files.
- **Off-the-shelf software.** Off-the-shelf software, while offering cost benefits over a fully customized software package, has inherent limitations that have impacted the ability of the system to fully accommodate WSF's goals. An example is that the system does not support certain end of day declaration and revenue management functions that WSF would like to implement, and revising the software to accommodate these functions would be costly and impractical.
- **Supplier Support.** The primary market for the system supplier is theater and amusement park ticketing operations. While they have some transportation-related implementations, the supplier Gateway does not have a large base of transportation projects to support continuous change and improvement to the software. One impact of this is that potentially valuable system additions or changes can be difficult to gain vendor support since the broader market for these changes is limited. This has resulted in WSF needs getting a lower priority relative to other vendor customers.
- **Software Code.** The system architecture does not support easy integration with other systems. The biggest issue is that the software is vendor-specific. While it may be possible to find expertise, it would be a significant effort for new programmers to learn the old code to a level needed to reliably modify it. This means the vendor, over time, will become less and less willing to try to implement major changes. It also means that vendor costs are likely to be high and scheduling their work will be a difficulty.

Thus far, WSF has been able to work around these system limitations. WSF has elected to build its own reservation software rather than buy an off-the-shelf product because of the difficulty of integrating off-the-shelf packages with *Wave2Go* and very limited vendor support which must be scheduled approximately one year in advance.

## 2. *Wave2Go* Fare Media Products

*Wave2Go* offers the following fare media products:

- **Single ride.** Single ride standard, small, and senior vehicle and driver, full fare passenger, and discounted youth and senior fare passenger.
- **Multi-ride.** Multi-ride cards for vehicle and driver or passenger.
- **ReValue cards.** ReValue cards are available for monthly passes and multi-ride products. The cards automatically "top up" when they run out (a credit card on file is charged).
- **Monthly passes.** Monthly passenger passes.

The exhibit below describes these fare media products in more detail.

**Exhibit 12.**  
**Wave2Go Fare Media Products**

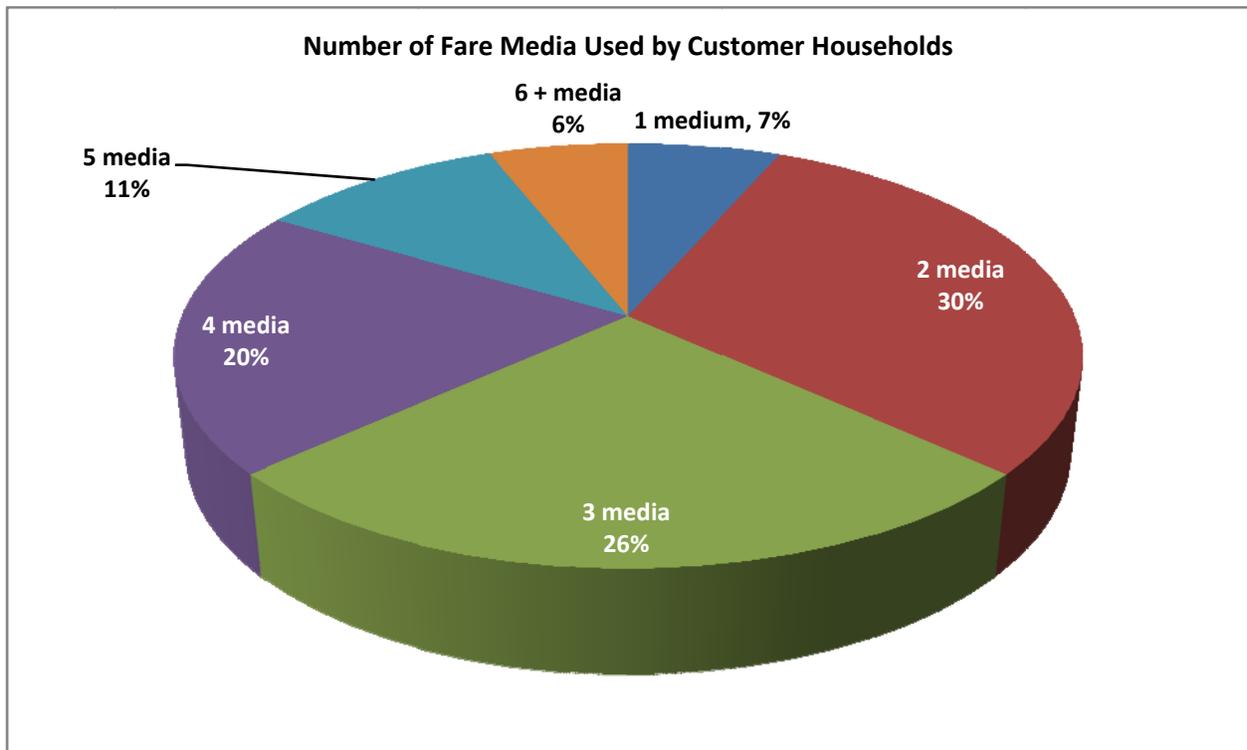
Media	Description	Purchase	Use
<b>Single-Trip Ticket</b>	<ul style="list-style-type: none"> <li>Available for passenger and vehicle fares.</li> <li>Good for one ferry trip, either one-way or round-trip depending on the route and method of boarding.</li> </ul>	<ul style="list-style-type: none"> <li>Purchase online or at tollbooth/kiosk.</li> <li>Pay with cash, credit card, or ORCA ePurse</li> <li>Youth, senior, and disabled tickets are not available for purchase online or at kiosk.</li> </ul>	<ul style="list-style-type: none"> <li>Redeemed at tollbooth at time of travel</li> <li>Valid for 90 days from date of purchase</li> <li>Can be used on routes of equal or lesser value.</li> <li>Customers can use on routes of greater value by paying the difference with cash or credit card.</li> </ul>
<b>Multiride Card &amp; ReValue Cards</b>	<ul style="list-style-type: none"> <li>Available for passenger and vehicle fares.</li> <li>Provide discount for frequent travelers.</li> <li>Stored-ride media good for 10 round-trips in 90 days (5 for vehicles in San Juan Islands).</li> </ul>	<ul style="list-style-type: none"> <li>Purchase online or at tollbooth/kiosk.</li> <li>Pay with cash or credit card.</li> <li>Customers have option to have their multiride card automatically re-valued via credit card.</li> </ul>	<ul style="list-style-type: none"> <li>One trip subtracted each time it is redeemed at tollbooth.</li> <li>Trips can be used on routes of equal or lesser value. Refunds not given.</li> <li>Cannot be used on routes of greater value.</li> <li>Valid for 90 days from date of purchase.</li> </ul>
<b>Monthly Pass</b>	<ul style="list-style-type: none"> <li>Available for passengers only.</li> <li>Provides discount for frequent travelers.</li> <li>Provides 31 round-trips per month (<i>Wave2Go</i> version) or unlimited trips (ORCA version).</li> <li>31-trip limit on <i>Wave2Go</i> version is due to customer ability to photocopy barcode.</li> </ul>	<ul style="list-style-type: none"> <li>Can be purchased online or at tollbooth/kiosk or at retail locations.</li> <li>Can be loaded onto an ORCA card.</li> <li>Pay with cash or credit card.</li> <li>Customers have option to have their <i>Wave2Go</i> or ORCA monthly pass automatically re-valued via credit card.</li> </ul>	<ul style="list-style-type: none"> <li>Valid for calendar month.</li> <li>For <i>Wave2Go</i> version, one trip is subtracted each time it is used.</li> <li>For ORCA version, pass is checked for validity each time it is redeemed.</li> <li>Pass can be used on routes of equal or lesser value. Refunds are not given.</li> <li>Cannot be used on routes of greater value.</li> </ul>

### 3. Customer Use of *Wave2Go* Fare Media Products

The WSTC survey for this study asked customers to identify the WSF fare media their household or employer purchased in the past year. The survey found that:

- **WSF customer households use multiple WSF fare media products.** As shown in the exhibit below, WSF customer households typically use more than one WSF fare product for their households. Only 7 percent of respondents reported using one fare media product, while 87 percent used two to five different products, and 6 percent six or more fare media.

**Exhibit 13.**  
**Number of WSF Fare Media Products Used by Household**



- **Customer households in all travel sheds use multiple WSF fare media products.** There is little variation in the number of fare media products used by WSF customer households. Households in the North Sound have the highest percentage of customers purchasing 5 or more fare media in the last year.

**Exhibit 14.**  
**Number of Fare Media Products Used by Travel Shed Customers**

# of Fare Media	1	2	3	4	5+
Central Sound	8%	31%	29%	18%	14%
South Sound	5%	30%	29%	21%	15%
San Juan Islands	6%	27%	28%	25%	14%
North Sound	5%	33%	20%	21%	21%

## B. One Regional Card for All (ORCA)

### 1. System Description

ORCA (One Regional Card for All) is the regional smart-card based public transportation fare payment system that allows customers to use one card to ride public transportation services in King, Pierce, Kitsap, and Snohomish counties. Possession of a valid ORCA card allows customers to ride buses, rail and ferries, subject to the transportation privileges provided by the product loaded on the card.

ORCA is governed through a seven-agency interlocal agreement. King County METRO and Sound Transit jointly manage and administer the program. The other five agencies are WSF, Community Transit, Pierce Transit, Everett Transit, and Kitsap Transit.

The ORCA card was publicly launched in April 2009 and is fully operational with over 800,000 cards in circulation (as of March, 2011).

Customers can choose various combinations of products such as multiple passes or stored value plus a pass. The system is designed to check through the available products on a customer’s card and choose the one best suited for the trip.

A key difference between the ORCA system and other types of pre-paid toll/fare systems (including *Good To Go!*) is that ORCA is card based rather than account based. This means that the payment information is stored on the card itself, rather than in an account record held at the back office. When a customer purchases a pass product or pre-pays funds into an e-purse, the funds and/or product are loaded and stored on a chip in the card the next time that the card is presented to a reader. The reader device stores the fare tables, and it is the interaction between the two that computes and deducts the appropriate fare.

### 2. ORCA and *Wave2Go* System Interoperability

ORCA and *Wave2Go* function as two distinct systems with their own infrastructure, communication paths, and operations. The systems are manually reconciled. Appendix 2 provides a more detailed description of ORCA and *Wave2Go* system interoperability.

### 3. ORCA and WSF Fare Media Products

#### a. WSF Fare Media Products Accepted on ORCA

WSF accepts ORCA for:

- **Full fare passenger fares/stored value.** Passengers can use ORCA to pay the full, discounted senior, or youth fares. Sometimes referred to as e-purse, this is the equivalent of electronic cash stored on the card. This is a convenient option for semi-frequent or casual riders that do not use public transportation enough to justify the cost of a pass, yet still want the convenience of using public transportation with an ORCA card. Fares are paid by deducting the full fare value of the ride from the stored value purse when a customer boards a public transportation service.
- **Monthly passes.** Monthly WSF passenger passes may be loaded on the ORCA card.
- **Drivers.** Within the year, drivers will be able to use their ORCA card to pay the full fare due at the toll booth, including vehicle/driver and passengers, using the stored value feature. The ORCA card can currently be used to pay for passengers only at the vehicle toll booth.
- **Employer program.** Employers are able to load WSF monthly passenger passes on their employees' ORCA cards at the same retail price the employee would pay or add E-purse that can be used to pay for *Wave2Go* fares.

#### b. ORCA Features/*Wave2Go* Fare Media Products Not Accepted on ORCA

There are two features of ORCA used by the other agencies that are not accepted by WSF. These include:

- **Regional Pass/PugetPass.** A regional monthly pass lets customers travel on all transit services in the region for a specified period of time. Passes are valid on Community Transit, Everett Transit, King County Metro Transit, Kitsap Transit, Pierce Transit and Sound Transit.
- **Stored rides.** Currently in use by Kitsap Transit for its Kingston passenger-only ferry service, the electronic equivalent of a 10-ride ticket book is available on the ORCA card. ***WSF multi-ride passenger or vehicle products*** cannot be purchased through ORCA.

ORCA is accepted at WSF turnstiles, at tollbooths, and at most terminals where WSF ticket takers use handheld readers to electronically read ORCA cards (ORCA is not accepted at Sidney).

Customers who wish to establish an ORCA account for their cards do so within ORCA; there is no tie to *Wave2Go*. Similarly customers wishing to reload their ORCA card must do it through the ORCA system and ORCA devices – cards cannot be reloaded at seller booths or other WSF facilities.

#### c. WSF and Transit

There are currently no shared or joint fare products through ORCA, or with any transit agencies. The WSF fare structure permits a discounted joint transit pass, which in the past took the form of a ship to shore pass. No discounts are provided for transfers between WSF and connecting transit services.

Customers wishing to use both WSF and transit need to either:

1. Use stored value and pay full fare on both services; or
2. Purchase two products such as a WSF monthly passenger pass and a transit pass and have them loaded onto their ORCA card.

#### 4. WSF Customers and ORCA

- **A significant percentage of WSF customers who most frequently travel on routes in travel sheds that are served by ORCA transit partners have an ORCA card.** As shown in the exhibit below, 52 percent of respondents who said they most frequently use a Central Sound route have an ORCA card, as do 48 percent of those who most frequently use a South Sound route, and 31 percent of those who most frequently use a North Sound route. Only 10 percent of respondents who most frequently use a San Juan Islands route have an ORCA card.
- **Adding the multi-ride card to ORCA is important to many customers who have an ORCA card.** Fifty-four (54%) percent of respondents who most frequently use a South Sound route and have an ORCA card responded that it is somewhat important or very important to be able to use their ORCA card to purchase multi-ride WSF products, as did 44 percent of the Central Sound and North Sound customers who have an ORCA card. Respondents were not asked to distinguish between the importance of having vehicle versus passenger multi-ride products on ORCA, so their response may pertain to either of these products.

**Exhibit 15.**  
**WSF Customer Households with ORCA Cards**

	Households with at least one ORCA card	Households who think having multi-rides on ORCA is somewhat or very important	% Households <i>with ORCA</i> who think having multi-rides on ORCA is important or very important
Central Sound	52%	34%	44%
South Sound	48%	40%	54%
North Sound	31%	35%	44%
San Juan Islands	10%	26%	37%

### C. *Good To Go!*

#### 1. System Description

*Good To Go!* is the Washington State Department of Transportation’s (WSDOT) electronic toll collection program. *Good To Go!* enables tolls to be collected as vehicles pass through a facility at freeway speeds, without stopping or slowing down. Vehicles are identified through the use of an in-vehicle transponder or a photo of their license plate. This information is then linked to either a pre-paid account from which the toll is debited, or in the case of a license plate with no account, vehicle registration information obtained through the Department of Licensing. The vehicle registration information is then used to mail the owner a toll bill or infraction notice.

The *Good To Go!* transponders, lane systems and back office components were procured by WSDOT under multiple vendor contracts. Implementation is overseen by the WSDOT Toll Division.

*Good To Go!* has been operational on the second span of the Tacoma Narrows Bridge since the span opened in July 2007, and is also used to collect tolls on the SR 167 HOT Lanes. In 2009, plans to toll the existing SR 520 bridge to help fund its replacement necessitated the procurement of a new back office to support the significantly larger volume of transactions and accounts needed to support SR 520 tolling.

The new back office was in development and testing through 2010 and 2011, with tolling on SR 520 started in December 2011.

A typical toll lane is equipped with a transponder, vehicle detection, automatic vehicle classification, license plate readers, and lane controllers.

The *Good To Go!* back office includes both the customer service and accounting system as well as a sizable customer service operation with three in-person storefronts (in Bellevue, Seattle and Gig Harbor), a web site offering self-service account maintenance, interactive voice response telephone line, and nearly 200 customer service representatives.

## 2. *Good To Go!* and WSF

### **a. Options to Implement Good To Go!**

*Good To Go!* is not currently accepted for WSF fare products.

If it were to be accepted by WSF, as a practical matter it would only be accepted at the vehicle tollbooths.<sup>2</sup>

There are two broad options for implementing *Good To Go!* at WSF vehicle tollbooths, which will be reviewed in more detail in subsequent sections of this report. The two options are:

- ***Good To Go!* accepted as a form of payment at vehicle tollbooths.** *Good To Go!* could be implemented as a peripheral to the *Wave2Go* system and would simply be an additional payment option. A vehicle would stop at the tollbooth as it does now and the attendant would determine the fare. The fare, excepting any fares paid through *Wave2Go* passenger monthly passes or vehicle or passenger multi-ride cards, would be charged to the customers *Good To Go!* account. If a customer wants to pay with a multi-ride card or a passenger monthly pass, the *Wave2Go* system would be used. Customers would also retain the option to pay with ORCA or use cash or credit cards to pay with *Wave2Go!*
- ***Good To Go!* as the only means of payment at vehicle tollbooths.** *Good To Go!* could be implemented as the only means of payment at vehicle tollbooths. This would require significant changes in the fare structure because *Good To Go!* cannot be used to charge for passengers in a vehicle and does not have the ability to differentiate senior or frequent drivers.

### **b. Good To Go! Ability to Incorporate WSF**

The concept under which *Good to Go!* is accepted as an additional form of payment and is a peripheral to *Wave2Go* is easier to implement than having *Good To Go!* as the only means of payment at vehicle tollbooths.

Initial estimates from *Good To Go!* staff are that given highway system tolling commitments, a peripheral system could not be implemented until the 2013-14 time period. The more complicated

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<sup>2</sup> Although this option could theoretically be implemented for walk-on passengers, as a practical matter *Good To Go!* is a vehicle technology, and it is more likely that walk-on customers would carry a *Wave2Go* ticket or ORCA card than a vehicle toll transponder.

application where *Good To Go!* is the only means of payment at vehicle tollbooths cannot be implemented until the 2017-18 time period.

The ability of the *Good To Go!* staff to provide interoperability with WSF will depend, in part, on final legislative decisions on I-405 express toll lanes and SR 99 (downtown Seattle tunnel) tolling.

### 3. *Good To Go!* and WSF Customers

The WSTC survey conducted for this study asked customers if their household currently has a *Good To Go!* transponder or if they plan to get one, how important it is to be able to use their *Good To Go!* transponder on WSF, and whether such use would increase the likelihood that they would get a *Good To Go!* account.

- **Approximately one-third of customers that most frequently travel in travel sheds that are near a *Good To Go!* tolled facility already have a *Good To Go!* transponder in at least one vehicle.** As shown in the exhibit below, 31 percent of those who most frequently travel on a WSF route in the Central Puget Sound travel shed and 34 percent of those who most frequently travel on a route in the South Sound travel shed have a *Good To Go!* transponder. Within the South Sound, 79 percent of customers who most frequently use the Fautleroy-Southworth route currently have *Good To Go!* transponders. In the Central Sound, 60 percent of customers who most frequently use the Seattle-Bremerton route already have *Good To Go!* transponders.
- **Of those with *Good To Go!* transponders, the majority rate it as somewhat or very important to be able to use it on WSF.** As shown in the exhibit below, between 50 and 81 percent of those who have a *Good To Go!* transponder rate it as somewhat or very important to be able to use *Good To Go!* on WSF. The level of importance increases if use of a *Good To Go!* transponder resulted in lower fares.

**Exhibit 16.**  
**Households with *Good To Go!***

	Households with <i>Good To Go!</i> transponders now	Households with <i>Good To Go!</i> Transponders	
		Somewhat or very important to use <i>Good To Go!</i> on ferries	Importance would increase if fares were discounted
Central Sound	31%	59%	86%
South Sound	34%	64%	84%
San Juan Islands	6%	50%	58%
North Sound	5%	81%	77%

- **An additional nearly one-third of respondents are either planning to or may get a *Good To Go!* transponder in the future.** As shown in the exhibit below nearly one-third of WSTC survey respondents who do not currently have a *Good To Go!* transponder are planning on or might get a *Good To Go!* transponder in the future. That number would increase to over 60 percent of respondents who don't currently have a transponder if it could be used on WSF. The number

increases even more if use of a *Good To Go!* transponder also resulted in paying a lower WSF fare.

**Exhibit 17.**  
**Households without *Good To Go!* Transponders**

Households that don't currently use <i>Good To Go!</i>			
	Planning to get <i>Good To Go!</i> (yes or maybe)	People more likely to get <i>Good To Go!</i> if could be used with WSF (excludes those planning to get <i>Good To Go!</i> anyway)	People more likely to get <i>Good To Go!</i> if could be used with WSF and fare was reduced (excludes those planning to get <i>Good To Go!</i> anyway)
Central Sound	32%	63%	85%
South Sound	38%	64%	90%
San Juan Islands	28%	64%	87%
North Sound	31%	62%	88%

D. System Comparison *Good To Go!*, ORCA, and *Wave2Go*

The following exhibit presents a summary of system components broken down by fare media, front end equipment, and back office systems. While the systems have these three basic structural elements in common, the exhibit shows some of the differences.

**Exhibit 18.**  
**Comparison of ORCA, Good To Go! and Wave2Go System Components**

	<b>ORCA</b>	<b>Good To Go!</b>	<b>Wave2Go</b>
<b>Fare Media</b>	<ul style="list-style-type: none"> <li>Plastic ISO 14443 smart card similar in size to a credit card.</li> <li>Internal chip stores fare product, passenger class and e-purse value data.</li> <li>“Contactless” close proximity communications -does not have to come into direct contact with a reader to be read.</li> </ul>	<ul style="list-style-type: none"> <li>In-vehicle transponder coded with a unique identification number and linked to a prepaid account.</li> <li>Uses dedicated short range communications (DSRC) protocol to communicate with transponder reader.</li> <li>License plate image captured and used for identification if no transponder is present.</li> </ul>	<ul style="list-style-type: none"> <li>Bar-coded tickets purchased at a kiosk, fare booth or online.</li> </ul>
<b>Front End Customer Interaction</b>	<ul style="list-style-type: none"> <li>Standalone and handheld readers</li> <li>Readers store tariff data and compute fare due based on information from card.</li> </ul>	<ul style="list-style-type: none"> <li>Over-the-road readers. Other reader technology such as handheld or booth equipment are available that can read <i>Good To Go!</i> transponders, but these have not been deployed.</li> <li>Vehicle detection, classification and license plate reader systems installed as needed</li> <li>Lane controller assembles transaction</li> </ul>	<ul style="list-style-type: none"> <li>Point of Sale terminals at fare booths calculate and collect fares</li> <li>Self-serve ticket kiosks and website</li> <li>Turnstiles at passenger gates open when valid fare presented</li> </ul>
<b>Back Office</b>	<ul style="list-style-type: none"> <li>Financial clearinghouse</li> <li>Financial settlement (sales and use) for partner agencies</li> <li>Customer account information and use records</li> <li>Card inventory management</li> <li>Reporting</li> </ul>	<ul style="list-style-type: none"> <li>Customer service and accrual-based accounting system</li> <li>Toll transaction posting</li> <li>Account maintenance</li> <li>License plate image review</li> <li>Post-billing of customers who do not have a valid toll account.</li> <li>Adjudication process support for enforcing delinquent tolls.</li> <li>Reporting</li> </ul>	<ul style="list-style-type: none"> <li>Accumulates sales and use transactions from terminals</li> <li>Reporting</li> <li>Interfaces with separate financial system</li> </ul>

## E. Commercial Accounts

WSF provides a commercial account program for freight and other commercial customers that is separate from *Wave2Go*.

WSF currently offers its commercial customers the opportunity to sign up for a commercial business account, which allows companies to have all their trucks pay for WSF passage by charging back to a single account. Individual employees carry a charge card that is processed at the time of travel, and includes the company's name and account number. The commercial account system tracks each business's travel and bills the firm at the end of the month for all ferry usage. WSF currently has approximately 1,400 active commercial accounts, generating about \$9 million in annual revenue. In order to join the commercial account program, a business must pass a credit screen and pay a \$50 annual administration fee.

Commercial account customers can also have a commercial reservations account for travel to and from the San Juan Islands.

## V. FARE STRUCTURE

The fare structure is based on legislative policy direction expressed in statute. Statutory policy direction changed significantly in 2008, but the basis of the fare structure was not changed.

This section discusses legislative fare policy direction, current WSF and WSTC fare policies, and provides an overview of the complexity of existing fares.

### A. Legislative Direction

The current fare structure reflects principles adopted by WSF and the WSTC following legislative direction established prior to 2007. While the legislative direction changed in 2007<sup>3</sup>, the principles used to develop fares; CUBE, Tariff Route Equity, and Passenger/Vehicle Fare Relationship were not simultaneously updated or changed.

In 2007, the legislature provided very specific direction on what WSF must consider in developing fare and pricing policy proposals. These include the recognition that each travel shed is unique, use of market survey data in addition to public hearings and review with Ferry Advisory Committees, considering the impact on users and ferry communities, keeping fare schedules as simple as possible, and directions to consider demand management pricing to level peak demand and increase off-peak ferry use.

Prior legislative direction included items that WSF could consider in reviewing tariffs for the purpose of establishing a more fair and equitable tariff for passengers, vehicles and commodities. These considerations included, among others, the time and distance of runs, reasonable rates, increasing walk-on and vehicular passenger use, and the efficient distribution of traffic between cross-sound routes. .

In effect, the current structure in response to the prior legislative direction was developed using a “utility pricing model” approach, not unlike a water or electric utility rate structure, where the characteristics of customer use of the system were the primary determinant of the price paid. As a result, generally the more service a customer consumes (space on the car deck, time on the vessel) the higher the price paid. Exceptions are made for unique characteristics of travel sheds, such as all central sound routes sharing the same pricing and different surcharges and discounts in the San Juan Islands.

Current legislative direction on fares requires that the fares generate the amount of revenue required by the biennial budget. Prior legislative direction provided that in establishing fares WSF could consider the subsidy available to the system and maintenance and operation costs.

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<sup>3</sup> RCW 47.60.290

**Exhibit 19.**  
**Legislative Direction on Fares**

Prior Legislative Direction on Fares – Now Repealed	Current Legislative Direction on Fares
<p><i>RCW 46.60.326.</i> Review tariffs for the purpose of establishing a more fair and equitable tariff for passengers, vehicles and commodities, subject to RCW 47.60.326.</p> <p><i>RCW 47.60.326 (now repealed)</i></p> <p>Fare review may include:</p> <ol style="list-style-type: none"> <li>a. Subsidy available to the ferry system for maintenance and operation.</li> <li>b. Time and distance of runs.</li> <li>c. Maintenance and operation costs for runs adjusted for use of outmoded or less efficient equipment.</li> <li>d. Efficient distribution of traffic between cross-sound routes.</li> <li>e. Reasonable rates for commuters &amp; other frequent users in ferry dependent communities.</li> <li>f. Increasing walk-on and vehicular passenger use.</li> <li>g. Promote non-peak use.</li> <li>h. Other revenues from advertisements, parking, contracts, leases, etc.</li> <li>i. The pre-purchase of multiple fares.</li> <li>j. Other factors prudent ferry system managers would consider.</li> </ol> <p>The review required by RCW 47.60.326 shall occur every three years &amp; must include:</p> <ol style="list-style-type: none"> <li>a. time of travel</li> <li>b. distance of travel</li> <li>c. operating costs</li> <li>d. maintenance and repair expenses</li> <li>e. effect on debt service requirements</li> <li>f. allocation of vessels to particular runs</li> <li>g. the scheduling of particular runs</li> <li>h. the adequacy and arrangements of docks and dock facilities</li> <li>i. or factors as decided by the department</li> </ol>	<p><i>RCW 47.60.290.</i> WSF is responsible for conducting an annual review of fares. Beginning in 2008, the department shall develop fare and pricing policy proposals that must:</p> <ol style="list-style-type: none"> <li>a. Recognize that each travel shed is unique, and might not have the same farebox recovery rate and the same pricing policies;</li> <li>b. Use data from the current survey conducted under Section 4 of this act (i.e. by the WSTC)</li> <li>c. Be developed with input from affected ferry users by public hearing and by review with the affected ferry advisory committees, in addition to the data gathered from the survey conducted in section 4 of this act;</li> <li>d. Generate the amount of revenue required by the biennial transportation budget;</li> <li>e. Consider the impacts on users, capacity, and local communities; and,</li> <li>f. Keep fare schedules as simple as possible.</li> </ol> <p>While developing fare and pricing policy proposals, the department must consider the following:</p> <ol style="list-style-type: none"> <li>a. Options for using pricing to level vehicle peak demand; and</li> <li>b. Options for using pricing to increase off-peak ridership.</li> </ol>

## B. Fare Structure Responsibility

The legislature has given responsibility for preparing fare proposals to WSF and for adopting fares to the WSTC. With the adoption of RCW 47.60.315, the fare making cycle was modified so that new fares must be adopted by the WSTC by September 1<sup>st</sup> of each year to become effective October 1<sup>st</sup> of each year. (Previously fares were adopted in June and were effective July 1<sup>st</sup> of each year.) This allows WSF and WSTC to meet the new legislative requirement that fares generate the amount of revenue required by the biennial budget.

The key steps in the process are:

- **Annual fare review.** WSF conducts annual fare reviews and develops fare proposals that conform to the policy direction in RCW 47.60.290.
- **Ferry Advisory Committee on Tariffs (FAC-T).** The FAC-T was created in 2010 by the WSTC to, in cooperation with WSF, provide advice, input, and recommendations on WSF's annual fare proposal. The committee structure was developed jointly by WSTC and WSF. FAC-T includes members of the Ferry Advisory Committee Executive Council, with members added if needed to provide expertise in a particular area, and ex-officio members from WSTC and WSDOT. Among other duties, FAC-T is to consult with local elected officials in ferry-served communities.
- **WSTC.** The WSF proposal is presented to the Commission, along with recommendations from FAC-T, by July 1st of each year. The WSTC may modify the proposal, and then incorporates the proposal as revised into a rulemaking filing. The WSTC, with support from WSF, conducts public hearings and adopts a final rule change by Sept. 1<sup>st</sup> for fares that go into effect on Oct. 1<sup>st</sup>.

## C. Current Fare Structure

While the legislative direction changed in 2007, the principles used to develop fares were not simultaneously updated or changed. The fare structure reflects earlier legislative direction to establish a fair and equitable tariff for passengers, vehicles and commodities, which is in line with how public utility rates are typically set.

As shown in the exhibit below, the fare structure evolved around three guiding principles used to establish a base fare structure, to which additional discounts and surcharges are added, and which are further modified by one-point or two-point fare collection. When charged as a one-point fare, the customer has no option but to pay for a round trip even if they are not planning a return trip.

**Exhibit 20. FARE STRUCTURE PRINCIPLES**

THREE GUIDING PRINCIPLES FOR BASE FARE STRUCTURE					
CUBE		TARIFF ROUTE EQUITY		RELATIONSHIP PASSENGER/VEHICLE FARES	
Vehicle Rates		Vehicle Rates Passenger Rates		Vehicle Rates Passenger Rates	
Fares based on space occupied height, width & length		Price relationship between routes based on service time/ travel sheds		Vehicles cost 3.4 times more than passengers (now at 3.2 to 3.4)	
DISCOUNTS AND SURCHARGES APPLIED TO BASE FARE STRUCTURE					
DISCOUNTS (% decrease)			SURCHARGES (% of flat fee increase)		
Senior (65+), Disabled, Medicare Card <ul style="list-style-type: none"> <li>Passenger Rates – 50%</li> <li>Vehicle Rates – 50% of the driver portion of the vehicle rate</li> </ul>			Peak Season – Vehicles – May 1 to Sept. 1 <ul style="list-style-type: none"> <li>25% (35% in San Juans)</li> <li>Applies to full fare vehicles, not multi-ride cards</li> </ul>		
Youth (6-18) <ul style="list-style-type: none"> <li>Passenger Rates – 20%</li> <li>Under 6 - Free</li> </ul>			Bicycles All Year (+ passenger fare) <ul style="list-style-type: none"> <li>\$1.00 (\$2.00 Anacortes-San Juans non-peak/ \$4.00 peak and \$4.00/\$6.00 Anacortes-Sidney ) on full fare passengers</li> </ul>		
Frequent Vehicle <ul style="list-style-type: none"> <li>Multi-ride card (standard or small car) <ul style="list-style-type: none"> <li>20% - non-peak (25% San Juans)</li> <li>45% - peak (50% San Juans) peak</li> </ul> </li> <li>Van Pools – Free vehicle, pay passenger fee</li> </ul>			Vehicle Overheight <ul style="list-style-type: none"> <li>Vehicles under 30'</li> <li>Double the regular fare</li> </ul>		
Frequent Passenger <ul style="list-style-type: none"> <li>Multi-ride card <ul style="list-style-type: none"> <li>20% - all year (25% San Juans)</li> </ul> </li> <li>Monthly pass <ul style="list-style-type: none"> <li>20%+ (if use max 31 times, 58%)</li> </ul> </li> <li>Ferry-transit multimodal pass (not used) <ul style="list-style-type: none"> <li>20%+ (if use max 31 times, 58%)</li> </ul> </li> </ul>			Fuel Surcharge – periodic – passengers & vehicles <ul style="list-style-type: none"> <li>Maximum 10% (depends on fuel expenditures relative to fuel budget)</li> </ul>		
Sidney RV and buses <ul style="list-style-type: none"> <li>50% reduced fee from commercial rates</li> </ul>			Vessel Replacement Fund – passengers & vehicles <ul style="list-style-type: none"> <li>\$0.25 per ride</li> </ul>		
Director's Promotional Authority <ul style="list-style-type: none"> <li>10% frequent commercial</li> <li>Interisland free passengers</li> </ul>					
FARE COLLECTION			FARE COLLECTION		
ONE POINT (COLLECT ROUND-TRIP FARE)			TWO-POINT (COLLECT ONE-WAY FARE)		
Passengers (10 routes/sub-routes)			Passengers (2 routes/sub-routes)		
Seattle –Bainbridge		Mukilteo-Clinton		Port Townsend-Coupeville	
Seattle – Bremerton		Pt. Defiance-Tahlequah		Anacortes-Sidney	
Fautleroy-Vashon		Anacortes to San Juans			
Edmonds-Kingston		San Juans to Sidney			
Fautleroy-Southworth		Southworth-Vashon			
Vehicles (6 routes/sub-routes)			Vehicles (8 routes/sub-routes)		
Fautleroy-Vashon		Anacortes-San Juans		Seattle-Bainbridge Mukilteo-Clinton	
Pont Defiance -Tahlequah		San Juans-Interisland		Seattle Bremerton Port Townsend-Coupeville	
Southworth-Vashon		San Juans-Sidney		Edmonds-Kingston Anacortes-Sidney	
				Fautleroy-Southworth	

## 1. Base Fare Principles

- **The CUBE policy.** The CUBE structure was introduced in 1992. Under the CUBE policy, all measures of vehicle size – height, length, and width – are valued equally so users are charged equally for the space they occupy. A vehicle under 30' long but over 7'6" tall is charged \$0.25 less (the amount of the capital surcharge) than twice as much as the equivalent 7'6" vehicle would be. Vehicles that are wider than 8'6" (the highway limit for overwide vehicle permits) are charged twice the regular fare based on length (less \$0.25 since the capital surcharge applies only once) since they are likely to use two vehicle lanes. All vehicles 30' and over are assumed to be overweight or are required to be accommodated in the center lanes and are thus charged as overweight vehicles. Length increments are charged for every ten feet in length until 80 feet at which point the charge is the 70' to under 80' rate plus an additional per foot charge.
- **Tariff Route Equity (TRE).** TRE, a time-based fare structure, was introduced in June 2001. The intent of TRE was to add a component to the fare structure where price relationships between routes would be proportional to the amount of service time being used by the customer. Under TRE, Central Sound route fares (Edmonds-Kingston, Seattle-Bainbridge, and Seattle-Bremerton) are set via the general fare increase and then all other routes are priced proportionally to the Central Sound fare – the TRE factor. The Central Sound routes and the routes serving Vashon Island were standardized relative to each other so that pricing did not shift traffic between routes where substitutions are possible. For example, someone with a choice between driving on at Bainbridge or Edmonds to get to the eastside does not have a price incentive either way.
- **Passenger/vehicle fare relationship.** The current relationship between fares dates to the mid-1970s, when the WSTC set the passenger to vehicle relationship to a uniform 3.4 to 1 ratio. With the capital surcharge implemented in 2011, which applies a \$0.25 surcharge to both passenger and vehicle trips, the ratio experienced by the customer ranges from 3.2 – 3.4 to 1.

## 2. Discounts

- **Senior/disabled discounts.** As a federal transportation grant recipient, WSF must comply with a number of federal guidelines, including tariff-related policies. The Federal Transit Administration rules state that “fares charged elderly persons, persons with disabilities, or an individual presenting a Medicare card during off-peak hours will not be more than half of the peak hour fare.” To meet this requirement WSF senior/disabled fares have been rounded down to the nearest \$0.05. WSF also applies the discount policy uniformly across the system, including during peak periods. Senior/disabled discounts are applied to passenger and vehicle/driver fares because WSF does not have a separate vehicle fare.
- **Youth discounts.** WSF offers a youth fare which is based on a 20 percent discount over the base passenger fare. As part of aligning its policies with other ORCA program partners, WSF expanded the youth category from 5-11 years old to match the transit definition of 6-18 years old and reduced the discount from 50 percent. The 20 percent discount matches the frequent user discount which was a desirable feature for some regular users, since children could travel at the same price if paying cash or using a frequent rider card.

- **Frequent user discounts (multi-ride products)**
  - **Vehicle & driver.** Customers can purchase a multi-ride card that contains 10 roundtrips at a 20 percent discount from the base season regular fare and the peak surcharge does not apply. The multi-ride card must be used within 90 days. In the San Juans the discount is 25 percent and the card is good for 5 round-trips and the card must be used within 90 days.
  - **Passengers.** Passengers can purchase a multi-ride card that contains 10 roundtrips at a 20 percent discount and must be used within 90 days. In the San Juans the multi-ride discount is 35 percent. Customers can also purchase a non-transferable monthly pass that can be used for 31 passenger roundtrips during a month.
  - **Ferry/transit pass product.** A combination ferry-transit pass can be made available for a particular route when determined by Washington state ferries and a local public transit agency to be a viable fare instrument. The WSF portion of this fare is set at the same discount level (16 days of travel at 20 percent discount) as the passenger monthly pass. Prior to 2002 and prior to ORCA, WSF offered a 10 percent higher discount on the monthly pass when sold as a combination product. Now the customer gets no additional discount by purchasing a ferry/transit pass rather than a separate ferry monthly pass and separate transit ferry monthly pass.
- **Van pools.** Van pools are free, with occupants required to each pay the passenger fare with a minimum requirement of five passengers, including the driver. Any registered van pool is eligible for the discount, including official transit agency van pools. This program has been in place since at least the early 1980's, though at one point the threshold was greater than 5 people including the driver.
- **Small cars.** Effective Oct. 2011, vehicles under 14 ft. are priced at 90 percent of the regular, senior, or multi-ride card vehicle/driver fares. This fare was instituted as a way to encourage bringing smaller cars on ferries to maximize the use of the car deck. On May 1 2012 the small car fare drops to 80 percent of the standard vehicle fare. Pending future WSTC action, there is a plan for a third step in the phasing plan which would bring the small car fare to 70 percent of the standard vehicle fare.
- **RV promotional discount.** RVs and tour buses receive a 50 percent discount on the applicable oversize vehicle fare on the Sidney route. This was done to make the route more competitive for recreational travelers.
- **Director's Authority.** RCW 47.60.315 gives the chief executive officer of the ferry system the authority to use promotional, discounted, and special event fares to the general public and commercial enterprises for the purpose of maximizing capacity use and the revenues collected by the ferry system. The Director has used this authority to implement two discount programs:
  - **Commercial frequent user.** Commercial customers can qualify for a 10 percent discount by making 12 one-way trips a week.
  - **Free interisland passenger travel.** In the San Juan Islands passengers travel free on the interisland boat.

### 3. Surcharges

- **Vehicle peak season surcharge.** Except on San Juan Islands routes, a peak period surcharge of 25 percent applies to full vehicle fares (small, senior, or standard) from May through mid-October. On San Juan Island routes surcharges are 35 percent on full vehicle fares. The peak surcharge does not apply to vehicles using multi-ride cards.
- **Bicycles.** The bicycle surcharge is \$1.00 on full fare single purchase passenger fares, except in the Anacortes-San Juans routes where it is \$2.00 in the non-peak and \$4.00 in the peak season and Anacortes-Sidney route where it is \$4.00 in the non-peak and \$6.00 in the peak season. Effective Oct. 1, 2011, multi-ride, monthly pass and ORCA cardholders are exempt from the surcharge.
- **Fuel surcharge.** Effective Oct. 1, 2011, WSF was authorized to implement a fuel surcharge with 30-days notice when fuel costs exceed the budgeted amount. WSF may only implement a fuel surcharge in 2.5 percent increments, up to a maximum surcharge of 10 percent.
- **Vessel Replacement.** Effective Oct. 1, 2011, WSF implemented, at legislative direction, a \$0.25 per ticket vessel replacement capital surcharge.

### 4. Changes in Discounts and Surcharges

The value of discounts and surcharges has been substantially modified over time, which is particularly important because WSTC surveys show that a significant portion of multi-ride product users have been riding the system for more than 10 years. The WSTC's March 2011 Fare Strategic Survey showed that 38 percent of those using multi-ride products, 39 percent of those using a monthly pass, and 31 percent of those using an ORCA card have been riding for more than 10 years.

The changes in the value of the discounts and surcharges are shown in the exhibit below.

- **Youth Discount.** The youth discount has changed from 50 percent in 1999 for ages 5 to 11 to 20% for ages 6 to 18 in order to come into line with ORCA.
- **Frequent Passengers.** These discounts have been reduced to match the discount given to vehicles and the ability of customers to receive a refund on their unused rides has been discontinued.
  - **Multi-Ride.** The discount has been reduced from 40 percent to 20 percent and the unused portion is not refundable.
  - **Monthly.** The discount has been reduced from 40 percent to 20 percent. The monthly pass pricing was made more favorable in 2002 by setting the fare based on 16 multi-ride round trips versus the previous 21 multi-ride round trips.
- **Passenger ferry/transit discount.** Customers who purchased a joint ferry/transit pass were able to get an additional 10 percent discount on the ferry portion of the pass. Since 2002 there has been no discount on by purchasing a joint pass – it costs the same to buy the passes together as it does to purchase them separately.
- **Vehicle peak surcharge.** The vehicle surcharge was increased to 25 percent during the summer from 20 percent in 2002.

- **Commercial frequent user discount.** The discount has been changed from 20 percent to 10 percent.
- **San Juan Islands.** The San Juan Island routes had and then eliminated early week and passenger peak fares. A commercial reservation fee began in 2003.

Effective October 1, 2011, a new capital surcharge of \$0.25 has been added to all tickets and WSF has received authority to implement a fuel surcharge program.

**Exhibit 21.**  
**Fare Discount and Surcharge Changes (1998-2011)**

Year	Youth Discount % & Age	Passenger Multi-Ride Discount %	Passenger Monthly Pass Price & Policy	Passenger Ferry/Transit Discount %	Vehicle Peak Surcharge	Capital & Fuel Surcharges	Commercial Frequent Discount %	San Juan Islands
1998		40% to 35%	40% to 35%		20% to 25%			
1999	50% to 30% Upper age to 18 from 11	35% to 30%	35% to 30%	50% to 40%				
2001		No refund if unused						
2002		30% to 25%	30% to 25% Priced at 16 trips rather than 21	No joint discount			20% to 15%	15% discount <i>early week</i> 20% <i>passenger peak season</i> surcharge. <i>Vehicle peak season</i> surcharge increased to 35% from 25%
2003	30% to 20%	25% to 20%	25% to 20%				15% to 10%	<i>Early week</i> discount from 15% to 10% <i>Vehicle multi ride</i> discount from 20% to 25% <i>Passenger multi ride</i> discount from 25% to 30% <i>Commercial reservation</i> fee
2005	Change to 6-18 from 5-18							
2006			Limit 31 round trips/month					
2010								End <i>early week</i> discount End <i>passenger peak</i> surcharge
2011						\$0.25/per ticket capital		

## 5. Fare Collection: One-Point Toll Collection

WSF collects fares in only one direction on many routes in the system. One-point toll collection has been an efficient way to minimize transaction time for customers and to reduce WSF staffing and capital costs by not building and staffing additional toll booths at many terminals.

One-point toll collection is based on the assumption that passengers departing from a terminal where passenger tolls are not collected will be returning to their point of origin via a westbound ferry, subsequently paying the fare at the westbound terminal. The premise is the same for vehicles, though one-point toll collection for vehicles exists only on island routes that do not have a drive-around option. The exhibit below summarizes toll collection policies by route.

**Exhibit 22.**  
**Fare Collection Policy by Route**

Route	Passengers	Vehicles
<b>Vashon Island routes</b>	1-point toll collection (collected going to Vashon)	1-point toll collection (collected going to Vashon)
<b>Southworth</b>	1-point toll collection (collected going to Fauntleroy)	Collected each way
<b>Central Sound</b>	1-point toll collection (collected Westbound)	Collected each way
<b>Port Townsend-Coupeville</b>	Collected each way	Collected each way
<b>Mukilteo-Clinton</b>	1-point toll collection (collected Westbound)	Collected each way
<b>San Juan Islands</b>	1-point toll collection (collected going to Islands)	1-point toll collection (collected going to Islands)
<b>Sidney</b>	Collected each way	Collected each way

### Effects of One-point Toll Collection

- **Savings.** WSF saves annual terminal operating costs through its one-point collection system by staffing fewer westside terminals. An estimate of the savings would have to be developed if the one-point toll collection is modified. In the 1990's it was estimated that WSF experienced \$2.5 million in annual savings from one-point toll collection. These estimates were developed before the implementation of *Wave2Go*.
- **Traffic Imbalance.** With fares collected only one way, a significant number of riders on the Fauntleroy-Southworth route and on the Bremerton route make a roundtrip that includes an eastbound ferry ride and a westbound drive over the Tacoma Narrows Bridge, which allows them to avoid both the TNB toll westbound and pay only for the vehicle and driver on the eastbound trip. Using vehicle traffic as a proxy, the exhibit below shows the imbalance in eastbound and westbound vehicle traffic in 2009. The imbalance is highest on the Seattle-Bremerton and Fauntleroy-Southworth routes, where the drive-around option is the most competitive.

**Exhibit 23.**  
**Summary of 2009 Eastbound/Westbound Traffic Imbalance**

<b>Route</b>	<b>May 2009</b>		<b>Difference</b>
	<b>Westbound</b>	<b>Eastbound</b>	
Seattle-Bainbridge	66,467	70,169	-5%
Seattle-Bremerton	24,384	28,925	-16%
Edmonds-Kingston	56,894	57,913	-2%
Mukilteo-Clinton	87,551	91,024	-4%
Fauntleroy-Southworth	16,723	22,150	-25%
<b>Total Imbalance on Affected Routes</b>	<b>252,019</b>	<b>270,181</b>	<b>-7%</b>

D. Current Fares

WSF's fare structure has 12 fare groups.

- **Central Sound.** This travel shed has the same fares on its three routes.
- **South Sound.** This travel shed has different rates for Fauntleroy-Southworth than for the Fauntleroy-Vashon and Southworth-Vashon. Pt. Defiance-Tahlequah rates are the same as the Fauntleroy-Vashon and Southworth-Vashon rates.
- **North Sound.** This travel shed has different rates for Port Townsend-Coupeville, which under Tariff Route Equity, are the same as the Fauntleroy-Southworth rates. Mukilteo-Clinton rates are unique to that route.
- **San Juan Islands.** The San Juan Islands travel shed has the most complex array of fares, with one fare structure for the Anacortes-San Juans passengers, three vehicle fare groupings for the Anacortes – Islands runs, a rate for vehicles on the Interisland (passengers are free), and three fare groupings for Sidney.

**Exhibit 24.**  
**Route Fare Structure Groupings**

Route Fare Structure Groupings	Travel Sheds
Seattle-Bainbridge Seattle-Bremerton Edmonds-Kingston	Central Puget Sound
Fauntleroy-Southworth Port Townsend-Coupeville	South Sound North Sound
Southworth-Vashon Fauntleroy-Vashon Pt. Defiance-Tahlequah	South Sound
Mukilteo-Clinton	North Sound
Anacortes-San Juans (passengers)	San Juan Islands
Anacortes – Lopez (vehicle & driver)	San Juan Islands
Anacortes – Shaw (vehicle & driver) Anacortes – Orcas (vehicle & driver)	San Juan Islands
Anacortes-Friday Harbor (vehicle & driver)	San Juan Islands
San Juan Interisland (vehicle & driver)	San Juan Islands
Anacortes-Sidney or Sidney-Anacortes one way	San Juan Islands
Islands-Sidney one-way	San Juan Islands
Islands-Sidney round-trip	San Juan Islands

As shown in the exhibit below, the WSF ticketing system has 643 unique fares for these fare groupings.<sup>4</sup>

Of the 643 unique fares in the ticket system today, 403 or 63 percent are in the San Juan Islands travel shed which has 9 percent of the systems ridership and 29 percent of its customers. Of the 403 San Juan Island travel shed fares, 204 are for Sidney.<sup>5</sup> Sidney alone has 32 percent of the system’s fares.

Vehicle fares, which account for 75 percent of fare revenues, have 580 unique fares or 90 percent of total fares. There are two primary reasons why there are so many more vehicle fares than passenger fares: (1) there are ten different size categories for vehicles, not including motorcycles and (2) because each vehicle fare is actually a combined vehicle and driver fare, every vehicle fare has an associated senior/disabled fare.

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<sup>4</sup> The 2007 JTC Ferry Financing Study found that there were 2,500 ticket types. This count was based on a 2006 WSF report to the legislature on the implementation of the Wave2Go, which stated WSF “has fares for adult, child, senior, disabled, motorcycle, motorcycle with side car, bicycles, over-height, over-width, under 20 feet and then in 10 foot increments, frequent users, monthly passes, day-of-week in the San Juan Islands, a different definition of frequent users between the San Juan Islands and the rest of the system, employer vouchers, business accounts, senior convenience tickets, etc.” (WSF Electronic Fare System Project and Regional Fare Coordination Project Report to the Legislature, June 30, 2006, p. 8).

<sup>5</sup> The 2006 Ferry Financing Study found that there were 471 fare types.

**Exhibit 25.**  
**Total Fares in Fare System**

Route	% Ridership	% Customers	Total Fares	% Fares	Passenger Fares	Vehicle Fares
Central Sound	56%	36%	58	9%	7	51
Fautleroy-Southworth						
Port Townsend-Coupeville	9%	26%	65	10%	14	51
Vashon Island routes			58	9%	7	51
Mukilteo-Clinton	18%	13%	58	9%	7	51
Anacortes-San Juan Islands	9%	29%	160	25%	7	153
San Juan Interisland			31	5%	0	31
Anacortes-Sidney			68	11%	6	62
Islands-Sidney			136	21%	12	124
System Fares			9	1%	3	6
<b>Total</b>			<b>643</b>		<b>63</b>	<b>580</b>

## VI. RESERVATIONS AND DEMAND MANAGEMENT

RCW 47.60.290 directs WSF to consider demand management when proposing fare policies and changes to the fare structure. It specifically provides that WSF must consider options for using pricing to level vehicle peak demand and for using pricing to increase off-peak ridership.

The need for demand management is for vehicles not for passengers. There is ample capacity throughout the system to accept more passengers but vehicle drivers, during peak periods, often have long waits to get on a ferry.

WSF currently has two approaches to demand management: managing the flow of vehicles by developing reservations; and increasing the number of riders who walk-on the ferry versus driving their vehicles on. Demand management pricing, while an option, may not be necessary in those terminals that will have vehicle reservations.

In addition to pricing (i.e. widening the gap between vehicle and passenger fares), WSF's primary tool for encouraging riders to walk-on the ferry is transit enhancements effected by partnering with transit agencies that serve WSF terminals.

### A. Vehicle Reservations

#### 1. Existing Reservation Programs

WSF has two reservation programs in place.

- **Port Townsend-Coupeville & Sidney.** Vehicle reservations can be made on the Anacortes-Sidney and Port Townsend-Coupeville routes.
- **Commercial Account Reservations San Juans.**<sup>6</sup> Commercial account customers can also have a commercial reservations account for travel to and from the San Juan Islands. This service is offered to give commercial users the ability to plan their delivery schedules with certainty, given the relatively infrequent daily sailings to and from the Islands. Commercial account holders are charged a seasonal fee to be part of the reservation program - \$200 for the summer season and \$100 for each other season. Requests are submitted at the beginning of each schedule season for reservations for the whole season. Slots are allocated on a first-come, first-served basis.

#### 2. New Vehicle Reservation System

##### a. System Overview and Objectives

The 2009 WSF Long-Range Plan proposed and the legislature has provided funding for a vehicle 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.

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<sup>6</sup> On the Port Townsend-Coupeville route, commercial customers can make reservations using the standard reservation system available to all customers.

The new system will be implemented first on the routes that currently take reservations – Port-Townsend-Coupeville, Anacortes-Sidney, and San Juan Island commercial program. Then vehicle reservations will become available on the Anacortes-San Juans routes and to commercial account holders on all routes, followed by the three Central Puget Sound routes – Seattle-Bainbridge, Seattle-Bremerton, and Edmonds-Kingston.

Vehicle reservations are not planned for the Fauntleroy-Vashon-Southworth Triangle route, Mukilteo-Clinton, or Point Defiance-Tahlequah due to terminal configuration issues.

#### **b. Key Elements of the Reservation System**

The Predesign Study identified four major elements of WSF’s planned reservation system: (1) a communication system, (2) business rules, (3) terminal and vehicle processing, and (4) information technology and back office systems. Appendix C provides more detailed information on these elements.

#### **c. Link to *Wave2Go***

The most critical technology link for reservations is with the *Wave2Go* ticketing system. The customer will not purchase a ticket until they arrive at the tollbooth. At that point, the reservation system must link to *Wave2Go* to communicate if a customer has paid a deposit, how much has been paid, and the remaining balance owed for the required ticket(s). The ticketing system integration will address these key requirements:

- **The reservation system (at least in the first phase) will be independent from the ticket system.** 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.** The ticket seller must have the ability to subtract any prepaid amounts to from the final transaction cost, which reflects the actual vehicle size and the number of passengers.

#### **d. Project Schedule**

WSF has completed the design process, and is currently developing the different features and system components. WSF is planning to have basic system capabilities (i.e. the ability for customers to pay deposits, make, change, and cancel reservations online, and the ability for ticket sellers to redeem reservations at the tollbooth) available to customers at Port Townsend – Coupeville and Anacortes – Sidney by June 2012. Reservations in the San Juans and for commercial vehicles throughout the system are planned for implementation in 2014. The Central Sound routes would have general vehicle reservations in 2016.

### **3. Reservations and Customers**

The WSTC survey for this study asked respondents who most frequently ride the Anacortes-San Juan Islands, Edmonds-Kingston, Seattle-Bainbridge, and Seattle-Bremerton routes how likely they are to make a vehicle reservation for travel if a reservation program is introduced and how it will impact how often they ride.

- **Customers that most frequently travel on routes where WSF will be introducing vehicle reservations vary in how likely they are to make a reservation, ranging from 76 percent in the San Juans to 33 percent in Bremerton.**

As shown in the exhibit below, the likelihood of making a reservation was highest for the Anacortes-San Juans routes and lowest at Seattle-Bremerton. The low percentage of Bremerton customers who are likely to make a reservation is probably a reflection of the fact that Bremerton has the fewest traffic backups of the four routes and reservations may be seen as less necessary than at the more congested routes. In addition, driving via the Tacoma Narrows Bridge is a more viable option for the Bremerton route.

**Exhibit 26.**  
**Likelihood of Using New Vehicle Reservation System**

Route	Somewhat or very likely to make a reservation	Would drive on somewhat or considerably more often assuming no additional charge
San Juans	76%	22%
Edmonds-Kingston	51%	12%
Seattle-Bainbridge	48%	10%
Seattle-Bremerton	33%	8%

## B. Demand Management Pricing

The legislature requires WSF to consider options for using pricing to level vehicle peak demand; and/or to increase off-peak ridership. The 2009 WSF Long-Range Plan evaluated potential pricing strategies in terms of demand management effectiveness and potential revenue impacts.

WSF has not commonly used demand management pricing in its fare structure. The few examples of its use of demand management pricing are:

- **Day-of-week pricing in the San Juan Islands.** From 2001 to 2010, customers purchasing a single vehicle or passenger ticket in the San Juan Islands paid a smaller fare if they traveled Sunday-Tuesday than if they traveled Wednesday through Saturday. This structure was intended to move customers to less frequently travelled days, but it was not effective in meeting that goal. The structure also caused customer dissatisfaction and confusion, which created a time burden for WSF staff due to customer service phone calls. There were also problems with the terminal-specific kiosk programming, which became exceeding complex with all the different fares. In order to simplify fares and alleviate these concerns, this structure was dissolved in 2010.
- **Peak season surcharge.** A part of WSF’s current fare structure that has a demand management element is the peak season surcharge on single-ticket vehicle fares, which is 25 percent on most routes and 35 percent in the San Juan Islands. This surcharge increases revenue by charging a larger fare to discretionary travelers from May through September, encourages mode shift to walk-on from vehicles during the peak season, and allows WSF to maintain lower fares during the non-peak season which encourages ridership when there is capacity. The surcharge does not apply to multi-ride vehicle cards.
- **Small car fare category.** Effective October 2011, WSF has a lower rate for vehicles under 14’. This is WSF’s first step in maximizing the number of vehicles that can be carried on the vessel by encouraging riders to use smaller cars, thus managing demand for vessel deck space.

WSF developed potential demand management pricing strategies in its Long-Range Plan. These options are included in Appendix C.

## C. Transit

WSF's Long Range plan notes the importance of transit connections in managing demand by encouraging people to walk-on ferries rather than drive-on, especially during peak periods when there is more car demand than car space on the ferries. The Long-Range plan concludes that transit enhancements and coordination with transit agencies is likely to encourage customers to walk-on and thereby maximize the use of existing vessels.<sup>7</sup>

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<sup>7</sup> Washington State Ferries Long-Range Plan, 2009, p. 59-61.

## VII. FARE REVENUE

RCW 47.60.290 directs WSF to develop fare and pricing policy proposals that generate the amount of revenue required by the biennial transportation budget. Any modifications to the fare structure must be at least revenue neutral in order to meet this policy and provide sufficient WSF operation funding.

Fare revenue provided 70 percent of operation funds for WSF in FY 2010. Appendix D includes historical information on the percent of operation funding that has come from fares. It has varied from as low as 59 percent in FY 2001 to as high as 79 percent in FY 2004.

### A. Fare Revenue Sources

#### 1. Vehicle and Driver Fares – Largest Source of Fare Revenue

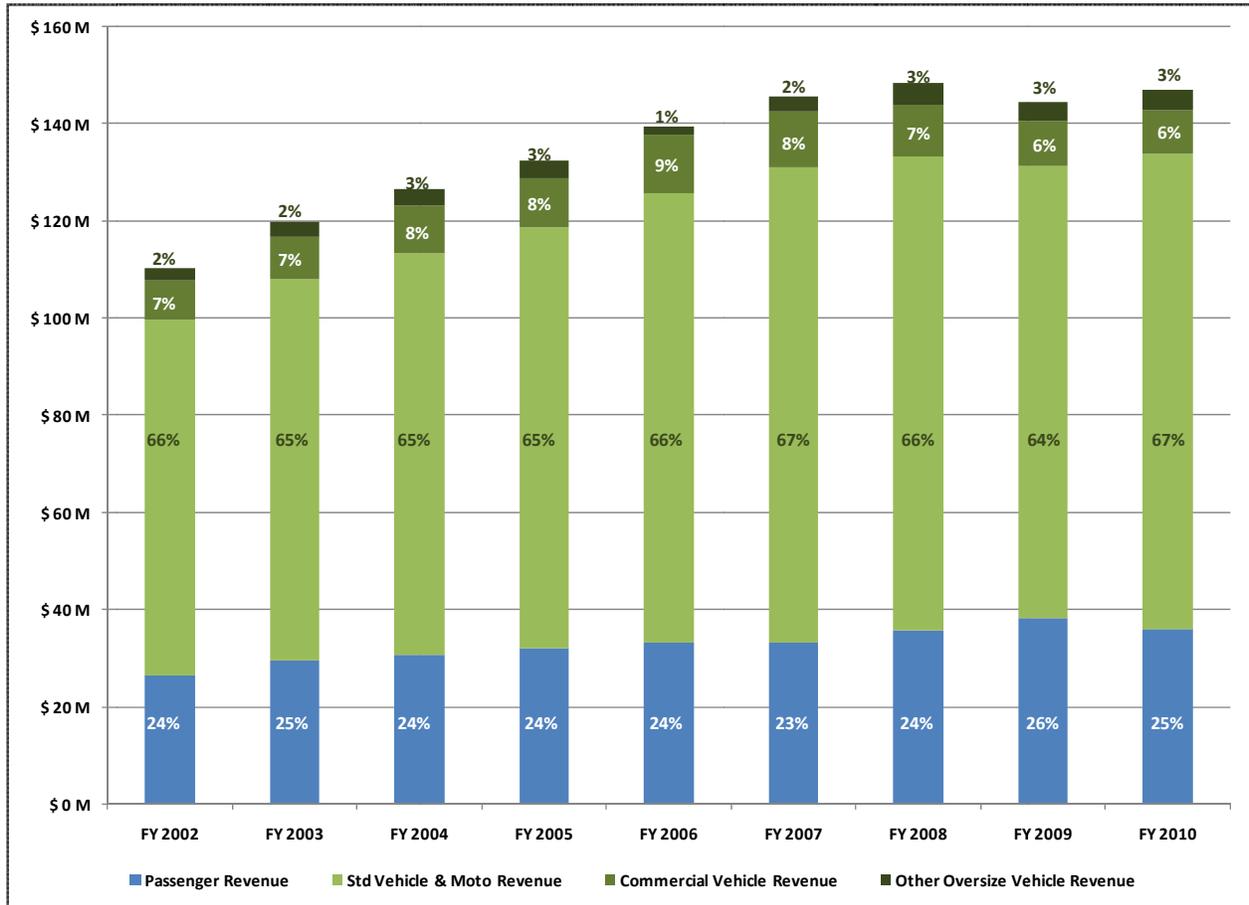
As shown in the exhibit below, vehicle and driver fares provide the largest source of fare revenue, accounting for **75 percent of all fare revenue**. Standard vehicles and motorcycles account for 67 percent of all fare revenue and commercial accounts and oversize vehicles for 9 percent.<sup>8</sup>

Passenger revenue is 25 percent of WSF's fare revenue, which includes passengers who walk-on or are driven-on to the vessel. The proportion of revenue coming from different modes of travel has remained fairly stable over the last decade. As shown in earlier exhibits, 50 percent of passengers drive on the vessel so it is reasonable to assume that in total nearly 87 percent of WSF fare revenue is associated with vehicles.

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<sup>8</sup>With WSF's current revenue tracking system, it is difficult to parse out commercial vehicles from standard traffic. What is tracked is vehicles that pay as part of WSF's commercial account program. It is likely there are additional commercial vehicles traveling who do not use WSF frequently enough to warrant enrollment in the account program. Revenue from these vehicles falls into the other oversize vehicle category.

**Exhibit 27.**  
**Revenue by Customer Type (FY 2002 – FY 2010)**



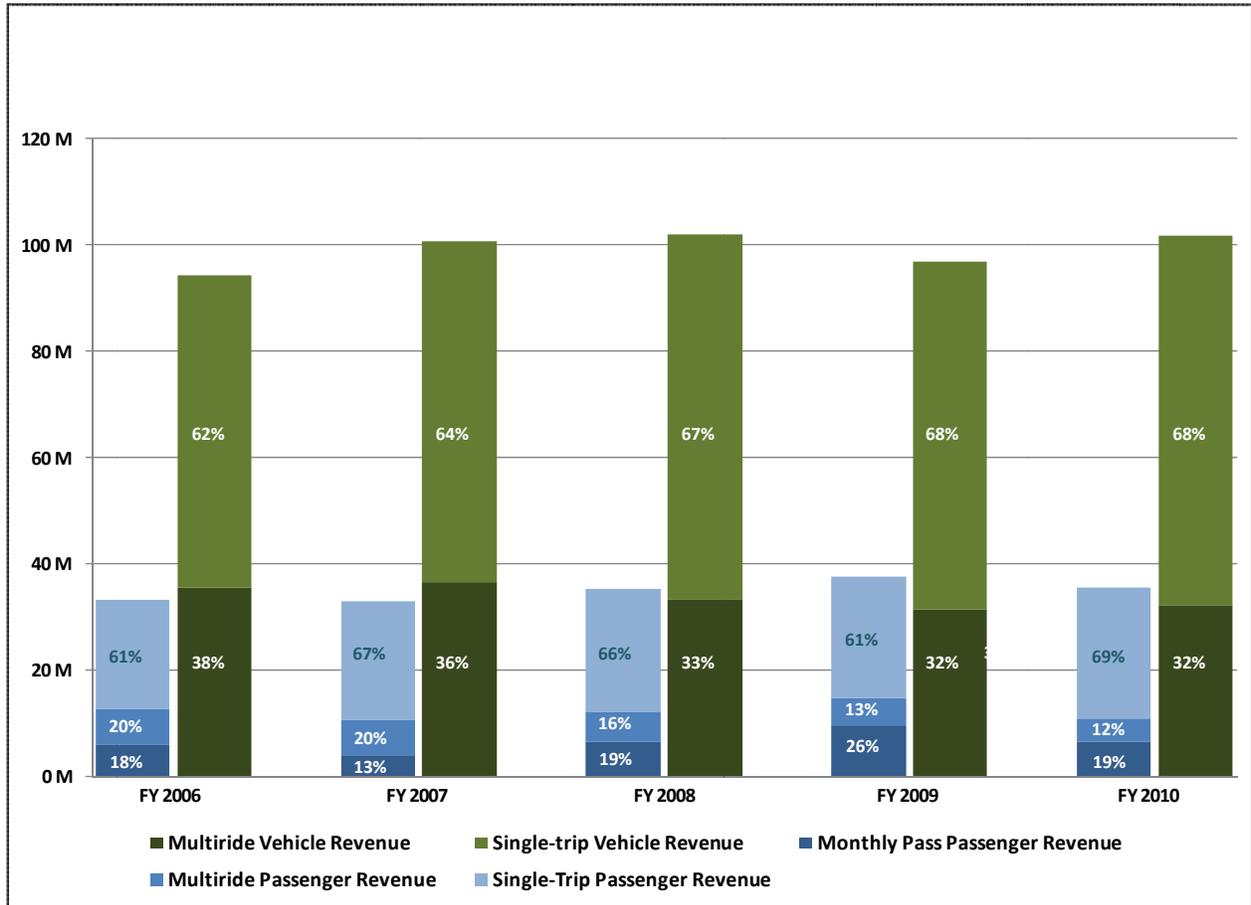
## 2. Single Trip Revenue is Larger than Multi-Ride Product Revenue

As shown in the exhibit below single-trip fares account for 68 percent of fare vehicle and passenger fare revenue (excluding commercial accounts) and for 69 percent of passenger fare revenue. Multi-ride fare media account for 12 percent of the passenger fare revenue and monthly passes for 19 percent.

Even with fare increases, revenue from frequent user products has declined from \$12.9 million in FY 2006 to \$10.9 million in FY 2010 for passengers and from \$35.6 million to \$32.2 million for vehicles.

- **Monthly pass.** Passenger monthly pass revenue has increased slightly over this time, from \$6.1 million in FY 2006 to \$6.7 million in FY 2010. However, this has not been a steady increase – monthly pass revenue has varied between \$4.2 million and \$9.8 million during this time.
- **Passenger multi-ride.** Revenue has decreased steadily from \$6.8 million to about \$4.3 million since FY 2006.
- **Vehicle multi-ride.** Revenue grew to \$36.8 million in 2007, and since has declined to about \$32.2 million.

**Exhibit 28.**  
**Revenue from Frequent User and Single-Trip Tickets (FY 2006 – FY 2010)**



## VIII. FARE POLICY RECOMMENDATIONS

**Recommendation 1. WSF and WSTC should continue to modify their fare policies to bring the fare structure in alignment with legislative fare policies and with legislative direction to use adaptive management practices.**

The legislature has given responsibility for preparing fare proposals to WSF and for adopting fares to the WSTC within the guidance provided by RCW 47.60.290. As discussed in the fare structure section, WSF and WSTC have taken modest steps towards updating their fare policies to match the new legislative direction. There are a number of opportunities to further transition the fare structure into one that better addresses legislative direction by recognizing that each travel shed is unique and might not have the same pricing policies; keeping the fare schedule as simple as possible; using pricing to level vehicle peak demand and increase off-peak ridership; and using customer information from WSTC's surveys to inform fares.

These legislative fare directions are rooted in the legislature's directive that WSF engage in adaptive management. As noted in WSF's 2009 Long-Range Plan:

*Passed by the 2007 Legislature, Engrossed Substitute House Bill (ESHB) 2358, the "Ferry Bill," fundamentally changed the policy direction guiding long-range planning efforts for the ferry system. The Legislature found that the State did not have good information about ferry customers, and directed WSF to pursue adaptive management practices in its operating and capital programs. Adaptive management is a process for continually improving management policies and practices by learning from the outcomes of operational programs and adapting them to improve customer service.*

*The significant change in pricing policy direction is that the language in the new legislation places a greater emphasis **on the desirable outcomes of changes in fare rules**. This change provides substantial flexibility to WSTC and WSF to focus on pricing options that might support "adaptive management practices in its operating and capital programs so as to keep the costs of the Washington State ferries system as low as possible while continuously improving the quality and timeliness of service." (ESHB 2358) (WSF Long-Range Plan, pgs. 7-8)*

### A. Adaptive Management

Although some adjustments have been made to account for characteristics of travel sheds, the current CUBE, tariff route equity, and passenger/vehicle ratio basis for setting base fares is largely a systemwide approach that uses system characteristics to determine fares. With a few exceptions, it does not create incentives for customer responses consistent with the adaptive management approach now being implemented at the legislature's direction by WSF. For example, steep discounts for frequent vehicle travel during peak times, and a fixed passenger-to-vehicle ratio do not encourage more passenger ridership during peak times.

Passenger fares are an example of a situation where one of WSF's demand management goals to encourage more walk-on riders has been contravened by historic fare decisions. Ferries and WSTC have not historically or recently adjusted fare policy to encourage greater passenger ridership. Over the last 20 years policies have been enacted that eliminated discounted transit/WSF joint passes, reduced discounts provided on passenger monthly passes and passenger multi-ride cards, and eliminated

refunds on unused multi-ride cards all of which make it less rather than more likely that customers will walk-on.

More recently WSF and WSTC have begun to make fare decisions, such as the October 2011 adoption of the small car discount intended to maximize utilization of the car deck, that more specifically target demand management objectives.

**Recommendation 2. WSTC's annual market surveys should include questions on customer households and the household's likely response to fare changes.**

WSTC's on-going market surveys have been used to inform WSF fare policies and WSTC fare decisions. The surveys have to date been focused on rider responses. The consultants recommend that the WSTC consider adding questions to the surveys that would help gather more information on households and their buying decisions that underpin ridership.

The core question for WSF to understand is the correlation between an increasing base of customers and declining ridership, i.e. why are people riding so much less frequently that despite customer gains ridership is declining.

## IX. INTEROPERABILITY, FARE STRUCTURE AND FARE MEDIA PRODUCTS RECOMMENDATIONS

In developing recommendations on the most appropriate fare media for use with the planned reservation system and the future implementation of demand management pricing and interoperability with other payment methods, the consultants have been guided by:

- **Customers.** The fare system has to adapt to the many different needs of WSF's highly segmented customer base.
- **Marine highway and transit service.** The fare system, including fare media, fare structure, and interoperability, has to be compatible with WSF provision of tolled marine highway and transit services.
- **Legislative direction.** These directions include the fare policies in RCW 47.60.290 and the legislature's directive to engage in adaptive management practices.
- **Phasing.** The introduction of fare system changes are proposed to be phased to synchronize with the introduction of the new vehicle reservation system on some routes and with the availability of *Good To Go!* system support.

### A. Long-Term Fare System Direction

**Recommendation 3.** In the long-term, WSF's fare collection system should be adapted to the needs of its travel sheds/routes and its customers with consideration of two fare collection systems:

1. **Account –based system.** *Wave2Go* should be replaced with an account-based fare system that offers customers a variety of fare media products and interoperable payment options through *Good To Go!*, ORCA, and emerging payment technologies.
2. ***Good To Go!* as the Only Payment Method.** Some routes, particularly those without vehicle reservations, may best serve their customers by using the *Good To Go!* tolling system exclusively.

***In the long-term a single one-size fits all fare system may not be the best option for WSF.*** The fare collection system that is most compatible with the planned reservation system and the implementation of interoperability with other payment systems may not be the best system for the implementation of demand management pricing at terminals that are so constrained that a reservation system is not feasible.

- **Account-based system.** An account-based system is the most compatible system with the planned reservation system and the implementation of interoperability with other payment systems and it can support demand management pricing. It would allow customers to designate their preferred payment method, including the future use of what are now emerging cell phone and other payment technologies. WSF could integrate its reservation and commercial accounts systems into this fare collection system. WSF could offer its customers a new variety of fare media products, such as new ways to reward its frequent customers based on their use of the system rather than requiring the up-front purchase of prepaid and non-refundable multi-ride cards

- **Good To Go! as the only payment method.** On routes which will not have reservations, and in particular on the triangle route (Southworth-Vashon-Fauntleroy), full reliance on *Good To Go!* – which will require changes to fare media and fare structures to implement - may be the best way to satisfy the routes’ customers and improve operation.

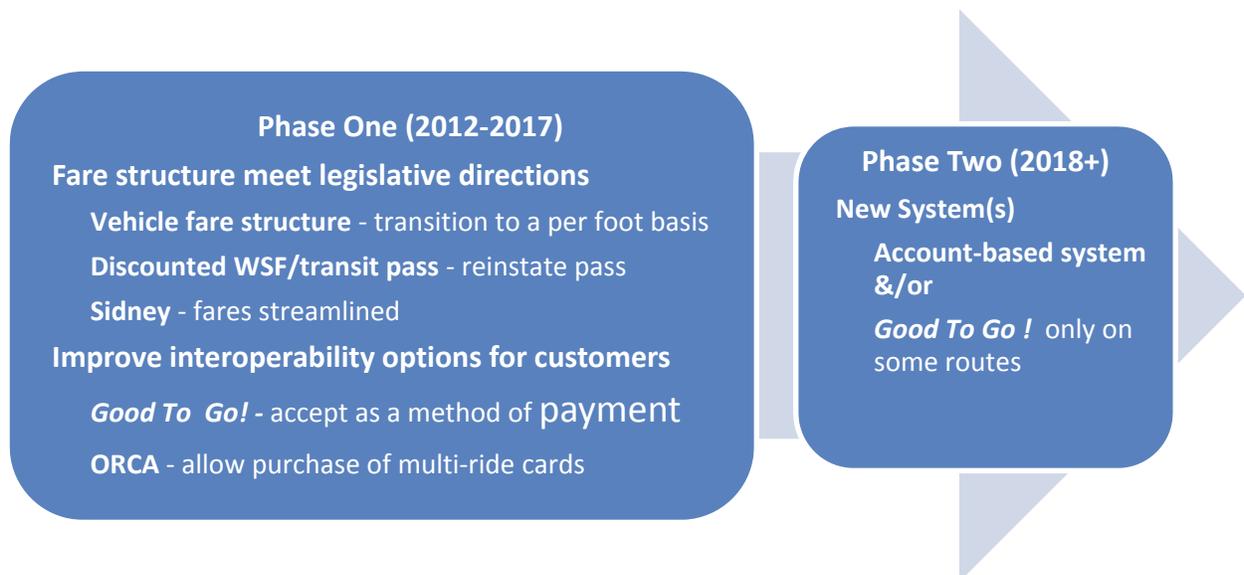
## B. Implementation Phases

Implementation of the fare collection system modifications is proposed to occur in two phases. The timing of the phases is based on the following considerations:

- **Good To Go! System Support.** Support for WSF cannot be provided until the 2013-14 time period for use of *Good To Go!* as a payment method and for exclusive use of *Good To Go!* until the 2017-18 time period.
- **Reservations.** Reservations are planned for implementation through 2016. The major change in fare collection system is recommended to occur after reservations have been established for a period of time.
- **Wave2Go.** Replacing *Wave2Go*, including the associated point of sale devices and all other equipment, is expensive. It does not appear that replacement of the entire system will be necessary before 2018.

**In the 2012-2017 time period,** WSF would lay the foundations for a new fare collection system(s) by implementing modifications to the fare structure to streamline it, provide demand management incentives, and otherwise meet legislative directions. Concurrently, customers would be provided with greater interoperability with ORCA and *Good To Go!*

**From 2018 onward,** WSF would build on the modifications implemented in the first phase to replace *Wave2Go* with an account-based fare system and potentially implement *Good To Go!* as the only payment method on some routes.



## C. Phase One - Fare Structure Modifications

Three fare structure changes are proposed that, consistent with legislative direction, would facilitate demand management by encouraging the use of smaller vehicles and encouraging more walk-on customers and simplify the fare structure.

**Recommendation 4. WSF's vehicle fare structure should be based on a per foot charge, which will require the installation of automatic vehicle length measuring devices at an estimated FY 2012 cost of \$0.9 million. The legislature should consider providing an appropriation for this amount in the 2011-13 biennium.**

### 1. Benefits

The benefits of charging vehicles based on length are:

- **Maximizes use of car deck space.** Length is far more important than height in determining how many vehicles can be accommodated in the car deck. Height is an operational issue – it affects where in the vessel cars can go because higher vehicles must be in the tunnel. But a car that is 14.5 ft. long but higher than 7'6" has far less impact on the total available car deck space than a car that is 20 ft. long but under 7'6". Under the current fare structure, the 14.5 ft. car would pay twice as much as the 20 ft. car.
- **Resolves operational problems.** Measuring height leads to inconsistencies in fare charging when the overweight charge is sometimes charged and other times not. It also can delay processing of vehicles as the height is taken and then discussed with the vehicle driver.
- **Understandable.** The October 2011 addition of a small car discounted fee has caused frustration among vehicle owners who have a close to but not quite 14 ft. vehicle (i.e. a Prius is 14'2" and does not get the small car discounted rate). Charging by the foot is a more nuanced and understandable basis for fares.
- **Reduces number of fares.** Charging by the foot reduces the number of fares in the fare system over 60 percent from 643 to 245. This occurs because the per foot charge substitutes for the current 10 size categories, the overweight and bicycle surcharges, and the surcharge for motorcycles with sidecars or three wheels.

### 2. Proposed Approach

A base vehicle fare plus a per foot charge (rounded to the nearest foot) for each foot after the base would be established through the WSF and WSTC process. The fare structure would allow for multi-ride card holders to pay a discounted rate on the per foot charge basis and would accommodate senior discount fares as well.

### 3. Implementation and Cost

Measuring vehicles with precision at the tollbooth will require the acquisition of automated vehicle measuring devices at an estimated installed equipment cost of \$13,000 per tollbooth.

**a. Terminals**

Measuring devices would be proposed to be installed at 16 of WSF's 20 terminals.

- **San Juan Island terminals.** Although measuring devices could be installed, relatively few vehicle fares are collected on Lopez, Orcas, Shaw, and Friday Harbor for the Interisland service and the installation does not appear to be necessary. The Interisland service could continue to charge vehicle fees in the current or revised length categories.
- **Vashon Island terminals.** The estimated cost includes installation of measuring equipment at the Vashon terminal to allow for future complete operation of the terminal through *Good to Go!*. Fares are not currently collected at Tahlequah. Demand management is not likely to warrant collection on Tahlequah, especially with the increase in vessel capacity on the route starting in 2012 when a retiring 48-car vessel is replaced with a new 64-car vessel.

**b. Cost**

The estimated cost for installing automated measuring devices in FY 2012 dollars is \$0.9 million.

**Exhibit 29.**  
**Cost Estimate of Implementing Vehicle per Foot Fare**

(\$ in millions)

	\$
Equipment	\$0.5
Wave2Go Integration	\$0.1
Design, project management, contingency	\$0.3
<b>Total</b>	<b>\$0.9</b>

**Recommendation 5. WSF should reinstate discounted joint passes with transit agencies on routes with significant numbers of commuter customers. No legislative action is required to implement this recommendation.**

1. Advantages

- **Customers.** A March 2011 WSTC Fare Strategy Survey asked customers if they would be more likely to use transit and walk-on the ferry if they could get a discount on both their ferry and transit pass when used in combination via an ORCA card. Twenty-five percent (25%) of respondents who had driven a vehicle onto the ferry answered yes, as did 34 percent of respondents who were a passenger in a vehicle and 60 percent of those who had walked-on a ferry.
- **Demand management.** Reinstatement of this pass would be consistent with demand management efforts to encourage more walk-on use of the ferries.

2. Fare Structure and Fare Media

If implemented in the same manner as the former ship to shore pass, three new fares would be added to the fare structure as well as a new fare media product. The joint pass should be available through ORCA to facilitate employer purchases.

### 3. Implementation and Cost

#### a. Terminals

The pass would be available on the Central Sound and South Sound routes: Bainbridge-Seattle, Bremerton-Seattle, Kingston-Edmonds, Pt. Defiance-Tahlequah, and the triangle Southworth-Vashon-Fauntleroy route.

#### b. Cost

Depending on the ultimate price and revenue sharing agreement with local transit agencies, there is the potential for a small revenue loss from the joint pass.

Absent specific negotiations with the transit agencies and ORCA, it is not possible to estimate the potential revenue loss. To estimate the loss, the new pricing parameters would have to be negotiated, as well as the percentage split with transit partners and estimates of the number of additional passes that would be sold provided.

**Recommendation 6. WSF should streamline Sidney fares by establishing a single Sidney-Anacortes fare with the ability to stop in the San Juan Islands at no charge and eliminating the separate commercial and RV vehicle fares. No legislative action is required to implement this recommendation.**

### 1. Advantages

- **Meets the needs of the San Juan communities.** The fare structure for Sidney has grown complex to accommodate trips from either Anacortes or the San Juan Islands to Sidney and back. The island communities benefit from customers, virtually all of whom are tourists, that stop over. WSF could achieve this same benefit for the San Juan Island communities by offering one international fare—an Anacortes-Sidney round trip fare that allows customers free stopovers in the San Juan Islands. This would also have the effect of having Island residents have to pay the Anacortes-Sidney fare. It is unknown how many, if any, Island residents go to Sidney from the Islands on a regular basis.
- **Clarifies fares.** The current fare structure is confusing. It offers two different one-way fares and one round-trip fare in different combinations from the Islands and/or Anacortes to Sidney.
- **Reflects changes.** The Sidney fare structure includes a discount for RVs that is separate from the commercial fares. Canadian customs no longer allows commercial traffic in Sidney so the separate fare is unnecessary. Since there is no freight customs at the Sidney terminal, there is no longer a need for separate RV and commercial vehicle oversize fares.
- **Simplifies fare structure.** Of the 643 fares in the current fare structure, 32 percent or 203 are for Sidney. If adopted, the consultants' recommendation to implement per foot vehicle fares and establish a single Sidney-Anacortes fare would leave 172 fares of which 10 would be for Sidney.

### 2. Implementation and Cost

This change could be implemented through the normal WSF and WSTC fare setting process. It would be revenue neutral because the fares would still be being paid. WSF would need to ensure that operationally, stopovers on the San Juan Islands could be supported for customers en route to/from Sidney. There will likely be some expense (not estimated) in doing so.

## D. Phase One – Interoperability Improvements

These recommendations are intended to provide WSF customers with access to more interoperable payment systems.

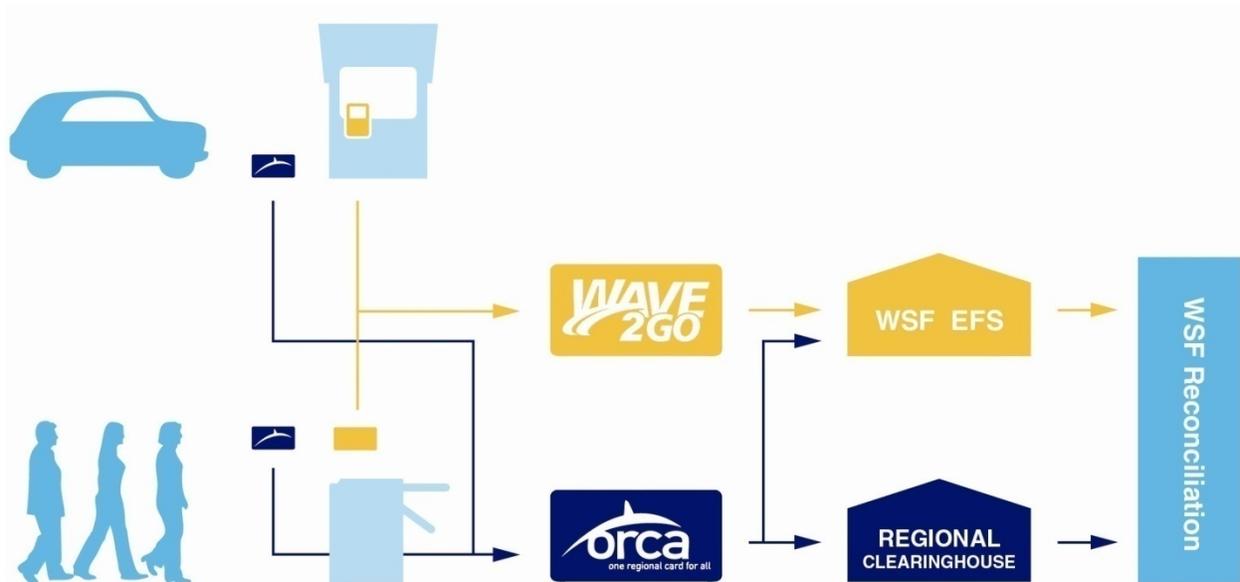
**Recommendation 7.** WSF should allow its passenger multi-ride cards, and if operationally feasible its vehicle multi-ride cards, to be purchased and loaded on ORCA cards. Implementation of this recommendation is anticipated to cost \$0.3 million for ORCA/*Wave2Go* integration in FY 2012 dollars, which the legislature should consider appropriating in the 2011-13 biennium.

### 1. Benefits

The advantages to allowing at least passenger multi-ride cards to be purchased and loaded on ORCA cards are:

- **Customer interest.** Many ORCA card holders who frequently travel in travel sheds served by ORCA transit providers have ORCA cards and it is important or somewhat important to many of these card holders that they be able to load their multi-ride WSF fare products on them. It would allow these customers to consolidate their transit and WSF fare media even further. WSF indicates that there may be operational problems at some terminals to have vehicle multi-ride cards on ORCA.

### 2. System



The stored ride capability of the ORCA card would be activated to allow customers to buy multi-ride products in addition to passenger monthly passes on their ORCA card. ORCA has the ability to store multi-ride products through its stored ride functionality which has been deployed by Kitsap Transit for its Kingston passenger-only ferry service. System updates may be required for *Wave2Go* and ORCA to implement this recommendation.

### 3. Fare Media and Fare Structure Implications

This proposal would have no impact on existing fare media or fare structure.

### 4. Implementation and Cost

#### a. Terminals

This additional feature would be available to customers at all terminals except Sidney where ORCA is not accepted.

#### b. Cost

The cost to allow multi-ride cards to be stored on ORCA is \$0.3 million for programming support. This does not include any additional operational costs that would be required to support vehicle multi-ride cards being added to ORCA. There are no operation costs anticipated with having passenger multi-ride cards added to ORCA.

**Exhibit 31.**  
**Phase One: ORCA Integration Cost**

(\$ in millions)

	\$
ORCA/Wave2Go Integration	\$0.2
Design, project management, contingency	\$0.1
<b>Total</b>	<b>\$0.3</b>

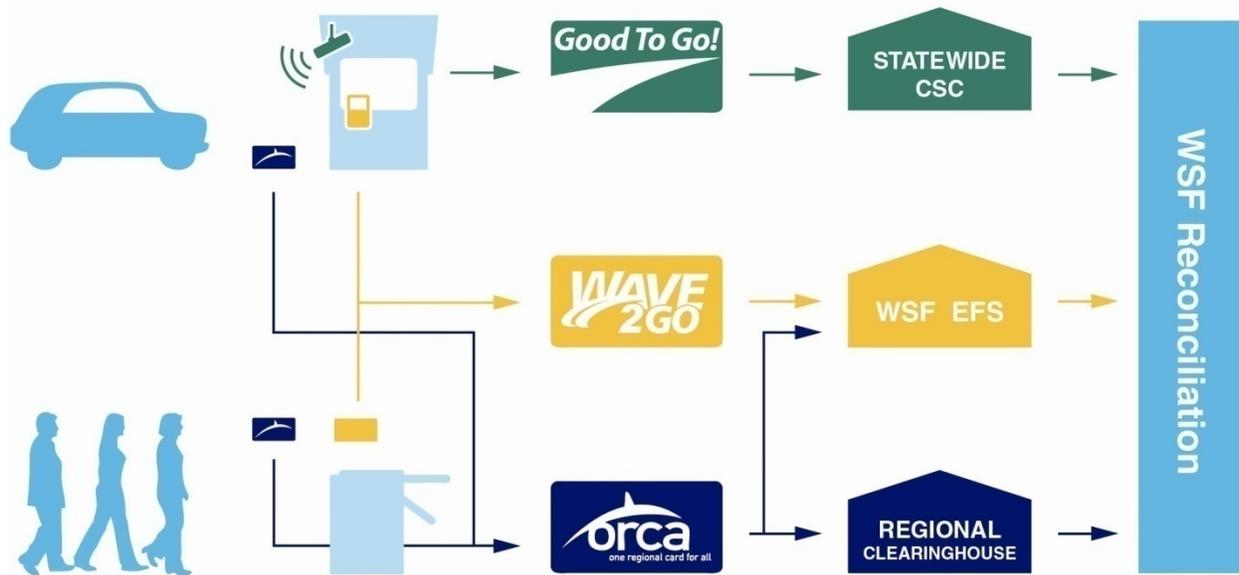
**Recommendation 8. WSF should implement *Good To Go!* as a form of payment at vehicle tollbooths. Implementation is anticipated to cost \$2.2 million in FY 2012 dollars, which the legislature should consider appropriating in the 2013-15 biennium.**

### 1. Benefits

The benefits of having interoperability with *Good To Go!* are:

- **Customer interest.** Approximately one-third of customers that most frequently travel in travel sheds that are also near *Good To Go!* tolled facilities already have *Good To Go!* transponders and most of those rate it as somewhat important or very important to be able to use them to purchase WSF fare media products. As *Good To Go!* is extended to other toll facilities, at least one of which, SR 99, is adjacent to a WSF terminal, it is likely that an increasing percentage of WSF customers will also have *Good to Go!* transponders.

## 2. System Description



Drivers would, as they do now, stop at a toll booth and vehicle/driver plus passenger fares would be computed using the *Wave2Go* point of sale terminals in the booth and the total fare could be charged against the customer's *Good To Go!* account if that is what the customer wants to do. The customer could elect to continue to have the fare paid through *Wave2Go* by using cash, credit card, or a *Wave2Go* multi-ride product or use ORCA.

## 3. Fare Structure and Fare Media Impact

No changes to the fare structure or fare media are required to affect this interoperability with *Good To Go!*. It does not require changing to a per foot vehicle fare structure, but *Good To Go!* would be compatible with that fare structure.

## 4. Implementation and Cost

### a. Terminals

The same terminals with automatic length measuring devices are included in the *Good to Go!* cost estimate. The four San Juan Island terminals and Tahlequah would not be equipped to accept *Good To Go!*

### b. Cost

The cost to allow *Good To Go!* as a payment option is \$2.1 million in FY 2012 dollars. The equipment is for transponder readers. *Good To Go!* when implemented on the tolled highways has license plate recognition equipment to charge vehicles without transponders. This would not be needed at WSF terminals because the customer has other *Wave2Go* or ORCA payment options.

**Exhibit 30.**  
**Cost Estimate *Good to Go!* Accepted as a Payment Method**

(FY 2012 \$ in millions)

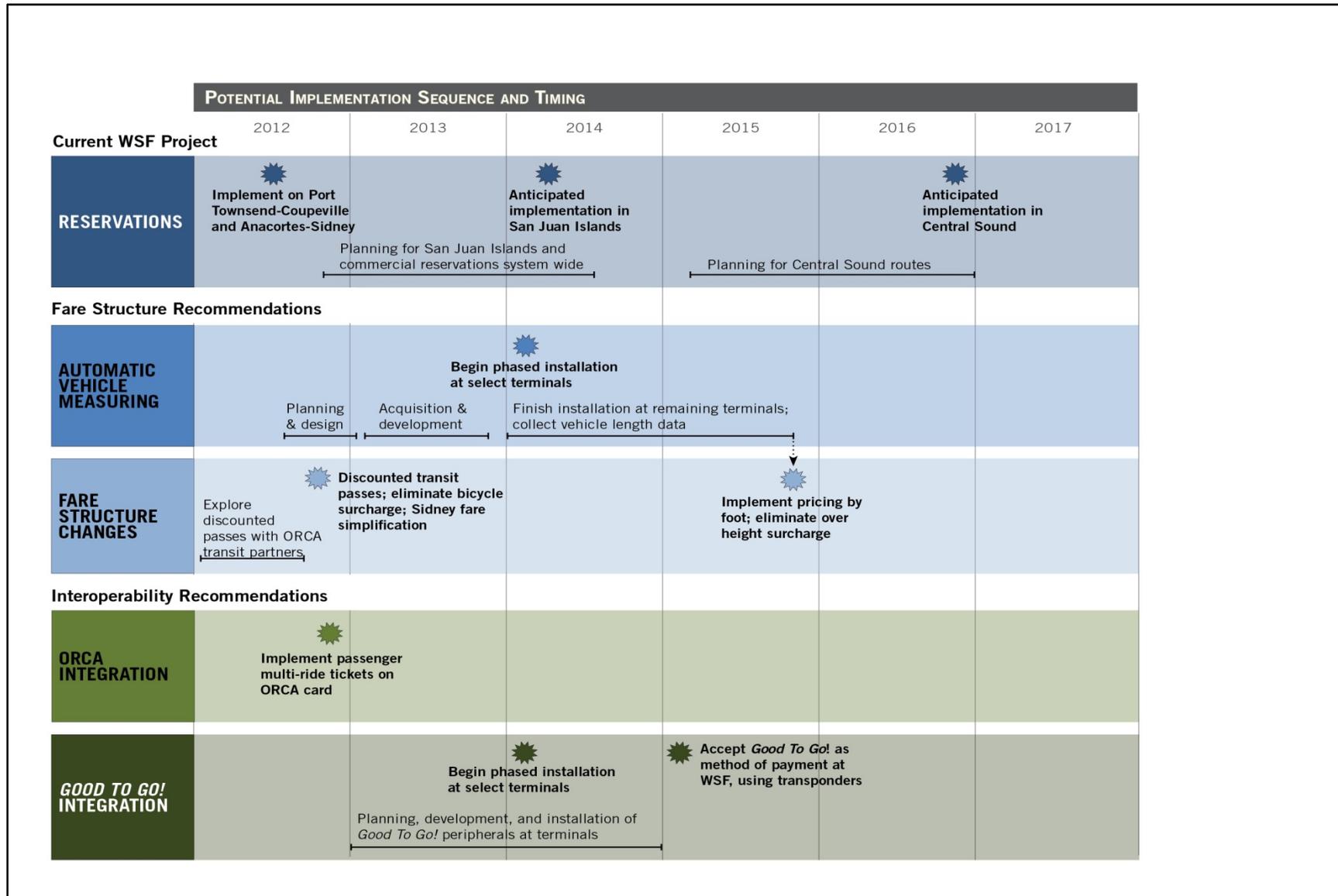
	\$
Equipment	\$0.9
<i>Wave2Go/Good To Go!</i> Integration	\$0.6
Design, project management, contingency	\$0.7
<b>Total</b>	<b>\$2.2</b>

E. Summary Phase One

1. Schedule

The exhibit below shows the Phase One implementation schedule, which would occur at the same time as the reservation system implementation.

Exhibit 32. Phase One (2012-17) Schedule



## 2. Benefits

- **Customers.** If all of the phase one recommendations were implemented, WSF customers would have an expanded range of payment options that would allow them to consolidate more of their transportation media products including highways, transit, and ferries. Tourists traveling the Sidney route will find it easier to understand the fares and from a marketing perspective will have the advantage of free stopovers in the San Juans.
- **Fare simplification.** If fully implemented, the number of fares in the system would be reduced from 643 to 175. This would reduce the complicated fare transaction within *Wave2Go* and could potentially facilitate demand management pricing or other new programs WSF would like to use *Wave2Go* for.
- **Demand management.** Customers would have an incentive to bring smaller cars onto the vessel and maximize the number of customers that can be served by a single sailing. The proposed discounted WSF/transit pass would encourage additional walk-on passengers.
- **Reservation system.** Charging by vehicle foot is compatible with the reservation system and simplifying the fare structure at Sidney will make the fare calculation easier.

## 3. Potential Issue

Whenever fares and fare structures are changed there are potential issues.

- **Setting the per foot vehicle fares.** These fares will be set to be revenue neutral, but the resulting re-distribution is likely to make people who have long vehicles unhappy and people with small cars happy. Under the proposed implementation schedule we have included having the measuring equipment functional for approximately one year prior to changing the fares. This will provide data to inform fare setting that is not currently available in the system.

## 4. Costs

The total cost for the Phase One changes is \$3.4 million in FY 2012 dollars

**Exhibit 33.**  
**Phase One Recommendations Cost Summary**  
(FY 2012 \$ millions)

Recommended Change	\$	2011-13 biennium	2013-15 biennium
<b>Fare Structure Recommendations</b>			
Vehicle per foot charges <i>Automatic length measuring devices</i>	\$0.9	\$0.9	
Discounted WSF/transit pass Sidney fare streamlined			
<b>Interoperability Recommendations</b>			
<i>Good To Go!</i> as a payment method	\$2.2		\$2.2
ORCA Integration	\$0.3	\$0.3	
<b>Total</b>	<b>\$3.4</b>	<b>\$1.2</b>	<b>\$2.2</b>

## F. Phase Two – Recommendations

From 2018 onward, WSF would build on the modifications implemented in the first phase to replace *Wave2Go* with an account-based fare collection system and potentially implement *Good To Go!* as the only payment method on some routes.

**Recommendation 9. WSF should replace *Wave2Go* with an account-based fare system in the 2018 and beyond time period.**

### 1. Benefits

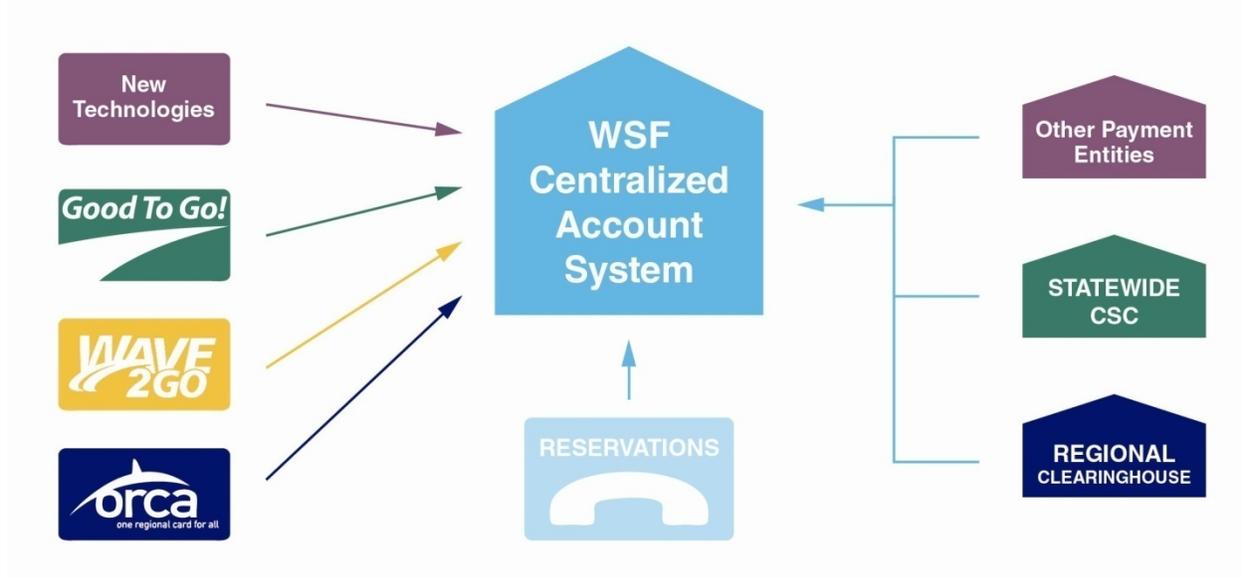
- Customers.** WSF customers have *Good To Go!* accounts, ORCA cards, and use more than one WSF fare media product during a year. Customers were asked in the WSTC survey conducted for this study how important is it that WSF allow customers to combine all their fare products on one card or account. The results, as shown in the exhibit below, indicate that WSF customers would be very likely to use a combined WSF account and a significant percentage believe it is an important fare media option.

**Exhibit 34.**  
**WSF Account-Based System**

If WSF offered one account/card to pay for all ferry travel:		
	People somewhat or very likely to participate	People who think this is somewhat or very important
South Sound	71%	56%
San Juan Islands	66%	45%
North Sound	62%	43%
Central Sound	61%	45%

- Fare media options.** An account-based system would allow WSF to offer its customers a variety of products. This could include a program that provides discounts or other incentives to frequent riders rather than requiring them to pre-pay for a non-refundable multi-ride card.
- Reservations.** An account-based system would integrate the reservation system so that customers would be able to make reservations through the same system and could have it linked to the same payment account.
- Commercial accounts.** An account based system would allow WSF to integrate the commercial account system with its fare system.
- Demand management pricing.** An account-based system would support time of day, day of week or other demand management pricing options, while preserving options to support frequent user policies.

## 2. System



In an account-based system, fares are calculated in a central system which could accept *Good To Go!*, ORCA, cash, credit cards, *Wave2Go* fare products, or any new emerging technologies (i.e. cell phones) for payment.

A customer could choose a preferred payment medium, and households could have all fare products and reservations tied to the account. Infrequent customers who elect not to establish an account could pay for their fares using cash, credit cards, or other payment technologies.

### a. Service center options

The central system would need to be supported by a customer service center and have back-office interfaces to ORCA, *Good To Go!* and other systems to be able to validate a medium presented for payment, and collect funds from those other systems. There are two options for providing this function.

- **Statewide Tolling Customer Service Center (CSC).** WSDOT has created an expanded CSC to support the application of tolling to SR 520 that will also be used for future tolling applications. This center could provide the centralized account system. The CSC software would need to be modified to accommodate WSF requirements; new software modules added to process WSF business rules, accept alternative payment methods (i.e. cell phones, etc.), integrate with ORCA, and integrate with WSF reservations; and additional customer service staff, training and capabilities to handle WSF-related inquiries. This would be a significant change to the current contract, and would likely involve new fees and/or modifications of the existing fee structure to accommodate WSF-specific requirements. If, in the future, WSDOT replaces the current CSC, WSF requirements could be incorporated at that time.
- **WSF Service Center.** For many years WSDOT did not have any tolled facilities and WSF developed and maintained its own fare system and supporting service. It would be an option for WSF to continue to operate its own system. The WSF fare system is far more complex than WSDOT tolls and there could be advantages in continuing a separate system.

### 3. Implementation

#### a. Terminals

An account-based system could be implemented at all terminals and for all customers. The only exception would be terminals where it is determined that using *Good To Go!* as the exclusive payment system is a better option.

#### b. Cost

Developing an account-based system would involve a complete replacement of the current *Wave2Go* system including point of sale devices at a cost of approximately \$23 million, which is based on the initial costs of *Wave2Go*.

**Recommendation 10. WSF should consider *Good To Go!* as the only method of payment for fares on the Southworth-Vashon-Fauntleroy route (and potentially for other routes that will not have a full reservation system) in the 2018 and beyond time period.**

### 1. Benefits – Triangle Route (Southworth-Vashon-Fauntleroy)

There are potential benefits from having *Good To Go!* be the exclusive payment option for routes that will not have a full vehicle reservation system, which are the triangle route (Southworth-Vashon-Fauntleroy), Pt. Defiance-Tahlequah, and Mukilteo-Clinton.

This option involves extensive modifications to the current fare structure because *Good To Go!* can only collect vehicle fares not passenger fares. Vehicles could be charged on a per foot basis but passengers either walking-on or in vehicles would be free. While it would be possible to charge walk-on passengers, there is concern that doing so would lead to a significant amount of casual carpooling that could disrupt terminal operations.

The potential benefits of such a major change in the fare system could be significant on the Southworth-Vashon-Fauntleroy route which has one of the most complex operations in the WSF system with significant congestion at Fauntleroy and has been affected by the opening of the new Tacoma Narrows Bridge.

- **Customers and *Good To Go!*** Customers on this route regularly use *Good To Go!* for the Tacoma Narrows Bridge, particularly those that go to Southworth. Seventy-nine percent (79%) of customers surveyed that most frequently use the Southworth-Fauntleroy route have *Good To Go!* transponders as do 60 percent of those who most frequently use the Southworth-Vashon route.
- **Customers on this route are frequent riders who can be expected to have transponders, even if they don't have one currently.** Triangle route customers are primarily frequent riders, with a limited amount of recreational ridership. They primarily access the vessel by driving-on. The Fauntleroy-Vashon route has the highest frequency of ridership in the system and the

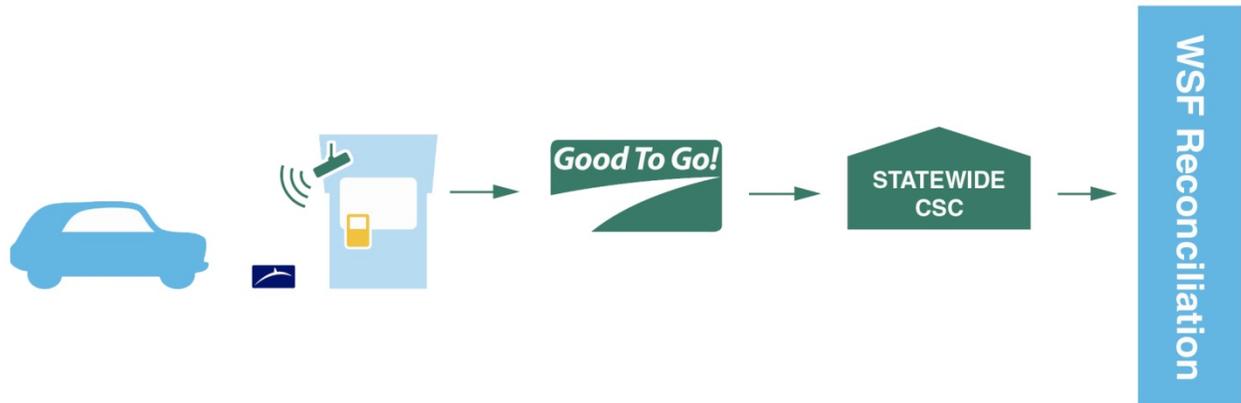
Fauntleroy -Southworth route also has higher than average frequency of riding. Approximately 40 percent of riders are commuters and there is little seasonal variation in ridership.<sup>9</sup>

- **Fauntleroy terminal operation.** Fauntleroy has a very small holding area (84 cars for 87- and 124-car vessels), short headways (as little as 20 minutes), and sailings with mixed destinations (i.e. goes to Vashon and to Southworth) as well as direct Vashon and Southworth sailings. It is among the most congested terminals in the WSF system. Collecting fares exclusively through *Good To Go!* would provide for a much smoother and faster processing of vehicles. The existing tollbooths could be removed which would also provide more space for cars.
- **Potential operation cost reduction.** WSF estimates that eliminating the ticket selling function could reduce operation costs by \$1.0 million per year. However, it is not clear whether the same number of staff would still be required to meet the requirements of the U.S. Coast Guard approved Alternative Security Plan. As a result, it is not possible at this time to determine the likely cost impacts of this change.
- **Traffic imbalance.** The Southworth-Fauntleroy route has the highest traffic imbalance in the system with 25 percent more customers traveling on the ferry eastbound than westbound to avoid paying passenger fares at Fauntleroy and also avoid paying the Tacoma Narrows Bridge toll. The best way to correct this imbalance is to collect fares in both directions. It is most economical to do that in a situation where WSF does not have to add additional ticket agent staff or in the case of Vashon, new tollbooth infrastructure.
- **Demand management pricing.** *Good To Go!* is designed to implement demand management pricing on the highways. If WSF elects to have demand management pricing on this route, it will require collecting tolls on Vashon which can be done without tollbooths by using *Good To Go!* exclusively.
- **Encourage walk-on passengers.** Having free passenger fares would encourage walk-on passengers and allow customers to take the King County passenger-only ferry from Vashon to Seattle without an additional charge if they walk-on at either Fauntleroy or Southworth and want to continue to downtown Seattle.

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<sup>9</sup> WSTC, 2008 Customer Survey. Fauntleroy-Vashon route has the highest frequency of ridership in the system with riders taking an average of 31 one-way trips in the summer and 19 in the winter compared to 21 and 14 systemwide. The Fauntleroy - Southworth route also has higher than average frequency of riding with riders taking an average of 21.6 one-way trips in the summer and 17.3 in the winter. Thirty-eight percent (38%) of Vashon riders and 42% of Southworth riders listed commuting as their primary purpose of riding the ferry, higher than the systemwide average of 30%. The Vashon percentage is especially high in the winter season when 49 percent of riders listed commuting as their primary trip purpose compared to 29 percent in the summer. The Southworth route has insignificant variation by season.

### 3. System



*Good To Go!* would be the ticket system and there would be no interaction with *Wave2Go*.

### 3. Fare Structure

Implementing *Good To Go!* as the exclusive payment option involves an extensive reconfiguration of the fare structure to have a structure that is similar to that on the highways, with vehicles only charged (no passenger fares) on a length basis. Discounts for multi-ride cards and for seniors would not be available.

It would be easiest to implement *Good To Go!* if the same rate applied to all parts of the route. Currently the fares between Southworth and Fauntleroy are higher than the Vashon fares.

Vehicle fares could mirror the payment options available on SR 520. Under this scenario, the payment options through *Good To Go!* would be:

- **Good to Go! transponder.** This is the least expensive payment option with payment made by a *Good To Go!* account.
- **Pay by mail.** These are payments made by customers without a *Good To Go!* account. An image of their vehicle license plate is taken and the customer is billed through the mail. The extra charge is \$1.50 over the *Good To Go!* pass fare.
- **Pay by plate.** This is an extra \$0.25 charge for those with a *Good To Go!* account that do not have an active transponder account at the time the fare is collected.
- **Customer initiated payment.** A customer receives a discount of \$0.50 off the pay by mail rate if the customer pays for the transaction not later than 72 hours after driving on the vessel.

Not charging for passengers would involve a modification of the fare prices, which if the recommendations of this study are implemented, would involve a modification of the per foot vehicle charges to accommodate this revenue change.

### 5. Costs

The cost to implement this change assumes that the *Good To Go!* equipment has already been installed at the terminals and the only addition requirement is the license plate recognition equipment to permit

billing customers that do not have transponders. On the triangle route, the additional cost is estimated at \$0.5 million in FY 2012 dollars.

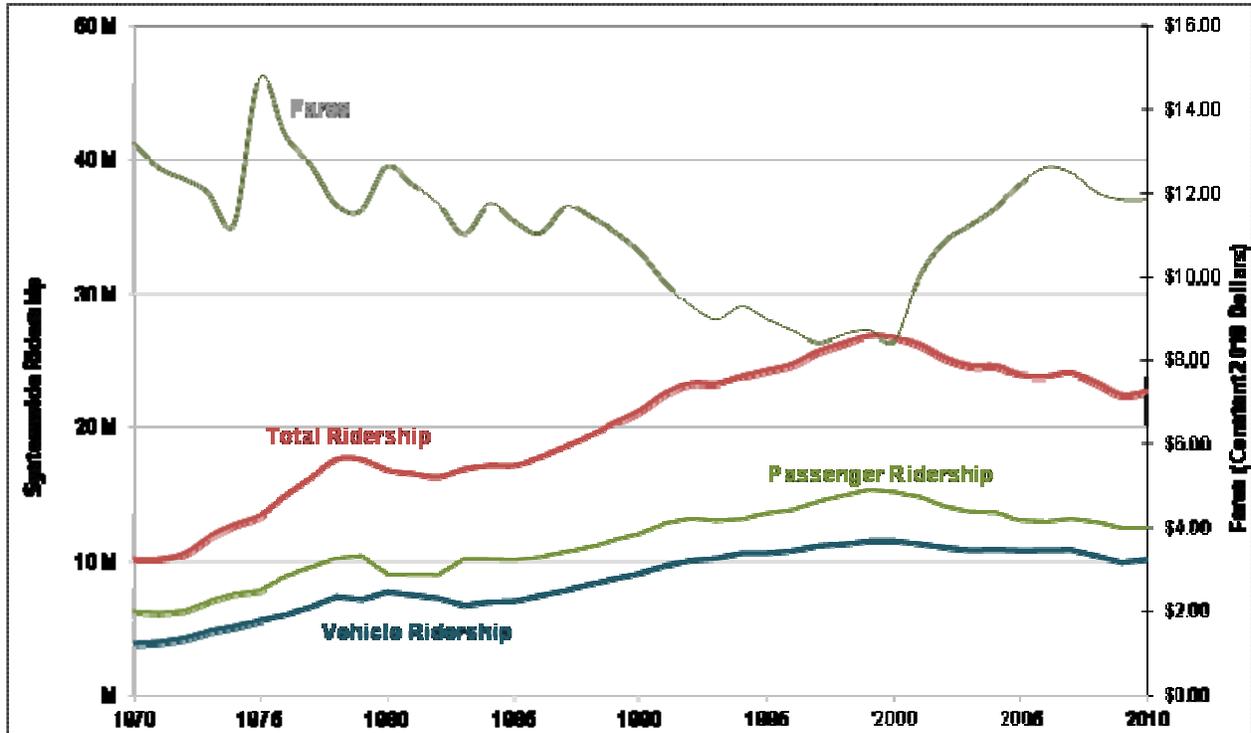
**Exhibit 35.**  
**Additional Cost for *Good To Go!* Exclusive Payment**  
**Southworth-Vashon-Fauntleroy Triangle Route**  
(FY 2012 \$ millions)

	\$
Equipment	\$0.1
<i>Good To Go!</i> Upgrade	\$0.3
Design, project management, contingency	\$0.1
<b>Total</b>	<b>\$0.5</b>

## APPENDIX A. RIDERSHIP

As shown in the exhibit below, WSF’s ridership had periods of growth from 1970-1980, with a brief dip in 1979- through the early 1980s during the national recession. Ridership peaked in 1999 at 26.8 million rides and has declined by 16 percent since then to 22.6 million in FY 2010.<sup>10</sup>

**Exhibit A-1**  
**Historic Systemwide Ridership and Inflation-adjusted Central Sound Vehicle Fares**  
**(FY 1970 – FY 2010)**



### 1. Ridership Growth 1970-1999

Factors that contributed to ridership growth include:

- **Population growth in the West Sound.** Clallam, Island, Jefferson, Kitsap, Mason, and San Juan counties provide the bulk of WSF customers, especially frequent riders. From the 1970s through the 1990s, population was increasing more quickly in the West Sound than in the East Sound, and employment levels in the West Sound were not keeping up with population growth.
- **Fares were declining on an inflation-adjusted basis.** From 1970 through 1999, WSF fares trended downward on an inflation-adjusted basis. This made taking WSF a more financially

<sup>10</sup> The Central Puget Sound fares are used in the exhibit below because those fares under the Tariff Route Equity policy provide the basis for all other fares. These fares are also the fares that are paid by the majority of WSF customers.

attractive option over time because the fares became less expensive on an inflation-adjusted basis.

- **Increased capacity/service expansion.** From the late 1980s up through 1999, WSF steadily expanded both its service hours and its vessel capacity.

## 2. Declining Ridership 1999 - Present

WSF's overall ridership declined during this period and the composition of the ridership also changed, with vehicle/driver ridership dropping 12 percent and passenger ridership 19 percent.

This reduction in ridership is attributable to a number of factors, which include WSF pricing and service changes, the opening of the Tacoma Narrows Bridge, and underlying demographic changes.

- **WSF Fare Increases.** Fares increased with the loss of motor vehicle excise tax (MVET) revenue in 2000. Prior to 2001, fares were only increased four times in the previous 15 years: 3.0 percent in 1987, 6.0 percent in 1994, 2.3 percent in 1998, and 4.4 percent in 1999.

Fiscal Year	General Annual Increase
2001	20%
2002	12.5%
2003	5.0%
2004	5.0%
2005	6.0%
2006	6.0%
2007	2.5%
2008	No change
2010	2.5%
2011 (Jan 1)	2.5%

- **WSF Service Changes.** WSF implemented significant service reductions including: reduced winter service hours on most routes; elimination of its passenger-only ferry service on the Bremerton route in 2004 and the transfer of POF service from Vashon to Seattle to King County in 2009; and, with the retirement of the Steel Electric vessels, one-boat summer service rather than two-boat summer service was provided on the Port Townsend-Coupeville route from 2007 until 2011 when two-boat summer service was restored.
- **Tacoma Narrows Bridge.** The new Tacoma Narrows Bridge, which opened in 2007 and now has eastbound tolls of \$2.75 for *Good To Go!* account holders and \$4.00 for cash and credit customers, competes primarily with the Fauntleroy-Southworth and Seattle-Bremerton ferry routes for customers. There is no toll charged westbound.
- **West Sound Demographics.**
  - **Population Growth.** Since 1998 the East Sound has experienced higher population growth than the West Sound, with West Sound counties that provide the bulk of WSF riders experiencing slower growth than the state average. Over 200,000 riders would

have been added to the system in 2008, approximately a 1 percent increase, had the West Sound population continued to grow at the previous historical rate.<sup>11</sup>

- **Income.** West Sound counties household incomes are lower than in the East Sound counties and have grown at a slower rate.
- **Age.** West Sound counties have an older population than the East Sound which affects employment and the pool of potential commuters.
- **Employment Patterns.** West Sound employment opportunities have grown faster than the East Sound's since 2000, which means that more people can work on the west side rather than commute. This trend is very pronounced in Kitsap County where over 3,000 more workers are living and working.
- **Employment Level.** The recession has resulted in lower employment levels throughout WSF's service area. Downtown Seattle – a major destination for ferry commuters – has been especially affected by the recession with a net loss in employment between 2000 and 2008 of 21,000 jobs.
- **Telecommuting.** The increase in telecommuting has reduced the number of commuters. In the 2006 WSF Travel Survey about 20 percent of riders reported telecommuting at least one day per week. In the 2008 WSTC Customer Survey, 6 percent of riders reported telecommuting as a reason why they are using the ferry system less.

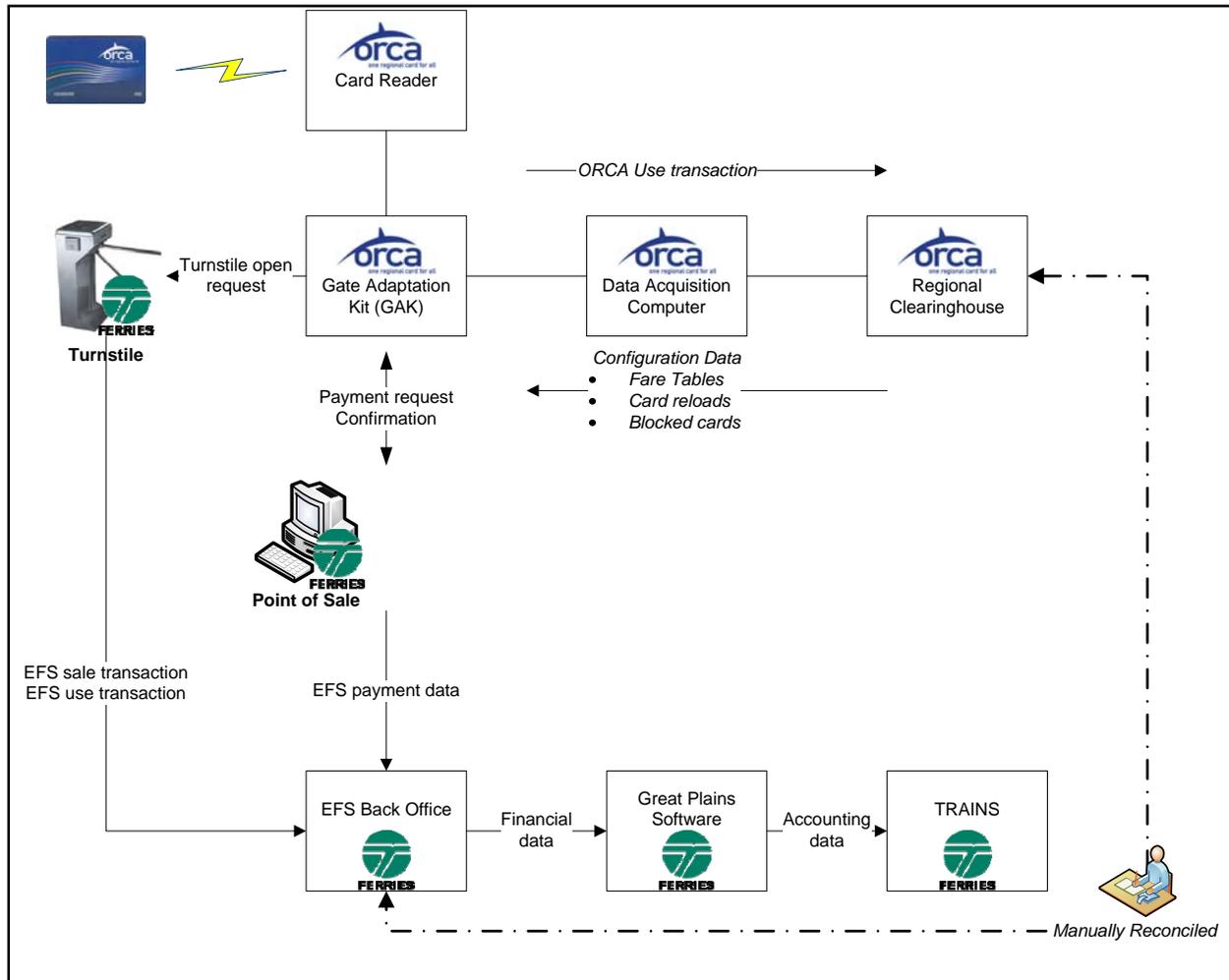
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<sup>11</sup> WSF Marketing Plan, 2009-2015 Market Research Technical Appendix, p. 25-26.

## APPENDIX B. ORCA / WAVE2GO SYSTEM INTEROPERABILITY

From a systems perspective, interoperability is provided through an interface between ORCA card equipment supplied by the ORCA system provider (Vix Technology/ERG Transit Systems), and the Wave2Go as illustrated in the diagram below.

**Exhibit B-1**  
**ORCA and Wave2Go Interoperability**



ORCA and Wave2Go function as two distinct systems with their own infrastructure, communications paths, and operations as illustrated in the top and bottom halves of the diagram. The ORCA “half” of the system functions as follows:

- Turnstiles and seller booths are equipped with an ORCA card reader that communicates with ORCA cards for the purpose of accepting ORCA for fare payment (it is not possible to add passes or value to ORCA cards through Wave2Go). To accomplish this there is a special interface device called a “Gate Adaptation Kit (GAK)” that acts as the point of interface between the ORCA system and Wave2Go components. There is no integration between ORCA and the Wave2Go

self-serve kiosks used to sell tickets, although WSF could elect to have ORCA kiosks at the terminals.

- The GAK and card reader store all pertinent ORCA fare tables, customer value reload information, blocked card information, etc. and handle the validation/fare deduction process with the ORCA card.
- ORCA “use transaction data” – i.e. the ORCA validation/fare deduction data – is passed between the GAK and an ORCA data acquisition computer (DAC) that essentially consolidates the day’s ORCA transactions from various WSF terminals, creates a batch file, and sends it to the regional ORCA clearinghouse.
- The DAC also stores the most current version of the fare tables, customer reload information, blocked cards, software updates, etc. and transfers it down to the GAK/card readers on a daily basis.
- The regional ORCA clearinghouse processes the ORCA use transaction data, determines revenue apportionment to WSF based on that data, and generates daily, weekly, and monthly reports for use by WSF in its reconciliation process. Reconciliation is manual as there is no “back end interface” between ORCA and *Wave2Go*.

Where there is a turnstile, the GAK, upon validating an ORCA card, sends a signal to the turnstile to unlock the mechanism and let the customer through. This is a one-way interface with no feedback back to the ORCA system to let it know that the turnstile operated correctly and the customer passed through.

When an unlock signal is received, the gate generates two *Wave2Go* transactions simultaneously:

1. A “sale” transaction, equivalent to selling a single ride adult ticket.
2. A “use” or redemption transaction, equivalent to redeeming or canceling that ticket.

This process mirrors the individual ticket sale process that occurs when a customer purchases a single ride *Wave2Go* ticket, and allows turnstile data to match the structure and format of other single ticket sale/use data within EFS for reporting and financial management purposes.

At a point of sale terminal the process is somewhat different in that the ORCA card is simply considered a payment mechanism (not a fare instrument), equivalent to the use of cash or a credit card. Operation is as follows:

- The seller computes the applicable fare (e.g. vehicle/driver + passengers) using the *Wave2Go* point of sale terminal just like he or she would do for a cash fare.
- The point of sale terminal sends a signal to the GAK telling it how much fare to deduct from the ORCA card (stored value). The ORCA GAK/card reader completes the transaction with the ORCA card and transmits payment confirmation to EFS.
- For walk-on customers using a pass, the pass validity is checked and registered as valid payment.
- The sale is recorded in *Wave2Go* the same way as it would be with other payment mechanisms.

In all cases once ORCA-related data is recorded in *Wave2Go*, it is processed in the same manner as other *Wave2Go* data.

## APPENDIX C. WSF NEW VEHICLE RESERVATION PROGRAM AND DEMAND MANAGEMENT PRICING OPTIONS

### 1. New Vehicle Reservation System

There are four major elements of WSF's planned reservation system are: (1) a communication system, (2) business rules, (3) terminal and vehicle processing, and (4) information technology and back office systems.

- **Regional ferry information systems and improved communications.** Improved communications will be deployed system-wide and include improvement and further development of the following: highway/ferry advisory radio, local signs, email and texts to customers regarding their specific reservations, and improvements to traveler information on the WSF website. These information systems will need to interface with the fare media system.
- **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 affect the fare system are currently under development. Some of the policies being considered include:
- **Share of Vessel Available for Reservations.** WSF currently makes 70 percent of the vessel available for reservations on the Port Townsend – Coupeville route. With the new reservation system, WSF may change this allocation. The system likely roll out with 70 percent or less of the boat available for reservations in order to minimize potential risks and issues around delayed and cancelled sailings. WSF will monitor system performance and demand management objectives, adjusting the share of the vessel available for reservations if needed. The share of the vessel available for reservations can be adjusted by sailing – i.e. peak and off-peak sailings could have different shares available for reservations.
- **Pre-Payment of Deposit.** Regular reservations will require pre-payment of a deposit, which will be credited towards the final fare at the tollbooth. The deposit will be set somewhere between 25 percent and 100 percent of the vehicle and driver fare – likely close to but less than 100 percent. There will be no extra fee for reservations. Customers who participate in WSF's premier account program (name to be determined) will not have to pay a deposit up front. As it is currently envisioned, WSF will store their credit card information and get agreement from the customer that if they don't show up for their reservation (and haven't changed or canceled the reservation), they will be charged the deposit. This allows the customer to use fare products like multi-ride cards to pay for their travel without requiring WSF to refund deposits.
- **Changes and Cancellations.** There will be flexibility to change or cancel reservations at no charge within a given timeframe. If the customer changes or cancels a reservation outside of that timeframe (i.e. too close to the reserved sailing time), a change or cancellation fee might apply.

## 2. Demand Management Pricing Options Considered in WSF's Long-Range Plan

- **Differential Vehicle and Passenger Pricing.** Differential vehicle and passenger pricing refers to how specific fare categories could be increased to achieve the annual fare increase required to meet transportation budget revenue requirements. Increasing passenger fares at a slower rate than vehicle fares in the near term, allows the differential between the two fare categories to grow more rapidly, creating a stronger pricing incentive for mode shift. WSTC survey results showed that this could be an effective strategy, and it is currently included in the Revised Draft Long-Range Plan.
  - **July and August Additional Seasonal Surcharge.** Actual ridership trends show a seasonal peak that is not evenly spread between May and October. July and August represent the “peak of peak” with much higher proportions of cash-paying recreational users. As vehicle capacity constraints are significantly worse during these months, WSF should consider adding a third level to its seasonal pricing structure that allows for a higher surcharge during July and August which would encourage more walk-on use of the ferries during this time. In 2009, the Commission considered implementing a July/August surcharge, but public input indicated an additional surcharge would be a burden to residents during this poor economy.
  - **Congestion Pricing (Time of Day Pricing).** The pricing strategy with the greatest potential to shift travel behavior is congestion pricing. If reservations alone are not sufficient to shift demand then it may be necessary to evaluate a reservations plus a variable congestion pricing approach.
  - **Congestion Pricing (Off Peak Discounts).** Off-peak discounts are a pricing incentive designed to encourage existing vehicle travelers to use lower demand sailings (thereby reducing pressure during peak periods) and to attract new riders to the system. While preliminary analysis shows that this strategy would have negative revenue impacts and only minor demand management benefits, it could be used in conjunction with tools such as surcharges to maximize demand management benefits while maintaining revenue neutrality. It could also be used as part of a larger commercial customer pricing program that seeks to accommodate large commercial vehicles on sailings with excess capacity.
  - **Vehicle frequent-user peak season charges.** The summer season surcharge does not currently apply to multi-ride fares. If frequent-users were charged the peak season surcharge it would decrease demand during the peak season.
  - **Progressive pricing for larger vehicles.** The concept underlying the small vehicle discount would also apply to the possibility of charging proportionally more for larger vehicles as well, in order to accommodate more total vehicles (especially during peak periods).
- Variable pricing among routes within a travel shed.** A fare structure could be developed to encourage the use of underutilized routes where customers have a choice (i.e. Bremerton versus Bainbridge).

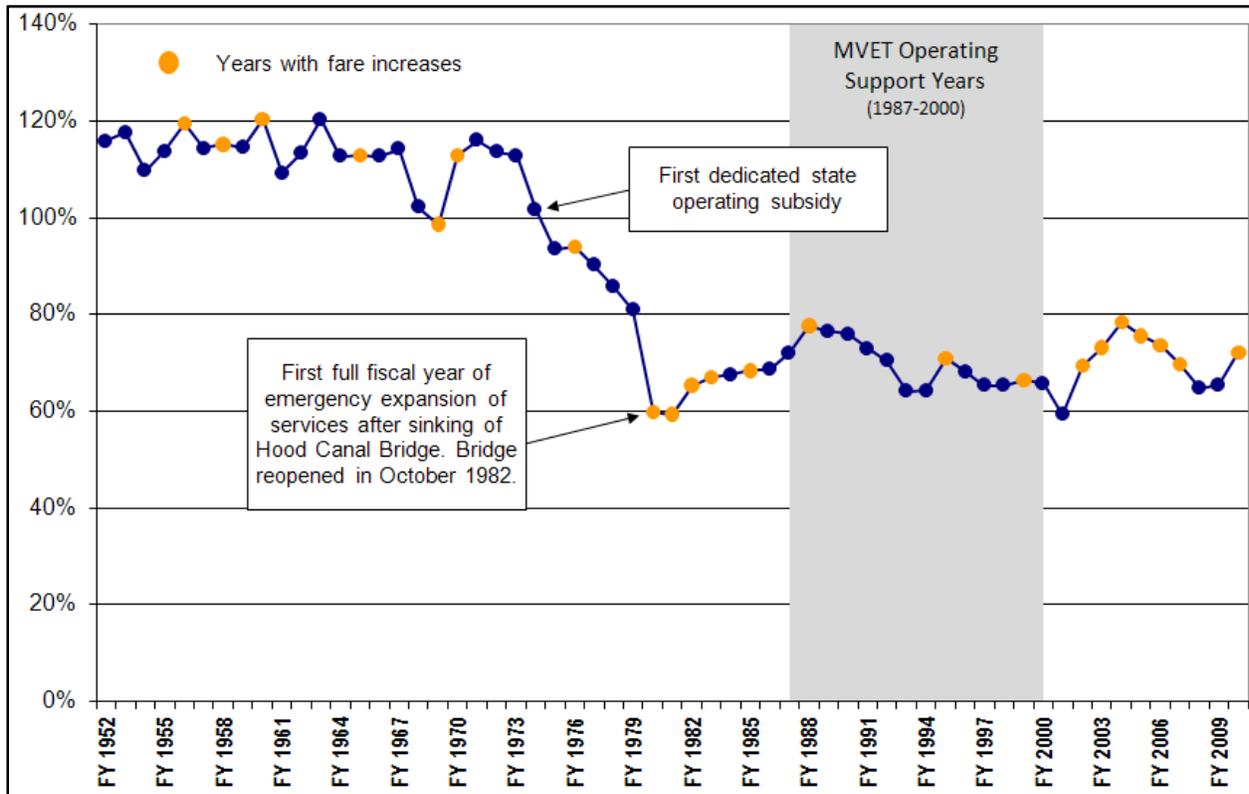
## APPENDIX D. WSF FARE REVENUE

### Farebox Recovery and Fare Levels

Since the mid-1970's, WSF operating costs have been funded by a mix of fare revenues and state tax sources, including the Motor Vehicle Excise Tax (MVET). In 1999, voters approved Initiative 695, which replaced the value-based Motor Vehicle Excise Tax (MVET) with a \$30 flat fee, resulting in the loss of approximately 20 percent of WSF's operating revenues and 80 percent of the systems capital revenue

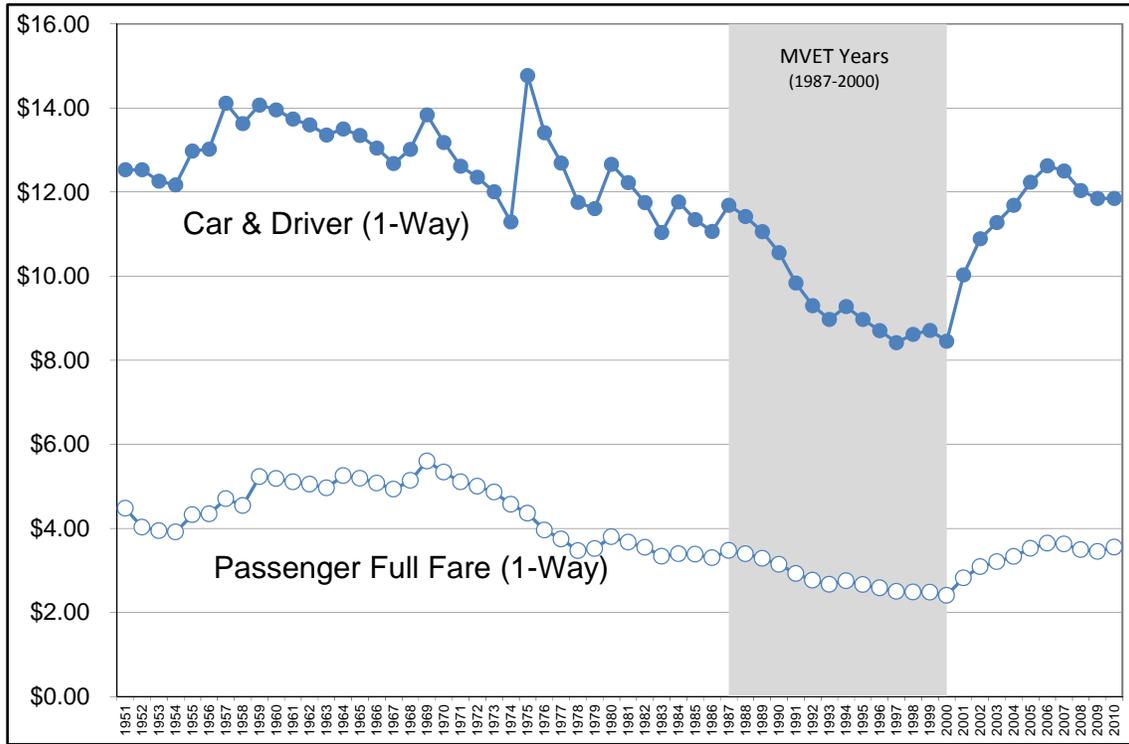
The farebox recovery rate is the proportion of fare revenues to WSF operating expenses. Operating expenses include the cost of management support, vessel operations, and terminal operations. The portion of operating expenses not covered by fares is funded by state tax sources. During the MVET years, farebox recovery dropped to approximately 60 percent, meaning that state taxes funded 40 percent of WSF's operations. This level corresponds to the lowest levels of fare revenue support over WSF's history.

**Exhibit D1.**  
**Farebox Recovery Rates over WSF History**



The exhibit below shows historical fares for the central sound routes from 1951-2010, adjusted for inflation and shown in constant 2010 dollars. This graph shows how fares dropped during the heavy state support period of the MVET years, and have only been increased in recent years to bring them back in line with historical fare levels.

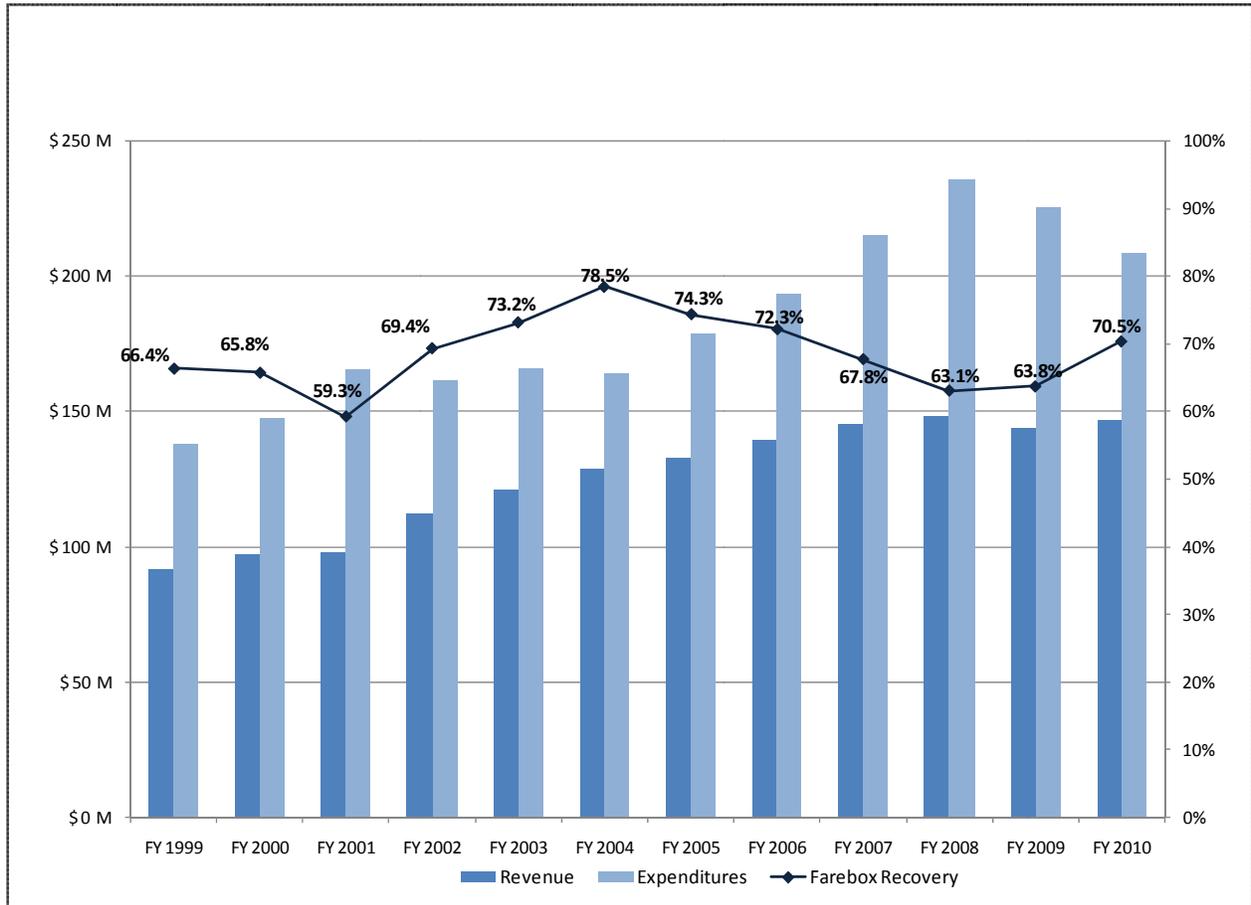
**Exhibit D2.  
 Historic Central Sound Fares (Adjusted for Inflation)**



**1. Systemwide Revenue and Expenditures**

Fare revenue has increased from \$92 million in FY 1999 to \$147 million in FY 2010. Although ridership has decreased, fare increases have steadily increased total revenues. However, the exhibit below also shows that expenditures increased more quickly than revenues in recent years.

**Exhibit D3.**  
**Historic Fare Revenue, Expenditures, and Farebox Recovery (FY 1999 – FY 2010)**



## APPENDIX E. CAPITAL COST ESTIMATE DETAIL

TERMINAL EQUIPMENT - Quantities					
	Vehicle Lanes	GTG Tag Reader	License Plate Camera	Vehicle Length Measure Device	Lane Controller
Colman Dock	4	4		4	4
Bainbridge	4	4		4	4
Bremerton	3	3		3	3
Edmonds	3	3		3	3
Kingston	3	3		3	3
Mukilteo	3	3		3	3
Clinton	4	4		4	4
Port Townsend	2	2		2	2
Coupeville	2	2		2	2
Fauntleroy	3	3	3	3	3
Southworth	2	2	2	2	2
Point Defiance	1	1		1	1
Vashon Island	1	1	1	1	1
Tahlequah	1				
Anacortes	4	4		4	4
Lopez	0				0
Shaw	0				0
Orcas	0				0
Friday Harbor	0				0
Sidney	1	1		1	1

<b>TERMINAL EQUIPMENT - Installed Costs</b>					
	<b>GTG Tag Reader</b>	<b>License Plate Camera</b>	<b>Vehicle Length Measure Device</b>	<b>Lane Controller</b>	<b>Total</b>
Colman Dock	\$ 72,000	\$ -	\$ 52,000	\$ 20,000	\$ 144,000
Bainbridge	\$ 72,000	\$ -	\$ 52,000	\$ 20,000	\$ 144,000
Bremerton	\$ 54,000	\$ -	\$ 39,000	\$ 15,000	\$ 108,000
Edmonds	\$ 54,000	\$ -	\$ 39,000	\$ 15,000	\$ 108,000
Kingston	\$ 54,000	\$ -	\$ 39,000	\$ 15,000	\$ 108,000
Mukilteo	\$ 54,000	\$ -	\$ 39,000	\$ 15,000	\$ 108,000
Clinton	\$ 72,000	\$ -	\$ 52,000	\$ 20,000	\$ 144,000
Port Townsend	\$ 36,000	\$ -	\$ 26,000	\$ 10,000	\$ 72,000
Coupeville	\$ 36,000	\$ -	\$ 26,000	\$ 10,000	\$ 72,000
Fauntleroy	\$ 54,000	\$ 27,000	\$ 39,000	\$ 15,000	\$ 135,000
Southworth	\$ 36,000	\$ 18,000	\$ 26,000	\$ 10,000	\$ 90,000
Point Defiance					
Vashon Island	\$ 18,000	\$ 9,000	\$ 13,000	\$ 5,000	\$ 45,000
Tahlequah	\$ -	\$ -	\$ -	\$ -	\$ -
Anacortes	\$ 72,000	\$ -	\$ 52,000	\$ 20,000	\$ 144,000
Lopez	\$ -	\$ -	\$ -	\$ -	\$ -
Shaw	\$ -	\$ -	\$ -	\$ -	\$ -
Orcas	\$ -	\$ -	\$ -	\$ -	\$ -
Friday Harbor	\$ -	\$ -	\$ -	\$ -	\$ -
Sidney	\$ 18,000	\$ -	\$ 13,000	\$ 5,000	\$ 36,000
<b><i>SUBTOTAL – Equipment rounded</i></b>					<b><i>\$ 1,500,000</i></b>
<b>SYSTEM INTEGRATION (Note 3)</b>					
ORCA system updates to support stored ride and joint passes					\$ 150,000
Wave2Go system updates to support ORCA stored rides and joint passes					\$ 150,000
Wave2Go system updates to support length measuring system					\$ 100,000
Wave2Go system updates to support G2G integration					\$ 150,000
CSC updates to support integration with Wave2Go					\$ 150,000
CSC updates to support direct calculation and charging of fares					\$ 300,000
<b><i>SUBTOTAL - Integration</i></b>					<b><i>\$ 1,000,000</i></b>
<b>ENGINEERING AND PROJECT MANAGEMENT (Note 4)</b>					
Planning, design and engineering	@		20%		400,000
WSF project management	@		10%		\$ 200,000
Contingency	@		15%		\$ 300,000
<b><i>SUBTOTAL - Implementation</i></b>					<b><i>\$ 900,000</i></b>
<b>TOTAL</b>					<b>\$ 3,400,000</b>

**Notes**

- (1) Costs are rough order of magnitude in FY 2012 dollars; rounded to nearest \$1,000
- (2) Equipment costs based on recent toll system procurements.  
Costs do not include new terminal infrastructure such as gantries, conduits, etc assumed to not be needed
- (3) Integration costs based on consultant judgment. No discussions have been had with the *Wave2Go* vendor, ORCA vendor, or CSC vendor.
- (4) Engineering and project management costs based on consultant judgment.

	Raw Cost	Installation Cost (to nearest \$1,000)	Notes
GTG Tag Reader	\$ 14,000	\$ 4,000	Typical toll road cost
License Plate Camera	\$ 7,000	\$ 2,000	<a href="http://www.cctvcamerapros.com/License-Plate-Capture-Cameras-s/283.htm">http://www.cctvcamerapros.com/License-Plate-Capture-Cameras-s/283.htm</a>
Vehicle Length Measurement Device	\$ 10,000	\$ 3,000	<a href="http://www.sick.com/us/en-us/home/products/product_news/laser_measurement_systems/Pages/lms100.aspx">http://www.sick.com/us/en-us/home/products/product_news/laser_measurement_systems/Pages/lms100.aspx</a>
Lane Controller	\$ 4,000	\$ 1,000	Estimate

**Integration Costs**

ORCA system updates to support stored ride and joint passes	\$ 150,000
Wave2Go system updates to support ORCA stored rides and joint passes	\$ 150,000
Wave2Go system updates to support length measuring system	\$ 100,000
Wave2Go system updates to support G2G integration	\$ 150,000
CSC updates to support direct calculation and charging of fares	\$ 300,000

**Engineering and Project Management (% of equipment+installation+integration costs)**

Planning, design & engineering	20%
WSF project management	10%
Contingency	15%

## APPENDIX F. WASHINGTON STATE FERRIES RESPONSE



**Washington State  
Department of Transportation**

Paula J. Hammond, P.E.  
Secretary of Transportation

**WSDOT Ferries Division (WSF)**  
2901 3rd Avenue, Suite 500  
Seattle, WA 98121-3014

206-515-3400  
TTY: 1-800-833-6388  
[www.wsdot.wa.gov/ferries](http://www.wsdot.wa.gov/ferries)

David H. Moseley  
Assistant Secretary for  
Washington State Ferries

January 3, 2012

Ms. Mary Fleckenstein, JTC Coordinator  
Joint Transportation Committee  
3309 Capitol Blvd SW  
PO Box 40937  
Olympia, WA 98504-0937

**RE: Response to Cedar River Group Study  
"Fare Media"**

Dear Ms. Fleckenstein:

*Mary*

At the request of the Joint Legislative Transportation Committee (JTC), the Cedar River Group (CRG) has prepared a study titled, "Fare Media". The report details nine separate recommendations. Below we will respond to each of these recommendations.

**Recommendation 1 – Continue to Modify Fare Policies**

WSF concurs, with caveats that changes to fare policy should be implementable, developed in consideration of WSF customer needs and desires, and meeting the revenue requirements set forth by the legislature's budget

**Recommendation 2 – Adapt to the Needs of Travel Sheds/Routes and Customers**

WSF concurs that integrating Good To Go! as a payment option should be pursued with additional study. Using Good To Go! exclusively on some routes would pose limitations on collecting passenger revenue (see comments for Recommendation 9). More detailed analysis on the cost of implementation needs to occur before WSF would be in a position to recommend such a change to its customers. WSF concurs that an account based fare system is desirable.

**Recommendation 3 – Encourage Maximum Utilization of the Car Deck Space**

WSF concurs and has made the first steps towards this with implementation of the under 14' vehicle fare; additional gradations in vehicle length would need to be accompanied by improved vehicle measurement equipment.



January 3, 2012

Page Two

**Recommendation 4 – Implement Good To Go! As a Form of Payment at Vehicle Tollbooths**

WSF concurs that integrating Good To Go! as a payment option should be pursued with additional study. More detailed analysis on the cost of implementation needs to occur before WSF would be in a position to recommend such a change to its customers.

**Recommendation 5 – Allow Multi-Ride Cards to be Purchased and Loaded on ORCA Cards**

WSF concurs. We believe vehicle multi-ride cards on ORCA would be extremely difficult to implement.

**Recommendation 6 – Reinstate Discounted Joint Passes with Transit Agencies for Commuters**

WSF concurs that this should be further evaluated, with the need to be cognizant of fare revenue impacts.

**Recommendation 7 – Streamline Sidney Fares**

WSF concurs that this should be further evaluated, but has concerns that this could result in the residents of the San Juan Islands paying significantly more to go to Sidney than they do now.

**Recommendation 8 – Replace Wave2Go with Account Based Fare System**

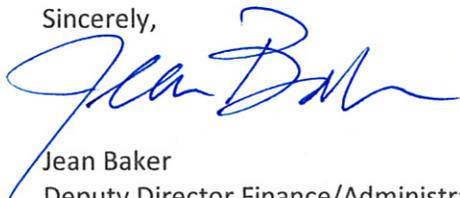
WSF concurs with this recommendation, when Wave2Go is due for replacement.

**Recommendation 9 – Consider Good To Go! As Exclusive Payment Options for Southworth-Vashon-Fauntleroy Routes**

Absent a greater tax subsidy to offset the revenue loss, WSF does not concur with this recommendation:

- Financial impact - the decrease in revenues for WSF if no passenger fares are collected on the Fauntleroy/Vashon/Southworth route, and the impact to vehicle fares on that route if the concept was to be revenue neutral for that route, or implications for fares for all routes in the system if the fare revenue loss was absorbed systemwide.
- Perceived inequities from foot passengers on other routes who would still be paying fares.
- The implications of a different fare collection system on the Point Defiance route, versus the collection system at the north end of Vashon Island.

Sincerely,



Jean Baker  
Deputy Director Finance/Administration  
Ferries Division

cc: Kathy Scanlan