Washington State Department of Transportation

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
FERRIES DIVISION

FINAL LONG-RANGE PLAN

APPENDIX K
PRICING STRATEGIES EVALUATION

PRICING STRATEGIES EVALUATION

The selection of pricing strategies to be evaluated for consideration in the Long-Range Plan was identified through legislative requirements, the recent best practices review of operating and pricing strategies (see Appendix H for discussion of operating strategies), and many years of work with the former Tariff Policy Committee.

Evaluation of the strategies in terms of demand management effectiveness and potential revenue impacts had the benefit of results from the WSTC-commissioned survey and new findings with respect to customer price elasticity and mode shift likelihood (see Appendix F).

The documents included in this Appendix are a collection of working papers that demonstrate the process through which strategies were ultimately chosen for inclusion in the Plan. There were a number of strategies found to be effective with respect to demand management (like peak period surcharges) that are not a part the Final Plan. Depending upon performance against LOS standards and the effectiveness of other operational strategies, like the proposed reservation system, WSF may elect to re-visit the other effective strategies and implement them as appropriate.

The following documents are included in this Appendix:

1. **Pricing Strategies: Situation Assessment**. This doument was written at the outset of the long-range planning process. It explains the legislative context of this work and includes a preliminary list of strategies to be studied with challenges and considerations for the ferry system.
2. **Evaluative Framework and Criteria**: This document summarizes the criteria against which operational and pricing strategies are evaluated.
3. **Pricing Policy Concept and Options**. This document lays out a more refined list of pricing strategy options, identifying the pros and cons of the options under consideration.
4. **Effectiveness Analysis**. This document evaluates each of the five main pricing strategy options identified above using the elasticity and mode shift information gathered through the WSTC.

On their own, these papers do not constitute a recommendation on priciing strategies. They reflect the process that was undertaken to identify the strategies that are proposed in the Long-Range Plan and summarize findings from an extensive financial and ridership modeling effort.

PRICING STRATEGIES: SITUATION ASSESSMENT

During the 2007 legislative session, the Legislature passed Engrossed Substitute House Bill 2358 (ESHB 2358) - "the Ferry Bill" - and the associated biennial transportation budget ESHB 1094. Each of the pieces of legislation contains specific policy and operational directives to assess the efficiency and costs related to how Washington State Department of Transportation (WSDOT)/Washington State Ferries (WSF) provides service. The results of the studies conducted to address the legislation are intended to derive strategies for how WSDOT/WSF operates in the future.

The legislation identifies specific topics for study and requires new levels of cooperation and collaboration among the Legislature (through the Joint Transportation Committee (JTC) and the new JTC Ferry Policy Subcommittee), the Washington State Transportation Commission (WSTC), and WSDOT/WSF. These directives follow from the December 2006 JTC Ferry Financing Study (also referred to as Ferry Financing Phase 1 or the Cedar River Group Report) and are the next steps in the process of developing a policy framework to address the long-term sustainability of WSDOT/WSF.

The legislation specifically spells out a list of tasks and a rough timeline that are designed to begin to address the questions raised in the Ferry Financing Study and to develop an information base that can support the ultimate question of how to address the long-term WSF funding requirements. Specifically ESHB 2358 and many of the Budget Provisos are designed to:

1. **Provide new, improved and "audited" information** – Ridership forecast reconciliation, life cycle cost model (LCCM), customer survey, cost allocation methodology, JTC Ferry Policy Working Group Studies, pre-design study requirements
2. **Develop strategies to minimize costs or increase revenues** – Terminal design standards, operational strategies, pricing policy changes, co-development study, evaluate one-point toll collection, re-establish vehicle LOS

This situation assessment provides a foundation for the identification, analysis and adoption of **pricing strategies** as required by ESHB 2358. This component of the work plan is the key element of a pivotal shift in how WSF plans for its service and investment needs. Historically, ferry investments were driven by changes in demand and the objective was to maintain a reasonable level of service. This approach suggested that WSF would adjust investments and services to keep pace with changes in demand. The new approach requires WSF to try to proactively manage the demand for ferry services through the use of operational and pricing strategies to maximize the use of existing assets and minimize the need for additional investments. The balance of this memo addresses the following key issues:

- Legislative direction
- Work that has already been done
- Preliminary identification of pricing strategies
- Potential operational issues
- Key evaluative criteria for potential strategies

- Relationship to other work elements
- Next steps

Legislative Direction

With the enactment of ESHB 2358, the Washington State Legislature provided new policy direction regarding how fare schedules should be developed in the future. The Legislature had, in the past, provided limited guidance on tariff policy. RCW 47.60.326, which was repealed by ESHB 2358, included ten considerations that the WSTC could, but was not required to, consider including:

- The amount of subsidy available to the ferry system for maintenance and operation.
- The time and distance of ferry runs.
- The maintenance and operation costs for ferry runs, with a proper adjustment for higher costs of operating outmoded or less efficient equipment.
- The efficient distribution of traffic between cross-Sound routes.
- The desirability of reasonable rates for persons using the ferry system to commute daily to work and other frequent users who live in ferry-dependent communities.
- The effect of proposed fares in increasing walk-on and vehicular passenger use.
- The effect of proposed fares in promoting all types of ferry use during non-peak periods.
- The estimated revenues that are projected to be earned by the ferry system from commercial advertisements, parking, contracts, leases and other sources.
- The pre-purchase of multiple fares, whether for a single rider or multiple riders.
- Such other factors as prudent managers of a major ferry system would consider.

Now the Legislature has provided specific direction regarding using pricing as part of an adaptive management approach to help regulate demand while maintaining an awareness of the impact of fares on communities and users. ESHB 2358 requires that “the department shall annually review fares and pricing policies applicable to the operation of the WSF…the department shall develop fare and pricing policy proposals that must:

- Recognize that each travel shed is unique, and might not have the same farebox recovery rate and the same pricing policies;
- Use data from the current market survey conducted by the WSTC;
- Be developed with input from affected ferry users by public hearing and by review with affected ferry advisory committees, in addition to the market survey:
- Generate the amount of revenue required by the biennial transportation budget;
- Consider the impacts on users, capacity, and local communities; and,
- Keep the fare schedules as simple as possible.

While developing fare and pricing policy proposals, WSF must consider the following:

- Options for using pricing to level vehicle peak demand; and
- Options for using pricing to increase off-peak ridership.

One of the significant changes in legislative direction is the change from language suggesting a range of issues that the Commission and WSDOT ***could*** consider to language that emphasizes the issues that ***must*** be considered in setting fare rules. While the Transportation Commission and WSDOT/WSF did consider the language in RCW 47.60.326 in formulating its policy proposals, there was significant latitude in choosing which factors to emphasize or how different objectives might be prioritized.

The other significant change is that the new language is broader, with fewer specific fare-setting considerations and a greater emphasis on the desirable outcomes of changes in fare rules. This change provides substantial flexibility to WSTC and WSDOT/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)

An example of where this flexibility will be critical is in the evaluation of current frequent-user policies. The previous legislative language listed "the desirability of reasonable rates for persons using the ferry system to commute daily to work and other frequent users who live in ferry-dependent communities" as a consideration in setting fares. Currently, on some of the commuter-oriented routes the percent of vehicles traveling using the frequent-user discounted fare (the lowest applicable vehicle fare) can be between 50% and as much as 80% during commute periods. A strategy designed to promote walk-on traffic or to level vehicle demand during the peak will likely need to address the current practice of charging the lowest price when there is the greatest demand which may work well to encourage walk-on use and less well to discourage vehicle use on congested sailings.

In addition to these changes in legislative direction, ESHB 2358 also directs the Transportation Commission to change the implementation date for fare increases from the traditional May time period to the fall, to better align fare proposals with the Legislative budget calendar. Under the new schedule, the legislature will be able to set the revenue requirements in the budget during the spring and then leave it to the Commission and WSF/WSDOT to develop and implement fare proposals that will generate the necessary revenues. The legislation also precludes the Transportation Commission from raising fares until September 2009 or until pricing policies are modified to meet the new legislative direction, whichever is later.

The new legislative framework does not substantively change the process for setting fares or the authority to establish specific fare rules, leaving this authority with the Washington State Transportation Commission and WSDOT/WSF.

Tariff Policies and Existing Pricing Rules

In 1991 the Washington State Transportation Commission initiated the Tariff Policy Committee to evaluate WSF fare revenue requirements and make policy recommendations regarding both the structure and the amount of ferry fares. The Committee included a representative mix of

policymakers, ferry riders, and representatives of constituent groups. The initial charge was to develop a policy rationale and a set of fare rules that would provide a basis for fare setting given the legislative direction at that time. When the Committee was formed, the fare structure was largely a legacy of the original fare structure that was in place when WSF took over the ferry operation from the private operator in 1952.

Over the next decade, WSF developed and implemented a series of fare policies designed to provide a clear basis for setting fares based primarily on a systemwide perspective. These fare policies did not include any consideration of demand management or other forms of adaptive management now required by the legislature.

For the period before 2000, the focus was not on revenue generation, but rather on developing a rationale for how the cost burden was to be shared among the different customer classes. The key components of the current pricing rules were largely developed during this timeframe and included:

- **CUBE policy.** This policy framework states that vehicles should pay in proportion to the volume of space they use on the vehicle deck. The result of this is that every vehicle fare on a given route is pegged to the standard auto/driver fare (up to 20-feet in length). For example a 40-foot standard height vehicle with pay twice the car/driver fare. Overheight vehicles pay double the length-based standard height fare under the rationale that by providing overheight space, WSF cannot double deck the entire vehicle deck.
- **Tariff Route Equity.** This policy was developed to establish a time-based element to derive fares on different routes, somewhat analogous to a parking lot. The concept was an extension of the CUBE concept where in addition to paying in proportion to the space used, vehicles should also pay in proportion to the amount of time that they use the space. The only exception to the time-based rules occurs when routes are in a common travel shed and there are clear substitution possibilities. In these cases the routes in a common travel shed share the same fares to remove price from the consideration of route choice.
- **Vehicle to passenger ratio.** The relationship of the vehicle and passenger fares is a policy variable that has largely been unchanged since the WSTC normalized this ratio over all routes in the system in the 1970's.
- **Peak season surcharge.** A peak season surcharge is applied only to vehicle fares (except for the San Juan Islands and International Routes were passenger fares are also increased in the peak season) and is designed to reflect the increased demand for service during the May through October period. The majority of regular ferry users are able to avoid the peak season surcharges, as they do not apply to the multi-ride frequent user fare products.
- **Discounts.** There are a variety of discounts offered to classes of ferry customers, including senior/disabled passengers, youth passengers, and frequent users willing to purchase multi-ride fare products. The senior/disabled discount is a federal requirement for public transportation agencies receiving federal funding. The others are a matter of policy.
- **Other policies.** There a number of other policies designed to address specific areas of policy interest such as the program for Agencies serving In-need populations, HOV and vanpool pricing and preferential loading policies, and the recreational vehicle promotional fare on the International route during the peak season.

In 2007, the WSTC disbanded the Tariff Policy Committee. In developing a set of pricing strategies that will be responsive to the new legislative direction, it will be necessary for WSTC and WSDOT/WSF to revisit the policy basis for the existing fare rules and determine how and if certain policy structures should be modified or amended to meet legislative direction.

While Washington State Ferries may not have a significant demand management component to its current policy framework, congestion conditions are already an ad hoc demand management tool. Lengthy wait times can and have resulted in a shift in modes—from vehicles to walk-ons, motorcycles, and vanpools—as well as shifts in time. It is important to be aware that ferry users already adapt their behavior to the existing incentives and disincentives of the system in place. The examination and recommendation of pricing strategies is a way to approach demand management and incentive structures more consciously, effectively, and efficiently.

Preliminary List of Pricing Strategies

The strategies that follow are an initial list of ways that WSF can manage demand and increase efficiency in asset utilization. All of these strategies have a pricing and operations component. Variations of each strategy and existing models in operation are added where relevant. These and other strategies should be viewed as a menu of options that could be combined in various ways to create a coherent package that reflects the needs of terminals, routes, travel sheds and the system as a whole.

- **Congestion pricing** is a policy that charges a user fee in order to reflect the value of using a scarce resource—here, space on a ferry and terminal docks. Congestion pricing comes with many names—such as peak-load, value, time-of-day or discriminatory pricing—but the most important differences relate to the implementation of the fee structure. Implementation forms include:
    - Uniform tolls during a set time period based on typical congestion patterns at the location;
    - Variable tolls across locations based on real-time monitoring of congestion conditions.

    Given the nature of WSF as a system with a set number of sailings that can service a finite number of users in a given time period, the first implementation method seems more appropriate. Variable tolls based on real-time monitoring of congestion conditions are likely better suited to a more fluid system, like roadways.

    In contrast, for the better part of the past 30-40 years, WSF customers who traveled the most frequently enjoyed the best per trip price through the use of frequent-user coupon books. As such, a high percentage of regular commuters traveling during the most congested periods are in fact paying the lowest possible price for their trip.

    As applied to WSF, congestion pricing would most likely be considered primarily for vehicle users since capacity for autos is the existing and foreseeable constraint on the system. Congestion pricing could on one or more routes include lowering non-peak fares in order to 1) shift demand from peak periods; 2) increase overall ridership; and, (3) shift vehicle users to walk-on passengers. Information on elasticity and likely responses will be gathered by route to help inform this analysis.

Consistent with ESHB 2358's direction that pricing and operational strategies may vary by route, congestion pricing could take different forms on WSF's routes. The definition of peak will also vary by terminal and route, with a decision to be made whether congestion pricing is applied only to the most heavily used sailing of the day or to all sailings within the defined peak period.

- **Fees that would support operational strategies.** There are a number of operational strategies that may require a pricing component to be effective. These are likely to include:
- **A reservation system** is "a means of controlling traffic demand to fit available service capacity," according to the 1991 WSDOT *San Juan Ferries Reservations Program Feasibility Study*. This would be an extension of the WSF reservation system already provided for international travel routes (Anacortes-Sidney). Passengers could reserve space on a vessel via phone, internet, or terminal stations and counters. Pricing components of the reservation system that would require further study include:
    - Existence of a reservation fee, and its amount;
    - Reservation cancellation policy, and associated fee;
    - Treatment of distinct ferry users (commuters, island residents, tourists, etc).

  Since there are fewer constraints on passenger walk-on service, reservation policies may potentially be applicable only to auto traffic and may vary both by route and by type of vehicle (i.e. passenger auto, freight trucks, recreational vehicles).
- **High-occupancy toll (HOT) lanes** are a hybrid system that combines voluntary congestion pricing and reservations. This strategy would require a creation of high-occupancy vehicle (HOV) lanes—such as those on freeways—at ferry terminals that would give priority to vehicles willing to pay a toll for assured passage on the next ferry. The lanes could also give priority to high-occupancy vehicles, such as its freeway counterpart does, or other sub-groups of vehicles deemed appropriate.
- **Mode shift strategies.** Given that on most routes there is a ready availability of passenger capacity even during the most congested periods for vehicle demand, the most effective demand management tools might be to encourage ferry passengers to use other modes (walk-on, bicycle, motorcycle, vanpool, and transit) of travel to access ferry services. Pricing mechanisms for implementing mode shifts include:
    - Pricing vehicles at a higher rate than other modes;
    - Eliminating certain vehicle discounts or offering additional discounts to passengers for travel during non-congested periods.

  Vehicle pricing and transit connections were identified respectively as "a potentially high-benefit" and "most promising" strategies in the *WSF White Paper*.
- **Discounts for off-peak travel.** A potential strategy that could be complementary to a congestion pricing strategy is to offer discounts for travel during off-peak periods or in the off-peak direction during peak periods. This would potentially bring new riders to the system, shift some existing riders out of the congested periods and increase the overall utilization of the system's assets.

Relationship of Pricing Strategies to Fare Collection Systems

A consideration for any new pricing strategy will be the ability for WSF to implement the pricing structure which will be largely dependent on the capabilities of the fare collection systems. WSF currently uses its new Electronic Fare System (EFS) for fare collection. EFS uses a stored ride method for tracking fares. This means that a customer buys a given number of trips at a set fee (either a single ride or multiple rides often at a discount). These trips are stored on a card, and each time the customer rides a ferry, one of the trips is deducted from his card. This type of stored-ride system creates additional challenges relating to implementing certain types of pricing strategies such as varying the price based on time of day or for certain peak period trips for a given route (customers might need to purchase different products – a peak pass and a non-peak pass) .

In 2008, WSF plans to add the SmartCard system used by other WSDOT entities like rail and buses. SmartCard is based on a stored-value system. In practice this means that a customer puts a set amount of money on his or her card, and money is deducted when the customer uses the card to purchase rides. This type of system allows greater flexibility in the types of pricing strategies that could be employed by WSF.

Another potential fare collection system to be considered is use of the vehicle transponders that WSDOT uses for highway toll collection. This may provide a convenience to customers who already use the vehicle transponders, but given the operational and terminal impacts that adopting this fare collection system would entail, it is likely to be quite costly and potentially infeasible.

Relationship of Pricing Strategies to Other Transportation System Components: Areas for Further Study

The potential effectiveness of the pricing strategies WSF chooses to employ is directly related to other transportation system components. If customers have a mode of transportation available to them other than ferries (like bridges, highways, etc), the cost in terms of dollars and time of the other mode will affect the customers' decision. With that in mind, the following areas require further study:

- **One-point versus two-point toll collection.** On many routes, WSF only collects fares from travelers headed in one direction. If a potential customer has the ability to drive one leg of his or her trip and return via ferry without paying a fare, this causes shifts in ridership patterns and potential revenue losses that may be undesirable in the aggregate. To effectively employ certain types of pricing strategies, WSF may need to switch to two-point toll collection. This switch entails operational and cost impacts that need to be further analyzed
- **Tacoma Narrows Bridge (TNB) toll.** The toll recently instituted on the TNB has the potential to change WSF ridership patterns. These shifts, and the ability to manage them using pricing strategies is an area for further study

Potential Operational Issues

The strategies listed above require varying degrees of operational changes. Potential implications of implementing the strategies that warrant further study include:

- **WSF staffing requirements**: Extra terminal staff may be needed for the implementation of reservation systems, HOT lanes, and additional holding facilities in order to take reservations or

direct vehicle traffic and segregation. eTicketing and the SmartCard systems, on the other hand, may reduce tollbooth staffing. The costs associated with changes in staff size must be considered in further analysis of these options.

- **Schedule modifications:** Changes in schedules may have terminal and operational impacts.
- **Increase in terminal capacity and facilities**: Vehicle segregation and holding require increased space on-dock or off-dock. Increased transit connectivity may require additional terminal facilities, such as ramps, waiting spaces, etc. Congestion pricing, HOT lanes, and reservations may also require additional terminal tolling booths, and the possible reinstatement of two-point tolls for all routes. There are significant capital investments and operating costs that come with these additions. The physical, environmental, political, and fiscal feasibility of enhancing capacity should be evaluated at each terminal location.
- **Technology and systems impacts**: Variable congestion pricing, HOT lanes, and reservations require an expansion of technology capacity. Existing technology—such as the system in place for international reservations—as well as developing technology in WSF and WSDOT—such as EFS and “Good to Go!” HOT lane transponder—should be leveraged and integrated wherever possible.
- **Development of new protocols and procedures**: With any significant change in operations, WSF staff must be informed and trained. The time involved in doing so could vary considerably depending on the strategy being introduced.

Relationship to Other Work Elements

The identification, analysis and recommendation of pricing strategies will be closely aligned with several other concurrent tasks including: the WSTC customer survey; the development of terminal design standards; the re-establishment of vehicle LOS standards; the analysis of operational strategies; and, the updated and reconciled ridership forecasts. In addition, the pricing strategies will be a key component of the Long-Range Plan.

EVALUATIVE FRAMEWORK AND CRITERIA

The Final Long-Range Plan is intended to guide future service and investment decisions for the Ferries Division of WSDOT through 2030. In contrast to the Draft Long-Range Plan of 2006, which detailed a capital investment plan that responded to growing demand and long-established level of service standards, the Final Long-Range Plan considers the provisions of ESHB 2358, details updated LOS standards, and describes a recommended set of operating and pricing strategies intended to maximize efficiency within the system and manage demand.

The overarching challenge inherent in developing the Final Long-Range Plan was to develop a set of recommendations and strategies that (1) lead to greater operational efficiency (2) help to manage demand, and (3) provide a framework for strategic decision-making around how and when to add system capacity. This framework is consistent with WSDOT's overall mission and strategic direction.

How did pricing and operating strategies shape the Final Long-Range Plan?

In determining recommendations, pricing strategies were evaluated by their impact on: 1) demand 2) customer service 3) revenue generation and 4) impact on users, capacity and communities. While these criteria are mentioned in the Ferry Bill or have been used in prior WSF evaluations, no explicit prioritization is stated. In later stages of analysis, prioritization and the balancing of these considerations should be clear or further guidance may be warranted. Below are some initial questions that guided data collection and analysis as well as began to frame how individual strategies were evaluated.

Demand Impacts. Managing ferry demand—and vehicle ferry demand in particular—is an integral part of the Legislature's directive. Questions included:

- What is the estimated demand elasticity for vehicles, walk-ons, bicycles, motorcycles, and vanpools?
- What is the estimated cross-elasticity for walk-ons, bicycles, motorcycles, vanpools, and transit if vehicle fees are increased?
- Do terminals have the added facility capacity to handle the estimated increase in demand of other modes?
- How does demand elasticity differ for rider sub-groups (commuters, tourists, island residents, etc)?
- How does demand elasticity differ by travel routes?
- How does one measure the effectiveness of demand response?

Customer Service. "Improving the quality and timeliness of service" is a stated goal in the Ferry Bill. Therefore, it is important that each operational strategy was evaluated according to its effects and perceived effects on the service toward different customer groups. For example, a reservation system may be seen by tourists as an improvement in customer service, but as a hindrance to island residents who would now have to plan their ferry trips further in advance. Questions included:

- How do the system's different users define "customer service improvements" (more efficient loading/unloading, more amenities on the ferries and in the terminals, etc)?
- How would the public respond to the new strategy and its perceived effect on service?
- Does the strategy affect different user groups in different ways? If so, how? Do certain user groups have special needs that should be addressed?

Revenue Impacts. ESHB 2358 requires that fares be set to recover enough funds to meet the needs of the biennial transportation operating budget. It also precludes fares from being used to support capital expenditures, unless such capital support is separately identified in the fare. Before evaluating individual strategies, it was important to ask: What level of revenue generation is desirable and expected? For example, HOT lane and congestion pricing tolls may be priced in a way to recover the costs associated with implementing the systems or in a way to make money for WSF general operations.

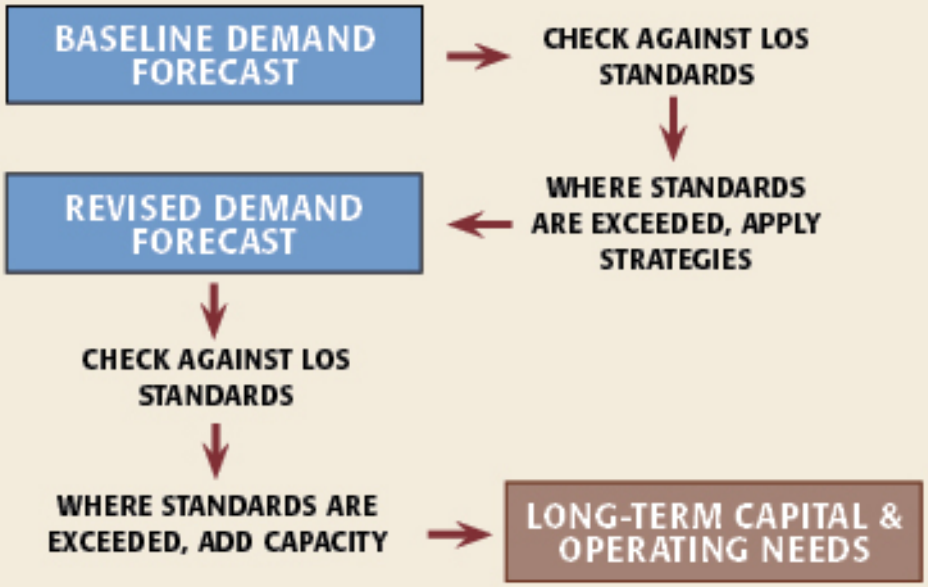
Impacts on Users, Capacity and Communities. WSF is an extension of the state highway system. Certain pricing strategies may be seen by users, policymakers, and elected officials as an "unfair" burden. The analysis of options considered the potential for perceived and/or actual equity concerns and identified how these might be mitigated while achieving the broader demand management or revenue goals. Questions included:

- What groups, if any, face a disproportionate burden or benefit from the proposed pricing strategy? Can the strategy be modified to address these concerns? Are there other ways of mitigating these potential impacts while maintaining the demand management or revenue benefits of the strategy?
- What is the public perception of the strategy?
- How might customer behavior change as a result of a proposed pricing strategy? What do the results of the WSTC survey suggest about customer reactions?
- How does this strategy affect users, system capacity, and communities?

This element of the analysis required coordination with the Washington State Transportation Commission's customer survey to gain a better understanding of the implications and reactions of a broad base of ferry customers to potential pricing strategies or fare concepts.

FRAMEWORK FOR EVALUATION OF STRATEGIES

How will pricing and operating strategies shape the revised Long Range Plan?



How will strategies be evaluated and selected?

PRINCIPAL EVALUATION CRITERIA

How well does the strategy achieve:

- Changes in customer behavior/shifts in demand
- Improvement in cost or service efficiency

ADDITIONAL EVALUATION CRITERIA

What are the expected impacts on:

- Operating and capital costs
- Revenue generation
- Terminal and fleet operations
- Customers
- Communities

PRICING POLICY CONCEPTS AND OPTIONS

The 2007 Legislature directed WSF to use pricing strategies as part of an adaptive management approach to help regulate demand while maintaining an awareness of the impact of fares on communities and users. ESHB 2358 requires that "the department shall annually review fares and pricing policies applicable to the operation of the WSF…the department shall develop fare and pricing policy proposals that must:

- Recognize that each travel shed is unique, and might not have the same farebox recovery rate and the same pricing policies;
- Use data from the current market survey conducted by the WSTC;
- Be developed with input from affected ferry users by public hearing and by review with affected ferry advisory committees, in addition to the market survey:
- Generate the amount of revenue required by the biennial transportation budget;
- Consider the impacts on users, capacity, and local communities; and,
- Keep the fare schedules as simple as possible.

While developing fare and pricing policy proposals, WSF must consider the following:

- Options for using pricing to level vehicle peak demand; and
- Options for using pricing to increase off-peak ridership.

During the 2008 Legislative session, an additional item was added to the list of considerations for setting fare policy. The following was Included as a proviso in the supplemental transportation budget (ESHB 2878):

- While developing fare and pricing policy proposals, the department may consider the desirability of reasonable fares for persons using the ferry system to commute daily to work and other frequent users who live in ferry-dependent communities.

The 2009 Legislature also provided guidance on fare policy through the transportation budget which stated, "The commission may only approve ferry fare rate changes that have the same proportionate change for passengers as for vehicles." This direction effectively of limits or eliminates altogether some of the demand management pricing strategies discussed in the following sections, at least during the 2009-2011 biennium.

Approach, Policy Principles and Outcomes

The fare structure that Washington State Ferries employs serves two important policy functions: (1) it must generate enough revenue to meet the budget requirements established by the legislature; and, (2) it distributes the system's operating cost burden to classes of customers in such a way as to meet various state policy objectives.

Currently, the policy framework imbedded in the fare structure was under the pre-ESHB 2358 policy guidance and focused primarily on equity issues. The direction contained in ESHB 2358 provides a

new policy framework that WSF and the WSTC must consider in setting fares, one that puts demand management as a key policy objective in how pricing is established.

At this time, the focus of the pricing strategies analysis is to revisit and revise the policy framework for how the cost burden is distributed to classes of customers and to ensure that the pricing structure is optimized around the demand management goals. While the revenue implications of demand management strategies must be analyzed and understood, the purpose of this conceptual pricing strategy is to lay out options that would address the second objective. To that end, the concept and options put forward in this document adhere to the following principles:

- **Simplification.** Wherever possible, the fare structure will be simplified. However, where the goal of simplification conflicts with improving the ferry system's ability to manage vehicle demand, fare policy tools that allow for better demand management will have priority.
- **Transportation Demand Management.** Use price to modify travel behavior in such a way as to maximize the use of existing assets before making strategic investments in new capacity.
    - **Incentives.** The fare and pricing policy proposal will include incentives that encourage (1) an increase in total passenger ridership, (2) an increase in vehicle to passenger mode shift, (3) an increase in vehicle or total ridership during low demand periods, and (4) a decrease in the average size of passenger vehicles boarding during peak periods.
    - **Disincentives.** Given that system capacity constraints exist primarily for vehicles during peak travel times, the fare and pricing policy proposal is designed to manage vehicle demand during peak periods and discourage peak period vehicle ridership where appropriate.

In reviewing the current fare structure in light of the overarching policy principles, it is suggested that the pricing policy concept that will ultimately guide the development of the Long-Range Plan should focus on the following key elements:

- **Passenger fares.** The passenger fares should be simple and provide incentives for mode shift and increased walk-on ridership
- **Vehicle fares.** The vehicle fares should be designed to manage demand in peak periods and increase ridership during periods where excess capacity exists

Passenger Pricing Policy

Given that there are very few capacity constraints for passengers on the ferry system, the passenger pricing structure provides the greatest opportunity for simplification and the provision of incentives to grow demand. Passenger pricing policies geared towards simplification of the fare structure and maximum incentives for mode shift fall along the following spectrum of options:

Option 1: Lower fares but maintain existing relationship among routes and passenger classes. This option keeps the existing passenger fare structure in place and either decreases all fares proportionally or maintains fares while certain classes of vehicle fare rise relative to passenger fares. Passenger frequent user discounts and youth discounts could be maintained or increased to provide further mode shift incentive.

Pros

- Maximize ridership potential through reduced passenger fares
- Promote mode shift through incentives
- Customer base is already familiar with the fare structure

Cons

- Does not offer any advantages in terms of simplifying the fare structure
- Even with more riders, there will be a reduction in overall revenues that must be made up in other parts of the fare structure.

Option 2: One passenger fare for Down Sound routes and one passenger fare for San Juan Islands routes. This option sets one passenger fare (and one senior/disabled passenger fare) for most routes and greatly simplifies the fare structure. While they add a layer of complexity back into the system, frequent user discounts and/or youth discounts could be maintained to provide reasonable fares to commuters and increase mode shift incentives. While the amount of the fare remains to be determined, the table below provides one possibility (fare set to lower than the Mukilteo-Clinton frequent user fare), designed to give all passengers a discount from the current fare:

Example of a Simplified Passenger Fare Structure

	South, Central and North Sound Routes	Domestic Anacortes to/from San Juan Islands Routes
Passenger RT fare	$3.00	$6.00
Senior Passenger RT fare	$1.50	$3.00

Pros

- Simplifies fare structure greatly with a common fare on most routes
- Customer base receives discount from current fare
- Provides significant mode shift incentives
- Increases passenger ridership

Cons

- Not all routes will benefit equally from reduced fares.
- Even with more riders, there will be a reduction in overall revenues that must be made up in other parts of the fare structure.

Option 3: Fare-free passenger service. A fare-free passenger service would maximize simplicity in the fare structure in addition to providing maximum mode shift incentives. Under this scenario, revenue loss implications are severe enough that additional tax funding for the system might be required to support operations, especially if the system wants to pursue a vehicle pricing strategy that provides pricing incentives for vehicles in low demand periods.

Pros	*Cons*
• Maximum fare structure simplification • Maximum mode shift incentives • Increases passenger ridership • Simplifies terminal operations, both in the terminal building and at the toll booths • Reduces operating costs associated with fare collection	• Substantial revenue loss • Potentially increased operating costs for passenger deck maintenance and cleaning • Without a fare, there is a high likelihood that the system will attract problem riders increasing security and vandalism related costs

Vehicle Pricing Policy

Given that system capacity constraints are largely tied to peak period vehicle ridership, the greatest fare increases (i.e. disincentives) should be targeted to this group of riders. Ultimately the future vehicle pricing structure should be based on the premise that vehicle deck space is WSF's most valuable asset. There is more demand than available vehicle deck space at many times, and we need to use pricing to try to bring supply and demand in better alignment.

- **Vehicle pricing should be tied to demand and supply factors only.** Price vehicles based solely on factors associated with the value of the car deck and vary that price as demand varies:
  - **How much space they use**. Continue with some form of the CUBE policy
  - **How long they use the space**. Continue with some variation of the current TRE policy
  - **When they use the space**. Continue with some form of seasonal pricing and add (where applicable) day-of-week and time-of-day congestion pricing

In general, the pricing strategies detailed below are grouped by these categories, though there are a couple of over-arching vehicle pricing concepts that merit discussion upfront. These include:

- **Frequent User Discounts.** In order to allow for maximum demand management flexibility, elimination of frequent user discounts for vehicles will need to be seriously considered. Under the current system, frequent users are given the best possible price without restriction as to when they can ride. This results in a large portion of vehicles boarding paying the lowest fares during the most congested times and significantly reduces the ferry system's ability to manage demand during peak periods.

  If it is determined that vehicle frequent user discounts are an important and necessary component of providing reasonable fares to commuters, a frequent user discount could be applied in combination with any of the strategies mentioned below. However, to maintain the demand management paradigm, a vehicle frequent user discount ought to be applied as a discount against the fares as outlined below instead of a flat rate for travel at any time. In this way there could still be a frequency benefit, though the frequent user price would adjust based on congestion.

  The options with respect to frequent user discounts can thus be summarized as follows:

  Option 1: Eliminate frequent user discounts from the fare structure entirely

Option 2: Change frequent user discounts to be a percentage discount against the cash fare

Option 3: Allow frequent user discounts only during off-peak time periods

Option 4: Keep the current flat fare frequent user discount

- **Reservation System.** A reservation system would greatly facilitate the implementation of some of the strategies noted below – particularly time of day pricing – by mitigating some of the operational and queue-sorting issues inherent in the existing fare collection system. A reservation system has the added advantage of providing a guaranteed load incentive to partially compensate for the higher costs likely under the vehicle pricing strategies that target demand management in the peak. This would likely require a substantial capital investment by the ferry system, and it would also require additional policy decisions around what percent of the boat could be reserved during different time periods and associated fees (if any). These issues are being considered as part of the development of operational strategies.

Pricing by How Much Deck Space a Vehicle Uses

The current CUBE policy uses a pricing by space occupied philosophy to price vehicles proportional to the amount of space they use. One strategy that would effectively decrease congestion is by reducing the average vehicle size during the peak. Thus the same vessel might accommodate more total vehicles and reduce the number left behind for a given sailing. The following options could be explored with respect to how WSF charges based on size of vehicle:

- **Option 1: Progressive pricing for larger vehicles**. WSF might consider a graduated pricing system that progressively prices large vehicles more for extra space used during peak periods. This would discourage large vehicles during peak periods and help ease congestion. This might be done in concert with incentives for larger vehicles to travel during lower demand periods.

- **Option 2: Pricing by Foot**. Instead of pricing by pre-defined size categories, the ferry system might consider pricing by foot. This would send a clear message that every foot counts and might encourage shifts into smaller vehicles in all current vehicle fare categories. A system like this would require investment in technology, but it has the potential to decrease congestion during peak periods by increasing vehicle throughput.

- **Option 3: Small Car Pricing**. Creation of a new, discounted small vehicle category would encourage passengers to shift into smaller cars where possible and increase total vehicle throughput during the peak. In a scenario where the frequent user discount is eliminated, this small car category might be priced at a level similar to the current vehicle frequent user discount price. Thus, the system would offer the same price option but change the incentive from frequency to smaller vehicles. The size requirements defining a “small car” remain to be determined, but should be set taking into account recent auto industry trends toward smaller vehicles and the growth in the market for urban commuter cars (e.g. the Smart Car, developed by Mercedes-Benz, which was recently introduced to the U.S. market).

Pricing by How Much Time a Vehicle Occupies Deck Space

The existing tariff route equity (TRE) policy essentially prices routes relative to each other depending upon how much time a vehicle occupies space on each route. Within a given travel shed, prices are equalized so that price is not a factor in the choice among competing routes. For routes that do not have potential substitution effects, this policy provides a solid rationale for how fares on different routes relate. Where substitution effects do exist, WSF might consider modifications designed to manage demand:

- **Option 1: Pricing Southworth Routes Similar to Other Central Sound Routes.** For a number of reasons, including the interconnectivity between Southworth and Vashon and arrival at Fauntleroy versus Colman Dock, Southworth has been considered a South Sound route for pricing purposes. As Southworth and Bremerton are viable substitutes and Southworth experiences significantly more congestion than Bremerton, WSF might consider raising prices for Southworth routes to encourage more of a shift to the Bremerton route or to avoid incenting travelers to use the more congested corridor.

- **Option 2: Differential Pricing on Routes with Substitution Options.** Where customers have a choice about which route to use, the ferry system could explore differential pricing to move customers from a more congested route to a less congested one. This would apply to the following points of origination:
    - Bainbridge
    - Bremerton
    - Southworth
    - Vashon

Pricing According to When a Vehicle Uses Deck Space

The current pricing structure includes some elements of a congestion and demand management system like seasonal surcharges and day of week variation on San Juan Islands routes. However, these variations are only evident to the cash fare customer and do not affect frequent users. For this reason, they have somewhat limited demand management benefits. The policies below assume elimination of frequent user discounts for vehicles, or at a minimum, a frequent user discount that would be applied to demand-adjusted fare.

Also, to fully implement these concepts and realize the full value of the demand management benefits, WSF would need to influence decisions in both directions on Island routes which currently collect fares in only one direction. These strategies might require toll collection in both direction or a reservation system which would address most of the toll collection requirements through pre-payment of fares.

- **Option 1: Time of day pricing**. Time of day pricing would include surcharges during the peak periods to manage demand and possibly discounts during off peak periods to increase ridership where the system has capacity. While possible without a reservation system, terminal operating challenges and the ability to provide the incentive of a guaranteed load to customers, make day

of day pricing more attractive if it goes hand in hand with a reservation system. While time of day pricing adds a significant amount of complexity to the existing vehicle fare structure, it allows for maximum flexibility in the provision of incentives and disincentives to manage vehicle demand.

- **Option 2: Day of Week Pricing.** This pricing structure could be extended to other routes (in addition to the San Juan Islands routes) that experience more pronounced congestion on certain days of the week.
- **Option 3: Seasonal Pricing.** The current pricing structure recognizes only two seasons: peak and non-peak. Actual ridership varies quite a lot within these seasonal windows, and WSF might consider changing its pricing structure to reflect three seasons: summer peak (likely July/August), shoulders (May-June and September-October), and winter (November-April). During the winter season, there are holiday weekends with significant demand which could be priced at a premium as well. This type of seasonal structure is currently in place on BC Ferries. This structure could also be used to help increase ridership during off-peak times when the system has excess capacity.

Pros and Cons of the Potential Vehicle Pricing Policy

The vehicle pricing structure detailed above represents a radical shift from the current vehicle pricing structure and would need to be implemented incrementally. While different combinations of strategies provide different advantages and pose varying challenges, the pros and cons of a vehicle pricing strategy that prioritizes demand management can be summarized as follows:

Pros

- Significantly decreased congestion during peak periods (especially with a reservation system)
- Guaranteed load for customers during peak periods (with a reservation system)
- Increased flexibility to manage demand during daily, weekly and seasonal peak periods
- Support mode shift by making SOV travel more expensive during peak
- Depending on reduction in passenger fares, overall cost of an HOV might be mitigated
- Increased ridership in off peak periods
- Potentially increased vehicle throughput, if trips can be incented to shift to lower demand periods
- Potentially increased revenue potential to offset decreased passenger revenues and meet the transportation budget requirements
- Alternatives provided to customers could mitigate fare increases (i.e. elimination of frequent user discounts replaced by the addition of a small car fare)

Cons

- Increased vehicle prices during peak periods negatively affects many customers
- Increased complexity in the pricing system makes it more difficult to explain to customers
- Additional capital investment required (reservation systems and vehicle measurement systems)

EFFECTIVENESS ASSESSMENT OF POTENTIAL PRICING STRATEGIES

The purpose of this analysis is to evaluate the potential effectiveness of possible pricing strategies that could be implemented as part of the overall operational and strategic initiatives contained in the Long Range Plan. This analysis considered a short list of potential pricing strategies that would address either revenue adequacy or transportation demand management goals.

Where possible, the WSTC-commissioned survey was used to assess the effectiveness of potential pricing strategies. The survey identified customers' willingness and ability to shift travel times and mode as well as their price sensitivity. The conjoint analysis, a survey module designed to analyze customers' mode shift decisions as they relate to price, was used to develop elasticity coefficients for subcategories of customers. The onboard survey results and conjoint analysis form the basis of the analysis that follows on the effectiveness of specific pricing strategies.

Revenue Adequacy Strategies

The biennial transportation budget sets a revenue target for the ferry system. To meet this target, general fare increases above the 2.5% annual inflationary increases might need to be enacted.

Fuel Surcharge

Fuel is a large and growing portion of the ferry system's operating costs. The volatile cost of fuel adds uncertainty to Ferries' operating expenses and in recent years has led to decreasing farebox recovery rates. For ferries to have self-sustaining operations, the risk associated with fluctuating fuel costs needs to be mitigated.

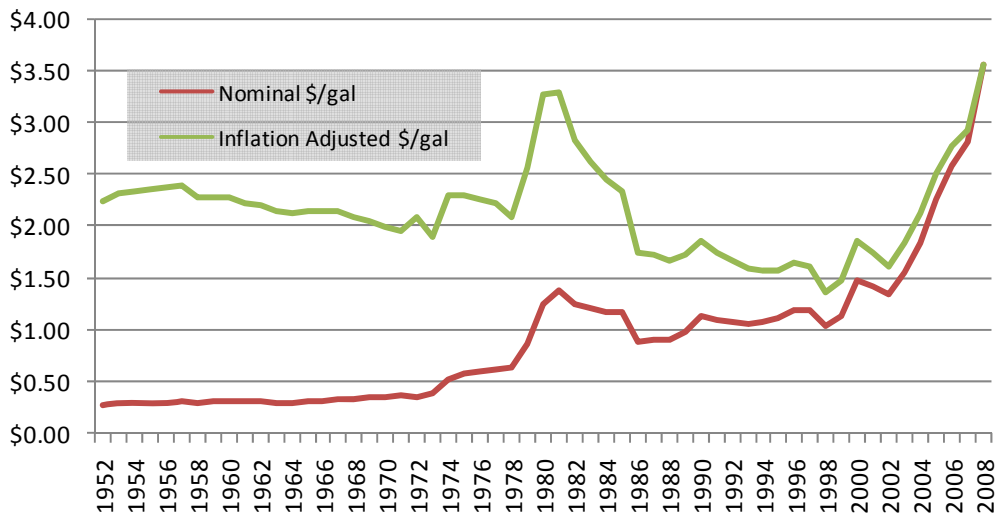
To mitigate this fuel risk, Ferries could implement a fuel surcharge that would automatically adjust fares to reflect increases in fuel prices above some pre-determined base fuel price. Under this program, a customer's total fare would be subject to automatic increases in periods of rapid fuel price escalation, effectively passing on this direct operating expense to those benefiting from the service.

A key analytical question involves how to determine the current base fuel price from which future fuel surcharges would be pegged. For the purposes of this Draft Plan it is assumed that the base price of fuel be set at a price equal to the average fuel costs as defined by the inflation-adjusted average cost of diesel from 1952-2008.

As shown in Exhibit 1 below, with a few notable exceptions, the average per gallon price of diesel fuel has been relatively stable over the period in question. As a result, setting the base price to the long-tem inflation-adjusted price of fuel would incorporate the "typical" level of fuel costs experienced by Ferries.

To the extent that the actual current cost of diesel would differ substantially (20% or more perhaps) from this long-term average, a fuel surcharge would need to need to be introduced.

Exhibit 1
Historic Fuel Prices (1952-2008)



Source: , 2008.

An approach to developing a fuel surcharge would be to establish a base fuel cost "budget" which reflects the long-term average cost of fuel and anytime the actual fuel costs exceed this "base budget" amount, a fuel surcharge would be added to the fare to cover the difference. To illustrate the potential impacts of such a surcharge, Exhibit 2 shows how the assumed 2.5% annual fare increases would be affected by the addition of a fuel surcharge. The November forecast of fuel prices would result in a relatively small overall fuel surcharge impact (0.6% per year) and would push average annual fare increases to 3.1% from the base 2.5%.

The September forecast included substantially higher future fuel prices, which would add a total of $270 million to the total fuel costs over the 22 year planning horizon. To meet this higher fuel cost requirement, fuel surcharges would need to average 2.0% per year and push the overall average annual fare increase to 4.5%.

Exhibit 2
Fare Implications of Fuel Surcharges

	Average Annual Fare Changes		
	Base Fare	Fuel Surcharge	Total
Base Fare	2.5%		
Fuel Surcharge Scenarios			
Global Insights Baseline (Nov)	2.5%	0.6%	3.1%
Global Insights Baseline (Sept)	2.5%	2.0%	4.5%

Transportation Demand Management

In addition to meeting revenue goals, fare policy will need to incorporate demand management strategies. The demand leveling called for by ESHB 2358 will be accomplished primarily through the extensive use of a reservation system, and the following analysis details options and incentives Ferries can use in conjunction with a reservation system to illicit mode shifts and other desirable behavior.

Evaluative Criteria

Evaluation of pricing strategies began with a long list of options culled from other transportation systems in Washington and beyond, as well as the current research on transportation demand management.

In addition to the demand management impacts they are designed to produce, these options were evaluated against the following criteria:

Customer Service. “Improving the quality and timeliness of service” is a stated goal in the Ferry Bill. Therefore, it was important for pricing strategies to be evaluated according to their effects and perceived effects on the service provided to different customer groups. Questions included:

How would the public respond to the new strategy and its perceived effect on service?

Does the strategy affect different user groups in different ways? If so, how? Do certain user groups have special needs that should be addressed?

Impacts on Users, Capacity, and Communities. Ferries is an extension of the state highway system. Certain pricing strategies could be seen by users, policymakers, and elected officials as an “unfair” burden. The analysis of options considered the potential for perceived and/or actual equity concerns and identified how these might be mitigated while achieving the broader demand management or revenue goals. Questions included:

- What groups, if any, face a disproportionate burden or benefit from the proposed pricing strategy? Can the strategy be modified to address these concerns? Are there other ways of mitigating these potential impacts while maintaining the demand management or revenue benefits of the strategy?
- What is the public perception of the strategy?
- How might customer behavior change as a result of a proposed pricing strategy? What do the results of the WSTC survey suggest about customer reactions?
- How does this strategy affect users, system capacity, and communities?

Under these evaluative criteria, strategies like high occupancy tolling lanes (HOT) lanes and other programs that would allow customers to pay to jump the line were eliminated. These types of strategies had little impact on reducing peak period demand and raised significant equity concerns.

Methodology

Pricing strategies intended to have demand management benefits were evaluated in terms of their impact on ridership and revenues by route.

Ridership

For the purposes of evaluating pricing strategies targeted at specific times of day and classes of rider, projected annual ridership by route and customer class was needed (see Appendix G for ridership annualization methodology). This had to be extrapolated from other inputs. The following list includes the data used for this purpose:

- Wednesday in May westbound 4-hour peak projections for vehicles, walk-ons, and total riders (by route for the years 2006, 2010, 2020, 2030)
- Actual ridership by route, sailing, and ticket type (cash and pre-paid vehicles, cash and pre-paid motorcycles, vehicles 20-49', vehicles 50' and over, passengers by fare type) for the following weeks:
    - January 14, 2006
    - May 13, 2006
    - August 12, 2006

Using the ratio of peak 4-hour projections in May 2006 to actual peak 4-hour ridership on a Wednesday in May 2006, weekly May westbound projected ridership that corresponded to the 2006, 2020, and 2030 4-hour projections was calculated. Using these same route-level ratios, weekly August and January ridership was calculated. These numbers were then annualized assuming that May ridership levels for 24 weeks, January levels ridership for 19, and August ridership levels for 9. This formed the basis from which ridership fluctuations were calculated under different pricing scenarios.

Fluctuations in ridership were calculated using results from the WSTC-commissioned survey where available. As riders were surveyed about price sensitivity and ability to shift time or mode, analysis of the conjoint results provided elasticity coefficients by travel shed for walk-on and vehicle riders making discretionary and non-discretionary trips during the peak window or other times. A unique set of coefficients was provided to analyze each increment of price increase or discount under the following independent scenarios:

- Peak period surcharge
- Off-peak discount
- Walk-on discount
- Differential Vehicle and passenger price increases

The following example shows these coefficients were used to analyze ridership impacts for a 10% peak period surcharge.

Exhibit 3
Step By Step Example to Calculate 2030 Ridership Fluctuations in the Central Sound Resulting from a 10% Peak Period Surcharge

Step 1: Elasticity Coefficients from the Conjoint Analysis specific to a 10% peak surcharge:

	Discretionary Trips					Non-Discretionary Trips				
	Walk	*Peak*	*Early*	*Late*	*None*	*Walk*	*Peak*	*Early*	*Late*	*None*
South	0.46	-1.20	0.63	0.64	0.65	0.43	-1.06	0.58	0.57	0.54
Central	0.27	-1.02	0.54	0.55	0.52	0.33	-0.94	0.50	0.49	0.46
North	0.29	-0.80	0.41	0.42	0.39	0.25	-0.60	0.35	0.34	0.34
Island	0.19	-1.23	0.60	0.63	0.58	0.86	-1.40	0.85	0.76	0.83
Multi -ride	0.31	-1.01	0.54	0.55	0.50	0.35	-0.87	0.50	0.50	0.48
Full Fare	0.25	-1.00	0.51	0.52	0.52	0.30	-0.98	0.48	0.46	0.44
Peak	0.28	-1.01	0.53	0.54	0.51	0.33	-0.90	0.50	0.49	0.47
Off-Peak	0.30	-0.97	0.52	0.52	0.53	0.31	-0.90	0.46	0.45	0.42
Overall Avg.	**0.28**	**-1.01**	**0.53**	**0.54**	**0.51**	**0.33**	**-0.90**	**0.49**	**0.49**	**0.47**

Step 2: Projected 2030 Annual ridership by travel shed (assume 55% are discretionary trips and 45% on non-discretionary trips per WSTC survey):

	Weekday Peak Vehicles	***Total Vehicles***	***Total Passengers***	***Average Vehicle Fare (2006)***	***Average Passenger Fare (2006)***
South	776,664	2,900,574	2,203,459	7.33	1.56
Central	1,906,068	6,528,644	10,516,167	11.86	2.35
North	813,470	3,413,166	4,037,725	7.55	1.59
Island	302,427	1,212,988	1,465,294	18.85	5.20
TOTAL	3,798,629	14,055,372	18,222,645	10.48	2.32

Step 3: Calculate Vehicles lost from peak due to 10% surcharge

For Central Sound: [-1.02 * 10% * (1,906,068 * 55%)] = -107,000

\+ [-0.94 * 10% * (1,906,068 * 45%)] = - 81,000

- 188,000

Step 4: Calculate Vehicles who would switch to an earlier or later non-peak time:

For Central Sound: (0.54 + 0.55)/(0.54+0.55+0.27+0.52)* 107,000 = 62,000

\+ (0.50 + 0.49)/(0.50+0.49+0.33+0.46)* 81,000 = 45,000

107,000

Step 5: Calculate Vehicle who would shift to walk-on:

For Central Sound:	(0.27)/(0.54+0.55+0.27+0.52)* 107,000 =	15,000
+	(0.33)/(0.50+0.49+0.33+0.46)* 81,000 =	15,000
		30,000

Step 6: Calculate Vehicles who would leave the system:

For Central Sound:	(0.52)/(0.54+0.55+0.27+0.52)* 107,000 =	30,000
+	(0.46)/(0.50+0.49+0.33+0.46)* 81,000 =	21,000
		51,000

Step 7: Repeat for other travel sheds

Revenue

For each of the pricing strategies examined, the incremental revenue impacts were calculated by applying corresponding fares to the revised ridership numbers. Using the example in Exhibit 3 above, the incremental revenue impacts of a 10% peak period surcharge in the Central Sound would be calculated as follows:

Peak Vehicle Riders:	(1,906,000 - 188,000) * (11.86 * 10%) = $2,038,000
+ Non-Peak Vehicle Riders:	$0 (time shifting vehicles pay same fare as they had previously)
+ Mode Shift:	30,000 * (2.35 – 11.86) = - $ 285,000
+ Left the System:	- 51,000 * 11.86 = - $ 605,000
= Incremental Impact:	$ 1,148,000

The remainder of this document describes the ridership and revenue impacts of various pricing strategies using the methodology just described.

Key Strategies

The following five strategies represent incentives and disincentives that were identified to have the greatest potential impact with respect to transportation demand management goals while minimizing potential negative impacts to customers and communities

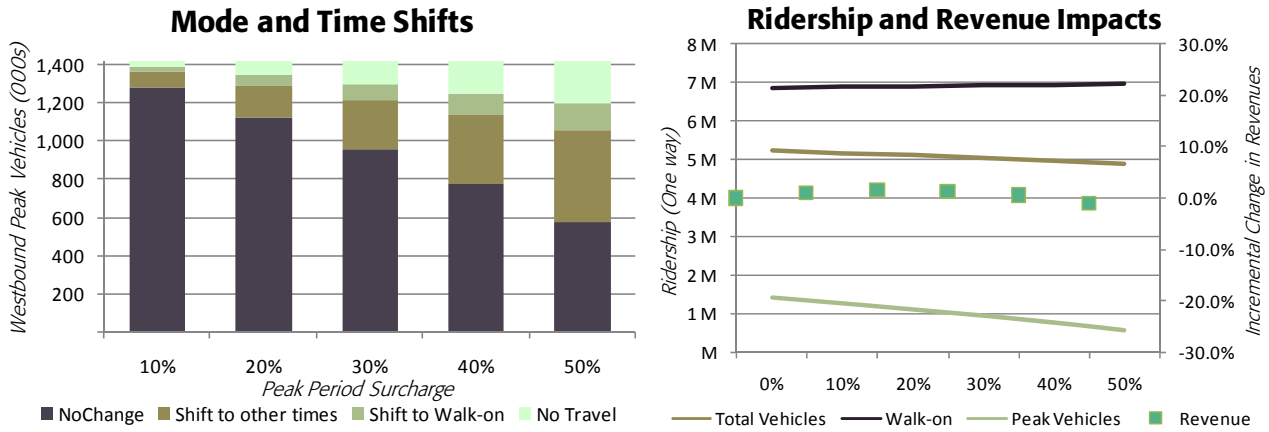
Peak Period Surcharges

“Peak” periods can be defined as a time of day (as with the 4-hour afternoon peak discussed earlier), days of the week (on certain commuter routes), or seasons during the year. A surcharge could be applied during any one of these peak periods to reduce demand during that period. Ferries currently applies a surcharge of 25% in the summer (35% on Anacortes/San Juan Islands routes) to its fare structure.

Time of Day Pricing. A time of day pricing would target vehicles traveling during the most congested times of day, when capacity constraints are at their tightest. Based on survey responses, many riders have some flexibility in when they could travel, and a time of day surcharge would be an effective way to encourage time shifts out of the peak, as well as mode shifts.

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

Exhibit 4
Estimated Effects of a Time of Day Peak Surcharge



Because of the negative effects a time of day surcharge would have on customers (especially those unable to shift travel patterns) and because of the minimal revenue benefits, this strategy is not currently being considered by Ferries. For the purposes of this Draft Long-Range Plan, peak period vehicle capacity constraints will be addressed primarily through a reservation system. However, this is an effective demand management strategy and, as such, it is recommended that Ferries revisit the potential for time of day pricing periodically in the future.

Seasonal Surcharges. Ferries' fare structure currently contains a seasonal surcharge component. From the months of May to October, the cash fare is increased on all routes by 25% and on Anacortes-San Juan Islands routes by 35%. Because customers who use the frequent user and multi-ride fare purchase options are exempt from this surcharge, it has the desirable effect of targeting recreational users.

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, Ferries should consider adding a third level to its seasonal pricing structure that allows for a higher surcharge during July and August.

Because this surcharge would target just a small portion of riders (discretionary trips in July and August), revenue impacts are also small. Assuming a July/August cash fare surcharge of an additional 20%, Ferries might expect to increase total annual revenues by approximately 2% (based upon elasticity assumptions from the Ferries revenue model). With respect to ridership effects, this same scenario would have the effect of decreasing July/August vehicle ridership by 1.5-4.0%, depending upon the route. Routes with more summertime tourist traffic, like Anacortes and Port Townsend, would see larger effects.

Frequent User Policy. Under the current system, frequent users are given the best possible price without restriction as to when they can ride. This policy results in a large portion of vehicles paying the lowest fares during the most congested times, and significantly reduces the ferry system's ability to manage demand during peak periods. However, frequent user discounts are viewed by regular customers as an important and necessary component of providing reasonable fares to daily commuters.

A couple of options for modifying frequent user discounts were considered, including applying the discount to the posted cash fare (instead of maintaining it as a flat price) or applying the discount to the posted cash fare but exempting certain surcharges (like a potential time of day or seasonal surcharge).

Because frequent users represent a large portion of trips year round, policy changes like these would have significant effects on revenue and ridership, depending upon other elements of the fare structure. Given their potentially harmful effects to customers with the least amount of flexibility to change trip time and mode, they are not proposed in the current Draft Long-Range Plan.

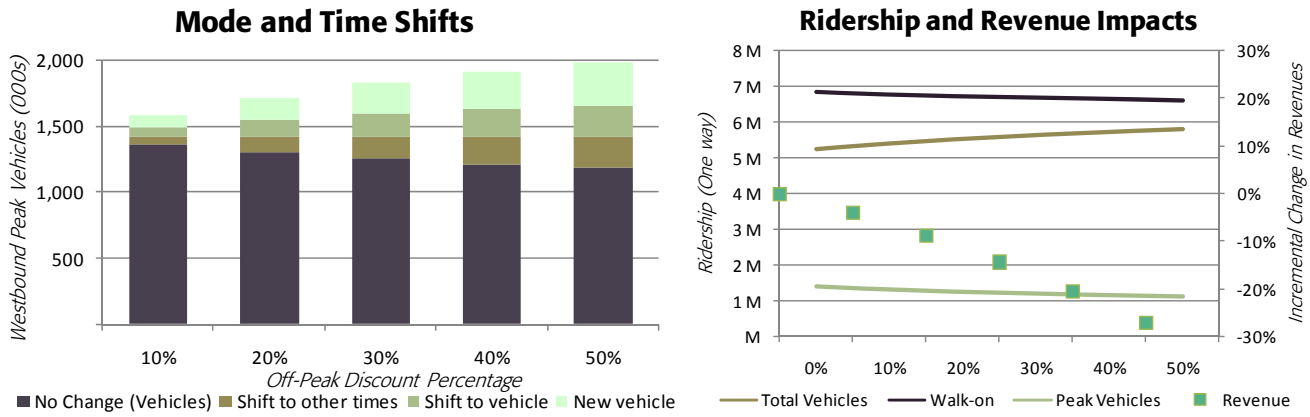
Off-Peak Discounts

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 (such as commercial and recreational vehicle traffic) that can make use of low demand periods but might be priced out of the system today.

Exhibit 5 below shows the estimated system-wide effects of an off-peak discount program. Under increasingly higher discounts, vehicles currently traveling in the peak would be incentivized to move to other times, new vehicles would come to the system and some customers currently walking-on would drive instead.

While these shifting effects are large (at a 50% off-peak discount, almost 20% of the vehicles normally traveling during the peak would change behavior), the revenue losses are also large (nearly 30% decrease in total revenues at the far end of the scale). Furthermore, some less desirable shifting effects from walk-on to drive-on are likely to occur.

Exhibit 5
Estimated Effects of an Off-Peak Discount



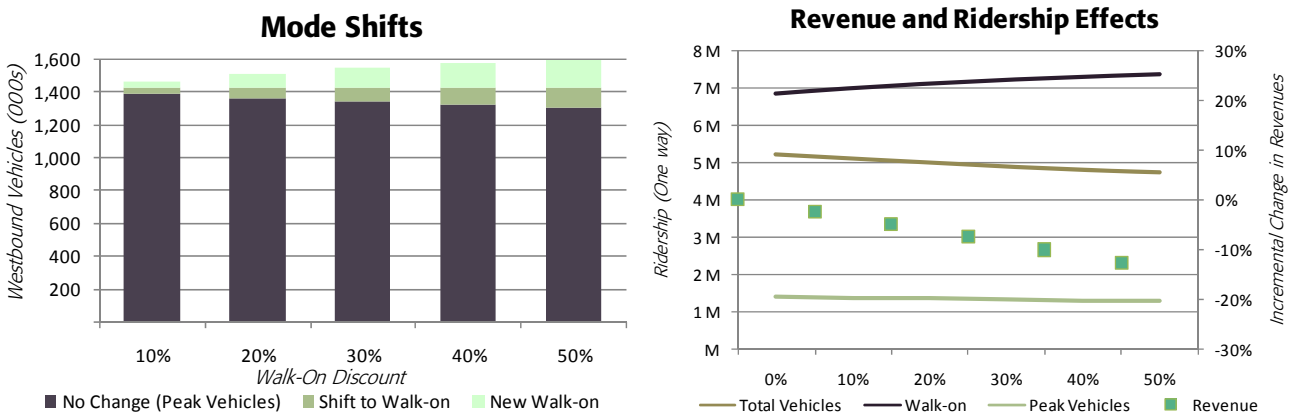
Because of the substantial negative effects an off-peak discount would have on system revenue, a large-scale application of this strategy is not currently being considered by Ferries. Depending upon the availability of other operating revenues and subsidies, Ferries might choose to pursue a more targeted discount programs for commercial or recreational vehicles, for example.

Passenger Discounts

Like off-peak discounts, passenger discounts are a pricing incentive designed to encourage existing vehicle travelers to shift modes and to attract new passengers to the system. A passenger discount program would likely have a greater impact in conjunction with the transit enhancements described above.

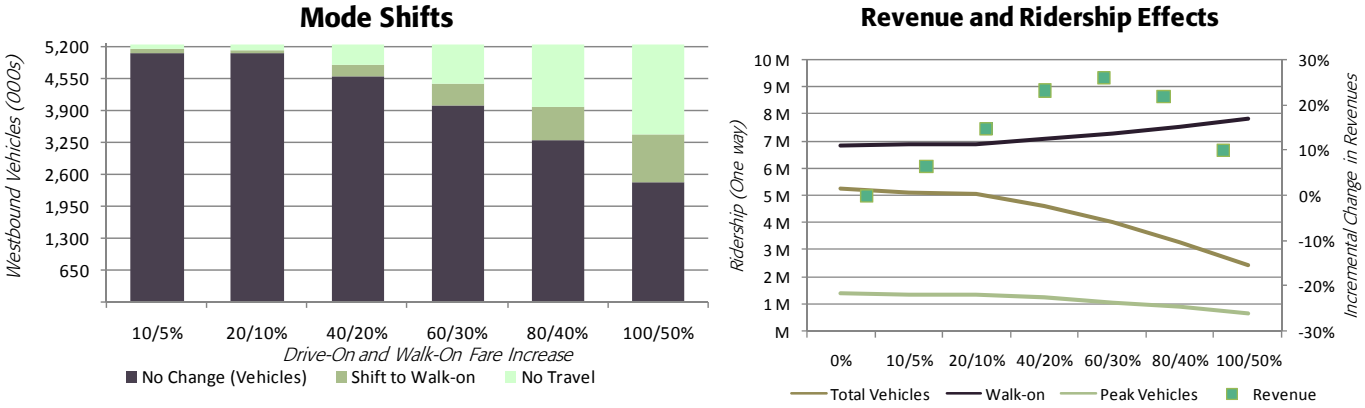
Exhibit 6 below shows the estimated system-wide effects of a passenger discount program. Under increasingly higher discounts, vehicles currently traveling in the peak would be incentivized to mode shift to walk-on (though not at high rates), and new passengers would come to the system. While the shifting effects are not as large as with other strategies, partly because passenger fares are quite low to begin with, and even a 50% discount is not much in terms of dollar amount (especially relative to vehicle fares). Furthermore, there are significant negative revenue impacts associated with this strategy.

Exhibit 6
Estimated Effects of a Passenger Discount



Because of the substantial negative effects a passenger discount would have on system revenue, this strategy is not currently being considered by Ferries. Instead, with any across the board fare increase Ferries needs to enact in order to meet revenue requirements, passenger fares will be increased at only half the rate of vehicle fares. Exhibit 7 below shows general vehicle fare increases, with passenger increases at half of vehicles.

Exhibit 7
Estimated Effects of Differential Vehicle and Passenger Fare Increases



This strategy has a couple of advantages. First of all, an increasing differential between vehicle and passenger fares encourages vehicles to mode shift, and secondly, the strategy is revenue positive (although less so at high ends of the scale). It is important to note that these price increases are intended to occur over the 22-year planning horizon, and any fare increases will be implemented gradually and with opportunity for public input.

It should also be noted that this analysis is using short term elasticity effects from the WSTC-commissioned survey, and there is much greater uncertainty about these effects in the long run (see section 0 for a more complete discussion).

Small Car Discounts

Ferries already charges vehicles based on their size, and a small car discount would be a special incentive to encourage people that must drive-on to take smaller cars, effectively allowing more vehicles to fit on deck. It has the advantage of increasing vessel carrying capacity by reducing average vehicle size and providing a lower cost vehicle option that still offers a demand management benefit to the system.

As with the July/August summer surcharge, a small car discount would target a very small portion of total riders. Depending how the discount is set and what size vehicle would qualify, it could attract some new riders to the system, but would likely draw most of its participants from the pool of standard vehicles. The net revenue effects would therefore be negative but probably on a very small order of magnitude (1-2% system-wide assuming the size cut-off is quite restrictive).

A policy decision exists around the definition of a “small car.” Most newer vehicles classified as “subcompact” have a length at or just over thirteen feet, though some very small commuter cars that are popular in Europe and Asia are being successfully introduced to the US market. A “small car” would likely be defined as a vehicle less than 12-14 feet in length.

Non-Resident Pricing

Another strategy that may have some demand management benefits and takes a different approach to fare equity, is a non-resident pricing program. Conceptually, Washington State residents are contributing to Ferries through their taxes and also when they use the ferry system through their fares. This would increase somewhat the total contribution from the non-resident to be more on par with the resident.

Per initial research undertaken by the Office of the Attorney General, such a program might be feasible as long as “non-resident” is defined as out-of-state. It is uncertain the ridership or revenue impact such a policy might have, and Ferries will continue to evaluate this option for potential future implementation.