KING COUNTY PASSENGER-ONLY FERRY PROJECT BRIEFING PAPER

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King County

Contents

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Executive Summary

This briefing paper presents a proposed operating, capital investment, and financial plan for the operation and funding of a passenger-only ferry system by King County on behalf of the new King County Ferry District. The plan is presented for Ferry District Board consideration as the Board moves forward with creation of the passenger-only ferry system and determines a levy rate to support that system.

Under this plan, the system would be governed and funded by the Ferry District and operated by King County. Proposed services include assumption of two existing passenger-only ferry routes (the Elliott Bay Water Taxi serving West Seattle to Downtown Seattle, and the Vashon Island route serving Vashon Island to Downtown Seattle), as well as up to five new routes to connect other communities within King County.

For planning purposes, the new routes under consideration include three Lake Washington Routes (Kirkland to Seattle, Kenmore to Seattle, and Renton to Seattle), and two new Puget Sound Routes (South Puget Sound to Seattle and Shilshole to Seattle). These routes are preliminary and have been identified for planning purposes only; the actual routes and implementation timing would be determined by the Ferry District. It has also been assumed that each of these new routes would start as a demonstration service, moving to permanent service if the demonstration proved successful.

The primary purpose of this document is to present the operations and capital investment plans to the level necessary to estimate expected costs, revenues, and a projected property tax levy rate in order to begin funding services in 2008. Senate Bill 6787 authorized King County to submit a business plan for assumption of the Vashon Island route from Washington State Ferries. The County's business plan was accepted by the State in April 2007, with the understanding that the King County Ferry District would begin funding of the service in July 2008 and start in-house operations in July 2009.

The plan summarized in this briefing paper assumes that the Ferry District would establish an agreement with the King County Department of Transportation for the provision of services directly related to the implementation, operation, and day-to-day administration of the system. The Department of Transportation would form a new Marine Division, which would have primary responsibility for the passenger-only ferry services.

The costs generated in this plan for the existing routes were based on extensive preliminary engineering and planning related to the vessels, terminals, and operations proposed. Cost estimates are based on site visits, concept developments, industry research, and local research of the availability of vessels and terminals. The cost estimates incorporate all anticipated administrative costs related to King County's delivery of the service. However, these costs do not include the Ferry District's internal administrative and support costs. Projected costs for the new routes are based on the cost estimates generated for the existing routes.

Based on the analysis summarized in this document, the proposed services could be provided with a levy rate of $0.055 per $1,000 of assessed value. The plan covering both existing and new routes includes total 10-year capital costs of $140.9 million and capital funding of $22.8 million, and total operating costs for the 10-year period of $127.5 million with operating revenue of $19.5 million. Annual operating costs for all seven routes by 2017 would be approximately $19.6 million with $4.0 million in annual operating revenue. The new routes are estimated to cost $1.2 million per year during the demonstration phase and $2.2 million per year per route once they move to in-house operations.

Introduction

The Puget Sound region has a long history of waterborne transportation, with waterways such as the Puget Sound and Lake Washington serving as the first major transportation routes in the area. The prevalence of waterborne transportation declined as major improvements were made in land-based transportation in the early twentieth century. However, in recent years as the roads and highways in the region have increasingly reached full capacity, there has been renewed interest in waterborne transportation, particularly passenger-only ferries.

Starting in 1997, King County operated a passenger-only ferry from West Seattle to Downtown Seattle, called the Elliott Bay Water Taxi. The service has been funded annually and operated on a contracted demonstration basis. Service has been provided most years since 1997, with service limited to the summer months for all years except 2001-2002.

King County began consideration of an increased role in waterborne transportation in 2005, with the publication of the King County *Waterborne Transit Policy Study*. This study included the potential for continuation of the existing Elliott Bay Water Taxi service, as well as the evaluation of potential other routes across Lake Washington, Lake Union, and Puget Sound.

More recently, the County considered assuming operation of the Vashon Island passenger-only ferry from Washington State Ferries (WSF). The 2006 Washington State Legislature enacted Senate Bill 6787, which in part authorized King County to submit a business plan to the Governor for the assumption of the Vashon Island passenger-only ferry. The County submitted a business plan in November 2006, a revised version of which was accepted by the State in April 2007.

On April 30, 2007, a new county-wide Ferry District was formed in King County with a mandate to consider the delivery of passenger-only ferry services serving destinations in King County. The Ferry District is the governing body for the proposed King County passenger-only ferry system and has authority to levy property taxes for the provision and operation of these services. In order to meet the agreed schedule for transfer of the Vashon Island service, the Ferry District would need to make a final determination of the tax levy amount prior to November 30, 2007. The levy rate must cover the needs of the two existing passenger-only ferry routes that the Ferry District would assume responsibility for (Downtown Seattle to Vashon Island and Downtown Seattle to West Seattle), the new routes (five proposed), and land-based shuttles to serve the routes.

Consultant Team

A consultant team was contracted by King County to prepare operational, capital investment, and financial analysis for the proposed passenger-only ferry system. The members of this team have extensive experience in the passenger ferry business, as well as a track record of successful projects for King County dealing with passenger-only ferries.

Firm	Role	Expertise
IBI Group	Prime Consultant, System Planning	Prime consultant on a number of passenger ferry projects for King County since 1999, including the 2005 *Waterborne Transit Policy Study* and the *King County Business Plan for the Vashon Island Passenger-Only Ferry*.

Elliott Bay Design Group	Vessels	Naval architects. Team members each bring over two decades of experience in the marine industry.
Fast Ferry Management	Operations	General Manager for Vallejo Baylink Ferries in the San Francisco Bay Area.
Moffatt & Nichol	Terminals	Led by former Washington State Ferries Manager of Terminal Operations.
Progressions	Finance	Former Washington State Ferries Director of Finance and Administration plus former Washington State Ferries Chief Financial Officer/Deputy Director/three time Acting Director.

Objectives

In support of the implementation of the proposed passenger-only ferry system, the objectives of this briefing paper are to:

1. Outline a robust operations and capital investment plan, and the financial implications of that plan, to enable the King County Ferry District to begin funding the Seattle to Vashon Island service in 2008, assume direct in-house operation of that service in 2009, support ongoing operation of the Elliott Bay Water Taxi, initiate several additional routes, fund connecting shuttle services, and conduct studies of potential routes.

2. Provide financial analysis for the purpose of setting a levy rate by November 30, 2007.

Outline of the Briefing Paper

This briefing paper is divided into five main chapters. The System Overview provides a quick summary of the overall system concept. The Existing Routes Service Plan describes anticipated service parameters for the Vashon Island and Elliott Bay Water Taxi routes. The Existing Routes Operations Plan identifies the main operational assumptions for the Vashon Island service and the Elliott Bay Water Taxi. The Existing Routes Capital Investment Plan provides a description of the facility and vessel investments proposed to support the operational plan for the existing routes.

The New Routes section identifies the assumptions and parameters, operating and capital, that were used to generate an estimate of the financial requirements of these additional services. The Financial Plan summarizes the projected costs and revenues of the two existing routes and five potential new routes, and identifies the levy rate that would be needed to support those services.

System Overview

The King County Ferry District (KCFD) would assume responsibility for the operations of the two existing passenger-only ferry services linking Downtown Seattle to Vashon Island and West Seattle, and would also assume responsibility for up to five new routes which, for the purpose of this plan, include Kirkland to Seattle, South Puget Sound to Seattle, Kenmore to Seattle, Shilshole to Seattle, and Renton to Seattle.

For planning purposes, it has been assumed that the Kirkland route would start service in July 2009, followed by the South Sound route, the Kenmore route, the Shilshole route, and then the Renton route, with a new route

starting each year. Actual routes and implementation timing would be determined by the Ferry District. For planning purposes, it has been assumed that each of these new routes would start with a two-year demonstration period followed by a third year for transition of the route to permanent, in-house service.

All ferry service would be managed by a new King County Marine Division with administrative support coming from various King County agencies and departments. Ferry operations would be conducted with King County owned (or leased) vessels operated and maintained by King County.

The services described in this paper would initially utilize ferry terminal facilities owned by others, and made available for King County use through leases or other cooperative agreements. The KCFD would make capital investments in existing and new facilities as needed.

Existing Routes Service Plan

Routes

The Vashon Island route is 8.12 nautical miles (nm) in length covering the distance from Pier 50 in Seattle to the passenger-only boarding float located at the Washington State Ferry dock facility on the northern end of Vashon Island.

Weather and marine traffic permitting, the route can be run at a service speed of 30 knots, covering the one-way distance in approximately 16 minutes. Allowing 3 minutes of maneuvering time out of Pier 50, and into the Vashon Island berth, the route can comfortably be scheduled for a one-way total trip time of 30 minutes.

The Elliott Bay Water Taxi (EBWT) route is 1.69 nm in length covering the distance from Pier 50 in Seattle to the passenger-only boarding dock currently located at Seacrest Park in West Seattle.

Weather and marine traffic permitting, the route can be run at a service speed of 20 knots, covering the one-way distance in approximately 5 minutes. Allowing 3 minutes of maneuvering time out of Pier 50, and into the West Seattle berth, the route can comfortably be scheduled for a one-way total trip time of 15 minutes.

Schedules

The overall level of service to be provided to Vashon Island and West Seattle would be determined by the KCFD Board. Draft schedules have been prepared based on current levels of service, direction provided by King County Staff, and stated preferred sailing times from surveys conducted on the Vashon passenger-only ferry and the Elliott Bay Water Taxi in August 2007.

Vashon Island

Service would be provided during the weekday morning and afternoon peak periods (approximately 6:00 to 9:00 AM and 4:00 to 7:00 PM respectively). The Vashon Island - Seattle route is expected to have three peak direction sailings in the morning peak period, and three peak direction sailings in the afternoon peak period (weekdays only). The first morning sailing would depart at 6:30 AM from Vashon Island, with the last afternoon sailing departing Seattle at 6:40 PM. A draft schedule for financial planning purposes is attached; this schedule may be revised prior to service implementation.

Elliott Bay Water Taxi

During the warmer months (April-October), all-day service would be provided seven days a week, with some variation in the hours of operation between the different days of the week. Weekday service would begin at 6:30 AM Monday through Thursday, with the last sailing at 7:15 PM. On Friday and Saturday, service would be extended until 11:00 PM in the evening, while Saturday and Sunday service would begin at 9:00 AM, with Sunday service ending around 7:00 PM.

During the winter (November-March), service would be offered weekday peak periods only. Morning service would run from approximately 6:30 AM to 9:00 AM and from approximately 4:30 PM to 7:00 PM. A draft schedule for financial planning purposes is attached; this schedule may be revised prior to service implementation.

Existing Routes Operations Plan

Program Management and Administration

Management and support requirements for the Ferry District marine operations would be composed of King County program management and support duties plus Washington State Ferries administrative overhead for 2008-09.

King County Management and Administration

This plan assumes that King County would create a new division within the Department of Transportation, the Marine Division, with primary responsibility for ferry service operations. The Marine Division would be headed by a General Manager who would have overall responsibility for the ferry system, would be the lead on customer services and strategic planning, and would have overall oversight of all operations. Three managers would report directly to the General Manager. The Operations Manager would be responsible for daily operations management, serve as the Port Captain, act as the Security & Safety Officer, and have responsibility for regulatory compliance. The Operations Manager would also be responsible for training and certification of captains and deckhands. The Maintenance Manager would be responsible for the planning and execution of vessel and facilities maintenance. The Administrative Manager would coordinate administrative and interdepartmental activities and relations, providing an interface with other departments of King County.

A number of organizational units within King County are likely to be involved to some degree in support of both the set-up of the Ferry District and King County Marine Division, and ongoing management of the service. These organizational units include: the King County Prosecuting Attorney's Office, Procurement and Contract Services, Office of Information Resource Management, Office of Risk Management, Office of Regional Transportation Planning - Grants Management, Governmental Relations, DOT-Finance, Finance & Business Operations, DOT-Transit, Human Resources, and Engineering Services. A draft organizational chart is provided as an attachment to this document. For financial planning purposes, an estimate of the approximate staff level of effort in Full-Time Equivalents (FTEs) has been generated for each of these units, and the cost of these interagency services estimated using an average staff cost. Standard King County overhead rates for human resources, central government, and other indirect services have been used to estimate indirect management and support costs for the King County Marine Division.

Additional labor would be required during program start-up to support vessel procurement and terminal improvements. This has been included in the capital costs for vessels (design, procurement, etc.) and terminals (design, engineering, permitting, etc.).

Contractor Overhead

During the period from July 2008 through June 2009, when the Ferry District would be funding the Vashon passenger-only ferry (with WSF operating it under contract) Washington State Ferries would be expected to incur costs for indirect services such as dispatch, crew training, payroll, and administrative services. WSF would likely apply an overhead charge to the direct vessel and terminal costs to account for these indirect costs. It has been assumed that the overhead charge would not exceed the current rate WSF uses to distribute management and support charges to their other ferry routes.

Vessel Operations

For at least the first two years of operations the plan assumes that the KCFD would utilize leased vessels to serve the routes outlined above. Given the marketplace for leased vessels, certain operational compromises may be required. Therefore, a transitional service may need to be implemented prior to optimizing service.

As soon as feasible, KCFD would purchase new ferry vessels that would be designed to meet the specific operational needs of the routes. New vessels would provide a higher level of operational and financial efficiency. New vessels would also assist KCFD in building a reliable and value-added transit service.

To provide for ultimate flexibility and financial efficiencies, to enhance safety and operator familiarity, and to minimize maintenance, wear and tear, and training costs – it is recommended that three identical vessels be procured to serve the two routes identified above. Vessels would be specified to carry 149 passengers and be operated by a crew of three.

A four-engine catamaran style vessel could be procured that can operate at 30 knots on four engines on the Vashon Island route, or just as easily operate at 20 knots on two engines on the West Seattle route. With three identical vessels, the vessels could be rotated between routes in order to spread out machinery hours and reduce costs. The third vessel would be held in reserve each day to serve as a backup vessel. While in reserve status, the maintenance crews would be able to perform preventative maintenance or repairs on the third vessel. Similarly, the service would be covered while a vessel underwent United States Coast Guard required drydockings or other heavy maintenance or repairs that would take the vessel out of service.

Each vessel should be identical in all respects. This would enhance both crew and passenger familiarity, and help minimize the need for spare parts, equipment, furnishings, and components. Identical vessels can be docked, secured with mooring lines, and have their passenger boarding ramps all rigged in the same fashion. Ultimately, this approach would result in much safer ferry operations.

Operating Labor

This section summarizes the consultant's recommendations based on best industry practice. Actual staffing levels and duties could be modified based on future collective bargaining.

It has been assumed that each vessel would be manned by a crew of three in accordance with the United States Coast Guard Certificate of Inspection for each vessel. For financial analysis purposes, a crew complement of one licensed Master and two deckhands is assumed. One of the deckhands would be designated as the senior deckhand.

Master

The Master (or Captain) would have complete and total responsibility for navigation, operation, safety, security of the vessel, his/her assigned crew, and the passengers carried. The Captain would serve as the Vessel Security Officer, perform log keeping and complete required reports, conduct training, drills, etc. The Captain would be responsible for preparing the assigned vessel for service, operating the vessel on the assigned route and schedule, and preparing the vessel for turnover to the next crew or for nightly tie-up. The Captain would also be responsible for all external communications to King County staff and other outside agencies as required.

Deckhands

The deckhands would assist the Captain as required, and would play a role in all aspects of vessel operation under the direction and supervision of the Captain. Primarily they would assist in vessel preparation, handle mooring lines, rig passenger boarding ramps, board passengers, verify fares, conduct security and safety sweeps, clean the vessel, replenish consumables, provide first line customer service, and assist with fueling, taking on water, pumping sewage, rigging shore power, etc. The deckhands would serve as lookouts, assist the Captain with vessel operation, and participate in training and drills.

For each assigned crew, there would be a deckhand qualified to serve as senior deckhand. The senior deckhand would be so noted in the vessel log, and would have the additional responsibility to assume command of the vessel if at any time the Captain became unable to fulfill his/her duties.

The vessel crews would report directly to the King County Marine Division Operations Manager, who would also serve as Port Captain. The relationships are depicted in the organizational chart attached.

Shift assumptions for the two in-house routes are as follows:

	Vashon Island Route	Elliott Bay Water Taxi
Shifts	• One 40-hour split shift	• Two 40-hour shifts plus two 20-hour shifts for summer service (April-Oct) • One 40-hour split shift (Nov-Mar)

Fuel

Fuel consumption is a function of hours of operation, vessel cruise speed, voyage profile and installed horsepower. For the proposed fleet, average engine loads were approximated for each route. Using these values, average weekly and annual fuel consumption for each route was then calculated. For financial planning purposes, the fuel price has been set at the same level as that used by King County Metro Transit: $2.70 per gallon in 2009. For later years, this price has been increased at the same rate as inflation, using the Implicit Price Deflator (IPD) rate.

Fuel consumption rate assumptions are as follows:

	Vashon Island Route	Elliott Bay Water Taxi
Fuel Consumption	• 90 gallons per hour	• 74 gallons per hour

Other Operating Costs

Other costs associated with operation of the vessels include items such as consumables, crew uniforms, communication, insurance, and worker and rider injury claims. For in-house operation, the WSF vessel cost model has been adapted for the 149 capacity vessel operating profile. Other operating costs have been estimated using the vessel cost model and supplemented with current estimates of insurance costs for 149 passenger vessels.

Vessel Maintenance

Maintenance plans for leased or owned vessels would be similar. Vessel maintenance items from the least complex to the most complex include simple on-board daily maintenance, periodic maintenance and trouble shooting and annual vessel overhaul and inspection. Descriptions of these activities follow:

1. Daily Maintenance – Vessel daily maintenance consists of cleaning the vessel, performing routine maintenance on vessel equipment and other items necessary to keep the vessel in an operable and presentable condition for its prescribed use. Typically these tasks would be performed by the vessel crew.

2. Propulsion System Heavy Oil Change – This includes changing engine oil, lube oil, as well as changing fuel and oil filters. The schedule for this type of maintenance would be based upon the number of hours between changes as determined by the engine manufacturer and vessel owner.

3. Annual Vessel Dry-docking – Annual vessel inspections, dry-docking and US Coast Guard inspection would require each vessel to be taken out of service for approximately two weeks each year. Included in this dry-docking period is inspection and minor repair of systems, interior outfit and vessel coatings.

4. Propulsion System Major Maintenance – As with the heavy oil changes, the schedule for this type of maintenance is based upon engine hours. Propulsion system major maintenance items include:

    - Top End Overhaul – Includes replacement of turbocharger, water pump, and other rotating engine components as necessary.

    - Major Engine Overhaul – This is a complete overhaul of engine.

Vessel maintenance and repairs would be carried out by the combined efforts of King County employees (Assistant Engineers and Oilers) and by outside vendors and marine repair facilities. Costs for both of these have been included in the financial analysis.

Most preventative maintenance and light repairs would be accomplished by the Assistant Engineers and Oilers working on the vessels daily under the direction of the King County Marine Division Maintenance Manager (the Maintenance Manager would also serve also as the Port Engineer). The relationships are depicted in the organizational chart attached.

Assistant Engineers and Oilers would be on duty during all hours of vessel operation. They would assist Captains with morning vessel preparations, mid-day crew changes, and nightly shut down of the vessels. They would communicate with each on-coming and off-going captain and receive verbal and/or written reports regarding any vessel maintenance issues.

Otherwise, during normal vessel operations they would perform preventative maintenance and light repair work on the backup vessel. At all times they would be available to assist an operating vessel with any maintenance issue that might arise during the course of vessel operations. They would also monitor and assist with any vessel maintenance or repair work being performed by outside vendors or marine repair facilities.

Routine preventative maintenance and light repairs for most vessel systems would be accomplished by in-house staff. This would be the most cost effective alternative, and over time would build a core of maintenance knowledge and expertise in-house.

Certain specialized preventative maintenance and repairs are most efficiently and effectively performed by outside vendors. Items such as radars, VHF radios, GPS navigation systems, and some of the more complex machinery maintenance items require outside vendors who have the requisite tools, training, and experience. The Marine Division staff should arrange for on-call maintenance contracts with qualified vendors to perform these services. Heavy preventative maintenance and repairs, such as vessel drydocking and engine overhauls, should be contracted out via competitive bid to local qualified marine repair facilities.

Maintenance Labor

This section summarizes the consultant's recommendations based on best industry practice. Actual staffing levels and duties could be modified based on future collective bargaining.

The Assistant Engineers and Oilers employed by King County would not be assigned to any particular vessel. Rather they would be shore-based and would work on vessels as assigned or directed by the Port Engineer.

Assistant Engineer

This position would require an extensive working knowledge of ferry vessels, marine propulsion equipment, auxiliaries, and associated systems.

The Assistant Engineers would assist the Captains with vessel startup each morning, and be available to assist the Captains of each vessel in operation that day should any maintenance issue arise. Otherwise the Assistant Engineer would perform preventative maintenance and light repairs on the backup vessel as assigned by the Port Engineer.

The Assistant Engineer would take daily reports on maintenance issues from the Captains at crew change, take actions as necessary, and communicate fully with the Port Engineer and the oncoming Oiler for turnover. All maintenance and repair work should be documented and logged.

Oiler

This position would require a base working knowledge of ferry vessels, marine propulsion equipment, auxiliaries, and associated systems. The Oiler would receive a briefing from the Assistant Engineer at the beginning of the Oiler's shift/end of the Assistant Engineer's shift, and work with him/her during shift overlap. The Oiler would assist Captains with vessel startup after any crew change, and vessel shut down each evening, and would be available to assist the Captains of each vessel in operation should any maintenance issue arise.

After vessel shut down, the Oiler would check fluid levels, add fluids as necessary, clean bilges, change oil and filters, and perform any other machinery or equipment checks as directed. Otherwise the Oiler would perform preventative maintenance and light repairs on the backup vessel as assigned by the Port Engineer.

The Oiler would take daily reports on maintenance issues from the Captains at crew change or vessel shut down, takes actions as necessary, and ensure turnover of maintenance issues to the oncoming Assistant Engineer (next morning) and the Port Engineer as necessary. All maintenance and repair work should be documented and logged.

Terminal Operations

KCFD would need to operate at least three terminals in order to provide the planned ferry service to Vashon Island and West Seattle. It is anticipated that at the outset, facilities would either be leased or operated under some form of cooperative agreement with Washington State Ferries (WSF) for Pier 50 in Seattle, and the passenger-only loading facility at Vashon Island. Similarly, an arrangement might be required with the City of Seattle for operations to Seacrest Park in West Seattle.

Eventually, KCFD may acquire some of these facilities or build new facilities in their place. Also, there are plans to acquire or construct a ferry maintenance facility in the Harbor Island/Duwamish area.

Pier 50 would be open during all hours of ferry operations and would be staffed by a Customer Service Representative. All outlying passenger terminals would be un-staffed.

At Pier 50, the public entrances would be opened by the staff at the appropriate hour and queuing and fare verification would take place as all outbound passengers arrive to board the vessels. Upon arrival of ferries in Seattle, the deckhands would unlock arrival gates to allow inbound passengers to leave, and then the deckhands would load the outbound passengers and verify fares. Gates leading to the passenger float would always be locked and secured unless passengers are actively being loaded or unloaded. Meanwhile, the public areas (non-revenue) of the Pier 50 terminal would be open to the public and monitored by the Customer Service staff.

During all hours, the outlying terminals would be gated and locked with security measures in place. During operating hours, ferries would arrive at these terminals from Seattle and one of the deckhands would unlock the gates and allow disembarking passengers to exit the facility. After passengers unload, the deckhands would verify fares and load passengers for the next scheduled departure, and lock the gates after passenger loading completes.

Staff

This section summarizes the consultant's recommendations based on best industry practice. Actual staffing levels and duties could be modified based on future collective bargaining.

The Pier 50 terminal would be staffed during all hours of ferry operations by a Customer Service Representative. This could be accomplished with two full time positions and one part time position. It has been assumed that staffing would be reduced on a seasonal basis, commensurate with the sailing schedule of the routes that dock at Pier 50.

The proposed scheduling would allow for shift overlap on Fridays, Saturdays, and Sundays, when the West Seattle service currently sees large numbers of first time ferry riders (tourists and leisure travelers).

The Customer Service Representative (CSR) would be the only position in the marine division that would not require ferry-specific experience or skills. This would be strictly a customer service position whose primary responsibility would be to answer customer questions and assist customers in having a positive ferry experience.

The person should possess excellent communication skills, and have the people skills necessary to efficiently and adroitly assist customers with their various needs, questions, and concerns.

Additionally, the CSR would generally maintain watch over the facility at Pier 50, restock consumable materials, provide lost and found services, and maintain the facility by performing light cleaning and housekeeping functions. The CSR would maintain records, logs, and reports as required. Additionally, the CSR would communicate as required with the ferry boat crews, maintenance crews, and the management staff.

The CSR would report directly to the King County Marine Division Operations Manager, who also serves as Port Captain. The relationships are depicted in the organizational chart attached.

Other Terminal Operating Costs

Other terminal costs, including utilities, have been estimated using Washington State Ferries and industry experience for similar facilities.

Terminal Maintenance

This section summarizes the consultant's recommendations based on best industry practice. Actual staffing levels and duties could be modified based on future collective bargaining.

Terminal facilities that would be owned by the KCFD would need to be maintained by King County employees, or through facilities assistance from other King County agencies or departments, or by outside vendors or contractors as discussed below.

Terminal facilities that would be leased by KCFD from others should include provisions for terminal maintenance from the lessor, or be maintained by King County employees, or through facilities assistance from other King County agencies or departments, or by outside vendors or contractors, depending on the preference of KCFD and the arrangement with the lessor. No dedicated terminal maintenance staff positions are envisioned in either the near or far term. For KCFD terminals, the vessel maintenance staff would have the collateral duty of performing all basic preventative maintenance and light repairs.

If the scope of preventative maintenance or repairs exceeds the expertise of the vessel maintenance staff, the Marine Division Maintenance Manager (working with the rest of the management staff) would arrange for preventative maintenance or repairs by others. If the maintenance or repair needs could be efficiently addressed by other King County agencies or departments, then those arrangements would be made, and agreements or policies would be put in place for ongoing support. If the scope of preventative maintenance or repairs exceeded the expertise of all King County maintenance assets, then the management staff would contract for assistance from outside waterfront/marine construction and repair providers.

Basic preventative maintenance and light repairs would be accomplished by the vessel maintenance staff. This work includes items such as:

- Safety and security inspections
- Greasing equipment
- Changing light bulbs
- Periodic wash down of all surfaces
- Lubrication of locks and hinges
- Repair of mooring lines and fittings
- Repair of lifelines and fittings
- Inspecting fire safety equipment
- Minor painting and preservation
- Minor piping and electrical repairs
- Annual inspection of voids

Heavy maintenance and repair would most likely be accomplished by other King County agencies or departments, or by outside vendors under contract including:

- Large scale painting or preservation projects
- Replacing light fixtures or re-wiring facilities
- Major piping repairs or replacements
- Drydocking of floats
- Diver inspections
- Structural repairs to floats, knees, fenders, pilings, gangways, ramps

Ridership

Vashon Island Route

Historic data has shown a steady decline in ridership on the current Vashon-Seattle passenger-only ferry. WSF generally tracks ridership in the westbound direction only (the direction in which riders pay in the WSF system). The majority of westbound travel occurs in the afternoon peak period. Afternoon peak ridership in 2006 was approximately 270 riders per day, with only two afternoon sailings from Seattle. This is down from approximately 330 PM peak riders in 2003 and 420 PM peak riders in 2001, with three sailings in the PM peak (out of a total daily sailing schedule of approximately eight round-trips). In addition to service cuts in 2005, there have been steady fare increases since 2001 of between 13% and 4% per year.

Total ridership on the current passenger-only ferry is partially composed of riders originating on Vashon Island, and partially composed of riders originating in Southworth and transferring from the WSF Southworth-Vashon auto-ferry. Based on counts conducted by WSF in September 2006, the split is approximately 65% Vashon riders and 35% Southworth riders. Use of the passenger-only ferry by Southworth riders is dependent on a convenient timed transfer between the Southworth-Vashon auto-ferry and the passenger-only ferry.

Based on Puget Sound Regional Council projections, the population of South Kitsap County is anticipated to grow approximately 15% between 2006 and 2020, and the population of Vashon Island is anticipated to grow close to 2% during that same period.

Given the uncertainties surrounding ridership growth, a conservative approach has been taken to estimate future ridership. For financial planning purposes, ridership has been assumed to grow proportionately to projected population growth in Vashon Island and South Kitsap County. Ridership from Southworth has been adjusted to reflect the number of sailings that would support transfer of Southworth riders from the WSF auto-ferry. With the current WSF sailing schedule and the proposed passenger-only ferry sailing schedule, one AM peak sailing and one PM peak sailing would support a convenient transfer of Southworth riders.

	2008	2010	2012	2014	2016
Annual Ridership	157,300	158,000	159,100	160,100	161,200

Actual ridership could be lower or higher. Historic ridership has shown a decline in ridership that has corresponded with increases in fares and decreases in levels of service. Improved service levels, as proposed in this plan, could increase ridership above projected levels. External factors could also impact ridership. If WSF changed the schedule of the auto-ferries providing a connection between Vashon Island and Southworth to better coordinate with the passenger-only route, ridership from Southworth could be expected to increase. On the other hand, ridership could decrease if a direct Southworth-Downtown Seattle ferry was implemented. No loss of Southworth riders due to implementation of a direct ferry connection between Southworth and Downtown Seattle has been assumed to occur in the planning horizon of this analysis. However, WSF could potentially implement a direct auto-ferry connection as early as 2015 or another entity could provide a direct passenger-only ferry connection from Southworth to Downtown Seattle.

Elliott Bay Water Taxi

Actual ridership counts were used as the basis for future ridership projections. Data was available for 1998-1999 and 2001-2007. May 2001 to September 2002 was the only period with ridership data for continuous, year-round service. Ridership data was only available for the months of April to June for 2007.

Ridership projects for the summer months were developed by applying an average growth rate to the per monthly ridership of the preceding year. For the months May and June, 2007 ridership counts were used as the base year. For the months July, August, and September, 2006 ridership counts were used as the base year. Ridership was projected to grow at a rate of 5% per year. This rate is the average ridership growth rate on the Elliott Bay Water Taxi for the years 2001-2007. Note that the actual year-to-year growth rate has varied significantly – from a 37% reduction in ridership to a 31% increase in ridership.

A different method was used to develop ridership projections for the off-season months. In the one year with year-round service, October 2001 to September 2002, the month with the highest ridership was August. August is also the month with the highest ridership when the average ridership per month is calculated based on all available ridership data. A ratio was calculated for each off-season month (October to April) of riders per month compared to the riders per month for August. This relationship was reproduced in the ridership projections – with ridership in the off-season months based proportionally on the August ridership for that year.

For the first couple years of service before the service would become year-round, ridership projections were adjusted to account for the actual months of operation.

	2008	2010	2012	2014	2016
Annual Ridership	167,600	191,000	210,200	232,200	256,000

Fares

Fare Collection

The fare collection system would be same for both the Vashon Island and West Seattle routes although the fare structure for each route would most likely be route-specific, reflecting different distances and operating costs. Fare collection at Pier 50 would occur for both destinations and fares would be collected from passengers traveling in both directions. Currently WSF only collects fares from passengers heading west (out of Downtown Seattle), while the Elliott Bay Water Taxi collects fares from passengers heading in both directions.

Under consolidated service, tickets for either Vashon Island or West Seattle would be purchased from vending machines that accept debit or credit cards at any of the three terminals. Passenger waiting areas would not be secured (passengers with tickets for separate destinations would not be segregated from each other, or from passengers without tickets). Smart card reader machines would be located on the floats as close to the boarding gangplanks as possible.

Once a vessel arrived at a terminal, a crew member would open a security gate and would monitor the smart card ticket readers as passengers board the vessels. The smart card readers are needed to deduct a fare from the Regional Fare Coordination System smart cards and to give an indication to the crew member at the vessel door that the card is valid and the fare has been successfully deducted. Passengers wishing to pay with exact change may do so on the vessel at a cashbox (similar to bus cashboxes in that crew members would not need to handle cash and only exact change would be accepted). All cash money would be handled and counted off site. It would not be necessary to provide secure rooms for safes or accounting purposes.

Fare Rates

For financial planning purposes, this analysis assumes fares consistent with the current Elliott Bay Water Taxi and Vashon passenger-only ferry fares. Other fare assumptions include:

- One-way fares on all routes (including Vashon Island)
- No seasonal peak/off-peak pricing (year-round fares)
- Pricing on a route-by-route basis
- No bicycle surcharge
- Participation in regional fare integration initiatives such as Puget Pass and smart card

The current fare rates are identified in the following tables.

Vashon Island - Downtown Seattle Route (one-way fares)	
Fare Type	Fare
Full Adult Fare	$4.25
Commuter Ticket	$3.60
Monthly Pass	$116.20 per month, approximately $2.90 per trip
Senior/Disabled	$2.10
Youth (6-18)	$3.60

Elliott Bay Water Taxi (one-way fares)	
Adult	$3.00
Youth (6-17)	$3.00
5 years and under	Free
Senior/Disabled	$3.00
Riders with valid Metro transfer	$1.00
Valid King County or Regional pass	No charge

The KCFD would establish actual fare rates. The KCFD may choose to adjust the fares to provide common discount categories that are consistent with other King County transit services.

Fare Revenue

Average fare realization rates have been calculated for both routes.

	Vashon Island Route	Elliott Bay Water Taxi
Average Fare Realization	$3.57	$1.46

For the purposes of this analysis, the 2007 average fare realization for the routes has been increased annually over the planning period at the same rate as inflation, using the Implicit Price Deflator (IPD) rate. The inflated fare realization has been multiplied by the projected ridership for each year to calculate predicted fare revenue.

Other Revenue

There may be opportunities to generate revenue by leasing advertising space aboard the ferry vessels. Potential advertising revenue has been estimated by extrapolating the average monthly advertising revenue collected in 2006 on the Elliott Bay Water Taxi.

Existing Routes Capital Investment Plan

Capital investments for the King County ferry system would include investments in vessels, passenger terminals, and a vessel moorage and maintenance facility.

Vessel Leases

Due to the level of service desired for each route, calculated voyage profiles initially indicate that the required cruise speeds for the EBWT and Vashon Island routes has been identified to be 20 KTS and 30 KTS, respectively. Cruise speeds in this range for passenger-only service indicate that high-speed catamarans would be a good type of candidate vessel to serve each of these routes. In addition, a back-up vessel would be needed to serve these routes in the event of a primary vessel being removed from service. The lease for this vessel should be initiated about the same time as the leases of the primary vessels. The following steps would need to be undertaken to secure leased vessels:

- Establish a final set of specifications for the leased vessels covering both fundamental requirements and optional desirable features.

- Prepare a vessel lease (bare boat charter) agreement stating KCFD desired terms and conditions. This document should include identification of all required insurance coverage and identify which party would obtain coverage.
- Develop a proposal evaluation process, based on required and optional vessel requirements. Include appropriate weighting for lease cost, vessel delivery costs, terminal compatibility, fuel economy, and passenger amenities.
- Create a request for proposal and bid package, identify potential bidders and conduct a bidder's conference to present the evaluation process and to answer bidder questions.
- Evaluate vendors and proposals, including inspection of candidate vessels based on conformance with bid package and evaluation criteria.
- Negotiate final lease agreements and obtain all required licenses, certificates of insurance, and certificates of inspection.

Vessel lease costs consist of lease rates, vessel delivery, potential modifications to the vessel to improve accessibility, and vessel restoration costs at the end of the lease.

- Vessel Lease Rates – Lease rates are assumed to be basic bare boat charter rates. These rates can vary greatly depending on availability of vessels, current vessel location, age of vessel, etc. Benchmarks for estimating annual lease rates range from a percentage of the depreciated value of a new vessel including markup (similar to a vehicle lease agreement), to 20% of the quoted sales price of a used vessel presently in service or being brokered for sale.
- Vessel Delivery – Many appropriate vessels found in a recent survey are located on the East Coast. It is difficult to predict where the vessels would be found ultimately that match the KCFD route requirements. Additionally, to accommodate timely delivery of a vessel located on the East Coast, extended delivery times may be necessary.
- Vessel Modifications – Terminal compatibility is an issue that would need to be dealt with in the near term. Typical high speed catamaran vessels have freeboards (the distance from the water to the top of the deck) of 3.5 to 4.5 feet. The current terminal floats have freeboards of approximately 5.8 to 5.5 feet at Pier 50 and Vashon Island, and 1.8 feet at Seacrest Park. Modifications may be made to the Seacrest Park float to match its freeboard height with the Pier 50 and Vashon floats. However, in order to ensure that the vessels are accessible and can accommodate loading and unloading of wheelchairs, some vessel modifications may be required. Assumed costs include engineering, equipment, fabrication, and installation costs.
- Vessel Restoration – Vessel restoration costs are those costs necessary to restore the vessel to its condition at the time of lease, other than normal wear and tear. This includes removal and restoration of the accessibility modifications as well as any repairs necessary to return the vessel to its original condition.

Vessel Acquisitions

This plan assumes that the KCFD would acquire a fleet of three vessels that would optimally suit the requirements of the EBWT and Vashon Island routes. Acquisition of three vessels would enable the KCFD to operate each on a rotation: providing service on the EBWT route, the Vashon Island route, and acting as a back-up vessel. Design

and construction of these vessels would take place during the period for which vessels would initially be leased. The main vessel acquisition tasks are as follows:

- Vessel Design – The basic steps of vessel design that are done by a design agent include concept design, preliminary design and contract design. For this type of vessel, approximately 6 – 12 Months would be required to develop design through to contract design. This design would be to a sufficient level of detail that construction costs could be estimated and shipyards could provide construction cost proposals.
- Vessel Construction – Vessel construction would require a period in the range of two to two-and-one-half years. This would include any time required for detail engineering to be done for completion of system definitions and construction planning.

Vessel Acquisition Specifications

This section highlights key acquisition criteria that relate to both leased vessels and new vessels. As described in the discussion above, detailed specifications for both leased vessels and new vessels would be developed prior to releasing any request for proposal documents or commencing with a new vessel design.

- Passenger Rating – 149 passengers, maximum. This capacity maximum would eliminate much of the Transportation Security Administration security requirements.
- Terminal Compatibility – Vessels would need to be compatible with terminals. For leased vessels this may require some modifications to the vessel in order to accommodate loading and unloading of passengers if vessel and terminal freeboards are mismatched. For new vessels, specifications would be developed to ensure vessel freeboards match with the terminal configurations at the time the new vessels would be brought on line.
- Accessibility – Vessel would need to have, or be modified to allow, an accessible path of travel that meets width and sill-height requirements for wheelchairs.
- Bicycle Capacity – Vessels would need to be able to accommodate 10 – 20 bicycles.
- Vessel Cruising Speed – For leased vessels this speed can be matched to the individual routes as dictated by the voyage profiles (20 KTS for the EBWT and 30 KTS for the Vashon Island route and backup vessels). For new vessels this speed would be 30 KTS for all vessels.

Terminals - Pier 50

Existing Conditions

The passenger-only ferry terminal at Pier 50 is located immediately south of the WSF major auto ferry terminal at Colman Dock/Pier 52. Pier 50 was built in 1992, and a new temporary steel barge landing float and ADA gangway installed in 1998. The temporary float was installed with the understanding that its life-span would be for 5 to 10 years (ten years in 2008). The facility consists of a 110 foot by 32 foot steel barge landing float (freeboard of 5.8 feet) with two operating slips, a 135 foot gangway , and a pier. Electrical shore power, sewage pump-out, and water access are available on the float.

Berthing and Slips

Pier 50 is moderately protected from northerly wind and storms and is somewhat susceptible to southerly storms. The two operating slips enable the vessels to berth at either slip depending on weather and navigational conditions. The second slip also allows for two overnight tie-up slips and one daytime tie-up slip for vessels.

Passenger Waiting

The existing commuter waiting area is a temporary, tension-fabric tent structure used for passenger waiting and ticketing. The tent structure is in need of repair and improved lighting. Bathroom facilities consist of three portable toilets. A small outdoor seating area for commuters exists. An uncovered entrance/departing portal and gate is located at the landward side of Pier 50 along Alaskan Way. Passengers entering the facility from this portal purchase one-way tickets to Vashon Island from ticketing machines located inside the tent or from the ticket agent in the ticket booth.

Pier 50 is not a "stand alone" terminal as many support functions are located at WSF's adjacent Colman Dock/Pier 52 main terminal (terminal supervisor office, the agent, trash and recycling compactors, storage, and employee parking).

Emergency Egress

Although Pier 50 is conveniently located to downtown Seattle, the egress during peak unloading of the passenger-only vessel is problematic. Pedestrians exiting the passenger-only ferry dock can be in conflict with auto ferry traffic, as the main auto-ferry entrance and exit to Colman Dock is immediately adjacent to the Pier 50 entrance/exit portal. Currently, a Washington State Patrol officer is often stationed (on foot) at this intersection during peak periods to help manage pedestrian and vehicle traffic.

Security

A security system with cameras has been installed at Pier 50, and is currently maintained by WSF. No navigational lighting is in place on the existing ferry dock.

Multi-modal Access

The Pier 50 location does have multi-modal advantages. Transit and taxi connections are easily shared with Colman Dock/Pier 52. Metro buses stop along the curb of Alaskan Way to the north. Riders walking to and from destinations in the Seattle Central Business District enjoy a relatively easy grade from the water into town. Dock locations further north along the Elliott Bay waterfront face a much steeper grade. Dock locations to the south are a corresponding further walking distance to major central business district destinations.

Bicycle Staging and Storage

Two bicycle racks are located outside of the tent. Passengers can also store their bicycles at the WSF bicycle compound located close to the main WSF terminal on Pier 52.

Parking

There is no dedicated commuter parking near Pier 50, but there is a wide range of transportation options within walking distance (Metro Transit, Amtrak and Sounder trains, other WSF ferry routes). Passenger parking is available in nearby private lots.

WSF staff and crew can utilize WSF employee parking at Pier 52 and a few spots are available in the triangular parking space at Pier 50. Crew and office space is available at the main WSF terminal at Pier 52 along with additional storage space if necessary (currently some storage space is available at Pier 50).

Accessibility

WSF provides personal assistance to individuals with disabilities who may require help in negotiating the route between the ferry and the pier. The Colman Dock/Pier 52 facility does have an ADA pick-up/drop-off parking along Alaskan Way just north of Pier 50.

The elevation change from the ferry pier to the floating ferry dock across the gangway generally meets the tolerances as outlined in the revised draft Passenger Vessel Accessibility Guidelines and Supplementary Information dated July 7, 2006 (except for the lowest tides). The gangplank, however, is not in compliance.

Proposed Improvements

The County would negotiate with WSF to lease the Pier 50 facility. It is currently assumed that the dock structure at Pier 50 (built in 1990 through 1992) would not need immediate structural repair or upgrades for any of the near-term improvements, and that an off site tie-up and maintenance facility would be available for at least the WSF maintenance barge and one vessel (in the near-term, Pier 50 would be able to provide overnight tie-up slips for up to two passenger-only vessels).

The following terminal improvements have been proposed for Pier 50:

- Maintenance and repair of the barge, the gangway, and the timber pedestrian access pier would be completed as identified in the 2005 WSF Terminal Structural Inspection report for the Seattle passenger-only ferry terminal.
- Two new ADA compliant gangplanks for boarding the vessels would be installed on the float, with one gangplank to be located on either side of the float
- Installation of a new emergency exit gate east of the terminal tent structure. This would increase the number of egress routes at Pier 50.
- Installation of security cameras at the terminal. Camera feed directly to the County offices from the terminal would be considered.
- Lighting and communications within the terminal building tent structure would be improved.
- Replacement of the existing tent structure with a new tent structure. The existing turnstiles would be removed thereby increasing the area of indoor passenger waiting from 800 square feet to 2530 square feet in the new tent. The existing furnishings, such as benches and snack and newspaper vending machines, within the tent structure would be retained. The existing portable toilets would remain on-site for passengers and staff. The existing information booth (approximately 6 feet by 8 feet) would be retained and moved.
- Two ticket vending machines would be installed in the new tent structure and four smart card reader machines would be installed on the landing float (two reader machines located on either side of each gangplank).
- Installation of an information rack in the new tent structure would provide Ferry Service information along with other transit information (ferry and bus route schedules and fare information). King County staff would manage this rider information.

- Negotiation with WSF for use of their existing terminal-generated garbage and recycling facilities. Vessel-generated refuse would be handled at Pier 50 and/or the overnight tie-up and maintenance facility.
- Completion of signage and wayfinding upgrades as all terminals would share a coordinated branding scheme. Consistent wayfinding signage between all Ferry District terminals would be essential.
- No additional parking spaces would be incorporated into near-term improvements at Pier 50. The existing opinions of cost assume that the County would be able to utilize an off-site property as a maintenance facility thereby eliminating employee parking spaces required at Pier 50. Vessel and terminal crew would park off site, but nearby to Pier 50, until a permanent tie-up and maintenance facility became available, at which point vessel crew would park at this site.
- A new 110 foot by 40 foot concrete float (with a freeboard of 5.8 feet) would replace the existing steel barge, currently close to the end of its useful life. The replacement float would still accommodate two slips and would continue to provide shore power, sewer pump-out, and water supply. Although the tie-up and maintenance facility would have access to these utilities, the cost to maintain these utilities at Pier 50 is minimal. Access at Pier 50 would allow crews to utilize mid-day non-peak times to empty vessel sewer tanks/top off vessel water tanks without taking vessel to off site facility (improves efficiency, minimizes unnecessary mid-day trips to off site facility).

No new crew, storage, parking, or office space would be installed at Pier 50 as it is assumed that these facilities would be provided at the off site overnight tie-up and maintenance facility.

Terminals - Vashon Island

Existing Conditions

The passenger-only ferry route between Vashon Island and Seattle is a state operated route utilizing WSF's facilities on the northern end of Vashon Island and downtown Seattle's Pier 50. The passenger-only terminal on Vashon was built in 1988 and consists of a concrete barge landing float, gangplank, and ferry pier (concrete trestle). The terminal gains many passengers who travel from Southworth in Kitsap County to Vashon Island on the WSF auto-ferry route and then transfer to the passenger-only ferry direct to Seattle.

The passenger-only ferry facility, adjacent and west of WSF's auto docking terminal, has two operating slips located on a 109 foot by 34 foot concrete float (freeboard of 5.5 feet). The access pier has a security gate and an exit gate. The landward headframe facilitates maintenance by allowing the gangway to be lifted off the float and "hung" while the float is removed for repairs.

The existing utilities supporting the passenger-only dock consist of electrical service for overhead lighting. An emergency generator supports both the auto ferry terminal and the passenger only dock during power outages. No sewer, water, or ferry shore power exists.

Berthing and Slips

The terminal at Vashon Island is exposed to northerly wind and storms. Therefore, two operating slips enable the vessels to berth at either slip depending on the navigational conditions. The north-south orientation of the float minimizes exposure to waves. A wind sock is located on the headframe of the waterward float between the offshore guide piles to assist the vessel captain with navigation.

Passenger Waiting

A small terminal building used as a commuter waiting area is shared with the auto-ferry commuters including an outdoor seating area (approximately 890 square feet). The building, located at the water end of the trestle, contains restrooms, small offices, and some sitting area. There are no toll booths. The walkway to the passenger-only ferry entrance/exist is illuminated, as is the float, but the walkway is not covered and no marine navigational lights exist on the passenger-only float.

Emergency Egress

The existing emergency egress for passengers from the outdoor waiting area or the indoor passenger waiting area includes an entrance gate to a sidewalk or through the indoor passenger waiting area.

Multi-modal Access

The Vashon Island Terminal supports bus commuters to and from the terminal via two Metro bus routes located next to the terminal building. Sufficient pier space exists for buses to turn around and drop commuters directly in front of the commuter waiting area. A sidewalk or walkway to the WSF terminal building exists where pedestrians are separated from traffic by a raised asphalt curb. Bicycle parking and storage at Vashon Island Terminal is minimal (one rack).

Parking

Parking options include private and municipal lots near the terminal, as well as five Metro Park & Ride lots throughout Vashon Island, which are served by bus routes that stop at the ferry terminal. One of King County's lots is located within walking distance of the terminal.

Accessibility

At the Vashon Island terminal, WSF provides personal assistance to individuals with disabilities who may require help in negotiating the route between the ferry and the terminal. Two dedicated parking spots are available for ADA parking up to a 7-hour maximum. During peak hours, drop-off/pick-up on the dock for disabled walk-on passengers is not allowed.

Generally, elevation change from the bus and passenger pick-up/drop-off to the ferry dock is minimal; however, at low tide the ramp to the ferry dock exceeds the 1:12 tolerances as outlined in the revised draft Passenger Vessel Accessibility Guidelines and Supplementary Information dated July 7, 2006. The gangplank is not in compliance.

Proposed Improvements

Improvements would include very few within the existing WSF terminal building, as it has been assumed that King County would negotiate with WSF to share their passenger waiting indoor area, ADA and service vehicle parking areas, and passenger restrooms.

The following terminal improvements have been proposed for the Vashon Island terminal:

- Maintenance and repair of the float, guide piles, concrete access pier deck, float fendering system, topside railings, gangway, and the concrete access pier would be completed as identified in the 2006 WSF Terminal Structural Inspection report for the Vashon Ferry Terminal Express. The inspection identified facility

maintenance deficiencies and a site visit determined that the overall appearance of the passenger-only dock is currently poor. Overdue painting and corrosion can be readily seen and attributed to the weather conditions, general wear, and exposure to the elements.

- Utilities, lighting, and communications on the float would be improved.
- Two ticket vending machines would be installed within the covered outdoor waiting area and four smart card reader machines would be located on both sides of the float (two on either side of each gangplank).
- Installation of a new security gate closer to the top of the gangway. This would provide more waiting space along the trestle and reduce the time it would take for vessel staff to open a gate to allow passengers to begin loading.
- Two new ADA compliant gangplanks for boarding the vessels, one gangplank to be located on either side of the float.
- Negotiation with WSF for use of their existing terminal-generated garbage and recycling facilities. Vessel-generated refuse would be handled at Pier 50 and/or the overnight tie-up and maintenance facility.
- Installation of an information rack area within the covered outdoor waiting area. King County staff would manage this rider information.
- Completion of signage and wayfinding upgrades as all terminals would share a coordinated branding scheme. Consistent wayfinding signage between all Ferry District terminals would be essential.
- Installation of one Bosun's locker on the float for the storage of spare lines

Terminals - West Seattle

Existing Conditions

The City of Seattle owns and operates a public dock and hand-carry small boat launch, fishing pier, vehicle parking area and other facilities in West Seattle known as Seacrest Park. The Seacrest Boathouse (kayak rental facility) and restaurant are located upland of the public fishing pier and boat launch dock. One of the most popular SCUBA areas is also located at Seacrest Park. Diving is not permitted within 150 feet of the ferry float landing on the pier. No utilities are located on the float.

Currently the County contracts for the Elliott Bay Water Taxi to provide passenger-only ferry service from West Seattle to the downtown Seattle waterfront (docks at Pier 55) to provide a transportation alternative to the congested West Seattle bridge. The City provides the public with access and egress to the Elliott Bay Water Taxi service by allowing the Elliott Bay Water Taxi operator to use the Seacrest Park dock.

Berthing and Slips

The EBWT docks along the northeast side of the City's 155 foot by 13 foot wooden dock with one operating slip (freeboard of 1.8 feet). The dock is removed from the site each fall to minimize damage from southerly winter storms.

Passenger Waiting

No covered waiting area is available for waiting passengers, although a small fish and chips stand nearby does have some indoor seating available. Picnic tables are located outdoors and the gangway and float are uncovered. Passengers wait on the float until boarding begins and the area consists of an outdoor standing area. Fares are collected by a crew member (exact change required) each way as passengers board the vessel.

Emergency Egress

Emergency egress consists of the one gangway to the waiting area on the existing float.

Security

A low, rail-height gate at the top of the gangway provides security, no cameras are installed, and no navigational lighting or passenger lighting is in place on the dock. The luminaries on the adjacent fishing pier provide limited illumination of the float used by the EBWT.

Multi-modal Access

The Seacrest Park Terminal is served by special ferry shuttles from Seacrest Park to the West Seattle Junction and to Alki and SW Admiral Way, as well as two Metro bus routes.

Parking

There is no dedicated commuter parking at the terminal; the small lot adjacent to the terminal is for short-term (two hour) use only. Some limited non-restricted parking is available on nearby streets. Two bicycle racks are located outside of the City Park Building. ADA parking, pick-up/drop-off is available in the short-term City lot.

Accessibility

The gangway to the float is a narrow grated aluminum, 3.5 foot by 50 foot gangway. The elevation change from the top of the gangway to the floating ferry dock does not meet the tolerances as outlined in the revised draft Passenger Vessel Accessibility Guidelines and Supplementary Information dated July 7, 2006. The gangway becomes quite steep at low tide due to its short length.

Proposed Improvements

Improvements would include those necessary to provide year-round service between Downtown Seattle and West Seattle. The terminal facility would need to be able to weather winter storms. Currently the existing timber float is removed each fall and re-installed each spring as it would unlikely survive winter storms.

The following terminal improvements have been proposed for the West Seattle terminal, to be implemented as soon as possible:

- Replacement of the two timber floats with two temporary concrete floats (freeboard of the floats to be 2.0 feet). The temporary floats would be designed so as to conform to the current float footprint to minimize permitting time and requirements. The associated replacement guide piles would not be increased in size or number. Due to the low freeboard of the temporary float, it may be necessary to close the facility during storms that could wash waves over the float's deck. Because the pilings would not be larger in diameter, the King County would need to keep a watchful eye during winter months to avoid float damage.

- Installation of a timber raised boarding platform and ramp to accommodate high freeboard vessels.
- One new ADA compliant gangplank for boarding the vessels to be located on the end of the raised boarding ramp.
- Addition of a covered outdoor waiting area (approximately 500 square feet).
- Utilities, lighting, and communications on the float would be improved.
- Installation of an information rack in the covered outdoor waiting area. King County staff would manage this rider information.
- Two ticket vending machines would be installed within the covered outdoor waiting area and two smart card reader machines would be located on the waterward side of the float (to be installed on either side of the location of the new gangplank).
- Negotiate with the Parks department to continue handling terminal-generated garbage and recycling on site as is done today.
- Completion of signage and wayfinding upgrades as all terminals would share a coordinated branding scheme. Consistent wayfinding signage between all Ferry District terminals would be essential.

Improvements that would be needed to construct a permanent terminal facility at Seacrest Park at some point in the future have been identified. The costs for these improvements have been included in the financial analysis. Construction of a permanent West Seattle terminal at a location other than Seacrest Park is currently under consideration. If the decision is made to construct a permanent terminal facility at a location other than Seacrest, the funds identified for the improvements at Seacrest would be available for investment at the other site. The improvements could be made in the future if the West Seattle terminal site does not change from its existing location at Seacrest Park:

- Relocation of the passenger-only float further south or northwest, away from the fishing pier and the Seattle Parks float.
- Replacement of the concrete float with a new wider 40 foot by 100 foot concrete float (freeboard of 5.5 feet) and a new gangway ramp. The replacement float would still accommodate one slip.
- Relocation of the covered waiting area and ticket vending and reading machines to the east end of the park or slightly northwest of the existing entrance gate.
- Installation of one Bosun's locker on the float.
- Replacement of the existing gate with an improved security gate.

Moorage and Maintenance Facility

Leasing

Concurrent with the delivery of leased vessels, the County would lease approximately 180 feet of pier frontage from a water frontage owner, such as the Port of Seattle, for the WSF maintenance barge. The WSF barge would be moored at this site and the third vessel would tie-up to the barge.

The October 2007, un-escalated lease cost was quoted at $1 per foot or $2 per foot if work would be done on the moored vessel. As light maintenance activities would occur on both the WSF maintenance barge and the tied-

up vessel, the lease rate used in the affiliated magnitude of cost was $2 per foot. It has been assumed that the waterfront parcel would include at least 50 feet of adjacent upland space to accommodate a trailer large enough for three offices, crew lockers, meeting room, and one unisex ADA restroom.

The necessary near-term improvements would include:

- Set-up, lease, and breakdown of a 12 foot by 50 foot portable building
- Installation of an ADA ramp and a stairway for access
- Installation of security fencing
- Lighting and utility installation for the yard and portable building
- Water, sewer, and shore power hook-up for the WSF maintenance barge and third vessel
- Minor parking area improvements for an existing paved area

As soon as practical, it is recommended that a permanent moorage and maintenance facility be constructed that would provide tie-up for all three vessels as well as office space and crew facilities for the King County Marine Division. For the purposes of this analysis several potential sites for a permanent moorage and maintenance facility in the Harbor Island/Duwamish area were evaluated.

A permanent moorage and maintenance facility could be provided if the following investments were made at an appropriate site:

- Installation of a 100 foot by 15 foot by 13 foot concrete float (freeboard of 5.5 feet). The float would be moored perpendicular to the shore and would be accessible from land via a new 60 foot by 4 foot aluminum gangway ramp.
- Some dredging may be required to deepen the berthing area for the WSF barge and passenger-only vessels. This dredged material has been assumed to be unsuitable for open water disposal and would need to be disposed of at an upland facility.
- Installation of a security system.
- Lighting and utility installation/upgrades for the yard.
- Water, sewer, and shore power hook-up for the WSF maintenance barge and vessels.
- Modifications to an adjacent yard to provide employee and service vehicle parking and space to moor the WSF maintenance barge (also perpendicular to the shore).
- Establishment of the maintenance facility offices within an existing building. The new offices would accommodate four offices, a locker/crew room, a meeting/training room, a shop, storage, and men's and women's restrooms with showers. The space requirements for this entire area would be approximately 2000 square feet.

Potential Future Capital Investments

Additional capital investments have been identified that the KCFD may wish to implement at some point in the future. These consist of additional investments at Pier 50, Vashon Island, and West Seattle to improve customer comfort, information, and accessibility.

Pier 50

- Installation of an electronic panel (to provide bulletins and real-time information) to waiting passengers. Staff would be required to manage rider information. Live feed of vessel position to the terminal would also be considered.
- Evaluation and upgrade of camera systems, gates and communications to law enforcement and/or King County offices.

Vashon Island

- Replacement of the existing gangway to the float with a longer gangway (would ensure a slope of 1:12 or less at all tides). Ramps and landings on the float would also be replaced. The gangway replacement would require that the float be moved from its present location approximately 15 degrees west in order to allow construction to commence while one side of the float remained in operation. It would operationally important to keep this float shift to a minimum so that the float would not be moved broadside to waves coming out of the north, where an extremely long fetch exists. An environmental benefit for this minimum shift would that the eelgrass to the west of the passenger-only facility would not be, or at least would be minimally, impacted.
- Evaluation and upgrade of camera systems, gates and communications to law enforcement and/or King County offices.
- Installation of an electronic panel (to provide real-time information) to waiting passengers. Staff would be required to manage rider information. Live feed from the vessel directly back to the terminal would also be considered.

West Seattle

- Evaluation and upgrade of camera systems, gates and communications to law enforcement and/or King County offices.
- Installation of an electronic panel (to provide real-time information) to waiting passengers. Staff would be required to manage rider information. Live feed from the vessel directly back to the terminal would also be considered.

Capital Investment Administrative Services

In addition to the program management costs identified as operating expenses, King County applies a number of indirect rate charges based on capital expenditures. Central Government Overhead, Financial Services, and Department of Transportation Administration indirect rates have been applied to the proposed capital expenditures for purposes of the financial analysis.

Capital Funding

State Funding

Subject to legislative appropriation, state funds are available from the passenger ferry account established by ESSB 6787 and funded by the sale of the Washington State Ferries vessels Chinook and Snohomish. It is assumed that the entire proceeds from the sale of the Chinook and Snohomish would be available to support King County

operation of the Vashon Island service. The most recent estimate of the selling price of the two vessels is $4.5 million each. Sales and survey costs are assumed to be slightly greater than 5% and have been netted against the estimated combined sale price of $9 million. The net funding anticipated from the sale of the two vessels is $8.5 million.

Existing Federal Grants

Currently available federal funds include approximately $600,000 from a 2004 congressional earmark ,and approximately $1.1 million from a 2005 congressional earmark. Additionally, $1 million from the Ferry Boat Discretionary Fund awarded in 2007 as part of the Lake Washington Urban Partnership award is included in the forecast.

Potential Federal Grants

With respect to future funding, potential sources and levels of federal grant funds available for the Vashon Island route and Elliott Bay Water Taxi have been identified. Approximately $0.5 million in Ferry Boat Discretionary funds have been identified for 2008. Formula grant funds (5309(FG)/5307) are anticipated to be available beginning in 2008 for the Vashon Island route and in 2014 for the Elliot Bay Water Taxi.

New Routes

Five new routes have been proposed:

- Kirkland - Seattle
- South Puget Sound - Seattle
- Kenmore - Seattle
- Shilshole - Seattle
- Renton - Seattle

For planning purposes, it has been assumed that the Kirkland route would start service in July 2009, followed by the South Sound route, the Kenmore route, the Shilshole route, and then the Renton route, with a new route starting each year. Actual routes and implementation timing would be determined by the Ferry District.

Analysis for the new routes is at an early preliminary stage. Assumptions have been made for financial planning purposes based on the detailed analysis conducted for the existing routes. This section describes the assumptions that have been made regarding the new routes for the purpose of the financial analysis.

Additional analysis would be needed to prepare for implementation of these routes as demonstration services and on a permanent, in-house basis. This analysis would include assessment of potential terminals, passenger market analysis, travel time assessment, and schedule development.

Service Plan

For financial planning purposes, assumptions have been made for the hours of operation of the new routes. It has

been assumed that the five proposed new routes would have peak-period, weekday service only, utilizing a split-shift crewing arrangement, with four-hours per shift. Detailed analysis of the new routes has not yet been conducted to determine likely travel times. Therefore, no proposed schedules have been prepared. The number of sailings that would be possible within the identified hours of operation would be dependent on a number of factors including the length of the route and constraints on vessel speed and availability of existing docks and floats.

Operations

For planning purposes, it has been assumed that each of these new routes would start with a two-year demonstration period followed by a third year for transition of the route to permanent, in-house service.

Demonstration Phase

Given the tentative nature of a demonstration service, the demonstration phase may include contracted operation of the routes. For financial planning purposes, it is assumed that the contractor for the demonstration service would be responsible for vessel and terminal operations, as well as for providing and maintaining the vessel used for the service. The routes would use existing terminal facilities. A small allowance has been included for minor terminal maintenance. An allowance has also been included for the internal King County costs for administering the contract.

The demonstration routes would be studied and a determination made regarding their viability as permanent services.

Permanent Service

Based on the criteria the King County Ferry District would develop, successful demonstration routes would be transitioned to permanent, in-house services. For financial planning purposes, the annual operating costs for these new in-house routes have been assumed to be the same as the annual operating costs of the Vashon Island route, a service with the same hours of operation as those proposed for the new routes.

Ridership and Fare Revenue

Detailed analysis of passenger markets and travel patterns has not been conducted for the new routes. Given the uncertainties regarding ridership, no fare revenue has been assumed for the demonstration phase of the new routes. As a result, actual net operating costs for the demonstration routes may be somewhat lower than calculated in this analysis.

Once the new routes move to in-house service, fare revenue consistent with the Vashon Island route has been assumed for the purpose of the financial analysis. It is anticipated that only those routes with sufficiently high ridership levels would be transitioned from demonstration to permanent in-house service.

Capital Investments

A number of capital investments would be required to support the implementation of the new routes. It has been assumed that no capital investments would be made for the demonstration phase of each route. However, once it has been determined that a route would move to in-house service, vessel and terminal investments would be made to prepare for the transition.

Vessels

At the conclusion of the demonstration phase, the Ferry District would need vessels for the operation of the new in-house routes. It is proposed that the new routes use the same type of 149-passenger vessel as is proposed for the existing routes. By using the same vessels for the whole fleet, vessel maintenance would be simplified and maintenance cost savings could be realized, as compared to a fleet with a mix of vessels. Capital costs would also be reduced, as the construction of the additional vessels could be added as an option on the initial contract. This approach would save design and other up-front costs for the new vessels.

Terminals - Pier 50

It is assumed that the South Puget Sound and the Shilshole routes would dock at Pier 50. The following terminal improvements would be needed to accommodate the waiting passengers from the two existing routes plus the two new routes:

- Replacement of the tent structure with a new building. New furnishings for the building would be installed. It is anticipated that a two story structure would be required to accommodate the waiting passengers by the time all four routes would be in operation.
- The building would replace the portable toilets with men's and women's restrooms, and would include a janitor's closet and a storage room as janitorial services would be required.
- Utility configuration would be completed for the new terminal building.
- The outdoor passenger waiting area of approximately 760 square feet would remain the same.

Other Terminals

Detailed terminal analysis has not been conducted for the other terminals that would be needed for the new routes. For the five new routes, additional terminals would be required in the following locations:

- Kirkland
- Seattle on Lake Washington
- South Puget Sound (Des Moines, Tacoma, or Gig Harbor)
- Kenmore
- Shilshole
- Renton

High level, order of magnitude cost estimates have been developed for each terminal based on industry experience of terminal construction costs in the Puget Sound and Lake Washington contexts.

Moorage

Separate moorage facilities would be needed for the Puget Sound routes and the Lake Washington routes. With the addition of three new vessels for two new Sound routes, the moorage and maintenance base established for the existing routes would need to be expanded. Construction of one new float is assumed for financial planning purposes.

A satellite moorage facility would be needed in Lake Washington for the Kirkland, Kenmore, and Renton routes. For financial planning purposes, it has been assumed that a suitable facility could be leased.

Financial Plan

The financial plan forecasts operating and capital costs and revenue for the ten year period beginning in 2008 and extending through 2017. Initially the plan assumes State operation of the Seattle Vashon route and contractor operation of the Elliot Bay Water Taxi. Starting in approximately 2009 both routes are expected to be operated directly by the Ferry District, through a contracted arrangement with King County. The start of in-house EBWT service is dependent on the completion of dock improvements that are required for winter service. These improvements would be complete no later than 2010.

The new routes would begin with demonstration services and then move to in-house service. The first route would start as a demonstration in July 2009, with an additional route starting each year through 2013. In 2012, the first new route would move to in-house service. By July 2016, the King County Ferry District would be operating seven permanent routes - the two initial existing routes plus the five new routes.

Operating Costs and Revenue

Based on the assumptions outlined in the Existing Routes Operations Plan and New Route Operations sections, a detailed cost analysis was prepared for the 10-year planning horizon. Estimates of annual operating costs and operating revenue are summarized in the following tables. The first table summarizes the annual operating costs for operating the existing routes, plus the overall program management and administration costs that are associated with operating the passenger-only ferry system. The second table identifies the typical annual operating cost for each new route, showing both the demonstration phase costs and the in-house service costs. The third table summarizes the operating revenue assumptions. The annual operating costs below reflect a full year of operations for a route.

Existing Route Annual Operating Costs

Annual Operating Costs		
	Vashon Route Allocated Costs	
	Operating Costs	$1.7 million/year
	Shuttle Costs	$0.3 million/year
	EBWT Route Allocated Costs	
	Operating Costs	$2.9 million/year
	Shuttle Costs	$0.5 million/year
	System-Wide (Shared) Costs	
	Program Management and Administration Costs	$1.5 million/year
	Total Existing Route Annual Operating Costs	**$6.9 million/year**

New Route Additional Operating Costs Per Route Per Year

Annual Operating Costs	**Demonstration Phase Costs (per route per year)**	
	Operating Costs	$0.7 million/year
	Shuttle Costs	$0.3 million/year
	Route Study Costs	$0.15 million/year
	Administrative Overhead	$0.05 million/year
	Total Demonstration Phase Annual Operating Costs	**1.2 million/year**
	New Route Permanent Service Costs (per route per year)	
	Operating Costs	$1.6 million/year
	Shuttle Costs	$0.3 million/year
	Program Management and Administration Costs (additional per route costs)	$0.1 million/year
	Total New Route Permanent Service Annual Operating Costs	**$2.0 million/year**

Annual Operating Revenue

Revenue	Projected Fare Revenue, Existing Routes (Vashon Island Route and EBWT)	$0.9 million/year
	Assumed Fare Revenue, New Routes (per route per year)	$0.6 million/year
	Advertising Revenue	$0.05 million/year

Capital Costs and Funding

Based on the assumptions outlined in the Existing Routes Capital Investment Plan and the New Routes Capital Investment sections, a detailed cost analysis was prepared for the 10-year planning horizon. Estimates of total capital costs and funding are summarized in the following tables. The first table identifies the anticipated capital costs for the existing routes, including shared system costs. The second table provides estimates of the capital costs associated with each proposed new route. These costs are additive costs - they are additional costs above the costs associated with the existing routes. The distribution of costs for the new routes is linked to the assumed order of implementation. The third table summarizes anticipated capital funding. All values are in 2009 dollars.

Existing Route Capital Costs - 10-Year Total

Capital Costs	**Vashon and Elliott Bay Water Taxi Routes**	
	Vessels (three) (lease, purchase, major maintenance)	$23.9 million
	Vashon Island Terminal	$2.4 million
	West Seattle Terminal	$8.0 million
	Pier 50	$5.9 million
	Moorage/Maintenance Facility	$12.8 million
	Administrative	$2.5 million
	Total Capital Costs	**$55.5 million**

New Route Additional Capital Costs

Capital Costs		
	Vessels	
	Primary (5)	$35.1 million
	Back-up (2)	$11.9 million
	Kirkland Route Allocated Costs	
	Kirkland Terminal	$4.9 million
	Seattle Terminal	$4.9 million
	South Puget Sound Route Allocated Costs	
	South Puget Sound Terminal (Des Moines, Tacoma, or Gig Harbor)	$4.1 million
	Pier 50 Upgrades	$3.6 million
	Kenmore Route Allocated Costs	
	Kenmore Terminal	$5.1 million
	Shilshole Route Allocated Costs	
	Shilshole Terminal	$3.0 million
	Pier 50 Upgrades	$3.7 million
	Moorage Upgrades (Harbor Island/Duwamish Area Facility)	$4.0 million
	Renton Route Allocated Costs	
	Renton Terminal	$5.1 million
	Total Capital Costs	**$85.4 million**

Capital Funding

Funding		
	State Funding (Sale of WSF Vessels)	$8.5 million (estimate)
	Existing Federal Grants	$2.7 million
	Potential Federal Grants	$11.6 million
	Total Other (Non-FD) Funding	**$22.8 million**

Levy Rate

The financial analysis concludes that the proposed operations plan and capital investment plan can be implemented with a levy rate of $0.055 per $1,000 of assessed value, with levy collections commencing in 2008.