APPENDIX I:
ENVIRONMENTAL EVALUATION OF FERRY SYSTEM PLAN

Introduction:

The purpose of the environmental evaluation is to analyze potential plan-level environmental impacts from implementation of the long range plan. For the analysis, the study area was defined as within the Washington State Ferries (WSF) system in Puget Sound which includes the 19 terminal locations and service communities of Kitsap, King, Island, Pierce, Skagit and San Juan Counties. The long range plan does not provide any National Environmental Policy Act (NEPA) or State Environmental Policy Act (SEPA) level analysis, but rather focuses on the major environmental elements that could pose substantial issues on future development of any of the ferry terminals and implementation of operational solutions.

Linking transportation planning and NEPA is voluntary. The intent of the process is not to require NEPA studies in the transportation planning process. CFR 771.117 and TEA-21 exempt planning studies from NEPA review as reflected under 23 USC 134(o), 23 USC 135(i) and 49 USC 5305(h). WAC 468-12-800(3) also exempt transportation plans from SEPA. However, the Safe Accountable Flexible Efficient Transportation Equity Act (SAFETEA-LU) has development guidance for linking planning to NEPA. The degree to which studies analyses, or conclusions from the transportation planning processing can be incorporated into the project development/NEPA-SEPA processes will depend upon how well they meet certain standards established by these regulations and guidance.

Future project level planning and environmental review for terminal projects identified to move forward in the Long Range Plan will provide more detailed project-level information on the specific projects, such as specific terminals, routes, transit enhancement locations, operational characteristics, and more detailed environmental impact assessment and mitigation plans.

WSF will work with local governments, resource agencies, tribes, federal agencies and the public to ensure that the plan implementation and project specific work is carried out in full compliance with environmental laws and WSDOT's policies. This section of the plan explains the areas of the environment WSF considered at the plan level.

Why include planning-level environmental review for this ferry long range plan?

- To implement current and emerging guidelines at Federal and State levels to engage environmental discussion in transportation planning
- To provide a comprehensive, coordinated and coherent system framework for individual service and capital improvement components of the transportation plan

- To reduce costs, time and uncertainties for individual capital projects when underlying system plan policies, technical analysis and stakeholder involvement have been broadly in place
- To align "big picture" issues and mitigation strategies and provide key inputs to projects that do trigger NEPA or SEPA. This helps the comprehensive planning to inform any subsequent NEPA/SEPA process, and, on the other hand, environmental considerations are incorporated in comprehensive planning at the outset

What is the role of planning-level environmental review in the decision process in developing the ferry plan?

- The decision process now heightens broad environmental review alongside planning decisions and stakeholder outreach
- Environmental impact considerations are integrated into ferry system structure, service program and capital project decisions
- The ferry plan draws extensively from recent terminal and vessel project-specific development and permitting processes.

What natural conditions or cultural elements might be affected by implementing the long range plan?

Transportation systems touch many complex health and environmental concerns, including human health, natural ecosystem processes, species protection, climate change, and land use. The ferry system development, operation and maintenance is no different.

Aquatic resources in Puget Sound have helped support the region's growth and way of life by providing ecological, cultural, economic benefits. Humans earn their living by fishing. Orca whales and bald eagles rely on fish as a food source. Anadromous fish play a crucial role in the general ecology of the Pacific Northwest by recycling nutrients between the sea and land. Macro invertebrates, such as clams, crab, and geoducks are important commercially and culturally. Aquatic plants provide substrate for spawning forage fish and for other plants and animals that are food sources for a multitude of species.

- **Eelgrass, wildlife and fish habitat**:
  Eelgrass is found in several places near some of the ferry terminals. Most of the eelgrass beds have been surveyed and recorded. Eelgrass is recognized as an important plant in Puget Sound nearshore ecosystems, and provides habitat for numerous aquatic species such as Dungeness crab, herring and juvenile salmon.

  Species listed as endangered or threatened in Puget Sound, and that could occur at WSF ferry terminals are Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), bull trout (*Salvelinus confluentus*), Steller sea lion (*Eumetopias jubatus*), marbled murrelets (*Brachyramphus marmoratus marmoratus*), Southern Resident Puget Sound killer whale *(Orcinus orca)* and bald eagle (*Haliaeetus leucocephalius*). The other listed

whale and sea turtle species are typically found in off-shore coastal areas and are rare or absent in the ferry terminal areas.

Puget Sound is a migratory corridor for adult Chinook salmon and provides rearing habitat for out-migrating sub-yearling Chinook from rivers into the Sound before their eventual oceanic phase.

Bull trout are members of the char subgroup of the salmon family. The anadromous type inhabits upper tributary streams and lake and reservoir systems. Bull trout feed on terrestrial and aquatic insects, and as they grow in size, their diets include whitefish, sculpins, and other trout.

The range of the Southern Resident (SR) killer whale during the spring, summer, and fall includes the inland waterways of Puget Sound, Strait of Juan de Fuca, southern Georgia Strait, and coastal waters off Oregon, Washington, and Vancouver Island (Center for Biological Diversity 2001). The Southern Resident population is composed of three killer whale pods, identified as Pods J, K, and L.

Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) maps indicate the presence of eagle nests in the vicinity of ferry terminals. Bald eagles build large stick nests in mature or old-growth trees, to which they return over successive years.

The marbled murrelet is a small seabird that occurs in North America from Alaska to central California. The nesting habits of the marbled murrelet are not well known. Nests have been located up to 33 miles inland from saltwater (WDW 1991). The closest designated critical habitat for this species is west of Hood Canal and in the Capitol State Forest west of Olympia (USFWS May 15, 1996).

ESA-listed Species

Species/Habitat	Status	Agency
Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened (Puget Sound ESU)	NMFS
Puget Sound Chinook salmon critical habitat	Designated (Puget Sound ESU)	NMFS
Hood Canal summer chum salmon *(O. keta)*	Threatened (Hood Canal ESU)	NMFS
Hood Canal summer chum salmon critical habitat	Designated (Hood Canal ESU)	NMFS
Steelhead *(O. mykiss)*	Threatened (Puget Sound DPS)	NMFS
Humpback whale *(Megaptera novaeangliae*)	Endangered	NMFS
Killer whale	Endangered	NMFS

(*Orcinus orca*)	(Southern Resident Population DPS)	
Killer whale critical habitat	Designated (Southern Resident Population DPS)	NMFS
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered	NMFS
Steller sea lion (*Eumetopias jubatus*)	Threatened	NMFS
Bull trout *(Salvelinus confluentus)*	Threatened (Coastal-Puget Sound DPS)	USFWS
Bull trout critical habitat	Designated (Coastal-Puget Sound DPS)	USFWS
Marbled murrelet *(Brachyramphus marmoratus)*	Threatened	USFWS
Marbled murrelet critical habitat	Designated	USFWS

Notes:
ESU = evolutionary significant unit
DPS = distinct population segment

- **Soils, earthquakes, liquefaction**

  Liquefaction occurs when water-saturated sandy or silty soil loses strength during earthquake shaking (similar to quicksand). It can cause major structural failure if not properly accounted for. Liquefaction only occurs in water-saturated soil. It has an impact on bridges and other large structures, which may require expensive retrofitting or replacement to meet current seismic (earthquake) standards.

  The Washington State Department of Natural Resources (DNR) has developed liquefaction susceptibility maps which outline areas where liquefaction is most likely to happen. State and local governments develop hazard mitigation plans and delineate geologically hazardous areas as required by the Growth Management Act.

  The current DNR maps indicate that the several WSF terminals are within a moderate to high liquefaction susceptibility area.

  In addition, some of the ferry terminal structures along do not meet current design standards for earthquake or liquefaction. The design of structures will have to take this into consideration during development of any improvement project. Soils that are susceptible to liquefaction may require retrofit measures such as ground stabilization, selection of deeper foundations, different types of foundations, and/or selection of appropriate structural systems to accommodate anticipated displacements.

- **Air quality**

Air quality in the Puget Sound region is regulated by the U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the Puget Sound Clean Air Agency (PSCAA). Under the Clean Air Act, EPA has established the National Ambient Air Quality Standards (NAAQS), which specify maximum concentrations for carbon monoxide, particulate matter less than 10 micrometers in size (PM_{10}), particulate matter less than 2.5 micrometers in size ($PM_{2.5}$), ozone, sulfur dioxide, lead, and nitrogen dioxide. The pollutants regulated by the NAAQS are referred to as criteria pollutants. Other air pollutants of concern for transportation projects include hazardous air pollutants and greenhouse gases.

The Puget Sound Clean Air Agencies 2005 Air Quality Data Summary that with the exception of fine particulate mater (PM2.5) and ozone, critical air pollution concentrations are well below levels of concern for the region. Current monitored levels of $PM_{2.5}$ violate recently adopted federal standards in several Puget Sound counties.

Particulate matter includes small particles of dust, soot, and organic matter suspended in the atmosphere. Particulates less than 100 micrometers in diameter are measured as total suspended particulates. Most diesel engine emissions are in the PM2.5 size range, while road and construction dust is often in the larger PM10 range. Most transportation related fine particulate emissions result from diesel engines, which release fine particulates both directly, mostly as carbon compounds and indirectly in the form of sulfur dioxide, a gas that reacts in the atmosphere to form sulfate particulates. High PM2.5 and PM10 concentrations occur in fall and winter during periods of air stagnation and high use of wood for heat.

Ozone is a highly toxic form of oxygen and is a major component of the complex chemical mixture that forms photochemical smog. Ozone is not produced directly, but is formed by a reaction between sunlight, nitrogen oxides (NOx), and volatile organic compounds (VOCs). Ozone primarily is a product of regional vehicular traffic, point source, and fugitive emissions of the ozone precursors. Tropospheric (ground-level) ozone, which results from ground-level precursor emissions, is a health risk, while stratospheric (upper-atmosphere) ozone, which is produced through a different set of chemical reactions that only require oxygen and intense sunlight, protects people from harmful solar radiation.
In the Puget Sound area, the highest ozone concentrations occur from mid-May until mid-September, when urban emissions are trapped by temperature inversions followed by intense sunlight and high temperatures. Maximum ozone levels generally occur between noon and early evening at locations several miles downwind from the sources, after nitrogen oxides and volatile organic compounds have had time to mix and react under sunlight. Approximately 30 percent of nitrogen oxides and volatile organic compounds come from mobile sources. Light northeasterly winds arising during these conditions result in high ozone concentrations near the Cascade foothills, to the south

and southeast of major cities. Ozone precursor emissions in the Puget Sound region create ozone towards Lake Sammamish and the Cascade foothills.

Automobiles, vessels and other vehicles using fossil fuel also emit greenhouse gases, primarily carbon dioxide. Greenhouse gases trap solar energy in the atmosphere, warming the earth's surface. While greenhouse gases occur naturally in the atmosphere (without them the average temperature of the earth would be below freezing), human activities over the last century have released additional greenhouse gases. Currently, approximately 49 percent of all greenhouse gas emissions in Washington State are from transportation, including on-road and off road vehicles, vessel, rail and air travel.

- **Water quality**

When storm water flows over road and ferry terminal holding lanes, vessel decks and through drainage systems it carries pollutants originating from motor vehicles, the atmosphere, and other sources into the surface water bodies including the Puget Sound. Sediments and pollutants (nutrients, oil, grease, and metals) are carried into rivers and streams in this way, affecting the quality and health of the water for people, animals and plants. Storm water runoff is one of the main sources of contamination of Puget Sound according to the Puget Sound Partnership.

Threats to water quality from vessels are related to potential discharges from the vessel to surface waters. These discharges are governed by international laws and regulations and U.S regulations including the Code of Federal Regulations Parts 33 and 40. The State of Washington's requirements essentially mirror the federal requirements in this area.

The National Pollutant Discharge Elimination System (NPDES) regulations, implemented under the Clean Water Act, historically did not regulate discharges from vessels. However, in September of 2008 the Environmental Protection Agency (EPA) lost a lawsuit that challenged the exclusion of vessels from the NPDES program. The new NPDES permit that will cover WSDOT ferry vessels is expected to be issued by the EPA in February of 2009.

- **Land use**

Land uses at the ferry terminal locations vary from recreational, residential and commercial. Local comprehensive plans, zoning maps and shoreline master program designate the ferry terminals as ferry terminal facility, commercial, industrial or urban waterfront that allow the location of the terminal facilities. Ferry terminal predates Growth Management Act and Shoreline Management Act.

The communities in which the ferry terminals reside are linked in varying degrees to the economic conduit that the ferry system provides. In some cases this economic relationship is an important force in the land use development of the community.

- **Traffic**

  Typically the operation of auto ferries has an affect on congestion and circulation on local streets, access to residents and businesses as a result of queuing on road shoulders, parking, pedestrian and traffic safety of the communities where the terminals are located. Inadequate terminal sizing and configuration negatively affects traffic related impacts to the community.

- **Tribal Resources and Treaty Rights**

  Tribal treaty fishing rights consist of several components, including a right to share in the allowable harvest of fish with non-tribal fishers *(USA v. Washington 1974)*, and rights to fish, gather and hunt in the traditional U&A areas of each tribe – a right to engage in specific activities in specific places. All of the major WSF terminal construction projects entail either federal funding or federal permitting, notably by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbor Act since they typically involve some level of dredging or filling of navigable waters. All of these projects are located in or adjacent to the Usual and Accustomed (U&A) fishing grounds of one or more treaty tribes. The federal courts have decided that where the issuance of a 404 permit has more than a de-minimus or discountable effect on the exercise of the right to fish, gather or hunt in a U&A area, the affected tribe may object to the issuance of the permit on the grounds that the tribe has a superior right to fish or gather in the area and may not be displaced by the dredging or filling of that area without their consent *(Muckleshoot, Suquamish v. Hall 1988)*. A project may not have significant impact on the environment, no adverse effect, may be NEPA/SEPA exempt, and not covered by a nationwide permit or a programmatic permit, but it may still have more than de-minimus effect on the right to fish because a tribal fisher may have fished in the area one time in the past as asserted by the tribe.

- **Historical and cultural resources**

  WSDOT has just completed an inventory of all WSF terminal buildings, and found none eligible for inclusion on the National Register of Historic Places under Section 106 of the National Historic Preservation Act of 1966. Project level cultural resource surveys completed at some of the terminals show there might be the presence of archaeological resources. Therefore further surveys will be warranted for any proposed projects. Consultations with the Washington Department of Archaeology and Historic Places and Puget Sound Tribes have occurred on potential known sites.

- **Park and Recreation Lands**

  Park and recreation resource are vital to the health and livability of communities. Section 4(f) of USDOT Act of 1966 requires that transportation project to avoid, minimize or mitigate public parks and recreation areas as well as historic sites. Some

of the ferry terminals are located in or adjacent to parks and recreation lands. Actual impacts to and mitigation for these parks would be evaluated at the individual project level.

- **Department of Natural Resources lands**

  State aquatic lands that have been reserved for landings, wharves, streets, and other conveniences of navigation and commerce are demarcated by harbor lines. A change in shape or size of the aquatic land used for ferry terminals operations could require revisions to the harbor line. Article 15 of Washington State Constitution describes the harbor line revisions. It takes between 12 and 18 months and three public hearings to revise harbor line. Therefore, the LRP should address potential need for harbor line revisions at terminals that capital improvements may be necessary. The terminals that may need harbor line revision are Anacortes, Seattle, Fauntleroy, Port Defiance, Bremerton and Port Townsend.

What are the potential environmental issues and solutions association with the options in the long range plan?

Plan Description

This document sets forth two alternative plans. Plan A is the response to ESHB 2358 from the 2007 legislative session (reference Appendix A). Future traffic growth is handled primarily from the application of transit, operating, and pricing strategies. Plan A and Plan B treat the capacity of the system differently – Plan A with minimal increases in overall system capacity, Plan B with reductions in overall system capacity.

Demand Management Strategies Specific to both Plan A and Plan B

- Transit enhancements include improving transit service on both ends of ferry routes in order to make it easier for ferry riders to travel without needing to bring a car aboard. Included are physical improvements to the terminals and access to allow easier access for transit in and out of ferry terminals and to minimize, where possible, the distance between the ferry and connecting transit.

- A reservation system for vehicles would be beneficial to the environment in several ways. First, the need for WSF to develop large scale terminals to accommodate several vessels full of vehicles would be eliminated. Secondly, back ups of idling vehicles in line would be eliminated as well, lessening traffic impacts and air pollution. In addition, the reservation system is expected to reduce the area needed to hold cars that are queuing for vessels. This in turn is expected to reduce the pollution carrying impervious surfaces needed for system operations.

- Widening the difference between vehicle fares and passenger fares over time will have the impact of lessening vehicle demand and increasing passenger demand. With adequate intermodal transit connections this strategy is expected to reduce VMT and related air pollution.

In addition to the reduced air quality impacts from passenger vehicles, the implementation of these strategies reduces the number of vessels needed to meet demand, and consequently reduces anticipated fleet emissions compared to current operations.

System Capacity Changes in Plan A and Plan B:

- In Plan A, minor system capacity improvements are accomplished by replacing some of the retiring vessels with ones that are slightly larger. This vessel substitution increases vehicle carrying capacity slightly on the Anacortes/San Juan Islands route, Mukilteo/Clinton, Seattle/Bremerton, Fauntleroy/Vashon/Southworth, and Point Defiance/Tahlequah routes. The addition of a fourth vessel to the Fauntleroy/Vashon/Southworth route to accommodate the splitting of the route during peak periods would further increase capacity.

- In Plan B, vehicle carrying capacity is reduced on the Anacortes/San Juan Islands route, Port Townsend/Keystone, Seattle/Bremerton, Fauntleroy/Vashon/Southworth, and Point Defiance/Tahlequah. Net impacts on the environment are unknown at this time – Plan B is not dependent upon but could result in locally funded passenger-only routes supplement Southworth, Vashon, and Bremerton service reductions, which could increase foot passenger demand and lessen overall vehicle impacts on the transportation system. Drive around alternatives for vehicle drivers via the Tacoma Narrows bridge could increase traffic congestion and environmental impacts on freeways.

Land Use Changes

Overall, the draft ferry system plan takes account of the critical interaction between local land use and the provision of ferry services. This is accomplished by:

- Relying on adopted comprehensive plans as the land use basis for ferry planning;
- Using local and regional datasets and tools in technical analyses;
- Developing ferry strategies and programs to align with adopted State and local transportation and land use goals; and
- Involving local and regional entities in plan-making.

Strategies that have been developed in the long range plan are not expected to change the land uses of any of the ferry communities with exception of Mukilteo, where the terminal would be relocated. At Mukilteo, the terminal will be relocated to an abandoned industrial property to allow active, urban water front commercial uses.

Capital Program Proposals

- Fleet complement –Plan A will maintain the size of the fleet with slightly larger vessels on some routes, and restore two vessel operations to the Keystone/ Port Townsend route. The Fauntleroy/ Vashon/ Southworth route would be expanded to four vessel operations during peak periods. Plan B will create a smaller fleet with

some vessels slightly larger and others smaller. In both Plan A and Plan B the new vessels are designed to maximize fuel efficiency and will use new EPA standards in emissions control. By implementing the demand management strategies identified above, the number of vessels required to meet the projected demand has been reduced when compared to previous planning efforts. Specific strategies used to minimize the environmental impact of the vessels in the fleet are identified in the following section of this appendix.

- Implementation of a reservation system will minimize the terminal area "foot-print" requirements, on land and over water, of the ferry system. This affects the quantity and scale of terminal improvements projected for the system in both Plan A and Plan B. The result is a minimization of likely impacts to aquatic and terrestrial natural and cultural resources, and reduction in these impacts when compared with previous long range plans. Specific strategies used to minimize the environmental impact of the terminal capital projects are identified in the following section of this appendix.
- Transit enhancement and pricing would shift travel mode from vehicle to walk-on traffic. The need for transit supportive facilities at the terminal or off site would be evaluated at the project level. Potential environmental impacts include right of way acquisition to expand park and ride facilities and transit stops. Ferry terminals may be modified to accommodate transit egress and ingress. Transit enhancement would encourage a reduction in per capita vehicle miles traveled (VMT) and consequently greenhouse gas emissions.

What are projects identified in the ferry's capital plan, and what are their typical environmental impacts and mitigation?

The following vessel acquisitions and replacements have been identified as necessary to meet the purpose and need of the LRP.

- **Vessel Acquisition & Replacements**
  This plan includes the following key vessel program assumptions;
  - Preservation – Fully fund the preservation needs for all assets related to the structural integrity of vessels.
  - Fund preservation items that are not directly related to the structural integrity of the vessels.
  - To the extent possible, limit investments for vessels nearing retirement.

  Vessel procurement Plan A:

  - 2010-2012: Replace two Steel Electric and Rhododendron Class vessels with three Island Home Class vessels
  - 2011: Reinvest in Hyak Super class vessel to extend life 20 years
  - 2013-2019: Replace three Evergreen State Class vessels and move one renovated Super class vessel to standby with four 144-car vessels
  - 2021-2025: Replace three Super Class vessels with three 144 class vessels

- 2027: Replace Hiyu with a new small vessel
- Procurement program maintains a de-crewed standby vessel

Vessel Procurement Plan B:

- 2010: Replace Steel Electric with one Island Home class vessel
- 2011: Reinvestment in Hyak Super class vessel to extend life 20 years
- 2021-2023: Replace Super class vessel and the Hiyu class vessels with 2 new small vessels
- 2025-2027: Replace 2 Super Class vessels with 2 144 class vessels
- Procurement program maintains a de-crewed standby vessel

WSDOT's vessels are constructed in private shipyards and these shipyards are required to meet all state and federal environmental requirements.

Measures to avoid, minimize, and mitigate potential adverse impacts to the environment from vessel operations:

Wildlife and Fish Species and Habitat

WSDOT analyzes wake-wash and propeller scour of new vessels to identify and minimize shore and near-shore habitat. Maximum vessels speeds are identified for transit near shorelines identified as sensitive to erosion.

Engine noise is minimized through vibration dampening engine mounts and tighter clearances in gearbox assemblies. In addition, propeller noise is minimized through cavitation minimizing propeller design.

Furthermore, to avoid adverse impacts to marine mammals, the vessels are operated in accordance with National Oceanic and Atmospheric Administration's "Be Whale Wise" guidelines.

Air Quality

WSF considers fuel efficiency and air pollution issues as part of its major design decisions. There are five items to consider when designing an efficient ship (from a fuel efficiency and air emissions perspective). In general terms the goals for these design elements for WSDOT ferry boats include:

- Minimize the energy requirements through the ship design process:
    - i. The ship is properly sized to meet WSF's current and future operational needs.
    - ii. The hull design is optimized to reduce overall resistance while providing the required vehicle capacity, thus reducing fuel requirements
- Minimize energy requirements through operational policy:

    i. Run propulsion and auxiliary engines only when necessary, e.g., use shore power at night.
    ii. Operate ferries at their most fuel efficient power level and still meet published sailing schedules.
    iii. Modify vessels to allow one-engine operation at the terminals

- Minimize emissions by selecting cleaner fuels:
    i. WSF changed the fleet fuel from high sulfur diesel fuel (3500 ppm sulfur) to low sulfur diesel fuel (350 ppm sulfur). The emission reductions were realized in the 2004 Fleet.
    ii. WSF is evaluating the future use of ultra low sulfur fuel (15 ppm sulfur) and biodiesel.
- Minimize emissions and maximize efficiency by selecting EPA compliant clean burning, fuel efficient and optimally sized diesel engines.
- Design vessels so that they have adequate weight carrying capacity to accommodate future emissions control alterations:

Water Quality

WSDOT currently avoids adverse to surface water quality through implementation of the following best management practices:

- Eliminate direct discharges into Puget Sound, with such materials as oily wastewater or gray water that are held on board, and then discharged legally and appropriately to shore side facilities.
- Design systems to minimize the potential discharges such as from shaft seals.
- Where discharges cannot be completely eliminated, select materials that are less toxic (such as anti-fouling hull coating) and implement management practices that minimize the discharge of potential contaminants (such as deck cleanup practices to protect the quality of weather deck runoff).

Traffic

The management strategies proposed in this plan promote mode shift and thus may reduce vehicle miles traveled. However, limited ferry access with increased demand could potential cause people to drive around Puget Sound and use the Tacoma Narrows Bridge, causing additional freeway congestion, vehicle miles traveled and air pollution. This may be lessened with the development of adequate park and ride capacity, and regional intermodal connectivity and capacity.

The capacity of the new vessels in Plan A are slightly larger than the existing vessels, or previous operated vessels, on the routes where they will operate. This would improve system efficiency. The proposed reservation system will reduce the traffic impacts on the local communities of vehicles queuing for the ferries. The increase in vessel offload traffic of the replacement vessels is minimal on most routes. On routes with potentially

significant increases in offload traffic, WSDOT will evaluate the potential traffic impacts to determine if mitigation measures are necessary.

To reduce the traffic congestion and safety concerns caused by vehicles cueing on Fauntleroy Avenue near the Fauntleroy terminal, the Plan A proposes splitting out the Fauntleroy/ Vashon/ Southworth route in to two separate routes during peak travel periods. To accomplish this, a fourth small vessel would be added to the route.

The system capacity of the vessels under Plan B would be a reduction from current capacity. Like Plan A, the proposed reservation system will reduce the traffic impacts on the local communities of vehicles queuing for the ferries. In addition offload traffic on several routes would be reduced from current peak levels.

Terminal Preservation and Improvements:
Terminals that have been identified for improvements or modification in Plan A to meet the purpose and need of the long range plan include Edmonds, Kingston, Clinton, Mukilteo, Keystone, Port Townsend, Anacortes and San Juan Islands.

- Edmonds terminal would be modified for reservation system work and future multi-modal transit improvements.
- Toll booths at Kingston would be relocated to facilitate transit system.
- Improvements at Clinton would include transit and pedestrian overhead loading.
- Mukilteo terminal would be relocated with a new multimodal to connect with Sound Transit station in Mukilteo. Project level NEPA/SEPA EIS has started for the Mukilteo terminal project.
- Keystone terminal would be modified to support reservations.
- At the Port Townsend terminal the toll booth will be reconfigured for reservations.
- A new terminal building has been designed at Anacortes to support increased walk-on passengers.
- San Juan Islands terminals would be modified to support reservations.
- Fauntleroy overhead-loading structure would be constructed for walk-on passengers.
- Southworth would be modified for reservations.
- Bremerton would be modified for reservations.
- Bainbridge would be modified for reservations and improved for transit connectivity.
- Seattle Colman dock would be modified for reservations.
- Add a tie up slip at Southworth to support the addition of a fourth vessel to the route.

The above listed capital improvements for Plan A are proposed in Plan B with the following exceptions:

- Reduced Bainbridge Island transit enhancements.
- Fauntleroy overhead-loading structure for walk-on passengers not built.
- Overhead walk on passenger loading at Clinton and passenger walkway to park and ride lot not built.

The other terminals would be preserved based on the life cycles cost model.

With exception of Mukilteo Multi-Modal project, , typical impacts from improvements to the terminal include shading from overwater structures, underwater noise impacts from steel pile driving, near-shore habitat such as eelgrass and microalgae, harbor line The Mukilteo Multi-Modal project will have significant impacts to both the natural and cultural resources.

WSDOT has come a long way in aligning citizen's goals for a clean and healthy environment with meeting their transportation needs. Today's highways and ferry terminal construction projects integrate environmental components into project design, budget, construction and operation.

Measures to avoid, minimize, and mitigate potential adverse impacts to the environment from terminal construction:

Wildlife and Fish Habitat and Species

WSDOT follows a tiered approach for minimizing adverse impacts to protected wildlife and fish and their habitats. Through project design, construction scheduling and implementation planning, WSDOT first seeks to avoid potential adverse impacts to protected species and their habitat. If impacts are un avoidable, WSDOT minimizes the magnitude and duration of the impacts to the extent feasible. Remaining impacts that are considered significant and adverse are mitigated to the extent feasible and in accordance with local, state and federal regulations.

Various state, federal, and county wildlife regulations require special emphasis in identifying, locating and protecting certain species. Protection sometimes requires construction activities be kept a certain distance away from an area or habitat, or that wildlife be buffered by a specified number of acres within the project limits for protection.

Construction permits typically include added requirements so that these species are not harmed. This can increase the cost of project development and/or design significantly.

Stormwater Management:

The proposed demand management strategies are expected to minimize the holding area needed at the terminals. Consequently, this is expected to help minimize the stormwater pollution loading area of the system.

WSF is making major investment in storm water management in response to specific permit requirements as well as best practices that demonstrate our environmental commitment. WSF 2009-2011 budget request includes funding to inventory all terminals and prioritize them for stormwater retrofit. Most ferry terminals were built prior to stormwater regulations and have no runoff treatment or flow control facilities associated with them. All new terminal improvement projects will include work to upgrade stormwater facilities to current standards.

WSDOT is continuing to take steps and work with other agencies in the region to develop solutions to water quality issues.

Reducing construction noise
WSDOT works with many cities and counties to assure compliance with local ordinances that may limit construction noise levels at night and on weekends.

Reducing ferry noise
As more people choose to live along the banks of the Puget Sound, noise from the loading of ferries and their engines has become a greater area of concern for residents neighboring ferry terminals. Some residents near the Vashon/West Seattle route say they prefer the use of passenger-only ferries because of the perceived lower noise levels of the vessels and associated lack of vehicle loading noise. WSDOT studies indicate that the loudest source of noise at the terminals is from vehicles loading and unloading.

WSDOT takes ferry noise seriously; unfortunately, successful mitigation would require noise barriers in front of homes (blocking scenic views) or converting to different vessel types, which is beyond the resources of the department. Another approach is for cities or counties to limit new building permits and remodel approvals near ferry terminals, or require the incorporation of noise reduction standards in new or remodeled homes (thus transferring potential noise mitigation responsibility to owners and developers).

Underwater noise
There are emerging concerns about the noise impacts on fish and diving birds from underwater pile driving for steel piles. WSDOT conducts in-water pile driving to maintain the safety of key facilities for both ferry terminals and highway bridges. The department is performing independent research and working jointly with other states and resource agencies to identify how noise works underwater, how fish and diving birds are affected by the noise, and what mitigation may be warranted (if any). This area is evolving quickly and there is much yet to understand.

Eelgrass Mitigation:
To mitigate for the 1994 Clinton dock expansion, WSF planted eelgrass near the Clinton dock. In 2002, 8 years later, there was a net gain of 38,447 (3:1 ration) eelgrass shoots

over the eelgrass lost to the dock expansion. WSF has gained significant data on eelgrass planting and maintenance from the Clinton project that could be used to mitigate other terminal construction project impacts to eelgrass beds.

Port Townsend – Under Dock Lighting Study

In June 2006 Battelle completed a WSDOT funded study to identify potential impacts of over water structures (OWS) on the migratory behavior of juvenile salmon. This was the third in a series of scientific investigations on the problem of over water structures and effects on young salmon. Results indicated the shadow cast by OWS alters the behavior of juvenile salmon.

WSF has obtained additional state research funding to analyze ways to mitigate the shadow impacts of OWS. A research team has been organized and will be lead by the University of Washington with support from Battelle. The research will test the application of fiber optics under the Port Townsend ferry terminal as a means to provide light to eliminate the sharp shadow edge and therefore facilitate juvenile salmon movement along the nearshore under the terminal.

Traffic

In the project development process, WSDOT works with the communities where the terminals are located to identify potentially significant traffic related impacts. WSDOT minimizes traffic related impacts to the communities by adequately sizing of terminals and their holding areas, configuring terminals to maintain pedestrian and vehicle safety, a through coordinated signalization and through operational measures.

Tribe Usual and Accustomed fishing grounds

Two terminals that may have potential to impact Treaty Usual and Accustomed fishing grounds are Edmonds and Mukilteo. These terminals if relocated from their current locations would require a United States Army Corps of Engineers (Corps) permit. As a Federal agency the Corps has a fiduciary obligation to Treaty Tribes. This relationship has resulted in the Corps requiring extensive analysis of adverse impact(s) to these Treaty rights. If the impact(s) can not be successfully mitigated the Corps has required a mitigated settlement to be negotiated with the Treaty Tribe(s). The successful mitigated settlement agreement has taken the form of a Memorandum of Agreement (MOA). The MOA would be negotiated with the Treaty Tribe(s) and can include funding for fisheries enhancement, salt water environment enhancement, or a cash settlement. When the Corps is given evidence of such agreement it then will move forward with issuance of a permit. An increase in overwater coverage at any of the existing terminals could also result in the same requirements.

Applicable Permits:

The capital construction projects shall comply with the following Environmental Regulations:

- National Marine Fisheries Services- Endangered Species Act (ESA)
- U.S. Fish and Wildlife Service - ESA
- Washington State Department of Fish and Wildlife - Hydraulic Project Approval
- Department of Ecology - SEPA
- Governor's Executive Order 05-05 - Department of Archaeology and Historic Preservation, Governor's Office of Indian Affairs
- City of Anacortes – Shoreline Master Program
- US Army Corps of Engineers Section 404(b)(1) of Clean Water Act
- Section 10 of Rivers and Harbors Act
- Coastal Zone Management Act
- Critical Areas Ordinance under GMA
- Local Shorelines Master Program
- Washington State Aquatic Lands Act

What was the outreach process in developing the plan?

Coordination to Resource Agencies and Tribes:
In addition to the groups and processes used in the public outreach section of the plan, Federal and State resources agencies with jurisdictions and funding authorities were briefed of the plan in a letter and meeting to take their comments and inputs. The resources agencies supported that WSF include a planning level environmental analysis in the plan. The agencies that were represented at the meeting were Federal Transit Agency, National Marine Fishery Services, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, Puget Sound Clean Air Agency, and Washington Department of Ecology.

Letters were also sent to Puget Sound tribes to brief them about the plan. A meeting with the Swinomish was held to get comments and inputs.

Each participating agency and tribe will receive a copy of the draft plan for review and comment

Key Findings of this Environmental Evaluation

Natural Resources

- The Puget Sound ecosystem supports a diversity of habitats and species, many of which are found or could occur near ferry terminals. Protected habitats and species include eelgrass beds, Puget Sound Chinook salmon, Hood Canal summer chum salmon, Steelhead, Humpback whale, Killer whale, Leatherback Sea turtles, Steller sea lion, Bull trout, and Marbled murrelet.

- Aspects of the Puget Sound Ecosystem are degraded including surface water quality from pollutants carried in stormwater runoff, regional air quality from pollutants partially generated by the transportation sector, and fish and wildlife species is evident in the listing of multiple species under the Endangered Species Act,

Cultural Resources

- The land use near ferry terminals varies from rural to urban, and has been affected in varying degrees by the economic conduit of the ferry system. Traffic from the ferry system also affects vehicle circulation and congestion in the communities.
- The areas near the ferry terminals may contain archaeological resources.
- Fishing rights on waters of which the ferry system operates are governed by tribal treaties.

Environmental Issues and Solutions

- The proposed demand management strategies will minimize the upland and overwater foot print required for the proposed system improvements. This in turn is expected to minimize potential for adverse impacts to wildlife and species and their habitat.
- The proposed demand management strategies and transit improvements will encourage a shift in passenger traffic from vehicular to walk-on, and shifts in passenger travel time from peak to off peak. These changes are expected to reduce per capita vehicle miles traveled and the related vehicle emission.
- The proposed demand management strategies and transit improvements are expected to create greater efficiency in system. This would minimize the number of vessels needed to meet projected demand, and therefore minimizes vessel fleet related air emissions.
- Implementing the reservation system is expected to minimize, and in some cases reduce, the amount of vehicle holding area needed at the terminals. This change may also reduce pollutant loading of stormwater at terminal facilities. Overwater coverage and shading of nearshore habitat would be minimized.
- Strategies that have been developed in the long range plan are not expected to change the land uses of any of the ferry communities with exception of Mukilteo where the terminal would be relocated. At Mukilteo, the terminal will be relocated to an abandoned industrial property to allow an active, urban water front commercial uses. This change is consistent with the city's comprehensive and land use plan.
- The proposed reservation system will reduce ferry related vehicles queuing traffic impacts on the local communities. With Plan A off-load traffic is expected to increase slightly on some routes. If off-load traffic is projected to increase significantly over historical off-load levels, WSDOT will assess and mitigate as appropriate.
- The relocation of a terminal, as is proposed for Mukilteo, has the potential to impact tribal Treaty Usual and Accustomed fishing grounds. If the project is found to

impact the Treat Usual and Accustomed fishing grounds then WSDOT will be required to mitigate the impacts. This may take the form of a mitigated settlement to be negotiated with treaty tribe(s).

- The Ferries Division of WSDOT has ongoing programs or processes to avoid, minimize and mitigate adverse impacts to wildlife and fish species and their habitats, air quality, water quality, traffic, tribal treaty rights, historical and cultural resources, and parklands.

REFERENCE DOCUMENTS AND STUDIES

The LRP must demonstrate consistency with or conformity to any of the following existing plans:
Terminal master plan documents
Referenced Biological Assessment
Project Specific Biological Assessments for ferry terminals
Clinton Eelgrass Mitigation and Monitoring
Eelgrass Surveys at ferry terminals
Tribal U&A in the Puget Sound
Local or Regional land use or comprehensive plans
Local Shoreline Master Programs
Regional Transportation plans
TIP/SIP
WSDNR Harbor lines
Edmonds Crossing EIS and ROD
Mukilteo Multimodal Draft EIS
New 144 Auto Ferry, SEPA Checklist
Environmental Discipline Reports and Technical Memo for various ferry terminals projects.