

**Alaska Marine Highway System - Vessel and Terminal  
Overhaul and Rehabilitation**

**FY2005 Request: \$4,063,000  
Reference No: 30624**

**AP/AL:** Appropriation

**Project Type:** Renewal and Replacement

**Category:** Transportation

**Location:** Statewide

**Contact:** Tom Briggs

**House District:** Statewide (HD 1-40)

**Contact Phone:** (907)465-3900

**Estimated Project Dates:** 07/01/2004 - 12/31/2005

**Brief Summary and Statement of Need:**

Annual maintenance and overhaul on vessels and at terminals, particularly component or system failures which will impact service in the short term. This project contributes to the Department's Mission by reducing injuries, fatalities and property damage and by improving the mobility of people and goods.

<b>Funding:</b>	<b>FY2005</b>	<b>FY2006</b>	<b>FY2007</b>	<b>FY2008</b>	<b>FY2009</b>	<b>FY2010</b>	<b>Total</b>
Gen Fund	\$4,063,000	\$5,500,000	\$5,500,000	\$5,500,000	\$5,500,000		\$26,063,000
<b>Total:</b>	<b>\$4,063,000</b>	<b>\$5,500,000</b>	<b>\$5,500,000</b>	<b>\$5,500,000</b>	<b>\$5,500,000</b>	<b>\$0</b>	<b>\$26,063,000</b>

<input type="checkbox"/> State Match Required	<input type="checkbox"/> One-Time Project	<input type="checkbox"/> Phased - new	<input type="checkbox"/> Phased - underway	<input checked="" type="checkbox"/> On-Going
0% = Minimum State Match % Required		<input type="checkbox"/> Amendment	<input type="checkbox"/> Mental Health Bill	

**Operating & Maintenance Costs:**

	<u>Amount</u>	<u>Staff</u>
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

FY2004 - \$4,930,000; FY2003 - \$5,000,000; FY2002 - \$4,239,365; FY2001 - \$4,200,000; FY2000 - \$4,390,600; FY - 1999 - \$4,000,000. This has been an annual Capital Program.

**Project Description/Justification:**

The FY 05 Alaska Marine Highway System: Overhaul and Rehabilitation request will fund:

The required annual overhaul of each of the ten vessels in the fleet:	\$3,763,000
Ongoing maintenance of the System's sixteen state-owned shore facilities:	300,000
<b>Total request:</b>	<b>\$4,063,000</b>

This request is insufficient to fund numerous deferred maintenance tasks and improvements we need to make to the vessels. These tasks and improvements are itemized in the "Unfunded Maintenance and Improvements" section at the end.

*Vessel Overhaul - \$3,763,000*

Vessel overhaul uses the lion's share of the funds. Overhaul consists of inspection, repair, and maintenance that cannot be performed while the vessels are operating. An overhaul period of approximately six weeks is set aside every year for each ship, and the ship is brought to a shipyard for this work. This work is performed in Alaskan shipyards unless it is made part of a competitively awarded Federal Highway Administration aid project won by an out-of-state shipyard. In performing overhaul work, AMHS must meet the exacting inspection requirements and standards of safety and

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seaworthiness of two agencies, the American Bureau of Shipping (ABS) and the United States Coast Guard (USCG). None of this work is discretionary. At the end of the overhaul period, the vessel must pass a demanding USCG inspection in order to obtain a Certificate of Inspection. This certificate permits the vessel to operate for the next year.

Overhaul work is costly. Putting a vessel into drydock, which must be done annually on almost all vessels to allow mandatory inspections and work to be performed, can cost over \$20,000 base cost plus \$1,000 for each day it remains in drydock. Dismantling a main propulsion engine solely to permit ABS inspections requires the work of several skilled engineers for several weeks. These are costs we incur simply to enable inspections to be made and routine maintenance to be done.

In addition to work required by ABS and the USCG, we perform work recommended by equipment manufacturers and work that our port engineers determine to be sound equipment maintenance practice. While we have no choice in work required by ABS and USCG, and consequently we cannot control these costs, we have some discretion about the work that is merely prudent. For example, painting the hull is not required, and we could sail with badly deteriorated paint. However, paint protects the hull from deterioration. In the long term, the value of asset protection greatly outweighs the cost of the painting.

In the past few years, we have had to focus our CIP overhaul funds increasingly on the required items and defer much of the discretionary work. The cost of required work has increased. Our CIP budget has not kept up.

In FY 05, we expect to make a number of needed upgrades and equipment purchases. They are:

1. Electrical generation system repairs and switchboard modifications aboard Columbia - \$80,000.
2. Mandatory upgrades to meet federal and international security regulations pertaining to doors, locks, remote monitoring systems, and navigation and communication systems - \$180,000.
3. Mandatory wastewater monitoring and treatment upgrades to meet State of Alaska law - \$260,000.
4. Mandatory upgrades to meet USCG requirements for installing and maintaining lifesaving equipment (marine evacuation chutes, self-contained breathing apparatuses, and emergency escape breathing devices) - \$80,000.
5. Mandatory additional engine room fire suppression equipment consisting of a localized water mist fire protection system required by the USCG - \$400,000.

In FY 05 this capital appropriation must also bear the added weight of an additional vessel. We removed the M/V E. L. Bartlett from service in October 2003. That reduces our fleet from nine to eight vessels until spring 2004. At that time our fleet will expand to ten vessels, when we take delivery of the M/V Fairweather and the M/V Lituya. They are currently scheduled to begin revenue operations in May 2004. The overhaul needs of both vessels will be funded from this appropriation in FY 05.

Another continuing source of increased costs for required work is maintenance of new systems and equipment (primarily safety related) required to be added to the vessels by the International Maritime Organization's Safety of Life at Sea (SOLAS) regulations and similar U.S. Code of Federal Regulations Subchapter "W" provisions. While federal funds provide the systems and equipment, state CIP funds must be used to maintain them. Perhaps the greatest cause of increased overhaul costs is the simplest: as vessels age, the amount and cost of required maintenance increases.

Our deferred maintenance items have begun to accumulate. Year by year, we opt not to perform all prudent preservation. For example, ballast tanks need to be recoated as rust develops and the steel wastes. We have been recoating ballast tanks on a reduced schedule that does not adequately protect them from further wasting. We often remove and replace engine parts that are economical to rebuild and have ready for issue when urgently needed, yet for lack of funds, we place them in storage without rebuilding them. On many vessels, passenger areas that are subject to heavy traffic have torn or heavily patched furniture and wall coverings.

*Shore Facilities Maintenance - \$300,000*

Our sixteen state-owned shore facilities, scattered from Homer to Ketchikan, consist of the terminal buildings, transfer bridges (hydraulic vehicle ramps), mooring structures, and staging areas. Like our vessels, our shore facilities are subject

State of Alaska Capital Project Summary

Department of Transportation and Public Facilities

FY05 Governor's Amended

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to hostile weather and the corrosive effects of salt air and water. Maintenance of these complex facilities is necessary to ensure passenger and vehicle safety, protection of the state's assets, and compliance with the Americans with Disabilities Act.

We rely on our annual capital appropriation for both routine maintenance and larger repair projects. These repair projects are planned for FY 05:

1. Replace the heating system in the AMHS warehouse in Ketchikan. Estimated cost: \$35,000.
2. The HVAC controls in the Auke Bay terminal building are deteriorated, lack original manufacturer support, and are in need of replacement. Estimated cost: \$35,000.
3. The carpeting in the heavy traffic areas of the Ketchikan terminal building needs to be replaced. It is coming up from the floor and has created a tripping hazard. Estimated cost: \$15,000.
4. Build up the upland area adjacent to Berth 2 in Ketchikan to the correct elevation so it can be used for parking or as a staging area. (The area currently fills with rainwater runoff and is unusable.) Estimated cost: \$25,000.
6. Repaint the exteriors of the terminal buildings in Skagway, Auke Bay, Wrangell, and Hoonah. Estimated cost: \$30,000.

In FY 03 and FY04 to date, we have used funds from this capital appropriation to complete the following work:

1. Removed one 550-gallon and one 1,000-gallon underground fuel oil storage tank at the Auke Bay ferry terminal. Replaced both with a new, double-walled 1,100-gallon tank that will supply fuel to both the building's heating system and the standby generator.
2. The Ketchikan port engineer office, an older modular building, had long been subject to weather intrusion and had reached a point of serious deterioration. We removed and replaced all rotted framing members and siding on the office.
3. The shore power cables that supply service to Berth 2 in Ketchikan were deteriorated and failed intermittently. We removed and replaced them.
4. We removed walk-off gratings at entries to the Ketchikan terminal and replaced them with concrete. We also removed a portion of concrete at the head of the pedestrian walkway where it joins the transfer bridge to the vessel.
5. We rehabilitated the mooring bollards on Berth 1 in Ketchikan.
6. All underground storage tanks owned and operated by AMHS in Ketchikan, Wrangell, Sitka, Hoonah, Auke Bay, and Whittier were inspected and recertified.
7. In the Cordova terminal, we removed and replaced all heating zone valves.
8. In Whittier, Haines, and Wrangell, we completed the biannual Synchronlift inspection and recertification.

*Unfunded Maintenance and Improvements*

Priority deferred maintenance that we would like to address if state CIP funds, in addition to what is requested above, are made available in FY 05:

1. Increase the frequency of ballast tank recoatings sufficiently to halt deterioration. Estimated fleet wide annual cost: \$200,000.
2. Repair and rebuild major spare parts, including main shafts and propellers in our storage warehouse so that parts are ready for use when needed. Failure to have these spares ready increases the potential of an extended loss of service if they are needed to correct a casualty to a vessel in service. Estimated fleet wide total cost: \$200,000.

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3. Clean the ventilation air ducts on all vessels. Fouled ducting increases vessel fuel consumption due to higher fan motor loads, and it can be a source of passenger illness and a potential fire hazard. In the past, each vessel was on a schedule of cleaning one third of its ducts every year. Duct cleaning has been completely eliminated in the past four years due to insufficient funds. There are areas on all vessels that have not been cleaned for at least six years. Estimated annual cost: \$300,000.
4. Remove asbestos from the vessels. Most of our vessels still have significant areas of asbestos remaining from their original construction. We would start removal efforts with the worst areas, such as the pipe insulation in the exhaust stack areas. The high vibration in these areas can create asbestos dust, which can drift into work areas occupied by engine crew. Estimated total cost: \$300,000 per year for the next five to six years.

Priority improvements we would like to make if state CIP funds, in addition to what is requested above, are made available in FY 05:

1. Upgrade the vessels' sewage systems to take advantage of the lessons the manufacturer has learned since the original systems were installed in the vessels. These upgrades would reduce maintenance and better treat the effluent that we are pumping overboard. Estimated total cost: \$500,000.
2. Establish a second source of heat to passenger areas on the Aurora, LeConte, Taku, and Tustumena. These vessels have only a single boiler to heat the entire ship. (Vessels normally have two or more of vital equipment items – two engines, two steering gears, two propellers, many generators, etc.) In 2001, the Tustumena was taken out of service and all passengers and crew were put ashore in Seward when a boiler burner failed and there was no heat on the ship. Estimated total cost: \$300,000.
3. Upgrade the remaining refrigeration units that use Freon 12 and Freon 22. These older refrigerants deplete the ozone layer and are no longer available for purchase in the U.S. They need to be replaced with modern, environmentally safe and available refrigerants. Estimated fleet wide total cost: \$200,000.
4. Humidify the vessel air systems. All vessels (except the Kennicott) were constructed with a direct steam injection system for controlling humidity in the living areas, particularly during winter sailings when vessel heating systems dry out interior air and most exterior doors are closed. These systems were disabled when concerns arose over breathing the chemicals present in the routine treatment of the steam. We need to install new systems that inject only humidity and no treatment chemicals. Estimated fleet wide total cost: \$480,000.