Alaska Marine Highway System: Overhaul, Rehabilitation, and Mandatory Training

FY2002 Request: **$4,800,000**
Reference No: **30624**

AP/AL: Appropriation
Project Type: Renewal and Replacement
Category: Transportation
Location: Statewide
Contact: Tom Brigham
House District: Statewide (HD 1-40)
Contact Phone: (907)465-4070
Estimated Project Dates: 07/01/2001 - 06/30/2006

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.

Funding:	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Gen Fund	$4,800,000						$4,800,000
Total:	$4,800,000	$0	$0	$0	$0	$0	$4,800,000

☐ State Match Required ☐ One-Time Project ☐ Phased - new ☐ Phased - underway ☑ On-Going
0% = Minimum State Match % Required ☐ Amendment ☐ Mental Health Bill

Operating & Maintenance Costs:

	Amount	Staff
Project Development:	0	0
Ongoing Operating:	0	0
One-Time Startup:	0	
Totals:	0	0

Additional Information / Prior Funding History:
Also includes STCW (Standards for Training, Certification, and Watchkeeping for Seafarers) required by the US Coast Guard. FY2001 - $4,200,000; FY2000 - $4,390,600; FY - 1999 - $4,000,000. This has been an annual Capital Program.

Project Description/Justification:
The scope of the Alaska Marine Highway System: Overhaul, Rehabilitation, and Mandatory Training request includes:

the required annual overhaul of each of the nine vessels in the fleet,

ongoing maintenance of the system's twenty state-owned shore facilities, and

the mandatory Standards for Training, Certification, and Watchkeeping for Seafarers (STCW) program.

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The budget request is based on:

Vessel overhaul and shore facilities maintenance: $4,180,000

STCW: $620,000

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Vessel Overhaul - $3,730,000

Vessel overhaul uses the lion's share of the funds. Overhaul consists of inspection, repair, and maintenance that cannot be performed while the vessel is 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. In performing overhaul work, AMHS must meet the exacting inspection requirements and standards of safety and 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 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. Bringing a vessel into drydock, which must be done periodically to allow certain inspections and work to be performed, can cost $20,000 and $1,000 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 or work to be done.

In addition to work required by ABS and USCG, we perform work recommended by equipment manufacturers and work that our port engineers determine to be sound equipment management 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 damaged 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. The addition of the Kennicott to the fleet in 1998 was a major cause of the cost increase for required work. When the Kennicott was added, no funds were added to our CIP budget to provide for its annual overhaul. We now overhaul nine vessels with an annual budget that originally covered eight vessels. The Kennicott is, and is expected to remain, one of our most expensive vessels to overhaul. The Kennicott's impact on our budget will worsen this year. The Kennicott warranty ended in December 1999; all repairs formerly covered by warranty are now the state's obligation. Another source of increased costs for required work is maintenance of new systems and equipment (primarily safety related) required to be added to the vessels. 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; yet for lack of funds we place them in storage without rebuilding them. Car decks used to be routinely painted every year. We no longer paint them at all; car decks rust very slowly. Year by year, we allow the appearance of the vessels to deteriorate. Last year, we removed floor coverings from an area of the Malaspina and found the steel plating underneath had significant wasting. After repairing the wasted steel, there were no funds to replace the floor covering. On many vessels, passenger areas that are subject to heavy traffic have torn or heavily patched furniture and wall coverings. The Columbia still has the original cafeteria furniture that was installed when the vessel was built in 1974.

As for improvements, state CIP funds for significant improvements to our vessels dropped from the budget sheet many years ago.

Shore Facilities Maintenance - $450,000

Our twenty state-owned shore facilities, scattered from Homer to Ketchikan, consist of the terminal buildings, transfer bridges (vehicle ramps), mooring structures, and staging areas. Like our vessels, our shore facilities are subjected 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. The demand for shore facilities maintenance dollars has increased in the past few years. We have added a new terminal building in Homer, replaced the Cordova building, and rebuilt the Petersburg building. Each of these improvements adds more complex systems and equipment to be maintained.

We have two shore facilities maintenance issues coming up in the near future:

The Ketchikan warehouse needs to be upgraded to make more efficient use of space and to create a storage area for spare tailshafts. We are consolidating our Bellingham and Ketchikan warehouses, with a goal of closing our Bellingham warehouse as a cost-saving measure. The warehouses are used primarily for fleet spare parts.

Estimated total cost of this project: $200,000.

The Ketchikan vessel maintenance building, which houses the port engineer and staff, was recently found to require extensive replacement of exterior wall support structure, insulation, and siding. Although the building is currently deemed safe for occupancy, this work cannot be deferred. This would also be an ideal time to add sufficient space for the fleet library of engineering manuals and vessel drawings, space for the port engineer who is transferring from Bellingham, and space for a small training room.

Estimated total cost of this project: $250,000.

Minimum FY 2002 request for vessel overhaul and shore facilities maintenance: $4,180,000.

Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) - $620,000

This proposed project is to implement the safety enhancement program mandated by the Code of Federal Regulations by February 1, 2002, and for the Alaska Marine Highway System (AMHS) to comply fully with the International Maritime Organization (IMO) and US Coast Guard (USCG) mandated STCW regulations. Without this project the AMHS will be forced to cease service on all of its vessels for lack of adequately trained officers and crewmembers.

History of STCW Requirements

“Standards of Training, Certification, and Watchkeeping for Seafarers” (STCW) is a series of international regulations signed by the U.S. and all other major maritime nations. STCW regulations set qualifications for masters, officers, watchkeeping personnel, and all shipboard personnel involved with the safe operation of the vessel or prevention of pollution. These personnel must demonstrate the highest practicable standards of crew competence in an effort to minimize human error as a major cause of maritime casualties. STCW regulations require AMHS to establish procedures to document that fully qualified and trained personnel are routinely assigned to our roll-on/roll-off passenger ships. A key tenant of the STCW code is that license and certificate applicants will have to demonstrate their proficiency in the skills needed for the particular position, in addition to passing their usual written examination.

An action and implementation plan to comply with the STCW code has been developed outlining detailed lists of special training for AMHS crews and key implementation dates. AMHS, in concert with an experienced marine training consultant, has developed a strategy to provide STCW compliant training for many crewmembers onboard our vessels. Through a combination of computer-based training (CBT) modules and instructor-led companion training, approximately 80 new hires were effectively trained in basic safety training (BST) in spring 1999, and again in spring 2000, and joined the fleet. CBT kiosks have been purchased and installed in Juneau, Ketchikan, Anchorage, and Cordova, and aboard eight ships providing the opportunity for 700 existing employees to meet BST training requirements. Crowd management, passenger safety, cargo and hull integrity, and proficiency in the use of survival craft CBT modules are also being developed and installed to meet the training requirement by February 1, 2002. A vessel specific training CBT module for contractors and other employees (not crewmembers) riding AMHS vessels has been developed and installed also.

Proposed STCW Work

The STCW action plan identifies 17 different training courses that are needed for various segments of AMHS crews. Several are appropriate for CBT training and practical demonstration of skills right onboard the vessels, offering a significant cost savings in travel, per diem, and salary, but due to required proctoring and special certification procedures, many will need to be done ashore. Some courses of instruction still require a traditional instructor-led course in a classroom setting, such as bridge resource management, automatic radar plotting, global maritime distress, and train the trainer. These will be conducted along with fast rescue boat and the practical portion of BST through contractor support in a phased approach to permit training of existing crews and new hires to new STCW standards by the deadline of February 01, 2002.

AMHS plans to carry out more than half of the required STCW training using CBT on the installed computer kiosks. Documentation performed by instructor-led, train the trainer qualified AMHS officers, and combined with the practical portion of this training, additional equipment for firefighting and first aid certification will be required. The remainder of STCW training will be given using traditional instructor-led format. (Case studies on American Airlines reported that CBT, as compared with the traditional instructor-led classroom training, could reduce the training cost by 50%. Also CBT could achieve an equal or higher quality level of learning while its content was typically delivered in 40-60% less time than instructor-led training).

The current implementation costs for the STCW are as follows:

1. Cost of software development and hardware installation for the CBT is $2,513,000 (federal participation).
2. Cost for BST training (CBT and Practical for new hires; Practical training only for current employees) is $765,000 (not federal-aid eligible).
3. Cost of instructor-led training tuition is $225,000 (not federal-aid eligible).
4. Cost of employee travel and per diem for instructor-led training is $250,000 (not federal-aid eligible).
5. Items 1-4 yield a total implementation cost of $3,753,000.

The costs for the CBT program and some of its practical training are eligible for FHWA participation, and are being requested. However, AMHS's request for FHWA assistance with instructor-led classroom training and some of the practical training has been officially denied as not eligible for federal-aid funds and must therefore be funded with state funding. AMHS and the American shipping community have only recently become fully aware of the magnitude of this professional training issue.

This proposed project is to fund half of those non-participating training expenses of $1,240,000, or $620,000, during FY 2002. AMHS is reasonably confident that it can fund the routine level of annual STCW training with a nominal increase to its operating base once this large backlog of current required training is accomplished.

FY 2002 request for STCW: $620,000.

Priority deferred maintenance that we are unable to address adequately with our customary level of state CIP funding:

Increase the frequency of ballast tank recoatings sufficiently to halt deterioration.

Estimated annual cost: $200,000.

Repair and rebuild major spare parts such as main shafts and propellers in our storage warehouse so that parts are ready for use when needed.

Estimated total cost of this project: $200,000.

Without additional funding, we will work to complete these items as funding permits, typically on a by-vessel or by-part basis over several years.

Priority improvements that we are unable to address adequately with our customary level of state CIP funding:

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. In the case of the Taku, we would be able to treat the gray water (water from sinks and showers) rather than pumping it overboard untreated as we are doing now.

Estimated total cost of this project: $500,000.

Upgrade electronic communications between ship and shore to bring the fleet fully up to contemporary standards. Building on the existing system would allow AMHS eventually to streamline the flow of supply requisitions, crew timesheets, reports, etc. from ship to shore, and the flow of updated policies, crew records, safety updates, and responses to supply needs from shore to ship.

Estimated total cost of this project: $250,000.

Without additional funding, we will work to complete these items as funding permits, typically on a by-vessel basis over several years.