

**Aircraft and Vessel Repair and Maintenance**

**FY2004 Request: \$1,227,400**

**Reference No: 6121**

**AP/AL:** Appropriation

**Project Type:** Renewal and Replacement

**Category:** Public Protection

**Location:** Statewide

**Contact:** Karen Morgan, Director, DAS

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

**Contact Phone:** (907)465-5488

**Estimated Project Dates:** 07/01/2003 - 06/30/2004

**Brief Summary and Statement of Need:**

Department of Public Safety Aircraft and Vessel Repair and Maintenance. These funds are for the annual repair, replacement and maintenance requirements of this division's aircraft and vessel fleet. For example, the funds will be used to rebuild vessel and aircraft engines and components when they reach the limits of safe useful life. Large marine diesel engines and aircraft engines require expert vendors to rebuild them. Many other components of vessels and aircraft must be maintained or replaced routinely to ensure safe operating conditions.

<b>Funding:</b>	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	Total
Gen Fund	\$1,227,400	\$1,473,443	\$1,514,699	\$1,557,111	\$1,600,710	\$1,645,530	\$9,018,893
<b>Total:</b>	<b>\$1,227,400</b>	<b>\$1,473,443</b>	<b>\$1,514,699</b>	<b>\$1,557,111</b>	<b>\$1,600,710</b>	<b>\$1,645,530</b>	<b>\$9,018,893</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	0
<b>Totals:</b>	<b>0</b>	<b>0</b>

**Additional Information / Prior Funding History:**

Sec 1 Ch 1, SLA 2002, \$1,200.0

Sec 1, Ch 61, SLA 2001, \$900.0; Sec 74(c), Ch 61, SLA 2001, \$300.0

Sec 1, Ch 135, SLA 2000, \$1,063,780

Sec 100, Ch 2, SLA 1999, \$975.0. Sec 131, Ch 139, SLA 1998, \$1,221.5.

Sec 82, Ch 100, SLA 1997, \$600.0. Sec 100, Ch 123, SLA 1996, \$750.0.

Sec 135, Ch 103, SLA 1995, \$750.0. Sec 10, Ch 4, SLA 1994, \$800.0.

**Project Description/Justification:**

**PROJECT DESCRIPTION**

AIRCRAFT REPAIRS

This project allows for some of the yearly purchase of equipment needed to replace worn-out or obsolete equipment such as radios, landing gear, etc. It will purchase overhauls and repairs to department aircraft airframes, landing gear and engines on an annual schedule as well as establish replacement dollars for aircraft determined to be beyond economic repair. This is necessary to ensure that the aircraft are airworthy, safe, and dependable.

For consistency, efficiency and improved accountability, the Aircraft Section has assumed the complete maintenance liability for five aircraft that prior to FY2002, were maintained by the Division of Alaska State Troopers. This includes engines, propellers, new equipment and turbine engine overhauls. Evolving southcentral aviation search and rescue missions require an "emergency locator direction finding system" and a "hand-held infra-red camera system".

VESSEL REPAIRS

This project allows for some of the needed repairs, conversions, servicing, and maintenance for the Patrol Vessels (PV) Stimson, Camai, and the smaller vessels to ensure their safe and dependable operations during FY2004 and beyond. Experience has shown that prudent marine practice dictates routine preventative and annually scheduled maintenance for vessels of this size and class are necessary and cost efficient. As the operational life of some of the vessels are extended maintenance becomes critical to the safety of the vessels and the crew. This project also allows for the purchase of equipment needed to replace worn out or obsolete equipment such as radios, global positioning systems, outboard engines, skiffs, etc. as well as establish replacement dollars for vessels determined to be beyond economic repair. This is necessary to ensure that DPS vessels are seaworthy, safe and dependable.

**PROJECT NEED STATEMENT**AIRCRAFT REPAIRS

The majority of aircraft operated and maintained by the department is quite old. Seventeen planes are over 30 years old, 20 over 20 years, 3 over 15 years, and only 6 less than 15 years of age. Due to their age and FAA requirements, frequent maintenance, parts replacement, and re-fabrication are required.

For the department to carry out its law enforcement and search and rescue responsibilities, it is essential that its aircraft is maintained in an airworthy, safe, and dependable condition. Anything less is unacceptable and could jeopardize the safety and lives of the aircraft pilots and passengers. A minimum level of flying hours must be maintained to meet the department's enforcement objectives. Without adequate aircraft support, the state's fish and wildlife resources will not be protected, and many aspects of the Alaska State Troopers' public safety efforts would be seriously impaired.

The department must have communication equipment that is serviceable and compatible with other existing equipment if it is to accomplish its law enforcement and search and rescue missions. Department personnel must be able to communicate with other aircraft, vessels, ground units, highway patrol vehicles, and the FAA. The FAA requires certain communication equipment. Some radios need to be replaced because they are no longer manufactured and replacement parts are not available, and others are so old (18 years or older) they are no longer compatible with existing communication equipment. The original radios installed from 1973 through 1977 are breaking down more frequently, repair costs are increasing, and some are not repairable and too old to work within the more narrow frequency bands that are used today.

The Global Positioning Systems (GPS) takes the place of the Loran system since the Loran will not work in many areas of Alaska's northern region. The GPS uses 11 space satellites which provides for within 100-foot accuracy, where the Loran must rely on base stations which do not exist in northern Alaska and can be 30-50 miles off. It has also been stated that the Loran system will be shut off in the near future. This equipment is frequently indispensable in search and rescue operations. With the GPS a crime scene can be documented with precise accuracy along with the exact position of a downed aircraft, snowmachiners who are lost or in trouble, and fishing boats in distress.

Aircraft landing gear must be functional, safe, and dependable in order for the aircraft to be certified as airworthy. Landing gear, such as floats and skis, need to be replaced due to heavy use and are either no longer repairable or constantly require major repairs. One landing gear failure occurred this year causing repairs in excess of the landing gear replacement cost.

Adequate funding is essential to maintain a regularly scheduled overhaul and repair cycle for department aircraft. Aircraft maintenance cannot be sporadic and haphazard. This continues to become more critical each year due to the ages of the aircraft. Cessna aircraft and Piper Cubs should receive an overhaul of the airframe every 7 years when operating in a corrosive saltwater environment. In fresh water and inland areas, these airplanes should be overhauled every 14 years, or 5,000 hours, whichever comes first. Any corrosion renders the aircraft unairworthy by manufacturer's standards and FAA regulations. Overhauling the airframes and landing gear will extend the life of the equipment and ensure a safe structural condition of the aircraft, eliminating the chance of an in-flight structural failure, which could cause serious injury or loss of life.

VESSEL REPAIRS

The majority of the vessels operated and maintained by the Division of Wildlife Protection are quite old. Of the 18 operable vessels, 8 have seen less than 9 years of service. One vessel is over 49 years old and scheduled for

replacement in fiscal year 2003. Ten vessels are 10 years or older with three being over 17 years in age. The 20-year-old 121' PV Woldstad is one of the oldest in the fleet and has the most diverse patrol area based in Kodiak and has been proposed to be dry docked in FY2004. As the age of a vessel increases, so do maintenance and repair costs and the frequency of breakdowns. Sufficient funding must be available to maintain the vessels on a regular schedule. Vessels need to be scheduled into shipyards four months or more in advance due to demands for service and the time needed to advertise and select successful bidders. Annual maintenance is necessary to allow the vessels to meet patrol demands.

The 156' Dutch Harbor based PV Stimson is the largest vessel in the fleet and the only enforcement vessel in its class. (A proposal is in place to move the PV Stimson to Kodiak in FY2004.) It requires substantial maintenance to maintain its systems. The Kodiak based PV Camai as the newest large member of the fleet is expected to require only the standard annual maintenance items.

The State fisheries are changing and patrol emphasis for the detachment's smaller vessels are taking on new roles, including increased patrols relating to Federal marine enforcement and Homeland Security concerns. All vessels are used for commercial fisheries enforcement and other trooper duties including search and rescue missions. The increasing demand in operations will impact small vessel maintenance needs. Careful consideration is being given to the cost of maintenance verses the replacement of vessels and equipment. Once a vessel has been determined to be beyond economical repair, funds are needed to provide a method for replacement.

While this Capital Project Request is for FY2004 only, maintaining the fleet is an ongoing process requiring the division to forecast needs based on prudent mariner practices, equipment manufacture recommendations and need assessments as they occur. Reductions to the requested level of funding specified would defer or eliminate needed repairs. This can have a significant impact on the operational capacity of the vessel and increase future maintenance costs. This request is based on what was budgeted in past years and the maintenance and upkeep accomplished to date. Deferred projects are weighed against newer concerns to determine final priority listing for needed maintenance. Repairs to the larger vessels will generally include dry-docking, deck and hull cleaning and anti-fouling paint application, zinc installation, inspection and repair to rudders and propellers, inspection, repair and calibration of electronics, repair to bow thrusters, cooling, intakes and shut-off valves, and tune-ups for the engines. Major engine overhaul is included as needed. Other shipyard repairs may include a wide array of items such as lights, gauges, antennas, switches, drains, railings, ladders, davits, tow bits, picking booms, pot launchers, electrical motors, exhaust and gasket replacement, maintenance of hatches and doors, overhauling cooling systems, service life rafts, and prepare and paint deck housing.

Most of these vessels patrol the high seas all year, from Southeast Alaska to the Gulf of Alaska to the Bering Sea, in various weather and sea conditions. To patrol these fisheries in safe and dependable vessels, the division needs to provide a planned and scheduled maintenance program.

FWP has expanded its role with the inclusion of the Federal Joint Enforcement Agreement, Homeland Security and Boating Safety enforcement concerns. This responsibility covers the largest coastline in the country. The division has arguably the widest patrol area and most complex responsibility of any single law enforcement agency in the nation. The safety of the troopers, the successful enforcement of the state regulations and well being of the citizens of the state depend on this fleet. The fleet is critical to the State of Alaska and must be maintained in operational condition at all times.

## **DOCUMENTATION OF ESTIMATED CAPITAL COSTS**

### **AIRCRAFT REPAIRS**

1. King Air repairs / overhaul	\$254,000
2. Cessna Caravan Amphibian repairs / overhaul	46,000
3. AST Aircraft repair / overhaul (AS350-B3, PA-31, PA-32, 2 each C-172's, C-182, C-185, R-44)	77,463
4. Detachment "A" Aircraft repair / overhaul (2 each PA-18's, C-185)	35,995
5. Detachment "B" Aircraft repair / overhaul (6 each PA-18's, C-185, R-44)	95,987
6. Detachment "C" Aircraft repair / overhaul (10 each PA-18's, 2 each C-185's, C-206 amphil, R-44)	167,978

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7. Detachment "D" Aircraft repair / overhaul (6 each PA-18's, 2 each C-185's)	95,987
8. Emergency/contingency	22,500
AIRCRAFT REPAIR / OVERHAUL TOTAL	\$795,910

**VESSEL REPAIRS**

1. PV Stimson repairs	\$205,000
2. Detachment "A" vessels shipyard repairs	95,000
3. Detachment "B" vessels shipyard repairs	52,000
4. Detachment "C" vessels shipyard repairs	25,000
5. Detachment "D" vessels shipyard repairs	4,500
6. Emergency/contingency	50,000
VESSEL OVERHAUL/REPAIRS TOTAL	\$431,500
TOTAL CIP COSTS	\$1,227,410

In past years, the Aircraft and Vessel Repairs CIP were separate appropriations:

Aircraft CIP History - Budgeted - FY94 \$459,800, FY95 \$400,000, FY96 \$375,000; Combined in FY97 (Aircraft Share) \$398,600, Combined in FY98 (AC Share) \$383,000, Combined in FY99 (Aircraft Share) \$475,200, Combined in FY00 (Aircraft Share) \$478,000, Combined in FY01 (Aircraft Share) \$696,980, Combined in FY02 (Aircraft Share) \$613,250, Combined in FY03 (Aircraft Share) \$600,000.

Vessel CIP History - Budgeted - FY94 \$570,400, FY95 \$400,000, FY96 \$375,000; Combined in FY97 (Vessel Share) \$351,400, Combined in FY98 (Vessel Share) \$217,000, Combined in FY99 (Vessel Share) \$746,300, Combined in FY00 (Vessel Share) \$497,000, Combined in FY01 (Vessel Share) \$402,800, Combined in FY02 (Vessel Share) \$586,750, Combined in FY03 (Vessel Share) \$600,000.

Combined CIP History - Budgeted - FY94 \$1,030,200, FY95 \$800,000, FY96 \$750,000, FY97 \$750,000, FY98 \$600,000, FY99 \$1,221,500, FY00 \$975,000, FY01 \$1,063,780, FY02 \$1,200,000, FY03 \$1,200,000.

**ANALYSIS OF ESTIMATED OPERATIONAL COSTS**

This project will not result in any additional operating costs. This project is for repair, replacement and equipment, and preventive maintenance of existing equipment.

**IDENTIFICATION OF ALTERNATIVES CONSIDERED****AIRCRAFT REPAIRS**

1. Do not complete the overhauls/repairs or replace the worn-out equipment: To not complete the necessary overhauls and repairs or replace the worn-out equipment will result in aircraft being grounded, because they cannot be certified as airworthy by FAA regulations. This will in turn result in reduced or eliminated enforcement patrols and fewer aircraft available for search and rescue missions.

2. Replace existing aircraft: This would not be cost-effective because of the high replacement cost. The cost of one Cessna 185 aircraft, complete with all necessary equipment, would be approximately \$190,000. At this point, it is more cost-effective to do the repairs or purchase replacement items, such as landing gear, than to purchase a replacement aircraft.

**VESSEL REPAIRS**

1. No maintenance: Vessels will have to be tied up or towed into port when breakdowns occur, assuming complete loss of the vessel does not occur. This will cause shifting of other vessels, if available, from their assignments to fill the enforcement void. Should this occur it will increase the number of areas with inadequate or no fisheries enforcement. Such reductions in enforcement will adversely affect fishery resources, management and eventually lead to closures of the fisheries to prevent over harvest and complete destruction of a viable fishery for years to follow.

2. Limited maintenance: Stop-gap repairs or emergency repairs necessary to save the vessel will eventually lead to increased repair costs or complete replacement cost. Unsafe operating conditions may be created. Limited maintenance will mean limited service for the vessel and more frequent temporary repairs and eventually require a longer period of

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time to accomplish full repair, both resulting in less fisheries enforcement, which would have an adverse effect on the resource.

3. Fleet Consolidation: Combine vessel patrol responsibility of some of the larger vessels so as to allow for reduction in fleet size. This would increase maintenance in the remaining vessels due to increased patrols but may reduce overall maintenance needs for the division. This would undoubtedly affect the amount of routine enforcement coverage and increase large vessel response times to issues of immediate enforcement concern.

### **PROJECT EVALUATION STATEMENT**

This project will achieve operational cost savings if it continues to be funded annually. Aircraft and vessels require ongoing maintenance to perform efficiently and cost effectively. Without this maintenance, operational costs would climb due to emergency repairs, increased fuel and oil consumption in addition to the increased risk of unsafe operating conditions. Alternate funding does not exist for this project. Deferment of this project would impact the department by increased down time, missed patrols, etc., in addition to the anticipation that operational costs would raise significantly as time passes without sufficient repair dollars.