

Aircraft and Vessel Repair and Maintenance

FY2003 Request: \$1,872,200

Reference No: 6121

AP/AL: Appropriation

Project Type: Renewal and Replacement

Category: Public Protection

Location: Statewide

Contact: Kenneth E. Bischoff

House District: Statewide (HD 1-40)

Contact Phone: (907)465-4336

Estimated Project Dates: 07/01/2002 - 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 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.

Funding:	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008	Total
Gen Fund	\$1,872,200	\$1,890,939	\$1,909,848	\$1,928,946	\$1,948,236	\$1,967,718	\$11,517,887
Total:	\$1,872,200	\$1,890,939	\$1,909,848	\$1,928,946	\$1,948,236	\$1,967,718	\$11,517,887

<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
Totals:	0	0

Additional Information / Prior Funding History:

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. This is necessary to ensure that the aircraft are airworthy, safe, and dependable.

For consistency and improved accountability, the Aircraft Section has assumed the complete maintenance liability for five aircraft, including Helo 1, that in the past has been maintained by the Division of Alaska State Troopers. This includes engines, propellers, new equipment and turbine engine overhauls. Helo 1's primary duty is search and rescue; therefore there is a great need for an "emergency locator direction finding system" and a "hand-held infra-red camera system".

VESSEL REPAIRS

Accomplish some of the repairs, conversions, servicing, and maintenance for the Patrol Vessels (PV) Woldstad, Stimson,

Enforcer, newly acquired Camai and the smaller vessels to ensure their safe and dependable operations during FY03. Experience has shown that practical marine practice dictates that prudent preventative regular, annual scheduled maintenance for vessels of this size and class is necessary and cost efficient for the State. As the operational life of some of the vessels are extended this maintenance has become 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.

PROJECT NEED STATEMENT

AIRCRAFT REPAIRS

The majority of aircraft operated and maintained by the department are quite old. Thirteen planes are over 30 years old, 19 over 20 years, 7 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.

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.

To comply with State DEC regulations, the Aircraft Section must close and seal an underground fuel storage tank located at our remote facility of Pumice Creek. The need still exists for the storage of aviation fuel, therefore a replacement tank consistent with current regulations must be put into place.

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 8 years of service. One vessel is over 48 years old, three vessels are over 16 years old, and with the exception of three, the remaining 3 are older than 11 years. The 19-year-old 121' PV Woldstad is

Aircraft and Vessel Repair and Maintenance**FY2003 Request: \$1,872,200****Reference No: 6121**

one of the oldest in the fleet and has the most diverse patrol areas based in Kodiak. The annual maintenance is necessary to allow the vessel to meet the patrol demands. The Ketchikan based 48-year-old 65' PV Enforcer is the oldest member of the fleet and is requiring substantial general maintenance in order to keep the vessel operational. The 156' Dutch Harbor based PV Stimson is the largest vessel in the fleet and the only enforcement vessel in its class. It requires substantial maintenance to maintain its systems. A fire system modification is projected to be installed to help protect the communities that it patrols. The Kodiak based PV Camai as the newest member of the fleet is expected to require only the standard annual maintenance items. As the fisheries change, the detachment's smaller vessels are taking on new demands and the operations are increasing. Careful consideration is being given to the cost of maintenance verses the replacement of the various vessels. Once a vessel has been determined to be beyond economical repair, funds must be established to provide a method of replacement.

All vessels are used for commercial fisheries enforcement and other Fish and Wildlife Protection duties including search and rescue missions. 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.

This Capital Project Request is for FY03 only, any reduction to the level of funding specified would eliminate needed repairs. The FY02 CIP "Major Vessel Repair" dollars have been appropriated and work has begun. All other projects are awaiting bids and priority listings for the needed maintenance. Repairs to these 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. Repairs to lights, railings, tow bits, picking booms, pot launchers, service of the controllable pitched propellers, exhaust replacement, new gasket replacements or maintenance holes and doors, overhaul cooling systems, repair and service life rafts, repair antennas, prepare and paint deck housing, repair ladders and davits, repair or replace gauges, switches, drains and electrical motors, furnish labor and material as required. 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 and enforces the largest coastline of the country, as a result, the fleet has a wide patrol area and responsibility. The fleet is responsible for the safety of the troopers and the enforcement of the state regulations as well as providing for the well being of the persons of the state who partake in the hunting and fishing. The patrols are critical operations of enforcement and the vessels must be operational at all times.

DOCUMENTATION OF ESTIMATED CAPITAL COSTSEQUIPMENT ACQUISITION

1 ea. Emergency Locator direction finding system - Helo 1	\$ 16,800
1 ea. Hand-held infra-red camera system - Helo 1	18,100
SUBTOTAL	34,900

AIRCRAFT REPAIRS

1 ea. Replacement 1,000 gallon fuel tank for Pumice Creek	\$ 25,000
2 ea. Global Position Navigation System Garmin 295 with Alaska Database equipment @ \$2,000 ea. (1 of 4)	4,000
4 ea. Garmin GNS 420 Nav/Comm Global Position System (39 aircraft) @ \$5,460 ea.	21,840
2 ea. Garmin GNS 430 IFR Nav/Comm Global Position System @ \$6,500 ea.	13,000
6 ea. Piper Cub landing gear replacements @ \$500 ea. (6 of 23)	3,000
6 ea. Global Position Navigation System 2000 equipment @ \$950 ea.	5,700
1 ea. Set of spare parts and tooling for R-44 Helicopter @ \$12,000 ea. (1 of 3)	12,000

Aircraft and Vessel Repair and Maintenance**FY2003 Request: \$1,872,200**
Reference No: 6121

4 ea. 3-bladed propeller replacement blades of Cessna @ \$6,500 ea.	26,000
1 ea. 2-bladed propeller replacement blades for Cessna @ \$5,500 ea.	5,500
4 ea. Propeller replacement blades for Piper PA-18 @ \$2,200 ea. (35 props)	8,800
4 ea. Replacement 110 gallon bulk fuel tanks @ \$800 ea.	3,200
4 ea. Replacement fuel pump for bulk fuel tanks @ \$800 ea.	3,200
6 ea. Piper Cub tundra tires, wheels, and brake replacements @ \$4,095 ea.	24,570
3 ea. Wipaire 2000 floats and rigging for Piper Cubs @ \$26,000 ea. (3 of 13)	78,000
SUBTOTAL	233,810

OVERHAUL/REPAIR COSTS

1. Contract for corrosion work on one of seven Cessna 182 @ \$12,000 ea.	12,000
2. Contract to overhaul two PA-18 Cub airframes @ \$35,000 ea.	70,000
3. Contract to overhaul four PA-18 Cub engines @ \$16,000 ea. (4 of 23)	64,000
4. Contract for major overhaul/repair of two turbine engines for King Air 200 @ \$45,000 ea. (Phased)	90,000
5. Contract for repair on one Cessna engine @ \$30,000 ea.	30,000
6. Contract for turbine engine and parts overhaul for Bell LR-3 @ \$40,000	40,000
7. Contract for repair on four Cessna engines @ \$18,000 ea.	72,000
8. Contract for intermediate repairs (hot section inspections, etc) of four turbine engines @ \$31,500 ea.	126,000
9. Contract for repair on Robinson helicopters @ \$60,000 ea.	60,000
SUBTOTAL	564,000
AIRCRAFT OVERHAUL/REPAIRS TOTAL	\$832,710

VESSEL REPAIRS

1. PV Stimson repairs	\$ 400,660
2. PV Woldstad repairs	253,300
3. PV Enforcer repairs	126,375
4. PV Camai repairs	32,825
4. Detachment "A" vessels shipyard repairs	68,710
5. Detachment "B" vessels shipyard repairs	22,500
6. Detachment "C" vessels shipyard repairs	12,500
7. General detachment contingency	11,500
8. Administrative	42,600
9. Emergency/contingency	50,000
VESSEL OVERHAUL/REPAIRS TOTAL	1,020,970
TOTAL CIP COSTS	\$1,853,680

The prices estimated only reflect the purchase of the radio equipment. They do not include the considerable cost and down time involved with the installation of the equipment.

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.
 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 (Aircraft Share) \$586,750.
 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.

ANALYSIS OF ESTIMATED OPERATIONAL COSTS

This project will not result in any additional operating costs. This project is for repair, replacement parts 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 time to accomplish full repair, both resulting in less fisheries enforcement, which would have an adverse effect on the resource.

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.