



Alameda Fire Department

Investment Justification-Fire Boat Replacement

February 7th, 2021 – Fire Chief Nicholas Luby

Submitted to City Manager Eric Levitt

BACKGROUND

In September 2012, the Fire Department ordered a 32' Harbor Guard Fire Hawk vessel to replace a smaller vessel sold to the City of Sant Cruz in February 2012. The new vessel increased AFD pumping capacity from 500 GPM to 2200 GPM, the department took delivery of the Harbor Guard Fire Hawk in early 2014, and it was christened on February 18th, 2014. The vessel was named the Deanna Jo. The vessel has served the City of Alameda and our regional partners for over eight years. The Deanna Jo is the third fireboat to serve the City of Alameda in modern times. After Deanna Jo was placed in service Harbor Guard boat manufacture ceased operations and is no longer manufacturing boats.



32' Fire Hawk "Deanna Jo"

PROPOSAL/DISCUSSION

The Fire Department is seeking funds to replace the current fireboat to ensure we have a reliable platform to provide critical marine response capabilities to the community, improve our floating platform for dive rescue operations that reduces the reflex time to deploy a diver, and increase our emergency water supply pumping capabilities to sustain firefighting needs in the event the island loses water supply post-earthquake. The proposed vessel is a 38' Moose Boat M2 with a pumping capacity of up to 4100 GPM and the capability to operate in the shallows surrounding Alameda due to being a jet-driven vessel (not prop-driven). [Moose Boat link](#)



Moose Boat M2 – Tiburon FD



Moose Boat M2 – San Francisco FD

With the City of Alameda comprised of three separate islands and one peninsula, it has 24 miles of waterfront to protect. The City also has 12.5 square miles of waterways within the city limits and the fire department operational area. With these geographic challenges, the department has an ongoing requirement to maintain a fireboat to serve the following community needs:

- Provide primary water supply for the City of Alameda in the event of a loss of water mains in a catastrophic earthquake or other disasters. The fireboat can supplement firefighting water needs if existing infrastructure is overwhelmed. According to the HayWired Study conducted by the US Geological Survey (USGS), the Hayward fault experiences a major earthquake every 100-220 years; the last one was 152 years ago. The study also predicts that the region will experience over 400 fires (up to 52,000 residential structures burned), and communities will be without water supplies for up to 6 months. [HayWired video link](#)
- Waterfront infrastructure fire protection for commercial and private real estate, including marinas, houseboat communities, business and residential structures located along the waterfront. Alameda has one of the highest number of boat slips per capita of any city in the world (SF Business Times 2008).
- Regional maritime fire and rescue services to passenger vessels (ferries and terminals), shipping vessels, and small craft operating in the 12.5 square miles of waterways that the department is responsible for under their Exclusive Operating Area (EOA).
- Response support to the waterways surrounding the Oakland and San Francisco Airports in case of an aircraft crash or water landing.
- Provide marine emergency medical services, search, and rescue as needed in the AFD EOA.
- Oil/fuel spill mitigation assisting with CA Office of Spill Prevention and Response (OSPR) boom deployment that has been strategically located in the region (3000 feet of boom located in Oakland).
- Command and control platform for HazMat, weapons of mass destruction, terrorist incidents, shipboard fires, or other major emergencies in the waterways surrounding the City of Alameda.
- Provide the ability to rapidly deploy the fire departments rescue divers and provide an excellent platform to support the divers and victims when recovered.
- Provide regional mutual aid to neighboring jurisdictions and United States Coast Guard.
- Provide primary fire protection responsibilities for Coast Guard Island and the following USCG Cutters: Bertholf, Waesche, Stratton, Munro.



Boat Fire Alameda Marina - 2019

The need to replace the Fire Hawk is based on three current challenges.

1) Emergency Water Supply

The current vessel has a limited pumping capacity of 2200 GPM. The proposed replacement vessel would increase the fireboat pumping capability to an estimated 4100 GPM, close to doubling our capacity. It would achieve this by using two separate pumps powered by dedicated diesel engines adding resiliency to this pumping platform. The current vessel has a single pump and engine combination. If this system fails, the current vessel will not support emergency water supply needs. The proposed vessel will be capable of supplying two 5" water hoses that could be routed to separate areas of the City in need of firefighting water. The current vessel can only support one 5" hose. During training, it was noted that the current vessel would be challenged to meet significant volume water pumping needs if tasked. The long-term vision for sustainable emergency water supply on the island will be a multi-faceted approach utilizing the department's current water tenders, procurement of a fireboat with an increased pumping capacity, and the addition of a Portable Water Supply System (PWSS). The PWSS would be vehicles that carry up to 6000 feet of hose, portable fire hydrants, and a deployable auxiliary pump. The department will be seeking grant funding for the PWSS.



Portable Water Supply System Vehicle Example

2) Vessel Design and Maintenance Needs

The original design of the Fire Hawk (Deanna Jo) was primarily for lake and freshwater utilization. Very few Fire Hawk vessels are being used in the saltwater marine environment that our vessel is currently operating. A 2021 survey of the vessel identified 57 items that need to be



addressed on the boat. Some are minor, and others are more extensive due to the age and environment the boat operates. Additionally, the two outboard motors are approaching their public safety life span. The cost to replace both motors is approximately \$70,000, in addition to the cost associated with the other maintenance items listed on the worklist (Appendix A).

3) **Dive Rescue Response and Platform**

The current vessel was not designed to support dive rescue operations and does not have room to permanently store the dive equipment on the boat. The AFD dive rescue program went into service after purchasing the Fire Hawk. The proposed vessel is larger and configured to store the required dive equipment to support a rapid response of the team. Currently, crews must shuttle equipment from landside to the boat on multiple trips before getting underway for a dive rescue response, creating a 10-15 min delay. The proposed vessel will be configured with a rear dive platform and does not utilize props for propulsion, making it much safer for AFD divers. San Francisco Fire Department has a dive rescue program similar to AFD and specifically chose the Moose Boat M2 to support their dive rescue needs.

CONCLUSION

The Fire Department needs a replacement fireboat to ensure we maintain current capabilities and enhance our ability to build resiliency for large-scale disasters and technical responses. It is expected to take 18-24 months for the new boat to be placed in service if funded. If funding is not identified for a replacement vessel in FY 22-23, the City will need to allocate funds to overhaul the current vessel to prolong its service life. It is roughly estimated that motor replacement and completion of worklist items will be approximately \$120-\$150K. Replacing the motors and conducting repairs on the vessel will prolong its serviceability, but reliability may continue to be challenging as the vessel ages. Keeping the current vessel will not address the need for increased pumping capacity or dive rescue support.

For questions or additional information, contact Fire Chief Nicholas Luby at nluby@alamedaca.gov.

Respectfully,

A handwritten signature in black ink, appearing to read "Nicholas Luby".

Nicholas Luby

Fire Chief

Alameda Fire Department



APPENDIX A

2014 harbor Guard Fire hawk 32 / DEANNA JO

WORK-LIST as of August 2021

MARINE SURVEYS

SHARPE SURVEYING & CONSULTING

Immediate Safety or Regulatory Issues

1. Replace the corroded hose clamps on the generator and air conditioning system seawater intake hoses.
2. Install a ball valve on the fire pump housing for the pump engine cooling water intake.
3. Modify the engine room ventilation ducts with the supply duct removed from the blower to provide a high supply vent, and the exhaust vent duct extended to a low point in the compartment bilge above the normal level of water accumulation.
4. Install proper fuse protection on the unfused small wires attached to the battery terminals.
5. Install warning labels adjacent to the fire pump starter and generator starter to warn to operate the engine room ventilation blowers prior to starting these engines.
6. Service and tag the two portable fire extinguishers.
7. Remove gear in the lockers adjacent to the portable fire extinguishers so that they are readily accessible for use and label the outside of the lockers showing their locations.
8. Install a marine carbon monoxide detector in the cabin.
9. Mount the two ring buoys on the vessel exterior when underway.
10. Carry valid visual distress flares.
11. Mount an oil discharge placard or garbage placard on board.

Items to maintain or improve the condition and value of the vessel or to bring it into compliance with the latest ABYC standards.



These are in order by category not by precedence

1. Remove the obsolete state registration numbers on the cabin sides.
2. The hull bottom should be stripped to bare aluminum and coated with proper preservative coatings compatible with the aluminum hull.
3. Repair any pitting found when the hull bottom is stripped.
4. Repair the peeling fairing compound in the topside's coatings.
5. Raise the bottom coatings to a uniform line above the deteriorated topsides coatings along the chine to allow the intact coatings on the upper parts of the topsides to remain while addressing the peeling fairing compound.
6. The blistered and peeling paint coatings on the decks, bulwarks, and deck house should be scaled to bare aluminum and renewed or left bare.
7. Thoroughly clean the accessible interior hull surfaces and preserve the areas of the bilge that may remain wet with zinc primer coatings.
8. The bilges should be kept clean and dry to slow the natural corrosive process.
9. The anchor locker should be cleaned out and drainage restored.
10. Renew the cracked loose upper part of the plastic door coaming into the forward utility locker.
11. Renew the partly broken away plastic vent cowls on the inside of the cockpit bulwarks.
12. Scale and preserve the surface corrosion at the fire pump seawater intake connection.
13. Add a strainer to the fire pump motor seawater cooling water intake.
14. Mount a suitable reboarding ladder on board to assist in recovering someone from the water so it can be deployed by a person in the water.
15. Service the fire pump motor in accordance with the manufacturer's recommendations.
16. Routine maintenance for the engine should also include inspection of the exhaust manifolds and risers due to age.
17. Remove the obsolete heat exchanger on the back of the pump motor and renew the cooling water hose with a continuous length of hose.
18. Install an automatic or manually released fixed firefighting system in the engine room.
19. Install a smoke detector in the cabin.



20. The inoperable manual switch for the engine room bilge pump should be renewed.
21. The surface abrasions on the paint coatings on the lower legs and skegs of the outboard motors should be prepared and preserved with zinc primer.
22. The surface corrosion on the exterior of the thruster motor should be scaled and preserved.
23. Label the fuses installed in tiny wires attached directly to the batteries.
24. Label the fuses mounted on the forward bulkhead of the engine room.
25. The corrosion should be cleaned from the wire connections on the fuse blocks adjacent to the battery switches and the wiring preserved.
26. Renew the inoperable two starboard red and white lights on the front of the pilothouse.
27. Seal the ends of the unused wires routed from the engine room to the utility locker with heat shrink tubing.
28. The missing cover for the shore power inlet plug should be renewed.
29. Service the generator in accordance with the manufacturer's recommendations.
30. The loose shroud over the generator water pump pulley should be properly reinstalled.
31. The corroded battery charge isolator should be renewed.
32. The charging wiring from the battery charger, from the two outboard motors, from the generator, and from the fire pump motor should be traced to determine how they are connected to the four battery banks.
33. The battery wiring should be simplified as noted in the body of the report.
34. The extra wires currently attached to the battery terminals should be traced, and labeled.
35. Operation of the VSRs next to the battery switches should be verified to determine if they charge the house battery bank as designed with either engine operating.
36. The non-essential wires connected directly to the batteries should be removed from the batteries and powered from a proper source via the battery switches and proper overcurrent circuit protection.
37. Where more than one wire is connected to a single terminal the largest wire should be installed first followed by progressively smaller wires.
38. There should be no more than four wires connected to any single terminal.
39. Install a substantial negative bus bar mounted on an insulated backing block and connect



each of the battery negative terminals to this primary negative bus, along with connection to the engine negative terminals, and house negative bus wiring.

40. The water should be emptied from the battery boxes.

41. Place a rubber mat that drains in the anchor locker to isolate the anchor and chain from the bottom of the locker.

42. The inoperable side navigation lights should be repaired and securely mounted.

43. The inoperable up and down adjustment for the starboard spotlight should be repaired.

44. Carry back-up paper charts for the intended operating area.

45. Tide and current tables should be carried.

46. The metallic gear stowed in the utility locker should be stowed away from contact with the aluminum hull and deck to reduce corrosion.