

## Cost Research for Annual Cost of a Fire/Rescue and All-Hazards Boat

-Where will it be stored

South Shore Harbour has promised us a boat slip for free if we get a fire boat. Should we need to store it out of the water for any period of time, it will be kept behind fire station three in the parking lot.

Cost: \$0

-How much will the storage cost

Cost: \$0

-What will be needed to tow it

The fire department has several three-quarter ton and one ton pickups that can tow the boat when it is on the trailer.

Cost: \$0

-What will it cost to maintain (and operate), especially if it is berthed in a slip

Because it's berthed in a slip, it will cost around \$1,400 (as quoted by a local full-service provider) to have the hull cleaned and sealed annually, if needed. In addition, pump testing will have to be completed annually per NFPA standard 1925<sup>4</sup>. The department is currently paying \$250 per fire pump test. This would be timed to happen at the same time as the annual pump motor maintenance which costs approximately \$1,000 (per phone survey with Kemah Fire Department). The twin outboards will also have to have annual maintenance which, coincidentally, costs about \$1,000 (per phone survey with Kemah Fire Department). These costs include the pulling of the boat out of the water and labor. The first year requires two maintenance costs; a 20-hour maintenance and a 40-hour maintenance for proper break-in of the outboard motors.

Hull maintenance	\$1,400
20-hour maintenance of outboard motors	\$2,000
40-hour maintenance of outboard motors	\$2,000
Pump test and pump motor maintenance	\$1,250

Cost: 1<sup>st</sup> year: \$6,650

Hull Maintenance	\$1,400
Annual outboard motor maintenance	\$2,000
Pump test and pump motor maintenance	\$1,250

2<sup>nd</sup> year and beyond: \$4,650 per year

The cost for fuel is estimated to be \$5,000 per year. The boat fuel tank holds 250 gallons of fuel so the initial fill up will cost  $250 \times \$3.259$  (at South Shore Marina as of 06/12/2019)<sup>1</sup> for a total cost of \$814.75. From that time forward, the tank will need to be topped off after every use to prevent water vapor condensation in the fuel tank. Estimating the use of 50 gallons per month for routine exercise of the boat motors and any emergency calls, an additional cost of approximately \$2,000 can be expected per year ( $50 \text{ gals.} \times \$3.259 \times 12$ ). With this base estimate of fuel costs and with the anticipation of some occasional prolonged emergency work times and training exercises, an annual fuel budget of \$5,000 would be well within expectations in some years.

Cost: **\$5,000 per year**

- Who will operate it and how will they respond to use it when needed (i.e. will they drive straight to a marina in a personal vehicle, will they crew an engine and then respond to the boat, etc.)

Based on the type of call, members will respond according to the Special Operations SOP. In some cases, some members will respond directly to the marina but, in case of a rescue, a couple of crew members will respond to the station to pick up wet suits and/or other equipment pertinent to the call type. For fire calls, the on-duty crew will respond from the station to the marina with the apparatus and board the boat with bunker gear. Only trained boat operators will be allowed to drive the boat and operate the fire pump.

Cost per year: **\$0**

- What is the life of the gear before it must be refitted or upgraded, and at what cost (not just firefighting gear, but gas meters, etc.)

NFPA has no requirements that a fire boat be replaced due to its age. Kemah and Seabrook's boats are 20 years and older and still fit for duty with the proper maintenance. That includes the drive motors and the pump motors. The warranty for most fire boats is 10 years on the boat structure with the exception of Boston Whaler which has a lifetime warranty. Aluminum-hulled boats have an expected life span of 30 to 50 years depending on how well they are maintained<sup>2</sup>. Outboard motors have an estimated life of 10 years on average (1,000 hours/100 hrs. per year)<sup>3</sup>. With good maintenance, the life can be much longer. The radiation detection equipment will be part of the ensemble as part of a homeland security grant and can be replaced at its end of life by the Department of Homeland Security if they still see the need. It is possible the Department of Homeland Security will replace the radiation detection pack for not cost to the City. The radiation detection equipment requires calibration annually for a cost of \$150. The gas and vapor detection monitors are rented by the fire department for \$1,500 per and the rental price includes annual calibration. The life of radios, light bars, sonars can be estimated to be about 10 years due to exposure to weather and possible salt spray.

Cost: Approximately **\$40,000** (for the radiation detection equipment after 10 years or so); **\$1,500 annually** (for the gas detector rental and calibration)

Amortization of the fire boat: The sample estimate being used for this grant proposal shows the boat itself to cost \$165,804. If we take the lower life expectancy of 30 years, then the amortization for a sinking fund or vehicle replacement fund would be \$5,526.80 per year. All other components have a different life expectancy. However, the outboard motors would probably need to also be considered for a sinking fund. In this case, twin Mercury's as proposed by the vendor cost 41,990 divided by the 10 years life expectancy equals \$4,199. Neither of these figures account for any inflation calculations.

Annual amortization of the boat:	\$5,526.80
<u>Annual amortization of the motors</u>	<u>\$4,199.00</u>
Total per year:	\$9,725.80

What will be the cost of insurance if a fire boat is added to the City's fleet?

A quote was requested from TML for additional insurance should we secure a 30 foot aluminum hull fire boat with two outboard motors worth \$400,000 and the quote came in at \$1,895 per year.

Cost: \$1,895 per year

- Will there be special firefighting bunker gear needed to man the boat, and at what cost

No special firefighting bunker gear will be needed to man the boat. However, rated life preservers will be mandatory for all personnel on board. NFPA Standard 1925<sup>4</sup> requires firefighting air packs and hand tools be available for firefighters on board a fire boat but those will be brought on the responding fire apparatus to the marina.

Cost: \$0

- What will the draft of the boat need to be to stabilize it against the force of the water canon

The draft of the boat is 12 to 14 inches, however, the counter thrust to the deck gun when flowing a firefighting master stream will be managed by the geosynchronous guidance system utilizing the twin outboards to hold the boat's position automatically.

Cost: \$0

- What funds will be used for the City's \$109,000 matching portion

If awarded, the fire department would ask for a budget amendment to cover the matching funds or request to use the water bill donation fund, if the volunteer membership will support it.

Cost: \$109,00 or less depending on the actual cost of the fire boat

- What will the continuing budgetary implication be annually

Maintenance and Fuel:	\$9,650
Gas Detector Rental:	\$1,500
Misc. repairs and upgrades	\$1,000
Insurance	\$1,895
<u>Amortization</u>	<u>\$9,726</u>
Total Cost Annually	23,771 per year

## References

1. [www.waterwayguide.com/fuel-price-report/11](http://www.waterwayguide.com/fuel-price-report/11)
2. [Jonboatplanet.com/how-long-will-a-jon-boat-last/](http://Jonboatplanet.com/how-long-will-a-jon-boat-last/)
3. [www.discoverboating.com](http://www.discoverboating.com)
4. NFPA Standard #1925 – Marine Firefighting Vessals