Old Lyme Fire Department

Marine Risks: Assessment and Response

FY2009 Capital Budget Request
Fire/Rescue Boat

Boat Fire, Sound View Beach, Summer, 2007

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Executive Summary

Introduction - This capital budget request is for purchasing and equipping a dedicated fire/rescue boat. This boat will provide fire suppression in the waters surrounding Old Lyme and it's near shore structures. In addition, the fire/rescue boat would be configured and equipped to respond to a variety of marine search and rescue missions.

Marine Risk Factors & Incident History - The proposal begins by discussing the nature of the risks presented by in Old Lyme's marine and near shore environment. It continues by reviewing the major marine emergencies that have occurred over the past several decades and presents call statistics for old Lyme and surrounding towns for the past 5 years. The key point here is that while the call volume is low the threat to life and property is high. In fact, over the past several decades, there have been more fatalities in the waters surrounding Old Lyme that on Interstate 95.

Mission Profile for the Fire/Rescue Boat – Here we discuss the types of missions a fire/rescue boat would be expected to perform.

The Fire/Rescue Boat – Specifications & Costs - We are proposing the acquisition of a 25 ft. Munson Packman with twin 115 hp outboard motors. In addition to normal marine electronics and supporting equipment the fire/rescue boat would be suitably equipper for marine and near shore fire suppression and marine rescue. The total cost for this boat is $165,000. To put this into perspective, the acquisition cost works out to be about $35.82 for each of the 4,606 houses in Old Lyme. If we prorate the cost over the boat's estimated 25 year service life the cost works out to be $1.25/house/year.

Annual Operating Costs – The estimated operating costs for the fire/rescue boat are $5,790 per year. In addition it is likely that the outboard engines will have to be replaced once during the boats estimated 25 year service life. The prorated cost of replacing the outboard motors and an allowance for replacing marine electronics is included in the estimate of annual operating expenses. To put this into perspective, the annual operating cost for the fire/rescue boat works out to be about $1.250 per year for each of the 4,606 houses in Old Lyme.

Operational Considerations – It's all well and good to acquire a piece of equipment. However, if the department isn't able to effectively use and maintain the equipment then it's simply a waste of money. In this proposal we outline the marine experience and qualifications of the Old Lyme Fire Department. In our department we have two extremely well qualified Coast Guard Captains, one certified US Sailing power boat instructor, and 37 members holding the Connecticut Safe Boating Certificate. In terms of medical qualifications we have one medical doctor (MD), eleven Medical Response Technicians (MRT) and eight Emergency Medical Technicians (EMT).

Funding Strategies – The last thing we consider are a number of strategies for funding the fire/rescue boat. We outline our past attempts to secure grants and examine a number of strategies that would avoid, or at least minimize, the cost to the taxpayers of Old Lyme which, we should point out, include the members of the Old Lyme Fire Department. It's our conclusion that the most viable strategy, all things considered, is to fund the fire/rescue boat with an appropriation of $165,000 in the FY2009 Capital budget. This will enable the Old Lyme Fire Department to acquire and equip the fire/rescue boat for the upcoming boating season.

Marine Risk Factors

The Old Lyme Fire Department is dedicated to providing fire/rescue services to the approximately 7500 citizens of Old Lyme and all its visitors which, during the summer months, can reach close to 17,000. From early spring until late fall there is a potential need to respond to a variety of marine emergencies. Old Lyme has approximately 9.5 miles of shoreline; 4.35 miles on Long Island Sound and 5.25 Miles on the Connecticut River. In addition, Old Lyme contains several small lakes (Black Hall and Rogers) and tidal rivers (Black Hall and Lieutenant). Clearly a major appeal of Old Lyme is its marine environment. Conversely, this environment presents some very real risks to life and property. In assessing the need for emergency responses the first step is to survey the environment and identify potential risks. These risk factors are commonly associated with a particular resource (e.g., marina), activity (e.g., boating), or legal/economic considerations (e.g., mutual aid commitments)

Resource Based Risk Factors

Marinas – Old Lyme has three marinas on the Connecticut River (Old Lyme Marina, Old Lyme Dock Company and the DEP Marine Headquarters). There are several other marinas on our smaller rivers (e.g., Black Hall Marina on the Black Hall River). In addition, there are fifteen marinas within our mutual aid response communities. The fire danger posed by marinas is somewhat higher than a typical commercial facility. This is due to the fact that they store and dispense fuel. They also store a variety of volatile and hazardous chemicals. Then each boat in the marina has the potential to explode (gasoline engines) or catch on fire (both gasoline and diesel fuel). Also, many boats have a variety of volatile and hazardous chemicals onboard; materials that pose both a fire risk and the risk of a hazardous materials incident.

Shoreline Structures – These structures, like structures located anywhere in town, can catch fire. On special concern for many of the shoreline homes is the small lot size with homes located quite closely together. This fact, coupled with prevailing southerly winds in the summer represents a somewhat elevated fire risk. In addition there is only very limited water supply from fire hydrants in this area. We are currently meeting the water supply needs with our tanker-shuttle capability, allowing 700 gallons per minute flow for fire-suppression activities. However, for the tanker-shuttle to be effective good road access is required; something that is often not the case in the shoreline environment.

Interstate 95 (Baldwin) Bridge – It's possible, although a bit unlikely, that a collision on the bridge could cause one or more vehicles to be thrown over the side and into the river below. An unlikely, but not impossible scenario is for the bridge to collapse; throwing many vehicles and victims into the river below. The Connecticut DOT issued a report, following the collapse of the Interstate Bridge in Minneapolis, which showed deficiencies in local bridges. The report evaluates three elements of a bridge (the deck, the superstructure and the substructure) and rates each on a 9 point scale; 9 being excellent and 4 and below being poor. While this is a bit unsettling to contemplate we should remember that the Baldwin Bridge decks are rated as a 7 (good) while the superstructures and substructures are rated as a 6 (satisfactory). A more likely incident, unfortunately, is a person jumping, or a person presumed to have jumped, from the Baldwin Bridge.

Route 1 Bridge over Lieutenant River – It's worth pointing out that this bridge received a lower rating than the Baldwin Bridge. The deck was rated as a 6 (satisfactory), its superstructure was rated as a 4 (poor), and its substructure was rated as a 5 (fair). Clearly a collapse of this bridge would be significantly less catastrophic than the collapse of the Baldwin Bridge but this possibility remains a marine risk factor.

Amtrak Bridge (Old Lyme Draw) – Six things can happen here: (1) the bridge can catch on fire, (2) a train can derail and fall into the river, (3) the bridge can collapse without a train present, (4) the bridge can collapse with a train present, (5) a large boat and/or barge can collide with the bridge, and (6) two or more boats can collide in the narrow channel under the draw bridge. All of these events have happened with Amtrak bridges in the past and they will, no doubt, happen in the future.

Marsh Fires – The marshes along the Connecticut River represent an obvious fire hazard. This hazard is especially elevated during periods of drought, or near drought conditions, like those that occurred this past summer. It would be possible to just let the fire burn until all the marsh grass was consumed. However, this would cause an unnecessary loss of critical wildlife habitat. Such an occurrence would affect the entire ecosystem; from micro-organism to the recovering Osprey population. In addition, such a fire, if not suppressed in a timely fashion, would release an unnecessarily large amount of combustion by-products into the marine environment. In addition, it would expose an unnecessarily large area to subsequent erosion making habitat recovery more problematic.

Hazardous Materials - The Old Lyme Fire Department is responsible for initial Hazmat response to I-95, the Northeast Rail Corridor, the Connecticut River and Long Island Sound. Establishing incident command, available Hazmat assets would be mobilized through the State Department of Environmental Protection and CERRIT (Connecticut Eastern Region Response Integrated Team).

Activity Based Risk Factors

Small Watercraft Misadventures - The beach communities, as well as those surrounding Rogers Lake and the Lieutenant and Black Hall Rivers, are a focus of aquatic sports, involving numerous kayaks, canoes, sailboats of all sizes, small and large powered water-craft, including jet-skis, some of which result in misadventures. Every spring, summer and fall, the OLFD engages in numerous search and rescue operations for operators and passengers in these vessels. There are also many of these incidents in our mutual aid area.

Boat Traffic on the Connecticut River – A significant potential of collision between large fast boats, small fast boats, and anything in between exists on the Connecticut River and Long Island Sound. This danger is highest on Saturday and Sunday in June, July and August. A high volume of boat traffic going up and down the river, coupled little or no police presence on the river, create situations that are, quite frankly, perilous.

Air Craft Crashes – Long Island Sound and, to a lesser extent the Connecticut River, have many types of aircraft (large jets, small jets, propeller driven aircraft, seaplanes, ultralights and helicopters) flying over at all hours of the day and night. Unfortunately aircraft sometimes crash. When they crash into water a marine rescue, with the possibility of fire suppression, is needed. Such an incident could have the potential for a good many victims.

Commercial Shipping - All shipping to New Haven, New London, Groton and Bridgeport, the major Connecticut seaports, must pass along our shoreline with the possibilities of groundings, oil spills, and large vessel-fires region. Fuel oil barges, like the one that collided with the Amtrak Railroad Bridge last summer, and fireworks barges regularly transit the Connecticut River. Cruise boats, large and small, regularly carry a great many passengers along our portion of the Connecticut River (e.g., the Connecticut River Museum's "River Quest" observation boat). Long Island Sound is a major route for the transportation of hazardous substances. And all of this exists before the potential transit of large LNG tankers.

Legal/Economic Risk Factors

Mutual Aid Commitments – Our mutual aid responsibilities to both the Valley Shore Mutual Aid Association and the New London County Fire Chiefs Association represent over 37 miles of shoreline and 125,000 people. Just as other communities come to our aid during marine emergencies we need to be in a position to reciprocate. Currently, Old Lyme cannot support fire suppression, nor search and rescue missions, in our mutual aid area. This leaves a major gap in our ability to protect our shoreline communities and our numerous risk points as outlined in this request. As a practical matter, at the very least to ensure first responder safety, any marine incidents in our response area and mutual aid calls for a response of all available marine units.

Rising Fuel Prices – Experience documented by the marine insurance industry indicates that there is a positive correlation between rising fuel prices and boat sinkings and boat fires. Thus, we should expect to see more, rather than less, boating problems going forward.

Major Marine Emergencies 1990 – 2007

Marine incidents, while few in number (fortunately), are high in actual or potential damage to people and their property. To put things into perspective it's important to realize that more people have perished in Old Lyme's waters over the past several decades than on Interstate 95. The historian Arnold Toynbee is credited with the observation that "those who forget history are doomed to repeat its failures". So perhaps a little history would be in order.

Amtrak Railroad Bridge: Fires – Over the past fourteen years there have been two serious fires on the Amtrak railroad bridge (known as "Old Lyme Draw" to the boating community on channel 13) spanning the Connecticut River. On 11/15/1992 fire broke out in the center span of the bridge that took three hours to bring under control. Rail traffic between New York and Boston was shut down for four hours. Mutual aid assistance was provided by three towns, including their marine units. Just five years later another fire broke out on the Old Lyme side of the bridge that took two hours to bring under control. During this emergency the Coast Guard dispatched a pickup truck with a portable fire pump. They explained that the sea state made a marine response from New London (18 nautical miles away) impossible. The damage from this fire is still visible on the timbers on the east side of the channel under the bridge tender's house.

It's worth noting that an Amtrak Bridge fire now would be complicated by the fact that the bridge is electrified. So the current must be shut down before fire suppression can begin. In all likelihood this would prolong the time before fire suppression could safely begin.

Jet Ski Fatality – In August, 2001 a man riding a jet ski became ensnarled in a tow rope when he drove his jet ski between a towing vessel and a vessel being towed. This incident took place in the Connecticut River between Old Lyme and Old Saybrook. The man driving the Jet Ski was killed and the Old Saybrook Fire Department recovered the victim.

Barge vs. Amtrak Railroad Bridge: Collisions – On September 9, 2006 the cable between the tugboat Turecamo Girls and a 310 foot barge Connecticut separated about 100 yards north of the bridge. The barge was swept into the bridge and remained there for some hours. Fortunately there were no injuries of loss of life in this accident. However, if this accident happened on a nice sunny Sunday afternoon in July the results may well have been different. Please see Fells, 2006, in the appendix, for additional details on this incident.

Boat vs. Boat Collision with Loss of Life – On July 8, 2007 an unmanned center console fishing boat ran over the top of a 14 foot sailboat in Old Lyme waters south of the Amtrak Railroad Bridge. One woman was killed and three other passengers on the sail boat were severely injured. Sea Tow responded to this incident and attempted to stop the circling boat. Unfortunately their efforts resulted in their boat capsizing which added three more victims to the incident. Video documentation of the crash aftermath, showing Sea Tow's capsizing (at 3 minutes and 30 seconds into the video clip), may be found at: http://www.watchlocalvideos.com/watch-40198.htm. Additional information on this incident is provided by an article from Soundings (reprinted in the appendix).

Boat Fire – Sound View Beach – Summer, 2007 – The incident began when one of the two boats, moored to the same mooring ball, caught fire. The immediate objective was to eliminate the threat to the boat that was not burning. To accomplish this objective the Old Lyme Fire Department launched Marine 38-1 from the Cross Lane Fire Station. The two man crew was able to remove the mooring line from the burning boat and move it way from the boat that was not on fire. This action in all likelihood saved the other boat from burning. Once the burning boat was pulled away from the other boat no further action, other than watching the boat burn, was possible. The boat continued to burn until the Old Saybrook Fire Department's fire/rescue boat arrived and put out the fire. Pictures of this incident are included on the cover pages of this Budget Request and its Appendix. Additional pictures of this incident are provided in the Appendix. .

Boat vs. Jetty Collision with Loss of Life – in August, 1998 one man was killed and another was missing and presumed dead after a pleasure boat carrying five people slammed into a jetty off Saybrook Point late Saturday. The accident occurred about 10:30 P.M. at the mouth of the Connecticut River. The boat hit one of two large rock breakwaters and flipped, sending the passengers into the water, Coast Guard Chief Marguerite Demetrio said. The body of Robert Voudren, 26, of Old Lyme, was recovered from the rocks by rescue workers. Fishermen pulled three people from the water, officials with the State Department of Environmental Protection said. Michelle Krowes, 23, and Edward Krowes, 25, both from Niantic, were taken by helicopter to Yale-New Haven Hospital. They were listed in serious condition yesterday. Edward McCusker, 24, also of Niantic, was treated at a clinic in Essex and released. Michael Green of Niantic was still missing yesterday and was presumed dead, officials said. Chief DeMartino said none of those involved was wearing a life jacket. Two Coast Guard vessels and nine rescue boats were searching the surface of Long Island Sound for Mr. Green yesterday. State police and divers with the Department of Environmental Protection were looking for his body underwater.

Boat vs. Boat Collision with Serious Injuries – In July, 2001 five people were injured after two boats collided on the Connecticut River near Long Island Sound. Two women were seriously injured and flown to Hartford Hospital. The women, Kathy DeMio, 34, and Susan Melloon, 39, were in stable condition after suffering multiple lacerations. The accident occurred at about 2 p.m. Saturday, when a 25-foot-long Chris Craft crashed into a 25-foot-long Century Mirage, officers said. Three men aboard the Chris Craft were taken to a nearby clinic with injuries that were not life-threatening, the department said.

Duck Hunters Lost in the Fog – In December, 1991 two duck hunters, Bruce Nelson and Tom D'Ancona lost their lives in a tragic boating accident on Long Island Sound off of Point O Woods. Due to the time of year, many marine rescue resources were unavailable to local law enforcement and emergency services. In March of 1992, family and friends of these two men formed the Nelson-D'Ancona. Foundation which focused on providing funding for an Emergency Service Helicopter that could be utilized by any local or state agency for any life threatening emergency, at no cost. This was the beginning of EAGLE 1, Connecticut's first Police Rescue Helicopter

Coast Guard Rescue of Stranded Kayakers and A First Responder – In November, 2006 a rescue crew from Coast Guard Air Station Cape Cod, Mass., rescued three people stranded on an island in the Eight Mile River in Lyme, Conn., at 6:30 p.m. today. Christina Holth and Chris Godfrey were kayaking on the tributary of the Connecticut River when their kayak capsized at 4:30 p.m. and they swam to the nearby island. The third stranded person was a Lyme fireman who was unable to return to shore after an unsuccessful rescue attempt. The Coast Guard was notified of the situation at 5 p.m. After contacting the Lyme Fire Department chief on scene, it was determined that rescue boats would not be able to reach the victims and a rescue helicopter was launched from Cape Cod at 5:30 p.m. The helicopter arrived at 6:30 p.m. and brought the victims to emergency medical personnel waiting nearby on the banks of the river. They were taken to Lawrence and Memorial Hospital where they were treated for mild hypothermia. Increased recreational use of the smaller rivers (i.e. the "canoe/kayak trail" http://www.crerpa.org/riversound.php) will likely see an increase of this type of rescue operation.

Marine Call Statistics: 2004 – 2007

It is, of course, hard to predict the future of marine calls based on past history due to the variable nature of the risk environment. Never-the-less we have gathered data from our records, as well as from surrounding (mutual aid) communities to provide some insight into the likely demand for marine emergency response.

Old Lyme Fire Department – Marine Responses 2004 - 2007

Marine Responses – Long Island Sound

Alarm Date	Alarm Time	Location	Incident Type
04/24/2005	19:58:00	Long Island Sound	342 Search for person in water
06/26/2005	21:21:00	Long Island Sound	365 Watercraft rescue
04/19/2006	16:56:00	Long Island Sound	365 Watercraft rescue
07/19/2006	16:24:00	Long Island Sound	342 Search for person in water
05/11/2007	22:02:00	Long Island Sound	342 Search for person in water
06/18/2007	16:07:00	Long Island Sound	134 Water vehicle fire
11/22/2007	08:52:00	Long Island Sound	365 Watercraft rescue

Total Incident Count 7

Marine Responses – Connecticut River

Alarm Date	Alarm Time	Location	Incident Type
06/20/2004	20:47:00	Connecticut River	365 Watercraft rescue
09/18/2004	21:15:00	Connecticut River	365 Watercraft rescue
04/06/2005	21:33:00	Connecticut River	342 Search for person in water
07/04/2005	12:43:00	Connecticut River	365 Watercraft rescue
07/26/2005	11:28:00	Connecticut River	611 Dispatched & cancelled en route
08/14/2005	17:24:00	Connecticut River	611 Dispatched & cancelled en route
09/09/2005	17:51:00	Connecticut River	342 Search for person in water
09/09/2006	15:28:00	Connecticut River	365 Watercraft rescue
04/20/2007	12:29:00	Connecticut River	611 Dispatched & cancelled en route

Total Incident Count 9

Marine Responses – Lieutenant River

Alarm Date	Alarm Time	Location	Incident Type
03/31/2005	13:53:00	Lieutenant River	365 Watercraft rescue

Total Incident Count 1

Marine Responses – Blackhall River

Alarm Date	Alarm Time	Location	Incident Type
01/20/2007	11:03:00	Blackhall River	365 Watercraft rescue
10/16/2007	00:47:00	Blackhall River	365 Watercraft rescue

Total Incident Count 2

Old Saybrook Fire Department

Year	CT River	Other	Total
2004	8	3	11
2005	12	5	17
2006	6	15	21
2007	4	7	11

Lyme Fire Department

No information available

Deep River Fire Department

No information available

Essex Fire Department

No information available

Goshen Fire Department & Niantic Fire Department

15 – 25 Calls per year for each department. When either department receives a marine emergency call the other department always responds on a mutual aid basis to provide assistance and support if needed.

Westbrook Fire Department

75 – 100 Marine calls/year

Marine Fire/Rescue Mission Profile

Fire Suppression - Boats – boat explosions and fires. Suppressing a boat fire in a marina is a priority because of the need to confine the fire to a single vessel if at all possible. Suppressing a fire in open water is important for two reasons. First, victims may be in close proximity to the fire. Second, the vessel could drift to shore and start a secondary fire there. Also, suppressing petroleum-based fires, in a timely fashion minimizes pollution of the marine environment.

Fire Suppression – Shoreline - if a fire occurs on or near shoreline property or a property close to the shore line there are several options. It may be desirable to provide fire suppression directly with a fire stream from the water. Alternately, the marine resource could draft water from Long Island Sound or the Connecticut River and provide it to the shore based fire apparatus. In this role the fire/rescue boat would be the marine equivalent of the Hose Tender (HT 38-1).

Marine Search – A not uncommon feature of a marine emergency is to locate the boat in distress and/or the victims in the water. One factor to consider in these types of incidents is that they are more likely in adverse weather conditions. Another factor to consider is that these incidents may be of long duration.

Marine Rescue – Once the victims are located the next phase of the operation begins. This involves getting the victims into a safe environment in a safe manner. Injuries must be treated and the patient stabilized and readied for transportation. In reviewing the major marine emergencies over the past several decades one is struck with how many of them involved multiple victims.

Marine Recovery – When one or more victim is dead the mission changes to one of recovery.

Marine Transport – Finally, when the victims are stabilized and packaged we can transport them to the shore based emergency response organization(s).

Current Marine Fire/Rescue Capabilities

Our current marine resources are designed to execute lake and near shore rescue operations on a year around basis. The information provided in this section details the equipment, training, and standard operating guidelines that support this capability.

Ice & Cold Water Rescue

The department acquired two Ice Rescue Sleds in 2003. These sleds are a safe and effective means of rescuing victims from holes in the ice or from open water. One person, the operator, is tethered to the sled and affects the rescue. Another person, the shore based support, tends the tether line and communicates with the operator. When the victim has been secured to the rescue sled the shore-based support person(s) retrieve the sled by hauling in on the tether line. The flotation capability of an ice rescue sled is 600 pounds which provides a comfortable margin of safety for the operator and victim. The department has eight ice/cold water rescue suits. Two new ice rescue suits were just purchased (April, 2008) to replace two old and leaking ice rescue suits. Note that an insurance claim was submitted, and has since been paid to the town, for the old ice rescue suits.

The initial ice rescue training sessions were conducted by BPC Rescue Equipment 2004. The ice/cold water rescue training creates effective and efficient rescue teams. The training is interesting in that it starts by cutting a hole in the ice in a lake or pond. Then a "victim" wearing an ice/cold water suit jumps into the hole. The rescue sled operator starts from shore and propels the sled over the ice and/or through the water to reach the victim. The operator then retrieves the victim and secures them to the sled. When the victim has been secured to the sled they are hauled ashore by the shore-based support team. While the rescue has been taking place, other members of the shore–based support team have been managing the emergency, media and public response.

Lake and Near Shore Search & Rescue

The department is currently equipped with two "zodiac-type" inflatable boats powered by single outboard motors. One of these boats (Marine 38-1) is kept at the Cross Lane Fire Station primary deployment to Long Island Sound. The other boat (Marine 38-2) is kept at the Boughton Road Fire Station for primary deployment to Rogers Lake. Both Marine 38-1 and 38-2 are stored on trailers inside their respective fire stations. Also, the ice rescue sleds, discussed above, as well as a variety of water rescue and crew equipment, are stored on the decks of the inflatable boats.

These boats are designed for lake and near shore search and rescue operations. These boats are not designed or equipped for nighttime operations in the Connecticut River or Long Island Sound. As a practical matter these boats have limited search and rescue capability in adverse weather conditions.

Training and Qualification: Inflatable Boat Operator

The department conducts training and qualifications for operating the inflatable boats much as it does for all of the fire trucks. Persons interested in becoming an apparatus driver must first obtain a State of Connecticut "Class 2 – Q Endorsement" before beginning training. In a similar manner, persons interested in becoming qualified to operate the department's inflatable boats must first acquire their Connecticut Safe Boating Certificate. Currently 42 members of the OLFD, as listed in the Appendix to this Budget Request, hold the Connecticut Safe Boating Certificate.

Then, Marine Operator Training is provided with "in-house" instructors. The training topics and certification for marine operators is contained in the Appendix to this Budget Request. Note that each topic must be passed by a candidate operator and "signed-off" by the instructor. When all the training is completed the training record must be countersigned by the chief, the deputy chief and one of the two assistant chiefs. Currently 33 members of the department have qualified as Marine Operators for the inflatable boats.

Training and Qualification: Medical

Many of the marine missions we are called upon to support involve injury, many times life threatening, to one of more victim. This requires that we be able to medical assistance, patient stabilization and transport to shore-based medical responders. Currently the department is well staffed to provide such support. One member of the department is a medical doctor, eight members of the department are Emergency Medical Technicians (EMT), and eleven members are Medical Response Technicians (MRT). The list of individuals holding these medical qualifications and certification is contained in the Appendix to this Budget Request.

Training and Qualifications: Marine

As discussed above, 42 members of the department hold the Connecticut Safe Boating Certificate. Of these, 33 members of the department have qualified as Marine Operators for the inflatable boats.

Two members of the department hold Coast Guard Captain's Licenses. Finally one member of the department is a certified by U.S. Sailing as a power boat instructor. Clearly the department has well qualified volunteers when it comes to operating in the marine environment.

Training and Qualification: Fire/Rescue Operator & Crew

The proposed training course for the operator and crew of a Fire/Rescue Boat is outlined in the Appendix to this Budget Request. This course has been taught by one of the members of the department a number of times, to several different fire departments, over the past decade or so. Thus, the department is fully capable of continuing the "in-house" marine training for the fire/rescue boat. More importantly, other than the cost of fuel and training materials, there would be no additional expenses associated with this training. Naturally, the time of the instructor, operators and crew members would be uncompensated.

Fire/Rescue Boat – Specifications & Costs

Specification Overview and Cost Summary

The fire/rescue boat described in this section is configured and equipped to respond to the marine emergencies. We propose to acquire and equip a small fire/rescue boat which meets most of the requirements for a Type V fire/rescue boat under NFPA Standard 1925 "Standard on Marine Fire Fighting Vessels", 2008 Edition. In addition, it will have some features, e.g., fire suppression capability, specified for Type IV fire/rescue boats.

The proposed fire/rescue boat is 25' Aluminum V Bottom Hull with a commercial bow ramp and cargo area. The ideal boat for our purposes is typified by the Munson 25' "Packman". The boat would be powered with two 115 h.p. motors. Which would provide adequate propulsion for a fully loaded fire/rescue boat with reasonable fuel economy. In addition, two smaller motors, rather than one big motor, are preferred for reliability of operation.

Fire suppression is provided with a 250 or 500 GPM pump through a gated wye to two 1 ¾" fire hoses. To qualify a Type V fire/rescue boat required the fire suppression capabilities require a "monitor" which is a permanently mounted nozzle system; normally located on the bow of the boat. For a variety of reasons, detailed in a later portion of this section, we prefer the fire hoses off the gated wye.

The fire/rescue boat would be equipped with a normal complement of marine electronics and equipment. In addition, it would carry a variety of rescue tools and medical equipment. Finally, included in the costs are costs to cloth and equip the crew. The total costs are summarized below and detailed in the following sub-sections:

25' Fire/Rescue Boat & Trailer		$100,000
Two 115 hp Outboard Motors		$17,800
Marine Electronics		$10,180
Fire Suppression		$11,785
Rescue Equipment		$855
Medical Equipment		$3,680
Crew Equipment		$2,000
Misc. Marine Equipment		$13,331
	Sub-Total	**$159,631**
Contingency Allowance		$5,369
	Total Cost	**$165,000**

Fire/Rescue Boat & Trailer ($100,000)

Basic specifications for the fire/rescue boat are for a 25/ x 10’ Aluminum V Bottom Hull with a commercial bow ramp and cargo area. The ideal boat for our purposes is typified by the Munson 25’ “Packman”. This is a high quality boat (and therefore one that will provide high reliability with a long service life, which estimate to be 25 years). In addition this boast can be configured to meet our exact requirements. The type of boat we are specifying is shown below:

25-5:	25' Packman outfitted with a 6' x 6' walk around wheelhouse for recreation activities.
Length:	25 feet (7.6 meters)
Beam:	10 feet (3 meters)
Hull Type:	PACKMAN mono hull
Power:	Twin Yamaha 115 hp
Propulsion:	Outboards (25" shaft)
Fuel:	100 gallons
Top Speed:	38 mph light ship
Homeport:	Kodiak Island, Alaska

A video download showing this boat maneuvering on the water may be found at:
http://www.billmunsonboats.com/VIDEO.html

The specification list for the fire/rescue boat and trailer is:

Boat:	25’ x 10’ Munson Packman Hull with 74” door
Hull Option:	15” x 24” Deck Plates
Hull Option:	Tie Down Rails
Hull Option:	Storage Rack(s) for 4 SCBA Air Cylinders
Hull Option:	Thru hull piping for fire pump
Hull Option:	Trim Tabs
Bow Door Option:	12 volt winch
Dow Door Option:	Plate with non-skid
Wheelhouse	Console T-Top 54” wide with 4 windows
Fuel Tank:	Under deck, single tank, 150 gal. capacity
Fuel Filters:	Dual Racor
Electrical:	Breaker Panel
Electrical:	Bilge blower fan
Electrical	12 volt bilge pump
Electrical	Navigation lights
Trailer:	Dual Axel
Shipping:	Delivery charges
Acceptance Trip:	Two people @ two days

Engines – Two 115 horsepower Outboard ($17,800)

We are specifying two outboard motors, each with its own fuel supply, for reliability of operations**.** We are specifying that each engine have relatively "low' horsepower for two reasons. First two engines in this horsepower range should be able to drive the fire/rescue boat at a maximum speed of 30 knots which is sufficient for our projected responses. More importantly, having lower powered engines increases low power maneuverability which comes into play when approaching and maneuvering around stricken boats and victims.

We consulted Atlantic Outboard (399-6773) for recommendations and pricing. They recommended the Evinrude E-Tec engines primarily due to low emissions, 3year/300 hour service interval, self-winterization and good fuel economy. The E-Tec is a 2-cycle engine which also results in lower engine weight (and complexity) than a comparable 4-cycle engine. Information about the Evinrude E-Tec outboard motors may be found at http://www.evinrude.com/en-US/

We also asked about "ducted" engines, which provide protection from propeller strikes, because this would provide a safer operating environment with victims in the water. Paul, at Atlantic Outboard, is researching the cost of ducted, as opposed to regular, outboard motors.

Marine Electronics

Commo - Motorola CDM 1250 Mobile Radio (30-36 Mhz)	1	$700	$700
Commo - Antenna UHF Low Band	1	$60	$60
Commo - Quantum Marine Radio (VHF)	1	$460	$460
Commo - VHF, 8' Antenna	1	$60	$60
Installation & Bench Set-up	1	$1,450	$1,450
Navicgation - GPS Chart Plotter	1	$3,200	$3,200
Navigation - Radar (Furuno 1731)	1	$2,300	$2,300
Navigation - Depth Sounder, Garmin 250C	1	$550	$550
Navigation - Scanning Depth Finder	1	$1,400	$1,400
Total - Marine Electronics			**$10,180**

Fire Suppression

Hale High Pressure 250 GPM Pump	1	$7,500	$7,500
Gated Wye 2 1/2" down to 1 3/4"	1	$425	$425
Nozzle - TFT MidMatic 70-200 psi	2	$1,030	$2,060
Pro Pak Foam Injection System	1	$1,500	$1,500
SCBA Air Paks (from Rescue 38-1)	4	$0	$0
SCBA Air Cylinders/spare (from Rescue 38-1)	4	$0	$0
Fire Extinguisher -: 2A, 10 BC	1	$80	$80
Dry Chemical Extinguisher - 80 BC	1	$120	$120
1 3/4" fire hose - 15ft length	2	$50	$100
Total - Fire Suppression			**$11,785**

The fire suppression equipment list, outlined below, was created by following Table 10.3.1 (a) Fire Hoses, Fittings and Appliances (U.S. Units) and Table 10.2.1 Self-Contained Breathing Apparatus (SCBA) for Type V Fire Fighting Vessels from NFPA Standard 1952.

As indicated earlier in this request, the Old Lyme Fire Department has decided that a lower volume pump 250 GPM, instead of a 500 GPM pump is adequate for our needs (as well an being considerably less expensive). Further, after much discussion, the department had decided that a monitor (fixer hose nozzle system) is not necessary for out fire suppression needs. Instead we would use two 1/3/4” fire hose lines, with adjustable nozzles, being supplied from the pump through a gated wye valve. Because of these changes, our fire/rescue boat departs from these two specifications for a Type V boat. WE believe, however, that these changes are well suited to our fire suppression missions and result in a considerable cost saving.

In one area we exceed the NFPA 1952 Standard fir a Type V fire/rescue. This involves specifying a Foam injection system. We believe that such a system helps to quickly control petro-chemical fires as well as wild land (marsh) fires.

Medical Equipment

Floating Stokes Basket	1	$1,000	$1,000
Miller Floating Backboards	2	$540	$1,080
Trauma Bag with Oxygen	1	$400	$400
Defibrillator	1	$1,200	$1,200
Total - Medical Equip.			**$3,680**

Crew Equipment

Life Jackets - Type I High Speed	4	$100	$400
Deck Suits & Type IV Floating Jackets	4	$400	$1,600
Ice Rescue Suit (from Rescue Truck)	4	$0	$0
Total - Crew Equipment			**$2,000**

Miscellaneous Marine Equipment

Fenders and Lines	3	$100	$300
CG Approved First Aid Kit	1	$30	$30
CG Approved SOLAS Equipmnet (Flares, Etc.)	1	$120	$120
Whelan Light bar, Siren & Hailer	1	$3,000	$3,000
Manual Search Light, 7"	1	$300	$300
Compass	1	$150	$150
Anchor Package	1	$350	$350
Twin Outboard Motor Hydraliuc Steering System	1	$550	$550
Group 32, 120 Batteries with Accessories	2	$350	$700
Miscellaneous safety & deck gear	1	$350	$350
Deck, Scene and Cabin Lighting	1	$5,481	$5,481
Boat Lettering	1	$2,000	$2,000
Total - Misc. Marine Equip.			**$13,331**

Rescue Equipment

The rescue equipment list, outlined below, was created by following Table 10.1.1 (a) Fire-Fighting Equipment (U.S. Units) for Type V Fire Fighting Vessels from NFPA Standard 1952. Then some additional items, specified for Type IV Fire Fighting Vessels, were added to the list (e.g., Rope in Throw Bag). Finally, some additional items were added based on our experience (e.g., Stream Lights).

10' Pike Pole	1	$140	$140	
10' All Purpose Hook	1	$145	$145	
10' Z-Hook	1	$150	$150	
Haligan Tool	1	145		
Axe, Flat Head #6	1	$45	$45	
Axe, Pike Head #6	1	$55	$55	
Pry Bar	1	$30	$30	
Sledge Hammer - 10#	1	$45	$45	Optional for Type V
Spanner Wrench	4	$15	$60	
Hydrant Wrench	1	$10	$10	
Sprinkler Shutoff	1	$10	$10	
Utility Rope - 100 ft.	1	$40	$40	
Heaving Line - 75 ft.	1	$30	$30	Optional for Type V
Rope in Throw Bag - 75 ft.	1	$45	$45	
Bolt Cutters	1	$50	$50	
Grappling Hook	1	$15	$15	Optional for Type V
Stream Lights (Hand Held)	2	$85	$170	
Total Rescue Equipment			**$855**	

Fire/Rescue Boat - Operational Considerations

Management

The OLFD has recognized that it's desirable to appoint a person to manage its marine resources and responses. Chief Jewett intends to accomplish this objective by appointing a Marine Captain. This position would be similar to that of Fire Police Captain, Safety Officer and Engineer. This would be an annual appointment, made by the OLFD Chief, based on the requirements of the position and the qualifications of the person appointed.

Training – Operator & Crew

The basic training for both operator and crew would follow NFPA 1005 "Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters".

Staffing

Fire Rescue Boat Captain - Ideally the captain of the boat would hold a Coast Guard Captain's License (3 members) in addition to being cross certified as a firefighter and emergency medical responder. At the very least the person captaining the fire/rescue boat must hold a Connecticut Safe Boating Certificate. At the present time the OLFD has 2 Coast Guard Captains and 15 Connecticut Safe Boating Certificate members. (Refer to Appendix for a listing of the members).

In addition, any person captaining the fire/rescue boat would have to be a qualified operator as defined by the OLFD's Standard Operating Guidelines for Marine Fire/Rescue Operations (to be defined)

Fire/Rescue Boat Crew - With the multiple threat scenarios presented by the marine environment the fire/rescue boat crew (two or possibly three members) would ideally be cross certified as firefighters and emergency medical responders.

Because of the potential for medical emergencies in the marine environment (think fire, explosion, and blunt force trauma) there is a need for the crew to consist of emergency medical responders. This requirement is likely to be met since the Old Lyme Fire Department currently has 9 EMT and 7 members (Refer to Appendix for a listing of the members). The Old Lyme Ambulance Association also responds to all Old Lyme Fire Department responses. This provides for additional medically qualifies responders for the boat crew as well as for shore based medical support.

In addition, any person serving as crew on the fire/rescue boat would have to be a qualified as defined by the OLFD's Standard Operating Guidelines for Marine Fire/Rescue Operations (to be defined).

Three Season Dockage - We believe that the Town of Old Lyme has an agreement with the State of Connecticut's Department of Environmental Protection (DEP) for the free usage of three slips at the DEP Marine Headquarters dock at Ferry Road. This is an ideal place to launch a fire/rescue boat our portion of the Connecticut River and provides good access to Long Island Sound. In addition, the shore area at the DEP headquarters provides space for staging support vehicles and setting up an emergency incident command center. Also, vehicle access to and from this site is easily controlled at the Route 156 intersection with Ferry Road. More importantly, the helicopter landing pad at the Chambers Residence, just above the DEP Marine Headquarters, provided ready access for LifeStar helicopters. This capability can save precious minutes during a trauma victim's "golden hour". Mr. Chambers has granted permission to the Old Lyme Fire Department to use the landing pad for LifeStar flights.

Winter Storage – In the winter the fire/rescue boat would be stored on its trailer. The fire/rescue boat could be stored inside at the Cross Lane Fire Station. This would avoid the time and cost required to shrink wrap the fire/rescue boat. More importantly the fire/rescue boat, stored inside, would be readily deployable should an incident occur mid-winter.

Fire/Rescue Boat - Annual Operating Costs

Operating Cost Summary
In this section we address the annual operating costs for the fire/rescue boat. We have tried to include all knowable operating const. In addition we have added a contingency allowance and a miscellaneous maintenance allowance to provide for things that we can't foresee. To put the estimate of annual operating costs, $5,790, into perspective this works out to be $1.26/year for each of the 4,606 homes in Old Lyme.

Training		$160
Antifouling Paint		$200
Outboard Motor Service		$270
Outboard Motor Replacement	(pro rated)	$800
Contingency Allowance 10%		$460
Miscellaneous Maintenance Allowance		$700
Fuel (640 gal. @ $4.00/gal)		$3,200
Annual Total		**$5,790**

Training Costs
All necessary operator and crew training for the fire/rescue will be conducted with in-house instructors as is the case currently for operator and crew training for Marine 38-1 and 38-2. There may be a need for several individuals per year to take the Connecticut Safe Boating Course. We have included an allowance for two individuals, at $80.00 per course, for a total of $160.00. Alternatively, we may prepare the individuals "in-house" to acquire the Safe Boating Certificate by examination which would eliminate this cost item. Note that at least 44 members of the department, listed in the Appendix to this Request, hold the Connecticut Safe Boating Certificate.

Antifouling Paint
We include an annual expense of $200 to purchase antifouling paint. The hull bottom preparation and application of the paint will be undertaken by members of the department.

Outboard Motor Service
We are basing our annual outboard motor costs on the information for the V-Tec 2 cycle outboard motor. Evinrude advertises that the service cycle for these outboard motors is every three years or 300 engine hours. Since our estimated annual engine hours are 100/year, the 3 year service cycle seems reasonable. Atlantic Outboard, the local Evinrude dealer, estimates the cost of service is about $400.00 per outboard motor. Thus, the annual, prorated, cost of outboard motor maintenance would be $266.00 (($400.00/engine * 2 engines)/3). Note that this cost estimate doesn't take into account inflation in these maintenance costs. We should point out that the Evinrude V-Tec outboard motors are "self-winterizing" so no outside service will be required for this maintenance item.

Outboard Motor Replacement
The estimated service life of the fire/rescue boat is 25 years. Over this period there will be a need to replace the two outboard motors. Considering likely price inflation we use an estimated cost/motor of $10,000. Prorated over a 25 year service life this works out to $800 per year.

Contingency Allowance
In order to account for uncertainty in our cost estimates we are adding a 10% contingency allowance for variations in: (1) fuel costs, (2) training costs, (3) antifouling paint, (4) outboard motor service and (5) outboard motor replacement. The 10% contingency allowance is $460.00/year.

Miscellaneous Maintenance Allowance
Finally we consider the annual cost of maintenance and equipment replacement. What exactly will need to be repaired of replaced is hard to know. As a way addressing this we are using a factor of one-half of one percent of the acquisition cost which works out to be $700/year ($165,000 * 0.0425%)

Fuel Cost
Fuel expense is dependent on a number of factors. When we put all of these factors together we come up with an annual fuel cost of $3,200 [((4 gal/hour * 2) * 100 hours) * $4.00/gal]:

1. estimated hours of use – the major variable here is the number of emergency responses and the duration of those responses. The somewhat controllable variable is the number of hours used for operator and crew training. To deal with the uncertainty we use a range of hours for each type of use and base the cost on the highest estimate of hours used:

Emergency Incident Response	30	40
Operator and Crew Training	50	60
Total Hours	80	100

2. average engine speed – we are basing our gallon/hour use on "cruising speed" as used by outboard motor manufacturers. This speed is usually the lowest speed necessary to achieve planning. This seems reasonable because our operating speed will vary above and below this speed.

3. gallons used per hour per engine – Evinrude advertises their V-Tec Engines as being fuel efficient. At "cruising speed" they claim a 225 hp outboard motor used 3.8 gallons of fuel. Since we will be using 115 hp outboard motors an estimate of 4 gallons/hour/engine seems reasonably conservative.

4. cost of fuel – estimated at $4.00/gallon

Fire/Rescue Boat - Financing Options

Overview of Financing Options for Acquisition

We realize that purchasing a fire/rescue boat is costly. We further realize that the annual operating and maintenance costs associated with a fire/rescue boat raises the yearly operating budget of the department. At the same time we believe the risks presented by Old Lyme's marine and near shore environment make such a purchase absolutely necessary. In this section we consider ways to fund the purchase of a fire/rescue boat.

Grants

The OLFD has actively been pursuing external funding for a variety of equipment and operational needs. Since 2003 we have submitted eight grant applications to the Department of Homeland Security under their Assistance to Firefighters Grant Program (FG or FO), the Staffing for Adequate Fire and Police Emergency Response Program (FF), and the Fire Prevention and Safety Grant (FP). The history of these grant applications is outlined below:

Year	Application	Funding Purpose & Amount	Status
2003	EMW-2003-FG-16035	Radios ($110,000)	Granted
2004	EMW-2004-FG-13613	Fire/Rescue Boat	Denied
2005	EMW-2005-FG-19305	SCBA	Denied
2005	EMW-2005-FF-02168	Personnel Retention/Recruitment	Denied
2005	EMW-2005-FP-02242	Fire Prevention	Denied
2006	EMW-2006-FG-15382	Fire/Rescue Boat	Denied
2007	EMW-2007-FO-11790	Exhaust Removal	Denied
2008	EMW-2008-FV-07422	Fire/Rescue Boat ($165,000)	Submitted

We believe the likelihood of receiving funds for the 2008 grant, which has just been submitted, is extremely low. We have been working with Congressman Courtney's office as we developed this grant application; the third application requesting funding for a fire/rescue boat. The congressman's office is not hopeful about the prospects of the current application being granted. One of the factors working against us is that Old Saybrook and New London have also submitted grant requests for a fire/rescue boat.

Complete information about each of these grants is available through the Department of Homeland Security's Website (https://portal.fema.gov/famsVuWeb/home). Anyone interested in viewing the complete information about any of these grant applications should contact either Jon Mittelman (jsmittelman@comcast.net) or Harry Smith (harry_r_smith@sbcglobal.net) for the user name and password needed to access them. The narrative from the 2008 grant application is contained in the Appendix to this Budget Request. In addition, Congressman Courtney's letter in support of out Fire Grant Application is also found in the Appendix to this Budget Request.

Joint Inter-Governmental Purchase

It's been suggested that we explore a variety of funding options involving joint purchase, and presumably subsequent operation of a fire/rescue boat. For a variety of reasons we believe this strategy to be unworkable.

One suggestion is that Old Lyme and Old Saybrook purchase one fire/rescue boat. Beyond the obvious operational and maintenance issues that arise from shared ownership, is the more important issue of the real need for two fire/rescue boats to respond to most marine emergencies at the mouth of the Connecticut River. Consider a structure fire; mutual aid response is normally requested, even to stand-by in just in case they are needed. A Rapid Intervention Team (RIT) is dispatched from a mutual aid town to assist with scene safety and firefighter rescue should the need arise. A marine emergency requires the same level of mutual aid, both to assist victims and fire/rescue personnel if needed.

A Donated Boat

We have considered a donated boat. There are two problems with this strategy. First, finding a boat that supports out fire/rescue mission profile as well as the Munson Packman is extremely unlikely. Second, there is the obvious problem of dealing with the structural, mechanical, and marine electronics of a donated boat.

The reality is that it is extremely unlikely that someone would donate a perfectly good boat when they could sell it. Even in a depressed market selling a boat at reduced price would normally be more beneficial to the owner than the tax deduction for to donating a boat. Then there is the situation that many boats, especially newer boats, would have an outstanding loan that would have to be paid-off or assumed. If this were the case there would still be a capital cost which, in addition to the costs of repair and upgrades, make this strategy less than desirable.

Capital Expenditure

Finally, we come to the strategy where the Town of Old Lyme purchases the fire/rescue boat from its capital funds. We recognize that an appropriation of $165,000, in addition to all of the other demands placed on the budget, is a significant amount of money. However, it should be remembered that this requested appropriation is for a piece of equipment with a 25 service life.

On an annual basis, the acquisition cost would be between $6,600 (25 year service life). To put this in context, with 4,606 residential households in Old Lyme, this works out to be between $1.43/household/year All things considered this seems like a relatively small burden for Old Lyme's taxpayers which, we should point out, includes the members of the Old Lyme Fire Department.

It seems reasonable to request that the Board of Finance approve this capital request, in the amount of $165,000) subject to revocation should the department receive funding under the Fire Grant Application discussed above.