Alstead Emergency Management Study Group
Recommendations for replacing Engine 1 and Rescue 1

Introduction:
The Town of Alstead Board of Selectmen formed the Alstead Emergency Management Study Group (EMSG) early in 2015 to help determine what the Town of Alstead wants and needs for Emergency Services, and is willing to support financially.

The goals of the EMSG are numerous. Basically, the EMSG is a volunteer advisory committee whose role is to gather, identify, and assess information about the public safety needs of the Town, how the Town currently meets these needs, and how we can continue to meet the needs of the Town in the future. Since July, the EMSG has been exploring how the Fire Department is structured and how it is equipped to meet the needs of the town. We learned that two of our fire apparatus are quite old.

Rescue 1, pictured below, was bought in 1984. It is eligible for antique plates and is beyond the National Fire Protection Association (NFPA) recommended life span for fire trucks. Rescue 1 responds to all rescue calls, or calls that require rescue type equipment in Alstead. This includes all motor vehicle accidents, structure fires, and “special” rescues such as lost people and Haz – Mat (hazardous material) responses.
Engine 1, pictured below, was built in 1987. It, too, is eligible for antique plates and is beyond the National Fire Protection Association (NFPA) recommended life span for fire trucks. Engine 1 is a pumper and responds to all calls for the fire department – fires, accidents, alarms, etc. The nature of requirements and equipment for the fire service has changed drastically since this engine was built and purchased.

Fire trucks as you may have guessed are expensive. The average cost of a new pumper, depending on its size and options, can run in excess of $500,000 to build. A rescue truck, depending on its size and options, typically costs $350,000. After exploring a number of options and conducting extensive research, all of which are explained below, the EMSG is recommending the purchase of a combination pumper rescue truck, which will allow us to replace two trucks with one new truck. The truck would look similar to this:
The EMSG, along with the Fire Department, spent a number of months developing a specification (spec) for this truck. The spec was sent to seven different vendors in November and an eighth in December with a request for them to bid on this truck. As of January 4, 2016, four bids were received from different vendors. The EMSG believes it has specified an excellent quality apparatus that shall meet the present and future needs of our community at the same time making the best use of funds available.

We believe that finding a used or refurbished rescue pumper in the same condition with the necessary features is almost an impossible task. In fact, we took the time to look and see what was available that closely met our specifications.

**Used Pumper/Rescue Engines**

In December 2015, there were five used pumper/rescue engines for sale on the Internet. It is possible that two of these, the 1999 Spartan listed by Fenton Fire and the 1999 Spartan listed by Bradford Fire, are in fact the same engine.

<table>
<thead>
<tr>
<th></th>
<th>Heigt</th>
<th>Length</th>
<th>Engine</th>
<th>Mileage</th>
<th>Pump, GPM</th>
<th>Tank, gallons</th>
<th>Price, $</th>
<th>Vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 proposed</td>
<td>10'8&quot;</td>
<td>34&quot;</td>
<td>380 HP</td>
<td>0</td>
<td>1500</td>
<td>1000</td>
<td>~ 460,000</td>
<td>4 possible</td>
</tr>
<tr>
<td>2007 Sutphen Monarch</td>
<td>9’10”</td>
<td>33’2”</td>
<td>400 HP</td>
<td>38,925</td>
<td>1750</td>
<td>750</td>
<td>189,900</td>
<td>Adirondack Fire Equipment, NY</td>
</tr>
<tr>
<td>2005 Spartan</td>
<td>9’8”</td>
<td>34”</td>
<td>330</td>
<td>71,011</td>
<td>1500</td>
<td>750</td>
<td>80,000</td>
<td>Brindlee Mountain, AL</td>
</tr>
<tr>
<td>2001 Spartan</td>
<td>9’5”</td>
<td>30’9”</td>
<td>350</td>
<td>85,700</td>
<td>1250</td>
<td>750</td>
<td>Call for price</td>
<td>Fireline Equipment, PA</td>
</tr>
<tr>
<td>1999 Spartan</td>
<td>9’11”</td>
<td>30”</td>
<td>400</td>
<td>71,000</td>
<td>1500</td>
<td>500</td>
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<tr>
<td>1999 Spartan</td>
<td></td>
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<td></td>
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<td></td>
<td>99,000</td>
<td>Bradford Fire, PA</td>
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</tbody>
</table>

The specifications for 2016 vehicle, which are described in detail in our RFP, are included in the table above for comparison. Our purpose here is to point out the difficulties and financial risks of purchasing a used engine that is appropriate for our needs, using these engines as examples. The bottom line is: it is impossible to estimate how much money – if any – would be saved by purchasing a used engine.

**Reasons why these engines are not appropriate for our town**

The **1999 and 2001 Spartans are 15 years old.**

The NFPA recommends replacing engines after 15 years. If this is not possible, they must be refurbished – brought up to the current safety standards. The fire equipment vendors that we have spoken with are unwilling to give an estimate on the average cost of bringing used trucks up to current safety standards. If the engine does not meet basic safety standards for seat belts and ABS, reputable vendors are not willing to touch it. This is true for our 1987 Engine 1.
The 2007 Sutphen Monarch and the 2005 Spartan do not meet essential specifications for operating in our cold, hilly, rural environment:
- Most importantly, since Alstead does not have a hydrant system, our engines must carry the maximum amount of water – 1000 gallons.
- At 330 HP, the 2005 Spartan is underpowered for our terrain.
- The emergency lighting and scene lighting are not adequate, and no brow light is provided.
- There is no heater for the pump house.

The 2007 Sutphen Monarch and the 2005 Spartan do not meet other essential specifications:
- The 2007 Sutphen Monarch has only three seats with self-contained breathing apparatus (SCBA), and no mention of an occupant protection system.
- Neither engine has an engine-driven generator.
- Neither engine has a top-mount pump panel.
- Neither engine has a Traffic Advisor.
- The 2007 Sutphen Monarch's hydraulic ladder rack is not capable of containing suction hose and tools, and there is no apparent foam capability.
- The 2005 Spartan is not up to some of the easily visible current NFPA requirements, and there is visible rust in some areas.

There would be additional costs to customize a used engine to fit our existing equipment.
- One estimate for this customization from a vendor familiar with our equipment is $75,000. This estimate does not include the cost of bringing an engine up to current safety standards or fitting it with the features necessary for operating in our environment.

There would be additional expenses for travel and delivery.
- Only two of the vendors are accessible from Alstead by car.

Compared to purchasing a used automobile, the financial risks are compounded for a used fire engine.
- Keeping a fire engine fully operational is a much more complex challenge than maintaining a personal automobile.
- Extended warranties are not available for fire engines.

The trick is to find a rescue pumper truck that is in excellent mechanical condition, has a majority of the features required to meet departmental/community needs and is offered at a reasonable price. The old adages, "You get what you pay for" and "Let the buyer beware" are ever present in the purchase of any fire apparatus. The answer is that the fire apparatus proposed in the 2016 warrant articles is the best approach for Alstead, replacing two older trucks with one new apparatus.

You may be wondering where the money will come from for this truck. There is currently about $390,000 in the capital reserve fund for new fire apparatus. We anticipate needing about an additional $70,000 to purchase a new combination rescue pumper in 2016. We state 2016 because the various vendors bidding on this truck have told us that the costs of new fire trucks increase typically about 8% each year. For 2016, the additional funds above the capital reserve would come from the fund balance (~$35,000) and the remaining $35,000 from taxes. The affect on your tax bill would be about $44 for a home assessed at $200,000. We also hope to earn $5000 - $10,000...
by selling the two used fire apparatus. On top of that, not only do we get 2 trucks in one, we will reduce our vehicle insurance and maintenance costs and needs.

A detailed list of questions that many will ask, along with the answers, follows.

**Why do we need to replace Engine 1?**

**Safety:**
- The engine is old enough that it did not come with shoulder belts, only seat/lap belts.
- There are no air bags in the cab.
- The structural frame is not to current standards so there is no rollover protection were an accident to occur.

**Repair:**
- The pump on the engine was rebuilt in 2012 at a cost of ~$15,000. It still works but not at the rated capacity.
- Parts for many repairs are no longer available.
- Although the engine has been maintained, it is now rusting from the inside out and repair would be difficult or costly.

**Performance:**
- On a good run, the maximum speed uphill is 25 mph.
- There is a lack of storage for the necessary personal protection equipment the firefighter must utilize and for fire fighting tools.
- The engine was not built to carry standard equipment such as a vent saw and the Jaws of Life.
- The tank leaks even though it has been repaired fourteen (14) times. This could result in inadequate water to fight a fire.

**Miscellaneous:**
- With only two seats, Engine 1 cannot carry or support a full crew.
  - There are safety and liability issues with firefighters responding directly to the scene in their personal vehicles today.
- The National Fire Protection Association (NFPA) recommends a fire engine life span of fifteen (15) years. The pumper is 27 years old and our rescue engine is 31 years old.
  - Engine 1 is eligible for antique plates and is one of the oldest, if not the oldest, front line engines in use in this region.
Why do we need to replace Rescue 1?

Safety:
- There are no air bags in the cab.
- The brakes are not ABS.
- The truck is top-heavy which makes it challenging to drive.

Performance:
- The truck lacks sufficient capacity by weight.
  - With two firefighters on board, cargo capacity is only about 500 pounds.
  - There is insufficient room to routinely carry important equipment such as generators, cold water rescue equipment, a cascade system (used to refill air bottles worn by firefighters), scene lighting, rescue tools, Speedi dri and other HazMat equipment, any more than one Scott air Bottle.
- The truck is often difficult to start and often stalls.
- The large engine is poor on mileage and fuel efficiency.
- The truck was not built as a fire truck. It is a one – ton chassis with a plumber’s body and has no provision for efficient organization and storage of tools.

Why shouldn’t we refurbish our current fire apparatus?

Refurbishing a fire truck means bringing it up to current standards. Typically everything but the chassis requires work.
- On an engine, the plumbing and/or pump would most likely need to be replaced or rebuilt.
- On either truck, the body would need to be rebuilt or replaced.
- It would be necessary to comply with National Fire Protection Association (NFPA) standards for lighting, striping, and marking.

For Engine 1:
- The chassis will still be old (now 27 years old) and we will still only have a two – man cab.
- There is no way to add shoulder belts.

For Rescue 1:
- The chassis will still be old (now at 31 years).

The bottom line is, per NFPA 1911 Standard for the Inspection, maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus (Annex D), any apparatus over 25 years old should be retired- not refurbished. Both Engine 1 and Rescue 1 are over 25 years old.
Some thoughts about buying a used fire truck instead of a new fire truck:

- It may save money but that will be dependent upon:
  - How much refurbishment, if any, the fire truck requires
  - Where the fire truck is located and how much it will cost to get there to inspect it before purchase.
- We are subject to availability of the right kind of fire truck when we are ready to purchase one.
  - Will it fit in the firehouse?
  - Will we need to reconfigure the storage to hold our equipment?
- It will cost the town money for transportation to go get a truck that is not close by.
- Warranties on used apparatus are often only one year. We do not want to buy someone else’s problems. There is no “carfax” for used fire equipment.
  - Would the truck last long enough to make buying a used one worthwhile?

What about Mutual Aid?
We have mutual aid agreements with other towns. Mutual Aid is used when a fire department is at a fire and has exhausted all of its resources to a point that they require aid from other towns. That aid comes in the form of equipment and manpower. We would be abusing our mutual aid agreements if we required a neighboring department to provide regular services under the mutual aid pact. We would be in quite a predicament were we to strictly rely on mutual aid and the responding department were already busy with calls of their own.

References:


http://www.firehouse.com/article/11269122/fire-apparatus-maintenance

http://www.carolinafirejournal.com/articles/article-detail/articleid/2302/when-should-you-refurbish-or-replace-your-fire-apparatus.aspx


http://www.littletonfirerescue.org/Chief's/Ladder%20Truck.htm