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DATE: March 27, 2014

TO: Board of Selectmen
Town of New Marlborough

FROM: Robert J. McDermott

SUBJECT: Fire Apparatus Evaluation

I have completed my evaluation of the Town's current fire apparatus, conducted a needs assessment, and reviewed the Fire Department's specifications for the proposed replacement of the 1992 Pumper. My evaluation is based upon a physical inspection, an interview with Chief Loring and his staff, an investigation into historical inflation rates since 1992, a review of NFPA, EPA and other pertinent regulatory changes since 1992, and a direct comparison of the 1992 Pumper vs. the proposed purchase specifications. I offer the following observations for your consideration.

Present Apparatus – The Fire Department currently operates the following firefighting vehicles. It should be noted that all appear to have been meticulously maintained:

- One (1) 1992 Pumper which is the subject of the proposed replacement. This is the first due unit and is equipped as the attack truck that is deployed direct to all incidents. It is equipped with a 1500 GPM pumping system, a 1000 gallon water tank, a complement of firefighting equipment including automobile extrication tools, etc.

- One (1) 2002 Tanker which is tasked as a mobile water supply apparatus. This unit backs up the 1992 Pumper to deliver enough water to sustain a fire flow until such time as a hose line can be deployed between the fire scene and the nearest natural water supply source. This vehicle is equipped with a 2500 gallon water tank, a complement of firefighting equipment, and a 1500 GPM pumping system so it can operate independently if necessary.

- One (1) 2006 Pumper which is normally assigned to the task of reaching a natural water supply source and relaying water through a supply hose to the fire scene. This vehicle is equipped with a 1250 GPM pumping system, a 750 gallon water tank, a complement of firefighting equipment including automobile extrication tools, etc. This vehicle carries fewer personnel that the 1992 Pumper in order to reduce its size for maneuverability required to access water sources. This reduced size, coupled with the vehicle's all-wheel-drive feature, also adapts it to the task of acting as the on-scene attack truck in winter weather or in hard-to-reach areas such as hilly terrain, lakeside residences, etc.

- One (1) 2011 Brush Truck which is a "pick-up truck" sized vehicle built on a 1-ton all-wheel-drive vehicle. This unit serves as a forest/grass fire vehicle, and carries a small tank and pumping system sized to that requirement. The greatly reduced size and weight of this vehicle make it more suitable to off-road operations encountered during

responses to its intended application. This vehicle is also equipped to tow the Fire Department's Rescue Boat and a trailer containing a 4-Wheeler and related equipment.

- The Fire Department also has two (2) small, older vehicles acquired through the military surplus program. One (1) is a pick-up truck that carries brush fire equipment, and the other has a van body that carries water rescue apparatus. These units are used intermittently, and are assigned to tasks where reliability is not a key factor. Their use reduces the duty cycle of the key apparatus, therefore extending their service life.

Demographics – The Town of New Marlborough has a total area of 47.9 square miles, which includes 46.9 square miles of land and a 1.0 square mile of water. There are several rivers, all emptying into the Housatonic River. The population is approximately 1500, and a 20.5% population growth was experienced between 1990 and 2000, the period during which the present 1992 Pumper was acquired. There are 600+ households in the Town, which is differentiated from others of a similar population in that it consists of five (5) village entities including Clayton, Hartsville, Mill River, Southfield and New Marlborough Village. Significant structures include four (4) churches, one (1) old Grange Hall, one (1) old factory building, one (1) Town Hall, one (1) Town Library, one (1) elementary school, two (2) village stores, several old inns and function halls, a large amount of high-end second homes, a commercial propane distribution company, etc.

The Necessity – There is little doubt that the exposure for loss of life and property, spread across the five (5) village entities, justifies the requirement for the general and special purpose fire apparatus as currently used by the Town. With no hydrant system, lakefront and other remote building sites, sizeable structures, village centers with closely spaced structures, and the possibility of simultaneous emergency responses to different areas of Town, the current fleet may actually be insufficient to handle certain emergencies until Mutual Aid arrives.

Feature Comparison – I have compared the existing 1992 Pumper with the proposed purchase specifications provided to me by Chief Loring. They appear to be quite similar, with the exception of regulatory updates that have been implemented since 1992, coupled with certain crew safety features that were unavailable in 1992, plus a few capability upgrades. A brief overview of some of these are as follows:

- The National Fire Protection Association (NFPA writes the standards for fire apparatus construction in conjunction with Fire Departments, Fire Apparatus Manufacturers, Insurance Companies, etc. This NFPA 1901 standard is periodically updated to encompass improvements in safety, efficiency, automotive technology, EPA requirements, etc. There have been several revisions in NFPA 1901 since the purchase date of the 1992 Pumper that was delivered to the Town in November of 1992. Some of the major items include:

    1. Handrails, ladders and steps: improved access through built-in steps and 3-point access.
    2. Powered equipment racks to prevent climbing and allow for more storage area.
    3. Additional safety equipment required: AED's, safety cones, vests, etc.
    4. Increased safety factory for hitch receivers and anchor points.
    5. Chevron reflective striping on rear for improved visibility.
    6. Anti-lock braking system now required.
    7. Auxiliary engine or driveline brake now required.
    8. Roll stability control system now required.
    9. Cab integrity testing now required (crash testing).
    10. Reflective material now required on interior of side=opening passenger doors.
    11. Positive engagement mounts now required inside cab for SCBA retention .
    12. Exhaust temperature mitigation system now required.

13. Diesel particulate filter system now required (recently upgraded by EPA for 2014).
14. High visibility seat belts now required.
15. Vehicle data recorder now required. Tracks speed, stability, seat belt use, etc.
16. Equipment mounting in cab must now be crash-worthy, and is discouraged.
17. Type II shoulder harnesses now required in cab.
18. Chassis PTO safety interlock system now required.
19. Head clearance inside cab increased.
20. Designated helmet storage areas now required for in-transit (can't wear them).
21. Driver's seat adjust criteria upgraded.
22. Tire pressure monitor system now required with cab readout.
23. Side mirrors must now be adjustable from driver's position (power R or R/L).
24. Audible warning system requirement upgraded.
25. Scene lighting (work lights) improved around vehicle for crew safety.
26. Electrical load testing now required.
27. Electrical load management system now required to protect engine ECU.
28. Electrical wiring methods and diagnostics upgraded.
29. Anti-slip grip surface now required on handrails and all step surfaces.
30. Warning labels required in several areas to improve safety.
31. Foam system accuracy and performance test now required.
32. Intake and discharge gauge accuracy test now required.
33. An oil-less or biodegradable pump priming system now required.
34. Pump access requirements improved.
35. User-friendly, color coded pump control panels now required.
36. Pump engagement safety interlocks now required.
37. Water tank vent/overflow systems upgraded.

The aforementioned items have contributed to the increased cost of fire apparatus. Of particular note are the EPA emission requirements which have added approximately $ 20,000.00, the ABS and ESC systems which added approximately $ 10,000.00, the data recorders, electrical system controls, etc. which added approximately $ 5,000.00, etc.

Added Features – The Fire Department has proposed adding a few features on the replacement apparatus that are not incorporated on the present 1992 Pumper. The main items include the following:

1. An onboard 120/240 volt generator to power scene lighting, ventilation equipment, and electrically operated accessories.
2. An elevating light mast powered by the onboard generator. It will be operable from the pump operator's panel, as is the generator. The light will be used to illuminate fire scenes, accident scenes, disaster scenes, etc. Currently the Fire Department utilized telescoping 12-volt lights with limited capability.
3. Additional storage capacity. Essentially the right body side compartments will be increased in height to allow equipment that is presently carried inside the cab to be relocated per the new NFPA requirements.
4. A power operated ladder rack which will stow ground ladders and long tools above the right body side. The rack will deploy the equipment to within reach from ground level.

Changes 2013 vs. 2014 – I reviewed the prior purchase specifications in 2013, and made some suggestions about areas that could possibly be cut without affect the performance of the apparatus. Chief Loring and his committee have reviewed the previous specifications and removed items or adjusted features in an effort to reduce the cost. In particular, they removed the discharge line flowmeters which likely saved $ 25,000.00. However, I would caution you that inflation and the 2014 EPA standards have added some cost to the project since the last time it was bid. I would project an actual net savings of perhaps $ 15,000.00.

Is it Reasonable? To determine if the Fire Department's request is reasonable, let's examine the following:

- Cost – The 1992 Pumper was purchased for $ 250,000.00. If we apply historical inflation rates from 1992 – 2014, that equates to a present value of $ 441,452.00, but that would be for an identical truck that would not be NFPA, DOT or EPA compliant. If we add the estimates cost of all the additional mandated items, it is likely the cost would be over $ 500,000.00. Now add the feature upgrades as requested by the Fire Department, and you will arrive at the projected budget price.

- Parade Wagon? Is the Fire Department asking for a truck that has frivolous features? I really don't believe so. What they are trying to acquire is an all-purpose vehicle, tailored to local needs, that is compliant with 2014 requirements, while remaining forward thinking given the projected 20-25 year life span.

- Comparison – How does the proposed apparatus compare with those purchased by other Towns? I have examined purchases made by Great Barrington, West Stockbridge, Stockbridge, Lee, Richmond, Dalton, etc. It's easy to point out a truck that sold for less, or for more. Prices ranged from about $ 400,000.00 to $ 650,000.00. If we factor in the year purchased, plus standards at the time of construction, it narrows the spread.

Suggestions – To simplify the process of purchasing a new Pumper, I offer the following suggestions. I am available to assist if required.

- Cooperative Purchase Program – Massachusetts allows you to purchase through cooperative, or group purchase programs offered in any State. There are currently several options for this that would allow you to purchase a single unit from a contractor at discounted price normally reserved for multiple unit purchasers. A great aspect of this is that you can still negotiate after receiving the initial proposal (i.e. request a "best and final").

- Trade-In – Ask the contractor if they will accept a trade-in. This will reduce the contract price, or perhaps pay for one of the added features requested by the Fire Department. More importantly, it will separate you from any liability resulting from operation of the vehicle by a third party.

- Financing – You should consider lease purchase financing for the truck, or even a master lease that would let you add other equipment such as highway vehicles. A lease purchase general has terms of 5-10 years, with the first payment due upon delivery (arrears leases are also offered). In the end, you make a $ 1.00 payment and receive the title. Since lease purchase financing is subject to annual appropriation of the payment, it is not considered long term debt and may avoid the necessity of an override vote.

Additional Support – I am available to review my findings with the Board at your convenience. I could also work with the Fire Department during the bid process and guide the Town through the purchase process.