Town of Pomfret
5218 Pomfret Road
North Pomfret, VT 05053
Agenda for May 2, 2016 Special Selectboard Meeting
7:00pm at the Pomfret Town Offices

Agenda Item	Presenting Individual	Timeframe
1. Call to Order	Chair	7:00pm-
2. Public Comment	Chair	7:00-7:05pm
3. Fire Truck Discussion – Receive any report and information from Fire Truck Evaluation Committee; and – Consider any issues raised and actions relating to fire truck purchase.	Chair	7:05-7:55pm
4. Closing Public Comments and Adjournment	Chair	7:55-8:00pm

May 2, 2016

Town of Pomfret
Mr. Michael Reese, Select Board
Pomfret, VT

RE: FIRE APPARATUS BID ANALYSIS AND REPLY TO YOUR QUESTIONS

Ladies and Gentlemen:

At the request of Michael Reese; I would like to answer the following questions in a written format to assure there is no mis-understanding on my comments and suggestions from recent Emails and our conference call of last week on your fire apparatus purchase. I have not looked at the bid figures nor have I recommended one particular bidder.

Questions are as follows:

1. **Differences in quality and completeness of weight and center of gravity analysis**
   a. I have reviewed the weight analysis and center of gravity information of the three (3) bidders. I find the analysis of KME to be the 'overall best' in supplying information. It is the most complete and supplied the fire department adequate information. However, the KME C/G is higher than NFPA standards.
   b. Of the (3) companies, EONE is the heaviest truck, KME in the middle, and Rosenbauer is the lightest.
   c. EONE calculations were based on a previously delivered 2 x 4 vehicle with 500# added for the 4 x 4 modifications (which appears too light and does not reflect the weight of the transfer case on the rear axle loading). There was no break down for the chassis, body, water, tank, fire pump, and other components to compare to the other companies

2. **Composition of metal on Rosenbauer bid**
   a. The Rosenbauer bid in my opinion is un-responsive and in non-compliance to the Pomfret specifications. They bid a .125" aluminum body with a plain steel angle and channel sub-frame. The Pomfret specs call for a .188" aluminum body and aluminum or stainless steel sub-frame. Compartment doors are .125" aluminum while the Pomfret specs call for .188" aluminum. Since Rosenbauer builds custom fire apparatus, they can easily furnish such required metal thicknesses.
   b. KME body meets the intent of Pomfret specifications, with a shorter wheelbase, but compartments generally meeting the cubic foot space requirements. However, they are of a different design and layout from the other bidders with a much shorter wheelbase.

c. EONE body meets the intent of the Pomfret specifications, with a longer wheelbase, and the most compartments space (which could be a problem with their heavier body and a special 31,000 lb axle rating.) It would appear that EONE takes no major exceptions vs. the Pomfret specifications.

3. Weight on rear axle (and distribution of weight between front and rear axles)

a. All bidders were fairly close in weight distribution, with the ROSENBAUER in best shape with the most weight on the front axle….due to their 265" wheelbase. NOTE: this was caused by a much lighter body than the other bidders.
b. KME noted a 2% safety factor on the rear axle estimate. But the hose load calculations appear to be too light vs. the hose load estimated by EONE. (this is important at this stage)
c. We need to secure hose bed dimensions on all (3) bidders to calculate the maximum hose load that could be installed by the FD in future years….which could add even more weight on the rear axle.
d. We also need to determine from the hose manufacturers the actual in-service weight of the specified fire hose.
e. The Pomfret FD needs to weight and measure all of their loose equipment for this vehicle; in addition, where it will carried on the vehicle. And/Or Tell the bidders how much actual weight is going into each of the right, left, and rear compartments.
f. In my opinion, I would estimate 2500 to 3000 lbs of fire equipment for a rescue-tanker-pumper fire apparatus. In addition, the fire department should estimate the weight of future equipment as: HRT equipment, generator, portable pump, and other heavy equipment could be added by FD in future years.

4. Lengths of wheelbase and impact on turning radius

a. EONE: 262", KME: 238", and ROSENBAUER: 265" wheelbases
b. Turning radius with a 4 x 4 front axle driving is not as good compared to a 2 x 4 chassis with only rear axle drive.
c. The four door crew cab adds approximately 45" more to the wheelbase vs. a two door cab.
d. The impact on the turning radius is not good with a 260" to 265" wheelbase.
e. I would recommend a wheelbase with a maximum of 230" to 245" length, preferably with a smaller water tank

5. **Impact of center of gravity**
    a. The NFPA C/G recommendations are noted in the ROSENBAUER and KME information supplied (around 59" to 60" range.
    b. KME exceeds the C/G limit
    c. All (3) bidders denoted ESC as part of their bids
    d. All (3) bidders have tilt table capabilities at their factories
    e. With a smaller 1300 or 1400 gallon water tank the water tank
    f. An estimated 2.6" inches in C/G could be reduced for each 100 gallons of water in water tank reduction in volume.

6. **Potential legal liabilities**
    a. The "special" rear axle rating was provided by only one bidder: EONE over the "commercial" over the road rating by the chassis manufacturer.
    b. I would recommend that the successful bidder be required to provide a new weight analysis study based on an the PFD equipment load or 2500 to 3000 lbs equipment estimated load, with it divided into sections for all the compartments
    c. If the successful bidder could have a 3% to 4% "safety factor" on each axle estimated into the 'load calculations' to provide for adequate future loading on the fire apparatus – that would be highly recommended
    d. All vehicles in the PFD fleet should be weighed each year on the front, rear, and both axles, with weight receipts kept on file for future reference.
    e. If the vehicle is over loaded when in-service the PFD, Selectmen Board, fire apparatus dealer and manufacturer surely would have potential legal liability exposure

7. **Safety risks of the weight combined with conditions of use in rural Vermont fire department**
    a. The Vermont rural country roads are well known for their characteristics and dangers in winter driving conditions.
    b. To "push a vehicle design" to its absolute weight limits (or even upgrade an axle for a higher rating) when it is brand new is not a "prudent" decision.
    c. The safety risks of a 47,000 lbs GVWR vehicle are 'considerable' with a single axle chassis, especially with volunteer firemen without a CDL license.
    d. I have never seen a fire truck in-service that does not "gain weight" over the years with extra or new equipment, hose load, or rescue equipment that is presently not on a FD vehicle.

8. **Possible options to address the weight issues: less water, single cab vs. double cab, etc**
    a. The options to make this vehicle safer are as follows:
        i. Change the cab to a (2) door version and reduce the wheelbase by 24" to 36" range

        or

        ii. Reduce the center of gravity and weight of the vehicle by lowering water tank with a (4) door cab by 100 to 200 gallons.

The impact of EITHER of these two options will dramatically change the fire apparatus safety, turning radius, center of gravity, and in-service weight. Please note that Fire Chief, Selectman Board, nor I could have "estimated" the potential in-service weight of this vehicle PRIOR TO the bid opening.

Only qualified fire apparatus engineers are capable of such load studies at each fire truck manufacturer. As you have seen, each company calculations and reports are different. Such load studies are full of "estimates" and dangers when the fire department does not provide the manufacturers with an exact weight inventory of equipment. In a volunteer fire department and the next election of officers could bring a new Fire Chief and officers with a "totally different opinion" of fire truck inventory and hose load. Thus, we must annually weigh all fire apparatus in service to track weight changes.

The final bottom line choices for the Selectmen and Fire Department officials are simple in nature: a) (2) door cab or b) reduce the water for an adequate safety factor. Driver education and training will be essential on this apparatus! These are the most dangerous fire apparatus on the road in the USA and Vermont is one of the most hazardous winter time driving areas. The liability and dangers are known and proven by NFPA statistics.

I wish your Township the very best and a safe future with this new fire apparatus!

Respectfully submitted

FIRE APPARATUS CONSULTANTS

Alan Saulsbury

Alan Saulsbury, President