

FIRE INVESTIGATION VEHICLE BUILD ON A BUDGET

Construction of the East Fishkill Fire District Fire Investigation Unit Vehicle

By Karl Vollmer, Lieutenant EFFD FIU

The East Fishkill Fire Investigation Unit is a specialized unit within the East Fishkill Fire District in Dutchess County, New York. The district covers 56 square miles and responds to approximately 2400 calls per year. The EFFD Fire Investigation Unit was formed in 1989 and is currently comprised of 15 members, 7 of which are New York State Pro Board Certified Fire Investigators, and is supervised by a Captain and Lieutenant both of which are appointed by the Chief of the Department. The Investigation Unit responds to, on average, approximately 15 to 20 investigations per year. The unit has been utilizing a retired ambulance, a 1998 Ford Econoline chassis / AEV ambulance box retrofitted for our Investigation Truck. In 2020, then Asst. Chief of Fire Investigations Scott Lombardo and I approached our Board of Fire Commissioners requesting a new investigation vehicle. We cited the enhanced design of having a separate and distinct interview area and also explained that this vehicle, when not being used for fire investigations, could be utilized for multiple other functions including but not limited to, a mobile command vehicle. Our research showed that such a vehicle, custom built to our specs, would cost well in excess of \$250,000.



In collaboration with the Board of fire Commissioners, and to keep cost to the taxpayers down, we agreed to purchase the base vehicle and the team members would build the vehicle for a budget of \$100,000. This presented a myriad of challenges including purchasing all of the necessary outfitting (shelving, cabinetry, emergency and interior lighting, electrical wiring, and interview area configuration as well as the actual construction and installation of all those components) in addition to the cost of the vehicle AND mustering the people with the skills needed to build such a vehicle. As is the case in any fire department, we had several members, both FIU members and district members, with various skills and expertise, more than willing to assist us. We certainly had vast pool of experience and knowledge to draw from. With all this knowledge, skill and experience we were confident we could conquer the task of constructing the vehicle. However, this was a task we never had taken on before so it was still quite unnerving.

We researched the various vehicles, models and configurations and determined a van style vehicle would fit our needs while being compatible with our plan to construct it ourselves. The van style



platform allowed for outfitting the vehicle with shelving and cabinetry rather than custom building and fabricating compartments. Our wish list for the vehicle was to have sufficient space for all our equipment and to have a separate and distinct interview area. The separation between the equipment area and interview area was of paramount concern for us due to the prevalence of cancer awareness and safety in the Fire Service today. We opted for the diesel engine option

and, for added traction in inclement weather, four-wheel drive would be required. After extensive research we chose the Mercedes Benz Sprinter Van 2500 series 170" Wheelbase Extra High Roof model

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as this would accommodate the weight of the outfitting and equipment. Of all the available van style makes and models available the Mercedes was the clear choice since it offered all the specifications we required.

We solicited local dealerships around our area and eventually purchased the vehicle from Mercedes Benz of Wappingers Falls. The dealership, working with Mercedes Benz USA, stepped in, and offered us discounted fleet vehicle pricing which substantially lowered the cost of the vehicle.

We separately purchased running boards, tow hitch, van flooring, Ranger bulkhead solid wall divider, Ranger shelving, Ranger upright lockers, Legend insulated walls, ceiling and door panels, LED interior lighting and other incidentals from Advantage Outfitters. Advantage Outfitters was also very helpful with technical assistance along the way when we encountered any issues or questions regarding installation. A tool cabinet was purchased from Lowes. All emergency and scene lighting as well as siren and controllers were purchased from Covert Lights. We did not want any gas-powered equipment or generators whatsoever on the vehicle so we outfitted the van with a 3000-watt Kussmaul charger / inverter. This would allow us to run all electrical power for lighting and tools from the van. The charger / inverter has three exterior plugs, one for battery charging and shore power while charging, a second for direct shore power from house electric while in the apparatus bay and a third exterior plug for outgoing power to be used in the field on fire investigation scenes.



Hopewell Fire Apparatus Service Co., a local fire and emergency apparatus service company, installed all the emergency lighting, vehicle scene lighting and inverter as well as all wiring for those systems. They were also very helpful with technical assistance and guidance during the construction of the vehicle as well as providing metal fabrication of needed bracketry and other components. Based on a suggestion from Hopewell Fire Apparatus, the Ranger shelving, lockers and tool chest were all installed utilizing Superstrut (Unistrut) channel. This system allowed unlimited placement options of those units along the van walls as well as easy relocation if we needed to do so.



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There are two lengths of the Superstrut on each side of the equipment area, one high and one low, to facilitate even distribution of weight on the attachment points. Electrical outlets, both 110 and 12 volts, were installed high on both the driver and passenger side of the tool area above the shelving. This allowed the installation of RPT's on each side to accommodate all equipment battery chargers.

The entire tool and interview areas were clad with Legend wall, ceiling and door protective insulated wall panels. LED lighting was installed to maximize illumination of the shelving area. A door was installed on one of the shelves with a dedicated LED light inside. This shelf is dedicated for sensitive equipment such as photographic equipment and supplies, CO and gas meters and laser measuring devices along with chargers for those devices.

We installed Z Tec extinguisher holders to store multiple water can extinguishers that can be used to wash down investigation scene areas. A separate open area between the bulkhead wall and passengers side shelving unit accommodates storage of our Little Giant ladder, screens, table and EZ Up canopy tent.



The interview area seating and table were fabricated and installed by a local woodworking shop. They fabricated, built and installed an L shaped bench seating area with a storage tower for our laptop and printer in the corner of the "L" The bench seating along the partition wall has accessible storage beneath while the driver's side bench seat and back rest are removeable so as to allow access to the inverter and electrical distribution below. Expanded metal mesh integrated into the under-seat walls allows for air circulation necessary for the inverter. The tower for the laptop and printer is also completely removeable and allows access to the electrical distribution area below.

The interview area is accessed from the passengers' side slider door and is separated from the rear of the vehicle by the solid bulkhead wall installed by us. The interview area is open to the front of the vehicle and the drivers and passengers' seats swivel 360° to allow additional seating in that area. The tabletop and post stanchion are detachable and removeable and able to be stored in the under-seat storage area.

JP Graphics was solicited to develop and design the graphics for the van as well as a dedicated decal specific for our team. They designed a graphics package that was overwhelmingly accepted by the team and approved by the District Board of Commissioners. All the decals,



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lettering and striping were made from reflective materials to assist in making the vehicle more visible.



When the entire project was completed, the total cost for the vehicle was less than \$90,000 and provided us a versatile vehicle which, in addition to an investigation vehicle, can also be utilized as a support vehicle for the district if needed.

Many hours were invested in planning and researching the appropriate vehicle, options, outfitting and equipment. This is aside from the more than 200-voluntary man hours, invested by the members of the team and district, designing, organizing and constructing the vehicle. This project is an example of identifying the need for an investigation vehicle, requiring legitimate justification for the vehicle then properly presenting that need and justification to the authority having the power to approve the project. As the individuals making the request, we had to appreciate the Commissioners responsibility and duty to spend taxpayer dollars wisely and balance that concern with our need for a new vehicle. With all parties working together and respecting each other's opinions and responsibilities we were able to arrive at a resolution that satisfied everyone involved and provided us with a versatile and useful investigation vehicle.



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If anyone is interested in any other additional information please feel free to contact us at either of the following contacts:

East Fishkill Fire District: 845-226-1652;

Karl Vollmer EFFD FIU Lt.: 845-499-3684; wardenklink@hotmail.com

Advantage Outfitters: <https://advantageoutfitters.com>

JB Graphics: 845-797-2423