DEVON & SOMERSET FIRE & RESCUE SERVICE

Rapid Intervention Vehicle

Pilot Closure Report

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1. INTRODUCTION

1.1 Background

The introduction of new Emergency Response Standards (ERS) in 2009 required the service to evaluate its distribution of resources with the aim to improving response times, geographic cover whilst at the same time placing emphasis on local risk.

A full Service Delivery Review was undertaken between June 2009 and June 2011. The review examined a range of vehicles/equipment against a range of risk factors and modelled a number of possible vehicle distribution scenarios against the national Emergency Response Standards (ERS).

The Service Delivery Review found that the existing locations and distribution of vehicles and the distribution of equipment were not aligned to risk and are not standardised.

A Response Asset Blueprint for the future was produced and recommended that a **Tiered Response** should be implemented. A significant number of smaller, lighter and more manoeuvrable fire appliances would be supported by a number of strategically located standard appliances or Medium Rescue Pumps (MRPs).

A project to design and build **Light Rescue Pumps** was initiated in 2011. These appliances have a Gross weight of 8.5T and carry the equipment needed to cover 80% of the incident types that the SERVICE is currently required to deal with. It is planned that 37 of these new appliances will be operational by the end of the 2015/16 financial year.

1.2 Vision

The SERVICE recognise that community risk is changing over time, and so to meet these new challenges we may no longer have a requirement to locate our present type of operational resources in their current positions.

Following the lessons learned from developing the Light Rescue Pump project, the SERVICE wish to take further advantage of modern technology and new ways of working to enhance its ability to meet our Community Safety and Firefighter Safety commitments.

It has been decided to explore a range of different fire appliance configurations aligned to evidenced risk assessments so that we can continue to improve our emergency response service.

1.3 Rapid Intervention Vehicles

In line with the Tiered Approach the type of technology selected will be aligned to the risk and would incur minimum training time and costs for maximum effect on firefighter safety.

The SERVICE has decided to run a **pilot** that will examine a range of different rapid intervention vehicle (RIV) configurations to assess the following criteria:

- Matching resources to risk – sending fewer resources (2/3) to incident that they can either deal with or start to deal with
- Firefighting from a point of relative safety i.e. outside the premises
- Suppressing the fire so that firefighters can subsequently be committed into a safer environments in terms of temperature and visibility
- Improving availability as these vehicles may be crewed by two/three/four personnel
- Improving ERS as appliances could be mobile without waiting for 5 personnel
- Improving Community safety due to the above
- Cost saving (Approximately £100k as opposed to £180K (LRP) and £250K (MRP))

- Reducing establishment at all On Call stations
- Reducing operating costs as the vehicle will have multiple functions (i.e. also used for co–responding

1.4 Pilot Timescales and Rational

The pilot started in March 2015 and is due to complete in February 2016. The pilot vehicles are located at different busy stations to achieve the maximum usage in the shortest period of time. As these vehicles are not fully operational (no MDT carried) it was decided to pair them up with an existing operational appliance and Fire Control would dispatch both appliances to a single incident. Having the two appliances dispatched at the same time enabled an accurate comparison of arrival time and the effectiveness of the RIV concept.

Stations were requested to complete a Survey for each instance for which an RIV has deployed irrespective of whether or not it was utilised at the incident. A summary of the survey findings to date are provided in Section 3 of this report and the full set of raw data collected is available in ANNEX A-F of this report.

2. SCOPE OF PILOT

2.1 Range Of Vehicles and Equipment Evaluated

The following vehicles were selected for evaluation:

Option 1 VW T5 3.2T Van with a Brendon Pump powered by a 16HP Honda petrol driven engine

Option 2 VW T5 3.2T Van with a Vehicle Misting Systems Pump driven by a 6.5HP Briggs & Stratton Vanguard pump

Option 3a Toyota Hilux 3.5T Pickup with a Briggs and Stratton petrol engine driving a Hale HPX 75 pump

Option 3b Isuzu 3.5T Pickup with a Briggs and Stratton petrol engine driving a Hale HPX 75 pump

Option 4 Mercedes Sprinter (MWB) 5T van with a Briggs and Stratton petrol engine driving a Hale HPX 75 Pump

Option 5 Mercedes Sprinter (LWB) 5.3T van with a Briggs and Stratton petrol engine driving a Hale HPX 75 Pump

Option 6 Iveco Daily 6.7T crew cab with a PTO driven Godiva 20/10 pump

3. PILOT EVALUATION EXECUTIVE SUMMARY

3.1 Introduction

The pilot has been an extremely successfully exercise. The process has not only provided a wealth of data on which to base an informed decision but also exposed the RIV concept to operational staff and enabled them to feedback comments.

Over the course of the entire pilot, RIVs were called out 380 times and 300 survey reports were returned.

On average response to 'Arrival At Scene' was 2 minutes faster than the standard appliance with a best figure of 10 minutes

The intention was that the RIV would be committed as soon as there were sufficient crew for that one vehicle and then the standard appliance would follow as soon as possible afterwards. Some stations have been waiting for the full crew to turn out before deploying the RIV.

It is therefore likely that the average response time achieved is statistically low.

It should also be noted that the RIV pilot vehicles were not fitted with an MDT and so were reliant upon Control operators entering mobilisation and attendance timings into the incident narrative and the data hub's subsequent extraction for comparison.

The results of the survey have been summarised below. The results of individual vehicles are documented in Section 3 of this report. The vehicle details and raw survey comments are included in Annex A-F of this report.

3.2 Overall Key Observations

3.2.1 General

The RIV consistently arrived at the incidents quickly, well in advance of the main appliance. This enabled the crew to start to deal with the incident immediately preventing escalation.

Rapid progress to incidents allowed early decisions and planning to be undertaken. However, the lack of an MDT and having only the main scheme radio made it difficult to send early informative messages or allow additional crews to gain information quickly and effectively.

3.2.2 Options 1, 2, 3a and 3b

The concerns expressed with regard to this 3T type vehicle were common in many respects. There was a common frustration expressed by crews that these smaller vehicles significantly restricted the incident types that a reduced crew could deal with. The following types of observations were made repeatedly against all four vehicle types:

Water

- There were frequent occasions when the water supply ran out completely before the second appliance had arrived.
- 200 litres of water was insufficient to extinguish a car fire.

Firefighting Equipment

- The amount of equipment carried was insufficient when using the vehicle unsupported. No ladder carried.
- For many incident types attended the hose was found to be too short.

- Having reached the incident quickly the lack of equipment limited what could be achieved in the time before the main pump arrived.

Environmental

- High levels of cab noise made it difficult to hear the radio when in use and did not provide an effective working environment.
- When the pump was running the pump operator CO Monitor and the OIC CO monitor in the crew cab frequently went into Alarm, causing concern that CO levels were high and that engine emissions were entering the vehicle.
- The space for crew in the front and backseat is far too small especially when wearing fire kit and PPE.

The overall conclusion drawn from the pilot data is that these types of vehicles are too small to provide the range of capability that is needed in a Rapid Intervention Vehicle.

3.2.3 Option 4

There were significantly fewer comments received with regard to this option. This can be attributed to the fact that the vehicle carried 550 Litres of water and that there was a more powerful pump fitted.

The most significant comments were:

- When the pump was running the pump operator CO Monitor went into Alarm.
- The pump is noisy. A rear speaker for the main radio is needed so the crew can hear messages. Ear defenders needed.

The overall conclusion drawn from the pilot data is that this vehicle's size and weight bearing capacity is satisfactory. The issues arising from the use of a petrol engine to power the pump need to be addressed.

3.2.4 Option 5

The use of a combined fire appliance and ambulance is unique and as such the evaluation of this vehicle is specifically associated with the role of co-responding.

The most significant comments were:

- Response time to incidents was excellent - much faster than a second appliance even over a short distance.
- At one incident the fire was already under control before the second appliance arrived.
- At an RTC the casualty was placed in a warm, dry, well lit area of the appliance. A doctor on scene was then able to assess the casualty. Doctor, Police and Paramedics all commented on how useful this space was.

The overall conclusion drawn from the pilot data is that this vehicle has great potential but only as part of an integrated response strategy with the South West Ambulance Service Trust.

3.2.5 Option 6

Although originally considered part of the pilot this vehicle was deployed operationally at Porlock and was therefore not part of survey.

3.3 Conclusions

The pilot has demonstrated that the concept of a Rapid Intervention Vehicle is sound.

However, the use of a petrol engine to drive the pump has a number of major issues and is therefore not viable going forward. The proposed solution is to revert to a traditional vehicle engine driven Power Take Off (PTO) to drive the pump.

A consistent message from the crews was that, given sufficient water and equipment, this vehicle would be capable of dealing with a reasonable number of incident types alone and a significant number when supported by a Light or Medium Rescue Pump (LRP/MRP).

There is a risk that the crew enthusiasm for having greater capability built into the vehicle results in the size creeping up closer and closer to matching that of a LRP/MRP. To mitigate this risk the project team plan to establish a User Group and use that forum to propose a list of incident types. The list will be presented to the Project Board and after due challenge, agreed.

The list of incident types can then drive decisions regarding the number of crew, water capacity and equipment carried. These decisions will then shape the size and type of vehicle chassis.

To aid these deliberations the SERVICE has been able to acquire the loan of a vehicle (at minimum cost = £600) for eight weeks. This vehicle has been developed by Pickup Systems. Whilst this vehicle should NOT be considered the complete solution to our requirements it has the benefit of encompasses a number of the lessons learned from the pilot.

The project team, in association with the User Group, will use this opportunity to develop the User and Technical Requirement Specification which will form part of the formal procurement process documentation.

4. PILOT OBSERVATIONS

4.1 Option 1

4.1.1 Observations

4.1.1.1 Performance

The RIV consistently arrived at the incidents quickly, well in advance of the main appliance. This enabled the crew to start to deal with the incident immediately preventing escalation.

Rapid progress to incidents allowed early decisions and planning to be undertaken. However, the lack of an MDT and having only the main scheme radio made it difficult to send early informative messages or allow additional crews to gain information quickly and effectively.

4.1.1.2 Equipment

The limited stowage caused problems with regard to PPE and documents required to be held. The lack of structured stowage meant that items often had to be left loose on the floor of the vehicle impacting on safety and crew comfort. The lack of crew cab lighting made operating at night difficult.

4.1.1.3 Firefighting

There were frequent occasions when the water supply ran out completely before the second appliance had arrived. The best that was achieved was the pump ran for in excess of 15 minutes.

For many incident types the hose was found to be too short.

The CAF functionality was praised and delivered CAFs straight away when in use and offered good knock down so that the fire was dealt with by the time the supporting appliance arrived.

4.1.1.4 Environmental

High levels of cab noise made it difficult to hear the radio when in use and did not provide an effective working environment.

When the pump was running the pump operator CO Monitor and the OIC CO monitor in the crew cab frequently went into Alarm, causing concern that CO levels were high and that engine emissions were entering the vehicle.

NOTE: See ANNEX A for full details

4.2 Option 2

4.2.1 Observations

4.2.1.1 Performance

Consistently impressed by how easy it was to gain access down narrow lanes and single lane roads with oncoming traffic.

The lack of an MDT hampered crews in terms of identifying exact locations of incidents thus negating time advantages and also appreciation of total crew numbers mobilised made effective make up when at scene ineffective.

4.2.1.2 Equipment

The battery powered hydraulics proved to be really effective and in some cases the dedicated kit was not required as the battery powered combi tool was good enough.

BA Stowage was poor.

No stowage for paperwork or PPE which had to be left loose in the cab.

The amount of equipment carried was insufficient when using the vehicle unsupported. No ladder carried.

4.2.1.3 Firefighting

200 litres of water was also found to be not sufficient to extinguish a car fire and the hose reel on the RIV had to be used in conjunction with a high pressure hose reel from the MRP.

4.2.1.4 Environmental

The misting was found to be very loud in operation making fire ground communication difficult and the hose on the unit was difficult to re-stow due to a poor roller system.

NOTE: See ANNEX B for full details

4.3 Option 3a and 3b

4.3.1 Observations

4.3.1.1 Performance

Vehicle handling could be better. It is possible that the weight of equipment and water affects handling. The vehicle doesn't handle well when braking especially in the wet.

As the incident was 7 miles away we got there a lot quicker than the main pump.

4.3.1.2 Equipment

The battery operated RTC kit was excellent but it needs to be located on the opposite side of the vehicle away from the road / carriageway.

Vehicle called to a chimney fire. It was good that the crew were able to make an assessment but would have been more productive with chimney gear. The crew had to wait until the second pump arrived.

4.3.1.3 Firefighting

Larger water supply needed. There were repeated incidents when the water supply was insufficient for this incident.

There were repeated problems with the pump, experiencing frequent air locks that prevent the equipment from working

A small ladder is required. At an incident ‘persons reported on first floor’ the crew were unable to access.

4.3.1.4 Environmental

There is a lack of room for PPE stowage.

The space for crew in the front and backseat is far too small especially when wearing fire kit and PPE.

When on general duties fire kit needs to be stowed and there was no room for this.

With 3 crew members and fire kit on board there was very limited space.

NOTE: See ANNEX C for full details

4.4 Option 4

4.4.1 Observations

4.4.1.1 Performance

The vehicle was much faster to the incidents than the second fire appliance.

4.4.1.2 Equipment

A drag fork would have been useful to pull refuge apart.

The pump is noisy. A rear speaker for the main radio is needed so the crew can hear messages. Ear defenders are needed.

Drop lead connection plug too close to the driver's door.

MDT and SAT NAV required.

4.4.1.3 Firefighting

A crew of 3 not practical or safe with 2 BA sets on board as rapid deployment is stressful enough with a crew of 4

4.4.1.4 Environmental

Rear seat needs arm rests for extra support for crew member when cornering.

When the pump was running the pump operator CO Monitor went into Alarm.

NOTE: See ANNEX D for full details

4.5 Option 5

4.5.1 Observations

4.5.1.1 Performance

Very good acceleration.

Response time to incident was much faster than second appliance even over a short distance. 5 minutes sooner at arrival over an uphill 4 mile drive

Easy to manoeuvre into sheltered accommodation which is very restrictive.

4.5.1.2 Equipment

Stowage poor for kit and folders.

Very limited room for PPE.

No MDT for location of incident.

4.5.1.3 Firefighting/ambulance

The pump is quick to start and easy to use.

At one incident the fire was already under control before the second appliance arrived.

Casualty was taken from the RTC and placed in a warm, dry, well lit area. A doctor on scene was then able to assess the casualty. Doctor, Police and Paramedics all commented on how useful this space was. In reality with a doctor present and the RIV there was no need for an ambulance

4.5.1.4 Environmental

Sirens sound quiet in cab but very load outside good for radio messages on route.

Good crew comfort.

CO meter activated in the pump operators position, Alarm kept sounding unless the pump operator moved at least 2 metres away.

NOTE: See ANNEX E for full details

4.6 Option 6

Although originally considered part of the pilot this vehicle was deployed operationally at Porlock and was therefore not part of the survey.

NOTE: See ANNEX E for full details

Full Vehicle Details

Raw Pilot Survey Comments

5. ANNEX A

5.1 Option 1

5.1.1 Chassis

VW T5 Van 4x4

Maximum crew of 3 firefighters (300 kgs)

5.1.2 Pump

Pressure washer

Brendon Pumps Engine – Honda 16hp

Standalone engine/pump/hose reel unit in a frame – Weight 167kg

5.1.3 Firefighting Capability

Water	200 Litres
Pressure	100 bar
Max Delivery	40Litres/min
Continuous use	4 minutes
Hose reel	30 metres of 12mm hose
Foam tank	20 litres

5.1.4 Attributes/Capability

Fire fighting

Environmental protection

RTC

Highway Scene safety

Co-responder

Water Rescue (Level1)

5.1.5 Weight

Total 3120 Kg

Total GVW 3200 Kg

5.1.6 Advantages

Inexpensive pump system

Simple to build

Quickly assembled – short lead time

Good cab crew environment

Minimal training required

Good water flow (> 30 Litres/Min)

Can go into a car park with a height barrier

5.1.7 Disadvantages

Limited to a crew of three

Limited amount of water

Through life costs – limited life (7 years)

5.1.8 Data analysis

Incidents attended = 53

Number of times RIV used at incident = 20

5.2 Raw Comments from Survey

5.2.1 Crew Comfort

High cab noise levels

OIC has little room for his PPE to be stowed (PPE tends to be loose in the rear of cab)

Driver's kit is put in the back which then gets in the way with 3rd crew member

No crew cab lighting when on the move (i.e. red light)

5.2.2 No. of Seats

3 seats limited the range of activities that could be performed.

5.2.3 Driving / Handling / Braking

Folding mirrors very good

The vehicle took a long time to de-mist due to no A/C or heated front window

5.2.4 CO emissions

As the pump was running to deliver FF Media our CO Monitor in the crew cab attached to our co responder kit went into Alarm, highlighting that engine emissions enter the Vehicle

5.2.5 Media (Water)

Ran out of water very quickly

Hose was not long enough

5.2.6 Equipment

Poor stowage for BA sets, tray needs to be turned 90 degrees clockwise, so sets are beside rear crew seat.

Using the CAF Lance delivered CAFs straight away as first attack on the engine compartment of the vehicle. Good knock down Fire dealt with by the time the appliance arrived.

Pump would not start due to flat battery. No effective battery guard fitted

Crew we were very impressed with Mini ejector pump, the only issue we found was the hose on the ejector was not long enough. As an easy fix we would suggest that a female coupler be fitted to the end of the hose so a 45mm hose can be attached. In the test we found the tank to last over 15 minutes.

Charger required for the pump - trickle charge as all battery powered equipment often is low on life at incidents

Scene lighting needs angling down for the incident at the moment it is too high and illuminates over hedges

5.2.7 Access / Attendance

RIV arrived at the incident nearly 4 minutes before the appliance. RIV dealt with the car Fire with ease and arrived early enough to prevent an escalation of the incident.

Rapid progress to the incident allowed early decisions and planning to be made, however main scheme radio was busy so unable to send early informative or allowing additional crews to gain information.

6. ANNEX B

6.1 Option 2

6.1.1 Chassis

VW T5 Van 4x4

Maximum crew of 3 firefighters (300 kgs)

6.1.2 Pump

Vehicle Misting Systems Pump

Engine – Briggs & Stratton Vanguard 6.5hp

Standalone engine/pump/hose/reel unit in a frame – Weight 167kg

6.1.3 Firefighting Capability

Water	200 Litres
Pressure	17 bar
Delivery	45 Litres/min
Hose Reel	30 metres of 13 mm hose
Continuous use	3.34 min

6.1.4 Attributes/Capabilities

Fire fighting

Environmental protection

RTC

Highway Scene safety

Co-responder

Water Rescue (Level1)

6.1.5 Weight

Total	3120 Kg

Total GVW 3200 Kg

6.1.6 Advantages

Inexpensive pump system

Simple to build

Good cab crew environment

Minimal training required

Good water flow (> 30 Litres/Min)

This option is within the weight limit of the chassis

Can go into a car park with a height barrier

6.1.7 Disadvantages

Limited to a crew of three

Limited amount of water

Through life costs – limited life (7 years)

6.1.8 Initial Data analysis

Incidents attended = 85

Number of times RIV used at incident = 20

6.2 Raw Comments from Survey

6.2.1 Crew Comfort

High cab noise levels

Paperwork loose in cab

No dedicated stowage for PPE

6.2.2 No. of Seats

Insufficient crewing when you only have 2 personnel

6.2.3 Driving / Handling / Braking

Blue light visibility very good

6.2.4 CO emissions

As the pump was running to deliver FF Media our CO Monitor in the crew cab attached to our co responder kit went into Alarm, highlighting that engine emissions enter the Vehicle

6.2.5 Media (Water)

200 litres of water were not sufficient to extinguish the car Fire. The hose reel on the RIV had to be used in conjunction with a high pressure hose reel from the MRP

6.2.6 Equipment

Battery powered hydraulic RTC equipment was really effective at this incident. It was an old Car that didn't require the dedicated kit off the Rescue Tender and the battery powered tool was good enough

The misting unit is very loud in operation making fire ground communication difficult.

Hose on the misting unit is difficult to re-stow due to a poor roller system

A lack of powerful hand lamp also makes it difficult to identify street numbers at night

The pump stalled after 30 seconds of use and the fog produced did not have the penetrating power to easily extinguish the fire. If gas containers or aerosols were involved, we would normally suppress any bin fire from a distance before moving in to extinguish. However, the 'fog only' setting on the RIV requires a crew member to get very close the bin before water could be applied to the burning material

When the pump is used the tray vibrates back into the vehicle causing a hazardous situation

6.2.7 Access / Attendance

Easier access along narrow streets in the village

In a single lane access with oncoming traffic it was easy to reverse and manoeuvre. We could not have done this in an MRP.

RIV was not aware how many crew were on the following appliance as we left as soon as a viable crew was on station (useful for make ups etc.)

This incident could not have been dealt with using the RIV alone as ladders were required to access the site

This incident occurred in a residential area of Yeovil with cars parked on either side of the road in the areas surrounding the address. While it was possible for the main pump to get through it was easier for the RIV

RIV arrived a good 2-3 minutes before the Rescue tender which both left at the same time, improved ERS times

As the RIV is invariably ahead of the MRP, the lack of MDT is hampering RIV crew from finding the correct address. This means that any time gained over the MRP during the run is invariably lost as the crew hunt for an exact location for the incident.

This incident was in a part of Yeovil which is pedestrianised with restricted access for vehicles. It is possible to access with a MRP but access is tight and requires the vehicle to manoeuvre between bollards. Access to the incident was made quick and easy by the RIV

7. ANNEX C

7.1 Option 3a and 3b

7.1.1 Chassis

3a Toyota Hilux – 3.0 Litre turbo charged diesel engine.

3b Isuzu PickUp – 3.0 Litre turbo charged diesel engine.

Maximum crew of 3 firefighters (300 kgs)

7.1.2 Pump

Engine – Briggs & Stratton Vanguard

Hale HPX 75

Pump weight = 150 Kg

7.1.3 Firefighting Capability

Water	300 Litres of water
Pressure	22 bar
Delivery	170 Litres/min
Hose Reel	36 metres of 19 mm hose
Cont. use - Fog nail	3.5 min
Cont. use - Mist nozzle	5 min

<u>Off a hydrant</u>

63 mm delivery using lay flat hose

Delivery - 500 Litres/min

Pressure - 3.5 bar

7.1.4 Attributes/Capabilities

Fire fighting

Environmental protection

RTC

Highway scene safety

Co-responder

Water Rescue (Level1)

7.1.5 Weight

Total = 1131 Kg

7.1.6 Advantages

Inexpensive pump system

Simple to build

Quickly assembled – short lead time

Minimal training

Tried and tested concept

Improved following West Midlands lessons learned

Can go into a car park with a height barrier

7.1.7 Disadvantages

Limited water

Limited crew space

Limited stowage space

7.1.8 Data analysis

7.1.9 Option 3a

Incidents attended = 115

Number of times RIV used at incident = 21

7.1.10 Option 3b

Incidents attended = 64

Number of times RIV used at incident = 32

7.2 Raw Comments from Survey

7.2.1 Crew Comfort

Radio button is awkward to access from OIC side

There is a lack of room for PPE stowage in the vehicle

Lack of space for passengers in front and back, especially for their PPE

Rear seat crew is far too small

Stowage of information folders is in the pocket on the rear of the passenger seat or on the floor

The vehicle requires more room. With 3 crew members and Fire kit there is very limited space. When on general duties Fire kit needs to be stowed, there is no room

Fan heater does not work to demist the windscreen unless air conditioning is on.

7.2.2 Driving / Handling / Braking

Vehicle feels very unstable when cornering at speed

Vehicle handling could be better. Possibly weight of equipment and water affects handling

Vehicle doesn't handle well when braking especially in the wet

Will not drive above 90 mph, siren doesn't seem to warn vehicles ahead when at speed

Gearstick can be easily knocked out by someone operating the radio press switch

Does not handle well in wet conditions rear end constantly wants to slide out

7.2.3 CO emissions

No comment

7.2.4 Media (Water)

Larger water supply needed, it was insufficient for this incident, with an HR the tank was empty within a very short space of time. CAFs required

It was emptied within a very short space of time and was unsuitable for a wild Fire type incident

Car well alight not enough water to adequately extinguish the fire

A sustained attack with the limited resources on the RIV could have been an issue

Pump used for decontamination (cattle slurry) but tank ran dry

At a large tractor fire there was not enough water to properly attack the fire, but it was seen by members of the public that some Firefighting was started

7.2.5 Equipment

Experiencing repeated problems with the pump, experiencing frequent air locks that prevent the HR from working

Tool box - excellent

Battery operated combi-tool - excellent but it needs to be located on the opposite side of the vehicle away from the road / carriageway

Wedge blocks, to prevent vehicle on Fire potentially rolling away

There is an issue with the hose reel. It needs the correct branch otherwise it does not allow the correct flow of water to be delivered

A small ladder was required as this was persons reported on a first floor. We were unable to use the fog nail in its full capacity

Branch on vehicle for the hose reel needs to be adjustable. We got a better jet from using the fog nail

7.2.6 Access / Attendance

We would have had massive issues locating this incident had it not been for a recent station addition of a TomTom, to make this trial more accurate the vehicles really need to be fitted with an MDT or Sat Nav

To evaluate the vehicle fully an MDT is essential to allow accurate plotting of the address and make sure it goes to the same location as the pump

As the incident was 7 miles away we got there a lot quicker than the main pump. It was good that we could make an assessment but we could have been more productive with some small chimney gear until the main pump turned up.

8. ANNEX D

8.1 Option 4

8.1.1 Chassis

Mercedes Sprinter

Gross vehicle weight = 5T

Maximum crew of 4 firefighters (400 kgs)

8.2 Pump

Pickup Systems

HPX 75

Weight of pump and hose reel = 250 kg

8.3 Firefighting Capability

Water	550 Litres of water
Pressure	22 bar
Delivery	170 Litres/min
Hose Reel	55 metres of 19 mm hose
Cont. use - Fog nail	9.5 min
Cont. use - Mist nozzle	13.75 min

Off a hydrant

63 mm delivery using lay flat hose

Delivery - 500 Litres/min

Pressure - 3.5 bar

8.4 Application Method

Jetting
Fogging
Misting
Additives

8.5 Attributes/Capability

Firefighting

Environmental protection

RTC

Highway scene safety

Co-responder

Water Rescue (Level 1)

SHACs Level 1

8.6 Weight

Total vehicle weight = 4420 Kg

Gross vehicle weight = 5200 Kg

8.7 Assembly

Pickup Systems

8.8 Advantages

One stop shop build

Good water volume (>30 Litres/min)

Good crew cab environment

Minimal training required

Full equipment inventory

Quickly assembled

Good cab crew environment

Good water flow

8.9 Disadvantages

Cannot go into a car park with a height barrier

8.10 Initial Data analysis

Incidents attended = 16

No. of times RIV used at incident = 7

8.11 Raw Comments from Survey

8.11.1 Crew Comfort

Rear seat needs arm rests for extra support for crew member when cornering

MDT and SAT NAV required.

Mobile phone required.

Crew of 3 not practical or safe with 2 BA sets on board as rapid deployment is stressful enough with a crew of 4

8.11.2 No. of Seats

A fourth seat would be beneficial so a full crew would be in attendance especially where BA is needed instantly

8.11.3 Driving / Handling / Braking

Brakes are a bit spongy, with a lot of play on the pedal, although when pumped worked well

8.11.4 CO emissions

When the pump was running the pump operator CO Monitor went into Alarm

8.11.5 Media (Water)

No concerns were raised

8.11.6 Equipment

A drag fork would have been useful to pull refuge apart

Pump operator said the pump was noisy, could have done with a rear speaker for the main radio and couldn't hear messages on the mobile radio

Drop lead connection plug too close to the driver’s door as cable being bent

Ear protectors provided for the rear of the pump when operating the pump are not suitable to use with our Fire helmets. When the pump operator put on the ear defenders he could no longer put on his helmet correctly and safely

8.11.7 Access / Attendance

Vehicle was much faster to the incident than the pump

9. ANNEX E

9.1 Chassis

Source - Terberg

Mercedes Sprinter

Gross vehicle weight = 5T

Maximum crew of 4 firefighters (400 kgs)

9.2 Pump

Godiva 12-10 LPP

9.3 Firefighting Capability

Water	500 Litres of water
Pressure	100 bar
Delivery	51 Litres/min
Continuous use	15.5 minutes
Hose Reel	60 metres of 19mm hose

9.4 Application Method

Fogging

Misting

9.5 Attributes/Capabilities

Fire fighting

Environmental protection

RTC

Highway scene safety

Co-responder

Water Rescue (Level 1)

9.6 Weight

Crew	400
Pump	133
Water	300
Equipment	281
Total =	**1095 Kg**

9.7 Assembly

Terberg

9.8 Advantages

One stop shop build

Good water volume (>30 Litres/min)

Quickly assembled

Good cab crew environment

Minimal training required

Single vehicle for multiple use

9.9 Disadvantages

For a large vehicle, firefighting capability compromised by reduced volume available for pump and equipment

9.10 Initial Data analysis

Incidents attended = 22

No. of times RIV used at incident = 18

Improved attendance time average = 02:52

9.11 Raw Comments from Survey

9.11.1 Crew Comfort

Sirens sound quiet in cab but very load outside good for radio messages on route

Stowage is poor for kit and folders, however crew comfort is good

Limited stowage for PPE in cab was placed in rear compartment

More stowage for forms etc. in cab area, also could have a 3 seater front cab

Left firefighter behind, needed rear camera on at all times

External camera to confirm passengers are in cab

Lightweight PPE for driver and crew would be useful with this vehicle so that crew can get straight to work on arrival as resources are very limited when only three crew members

9.11.2 Driving / Handling / Braking

Pulled very well up the long hill (to Barnstable cross)

9.11.3 CO emissions

CO2 meter activated whilst setting up from pump exhaust, in the pump operators position alarm kept sounding unless stood at least 2 metres away

9.11.4 Media (Water)

Pump was quick to start and easy to use, fire was already under control before second appliance arrived.

Pump location at side worked well

Barn Fire, required water bowser

9.11.5 Equipment

Large vehicle for co-responding

Good visibility at incident (Blue lights)

No MDT for location of incident

First Aid and theambulance compatiblestretcher. Tthe casualty was taken from the RTC and placed in a warm, dry, well lit area. A doctor on scene was then able to assess the casualty. Doctor, Police and Paramedics all commented on how useful this space was. In reality with a Doctor present and the RIV there was no need for an ambulance

MDT for information, as parking was on a bend on main road. Other appliances had to park elsewhere to eliminate traffic problems

Needs a MDT, needed it for hydrant location and crash net for battery location

9.11.6 Access / Attendance

Response time to incident was much faster than 38P2 even over a short distance. 5 minutes sooner at arrival over an uphill 4 mile drive

Easy to manoeuvre into sheltered accommodation which is very restrictive

Early attendance and would have been able to stop on-coming appliances as persons were out of lift prior to arrival

RIV was small enough to park on pavement.

Local estate access problems with our MRP

Co-responder call, if compared to our normal co-responder van it is quite well lit and at this incident we arrived shortly before RIV and was a 15 mile run. Then waited 15-20 minutes for an ambulance

10. ANNEX F

10.1 Chassis

Iveco Daily

Gross vehicle weight = 6.5T

Maximum crew of 4 firefighters (400 kgs)

10.2 Pump

Godiva 20/10 CAFS

PTO Driven

10.3 Firefighting Capability

Water	750 Litres
Pressure	22 bar
Delivery	>100 Litres/min
Continuous use	7.5 minutes
Hose reel	60 metres of 19mm hose
Chemical tank	

10.4 Application Method

Jetting

Fogging

Misting

CAFS

10.5 Attributes/Capabilities

Fire fighting

Environmental protection

RTC

Highway scene safety

Co-responder

Water rescue (Level 1)

Chimney fire

SHACS (Level 1)

Moorland Fire

Ladders

Breathing Apparatus

10.6 Weight

6.7T Gross vehicle Weight

10.7 Advantages

Proven capability

Full equipment inventory

10.8 Disadvantages

Limited to low pressure

10.9 Initial Data analysis

Nil