



**DEVON &
SOMERSET**
FIRE & RESCUE SERVICE

Tiered Response

Rapid Intervention Vehicle

Full Business Case

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1. EXECUTIVE SUMMARY

This Full Business Case does not stand alone but is an integral part of the new approach to delivering the Service's front line capability called 'Tiered Response'

This Full Business Case builds on the successful delivery of the Light Rescue Pump project.

This Full Business Case does not claim any of the benefits that may be accrued from the development of a new 'on call' availability model and/or changes to the crewing policy (appliances dispatched with reduced crewing numbers).

1.1 HM Treasury Five Case Model

HM Treasury recommends that all spending proposals should be accompanied by a proportionate and well-structured business case.

HM Treasury recommends the use of a Five Case Model:

- Strategic Case – Does the project support the strategic aims and objectives of the organisation?
- Economic Case – Will the project deliver value for money?
- Commercial Case – Is the project commercially viable?
- Financial Case – Is the project financially affordable?
- Management Case – Is the project achievable?

Only if the answer to all five questions is YES should the project proceed

1.2 Scope

This Full Business Case (FBC) covers the delivery of the Rapid Intervention Vehicle but is also an integral part of the Tiered Response approach.

Therefore it is important that this Business Case is recognised as one element of an overall bigger change programme covering the integration of three types of fire appliance strategically geographically located across Devon and Somerset.

1.3 Strategic Case

The proposals in this Full Business Case (FBC) contributes to the delivery of the following Service's strategic objectives:

- Fulfil obligations under the Fire & Rescue Services Act 2004, to make provisions for dealing with emergencies;
- Ensure that our emergency response teams will be deployed with the appropriate skills and resources;
- The number, composition and distribution of our emergency response teams will be based on the risks to the communities they serve;
- Ensure that our emergency response teams will be deployed with the appropriate skills and resources;
- Make sure safety is at the heart of everything we do;
- Train in a realistic way that reflects the risk our staff face and allows them to use the skills they will need at emergency incidents;
- Review and continually improve the way we work;
- Manage our assets to make sure they are efficient and that they effectively support public and staff safety;
- Investigate whether to introduce different response vehicles which use the latest advances in firefighting technology;
- Manage projects so we deliver them on time and on budget;
- Work within an agreed governance framework, putting performance management at the heart of our work;
- All our assets will be managed in the most cost effective way.

1.3.1 Investment Objectives and Benefits

| Objectives | Main benefits |
|---|--|
| Improved performance against Emergency Response Standards | Due to their enhanced manoeuvrability it is predicted that RIVs will arrive at incidents quicker than LRPs and MRPs and so ERS will be improved. Conversely, RIVs will be able to travel further than LRPs and MRP appliances in the same time span stretching ERS range and reaching more properties. |
| Improve Firefighter safety | <ul style="list-style-type: none"> • Reduced levels of equipment on RIVs will mean that there will be more time available for training on the equipment that is actually carried and used. • RIVs don't carry any equipment in the cab and so this has the potential to reduce injuries in the case of vehicle accidents |
| Improve efficiency through better use of resources | By matching resources against risk it will be possible to reduce the amount of equipment required to be carried (e.g. BA sets).and also the overall size of the fleet |

| Objectives | Main benefits |
|------------|---------------|
|------------|---------------|

| | |
|---|--|
| Achieve standardisation | <p>A standardised fleet with standardised equipment will:</p> <ul style="list-style-type: none"> • Allow stores to reduce the number of items held; • Allow the maintenance department to reduce their training requirements; • Allow one set of operating procedures to be used; • Enable effective attribute based mobilisation; • Simplify end user training requirements, procurement and contract management arrangements. |
| Reduce impact of the environment | RIVs are more fuel efficient than LRPs and MRPs. In addition RIVs carbon emissions are significantly lower than LRPs and MRs. |
| Reduce both Capital & Revenue Expenditure | <p>RIVs have lower acquisition and whole life costs compared to LRPs and MRPs.</p> <p>Reduced equipment levels on RIVs will reduce both capital and revenue expenditure.</p> |

1.4 Economic Case

Following the comprehensive evaluation of six different options over a period of nine months it was concluded that the option that provided the most cost effective option was to procure a specially designed light weight fire appliance based on a 7T crew cab chassis. This option will deliver all the objectives/benefits identified in paragraph 1.3.1 of the Strategic Case and the reduction in capital expenditure identified in paragraph 1.6.1 of the Financial Case.

The introduction of this option is low risk in comparison to all the other options. As a bespoke vehicle we can ensure it delivers all the Services defined requirements. In addition the ability to carry 5 firefighters makes this a much more flexible and viable alternative to current front line appliances. Its greater water and equipment carrying capacity make this a safe and effective vehicle with the ability to deal with the majority of incidents as a standalone appliance given appropriate crewing availability.

1.5 Commercial Case

The Commercial Case is focused on enabling the investment objectives/benefits identified in paragraph 1.3.1 of the Strategic Case and the reduction in capital expenditure identified in paragraph 1.6.1 of the Financial Case.

In March 2016, the CFOA National Procurement Group (NPG) and Transport Officers Group (TOG) approved the procurement of a national Framework Agreement for UK Fire and Rescue Emergency Response Vehicles (Pumping Appliances, Aerials and Special Vehicles). Devon & Somerset Fire & Rescue Service has led the procurement for this Framework Agreement, which includes the following DSFRS specific lots:

DSFRS Specific Lots 5a, 5b and 10

Lot 5a Light Rescue Pumping Appliances (3 to 7.5 tonnes) – Devon & Somerset FRS Rapid Intervention Vehicle (4x2 variant)

Lot 5b Light Rescue Pumping Appliances (3 to 7.5 tonnes) – Devon & Somerset FRS Rapid Intervention Vehicle Unit (4x4 variant)

Lot 10 Incident Support Unit (Light Special Vehicle) – Devon & Somerset FRS

The Framework Agreement has been proactively marketed through pre-procurement engagement to both established and new entrants to the market. The procurement has been carried out in compliance with the Public Contract Regulations 2015 and therefore offers the Service a compliant route to market and can demonstrate that the opportunity has actively sought competition.

The Framework Agreement is due to be awarded by 21st February 2017, with a go-live date of 27th March 2017.

The Commercial Case is focused on enabling the investment objectives/benefits identified in paragraph 1.3.1 of the Strategic Case and the reduction in capital expenditure identified in paragraph 1.6.1 of the Financial Case.

1.6 Financial Case

1.6.1 Summary of Reduction in Capital Expenditure

The following table illustrates the reduction in capital expenditure that can be achieved by the introduction of the full Tiered Response approach and still maintaining a modern, effective and versatile front line operation fire appliance fleet.

| Fleet | 12 Year Vehicle Replacement Plan | 12 Year Equipment Replacement Plan | Total 12 Year Capital Expenditure | Average Annual Capital Expenditure | Capital Cost Reduction | % Capital Cost Reduction |
|------------------------------|----------------------------------|------------------------------------|-----------------------------------|------------------------------------|------------------------|--------------------------|
| 121 MRPs | £40,680,000 | £7,623,000 | £48,303,000 | £4,025,250 | | |
| 84 MRPs and 37 LRPs | £28,700,000 | £6,804,000 | £35,504,000 | £2,958,667 | £12,799,000 | 26.50% |
| 39 MRPs, 37 LRPs and 45 RIVs | £19,682,000 | £5,469,000 | £25,151,000 | £2,095,917 | £23,152,000 | 47% |

1.6.2 Revenue Cost Reduction

Of the forty five MRPs being replaced by RIVs, twenty nine are currently leased. Replacing these vehicles will generate a revenue saving of **£118,900** over three years.

| | 2017/18 | 2018/19 | 2019/20 |
|--------------------|---------|---------|---------|
| Number of vehicles | 10 | 10 | 9 |
| Savings | £41,000 | £41,000 | £36,900 |

1.6.3 Further benefits

Further benefits in the form of fuel efficiency savings and workshop utilisation will be achieved. These specific savings will be quantified during the prototype evaluation period between September and December 2017.

1.7 Management Case

The purpose of this Management Case is to outline the system of governance and controls in place to support the delivery of the Tiered Response project. It describes the governance structures in place to support the Programme and Project Boards in delivering the key project aims and objectives. It also outlines the frequency with which governance meetings are convened and the reports that are produced for these groups. Details of the role and responsibilities of the respective members of these groups are provided, as well as a description of the controls and methodologies necessary to guide the delivery of the project.

2. INTRODUCTION

2.1 Background

Devon & Somerset Fire & Rescue Service has in the past predominantly provided the Service Delivery fleet assets on a like for like basis with a focus on standardisation rather than being driven by local need or the Integrated Risk Management Plan (IRMP) requirements. The acquisition of assets has been achieved by using a mix of sole contracts, frameworks and consortiums to provide the procurement platform.

In 2009 a 'Concept of Operations' was developed that proposed the re-alignment of the fleet and equipment assets so that they were more closely matched to local risk and demand.

2.2 Service Delivery Review

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 appliances/equipment against a range of risk factors and modelled a number of possible appliance distribution scenarios against the national Emergency Response Standards (ERS).

Two user forums were set up, one of them dealt with appliances and the other with equipment. These forums provided the opportunity for the end users and other specialists to discuss/identify what was good, not so good and what could be done better from a range of perspectives.

2.2.1 Risk Response Maps

The production of comprehensive risk/response maps has provided management information based on six years' worth of incident data. This data provided the evidence to support a fundamental change in the DSRFS' approach to service delivery.

Moving away from the 'one size fits all' approach of Medium Rescue Pumps (MRPs) created the opportunity and potential for the development and introduction of smaller lighter appliances which would be better-suited to many of the rural areas in Devon and Somerset.

The IRMP recognised the fact that risk and demand were changing and there were significant variations across the Service. It also acknowledged that the ability of crews (especially those at quieter retained stations) to maintain competence across the very broad range of incidents and for incidents they were unlikely to attend that we may attend is becoming increasingly difficult. In addition, evidence suggested that most equipment carried on our frontline fire appliances was rarely, if ever, used.

The risk profile of the Service has been changing over a number of years and between **2005 and 2016** we can see that:

- Primary fires have decreased by 43%
- Secondary fires have decreased by 55%
- Chimney fires have decreased by 42%
- All false alarms have decreased by 39%
- Special service calls have decreased by 30%
- Co-Responding has increased by 97%

2.2.2 Tiered Response

We have a greater understanding than we have ever had about the risks our staff are likely to face and we should equip and train them accordingly. In addition and from a purely economic perspective, it does not make sense to provide expensive assets that are rarely used and may not be entirely fit for purpose.

So, essentially, the tiered approach is predicated on a principle that all staff are trained and equipped to deal with the types of incidents that they are most likely to face on a day to day basis (Tier 1), based on our analysis of risk and demand. Beyond that we provide enhanced levels of support (Tiers 2 and 3) strategically located across the organisation, again based on risk and demand.

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. Thirty seven of these new appliances will be operational by the end of the 2016/17 financial year.

Following the lessons learned from developing the Light Rescue Pump project, the Service decided to take advantage of the latest firefighting technology and new ways of working to enhance its ability to meet our Community Safety and Firefighter Safety commitments.

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

A pilot was run for 12 months from April 2015 – April 2016 that examined a range of different **Rapid Intervention Vehicle** (RIV) configurations to assess the following aspirations:

- Their ability to matching resources to risk;
- Firefighting from a point of relative safety;
- Suppressing the fire;
- Improving availability;
- Improving ERS;
- Improving Community safety;
- Cost saving;
- Reducing operating costs.

2.2.3 RIV Pilot Lessons Learned

The pilot 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.

It is important to recognise that the RIVs are designed to be despatched at the same time as a LRP or MRP, get to the incident quickly, the crew undertake a risk assessment and depending on the incident type either contain the incident while waiting for the second pumping appliance to arrive OR if possible start dealing with the incident directly.

2.2.4 The Pilot Recommendations

It was recommended that the Service implement a **Tiered Response** consisting of a mixed fleet of MRPs, LRPs and a single composite design of RIV. This recommendation was approved by the Executive Board.

2.3 Procurement

The project team, in association with the User Group, developed a RIV User Requirement and Technical Specification which has been used, as part of the formal procurement process, to identify a preferred supplier.

2.4 Purpose of the Full Business Case

The preparation of the Full Business Case (FBC) is a mandatory part of the business case development process, which is completed following procurement of the scheme – but prior to contract signature – in most public sector organisations.

The purpose of the FBC is to:

- Identify the 'market place opportunity' which offers optimum VFM;
- Set out the negotiated commercial and contractual arrangements for the deal;
- Demonstrate that it is 'unequivocally' affordable;
- Put in place the detailed management arrangements for the successful delivery of the scheme.

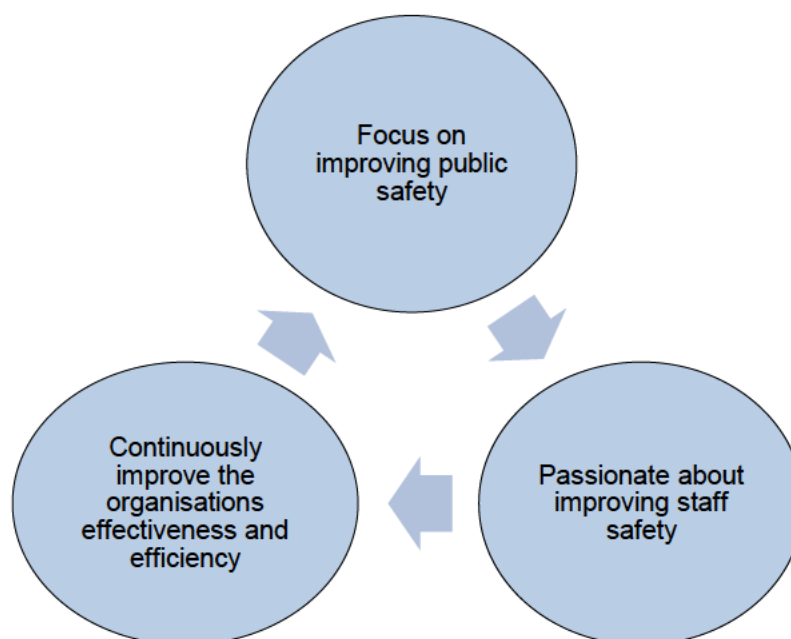
3. STRATEGIC CASE

3.1 Introduction

The proposed operational change contained in this document is in line with the organisation's Vision, Strategic Principles and financial constraints of the Service.

3.2 DSFRS Strategy Plan for 2016-2021

The Service vision for the future is based on three Strategic Principles:



3.3 Strategic Principal – Focus on improving public safety

‘Respond to local emergencies with appropriate skills and resource’

3.4 Strategic Objectives

| No | Strategic Objective |
|-------|---|
| 3.4.1 | Fulfil obligations under the Fire & Rescue Services Act 2004, to make provisions for dealing with emergencies |
| 3.4.2 | Ensure that our emergency response teams will be deployed with the appropriate skills and resources |
| 3.4.3 | The number, composition and distribution of our emergency response teams will be based on the risks to the communities they serve |
| 3.4.4 | Work with partner agencies to develop appropriate fire and non-fire response arrangements |
| 3.4.5 | Investigate whether to introduce different response vehicles which use the latest advances in firefighting technology |

3.5 Strategic Principle – Passionate about improving staff safety

‘Work hard to be a highly skilled and competent workforce’

3.6 Strategic Objectives

| No | Strategic Objective |
|-------|---|
| 3.6.1 | Optimise our use of resources |
| 3.6.2 | Make sure safety is at the heart of everything we do |
| 3.6.3 | Train in a realistic way that reflects the risk our staff face and allow them to use the skills they will need at emergency incidents |
| 3.6.4 | Review and continually improve the way we work |

3.7 Strategic Principle – Continuously improve the organisation’s effectiveness

‘Transform the way we work to ensure we deliver best value for taxpayers’

3.8 Strategic Objectives

| No | Strategic Objective |
|-------|---|
| 3.8.1 | Manage our assets to make sure they are efficient and that they effectively support public and staff safety |
| 3.8.2 | Manage projects so we deliver them on time and on budget |
| 3.8.3 | Use advanced technology to reduce costs and improve public and staff safety |
| 3.8.4 | Work within an agreed governance framework, putting performance management at the heart of our work |
| 3.8.5 | All our assets will be managed in the most cost effective way |

3.9 The Case for Change

The following elements when considered together makes a compelling argument for the implementation of the Tiered Response approach:

3.9.1 Strategic

The proposals in this Full Business Case contribute to the delivery of the strategic objectives listed in 3.4, 3.6 and 3.8 above;

3.9.2 Funding

The impact on the Service of the Government grant reduction as part of the Comprehensive Spending Review for 2017/2020 is:

| Year | Impact |
|---------|-----------------------------|
| 2016/17 | Actually a £2.5m cut |
| 2017/18 | Actually a 2.7m cut |
| 2018/19 | Estimated to be a £1.4m cut |

The Service has a three year rolling programme that supports capital investment. The tests of affordability are measured by compliance with the CIPFA Prudential Code for Capital Financing for Local Authorities. Under this code, the Authority is required to set a suite of indicators to provide assurance that capital spending is prudent, affordable and sustainable. These indicators are reviewed annually, although set for the three year period. They also include setting maximum borrowing limits to provide assurance around prudence and the setting of maximum debt ratios to provide assurances in relation to affordability and sustainability.

The focus of this Authority has been to control the debt ratio within a 5% revenue ceiling. To achieve this, the Service suspended the vehicle replacement programme whilst this project was developed and piloted. This has created a backlog of replacement and increased maintenance costs.

3.9.3 Integrated Risk Management Plan

The IRMP is designed to provide the right resources at the right time in the right place. The review team used a predictive risk mapping tool called the Fire Services Emergency Cover toolkit (FSEC) and workload predictive software called PHOENIX as well as analysing 5 years' worth of the Service's own incident data. This has ensured that consideration has been given to as wide a range of hazards and risks as reasonably practicable. These risks have been assessed and control measures identified to ensure that we reduce both the risk of incidents occurring and their consequences.

3.9.4 Service Delivery Review

The purpose of the Service Delivery Review was to analyse the Service response risks, mapped against the Service Emergency Response Standards, based on 5 years' worth of incident data.

The analysis has been carried out on eighty three stations taking into account type and number of incidents, demand curves, hours off the run and station efficiency (Station 60 and Lundy excluded)

3.9.5 Service Delivery Review Outcome

One of the outcomes of the Service Delivery Review clearly indicated that the majority of front line personnel were concerned that the MRPs were too big for the stations grounds in which they were located.

Further, it was evident that the current appliances carry too much equipment, the majority of which is very rarely, if ever, used. Analysis identifies that **40%** of this equipment is used on **80%** of occasions.

Further, with regards to dwelling fires, 92% of these were confined to the room of origin and were dealt with using one Breathing Apparatus (BA) team consisting of two wearers and one hose reel jet and one covering/safety jet.

Irrespective of whether equipment is used or not it still has to be purchased, training provided and maintained. Because the Service has adopted a 'one size fits all' approach in the past this means that all firefighters have to be trained across a broad range of activities and equipment which they may very rarely use. This situation has improved with the implementation of LRPs and can now be enhanced further by introducing an additional tier of RIVs.

3.9.6 Location of Response Assets

The methodology used to decide where current response assets is now out of date. This guidance sought to provide a response standard that was focussed on the commercial density of property rather than risk to life in residential areas. The SOFC guidance assumed that all risks were comparable and therefore fire appliance design and equipment should also be similar (one size fits all).

Following the implementation of a new Fire Control system in late 2016 operational resources are now mobilised to incidents based on actual attributes required to undertake the task.

We now have the opportunity to match appliance location with risk and use the Tiered Response approach to ensure that each location has the most appropriate appliance and equipment assigned.

3.9.7 Service Delivery Review - Key Findings

The Service Delivery Review identified a number of issues that need to be addressed

| No | Issue |
|----|--|
| 1 | Response assets are currently distributed/located in line with an out-of-date methodology |
| 2 | Response assets and their locations have not been reviewed in line with the year on year reduction in operational activity |
| 3 | Response assets are not currently located based on risk |
| 4 | Significant amounts of equipment that are carried on current appliances is very rarely used |
| 5 | There is evidence to indicate that some locations are under resourced |
| 6 | At the moment some retained fire fighters are struggling to maintain their competences particularly with regards to the equipment carried on appliances that they never or very rarely use |
| 7 | Some special appliances are not located where the most strategic coverage/support can be provided |
| 8 | Some appliances are too big for the locations that they are based at. |

The Tiered Response approach is specifically designed to address all the issues identified above, subject to ratification through the IRMP process.

3.10 Investment Objectives

The following table indicates the link between the Service strategic objectives and the core benefits delivered by this Business Case.

| Strategic Objectives | Investment Objectives | Main benefits |
|---|---|--|
| 3.4.1 3.4.2 3.4.3 | Improved performance against Emergency Response Standards | Due to their enhanced manoeuvrability it is predicted that RIVs will arrive at incidents quicker than LRPs and MRPs and so ERS will be improved. Conversely, RIVs will be able to travel further than LRPs and MRPs appliances in the same time span stretching ERS range and reaching more properties. |
| 3.4.2 3.6.2 3.6.3 3.6.4 3.8.1 | Improve Firefighter safety | <ul style="list-style-type: none"> Reduced levels of equipment on RIVs (compared to MRPs) will mean that there will be more time available for training on the equipment that is actually carried and used; RIVs don't carry any equipment in the cab and so this has the potential to reduce injuries in the case of vehicle accidents. |
| 3.4.3 3.8.1 | Improve efficiency through better use of resources | By matching resources against risk it will be possible to reduce the amount of equipment required to be carried and also the overall size of the fleet (e.g. BA sets). |
| 3.4.4 3.4.5 3.8.2 3.8.4 | Achieve standardisation | <p>A standardised fleet with standardised equipment will:</p> <ul style="list-style-type: none"> Allow stores to review stock levels and where appropriate reduce them; Allow the maintenance department to reduce their training requirements (compared to the requirement for MRPs); Allow one set of operating procedures to be used; Enable effective attribute based mobilisation; Simplify end user training requirements and procurement/contract management arrangements. |
| 3.8.3 | Reduce impact of the environment | RIVs are more fuel efficient than LRPs and MRPs. In addition RIV's carbon emissions are significantly lower than LRP's and MRP's. |
| 3.8.5 | Reduce both Capital & Revenue Expenditure | RIVs have lower acquisition and whole life costs compared to LRPs and MRPs. Reduced equipment levels on RIVs will reduce both capital and revenue expenditure. |

3.11 Business Needs - Outcomes

The following outcomes will be achieved by the introduction of RIVs:

- Improved performance against ERS; as RIVs will be smaller, lighter and more agile appliances;
- Improved Community Safety; through being able to attend incidents more quickly and by extending ERS response areas;
- Have the ability to deal with some incidents as a standalone appliance; as an RIV will be considered a main pump;
- Have lower acquisition and whole life costs compared to LRPs or MRPs; the indicative acquisition savings are in the order of £70k on an LRP and £140k on an MRP;
- A more cost effective fleet; by the savings made on whole life costs for running and maintenance costs;
- Reduced impact on the environment; by introducing smaller vehicles with lower emissions;
- Have sufficient equipment available to enable crews to safely deal with a high proportion of incidents; by utilising an inventory aligned to the findings of the strategic asset review and the integrated risk management plan (IRMP);
- Rationalised levels of equipment; by alignment of the inventory required to findings of the IRMP;
- Improved efficiency through better use of resources; by alignment to the IRMP recommendations;
- Better matched resources to risk; by alignment to the IRMP recommendations;

The following outcomes will **NOT** be achieved solely by the RIV as they can be adopted across the entire Tiered Response fleet of appliances;

- Reduced establishment at all On Call stations; with a crewing policy change appliances would be mobile without waiting for 5 personnel;
- Improved availability; with a crewing policy change appliances would be available for more of the time;
- The ability to fight fires from a point of relative safety; by the inclusion of new technology such as a 'water misting unit';
- The ability to suppress fires so that firefighters can subsequently be committed into safer environments; by the inclusion of new technology such as 'water misting unit'.

3.12 Existing arrangements

The Service has an operational fleet of 138 front line appliances, 121 deployed with 17 available in reserve. There is currently an expectation that the working life of a front line appliance is twelve years.

From 2009 – 2013 there was a moratorium on the procurement of new fire and rescue appliances. The freeze on procurement had resulted in a significant number of appliances having to continue in service beyond their scheduled 'end-of-life' date. As the appliances aged there was a corresponding increase in the number of mechanical failures experienced.

The dangerous situation of an ever aging fleet has been mitigated by the introduction in 2015/16 by introducing 37 new LRPs. However by the end of 2016 we still had 33 appliances beyond their scheduled working life.

If the Service had not introduced Light Rescue Pumps we would have had to continue to maintain an aging fleet beyond their operational life expectancy.

3.13 'As Is' Financial Model

The Full Business Case has two '**As Is**' financial models. The first covers a twelve year period from 2014/15 to 25/26 and is based on the assumption that the Service had not adopted a Tiered Response approach and had continued to procure MRPs. This is included for comparison purposes.

The second '**As Is**' financial model covers a twelve year period from 2014/15 to 25/26 and is based on the assumption that the Service had implemented a Tiered Response approach, procured 37 Light Rescue Pumps and then stopped.

The following 'As Is' financial model covers the costs of a twelve year period from the 14/15 financial year to the 25/26 financial year and is based exclusively on the use of MRP appliances only.

File: RIV Full Business Case v1.00 (2)
Version Date: 9 Feb 2017

The following '**As Is**' financial model covers the costs of a twelve year period from the 14/15 financial year to the 25/26 financial year and is based the use of MRPs and LRP appliances.

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4. ECONOMIC CASE

4.1 Introduction

The following options have been considered:

4.2 Option 1 - Do Nothing

This option will mean that:

- Rapid Intervention Vehicles will not be introduced into the Service;
- The number of MRPs in service will not be reduced.

Advantages

- No further disruption to Operational staff; by not introducing new appliances requiring training and familiarisation;
- There is already a contract in place to purchase LRPs as MRP replacement appliances until 31st April 2019.
- There will be a national Fleet framework in place for Emergency Response vehicles led by Devon and Somerset for the procurement of alternative vehicles.

Disadvantages

- We will not achieve any additional improved performance against ERS over that which is currently being delivered by LRPs;
- We will not achieve any additional acquisitions cost saving other those already being made by the introduction of LRPs;
- We will not achieve any reduced whole life costs over that already being made by the introduction of LRPs;
- We will not reduce wider operating costs over that already being made by the introduction of LRPs;
- We will not achieve improved Community Safety over that already being made by the introduction of LRPs.

Risks

- There is a risk that if we do not introduce RIVs into the fleet then we will not be able to improve ERS over that already being made by the introduction of LRPs;
- There is a risk that we will not meet our Strategic Objectives of reducing costs to meet funding cuts over that already being made by the introduction of LRPs;
- There is a risk that we will not improve efficiency by better use of resources i.e. staff and equipment over that already being made by the introduction of LRPs;
- There is a risk that we will not improve Community Safety over that already being made by the introduction of LRPs;

4.3 Option 2 – [REDACTED]



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4.4 Option 3 – [REDACTED]



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4.5 Option 4 – [REDACTED]



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4.6 Option 5 – [REDACTED]



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4.7 Option 6 - Introduce a Crew Cab, design built body with PTO driven Pump

Advantages

- Will improve performance against ERS;
- Will improve Community Safety; through being able to attend incidents more quickly and by extending ERS response areas;
- Will provide the ability to fight fires from a point of relative safety; by the inclusion of new technology such as 'Fog Nail';
- Will provide the ability to suppress fires so that firefighters can subsequently be committed into safer environments; by the inclusion of new technology such as 'Fog Nail';
- Will provide the ability to deal with some incidents as a standalone appliance; as an RIV will be considered a main pump;
- Lower acquisition costs and whole life costs compared to LRPs or MRPs; the indicative purchase savings in the order of £70k on an LRP and £140k on an MRP;
- Will be more cost effective fleet; by the savings on running and maintenance costs;
- Will reduce impact on the environment; by introducing smaller vehicles with lower emissions;
- Will have sufficient equipment available to enable crews to safely deal with a high proportion of incidents; by utilising an inventory aligned to the findings of the strategic asset review and the integrated risk management plan (IRMP);
- Rationalised levels of equipment; by alignment of the inventory required to findings of the IRMP;
- Will be more manoeuvrable than MRPs or LRPs;
- Will have excellent road handling characteristics;
- Will accommodate a crew of 5;
- Will provide good crew accommodation;
- Will provide excellent size to weight ratio i.e. nearing LRP equipment inventory on a smaller, more cost effective chassis;
- Will give reduced life costs over the same period as LRPs;
- Will provide full access to equipment through a bespoke body design and by utilising all available space;
- Will have the ability to carry a first floor ladder;
- Will have a greater volume of water of between 650 & 1000 litres of water (dependant on chassis);
- Will have improved equipment inventory over all options piloted;
- Will provide good weight and volume carrying capacity;
- Will provide excellent pump and hose reel access (with an option for 22mm hose).

Disadvantages

- This solution is based on a crew cab chassis with a body attached rather than a composite van. This makes the vehicle more complex to build. However, the Service is able to mitigate this risk by making use of the lessons learned from the LRP development to ensure that there will be a comprehensive and rigorous test and acceptance regime in place linked to stage payments and transfer of title.

4.7.1 Options Evaluation

| OUTCOMES | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 |
|---|------------|-----------|-----------|-----------|-----------|-----------|
| | Do Nothing | ████ | ██████ | ████ | ██████ | ██████ |
| Improve performance against ERS | 0 | 4 | 3 | 5 | 5 | 5 |
| Improve community safety by attending more quickly | 0 | 4 | 3 | 5 | 5 | 5 |
| Fight fires from a point of relative safety | 0 | 2 | 2 | 3 | 4 | 5 |
| Suppress the fire so that fire fighters can commit safely | 0 | 2 | 2 | 3 | 4 | 5 |
| Ability to deal with incidents as a standalone appliance | 5 | 1 | 2 | 2 | 5 | 5 |
| Lower acquisition and whole life costs compared to current LRP and MRP | 0 | 5 | 5 | 5 | 5 | 5 |
| A more cost effective fleet by saving on running costs & maintenance | 0 | 5 | 5 | 5 | 5 | 5 |
| Reduce impact on the environment with lower emissions | 0 | 1 | 1 | 1 | 3 | 5 |
| Carry sufficient equipment to enable crews to safely deal with a high proportion of incidents | 5 | 0 | 0 | 2 | 3 | 5 |
| Rationalise level of equipment by aligning inventory to IRMP | 0 | 0 | 0 | 2 | 3 | 5 |
| Total | 10 | 24 | 23 | 33 | 42 | 50 |

This options evaluation originally appeared in the OBC has been reviewed following the procurement process and the recommended option still stands.

4.8 The Way Forward

It is important that the Service's future fleet of appliances and equipment are matched to risk and are designed to improve service to the community, firefighter safety, be cost effective whilst at the same time reducing our impact on the environment.

| No | Recommendations |
|----|---|
| 1 | That in the future all vehicles and equipment should be distributed based upon the principles of a tiered approach and of matching resources to risk, as defined in the Service IRMP. |
| 2 | It is predicted that the introduction of Rapid Intervention Vehicles (RIVs) will demonstrate that these vehicles are better matched to the risk at a significant number of locations. |
| 3 | That the service works towards operating a mixed fleet of pumping appliances comprising of Medium Rescue Pumps (MRPs), Light Rescue Pumps (LRPs), Rapid Intervention Vehicles (RIVs) and Incident Support Units (ISUs). |
| 4 | That the future pumping appliance fleet contains some vehicles with off road capability (4x4 drive). |
| 5 | Key user requirement specifications will be written for all future vehicle requirements and that the end users should be involved in this process. |
| 6 | Based on the fact that the trial was successful, the RIV replacement programme should commence immediately. |
| 7 | The appliances and equipment should be aligned using the risk map, local profiles and other research. |
| 8 | The standardisation of Service equipment, such as hydraulic rescue equipment should continue and gather momentum. |
| 10 | New specialist vehicles such as Incident Support Units (ISUs) should be introduced and be distributed strategically according to risk. |
| 11 | The introduction of the new specialist vehicles will facilitate the continuous removal or replacement of several items of equipment from pumping appliances. |

4.9 Conclusions

In conclusion it was deemed that 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 good number of incident types alone and a significant number when supported by an LRP or 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 or MRP. To mitigate this risk the project team established a User Group to firstly propose a list of incident types that RIVs would be able to attend. The list was presented to the Project Board and after due challenge it was agreed that RIVs could be considered as a Main Pump and should be mobilised to all incidents as part of any appropriate response.

The list of incident types then drove decisions regarding the number of crew, water capacity and equipment carrying capability. These decisions have shaped the size and type of vehicle defined in the User Requirement and Technical Specification.

To aid these deliberations the Service was able to acquire the loan of a vehicle (at minimum cost = £600) for eight weeks. This vehicle, developed by Pickup Systems, should NOT be considered the complete solution to our requirements but had the benefit of encompassing a number of the lessons learned from the pilot.

Finally, the recommended option would satisfy all of the outcomes (critical success factors) defined in section 1.1 of this document. It would enable the Service to obtain a vehicle designed to our specification which will deliver ALL the outcomes identified and eradicating all the shortcomings of the other pilot vehicles trialled. It will deliver a bespoke appliance designed by the Service ensuring that it meets all the requirements of a smaller firefighting vehicle, whilst retaining the ability to attend any incident as a Main Pump. By utilising more modern firefighting technology, such as 'Fog Nail', the appliance will be able to operate with less water and can therefore be designed as a smaller vehicle (potentially under 7½ Tonne).

The introduction of this option is low risk in comparison to all the other options. As a bespoke vehicle we can ensure it delivers all the requirements defined by the user group. In addition the ability to carry 5 firefighters makes this a much more flexible and viable alternative to current front line appliances. Its greater water and equipment carrying capacity make this a safe and effective vehicle with the ability to deal with the majority of incidents as a standalone appliance given appropriate crewing availability.

4.10 Recommendation

On the basis of the above analysis:

Option 6 is the Recommended Approach

**Challenge the market to design a bespoke solution
that fully meets the Authority's requirements.**

4.11 New Design



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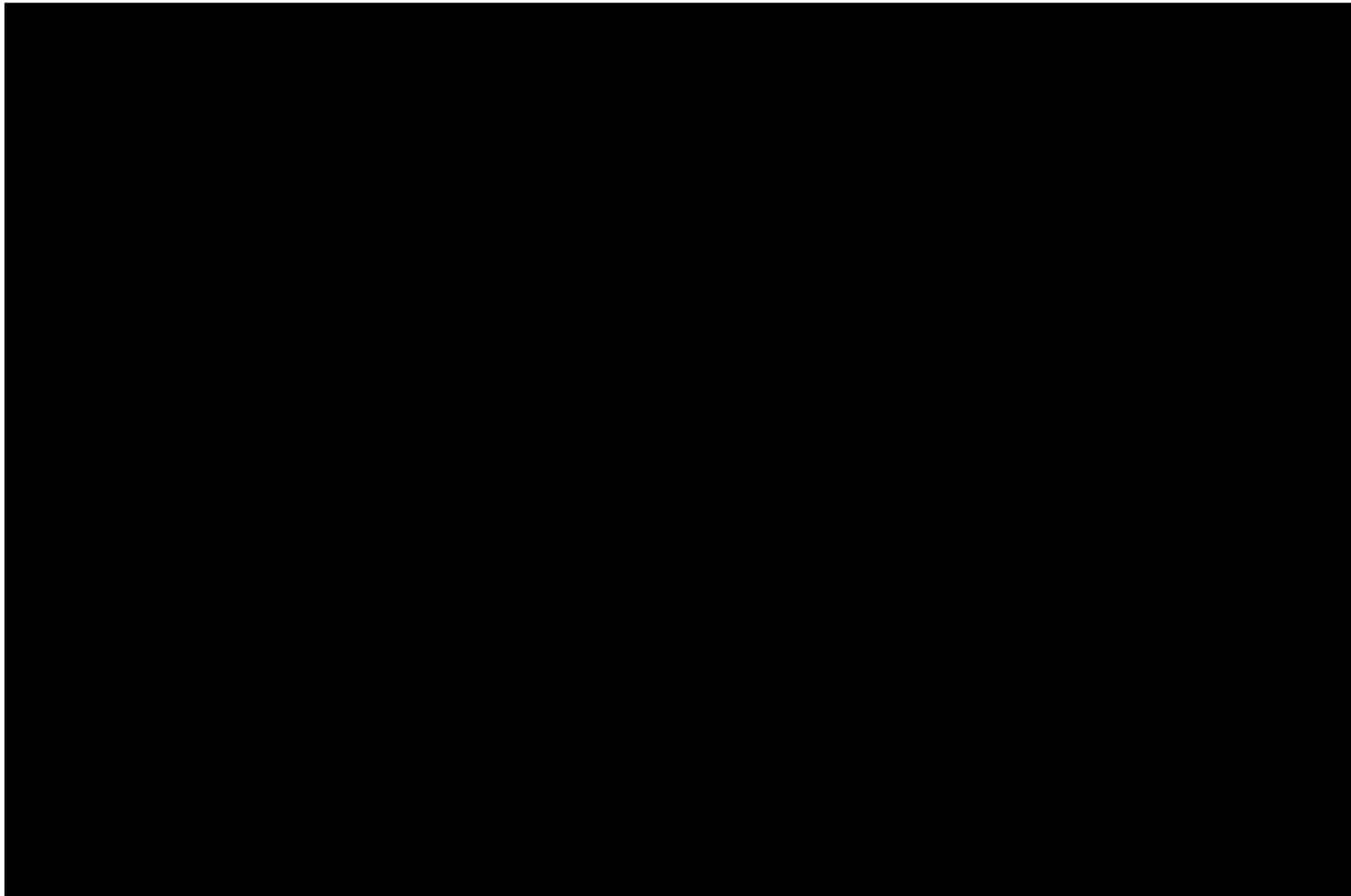
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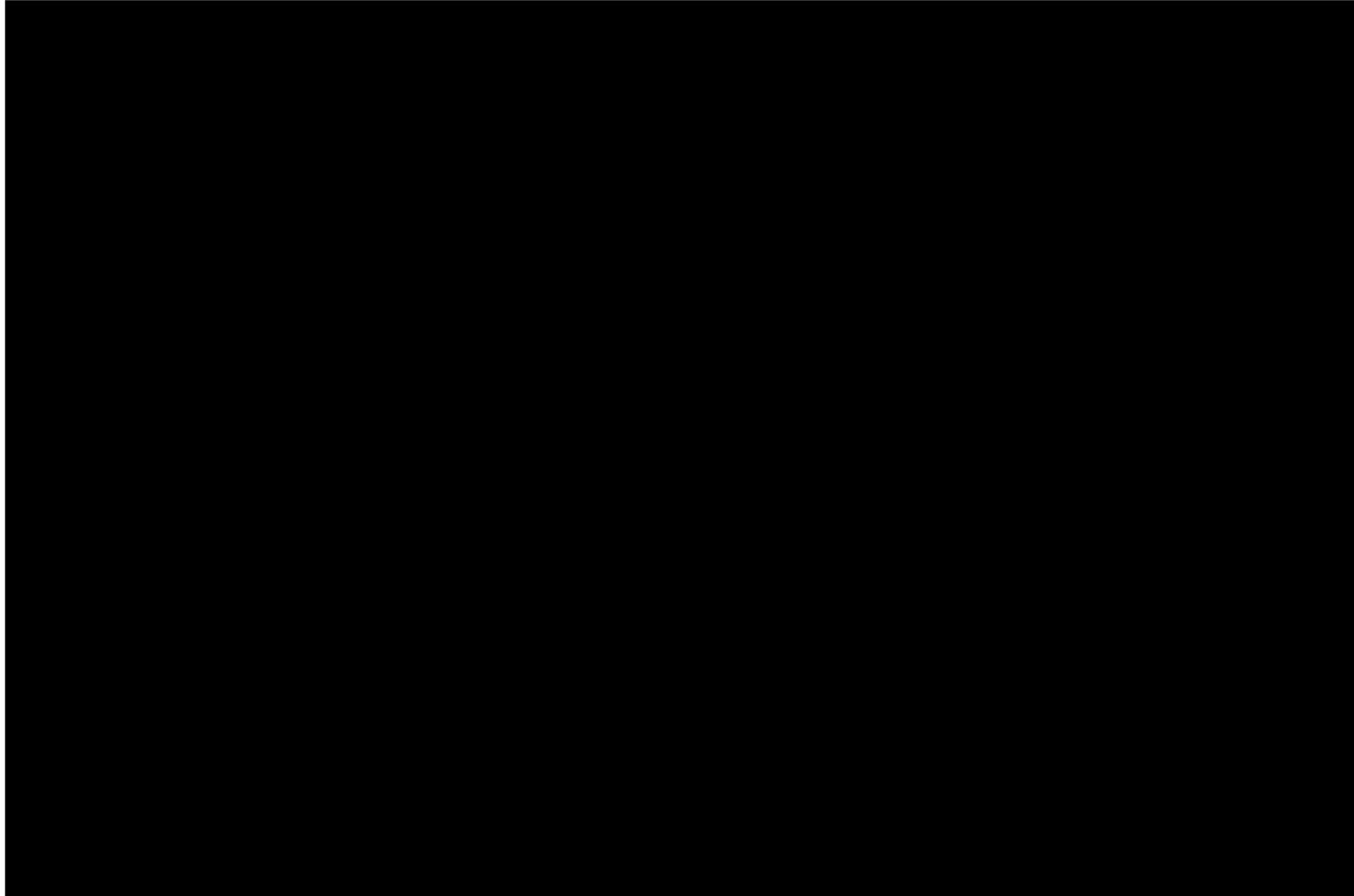
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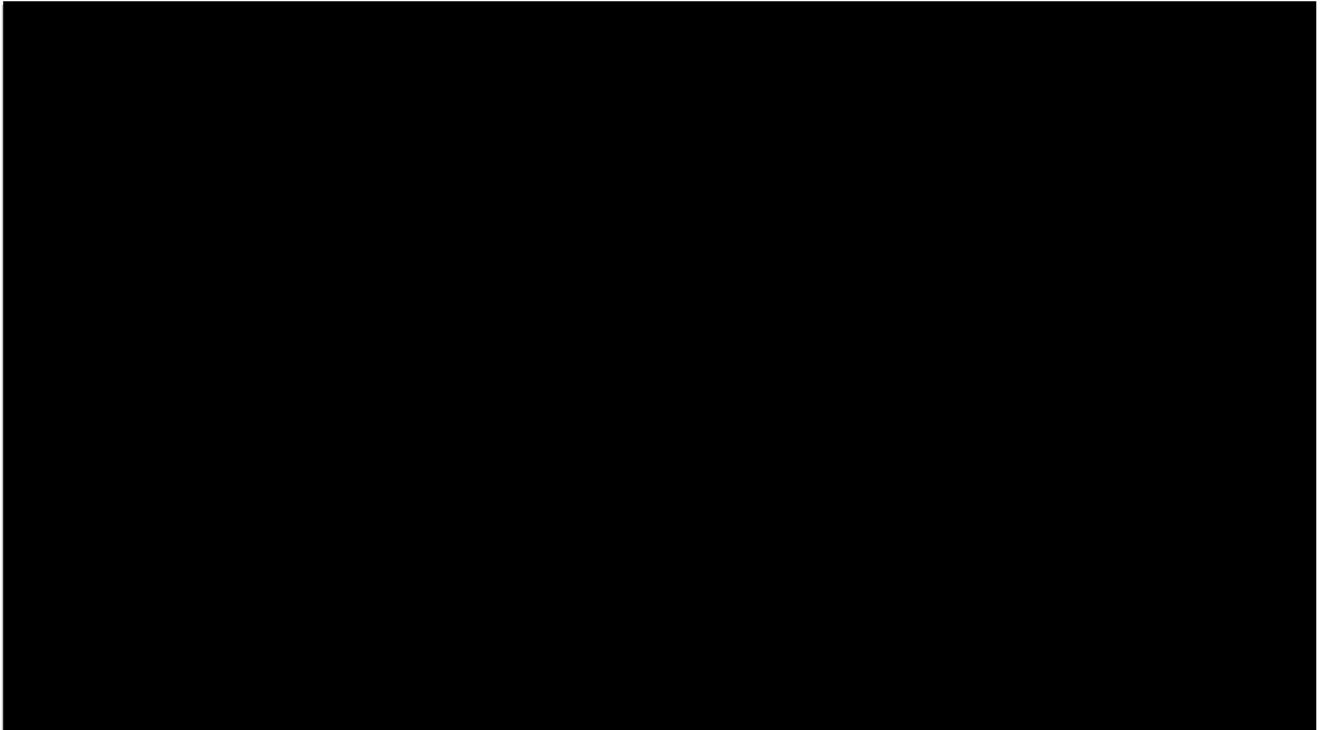
4.12 Appliance Dimensions



4.13 Fire Engineering



4.14 Locker Layout



4.15 Risk Associated with the Proposed Option

| Risk | Consequences | Counter Measure | RAG |
|---|--|--|-----|
| There is a risk that no decisions will have been taken on the RIV rollout plan (locations and cascade) in time for the delivery of the initial batch of vehicles. | The RIVs will sit idle at SHQ. A backlog of vehicles will build up and the benefits identified in the Full Business Case will be delayed. | Raise issue with project Board and EB. Offer to facilitate the decision making process | R |
| There is a risk that prototype testing will take longer than scheduled due to issues being identified and remedial action needed. | The build of some or all of the 14 vehicles scheduled in 2017/18 will not be completed Capital funding will need to be rolled over into 2018/19. Benefits identified in the Full Business Case will be delayed. New procurement needed, if changes are deemed material changes (as defined by the public Contract Regulations 2015) | Review the delivery plan with the preferred supplier and attempt to build a contingency. | R |
| Due to the reduction of equipment being carried there is a risk that LRPs and RIVs will have insufficient equipment to deal with major incidents. | Delay in ability to deal with major incidents. Threat to firefighter safety. Reputational damage. | Raise issue at Project Board. Implement a range Incident Support Units. | R |
| There is a risk that the current RIV design fails to meet the user requirement. | This could result in delayed delivery of the operational fleet and additional costs due to the need to evoke the change process. | <ul style="list-style-type: none"> The user requirement has been approved by the user group; There were users on the bid evaluation panel; Any deviation from the user requirement will be identified at the call off contract discussions with the supplier. | A |

| Risk | Consequences | Counter Measure | RAG |
|---|---|--|-----|
| There is a risk that the engine, gearbox and transfer box configuration will not deliver the pumping capability required. | Fundamental requirement not meet. Entire business case undermined. Stop project and start again should be considered. | <ul style="list-style-type: none"> Undertake analysis to understand the problem – Complete; Engage with vehicle and pump supplier to develop options; Test options as part of the prototype evaluation. | A |
| There is a risk that insufficient capital funding is available to procure replacement RIVs. | RIV delivery delayed or cancelled. | Early and continuous engagement with the Fire Authority to match funding against the operational demands and risks of the Service. Spread procurement over three years. | A |
| There is a risk that the preferred supplier will not be able to deliver the RIVs against the delivery plan due to existing contractual commitments to other Fire Services | RIV rollout delayed. Cost increase. Threat to Business Case. | Monitor progress of the prototype evaluation carefully and identify any problems as soon as possible. | A |

4.16 Constraints

The project is subject to the following constraint:

- The roll out of forty five RIV appliances is constrained by the Services capacity to manage that degree of change. The roll out plan must cope with, not only the test and acceptance of these new vehicles from the manufacturer but also the cascade of existing appliance to ensure that the overall strategist disposition of capability matches the risk profile.

4.17 Dependencies

The project is subject to the following dependencies:

- The ability of the preferred supplier to schedule and build forty five RIV appliances in three years taking into account their existing and future order book;
- The successful award of Lots 5a, 5b and Lot 10 from the National Framework for Fire and Rescue Emergency Response vehicles.

5. COMMERCIAL CASE

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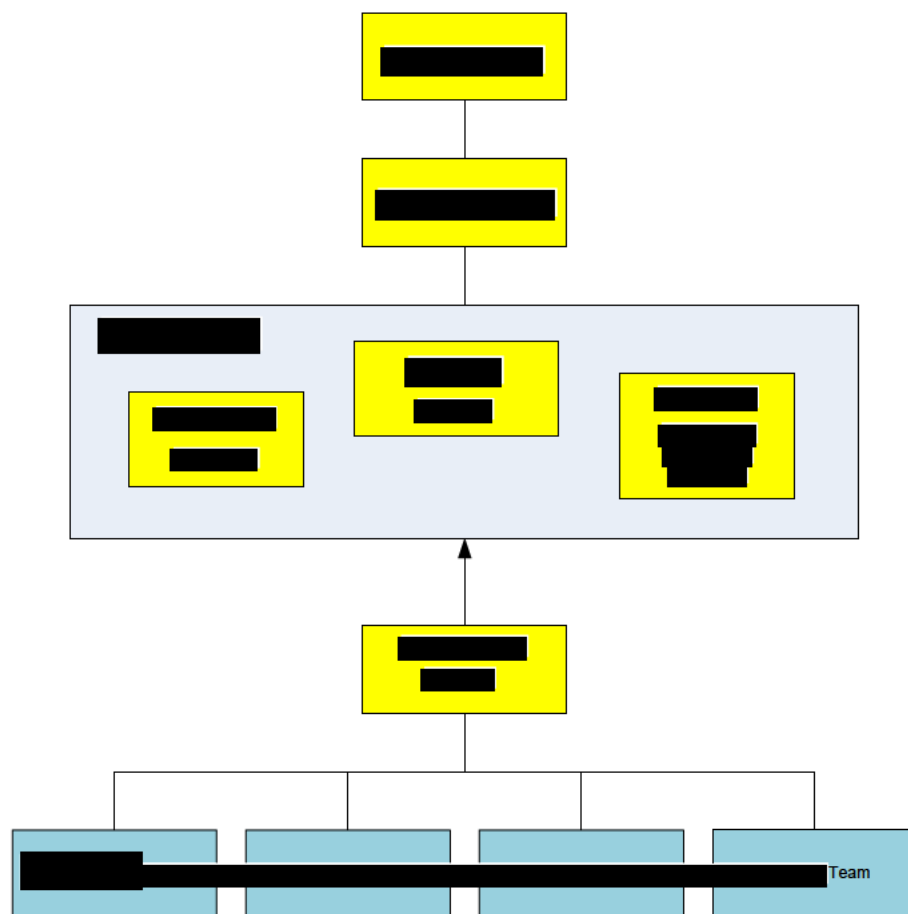
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[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[illegible]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

8. ANNEX A

