



**Scottish
Ambulance
Service**
Taking Care to the Patient



Full Business Case

For the Replacement of Emergency, Patient Transport and Support Vehicles 2021/22 to 2025/26

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Section 1: Executive Summary

1.1 Introduction

The provision of services by the Scottish Ambulance Service (the Service) is dependent on reliable, well maintained vehicles. Vehicles have a short finite life and as a result, the Service has a recurrent requirement to replace them as they come to the end of their useful life.

The purpose of this Full Business Case (FBC) is to confirm that the procured offer represents the best value commercial solution for delivering the project requirements within the affordability limits. It will also demonstrate that appropriate contractual, commercial and management arrangements are in place to successfully deliver the project. The FBC follows on from the Initial Agreement (IA) which established the need for investment and strategic fit of the investment. The Scottish Government's Capital Investment Group (CIG) approved the IA on 13th May 2020 and granted authority to proceed to FBC.

Fleet Covered

Existing Fleet	<p>This Business Case covers the direct replacement of A&E, Scheduled Care and Specialist Vehicles. The fleet purchases will be flexible to cover a range of responses resulting in a mix of vehicle styles purchased for the same category.</p> <p>Support vehicles, such as those used by workshops, training, infection control, health and safety and operational regions will also be replaced.</p> <p>This Business Case covers the vehicle base, conversion and standard vehicle equipment list in relation to the replacement of existing fleet.</p>
Demand and Capacity – Additional Fleet	<p>The Demand and Capacity Review assessed the additional demand requirements and the supporting additional fleet. This has currently been modelled as 52 A&E response vehicles, however, the final vehicle requirement may change as the Demand and Capacity programme is being implemented.</p> <p>As with existing fleet replacement, this Business Case covers the vehicle base, conversion and standard vehicle equipment list. Provision has also been made within the costs to include specialist or transferrable equipment required by operational crews; defibrillator units and ambulance Telehealth equipment.</p> <p>This treatment differs to the replacement of existing fleet. These additional costs are separately identifiable in this FBC.</p>
Paramedics in Primary Care	<p>Discussions have commenced with Primary Care partners, in particular GP Practices, regarding how Advanced Practitioners can support services such as In –Hours home</p>

	visiting or Out of Hours urgent appointments. This releases GP time for clinical care and offers additional resilience to primary care services. The final delivery model is being scoped out and will be adapted to suit local needs with any confirmed arrangements picked up in the commissioning framework. To deliver this model, it will require access to a PRU type vehicle and within this BC, provision has been made to purchase 6 vehicles for this development. The requirement for this funding will be confirmed once discussions have concluded.
ECMO Service Vehicle	As stipulated in the IA, the Service proposed the purchase of a dedicated specialist A&E vehicle to transport patients referred to the Extra Corporeal Membrane Oxygenation (ECMO) Service based at Aberdeen Royal Infirmary. Initial funding for this vehicle was received in 2019/20 and replacement will not be due until 2026/27. This vehicle has therefore been removed from this FBC.

Time Period

This business case covers five years of procurement for vehicles commencing 2021/22. This is the second five-year business case for fleet replacement that the Service has developed to secure funding over the five-year period.

1.2 Strategic Case

The strategic case for investment has not materially changed since the IA. However, the anticipated impact of the COVID-19 pandemic on this investment project has been considered.

The previous Fleet Replacement Business Case gave the platform for the Service to establish a stable fleet provision which was integral to the delivery of the Fleet Business Continuity Plan; this was actively demonstrated during the COVID-19 pressures. The Fleet Business Continuity Plan focused on maintaining 'business as usual' as the core principle, only escalating where this cannot be maintained. Fleet resilience and stability is a core objective of this new Fleet Replacement Business case and allows the Service to continue to plan to maintain this position going forward giving significant resilience to any future demands.

COVID-19 Remobilisation Plan August 2020 – March 2021

The Service has published the Remobilisation Plan August 2020 to March 2021 in response to the COVID-19 pandemic; this document has subsumed the Annual Operational Plan for 2020/21. The Service's key responsibility, during the remobilisation of health and social care services, is to continue to deliver the best care. The plan highlights the key areas of focus for the period August 2020 to March 2021.

Almost every single priority defined in the Plan relies upon vehicles as the foundation of delivering services. The use of modern, well equipped vehicles will support these changes in healthcare provision. Moves to more community based pathways with

multi-disciplinary teams working across the system to deliver the most appropriate care for patients continues to rely on the most suitable vehicle and equipment to undertake these tasks.

Scottish Government's Programme for Scotland

The 2019-20 Programme for Government established an ambitious aim to phase out fossil-fuelled cars by 2025 and all other fossil-fuelled vehicles within the public sector by 2030. The strategy also states that a pragmatic approach will be applied to emergency service vehicles. The recently published 2020-21 Programme for Government reinforces the aim to decarbonised public sector fleet. This, as expected, has been a key focus of the Service fleet planning and sustainability objectives.

Provision has been made in this Business Case for a move to full electric training, support and Scheduled Care vehicles. These vehicles are van-style vehicles and fall under the 2030 target stated above. Operational A&E vehicles are more of a challenge due to the size and weight but also due to the length of time currently required to charge the vehicle. The Service is continually monitoring and assessing new technology as it emerges. It is therefore realistic to state that within this 5 year timeframe it is unlikely that there will be a full scale switch to electric for operational A & E vehicles but it is hoped that there may be some suitable vehicles on the market that could be piloted with certain areas. The Service will maintain a key focus in this area.

The Need for Change

The need for change and investment was established in the IA and remains valid. These are summarised as follows:

- To ensure service delivery is maintained and patient safety is not compromised, the vehicles in poor condition need to be replaced with newer, more reliable vehicles.
- To accommodate strategic developments which will have an impact on the number and type of vehicle required to deliver services.
- To contain maintenance costs at the current level, the vehicles in poor condition and out of warranty need to be replaced with more reliable models.
- To reduce environmental impact from carbon emissions through innovation and evolving technology.
- The vehicles need to be able to accommodate different technology and medical equipment to allow staff to be able treat a wider range of conditions.

Opportunities for Improvement - Electric and Alternative Fuel Vehicles

The Service's fleet has sought to reduce emissions for several years while retaining operational robustness to ensure patient care. The development of alternative fuel vehicles is now changing at a very rapid pace with many viable vehicle types either available now or being indicated as imminent by manufacturers. The Service want to lead in the transition to specifying electric or alternative fuel vehicles across the fleet as quickly as technically and financially viable.

The next steps the Service intends to take are summarised as:

- Transition to the introduction of purely zero emission 2 wheel drive vehicles below 3.5 tonne by 2022 with 4 wheel drive variants (primarily for emergency

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paramedic response) shortly thereafter as manufacturers develop viable specifications for this role.

- Replace light fleet vehicles (scheduled care, RRVs, training and support) with electric vehicles. The IA costs include the purchase of electric vehicles for RRVs, training and support. An additional cost has been built into this Business Case to replace scheduled care vehicles with electric panel vans. This has resulted in an additional £ [REDACTED] per scheduled care vehicle (representing a 72% increase in unit cost).
- Further development of vehicle designs providing the performance and response capabilities required of A&E Ambulances may not be available within the next few years. This continues to be a focus in discussions with manufacturers and partner agencies and will progress as part of the Service's Innovation Programme.
- Continue to develop electric vehicle charging infrastructure through integrated approach from power suppliers and users. Some sites are already at or close to their power supply capacities. This may require provision for significant power supplies and potentially involve installation of substations.

Investment Objectives

1. To reduce vehicle downtime for maintenance. This actual time a vehicle is off-road and unavailable for operational use is measurable.
2. To provide the right mix of vehicles required to provide the most appropriate response depending on the level of acuity of the incident. Similar to above, the vehicle downtime is measurable. This will also be monitored by NDVEG which has operational representation from the Service's regions.
3. To contain maintenance, fuel and logistical costs of vehicles by providing newer, more reliable vehicles. Fleet revenue expenditure will be monitored by the finance department with monthly reports provided to the General Manager for Fleet and any cost pressures or unfavourable trends highlighted.
4. To reduce environmental impact through innovation and evolving electric and alternative fuel technology. The Service will have a higher proportion of alternative fuel vehicles within its fleet.
5. To increase the number of patients receiving a 'see & treat' response rather than being conveyed to hospital through use of innovation and evolving technology.
6. To support the remobilisation and renewal of health and care, establishing primary and community care service as the cornerstone of the NHS – for the Service this will include increasing our contribution to multi-disciplinary teams in primary care.

Material Changes to Cost of Investment

The funding requirement for the ECMO vehicle based at Aberdeen Royal Infirmary has been removed (£ [REDACTED]) as initial funding for this vehicle was received during 2019/20 financial year.

Initial capital estimates of the cost of Scheduled Care fleet have increased from £ [REDACTED] to £ [REDACTED] per vehicle (an increase of £ [REDACTED]). The previous estimate of £ [REDACTED] was based on like for like replacement of the existing Scheduled Care fleet.

However, the revised estimates are based on replacing the existing Scheduled Care fleet with electric vehicles.

Provision for 6 PRU type vehicles for Paramedics in Primary Care have been added to this FBC (an increase of £ [REDACTED]). Discussions are ongoing with Primary Care Partners over the service delivery model and requirements. Funding requirements will be confirmed as discussions progress.

Preferred Strategic Solution

The preferred strategic solution is to replace the existing fleet. The Service's fleet is fundamental to the organisation's service delivery model.

1.3 Economic Case

The preferred business option identified in the IA to purchase a range of vehicles, including a mix of styles for the same response remains valid. The Service intends to purchase a number of the following types of vehicles:

- A&E Box Body RWD
- A&E Box Body 4X4
- A&E Island Remote Vehicle
- PRU – 4WD Car
- PTS Van 4x2 with stretcher
- PTS Van 4x2 without stretcher
- Support cars and vans

In addition, there are a number of specialist vehicles that will be purchased to suit the specific requirements of the Special Operational Response Teams (SORT).

Leasing v Purchase

This Business Case assumes that all operational vehicles will be purchased through capital funding and the Service will be the legal owner. It was concluded that leasing vehicles is more expensive than outright capital purchases. The table below summarises the outcome of the financial analysis of the two types of procurement method in relation to A&E vehicles. To simplify matters, the figures represent the costs of one vehicle type procured under either outright purchase or lease.

Economic Appraisal of Procurement Methods						
Type	Asset Life	Net Present Value (NPV)		Equivalent Annual Charge (EAC)		Most Economic Procurement Method
		Purchase £	Lease £	Purchase £	Lease £	
AEU – Merc 519 Box 4x2	7	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Purchase
AEU – Merc 519 Box 4x2	5	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Purchase

Preferred Way Forward

The following tables show the preferred type and number of vehicles required over the next 5 years to maintain service delivery and patient care. As the Service transitions to its new organisational strategy, the numbers and types may need to be flexed, but the funding packages will not be exceeded.

	Replacement Numbers - Existing Fleet					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
Total Conveying Response	126	125	136	113	120	620
Total PRU Vehicles	25	25	25	25	25	125
Total NRRD Vehicles	10	14	8	4	7	43
Total ScotSTAR	2	0	0	3	0	5
Total Other	52	50	53	50	54	259
Sub-Total	215	214	222	195	206	1052

	Numbers -Additional Fleet					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
D&C Conveying Response	26	26	0	0	0	52
Paramedics in Primary Care	6					6
Sub-Total	32	26	0	0	0	58

	Total Fleet Numbers					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
Total Fleet	247	240	222	195	206	1110

Note the paramedics in primary care reflect 2021/22 only however there is an ambition to increase the use of paramedics in primary care over the next 5 years and positive discussions continue with IJB's in support of this.

1.4 Commercial Case

Base Vehicles

The Service uses Crown Commercial Service (CCS) frameworks(ref: RM6060) for most base vehicle procurement. The current contracts are due to expire(end date 01/12/2022)before the end of the period in which this Business Case covers, however these will be re-tendered in sufficient time to ensure there is no delay to orders being placed and delivery of vehicles.

The new CCS framework will be reviewed once 'live' to ensure suitability, acceptability and delivers value for the Service's requirements. Typical delivery of base vehicle chassis is 12 to 16 weeks from date of order with planned conversion times typically 8 to 12 weeks from receipt of chassis.

Conversion Contracts

The Service has previously tendered conversion contracts and the current contracts will expire before the commencement of the next Fleet Business Case. Separate contracts will be awarded prior to commencement of this Fleet Replacement Programme. Work has begun on re-tendering for these contracts; timescales are detailed below.

Vehicle Type	Detail	Contract Notice Open Date	Contract Notice Close Date	Contract Award Date
Accident and Emergency Ambulance Conversion	Lot 1: A&E Box Body Conversion Lot 2: A&E Van Body Conversion Lot 3: A&E Island Spec Van Body Conversion Lot 4: A&E Remote Island Van Body Conversion	PQQ 23 rd June 2020 ITT 14 th Aug 2020	PQQ 22 nd July 2020 ITT 11 th Sept 2020	25 th Sept 2020
Scheduled Care Vehicle Conversion	Lot 1 – Panel Van based conversion	21 st Aug 2020	25 th Sept 2020	23 rd Oct 2020
Specialist Response Vehicle Conversion	Lot 1 – Covert Response Vehicle Conversion Lot 2 – Marked Emergency Response Vehicle Conversion Lot 3 – Specialist Response Vehicle Conversion	4 th Sept 2020	9 th Oct 2020	6 th Nov 2020

The Frameworks are valid for 3 years from the applicable award dates with the option to extend the contracts for a maximum of 24 months.

1.5 Financial Case

Revised Capital Requirements

The capital costs included in the Initial Agreement have been revised. The revised position is shown in the table below.

	Capital Funding Requirement (£)					Total
	2021/22	2022/23	2023/24	2024/25	2025/26	
Existing Vehicle Replacement						
Demand & Capacity Review						
Paramedics In Primary Care						
Financial Risk Contingency (10%)						
Total						
IA Total						
Difference						

The revised capital requirements show an increase of £ [REDACTED] across the 5 year programme. The variances above are driven by the following:

1. Increase in costs of Scheduled Care Vehicles.
2. Smoothing of A&E fleet in 2024/25 and 2025/26.
3. Smoothing of Demand and Capacity vehicle purchase to 26 in 2021/22 and 26 in 2022/23.
4. Additional costs for capital equipment.

5. Financial risk contingency increase to accommodate these changes.
6. Removal of ECMO vehicle funding
7. Additional 6 PRU type vehicles for Paramedics in Primary Care, this has been included for 2021/22 but there is an ambition to increase this over the next 5 years with the detail of this being progressed with IJB's and Health Boards. A commissioning framework has also been put in place to support this. There is likely to be a further requirement for vehicles in primary care to support this.

Revenue Costs – Replacement of Existing Fleet

	2021/22	2022/23	2023/24	2024/25	2025/26
Existing Vehicle Replacement					
Vehicle Maintenance					
Vehicle Running Costs					
Total Existing Vehicle Replacement					

It is anticipated that the Service will contain fuel and maintenance costs at its current level. As aforementioned, these costs will be funded via the Service's existing core revenue allocation from Scottish Government.

Revenue Costs – Additional Vehicles

	2021/22	2022/23	2023/24	2024/25	2025/26
D&C Vehicles					
Vehicle Maintenance & Running Costs					
Vehicle Running Costs					
PRUs for Paramedics in Primary Care					
Vehicle Maintenance & Running Costs					
Vehicle Running Costs					
Total Additional Fleet					

Ongoing vehicle maintenance and running costs associated with these additional vehicles will be funded via an earmarked allocation from Scottish Government. This funding will be secured through Scottish Government approval of the Service's Demand and Capacity Review Business Case. The Service will not procure these additional vehicles until the Demand and Capacity Review Business Case has been formally signed off and revenue funding for these vehicles has been agreed. The additional revenue costs associated with the vehicles for Paramedics in Primary Care will be funded via the commission framework with the relevant GP Practice or other Primary Care partner.

Affordability of the Preferred Option

The capital costs associated with this programme will be funded via an ear-marked capital allocation from the Scottish Government following approval of this FBC by the Capital Investment Group. It is recognised that there is still uncertainty over the impact of Brexit on the capital costs. As part of the approval process from SG, the Service will request approval of funding for the full costs detailed within this FBC but will discuss the requirement for the 10% Financial Risk Contingency on a year to year basis as the impact becomes known.

Revenue costs associated with direct replacement of existing vehicles and additional PRUs will be funded by the Service's core revenue budget. It is anticipated that

revenue costs will be contained at their current level. The Service will secure additional funding to meet the ongoing revenue costs relating to the new vehicles introduced through the Demand and Capacity Review.

1.6 Management Case

The Fleet Replacement Project will report jointly to the National Vehicle Design & Equipment Group (NVDEG) focusing on the operational delivery objectives and Capital Programme Governance Group (CPGG) focusing on the financial management controls.

The General Manager for Fleet Services will oversee all work relating to this project and will be supported by Regional Fleet Managers and Operational Personnel to ensure the effective co-ordination of replacements to guarantee no detriment to service delivery.

1.7 Conclusion and Recommendation

This FBC has been produced in accordance with the guidance issued by the Scottish Government's Capital Investment Group (CIG). The information included in this document has demonstrated the reasons why the ongoing investment in replacement vehicles is required and the benefits of having funding agreed for a 5-year period and has shown that there is a good strategic fit between this proposal and the Service's strategy and the wider NHS Scotland's strategic priorities. The preferred way forward would meet the Business Case objectives in terms of providing patients and staff with modern, safe, functionally suitable and operationally reliable vehicles. The Business Case uses procurement methods and replacement policies that offer value for money and that are affordable.

It is recommended that the Scottish Government CIG approve this FBC.

Section 2: Introduction

2.1 Purpose of the Business Case

The provision of services by the Scottish Ambulance Service (the Service) is dependent on reliable, well maintained vehicles. Vehicles have a short finite life and as a result, the Service has a recurrent requirement to replace them as they come to the end of their useful life.

The purpose of this Full Business Case (FBC) is to confirm that the procured offer represents the best value commercial solution for delivering the project requirements within the affordability limits. It will also demonstrate that appropriate contractual, commercial and management arrangements are in place to successfully deliver the project. The FBC follows on from the Initial Agreement (IA) which established the need for investment and strategic fit of the investment. The Scottish Government's Capital Investment Group (CIG) approved the IA on 13th May 2020 and granted authority to proceed to FBC.

The FBC follows the guidance published in the Scottish Government Health and Social Care Directorate (SGHSCD) Scottish Capital Investment Manual (SCIM). It should be noted that there is no end point to the Fleet Replacement Programme. There is a continual need to replace vehicles as they come to the end of their useful life and are no longer fit for purpose. This Programme will replace over 1,000 vehicles over the 5-year period covered by this Business Case. Whilst this does not fit the definition of a project, project management processes have been incorporated to ensure governance is maintained. The SCIM process is followed to ensure funding is secured for this ongoing need.

2.2 Scope

Fleet Covered

Existing Fleet	<p>This Business Case covers the direct replacement of A&E, Scheduled Care and Specialist Vehicles. The fleet purchases will be flexible to cover a range of responses resulting in a mix of vehicle styles purchased for the same category. The different options and number of each type were considered and evaluated in the IA.</p> <p>Support vehicles, such as those used by workshops, training, infection control, health and safety and operational regions will also be replaced.</p> <p>This Business Case covers the vehicle base, conversion and standard vehicle equipment list in relation to the replacement of existing fleet.</p>
Demand and Capacity – Additional Fleet	<p>The Demand and Capacity Review assessed the additional demand requirements and the supporting additional fleet. Requirement for an additional 52 vehicles has been identified.</p>

	<p>This has currently been modelled as 52 A&E Response vehicles, however the final vehicle requirement may change as the Demand and Capacity programme is being implemented.</p> <p>As with existing fleet replacement, this Business Case covers the vehicle base, conversion and standard vehicle equipment list. Provision has also been made within the costs to include specialist or transferrable equipment required by operational crews; Defibrillator units, ambulance Telehealth equipment and Airwaves.</p> <p>This treatment differs to the replacement of existing fleet. These additional costs are separately identifiable in section 6, the financial case.</p>
Paramedics in Primary Care	<p>Discussions have commenced with Primary Care partners, in particular GP Practices, regarding how Advanced Practitioners can support their service as well as delivering improvements to patients who directly contact SAS. The delivery model is being scoped out and any confirmed arrangements will be picked up in the commissioning framework. To deliver this model, will require access to a PRU type vehicle and within this BC, provision has been made to purchase 6 vehicles for this development. The requirement for this funding will be confirmed once discussions have concluded.</p>
ECMO Service Vehicle	<p>As stipulated in the IA, the Service proposes the purchase of a dedicated specialist A&E vehicle to transport patients referred to the Extra Corporeal Membrane Oxygenation (ECMO) Service based at Aberdeen Royal Infirmary. The ambulance will be required for circa 30 patient retrievals per annum. When not being used for this purpose, the vehicle will supplement the North of Scotland ambulance fleet. Initial funding for this vehicle was received in 2019/20 and replacement will not be due until 2026/27.</p> <p>This vehicle has therefore been removed from this FBC.</p>

Time Period

This business case covers five years of procurement for vehicles commencing 2021/22. This is the second five-year business case for fleet replacement that the Service has developed to secure funding over the five-year period.

The Service has evaluated options which estimate the likely size and mix of the fleet in order to secure funding for the annual replacement of vehicles. The Service will need to have some scope to vary the size and mix as new developments arise which may impact on vehicle requirements but will ensure that the funding packages are not exceeded.

Section 3: Strategic Case

3.1 Review of Strategic Case within the Initial Agreement

The strategic case for investment has not materially changed since the Initial Agreement. However, the anticipated impact of the COVID-19 pandemic on this investment project has been considered below.

This section also summarises the organisational and national strategic context for this investment, the need for change and confirms the preferred strategic solution.

3.2 Anticipated Impact of COVID-19

The IA for this project was drafted in 2019 and finalised in October 2019 before going through the various approvals and governance requirements. In March 2020, the World Health Organisation declared the Coronavirus (COVID-19) as a pandemic.

The previous Fleet Replacement Business Case gave the platform for the Service to establish a stable fleet provision which was integral to the delivery of the Fleet Business Continuity Plan; this was actively demonstrated during the COVID-19 pressures. The Fleet Business Continuity Plan focused on maintaining 'business as usual' as the core principle, only escalating where this cannot be maintained. Fleet resilience and stability is a core objective of this new Fleet Replacement Business case and allows the Service to continue to plan to maintain this position going forward giving significant resilience to any future demands.

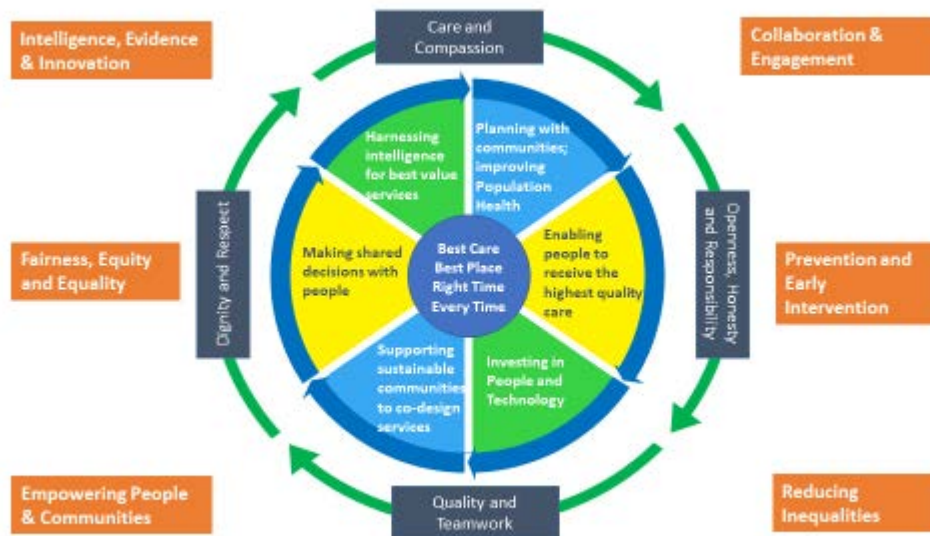
3.3 Organisational Strategic Context

Organisational Overview

The Service operates as a mobile service meeting the scheduled, unscheduled and emergency care needs of a diverse population in every community at all times of day. The Services delivered by the Service are all transport based, either by taking operational staff to the patient or by taking the patient to the most appropriate point of care. To be able to deliver these services there must be the right amount and mix of vehicles available.

2030 Organisational Strategy

The 2030 Organisational Strategy was almost finalised when the COVID pandemic began. This emerging strategic framework fully supports the remobilisation plan as we move into the renewal phase. The fundamental service provided by the Service will not change. It will remain that the services delivered by the Service will be transport based and will require suitable supporting fleet. The key elements of our emerging strategic framework are described in the following diagram.



COVID-19 Remobilisation Plan August 2020 – March 2021

The IA summarised the Service’s AOP for 2019/20. The Service has since released the Remobilisation Plan August 2020 to March 2021 in response to the COVID-19 pandemic; this document has subsumed the Annual Operational Plan for 2020/21. The Remobilisation Plan was submitted to Scottish Government on 7th August 2020.

The Service’s key responsibility, during the remobilisation of health and social care services, is to continue to deliver the best care. The plan highlights the key areas of focus for the period August 2020 to March 2021.

The key priorities to 31st March 2021 (and beyond) are described within the plan, as:

1. Critical and Emergency Care

- Development of the next iteration of the Out of Hospital Cardiac Arrest strategy extending to 2025 working with national partners.
- We continue to lead on the development of the national Cardiac Responder Programme.
- Building on learning from the pandemic we have adopted into our business as usual model enhanced critical care support to frontline crews within Ambulance Care.
- Continue to support Stroke/Thrombectomy pathway and service developments across Scotland.
- Engagement across Boards across definitive pathways for emergency and critical care.

2. Urgent Care

- Co-Lead the Redesign of Urgent Care working with Scottish Government, NHS Boards and health and care partnerships.
- Enhance connections between the Service and Board Urgent Care Hubs to optimise patient experience and manage ED flow.
- Work with IJBs to develop local pathways to support patients presenting in mental health crisis and those affected by frailty and COPD (3 of the highest demand areas during winter).
- Extend the scope of our urgent care advanced practice clinicians in terms of telephone/video consultations to optimise response and care, and further reduce A & E attendances.

3. Responding to the winter and COVID surges

- Building on our already established Demand and Capacity Programme aimed to increase our workforce to ensure our operational model can meet our performance standards, we have, during COVID had to revisit and reprioritise our recruitment campaign. We are now accelerating this at pace to increase our capacity to meet potential surges in demand.
- In addition, we continue to grow our clinical workforce and transition effectively into the new paramedic education delivery model.
- We are also supporting primary care through the recruitment and training of Advanced Practitioners.
- Our work throughout this period and over the next year of the programme aims to improve our response times for our highest acuity patients and reduce delays for less acutely ill patients. This will also improve our rest break compliance, staff experience and welfare.

4. Mental Health

- Continue our collaborative work with NHS 24 and Police Scotland to develop the mental health hub.
- Work with NHS Boards and IJBs to enable people, who present to us in mental health crisis, to access the services they need through developing local referral pathways 24/7.
- Continue to expand the Distress Brief Intervention (DBI) work, working with new areas as they become active.
- Explore better data sharing between partners to inform planning, develop new services and improve patient experience.
- Extend the use of the mental health car, staffed by paramedics and CPNs.

5. Health & Wellbeing of our Staff

- Develop and grow our workforce in line with our Demand & Capacity requirements to improve rest period compliance and reduce shift over runs.

We will also maintain our focus on reducing oncall working across our high priority stations

- Continue to strengthen and develop partnership relationships through collaborative working and improved communications and engagement
- Development of a new Health & Wellbeing Strategy and implementation plan that will address the post COVID-19 harm and trauma which is being experienced by health and care workers and ensure proactive support and early identification of employees suffering from post-traumatic stress disorder, anxiety and mental health issues
- Promotion of local and national wellbeing services available to staff

6. Maximising Digital and Data Sharing Potentials

- We will use our data, intelligence and analytical capability collaboratively, to contribute to the redesign and delivery of an improved healthcare system that meets patient needs and enables effective planning to respond to future COVID-19 waves, winter and other demand surges.
- We are advancing our digital technology provision, and plans to further expand our technological capability to utilise digitally enabled referral and virtual clinical care pathways to further improve patient care and reduce unnecessary hospital attendances.

7. Elective Care

- We will support the remobilisation of outpatient and elective services for those patients who have a clinical requirement for Ambulance assistance
- We will review all aspects of our Elective Care Service to establish how we can contribute to the redesign of Urgent Care

Almost every single priority defined above relies upon vehicles as the foundation of delivering services. The use of modern, well equipped vehicles will support these changes in healthcare provision. Moves to more community based pathways with multi-disciplinary teams working across the system to deliver the most appropriate care for patients continues to rely on the most suitable vehicle and equipment to undertake these tasks.

3.4 National Strategic Context

National Performance Framework

The Scottish Government has developed a National Performance Framework to measure and report on how Scotland is doing against a wide range of indicators.



The Fleet Replacement Business Case contributes to the National Performance Framework in the following ways:

- New vehicles are built to higher environmental specifications and are subject to increased regulation on greenhouse gas emissions. By ensuring that the Service can replace vehicles as they come to their end of their useful life reduces the overall carbon footprint and greenhouse gas emissions associated with the delivery of services
- Provision of the right type of vehicle, which is reliable and well maintained, for each category of incident responded to by the Service contributes to the quality of care experienced by the patient along with improved health and wellbeing outcomes.

3.5 National ‘Green’ Fleet Strategies

The Service fully supports Scottish Government aims to reduce carbon emissions from road transport. The relevant Scottish Government policies and publications are summarised below.

Switched on Scotland

Transport Scotland released their first ‘Switched on Scotland’ publication in 2013 – *Switched on Scotland: a Roadmap to Widespread Adoption of Plug-in Vehicles*¹. This outlines the Government’s long term vision to drive forward the uptake of electric and plug-in hybrid electric vehicles. The vision is to free Scottish towns, cities and communities from the damaging emissions of petrol and diesel fuelled vehicles by 2050.

¹Transport Scotland (2013). *Switched on Scotland: a Roadmap to Widespread Adoption of Plug-in Vehicles*, [online] Available at: <https://www.transport.gov.scot/media/30506/j272736.pdf>

Progress was reviewed and an action plan defined in the Strategy refresh document released by SG in November 2016, covering 2017 to 2020². The Strategy refresh places an emphasis on growth and actions that promote widespread uptake of electric vehicles.

Scottish Government's Programme for Scotland

The Scottish Government outlined the national commitment to phase out petrol or diesel fleet in the public sector by 2030 in their 2019-20 Programme for Government. Two key targets for public sector fleet have been extracted from the document:

“We will work with public bodies to phase out petrol and diesel cars from our public sector fleet and phase out the need for any new petrol and diesel light commercial vehicles by 2025.”³

“We will work with public bodies, the automotive sector and Scotland’s innovation community to create the conditions to phase out the need for all new petrol and diesel vehicles in Scotland’s public sector fleet by 2030. We will apply flexibility and pragmatism for frontline and emergency service and specialist vehicles.”⁴

This strategy establishes an ambitious aim to phase out fossil-fuelled cars by 2025 and all other fossil-fuelled vehicles within the public sector by 2030. The strategy also states that a pragmatic approach will be applied to emergency service vehicles. This, as expected, has been a key focus of the Service fleet planning and sustainability objectives. The recently published 2020-21 Programme for Government reinforces the aim to decarbonised public sector fleet by 2025⁵.

Provision has been made in this Business Case for a move to full electric training, support and Scheduled Care vehicles. These vehicles are van-style vehicles and fall under the 2030 target stated above. The impact of this is discussed in section 3.10.

Operational A&E vehicles are more of a challenge due to the size and weight but also due to the length of time currently required to charge the vehicle. The Service is continually monitoring and assessing new technology as it emerges. It is therefore realistic to state that within this 5 year timeframe it is unlikely that there will be a full scale switch to electric for operational vehicles but it is hoped that there may be some suitable vehicles on the market that could be piloted with certain areas. The Service will maintain a key focus in this area.

²Transport Scotland (2017). *Protecting Switched On Scotland Phase Two: An Action Plan For Growth*, [online] Available at: <https://www.transport.gov.scot/media/39306/switched-on-scotland-phase-2.pdf>

³Scottish Government (2019). *Protecting Scotland’s Future: the Government’s Programme for Scotland 2019-20*, Chapter 1, p.43. [online] Available at: <https://www.gov.scot/publications/protecting-scotland-future-governments-programme-scotland-2019-20/>

⁴Ibid, p.44

⁵Scottish Government (2020). *Protecting Scotland, Renewing Scotland: the Government’s Programme for Scotland 2020-21*, Chapter 1, p.37. [online] Available at (<https://www.gov.scot/publications/protecting-scotland-renewing-scotland-governments-programme-scotland-2020-2021/>)

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3.6 Summary of Current Arrangements

There has been no change of material importance to the current arrangements since the Initial Agreement. It is unlikely that the current arrangements will change during the investment process. The IA included details of vehicles owned at 31st March 2019. This has been updated to show the position at 31st March 2020.

Owned Vehicles	2018/19	2019/20	Movement
Number of Owned Vehicles	1225	1269	▲ 44
Net Book Value (£m)	43.8	49.8	▲ 6m
Total Mileage per Annum	25,071,957	25,475,884	▲ 403,927

Age Profile	Less than 2 years old	2-5 years old	Over 5 years old
2018/19	32%	31%	37%
2019/20	28%	36%	35%
Movement	▼ 4%	▲ 5%	▼ 2%

Fuel Type	Petrol	Diesel	Electric
2018/19	0.2%	99.6%	0.2%
2019/20	1.0%	97.0%	2.0%
Movement	▲ 0.8%	▼ 2.6%	▲ 1.8%

The tables show an increase of 44 vehicles from 1,225 in 2018/19 to 1,269 in 2019/20. The increase in vehicle numbers is due the timings between acquisitions and disposals. Total vehicle numbers are split between the following categories of vehicle:

	A&E Chassis Conversion	A&E Van Conversion	A&E 4X4 Chassis Conversion	Rapid Response Vehicles 4x4	PTS - Van Conversion	PTS - Car	Specialist Vehicles	Admin/Support	Total
Number of vehicles	436	2	20	79	425	19	146	142	1,269

3.7 Summary of the Need for Change

The need for change and investment was set out in the IA and is summarised in the table below:

What is the cause of the need for change?	What effect is it having, or likely to have, on the organisation?	Why action now?
To ensure service delivery is maintained and patient safety is not compromised, the vehicles in poor condition need to be replaced with newer, more reliable vehicles	Vehicles that are old and in poor condition have higher off the road downtime caused by mechanical failure and an increased maintenance and servicing requirement.	Due to the investment provided by the current Fleet Business Case, the age and condition of the current vehicles has improved over the life of the business case. However, without continual investment to replace these

	<p>This reduces the availability of vehicles able to respond to incidents thereby increasing response times and potentially affecting patient outcomes</p>	<p>vehicles at the optimum time there will be a significant increase in maintenance costs to endeavour to keep these vehicles roadworthy and in a suitable condition to treat patients. Vehicles will increasingly be unavailable for responding to incidents thereby increasing response times and affecting patient outcomes</p>
<p>As the Service finalises its 2030 Strategy new developments are being identified that will have an impact on the number and type of vehicle required to delivery services.</p> <p>The Demand and Capacity review will result in the need for additional vehicles to meet the forecast demand projections</p>	<p>Vehicles that are old and in poor condition are not able to adapt to meet the different needs of patients.</p> <p>The Service will continue to ensure patients are provided with the most appropriate response depending on the acuity level of the incident. If the right type of vehicle is not available due to increased downtime for old vehicles, patients may have to wait longer for a response</p>	<p>The investment provided by the current Fleet Business Case has allowed the Service to invest in different type of vehicles rather than focusing on the traditional A&E Ambulance and PTS Minibus. The Service now has a mix of PTS vehicles with both seating and trolley cot configuration along with different types of RRV vehicles.</p> <p>Without continual investment the Service will not be able to adapt to changing priorities or business needs</p>
<p>To contain maintenance costs at the current level, the vehicles in poor condition and out of warranty need to be replaced with more reliable models.</p>	<p>Vehicles that are out of warranty and in poor condition incur higher maintenance and fuel costs than newer more reliable vehicles</p>	<p>Without continual investment in the fleet maintenance costs will increase to an unaffordable level. In addition, there is a high risk that older vehicles cannot be repaired or maintained to a roadworthy condition and will need to be disposed. Without a replacement, the number of vehicles available reduces which increases response times and potentially affects patient outcomes</p>
<p>To reduce environmental impact from carbon emissions</p>	<p>As vehicles age they have a damaging environmental impact</p>	<p>Newer vehicles are built to meet higher legislative environmental standards and have reduced carbon emissions. Investment can</p>

through innovation and evolving technology	through increased emissions	also be in made in alternative fuel types such as electric or PHEV which reduces the impact on the environment from delivery of services
The vehicles need to be able to accommodate different technology and medical equipment to allow staff to be able treat a wider range of conditions	Vehicles that are old and in poor condition are not able to adapt to new developments in patient care or use of digital technology.	New vehicles can be designed and specified to the Service's needs and will take into account emerging developments in patient care and technology.

3.8 Summary of Opportunities for Improvement

A summary of Opportunities for Improvement identified in the IA is included below. Further commentary is provided on the Service’s progress in reducing fleet emissions.

Opportunity for Improvement	Description	Progress to Date	Next Steps
<p>Electric and Alternative Fuel Vehicles / Low Emission Fleet</p>	<p>The Scottish Ambulance fleet has sought to reduce emissions for several years while retaining operational robustness to ensure patient care. The development of alternative fuel vehicles is now changing at a very rapid pace with many viable vehicle types either available now or being indicated as imminent by manufacturers.</p> <p>The Service want to lead in the transition to specifying electric or alternative fuel vehicles across the fleet as quickly as technically and financially viable.</p>	<p>With the support of Transport Scotland, the introduction of an additional 50 electric cars is already in place with a further 41 full electric vehicles being commissioned in August 2020. As the range of modern designed vehicles and availability improves, it is anticipated that all 2WD cars will be zero or ultra-low (<51gms CO2) by 2026.</p> <p>The emergency response vehicles, A&E and Paramedic Response, will all be Low Emission Zone compliant in 2020 aligned to the current Fleet Replacement Business Case funding. With longer replacement schedules of the remaining fleet, this will take a few more years but the Service is already around 70% Low Emission Zone compliant with the remaining older fleet.</p> <p>The Service is working with NHS, Scottish Fire and Rescue Service and Police Scotland to develop an integrated electric charging infrastructure networks to enable use of charging points installed at each other’s sites.</p>	<p>It is the intention of Scottish Ambulance to transition to the introduction of purely zero emission 2 wheel drive vehicles below 3.5 tonne by 2022 with 4 wheel drive variants (primarily for emergency paramedic response) shortly thereafter as manufacturers develop viable specifications for this role.</p> <p>Replace light fleet vehicles (scheduled care, RRVs, training and support) with electric vehicles. The IA costs include the purchase of electric vehicles for RRVs, training and support. An additional cost has been built into this Business Case to replace scheduled care vehicles with electric panel vans. This has resulted in an additional £ [REDACTED] per scheduled care vehicle.</p> <p>Further development of vehicle designs providing the performance and response capabilities required of A&E Ambulances may not be available within the next few years. This continues to be a focus in discussions with manufacturers and partner agencies.</p> <p>Continue to develop electric vehicle charging infrastructure through integrated approach from</p>

Opportunity for Improvement	Description	Progress to Date	Next Steps
		<p>During 2019, the Service invested in electric vehicle charger infrastructure to support the roll out of electric vehicles nationally with 30 sites installed with a mixture of Rapid and Ultra chargers. The Service will continue to work with the NHS Electric Vehicle Infrastructure project and partner agencies to ensure strategic alignment and interoperability.</p>	<p>power suppliers and users. Some sites are already at or close to their power supply capacities. This may require provision for significant power supplies and potentially involve installation of substations.</p>
'Make Ready' System	<p>The IA references that the Service is considering the implementation of 'Make Ready', a system where ambulances are prepared by a dedicated team at the beginning and end of every shift.</p>	<p>The Service is currently evaluating the programme and analysing the impact if the decision is made to implement.</p>	<p>Complete evaluation of system. No significant cost is anticipated at this time.</p>
Telematics	<p>The Service has commenced a Telematics Project to ascertain the potential benefits of fleet wide implementation.</p>	<p>A pilot project is being undertaken with full staff side engagement & support. Telematics has been installed in the first 50 pure electric vehicles and is being extended to pool vehicles. Costs are currently revenue based (£██████ p.a. per vehicle).</p>	<p>Complete project evaluation. Anticipated benefits are staff safety/wellbeing (lone worker, driver location), improved energy use (driver behaviours, idling, unwarranted mileage), more accurate maintenance (associated cost reduction), improved vehicle utilisation (with increased resource visibility), reduced administrative burden (reporting, log sheets, odometer accuracy), legislative compliance (driver identification) and theft & insurance benefits.</p>

3.9 Summary of Investment Objectives

The investment objectives for this programme have been developed from the premise that it is essential that the Service has access to reliable, well maintained vehicles. As vehicles have a finite life, the Service must replace vehicles on a frequent basis due to their age and condition.

As noted in the introduction to this Business Case, the fleet replacement does not fit into the definition of a project. There is a continual need to replace vehicles as they come to the end of their useful and are no longer fit for purpose. The commission of new vehicles and decommission of old vehicles is a standard piece of work carried out by the Service's Fleet department on an almost weekly basis.

The investment objectives included in the IA have been refined and are shown in the following table.

Effect of the need for change on the organisation	What has to be achieved to deliver the necessary change? (Investment Objectives)
Vehicles that are old and in poor condition have higher off the road downtime caused by mechanical failure and an increased maintenance and servicing requirement. This reduces the availability of vehicles able to respond to incidents thereby increasing response times and potentially affecting patient outcomes	Reduction in vehicle downtime for maintenance. This actual time a vehicle is off-road and unavailable for operational use is measurable.
Vehicles that are old and in poor condition are not able to adapt to meet the different needs of patients. The Service will continue to ensure patients are provided with the most appropriate response depending on the acuity level of the incident. If the right type of vehicle is not available due to increased downtime for old vehicles, patients may have to wait longer for a response	To provide the right mix of vehicles required to provide the most appropriate response depending on the level of acuity of the incident. Similar to above, the vehicle downtime is measurable. This will also be monitored by NDVEG which has operational representational from the Service's regions.
Vehicles that are out of warranty and in poor condition incur higher maintenance and fuel costs than newer more reliable vehicles	To contain maintenance, fuel and logistical costs of vehicles by providing newer, more reliable vehicles. Fleet revenue expenditure will be monitored by the finance department with monthly reports provided to the General Manager for Fleet and any cost pressures or unfavourable trends highlighted.
As vehicles age they have a damaging environmental impact through increased emissions	To reduce environmental impact through innovation and evolving electric and alternative fuel technology. The Service will have a higher proportion of alternative fuel vehicles within its fleet.

Vehicles that are old and in poor condition are not able to adapt to new developments in patient care or use of digital technology.	To increase the number of patients receiving a 'see & treat' response rather than being conveyed to hospital through use of innovation and evolving technology.
The Service requires additional vehicles to support the remobilisation and renewal of health and care, supporting paramedics working in primary and community care services.	To support the remobilisation and renewal of health and care, establishing primary and community care service as the cornerstone of the NHS – for the Service this will include increasing our contribution to multi-disciplinary teams in primary care. The Service will increase the number of paramedics working in primary care.

3.10 Material Change to Cost of Investment

The funding requirement for the ECMO vehicle based at Aberdeen Royal Infirmary has been removed (£██████) as initial funding for this vehicle was received during 2019/20 financial year. This is discussed in Section 2.2 – Scope.

Initial capital estimates of the cost of Scheduled Care fleet have increased from £██████ to £██████ per vehicle (an increase of £██████, representing a 72% increase in unit cost). The previous estimate of £██████ was based on like for like replacement of the existing Scheduled Care fleet. However, the revised estimates are based on replacing the existing Scheduled Care fleet with electric vehicles. This is to align with the Scottish Government's aforementioned strategies on low carbon transport. The period of the Business Case covers Scheduled Care vehicle purchases to March 2026. Diesel-fuelled replacement vehicles have a standard useful life of 10 years therefore latterly purchased fleet will be in Service until circa 2036. This date is after the Scottish Government target date for phasing out new petrol and diesel vehicles in the public sector by 2030⁶.

Provision for 6 PRU type vehicles for Paramedics In Primary Care have been added to this FBC (an increase of £██████). Discussions are ongoing with Primary Care Partners over the service delivery model and requirements. Funding requirements will be confirmed as discussions progress.

The increase in costs is highlighted in section 6: the financial case.

3.11 Preferred Strategic Solution

The preferred strategic solution is to replace the existing fleet. As aforementioned, the Service's fleet is fundamental to the organisation's service delivery model.

⁶Ibid, p.44

Section 4: Economic Case

4.1 Confirmation of Preferred Option

The preferred business option identified in the IA to purchase a range of vehicles, including a mix of styles for the same response remains valid. The Service intends to purchase a number of the following types of vehicles:

- A&E Box Body RWD
- A&E Box Body 4X4
- A&E Island Remote Vehicle
- PRU – 4WD Car
- PTS Van 4x2 with stretcher
- PTS Van 4x2 without stretcher
- Support cars and vans

A&E fleet options were assessed within the previous 5 year Fleet Replacement Business Case and scored against identified benefits. The benefits appraisal was carried out by the Service's National Vehicle Design and Equipment Group (NVDEG). This Group advises the Service's Executive Team on matters relating to the design, specification, procurement and use of vehicles and equipment for the Service, with the aim of securing benefits from an optimum procurement methodology. The Group provides specialist advice and has representation across the service, with core membership including:

- Fleet Manager
- Head of Service
- Area Service Managers
- Health and Safety Manager
- Clinical Governance Manager
- Infection Control Specialist
- Staff side representative
- Specialist and/or other stakeholders external to the organisation may be co-opted onto the group as required.

An extract of the benefits appraisal and economic appraisal is included at Appendix A.

Options for other vehicles (paramedic response, scheduled care, NRRD or support vehicles) have negligible differences in costs so were not subject to a benefits appraisal. The final specification and design for these vehicles is established through NVDEG. This will be within the proposed capital funding in this Business Case.

Manufacturers and converters continually introduce and develop designs and specifications and it is envisaged that the Service will adopt innovations that improve patient care or the patient experience, give improved value, reduce environmental impact or enhance safety from the funding identified within this Business Case.

4.2 Benefits

The Benefits Register is included at Appendix B. As there is no end point to the Fleet Replacement Project, i.e. there is an ongoing requirement to replace vehicles; the current Benefits Register will be updated to reflect the current and future requirements.

4.3 Risks

The Risk Register is included at Appendix C. This will be a live document and will be managed in line with the Service risk management policy.

4.4 Leasing v Purchase

This Business Case assumes that all operational vehicles will be purchased through capital funding and the Service will be the legal owner. The Service previously evaluated leasing versus outright purchase within the last 5 year business case. It concluded that vehicle leasing is considerably more expensive than outright capital purchases. This option was reconsidered at IA stage with indicative leasing costs compared to purchase costs, including the upfront lease or capital cost and recurring maintenance costs. Again, it was concluded that leasing vehicles is significantly more expensive. The table below summarises the outcome of the financial analysis of the two types of procurement method in relation to A&E vehicles. To simplify matters, the figures represent the costs of one vehicle type procured under either outright purchase or lease.

Economic Appraisal of Procurement Methods						
Type	Asset Life	Net Present Value (NPV)		Equivalent Annual Charge (EAC)		Most Economic Procurement Method
		Purchase £	Lease £	Purchase £	Lease £	
AEU – Merc 519 Box 4x2	7					Purchase
AEU – Merc 519 Box 4x2	5					Purchase

The equivalent annual charge (EAC) figures represent the cost to acquire one vehicle (either up front capital cost or annual lease payment) and estimated fuel, maintenance and insurance costs. The EAC for leasing also includes a nominal figure at the end of the lease for penalty charges when the vehicles are returned to the leasing company. These charges are based on estimates. In addition, lease agreements are based on a pre-agreed terminal mileage clause with penalties charged for mileage in excess of these agreements.

The introduction of a new Accounting Standard IFRS16 from April 2021 (implementation was formerly April 2020 but has been postponed by one year) was also noted as a drawback of leasing. This standard pertains that vehicles used for service delivery should be treated as a 'finance lease'. This means that while the

Finance Company, is the legal owner of the vehicle, the Service has full operating control over the asset for all or most of the vehicle's useful life. This classification will apply to all vehicles included in this business case. This classification means that the leased vehicles would be added to the Service's asset register and depreciated in line with other owned assets. At the end of the leased vehicles useful life, the vehicle would return to the leasing company and there is likely to be significant charges associated with that. Conversely, Service owned vehicles are auctioned at the end of their useful life, generating a small income.

4.5 Optimism Bias

Optimism bias has not been included in the economic appraisal in section 4.4 above. Optimism bias is included within Business Cases to represent the fact that staff tend to underestimate the costs and duration of an investment project. The Fleet Replacement Programme does not fall into the classification of a project. Instead, this Business Case is concerned with purchasing vehicles at certain points in time. There is no technical complexity associated with the purchase and conversion of a vehicle. Vehicles are ordered in batches across the five financial years covered by this Business Case and delivery dates are confirmed at date of order. The risks surrounding increases in prices or delays in completion are considered very low. In addition, all equipment installed in the vehicle is either standard off-the-shelf kit or will be transferred from an existing vehicle.

The costs included in the Business Case represent the costs currently being incurred by the Service. A 10% contingency to allow for price increases resulting from Britain's departure from the European Union (Brexit) has been included in the financial case in section 6.

4.6 Vehicle Replacement Cycles

The timing of replacements has been modified to smooth purchases over the lifetime of vehicles years, rather than having peaks at certain years.

Predicting an optimum serviceable life of many of the vehicle types used by the Service is highly complex for several reasons. When a vehicle is new and within the manufacturer's warranty period, the Service typically assign the vehicle to high demand/use applications and most costs are associated with high use wearable items (e.g. brakes, clutches and service items). As the vehicle leaves the warranty period costs escalate with any major component failures incurring significant costs. If the vehicle replacement plans are in place and effective, the Fleet department reassign the vehicle to a slightly lower demand role reducing the mechanical impact proportionally. As the vehicle enters the last stage of its operational life, it is reassigned again to provide cover for maintenance, operational peaks, overlaps, events or additional shifts.

In practical terms, the result of this fleet management is that for most vehicles the serviceable life is determined by the following factors:

- Physical condition

- Costly major unit failure near the end of the useful life of the vehicle
- The vehicle no longer meeting the needs for providing effective patient care.

General useful lives are provided in the table below. However, at disposal each vehicle will be individually assessed.

Vehicle	Standard Useful Life (in years)
A&E Box	7
A&E Van	5 to 7
Neo-Natal Ambulance	7 to 10 ¹
Scheduled Care Vehicle	10 ²
Rapid Response Vehicle (RRV) Cars	5
Rapid Response Vehicle (RRV) Vans	5
Officer Cars (Leased)	4
Command and Control	10
Vans and Trucks up to 7.5 Tonne	7 to 10 ¹

1 – Depending on use

2 – Small vehicles and cars used for Scheduled Care have a lower useful life in years but these are being phased out.

The current age profiles for most vehicle types are in line with almost all other NHS Ambulance Services with the exception of the Scheduled Care Vehicles which the Service operate for 10 years in comparison to the normal 7 year replacement cycle adopted by other ambulance services.

4.7 Vehicle Maintenance Requirements

The maintenance of the mechanical components are consistent between all vehicle types, however, alternative fuel vehicles (including electric) do have additional considerations and requirements. The Service has already invested in extensive training of 17 maintenance staff to IMI Level 2 certification in the maintenance of electric vehicles with further training underway.

Following several years of increasing complexity and the associated increased maintenance resource requirements, the transition across to electric vehicles gives the opportunity to reduce the planned maintenance resource requirement by industry estimates of 20 to 25% for newer vehicles with reduced combustion engine and braking system maintenance. This is further enhanced with a power costs typically around 30 to 40% of comparable fossil fuel vehicles.

4.8 Preferred Way Forward

The following tables show the preferred type and number of vehicles required over the next 5 years to maintain service delivery and patient care. As the Service transitions to its new organisational strategy, the numbers and types may need to be flexed, but the funding packages will not be exceeded.

Replacement of Existing Fleet

	Replacement Numbers					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
Conveying Response						
A&E Box Body RWD	47	59	70	43	60	279
A&E Box Body 4x4	9			10		19
Zero Emission Van Based Box Body						
Island A&E	2					
Island Remote Vehicle	8	6	6			20
PTS Van 4x2 – With Stretcher						0
PTS Van - Full Electric	60	60	60	60	60	300
						0
Total Conveying Response	126	125	136	113	120	620
PRU Vehicles						
PRU – 4WD Car	25	25	25	25	25	125
						0
Total PRU Vehicles	25	25	25	25	25	125
NRRD						
NRRD – Heavy Command / Loader	7					7
NRRD - Off Road / Water Rescue / PPED	3	7			7	17
NRRD – First Response				4		4
NRRD – Logistics / Carrier / A&E		7	8			15
Total NRRD Vehicles	10	14	8	4	7	43
ScotSTAR						
Neo-natal	2			3		
Total ScotSTAR	2	0	0	3	0	5
Other						
Training Vehicle	2		3		4	
Support 4 x4 Vehicle	10	10	10	10	10	
Zero Emission Support Car / Van	40	40	40	40	40	
Total Other	52	50	53	50	54	259
Equipment						
TOTAL FLEET	215	214	222	195	206	1052

Additional Fleet –Demand & Capacity Review

	Replacement Numbers					
	2021/22	2022/23	2023/24	2024/25	2025/26	
Conveying Response						
A&E Box Body 4x4	26	26				52
Total Conveying Response	26	26	0	0	0	52
Equipment - Defibs, Telehealth & Airwave	26	26	0	0	0	
TOTAL FLEET	26	26	0	0	0	52

Additional Fleet – Paramedics in Primary Care

	Replacement Numbers					
	2021/22	2022/23	2023/24	2024/25	2025/26	
PRU Vehicles						
PRU – 4WD Car	6					6
Total PRU Vehicles	6	0	0	0	0	6
TOTAL FLEET	6	0	0	0	0	6

Note this has been included for 2021/22 only however there is an ambition to increase the use of paramedics in primary care over the next 5 years.

Section 5: Commercial Case

5.1 Procurement Strategy

This business case seeks to confirm a 5 year funding commitment from Scottish Government. This is the arrangement currently in place with Scottish Government covering the period from 2016/17 to 2020/21. As delivery lead time can take up to six months from order, this allows the Service to place orders with suppliers in advance of need to secure production line slots. This gives the Service assurance that vehicles will be delivered and paid for within the financial year. In addition, by placing orders in advance, suppliers have certainty over production commitments which has contained price increases to date benefiting the Service.

Base Vehicles

The Service uses Crown Commercial Service (CCS) frameworks(ref: RM6060) for most base vehicle procurement. The current contracts are due to expire(end date 01/12/2022)before the end of the period in which this Business Case covers, however these will be re-tendered in sufficient time to ensure there is no delay to orders being placed and delivery of vehicles.

The new CCS framework will be reviewed once 'live' to ensure suitability, acceptability and delivers value for the Service's requirements. Typical delivery of base vehicle chassis is 12 to 16 weeks from date of order with planned conversion times typically 8 to 12 weeks from receipt of chassis.

Conversion Contracts

The Service has previously tendered conversion contracts and the current contracts will expire before the commencement of the next Fleet Business Case. Separate contracts will be awarded prior to commencement of this Fleet Replacement Programme. Work has begun on re-tendering for these contracts; timescales are detailed below.

Vehicle Type	Detail	Contract Notice Open Date	Contract Notice Close Date
Accident and Emergency Ambulance Conversion	Lot 1: A&E Box Body Conversion	PQQ 23 rd June 20	PQQ 22 nd July 20
	Lot 2: A&E Van Body Conversion		
	Lot 3: A&E Island Spec Van Body Conversion	ITT 14 th August 20	ITT 11 th Sept 20
	Lot 4: A&E Remote Island Van Body Conversion		
Scheduled Care Vehicle Conversion	Lot 1 – Panel Van based conversion	21 st Aug 20	25 th Sept20

Vehicle Type	Detail	Contract Notice Open Date	Contract Notice Close Date
Specialist Response Vehicle Conversion	Lot 1 – Covert Response Vehicle Conversion Lot 2 – Marked Emergency Response Vehicle Conversion Lot 3 – Specialist Response Vehicle Conversion	4 th Sept 20	9 th Oct 20

Accident & Emergency Ambulance Conversion

The four lots allow the vehicle procurement to be flexible and align to the Service's 2030 Strategy.

Each lot has the provision for alternative patient loading systems, interior layout and design and developments in technology. The vehicle mix between the options is without commitment or obligation.

The Framework is valid for 3 years from 25th September 2020 (award date) with the option to extend the contract for a maximum of 24 months.

Scheduled Care Vehicle Conversion

The Framework is valid for 3 years from 23rd October 2020 (award date) with the option to extend the contract for a maximum of 24 months.

Specialist Response Vehicle Conversion

The Framework is valid for 3 years from 6th November 2020 (award date) with the option to extend the contract for a maximum of 24 months.

5.2 Scope of Works and Services

The Business Case encompasses vehicles required by the Service for direct effective patient care and the support services required to facilitate that patient care.

Vehicles being commissioned into service should be built, finished and equipped to meet all legislative requirements and operational needs.

For each of the vehicle types, consideration has been given to the base vehicle, the cost of conversion of that vehicle and the essential items of equipment (as detailed in Appendix D) integral or directly fixed to that vehicle. This specifically includes trolley cots, standard patient loading chairs & restraint systems and similar equipment.

A distinction has been made between the requirements for the replacement of existing vehicles and vehicles required as a result of emerging developments, i.e. the Demand and Capacity Review.

Existing Vehicles

This business case covers the vehicle base, conversion and standard vehicle equipment as noted above. It does not include specialist or transferable clinical equipment such as defibrillators, telehealth, communications or development and provision of additional innovative equipment which would require a dedicated business case.

Additional Vehicles as a result of Emerging Developments

This business case covers the vehicle base, conversion and standard vehicle equipment as noted above. It also includes all associated capital equipment required to make the vehicle operational. These additional capital purchases comprise of defibrillator units and Ambulance Telehealth equipment. Specific costs are detailed in Section 6 – the Financial Case below. All costs associated with these additional vehicles are separately identified in this Business Case.

The Service will procure the additional capital equipment utilising existing contracts, details of which are noted in the table below.

Equipment	Existing Contract	Contract End Date
Defibrillators	SAS2017/175	31 st March 2024 Optional extensions available up to 31/03/29
Ambulance Telehealth	SAS286/892 (2014/s 108-189858)	31 st March 2022

5.3 Risk Allocation

The Business Case delivery is low risk and follows a project plan that is tested and evidenced as having been robust and effective over several years. In recent years, there has been a continued and increasing patient, user and stakeholder focus giving further enhancement to the design and build process.

The greatest risk relates to the funding availability and the associated risks of being unable to replace aging and obsolete vehicles.

5.4 Commercial and Contractual Arrangements

Payment Structure

Suppliers will invoice the Service on delivery of goods or completed works with payment being made when the Service is satisfied that they have receipted delivery in full and taken title to the goods or services as ordered.

Contractual Arrangements

Vehicle chassis purchases are currently and expected to be, upon renewal in 2022 via Crown Commercial Service (CCS) framework agreement.

Vehicle conversions are managed via Service specific procurements, which are and will be OJEU Published and managed by the Service's Procurement and Fleet departments.

Asset Ownership and Maintenance Responsibilities

With the exception of leased staff cars, the Service owns all fleet vehicles. Outright purchase allows the Service to manage the whole vehicle lifecycle, from ensuring all operating requirements are incorporated at design stage to achieving best value at disposal. Purchase has also consistently demonstrated to represent better value for money during options appraisal analysis.

Contractual Remedies

As required by the remedies directives, a ten-day standstill period between the award and the signature of a public contract will be implemented. All submitted tenderers will be advised about the outcome of the tender procedures.

Compliance with Regulations and Standards

As per Public Contracts Regulations 2015, the use of an approved public sector framework and supplier will be utilised. When required, an Official Journal European Union (OJEU) Tender will be carried out, following all required timelines, process and procedures as required by the regulations.

Operational and Contract Administration Arrangements

The Fleet Replacement Programme will be managed by the General Manager for Fleet and the Regional Fleet Managers along with Operational Personnel to ensure the effective co-ordination of replacements to guarantee no detriment to service delivery. The General Manager for Fleet will be responsible for the day to day running of the replacement programme and will manage the budget and resolve any risks and issues.

Quarterly reviews will be undertaken between the incumbent supplier, Service Fleet and Service Procurement staff to review supplier performance and compliance to the requirements, via a balanced scorecard methodology.

Personnel Implications

No TUPE, Staffing or Personnel implications have been identified.

Section 6: Financial Case

6.1 Review of Financial Case within the Initial Agreement

Funding Assumptions

The planning assumption listed in the IA is that funding for this Project will be via an ear-marked Capital Allocation from the Scottish Government Capital Investment Group to support a capital procured solution. This remains unchanged.

The IA also assumes any revenue costs associated with vehicles as repair and maintenance will be funded via the Service's core revenue budget in the relevant financial years. This assumption has been revised. Revenue costs attributable to the replacement of existing fleet will be funded via the Service's core revenue budget. Revenue costs associated with additional vehicles required by the Demand and Capacity review will be funded via a separate earmarked allocation from Scottish Government. This is discussed in more detail in Section 6.3 below.

Costs Included within Initial Agreement

The associated capital costs identified in the IA were as follows:

	Capital Funding Requirement (£)					
	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Existing Vehicle Replacement						
ECMO Adult Retrieval Service						
Demand & Capacity Review						
Financial Risk Contingency (10%)						
Total						

Revised Capital Requirements

The capital costs included in the Initial Agreement have been revised. The revised position is shown in the table below.

	Capital Funding Requirement (£)					
	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Existing Vehicle Replacement						
Demand & Capacity Review						
Paramedics In Primary Care						
Financial Risk Contingency (10%)						
Total						
IA Total						
Difference						

The revised capital requirements show an increase of £ [redacted] across the 5 year programme. The variances above are driven by the following:

1. Increase in costs of Scheduled Care Vehicles.
An additional £ [REDACTED] per Scheduled care vehicle has been included to move to full electric. The rationale for this is stated in section 3.6. This accounts for a total increase of £ [REDACTED] (£ [REDACTED] plus 10% financial risk contingency).
2. Smoothing of A&E fleet in 2024/25 and 2025/26.
3. Smoothing of Demand and Capacity vehicle purchase to 26 in 2021/22 and 26 in 2022/23.
4. Additional costs for capital equipment.
Additional costs have been included for defibrillators, ambulance Telehealth and Airwave to fit to the 52 additional vehicles being introduced as a result of the Demand and Capacity Review.
5. Financial risk contingency increase to accommodate these changes.
6. Removal of ECMO vehicle funding
Funding for this vehicle was received in February 2020. The replacement vehicle will not be required until 2026/27 which is out with the scope of this business case
7. Provision has been made for an additional 6 PRU type vehicles for Paramedics in Primary Care in 2021/22. This accounts for a total increase of £ [REDACTED] (£ [REDACTED] plus 10% financial risk contingency)

6.2 Capital Costs

Existing Vehicle Replacement

The table below sets out the capital requirements for the next 5 years. The figures allow for a 2.5% annual increase in the costs of vehicles to allow for manufacturers increases as well as the cost of additional technology and equipment (as detailed in Appendix D) to be added. Associated transferrable capital equipment to make the vehicle operational (defibrillator units, ambulance Telehealth and airwaves equipments) has been procured separately. Equipment will be removed from vehicles prior to decommission and reinstalled in replacement vehicles.

Paramedics in Primary Care

Provision has been made for an additional 6 PRU Type vehicles for Paramedics in Primary Care for 2021/22. Discussions are ongoing with Primary Care partners regarding the service delivery model but given the length of time from order to delivery of a vehicle and the requirement for availability of funding to be approved before order, these vehicles have been included in this BC. There is an ambition supported by positive discussions within IJB's that this number will increase over the next 5 years and is likely to require additional vehicles. Details of these are being worked up and a commissioning framework is being finalised. Confirmation of funding requirements will be given once discussions have concluded.

	Unit Cost (£) in 2019/20	Capital Budget Requirement (£)				
		2021/22	2022/23	2023/24	2024/25	2025/26
PRU Vehicles PRU – 4WD Car						
Total PRU Vehicles						
TOTAL FLEET						
BREXIT CONTINGENCY						
TOTAL REQUIREMENTS						

6.3 Revenue Requirements

Core Revenue

Recurring revenue requirements to support and maintain the Service's fleet will be funded via the following sources:

- Costs attributable to the replacement of existing fleet –funded via the Service's existing core revenue budget.
- Costs attributable to additional vehicles purchased as a result of the Demand and Capacity Review –funded via an earmarked allocation from Scottish Government. This funding will be secured through approval of the Service's Demand and Capacity Review Business Case.

The tables below set out the revenue costs for the preferred way forward as described in Section 4.7 above. The costs detailed below allow for a 2.5% annual increase to allow for suppliers' increases.

Current Maintenance and Running Costs

	2021/22	2022/23	2023/24	2024/25	2025/26
Existing Vehicle Replacement					
Vehicle Maintenance					
Vehicle Running Costs					
Total Existing Vehicle Replacement					

It is anticipated that the Service will contain fuel and maintenance costs at its current level. As aforementioned, these costs will be funded via the Service’s existing core revenue allocation from Scottish Government.

Additional Vehicles Maintenance and Running Costs

	2021/22	2022/23	2023/24	2024/25	2025/26
D&C Vehicles					
Vehicle Maintenance & Running Costs					
Vehicle Running Costs					
PRUs for Paramedics in Primary Care					
Vehicle Maintenance & Running Costs					
Vehicle Running Costs					
Total Additional Fleet					

Ongoing vehicle maintenance and running costs associated with these additional vehicles will be funded via an earmarked allocation from Scottish Government. This funding will be secured through Scottish Government approval of the Service’s Demand and Capacity Review Business Case. The Service will not procure these additional vehicles until the Demand and Capacity Review Business Case has been formally signed off and revenue funding for these vehicles has been agreed.

Ongoing vehicle maintenance and running costs associated with the Paramedics in Primary Care vehicles will be included as part of the commissioning framework with the relevant Primary Care partner.

Non-Core Revenue

	Estimated Annual Depreciation Charges				
	2021/22	2022/23	2023/24	2024/25	2025/26
	£000s	£000s	£000s	£000s	£000s
Replacement of Existing Fleet - Annual Depreciation					
Demand and Capacity Fleet - Annual Depreciation					
Paramedics in Primary Care - Annual Depreciation					
Current Vehicles - Annual Depreciation Charge					
Total Estimated Depreciation					
Fleet Annual Depreciation Budget					
Movement Decrease / (Increase)					

Depreciation charges are a function of asset life and value. In order to mitigate the potential increase in charges indicated in the table above, the Service will require to assess both elements on an on-going basis. The Service currently has an annual depreciation budget of £[redacted] and has highlighted over a number of years that this amount will not be sustainable. The Service is currently in discussion with Scottish Government regarding an uplift to this budget.

6.4 Affordability of the Preferred Option

The capital costs associated with this programme will be funded via an ear-marked capital allocation from the Scottish Government following approval of this FBC by

the Capital Investment Group. The numbers and types of fleet within this Business Case may be flexed as the Service transitions to its new 2030 Strategy, but the capital requirement identified will not be exceeded. It is recognised that there is still uncertainty over the impact of Brexit on the capital costs. As part of the approval process from SG, the Service will request approval of funding for the full costs detailed within this FBC but will discuss the requirement for the 10% Financial Risk Contingency on a year to year basis as the impact becomes known.

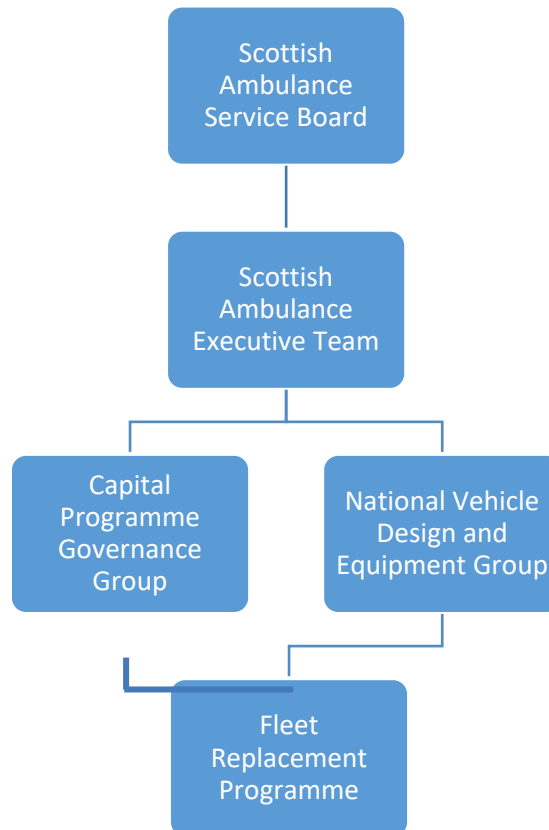
Revenue costs associated with direct replacement of existing vehicles and additional PRUs will be funded by the Service's core revenue budget. It is anticipated that revenue costs will be contained at their current level.

The Service will secure additional funding to meet the ongoing revenue costs relating to the new vehicles introduced through the Demand and Capacity Review. The Service will not procure these additional vehicles until the associated revenue funding has been agreed.

Section 7: Management Case

7.1 Reporting Structure and Governance Arrangements

The Service has an established governance structure to monitor progress of all programmes of work and provide governance in line with the published Strategic Framework. The diagram provides an overview of the governance structure:



The Fleet Replacement Project will report jointly to the National Vehicle Design & Equipment Group (NVDEG) focusing on the operational delivery objectives and Capital Programme Governance Group (CPGG) focusing on the financial management controls.

7.2 Key Roles and Responsibilities

The General Manager for Fleet Services will oversee all work relating to this project and will be supported by Regional Fleet Managers and Operational Personnel to ensure the effective co-ordination of replacements to guarantee no detriment to service delivery.

Monthly updates will be given at the CPGG on expenditure and progress.

7.3 Project Recruitment Needs

All work relating to this investment will be undertaken by existing Service employees in the course of their substantive roles. This investment does not require additional staffing resource.

7.3 Project Plan

This Business Case is to provide funding to support the recurrent replacement of the Service's fleet. Therefore there is no end point to the Fleet Replacement Programme. The planned replacement numbers are provided in detail in section 4.6 and are summarised in the table below:

	Replacement Numbers - Existing Fleet					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
Total Conveying Response	126	125	136	113	120	620
Total PRU Vehicles	25	25	25	25	25	125
Total NRRD Vehicles	10	14	8	4	7	43
Total ScotSTAR	2	0	0	3	0	5
Total Other	52	50	53	50	54	259
Sub-Total	215	214	222	195	206	1052

	Numbers -Additional Fleet					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
D&C Conveying Response	26	26	0	0	0	52
Paramedics in Primary Care	6					6
Sub-Total	32	26	0	0	0	58

	Total Fleet Numbers					TOTAL
	2021/22	2022/23	2023/24	2024/25	2025/26	
Total Fleet	247	240	222	195	206	1110

Note the paramedics in primary care in the table above reflects the impact on 2021/22 only although it is important to note that it is likely there will be a requirement to increase this number of the next 5 years. Discussions are ongoing with IJB's and Health Boards supported by a commissioning framework.

7.4 Change Management Arrangements

Key stakeholders from operational regions will be fully involved in the timetable planning for replacement vehicles to ensure all crews on shift have access to an appropriate vehicle at all times.

The programme is fairly straightforward as no existing vehicles are required to be off the road before the replacement vehicle is ready. The Fleet department will liaise with region to determine the most convenient times for transfer of vehicles. The process will be carefully managed to ensure service delivery and response times are not affected.

Any change from the agreed replacement plan, detailed in section 4.6, will need joint approval from the NVDEG and CPGG.

7.5 Stakeholder Engagement

Stakeholder engagement is facilitated through the Service's NVDEG who are responsible for providing specialist advice to the Service Executive Team. Core membership included key stakeholders (see section 4.1 for a list of core members). Specialist external or internal stakeholders may also be co-opted into the Group as required.

7.6 Benefits Realisation

The General Manager for Fleet will be responsible for ensuring the benefits identified are delivered throughout the replacement programme. The Benefits Register is a fluid document and new benefits will be added as and when they are identified with ongoing monitoring to ensure these are achieved and maintained. The register is included at Appendix B.

7.7 Risk Management

The General Manager for Fleet will also be responsible for identifying and mitigating any risks as a result of the replacement programme. The risk register shown in Appendix C will be kept up to date with escalation to the Director of Finance, Logistics and Strategy, and the Executive Team as appropriate and in line with the Board risk management policy.

7.8 Programme Monitoring

The progress of this investment programme will be monitored by the Service's CPGG and NDVEG. Monthly updates will be provided to the CPGG and quarterly updates to NDVEG. Any divergence from the agreed plan or budget will be escalated to the Director of Finance, Logistics and Strategy in the first instance and then to the Executive Team and Board.

Section 8: Conclusion and Recommendation

8.1 Conclusion

This FBC has been produced in accordance with the guidance issued by the Scottish Government's Capital Investment Group (CIG). The information included in this document has demonstrated that reasons why the ongoing investment in replacement vehicles is required and the benefits of having funding agreed for a 5-year period and has shown that there is a good strategic fit between this proposal and the Service's strategy and the wider NHS Scotland's strategic priorities. The preferred way forward would meet the Business Case objectives in terms of providing patients and staff with modern, safe, functionally suitable and operationally reliable vehicles. The Business Case uses procurement methods and replacement policies that offer value for money and that are affordable.

8.2 Recommendation

It is recommended that the Scottish Government Capital Investment Group approve this FBC. Subject to approval being granted, the Service will proceed to fully implement the project.

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Date:	Version 5	Review Date: N/A

Appendices

Appendix A - Extract from Fleet Replacement Business Case 2016-2020: Benefits Scoring & Economic Appraisal



Appendix B - Benefits Register



Fleet VRP Benefits
Register.xlsx

Appendix C - Risk Register



VRP-Risk-Log-Aug-20
20.xlsx

Appendix D – Standard Equipment List

A&E Standard Equipment
Torch & charger mount
Fire Extinguishers
Suction Unit & Mount Bracket
MULTI DIAL FLOMETER
ENTONOX DEMAND Valve
Stryker Trolleycot & Floor Locks
SAS SPEC Slide sheet
ACR
Prometheus Traction splint
Long Arm Vacuum Splint
Extra Long Leg Vacuum Splint
KED
Frac Straps Padding Complete
Immobiliser Adult 5 Strap (Box splint)
Orthopaedic Stretcher - Scoop EXL, Yellow, with pins, (Set of 4) Speedclip Biosafe straps
Combi Head Immobiliser
Millenia Board with Pins
Biosafe Strap with Seat Belt Buckle Set of 4
Banana Board
MANGAR Compressor & Charger with lifting cushion
EVACUMAT 80 X 204cm
Ibex mk5 Transeat
Controlled Drug Safe
Telehealth Communications Solution
Airwave Radio System & Safe