

# **The Scottish Ambulance Service Board**

Air Ambulance Procurement

**Full Business Case** 

Version 1.3 July 2012

#### FOI EXEMPTION S.33 - COMMERCIAL INTERESTS AND THE ECONOMY

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# 1. Executive Summary

## 1.1 Introduction

This document is the Full Business Case (FBC) for investment in the re-procurement of Air Ambulance Services for the Scottish Ambulance Service (SAS), building upon the Outline Business Case (OBC). The focus of this document is to outline the approach taken to selecting a selected option that can deliver and develop aircraft transport services to support the delivery of urgent, emergency and critical care to patients in Scotland within our agreed Key Performance Indicators (KPI).

The provision of air ambulance services to Scotland is the only publicly funded air ambulance service in the United Kingdom. It provides an invaluable resource to the public of Scotland but must be used appropriately to ensure value for money. Total operating costs including contract and related costs in 2010/11 were circa £12 million.

Air ambulances augment and extend the service provided by conventional land ambulances. Aircraft have the ability to be used 24 hours a day, 365 days of the year to respond to Emergency, Urgent and Planned requests across the whole of Scotland, predominately, but not exclusively, in remote, rural and island locations. Air transport is also used to transport specialist retrieval teams such as; Emergency Medical Retrieval, Neonatal and Paediatric.

The strategic aim of the project can be summarised in three specific objectives:

- **Primary Objective** Ensure the continuity of the Air Ambulance Service by replacing key contracts which are due to expire.
- Secondary Objective
   Enhance the patient service through the introduction of additional functionality and improvements to infrastructure and response times.
- Future Objectives Accommodate flexibility in resourcing to ensure that future changes in service delivery can be achieved

The FBC builds upon the Outline Business Case (OBC), which was approved by the Capital Investment Group (CIG) in November 2011 and the Project Board in October 2011.

## 1.2 Strategic Case

The Air Ambulance project and the benefits that it will accrue align with the both the Scottish Government's five strategic outcomes, the Scottish Government's three quality ambitions included in the 2010 NHS Scotland Quality Strategy and SAS's wider strategic vision, as set out in *Working Together for Better Patient Care*. The re-procurement project also has been mindful of the work that is ongoing in parallel in respect of the Specialist Retrieval Services review. The project should not be seen simply a means to ensure service continuity but as an opportunity for innovation to ensure there is maximum resilience and flexibility for the service in the future. The project presents an opportunity that will not occur again for many years for SAS to reorganise and enhance the air resources and services that support its strategic aims.

The future Air Ambulance Service should be capable of contributing to the strategic aims of the organisation as set out in *Working Together for Better Patient Care* in the following ways:

- **Unscheduled Care**: by providing the air resources required to permit clinicians, both within SAS and other NHS Scotland partners, to deliver safe and effective care to patients whilst they are being taken to definitive care, be that through a primary or secondary mission.
- **Improved Access**: by ensuring the aircraft are as flexible and resilient as possible to enable flying in the majority of weather conditions and hours of the day with the ability to increase capacity should service changes in territorial Boards lead to increases in activity.

These objectives also are in line with the Scottish Government's The Healthcare Quality Strategy for NHSScotland (May 2010) and the Report on the Future Delivery of Public Services by the Commission chaired by Dr Campbell Christie published 29 June 2011 highlighting the need to ensure the service delivered is efficient, effective and safe. The Christie Commission has indicated that public sector bodies should endeavour to share resources where possible and drive efficiency through this process.

There are a number of reasons why the Air Ambulance re-procurement needs to be undertaken. There are strategic drivers for change, such as the need to provide a flexible and resilient air resource and there are operational imperatives such as the need to replace or renew existing contracts. Five of the key issues are set out below.

## 1.2.1 Contract Expiry

SAS has in place an Air Ambulance Contract which currently has one main supplier of the fixed wing aircraft and a subcontracted rotary resource supplier. This contract will expire at the end of March 2013. In accordance with EU procurement regulations this contract requires to be retendered.

## 1.2.2 Alternative Vendors and Market Analysis

Once it had been determined that the market could meet SAS's requirements, three bidders were selected to participate in the competitive dialogue process. One supplier was unable to secure a sub-contractor for rotary services and withdrew, leaving the following two suppliers to proceed to the final stage:

- ( as in the current contract.
- At the option appraisal stage proposed to subcontract the fixed wing operation to For their final bid are providing both services as they were unable to agree contractual terms with their fixed wing sub-contractor.

## **1.2.3 Improve Supplier and Contract Management**

There are a number of other contractual and commercial issues that SAS investigated including: the risk from currency fluctuations and oil pricing, the impact of adverse weather or major natural events, transparency of the charging model and value for money, enhancements to the KPI's and improved processing of mission requests.

## 1.2.4 Improve Service Flexibility

There is the opportunity to explore enhancements to the flexibility of the service, including: how the service adapts to changes in demand, the resilience of the service provided and the flexibility of the aircraft themselves.

## 1.2.5 Future Proofing

To allow SAS to continue to successfully serve the public and meet its strategic objectives it would be useful to have the ability to update available functionality and take advantage of technological advances. In particular, a number of requirements have been identified by SAS including:

- Meeting the clinical and operational requirements of the specialist retrieval services
- Enhancing the clinical requirements in terms of equipping and providing space for all types of patient without the need to re-role (remove passenger seat and fit alternative stretcher) the aircraft
- Allowing capacity in the system to meet expected changes in demand levels
- Ability to reach KPI's right across Scotland
- Providing more transparent information on flying charges
- Increasing the ability of the service to fly during hours of darkness and in adverse weather conditions
- Providing resilience in the case of unusual natural events (e.g. volcanic ash) where possible
- Increasing the use of technology to replicate the facilities in land ambulance (e.g. aircraft live tracking, use of cab-based terminals, improved communications during flight) where feasible and affordable
- Ability to interface with the SAS National Command and Co-Ordination Centre and aircraft service provider to plan missions more effectively and efficiently
- Improving the triage and tasking of the air ambulance resources to maximise the efficiency of deployment decisions and allow clinician to clinician discussion to take place improving communication and decision making.

## **1.3 Outline Business Case and Options Appraisal**

This OBC set out the case for investment in the re-procurement of Air Ambulance Services for the Scottish Ambulance Service (SAS) and the strategic objectives. These objectives and the strategic case have remained unchanged since the preparation of the OBC. Of the three options set out in the OBC, option 3 (competitive procurement) was agreed to be the preferred option.

Suppliers were requested to submit interim proposals for a range of permutations of location, aircraft type, number and configuration of aircraft. An options appraisal was undertaken to shortlist the options that would be taken forward to the final stage. The key features of this short list were that the current location and configuration of aircraft would be retained (fixed wing in Glasgow, fixed wing in Aberdeen, helicopter in Glasgow, helicopter in Inverness). The option of two different types of helicopter for each supplier remained so that the benefits of the larger helicopters could then be evaluated against the increased cost.

## **1.4 Procurement Process**

Section 5 details the approach and procurement process adopted. This includes detail of each of the key phases in the procurement process and the evaluation methodology used.

SAS has recommended selection of a specified option following evaluation and , will move to contract signing and contract award notification.

## **1.5 Preferred Solution**

Through the evaluation methodology set out in Section 5, it has been identified that submitted the tender that provided the most benefits for the lowest cost. The option submitted by that best meets the Scottish Ambulance Service Requirements to deliver the benefits required by the stakeholders is:

Supplier	Aircraft configur ation	Glasgow Helicopter	Inverness Helicopter	Aberdeen Fixed Wing	Glasgow Fixed Wing	Cover	Contract Duration (yrs)
	Option 3a	Eurocopter EC145T2 (EC145)	Eurocopter EC145T2 (EC145)	King Air B200C (King Air)	King Air B200C (King Air)	24/7 at all bases	7 years

The preferred solution is detailed further in sections 5.4 and 6.

## **1.6 Economic and Financial Appraisal**

Section 7 addresses the economic and financial costs associated with the bids.

The table, below, provides a summary of the preferred option in the OBC and the outcome of the FBC. The OBC figures were based on 2011/12 levels of activity and prices and therefore other figures are shown on the same basis.

All Costs at 2011/12 activity and prices in £000	Current Cost	Outline Business Case	Options appraisal	Full Business Case
Current solution				
Closest equivalent under new contract (same type and location of aircraft)				

Note: the costs are linked to both activity and various inflation indices. Therefore evaluating the full cost of the contract is a more complex exercise which is covered in the Economic and Financial Appraisal section below. The aim here is to highlight the changes at different stages of the process. The options appraisal only included the 'Equivalent Annual Cost' (EAC) costs and therefore differs from the 2011/12 price shown above which was used to calculate the EAC figure.

The table below demonstrates that the preferred option did not appear to be affordable within current funding. However, the benefits to be gained from the enhanced rotary options were met favourably by Scottish Government who wished to factor this into the next round of the spending review. Therefore an agreement in principle with Scottish Government on the following was reached :

- Any increase in volume from current levels will be met through risk share arrangements with territorial boards no funding should be assumed from SG, therefore additional income from Boards will be shown in the LDP.
- The increase in costs relating to the 'like for like' aircraft at existing volume should be assumed to be borne by SAS, with no funding from SG

• The additional cost over and above 'like for like' for the enhanced aircraft (at existing volumes) from 2014-15 should be assumed to be met by SG.



# 1.7 Benefits and Risks

The anticipated benefits of the selected option are:

a) Larger helicopters will provide:

- Faster helicopter flying speed enabling improved coverage of Scotland within 60 minutes flying time, compared to the helicopters provided under the existing contract.
- better care for patients by giving clinicians more space and access to the whole of the patient Maternity re-roles will not be required.
- better support for the Specialist Retrieval Services by ensuring there is sufficient space for personnel and equipment.
- parents and carers can travel with patients, specifically babies and children.
- night-vision capable making night HEMS a possibility subject to future regulatory approval.
  - b) The other enhancements include:
- Enhance the Glasgow fixed wing coverage to 24/7 giving greater resilience and responsiveness, in particular for specialist retrieval high-acuity patients.
- All aircraft will have tracking allowing for better tasking and management of resources
- The arrangements for communicating with the service provider will be enhanced to improve the speed and quality of tasking decisions and resource allocation.
- Increased engineering support at Glasgow which should increase resilience and reduce downtime as aircraft will no longer need to go to Farnborough for all maintenance.
- In addition to the hangarage currently provided at Aberdeen and for the Glasgow helicopter, hangarage will be provided for the Glasgow fixed wing and the Inverness helicopter. This will provide a better patient experience during transfer and give better protection to the aircraft.
- Better contract management through strengthened control measures.
- Enhanced change management processes included in the contract allow for flexibility in the future in the service that is provided.

The savings to the public sector of these benefits is estimated at £450k per annum.

These benefits best meet many of the points raised during the feedback from the consultation exercise which informed the specification.

# 1.8 Implementation Plan and Risk Mitigation Strategy

Implementation plans and risk mitigation strategies will be finalised as the project moves into implementation stage.

# 2. Introduction

This document is the Full Business Case (FBC) for investment in the re-procurement of Air Ambulance Services for the Scottish Ambulance Service (SAS), building upon the Outline Business Case (OBC). The focus of this document is to outline the approach taken to selecting a selected option that can deliver and develop suitable aircraft to support the delivery of urgent, emergency and critical care to patients in Scotland.

The FBC has been prepared in accordance with Scottish Capital Investment Manual guidance.

## 2.1 SAS

The Scottish Ambulance Service (SAS) is a Special National Health Service (NHS) Board within Scotland. It is a National Service with its Headquarters in Edinburgh and divided geographically into five territorial ambulance operating divisions, three Emergency Medical Dispatch Centres (EMDC's) National Risk & Resilience Department (NRRD) and a National Air Wing. The Air Wing Headquarters is located at South West Ambulance Divisional Headquarters in Ayr. The Air Wing is managed by a General Manager and Head of Service supported by two regional Area Service Managers, one in the North and the other in the West.

The provision of air ambulance services to Scotland is the only publicly funded air ambulance service in the United Kingdom. It provides an invaluable resource to the public of Scotland but must be used appropriately to ensure good value for money. Total operating costs including contract and related costs in 2010/11 were circa £12 million.

Air ambulances augment and extend the service provided by conventional land ambulances. Aircraft have the ability to be used 24 hours a day, 365 days of the year to respond to Emergency, Urgent and Planned requests across the whole of Scotland, predominately, but not exclusively, in remote, rural and island locations. Air transport is also used to transport specialist retrieval teams such as Emergency Medical Retrieval, Neonatal and Paediatric.

SAS provides Air Ambulance Services to Health Boards in Scotland and at present contracts with one service provider for the provision of Air Ambulance transport services. This contract expires on 31st March 2013.

The service provided is complex and, whilst primarily for the air transport of patients, may occasionally include ambulance and medical personnel and/or equipment only. There will also be occasions when family members or carers will travel with the patient. Patients will always be accompanied by one or more medically qualified staff, usually Scottish Ambulance Service Paramedics. The Scottish Ambulance Service and Health Boards retain responsibility for the clinical care of patients.

## 2.2 Air Ambulance Service

The key strategic aim of the Air Ambulance project is to deliver and develop an Air Ambulance Service that will support the strategic development of the service, by being flexible, resilient and as 'future proof' as possible.

The aircraft and supporting infrastructure provide a platform for the delivery of SAS's frontline clinical services enabling emergency and urgent care to be provided to patients whilst on route to tertiary care. The aircraft need to be equipped to enable SAS to deliver safe and effective care to patients.

The strategic aim of the project can be summarised in three specific objectives:

- **Primary Objective** Ensure the continuity of the Air Ambulance Service by replacing key contracts which are due to expire.
- Secondary Dijective
  Enhance the patient service through the introduction of additional functionality and improvements to infrastructure and response times.
- Future Objectives Accommodate flexibility in resourcing to ensure that future changes in service delivery can be achieved

## 2.3 Drivers for Change

The main driver for the establishment of the Air Ambulance project is the expiration of the existing seven year contract for Air Ambulance Services in March 2013. The need to reprocure this essential service also provided SAS with the opportunity to review contractual requirements and address a number of outstanding issues, including:

- the ongoing cost of the contract: the contract costs are subject to economic variation and it may be that risk can be transferred and suppliers may be able to offer efficiencies and cost savings;
- **functionality of the service:** the current aircraft do not meet the requirements of all types of patient being transferred and Key Performance Indicators (KPIs) cannot currently be met across all of Scotland.
- Further details of the case for change are set out in Section 3 below.

## 2.3 Document Structure

This document is structured into a number of main sections in line with Scottish Capital Investment Manual guidance:

- section 3 provides a summary of the strategic case for the project and the business rationale for change;
- section 4 recaps on the Outline Business Case;
- section 5 outlines the details the procurement approach taken by SAS;
- section 6 provides the rationale for the selection of the preferred solution and salient points regarding the contract arrangements;
- section 7 provides the economic and financial evaluation of each of the selected option options;
- section 8 describes the benefits and risks; and
- section 9 outlines the implementation plan and risk management strategy.

A series of appendices have also been included.

- Appendix A Air Ambulance Re-Procurement Options Appraisal
- Appendix B Full Cost of Options
- Appendix C Air Ambulance Cover for Island Health Boards

# **3 Strategic Context**

In this section the strategic context for the Air Ambulance project is set out and the business case for change is explained in more detail.

## 3.1 Strategic Objectives

## 3.1.1 SAS's Strategic Vision

Figure 3.1 sets out the SAS strategy map.



## Figure 3.1 Key Strategic Aims

#### 3.1.2 Strategic Alignment of the Air Ambulance Project

The Air Ambulance Service operates under the strategic vision and aims of the Scottish Ambulance Service and the following are in addition to and specific to the Air Ambulance Service:

## Strategic Vision:

To deliver a clinically responsive, safe and flexible Air Ambulance Service to the whole of Scotland

## Strategic Aims:

Air Ambulance FBC – Commercial in Confidence

#### We will:

Respond to appropriate 999 calls using Helicopter Emergency Medical Service (HEMS) rules where helicopter air support would clinically benefit the patient

Respond to emergency, urgent and planned requests from NHS Scotland clinicians where air ambulance transport would clinically benefit the patient, in particular in remote, rural and island communities

Respond to emergency, urgent and planned requests from Specialist Retrieval Services to transport teams to and from NHS facilities where air ambulance transport would clinically benefit the patient

#### Goals:

Develop a set of Key Performance Indicators which are patient centred and clinically appropriate

Encourage leadership in clinical innovation, air ambulance operations and research and development

Work in partnership through robust communication and engagement with internal and external partners in particular local communities, clinicians and Specialist Retrieval Services.

#### 3.1.3 Strategic Alignment of the Air Ambulance Project

The air ambulance project and the benefits that it will accrue align with the Scottish Government's five strategic outcomes, the Scottish Government's three quality ambitions included in the 2010 NHS Scotland Quality Strategy and SAS's wider strategic vision. The project presents an opportunity for SAS to reorganise and enhance some of the key systems and services that support its strategic goals.

The future Air Ambulance Service is required to be capable of contributing to the strategic aims of the organisation as set out in *Working Together for Better Patient Care* in the following ways:

- Unscheduled Care the Air Ambulance Service provides a primary response to patients who are critically ill or injured in remote and island parts of Scotland that are inaccessible to land resources or where these resources would take excessive time to access the patient. The Air Ambulance Service also provides secondary missions to transfer patients from community or district hospitals to tertiary centres for specialist care.
- Improved Access the Air Ambulance Service is bound by commercial flying regulations (public passenger rules), which preclude flying under certain conditions such as minimum visibility and/or cloud cover. The contingency in these circumstances is to utilise Military or Coastguard resources. In addition, the KPI of being able to access all of Scotland within 60 minutes flight time is currently not achievable in the northern and westernmost parts of Scotland due to aircraft positioning and type. Options for achieving this KPI will be explored through this project.

## 3.2 SAS in Numbers

#### 3.2.1 Activity Trends

Demand for the Air Ambulance Service has grown since the award of the last contract in 2005. At that time activity was expected to grow by 4% per annum. However, as demonstrated in the Table below there were significant increases in 2008/09 and 2009/10. The reduction in activity in 2010/11 was due to the implementation of more effective triaging. Predicting the future is inherently difficult, but modeling suggests that demand will now begin to rise at around 5% per annum.

At the outset of the current contract the activity for specialist retrieval services was restricted to neonatal and pediatric services. Since the addition of the adult Emergency Medical Retrieval Service (EMRS) in 2008 all specialist retrievals have grown and now represent 10% of the total activity.

Table 3.2.1 illustrates this growth.

#### Table 3.2.1 Air Ambulance Activity

Year	Demand (total missions)	Percentage increase / (decrease)
93/94	2,015	
94/95	2,026	0.5%
95/96	2,180	7.6%
96/97	2,156	-1.1%
97/98	2,412	11.9%
98/99	2,451	1.6%
99/00	2,645	7.9%
00/01	3,073	16.2%
01/02	2,938	-4.4%
02/03	2,809	-4.4%
03/04	3,251	15.7%
04/05	2,878	-11.5%
05/06	2,993	4.0%
06/07	3,136	4.8%
07/08	3,274	4.4%
08/09	3,797	16.0%
09/10	4,406	16.0%
10/11	3,774	-14.3%

## 3.2.2 Financial Position

SAS receives an allocation from Scottish Government to provide for all unscheduled and scheduled care that it provides. This allocation has been uplifted in line with the allocations provided to special health boards which differs from the National Resource Allocation Committee (NRAC) allocations provided to territorial Boards. The baseline recurring revenue resource limit for SAS is currently £197.85m and the capital resource limit is £13.88m (2011/12). The spending review of September 2011 has indicated that SAS should receive a 0.8% uplift in 2012/13 and 1% uplift for the two years following this. This uplift will not keep pace with pay and prices increases over this time frame which creates significant cost pressures. This is especially relevant for the Air Ambulance Service which is linked to external indices, exposed to increases in fuel price and is projecting annual increases in demand which have a direct impact on cost considerably above the anticipated level of uplift in funding. These factors create significant cost pressures that SAS will find challenging to meet from internal resources.

## 3.2.3 Staffing Complement

SAS employed a total of 4,054 WTE (Whole Time Equivalents) as of April 2011. Of these, 34 are dedicated to the Air Ambulance service with many others supporting the Air Ambulance Service as part of their role.

## 3.2.4 Geographic Locations

The current Air Ambulance Service operates from the following locations:

Glasgow Airport – Fixed Wing (Beech King Air 200C) Glasgow Helipad - Scottish Exhibition and Conference Centre – Rotary (Eurocopter EC135) Dalcross Airport – Inverness – Rotary (Eurocopter EC135) Aberdeen Airport – Fixed Wing (Beech King Air 200C)

These resources are controlled from the air desk at the West Emergency Medical Dispatch centre (EMDC) at Cardonald, Glasgow. The Air Ambulance Contractor dispatches and identifies flight plans from its operations centre in England.

The military resources that are used are a Sea King Helicopter based at HMS Gannet by the Moray Firth. In addition there is currently a Super Puma helicopter (primarily contracted to BP) based in Shetland. Coastguard resources are also sometimes used.

## 3.3 Current Air Ambulance Contract

SAS has a main contract with the fixed wing provider, who then in turn subcontracts the rotary service provision to a specialist rotary operator. This contract is in place for seven years and is due to expire in March 2013.

## 3.4 Business Need for Change

In this section, the business and strategic drivers for change are set out. These are based around five key issues, constituting the need to:

- retender the existing contract which expires in March 2013;
- consider the use of alternative vendors to reduce contract costs;
- improve supplier and contract management;

- resolve underlying aircraft constraints to improve the flexibility of the service; and
- future proof the preferred solution to meet the needs of the wider NHS in Scotland

These issues are addressed in turn below.

## 3.4.1 Contractual and Commercial Issues

The current contract is due to reach the end of its time period in March 2013 and there are no options for extension. In accordance with EU procurement regulations the contract must be retendered.

## 3.4.2 Alternative Vendors and Market Analysis

A market sounding exercise was conducted in late 2010 / early 2011 to:

- generate interest and competition in the market in accordance with OGC guidance and;
- provide initial market research information to determine if the market can provide the SAS requirements (and in what form)

A prior information notice (PIN) was placed in the European Journal highlighting that this opportunity was available. Once the OJEU contract notice was issued the prequalification questionnaire (PQQ) was made available to all suppliers who expressed an interest. The PQQ outlined the high level Air Ambulance requirements of SAS and contained details of the information required from potential suppliers to enable them to be considered for inclusion in the tendering process. An open day was held for all interested suppliers to meet the Air Ambulance Senior Management team and suppliers were given an over view of both the Scottish Ambulance Service and Air Ambulance operations in Scotland.

The exercise highlighted interest from the market and demonstrated that it was highly likely that the market could provide part or all of SAS's requirements. From the 12 PQQs returned, the top three were selected to participate in the competitive dialogue process. The Invitation to Participate in Dialogue explicitly asked bidders to be innovative in their submissions for the ways in which the service could be provided. A further open day for the three suppliers selected to participate in the competitive dialogue process was held so that suppliers could see the current types of aircraft, and specialist types of retrieval/medical equipment likely to be carried.

One bidder dropped out in September 2011, prior to the options appraisal exercise outlined below, leaving the following two suppliers taken forward to the final stage. The third supplier voluntarily dropped out as a consequence of difficulties with their rotary sub-contractor and their inability to be able to find a suitable replacement sub contractor which would have allowed them to continue with their bid.

•	( who subcontract the helicopter operation to ( as in the current contract.
•	At the option appraisal stage were subcontracting the fixed wing operation to For their final bid are providing both services.

## 3.4.3 Improve Supplier and Contract Management

Based on the contractual position there is a need to renew or replace the contract. In addition to the contractual expiry date there are a number of other contractual and commercial issues that need to be considered:

- whether any method of transferring risk from currency fluctuations and oil pricing is feasible
- robust identification of risk management when adverse weather or major natural events impact on service delivery (such as significant snowfall, high winds or volcanic ash)
- achieving increased transparency of the charging model and increasing value for money being delivered by the suppliers
- creating additional appropriate KPI's and service credit regimes related to performance against contracts
- Identifying mechanisms to improve the transmission of information from the air desk to the contract supplier to reduce time taken to plan flying missions

## 3.4.4 Improve Service Flexibility

There is the opportunity to explore enhancements to the flexibility of the service, including:

- adopting more flexible resourcing that can accommodate fluctuations and future increases in demand as well as being adaptable to changing circumstances
- improving the resilience and robustness of the service provided
- sourcing aircraft that are more flexible and easier to equip

## 3.4.5 Future Proofing

The aircraft that are currently in place do not offer the flexibility required to meet fluctuations in peak demand and variability of patient transfer types. For example

- they are not tracked and therefore are not visible to the EMDC to divert to a more urgent call.
- they are limited in their ability to facilitate transfer of all types of patients, e.g. maternity patients, where the helicopters are required to return to base location to have a passenger seat removed and an alternative stretcher fixed into a different position (known as re-rolling) in order to accommodate maternity patients.
- not all the aircraft are able to reach all parts of Scotland within 60 minutes flying time.

To allow SAS to continue to successfully serve the public and meet its strategic objectives it would be useful to have the ability to update available functionality and take advantage of technological advances. In particular, a number of requirements have been identified by SAS including:

- Meeting the clinical and operational requirements of the specialist retrieval services
- Enhancing the clinical requirements in terms of equipping and providing space for all types of patient without the need to re-role the aircraft
- Allowing capacity in the system to meet expected changes in demand levels
- Ability to reach KPI's right across Scotland
- Providing more transparent information on flying charges
- Increasing the ability of the service to fly during hours of darkness and in adverse weather conditions
- Providing resilience in the case of unusual natural events (e.g. volcanic ash) where possible
- Increasing the use of technology to replicate the facilities in land ambulance (e.g. aircraft live tracking, use of cab-based terminals, improved communications during flight) where feasible and affordable
- Ability to interface with the SAS National Command and Co-Ordination Centre and aircraft service provider to plan missions more effectively and efficiently
- Improving the triage and tasking of the air ambulance resources to maximise the efficiency of deployment decisions and allow clinician to clinician discussion to take place improving communication and decision making.

It is not anticipated that all of these enhancements would all be available at the outset of the new contract. However, given the long term nature of the contracts being let, SAS would consider the ability to respond flexibly to these service offerings as important in the procurement exercise.

# 4. Review of the Outline Business Case

The main purpose of this section is to provide a brief summary of the Outline Business Case (OBC), detail any significant changes that have occurred since approval and to assess the validity of the selection of the preferred option.

## 4.1 Summary of the OBC

This OBC set out the case for investment in the re-procurement of Air Ambulance Services for the Scottish Ambulance Service (SAS). It set out three strategic objectives:

- Primary Objective Ensure the continuity of the Air Ambulance Service by renewing or replacing key contracts which are due to expire.
- Secondary
  Dbjective
  Enhance the patient service through the introduction of additional functionality and improvement to the infrastructure.
- Future Objectives Accommodate flexibility in resourcing to ensure that future changes in service delivery can be accommodated

These objectives and the strategic case summarised in section three have remained unchanged since the preparation of the OBC.

Three options were considered suitable for short listing in the OBC. The three options were:

- Option 1. Do minimum: the baseline option (a theoretical construct as this would contravene EU procurement law);
- Option 2. Competitive procurement primary scope only (re-providing the current service without substantially changing the aircraft type, numbers or location);
- Option 3. Competitive procurement allowing for consideration of secondary scope and future requirements (as option 2, but allowing flexibility to consider service enhancements and 'future proofing' depending on business requirements).

Following a structured assessment of the benefits, risks and costs of each of the options the OBC concluded that option 3 was the preferred option.

## 4.2 Changes since OBC Approval

Since the OBC approval the following stages have been completed:

- 1. An options appraisal exercise to refine the solutions being offered by the bidders
- 2. An initiation to bidders to submit final bids
- 3. An evaluation of final bids

## 4.2.1 Options appraisal exercise

Initial dialogue with suppliers and consultation with stakeholders had produced a long list of options depending on

- Location of aircraft (Glasgow, Aberdeen, Inverness, Kirkwall)
- Type of aircraft (Both suppliers offer the same fixed-wing aircraft, but each offered a smaller cheaper helicopter and a larger more expensive helicopter)
- Number and configuration of aircraft (two fixed wing and two helicopter, one fixed wing and three helicopter, one fixed wing, an ad-hoc fixed wing and two helicopter)

An appraisal of the costs, benefits and risks of each permutation lead to a reduced list by:

- Retaining current location and configuration (fixed wing in Glasgow, fixed wing in Aberdeen, helicopter in Glasgow, helicopter in Inverness)
- Still considering helicopter options; the benefits of the larger helicopters could then be evaluated against the increased cost.

Discussion at the project board on 9<sup>th</sup> December 2011 highlighted that the decision, based on a balance of benefits and costs, to not base a helicopter in Orkney meant that there would be no step change in the level of service offered to Orkney and Shetland. It was acknowledged that the improved clinical triage, tasking, decision making and communication and the increased speed and range of the larger helicopters would represent an improvement from the current service. In addition it was agreed that other measures would be investigated to improve the service given to Shetland. This will be supplemented by the existing Search & Rescue framework document which the Service will seek to strengthen, and any other ad hoc arrangements bidders are able to offer in specific locations, such as Shetland. Appendix C summarises the provision to Island boards under the preferred solution.

The aircraft proposed by the bidders are as follows.

Supplier	Fixed Wing Aircraft	Smaller Helicopter option	Larger Helicopter option
	B200C Series King Air	MD902 Explorer	Agusta Westland 139 (AW139)
(and	B200C Series King Air	Eurocopter EC135T2i (EC135)	Eurocopter EC145T2 (EC145)

A discussion of the benefits and limitations of the different aircraft is included in the options appraisal document (Appendix A)

All of the options within the options appraisal were significantly more expensive than the current contract which prompted discussions with the Scottish Government about funding options. There were also discussions with the bidders around how costs could be reduced. One option which emerged was to reduce the 24/7 cover for the Aberdeen King Air to 16 hours availability and 8 hours off-line standby. The Glasgow King Air service currently includes some off-line standby, however both bids propose increasing this to 24/7 cover.

#### 4.2.2 Invitation to submit final bids

The two bidders were sent documentation to allow them to submit final bids based on the outcome of the appraisal exercise. This also included information on how the options would be scored.

Prior to the closing date of the final bid submission the Service was notified that **were** no longer submitting their final bid using **sector** as their sub contractor citing their inability to agree contractual terms and as such were submitting their bid on their own. This presented considerable risk to the Service as the project team were unable to fully assess the fixed wing component of the bid submission in the same way as had been possible during the competitive dialogue process with both **sector** and **sector**.

#### 4.2.3 Evaluation of final bids

Both suppliers propose two King Air fixed wing aircraft (one in Aberdeen and one in Glasgow). The invitation to submit bids allowed suppliers the flexibility to bid on a contract duration of between 7 and 12 years. Chose to bid with two different durations on all aircraft and cover permutations. The options within the final bids from the suppliers can be summarised as follows:

Supplier	Aircraft configuration	Glasgow Helicopter	Inverness Helicopter	Aberdeen Cover	Glasgow Cover	Duration (yrs)
				a) 24/7 or b) include 8 hrs home		
	1	EC135	EC135	standby at Aberdeen	24/7	7 or 10
				a) 24/7 or b) include 8 hrs home		
	2	EC145	EC135	standby at Aberdeen	24/7	7 or 10
				a) 24/7 or b) include 8 hrs home		
	3	EC145	EC145	standby at Aberdeen	24/7	7 or 10
				a) 24/7 or b) include 8 hrs home		
	1	MD902	MD902	standby at Aberdeen	24/7	12
				a) 24/7 or b) include 8 hrs home		
	2	AW139	MD902	standby at Aberdeen	24/7	12

This gives the following 16 permutations:

1a 7yrs
1a 10yrs
1b 7yrs
1b 10yrs
2a 7yrs
2a 10yrs
2b 7yrs
2b 10yrs
3a 7yrs
3a 10yrs
3b 7yrs
3b 10yrs
1a 12yrs
1b 12yrs
2a 12yrs
2b 12yrs

## 4.3 Cost Comparison with the OBC

The OBC gave initial outline costs based on interim figures from the two bidders. Since then, a significant amount of work has been undertaken to refine the solution and achieve best value for money.

Table 4.3 below provides a summary of the costs of the preferred option in the OBC and the outcome of the FBC. The OBC figures were based on 2011/12 levels of activity and prices and therefore other figures are shown on the same basis.

#### Table 4.3 – Cost comparison

All Costs at 2011/12 activity and prices in £000	Current Cost	Outline Business Case	Options appraisal	Full Business Case
Current solution				
Closest equivalent under new contract (same type and location of aircraft)				

Note: the costs are linked to both activity and various inflation indices. Therefore evaluating the full cost of the contract is a more complex exercise which is covered in the Economic and Financial Appraisal section below. The aim here is to highlight the changes at different stages of the process. The options appraisal only included the 'Equivalent Annual Cost' (EAC) costs and therefore differs from the 2011/12 price shown above which was used to calculate the EAC figure.

# 5. Procurement

This section describes the procurement approach and strategy for the air ambulance reprocurement project including the timelines and short-listing approach. It provides a brief overview of each response and includes the results of the final scoring exercise and selection of the selected option.

## 5.1 **Procurement Approach**

## 5.1.1 **Procurement Route**

Suppliers in this marketplace necessarily operate a limited range of aircraft and these aircraft offer varying benefits and opportunities at a wide range of costs. As a consequence it was not possible to specify the exact configuration of the service and dialogue with suppliers was considered to be an essential part of arriving at the best solution.

There are two options that allow dialogue; the negotiated and the competitive dialogue procedures. The negotiated procedure should only be used in exceptional circumstances such as failure of another procedure to produce a contract. Therefore, as set out in the OBC, the competitive dialogue procedure was taken forward as the preferred procurement option.

#### 5.1.2 Procurement Scope

SAS initiated the air ambulance re-procurement project as the current air ambulance contract is due to expire in March 2013.

A consultation exercise was undertaken with stakeholders at the outset of the procurement project to identify stakeholder's requirements in respect of this service. Clinicians identified that larger helicopters could give the opportunity to improve patient access, carry additional equipment and allow specialist retrieval clinical teams to enhance the service they provide. There might also be the opportunity to address the current issue of aircraft requiring to be re-rolled for certain patient conditions, resulting in delays. Stakeholder engagement also indicated that remoter, especially Island, parts of Scotland considered the location of the aircraft bases a key issue to be considered in allowing the KPIs to be consistently achieved.

These factors, along with other requirements, were considered in an option appraisal (Appendix A) determined that the bidders were requested to submit two final bids based on the following:

- 1. The same operational bases (Glasgow, Aberdeen and Inverness) as the current service, and with the current helicopter type or as similar as practical to the current helicopter type.
- 2. The same operational bases (Glasgow, Aberdeen and Inverness) as the current service, but allows for larger helicopters based in one or both of Glasgow and Inverness.

The options appraisal process highlighted significant concerns about the affordability of the contract. Bidders were invited to consider ways of reducing the costs. One suggestion included in both final bids was to reduce the 24/7 cover for the Aberdeen King Air to 16 hours availability and 8 hours off-line standby.

Final bids were received in late January 2012.

## 5.1.3 Procurement process

The procurement approach focused on five key phases of activity as outlined in table 5.1 below.

Table 5.1.3 Procurement Phases

Phase	Phase Objective
Phase 0. Set Up	Brief phase of activity to establish the project, team, key documents and governance structures. The objective is to develop a shared understanding of the project across the whole team at the outset.
Phase 1. Assess	Understand the current business, policy and environment to identify and assess appropriate procurement options and develop the procurement strategy.
Phase 2. Prepare	Preparing to go to the market. This phase of activity is focused on preparation for approaching the market; it involves the creation of key procurement documentation, OJEU advert, PQQ, requirements specification, evaluation methodology, invitation to participate in dialogue (ITPD) and drafting form of contract.
Phase 3. Evaluate	Evaluating suppliers qualitatively, operationally, technically, commercially, contractually and consider affordability. This stage may include detailed dialogue / discussions with the suppliers and iteration of the requirements.
Phase 4. Commit	Conduct final negotiation, commit to a final set of technical and requirements and ultimately to award a contract with the preferred supplier. Developing implementation and transition plans.
Phase 5. Implementation and Transition	Transition to the new arrangements. Following contract award, manage transition and implementation.

The following sections provide further detail of the activities which take place at each of these phases.

#### 5.1.3 Requirements Capture – Phase 0 - 2

The requirements capture comprises phase 0-2 above, however the process of requirements capture is iterative throughout the procurement. Initial high-level requirements have been gathered during the scoping activity, and were explored in more detail through interviews and workshops to establish the specification that was used to form the basis for the invitation to participate in the dialogue (ITPD).

During requirements capture the project sought input from the following groups:

- The Executive Team;
- Key Clinical/Business Stakeholders;
- Key representatives from the Territorial Health Boards especially the Island Boards
- Patient Representatives from the Territorial including Island Boards
- Core Clinical Group;

The requirements were reviewed by the Air Ambulance Project Team and approved by the Project Board.

#### 5.1.4Conducting the Procurement – Phase 2 - 4

The procurement will be undertaken using the Competitive Dialogue procurement route. This route has been selected to enable SAS to engage with the market before any commitment is made to the requirements. It is anticipated that the project will enter the dialogue with the suppliers based on an outline set of requirements, and will work with the suppliers to fix the scope and establish the most pragmatic approach to delivery.

The timescale for completion of the procurement is approximately 15 months from when the OJEU notice was issued, which will leave around 12 months remaining on the existing contracts for implementation.

Timescales are tight but achievable. A competitive dialogue route is necessary given the complexity of the services being procured.

#### 5.1.5 Implementation – Phase 5

The current assumption is that the implementation of the solution and the transition will be broken down into a staged approach. This will enable the project to manage and take account of risk to patient safety and to protect the current service delivery to patients and level of service quality.

In considering the most appropriate implementation approach SAS will take into account the following:

- manage risk to patients
- manage SAS resource inputs
- management of the cost of the project to SAS
- ensure the continuity of patient service

The detailed implementation plan will be developed in partnership with the selected option.

## 5.2 Implementation Planning

The implementation planning and milestones will be fully developed following Contract award as these will be largely dependent on the solution that is implemented and require specific input from the service provider who is implementing the solution.

## 5.3 Short Listing Results through the Procurement Phases

The Pre Qualification Questionnaire (PQQ) was issued to thirty five bidders, who had responded to an expression of interest through the Official European Journal advert. Of these eighteen companies attended an open day for them to prepare themselves for PQQ submission thereafter, twelve responses were received by the procurement deadline. On scoring the responses, the PQQ evaluation team recommended to the Air Ambulance Re-Procurement Project Board that three bidders should be taken forward to the competitive dialogue process. The Air Ambulance Re-Procurement Project Board of 22 July 2011 approved the recommendations. Three consortia were then invited to progress through the competitive dialogue process. They were:



After the second competitive dialogue process meeting and before initial bids were required to be submitted, **chose** to withdraw from the procurement process as they were unable to secure a rotary aircraft partner.

The competitive dialogue process continued with the remaining two bidders and their final bids were received for evaluation in January 2012. It should be noted however that the fixed wing sub contractor withdrew from the process as previously outlined leaving to submit their final bid on their own.

## 5.4 Outcome of Evaluation

A Multi-disciplinary team, whose members are noted below, conducted the evaluation of both final bids.

A structured evaluation framework was used to assess the final responses from each of the short-listed bidders. Each bid was scored against requirements, which had been grouped into evaluation sections. Each section was assigned a percentage weight of the total score by the evaluation team. Detailed scoring booklets were compiled for each bid by the team.

The evaluation sections are described below.

The evaluation team consisted of:

- Project Director (managerial, operational & clinical) [Daren Mochrie]
- Project Manager (managerial, operational & clinical) [Garry Fraser]

- Acting Head of Air Ambulance (managerial, operational & clinical) [Gary Rutherford]
- Head of Procurement (procurement) [Jenny Neville]
- Senior Clinicians (clinical stakeholder input) [Mike Fried, Catriona Barr]
- Comms & IT representative (IT) [David Kinnaird]
- Infection Control Adviser (infection control) [Theresa Reid]
- Report for evaluation panel prepared by Central Legal Office [Jane Strathern]
- Finance representative (finance) [Stuart Airey]
- Mott MacDonald, aviation advisers (as required)

## 5.4.1 Selected option

From this evaluation it was identified that **submitted** the tender which provided the most benefits for the lowest cost. Within their tender there were three options. The one that would best meet the SAS specification to deliver the benefits required by the stakeholders was selected. This option is to provide:

Supplier	Aircraft configur ation	Glasgow Helicopter	Inverness Helicopter	Aberdeen Fixed Wing	Glasgow Fixed Wing	Cover	Contract Duration (yrs)
	Option 3a	EC145	EC145	Beech King Air 200C	Beech King Air 200C	24/7 at all bases	7 years

The weighted scores are shown in Table 5.4 below. More details about the benefits, risks and cost of the different options are in sections 7, 8 and 9.

## 5.4.2 Contract Duration

The bid offering the 7 year term was assessed as the most economically advantageous in accordance with the specified evaluation criteria and methodology. The non-financial scoring did not take account of the different contract durations offered by as the length of contract made no difference to any of the non financial criteria.

## Table 5.4 Evaluation scores

Air ambulance Evaluation - Weighted scoring	Option 1a - 2 x King Airs, 2 x MD902s all 24/7	Option 1b - 2 x King Airs, 2 x MD902s all 24/7 (except Aberdeen King Air 16/7)	Option 2a - 2 x King Airs, 1 x MD902 & 1 AW139 24/7	Option 2b - 2 x King Airs, 1 x MD902 & 1 AW139 24/7 (except Aberdeen King Air 16/7)	Option 1a - 2 King Airs, 2 x EC135s 24/7	Option 1b - 2 King Airs, 2 x EC135s 24/7 (except Aberdeen King Air 16/7)	Option 2a - 2 King Airs, 1 x EC135, 1 x EC145 24/7	Option 2b - 2 King Airs, 1 x EC135, 1x EC145 (except Aberdeen King Air 16/7)	Option 3a - 2 King Airs, 2 x EC145s 24/7	Option 3b - 2 King Airs, 2 x EC145s (except Aberdeen King Air 16/7)
A. Service Quality: Ability to support clinical requirements										
(1) service capability & availability	5.4	3.6	7.2	3.6	5.4	3.6	5.4	3.6	7.2	3.6
(2) ability to accommodate optimum clinical crew numbers, patients and non clinical escorts	1.6	1.6	1.6	1.6	1.2	1.2	1.6	1.6	2.0	2.0
(3) ability to transport maternity patients	0.6	0.6	0.8	0.8	0.4	0.4	0.6	0.6	1.0	1.0
(4) ability to transport bariatric patients	0.2	0.2	0.6	0.6	0.6	0.6	0.8	0.8	1.0	1.0
(5) ability to transport incubators, ECMO equipment, loading systems etc	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8
(6) ease of access to patients	1.6	1.6	1.6	1.6	1.2	1.2	1.6	1.6	2.0	2.0
(7) ease of access to medical/clinical equipment	1.6	1.6	1.6	1.6	1.2	1.2	1.2	1.2	1.6	1.6
(8) ability to meet infection control requirements	0.4	0.4	0.4	0.4	0.8	0.8	0.8	0.8	0.8	0.8
(9) ability to support the Service to achieve it's Key Performance Indicators (KPIs)	4.6	2.3	4.6	2.3	6.9	4.6	6.9	4.6	9.2	4.6
(10) air base proposals	6.0	6.0	6.0	6.0	4.8	4.8	4.8	4.8	4.8	4.8
(11) technology proposals	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
(12) triage & tasking proposals	6.0	6.0	6.0	6.0	2.4	2.4	2.4	2.4	2.4	2.4
B. Cost of the proposed alr transport service	16.5	18.5	-	-	29.5	32.5	23.5	27.5	17.5	21.5
C. Implementation / transition plans	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
D. Environmental charcteristics	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
E. Legal & commercial issues	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	8.0
Total Weighted Score				•						
Rank	62.1	60.0	48.0	42.1	73.0	71.9	68.2	68.1	68.3	64.1
	7	8	9	10	1	2	4	5	3	6

# 6. **Preferred Solution**

This section describes the key features of the preferred solution. It illustrates the scope of the solution and describes the key differences relative to the current model of delivery using a before and after scenario. The contractual arrangements agreed with each supplier are also outlined in this section.

## 6.1 Key features

The main differences from the current service provision, along with the relevant cost, are

- Replacement of EC135s with the EC145s from approximately May 2014. The cost of this is shown in Table 6.1
- Enhance the Glasgow fixed wing coverage to 24/7. The cost of this is shown in Table 6.1
- Implement tracking on all aircraft. There is an initial cost of £
- The new helicopters will be night-vision ready (making night HEMS a possibility once the CAA permits this). The cost of certification is £ and the cost of additional equipment and training is approximately £
- Enhancements to the arrangements for communicating with the service provider through co-location of staff with EMDC (the costs of this are not separately identified).

Appendix C summarises the provision to Island boards under the preferred solution.

Table 6.1 – Cost of replacing	helicopters and	increasing cover
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Increased annual cost associated with:	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	£000	£000	£000	£000	£000	£000	£000	£000	£000
Replacing EC135 with EC145 Increasing fixed wing coverage to 24/7	-	-	-						

## 6.2 Contract Arrangements

The principle contract will be awarded to Aviation Services Limited, a limited liability company backed by a parent company guarantee provided by Group Limited. The principal sub-contractor is Aviation Contract is 7 years with an option to extend for a further three years.

The Services to be provided are the provision of transportation of NHS patients and others by specified air ambulances, contract management including tasking and triaging services to co-ordinate the deployment of aircraft, provision of base facilities and HEMS crew training. Pilots are provided by the operator and paramedic staff are provided by the Ambulance Service. Base facilities, therefore, include provision for Ambulance Service staff. The selected option provides 24 hour a day availability for each aircraft with duty pilots on airport stand-by.

The following additional resources are available on the basis of ad hoc call-off: an AS332L2 Super Puma helicopter based at Sumburgh Airport for requirements within the Shetland Islands; a further Super Puma based at Aberdeen; and, for bariatric patients an Antanov AN-26 with the possible development of a clinical pod.

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Glasgow Airport base facility will be enhanced with the development of new premises under construction and Aberdeen base facilities will be refurbished and upgraded. New facilities will be available for the helicopter at Inverness Airport to be completed in 2012 with a new heli-port being provided in Linhouse Road to replace the current heli-port in Stobcross Road.

Operations management including tasking and triaging services are to be enhanced by integrating with the Ambulance Service including an experienced aviation service coordinator within the EMDC West Cardonald, 8:00am to 8:00pm daily with the ASC service delivered from the end operations department in Farnborough outwith those times.

# 7. Economic and Financial Appraisal

In this section, the economic and financial costs associated with the final bids have been presented.

## 7.1 Assumptions

The following elements of the price were included in the cost calculation:

- (a) fixed charges;
- (b) variable charges (e.g. flying hour charges);
- (c) fuel;
- (d) pass through charges (e.g. landing charges, navigation charges, parking etc.);
- (e) some charges (such as the cost of using search and rescue or military aircraft or airport standby charges) are not affected by the different options proposed by the bidders and were therefore not included in the calculation of the economic cost (Equivalent Annual Charge) which was used to compare bids. These costs are included in the financial cost figures shown as they do require revenue funding.
- (f) indexation specified in the contract throughout the contract period (calculated based on the rate of the proposed index (or indices) over the past 5 years);
- (g) any other charges identified by the bidder.

The figures show the **total whole life cost** of the transport service (excluding existing Scottish Ambulance Service staff salaries and any income from repatriations etc.). This includes the price of the contract and all relevant transition costs identified in the solution and any costs to the Service arising as a result of the proposed solution (e.g. costs for additional staff etc.), and variable pass through costs.

The following assumptions were factored into the price evaluation.

- 1. Flying hours were adjusted to take account of differing aircraft cruise speeds using the EC135 and King Air 200 as the baseline (i.e. flying hours will be reduced for faster aircraft).
- 2. Flying hours were adjusted based on historic information to take account of the different supplier's definition of flying hours (**Constitution**) only count 'in air' time as flying hours, whereas **constitution** include all the time that the engine is running whilst away from base).
- 3. That missions will be flown by the same type of aircraft (i.e. fixed wing or helicopter) and that this will be to and from the same locations.
- 4. Future activity was forecasted in terms of missions, not flying hours, so the missions were converted into flying hours on the assumption that the average flying hours per mission will remain constant. These flying hours were then adjusted to allow for different flying speeds. The flying hours used will also be increased pro-rata in line with the realistic demand projections.
- 5. Some aircraft options may have the potential to change the extent to which the Service uses the MOD/Coastguard. However, it is not possible to quantify this in a robust way so this will not be factored into changes in flying hours or total costs.
- Landing charges, navigation fees and parking charges were be calculated by Mott MacDonald using 2011 published rates for the aircraft offered using actual mission data over six individual weeks within the period December 2010 – October 2011.

This figure was increased pro-rata as mission numbers increase over time, and adjusted to take account of predicted price increase (using historic RPI).

- 7. Fuel costs were based on fuel consumption data and fuel price data provided by the bidders. Calculations were based on fuel prices at Glasgow as it will not be possible to robustly quantify the amount of fuel that may be bought elsewhere, and particularly in remote and island locations. Fuel prices were increased annually over the proposed contract period using the average RPI figure over the past 5 years.
- 8. Prices were increased over the proposed contract period using the past 5 years average of the agreed escalation indices or actual historical cost increases where appropriate.
- 9. For cost elements not based in sterling then the exchange rate used was updated to current exchange rates.
- 10. Prices in the final bids were taken as 2011/12 prices.
- 11. Any TUPE costs arising from a change in supplier were already included in the suppliers bid.
- 12. Assumed that all VAT is recoverable.
- 13. The Equivalent Annual Cost calculations have used a discount rate of 5.5% (3.5% plus Bank of England inflation target which is currently 2%) as per the Scottish Capital Investment Manual.

## 7.2 Financial risk

The following factors can have a significant impact on the cost profile of different options for which SAS bears the risk.

- 1. Changes in demand
- 2. Fuel cost changes
- 3. Fluctuation in the indices specified in the contract
- 4. Changes in exchange rates
- 5. Changes in interest rates

## 7.3 Cost evaluation using Equivalent Annual Charge

Table 7.3 below shows the cost of the options and the points that were allocated to these options in accordance with the evaluation methodology.

# Table 7.3 – Cost scoring of options

Short description also worksheet name	Full description	rank	Equivalent Annual Charge	Points
			£000	
1a 7yrs	option of 2 King Air, EC135 in Glasgow, EC135 in Inverness and 24hr cover in Aberdeen. Over a 7 year contract.	2		29.5
1a 10yrs	option of 2 King Air, EC135 in Glasgow, EC135 in Inverness and 24hr cover in Aberdeen. Over a 10 year contract.	7		20.5
1b 7yrs	option of 2 King Air, EC135 in Glasgow, EC135 in Inverness and reduced cover in Aberdeen. Over a 7 year contract.	1		32.5
1b 10yrs	option of 2 King Air, EC135 in Glasgow, EC135 in Inverness and reduced cover in Aberdeen. Over a 10 year contract.	4		23.5
2a 7yrs	option of 2 King Air, EC145 in Glasgow, EC135 in Inverness and 24hr cover in Aberdeen. Over a 7 year contract.	5		23.5
2a 10yrs	option of 2 King Air, EC145 in Glasgow, EC135 in Inverness and 24hr cover in Aberdeen. Over a 10 year contract.	12		13.5
2b 7yrs	option of 2 King Air, EC145 in Glasgow, EC135 in Inverness and reduced cover in Aberdeen. Over a 7 year contract.	3		27.5
2b 10yrs	option of 2 King Air, EC145 in Glasgow, EC135 in Inverness and reduced cover in Aberdeen. Over a 10 year contract.	10		17.5
3a 7yrs	option of 2 King Air, EC145 in Glasgow, EC145 in Inverness and 24hr cover in Aberdeen. Over a 7 year contract.	9		17.5
3a 10yrs	option of 2 King Air, EC145 in Glasgow, EC145 in Inverness and 24hr cover in Aberdeen. Over a 10 year contract.	14		7.5
3b 7yrs	option of 2 King Air, EC145 in Glasgow, EC145 in Inverness and reduced cover in Aberdeen. Over a 7 year contract.	6		21.5
3b 10yrs	option of 2 King Air, EC145 in Glasgow, EC145 in Inverness and reduced cover in Aberdeen. Over a 10 year contract.	13		11.5
1a 12yrs	option of 2 King Air, MD902 in Glasgow, MD902 in Inverness and 24hr cover in Aberdeen. Over a 12 year contract.	11		16.5
1b 12yrs	option of 2 King Air, MD902 in Glasgow, MD902 in Inverness and reduced cover in Aberdeen. Over a 12 year contract.	8		18.5
2a 12yrs	option of 2 King Air, AW139 in Glasgow, MD902 in Inverness and 24hr cover in Aberdeen. Over a 12 year contract.	16		-
2b 12yrs	option of 2 King Air, AW139 in Glasgow, MD902 in Inverness and reduced cover in Aberdeen. Over a 12 year contract.	15		-

The full costs for each of the year of the contract can be seen at Appendix B.
## **4Affordability**

#### Table 7.4 Affordability of selected option



The table above demonstrates that the selected option did not appear to be affordable within current funding. However, the benefits to be gained from the enhanced rotary options were met favourably by Scottish Government who wished to factor this into the next round of the spending review. Therefore an agreement in principle with Scottish Government on the following was reached.

- Any increase in volume from current levels will be met through risk share arrangements with territorial boards no funding should be assumed from SG, therefore additional income from Boards will be shown in the LDP.
- The increase in costs relating to the 'like for like' aircraft at existing volume should be assumed to be borne by SAS, with no funding from SG
- The additional cost over and above 'like for like' for the enhanced aircraft (at existing volumes) from 2014-15 should be assumed to be met by SG.

# 8. Benefits and Risks

This section details the anticipated benefits of the Air Ambulance Re-Procurement Project, the benefits realisation plan and the key risks associated with the project.

### 8.1 Benefit Identification

The comparative benefits of the options is captured in the scoring exercise in section 5.4 above where it can be seen that the larger helicopters offer significantly greater service quality benefits.

### 8.2 Key Benefits of the Selected Option

The anticipated benefits of the selected option are:

- a) Larger helicopters will provide:
- Faster helicopter flying speed enabling improved coverage of Scotland within 60 minutes flying time, compared to the helicopters provided under the existing contract.
- better care for patients by giving clinicians more space and access to the whole of the patient. Maternity re-roles will not be required. Currently it is not possible to access the whole of the patient on the helicopters. Any access to the patient from below the abdomen is difficult if not impossible. If a patient was uplifted from the road side with lower limb trauma, it is difficult to manage this time of injury during flight. Added to this maternity patients currently cannot be carried unless the helicopter air craft is re-rolled. This means that the aircraft requires a seat to be removed at the base location and the stretcher moved into a different position to beside the pilot. This causes three issues, one, there is an increased risk with the patient being in reach of the pilot and air craft controls. Two, a passenger seat is lost which may mean that a relative cannot travel with the patient. And three, it usually takes longer for the aircraft to deploy to the patient as the re-role can take 15 to 20 minutes. If it is already out flying the aircraft is required to return to its base location to re-role before deployment. Larger helicopters will resolve all these issues.
- better support for the Specialist Retrieval Services by ensuring there is sufficient space for personnel and equipment. It will also allow full access to the patient during the flight and allow the retrieval teams to carry out clinical interventions to all areas of the patient during flight if necessary.
- parents and carers can travel with patients, specifically babies and children. A larger helicopter will provide an extra seat which would allow for a carer to travel in almost all cases.
- night-vision capable making night HEMS a possibility subject to future regulatory approval. This may decrease the use of MOD flights. It also increases the safety during flights into some of the very poor ambient light locations at night time.
  - c) The other enhancements include:
- Enhance the Glasgow fixed wing coverage to 24/7 giving greater resilience and responsiveness, in particular for specialist retrieval high-acuity patients. Currently most retrievals come from the Glasgow area. With the Glasgow aircraft being a live resource with staff on base, this will allow for a swifter responses to patients and a quicker mobilisation with retrieval teams to the whole of Scotland.
- All aircraft will have tracking allowing for better tasking and management of resources. This will allow more efficient tasking of the aircraft and allow the aircrafts to be diverted

to a more urgent call if necessary. This will create better response times to the patients and improved patient care.

- The arrangements for communicating with the service provider will be enhanced to improve the speed and quality of tasking decisions and resource allocation. The air supplier coordinator will be located in the EMDC with the Scottish Ambulance Service air dispatcher which will improve the decision time and increase the dispatch time to the patient
- Increased engineering support at Glasgow which should increase resilience and reduce downtime as aircraft will no longer need to go to Farnborough for all maintenance.
- In addition to the hangarage currently provided at Aberdeen and for the Glasgow helicopter, hangarage will be provided for the Glasgow fixed wing and the Inverness helicopter. This will provide a better patient experience during transfer and give better protection to the aircraft.
- Better contract management through strengthened control measures.
- Enhanced change management processes included in the contract allow for flexibility in the future in the service that is provided to ensure that the needs of the patients are met.

The cost savings for the public sector of not having to re-role for maternity patients, being able to carry carers and reducing reliance on MOD for night flights have been estimated at  $\pounds$  per annum. These are not all cash savings.

#### 8.3 Benefits Management and Realisation

Benefits realisation will be managed during the life of the programme and on an ongoing basis beyond full implementation. The benefits realisation plan will be developed as the project moves into the implementation phase.

#### 8.4 Risk Identification and Risk Scores

Risk is inherent in all projects and relates to the possibility that things may turn out differently from what was expected at the beginning of the project. In this section the main risks associated with each of the short listed options are identified and their likelihood of occurring are assessed

A number of project specific risks were identified and categorised into six headings as outlined in table 8.3.1 below.

Risk Category	Description
Change Management	Organisation and staff not enabled culturally or practically to use the new contract or supplier
and implementation risks	There is a risk that TUPE impacts on the cost and/or timescale for completing the project
	Risk that the selected option results in major staff changes/HR issues
	Loss of key staff/contractors during the implementation phase
	<ul> <li>Lack of capacity or expertise within SAS to deliver to implement a new solution</li> </ul>

#### Table 8.4.1 Project Risks

	Reduction of service quality during the transition to a new service
	Complexity of transition to a new supplier and/or type of service
	Risk that stakeholder expectations cannot be met or managed
	Risk that the future demand will affect the dispatching workload within the NC
Supplier Risks	Lack of capacity to deliver the requirements set out by SAS
	Relatively small group of suppliers able to fulfil the contract – lack of competition may increase costs
	• Risk that the selected supplier goes out of business leading to the potential for increased costs and difficulties in accessing aircraft.
	• Risk that the assistance currently provided by the MOD/Coast Guard may not be available in the future, therefore impacting service delivery.
Specification Risks	Specification not sufficiently detailed to ensure service requirements are met
	• Risk that the future aircraft types do not enable adequate levels of manual handling of patients.
	Risk that lack of funding means that the agreed specification is unaffordable
	• Risk that increases in actual and potential demand make the new contract unaffordable
	• Risk that NHS Service Re-Design could impact on the project timescales, demand assumptions and future service delivery.
	• Risk that changes that critical systems in SAS change through other projects which require a new interface to be developed for Air Wing and change the specification
	Risk that SAS cannot staff remotely based aircrafts
	Risk that Specialist Services Review impacts on service specification and consequently the contract price
Timescale Risks	• Supplier fails to implement service on time including the risk that any new aircraft required may not be delivered in time
	• SAS fails to meet the project timescales thus delaying any supplier implementation
	Risk that adverse publicity delays the project
	• Risk that excessive costs of purchasing interim arrangements are unaffordable.
Governance	Failure to meet legal requirements of an EU procurement process
Risks	Business case is not approved, causing delays to project
	Risk of a legal challenge to the procurement process.

A risk scoring exercise was undertaken to rank each option in terms of their relative risk profile using a simple, high, medium and low scale. This process was discussed

internally and the overall risk rankings were considered to be a fair representation of the risk profile of each option. Table 8.4.2 presents the risk scores for each option.



The risk scoring exercise illustrates that the selected option (**1998**3a) is the second best score in terms of risk. All options that involve a change in supplier are inherently more risky (though this did not disadvantage any supplier during the procurement process as it did not form part of the evaluation criteria).

# 9. Implementation Planning

This section describes the detailed planning undertaken by SAS to ensure that the selected solution will be implemented successfully given the need to maintain continuity of service at all times. The section covers three elements:

- the approach to managing and governing the implementation phase of the Air Ambulance Re-Procurement Project;
- the implementation strategy, including the approach to 'migration of contract', aircraft availability, timescales, training and equipping;
- details of SAS's risk mitigation strategy and business continuity plan.

More detailed implementation plans will be developed in conjunction with the selected supplier.

#### 9.1 **Project Management and Governance**

This section details the programme management approach adopted by SAS including how the Air Ambulance Re-Procurement Project is governed and will be resourced over the next year to implementation of the new contract.

#### 9.1.1 **Project Governance**

The Air Ambulance Re-Procurement Project is one of the most high profile and strategic programmes currently being undertaken by SAS and has senior sponsorship from the Executive Team and SAS Board.

It is envisaged that the Air Ambulance Re-Procurement Project Board will continue its structure and functions through to the conclusion of the implementation phase. In support of implementation the project board will include relevant Stakeholder representation and representatives from the selected supplier.

#### 9.1.2 Roles and Responsibilities

This section sets out the basic responsibilities of the key project structures. It should be noted that the roles outlined below are subject to change with the introduction of the revised governance structure in support of implementation.

#### 9.1.2.1 SAS Executive Team

The Executive Team's responsibilities in relation to the Air Ambulance Re-Procurement Project are to provide assurance to the SAS Board and to set the strategic direction for the programme. In addition, the Executive Team will notify the programme of any risk or issue that comes to their attention and review significant risk mitigation plans developed by the programme. The Executive Team will be updated on a regular basis about the project progress and risks/issues.

#### 9.1.2.2 Air Ambulance Re- Procurement Project Board

The remit of the Air Ambulance Re- Procurement Project Board was to oversee the reprocurement of the air ambulance service. It is responsible for approving key documents and making recommendations to the Executive Team and Board.

The composition of the Air Ambulance Re- Procurement Project board is as follows:

Air Ambulance FBC – Commercial in Confidence

Board Member	Position	Role in Project Board	
Pauline Howie	Chief Executive	Sponsor	
Daren Mochrie	Director of Service Delivery	Project Director	
Garry Fraser	Acting General Manager Air	Project Manager	
Jenny Neville	Head of Procurement	Procurement	
George Crooks	SAS Medical Director	Clinical effectiveness	
David Garbutt	Chairman		
Pamela McLauchlan	Director of Finance and Logistics		
Theresa Houston	Non Executive Director		
Stephanie Phillips	Performance Manager		
Annie Ingram	North of Scotland Regional Planning Director	Service redesign	
Ian Williamson	SGHSCD SAS performance manager	Government input	
Grace McGuire	Scottish Government Aviation Policy	Government policy input	
Catriona Barr	NHS Shetland	User input	
Mr Marthinus Roos (to December 2012)	NHS Orkney	User input	
Dr Brian Michie	NHS Western Isles	User input	
Tracey Ligema	NHS Highland	User input	
Grant Archibald	NHS GG & C	User input	
Dr Mike Fried	Consultant in Anaesthesia and Critical Care Medicine and SICS RCA representative	User input	
John Gallacher and Alan Jamieson	Staff Side convenors	Staff Partnership input	
Deirdre Evans	National Services Division Director	Service redesign	
David Paul (to October 2011)	Patient Representative	Patient input	
Roy Paterson (from March 2012)	Patient Representative	Patient input	
John Morton	Media Consultant	PR	
Sharon Hammell	Head of Communications	Communications and engagement	
Pauline Hennessy	Project Support Officer	Project Management Configuration	
Fabio Villani	Scottish Health Council – Advisor	Partner input	
Jonathan Heald	Squadron Leader, RAF Kinloss	Partner input	
Andrew Buist	SGPC	GP input	
Robbie Pearson	SGHD Policy	Government policy input	

 Table 9.1.2.2 - Membership of the Air Ambulance Re- Procurement Project Board

Suppliers will work closely with SAS and will be represented on the Air Ambulance Re-Procurement Project team and report to the project board.

#### 9.2 **Project Resources**

A project management team has been supporting the Air Ambulance project. This team currently consists of the following and will be reviewed as the service transitions into the implementation stage.

Name	Position	Role in Project Group
Daren Mochrie	Director of Service Delivery Scottish Ambulance Service	Project Director
Garry Fraser	Acting General Manager Air Ambulance Services	Project Manager
Jenny Neville	Head of Procurement	Procurement
David Kinnaird	Systems Development Manager	Information Systems
Tony Wigram	Health and Safety Manager	Health and Safety
Sharon Hammell	Communications Manager	Comms and engagement
Raymond Hepburn	Head of Control, West	Resource Co-ordination. EMDC link
Andrew Fuller	Head of Island Services	Asst Project Manager
Andrew Parker	Clinical lead South East Division	Operational Input
Gary Rutherford	Acting Head of Air Ambulance Services	Operational Input
Gerry Egan	Paramedic in Clinical Decision Making	Clinical
Stuart Airey	Project Accountant	Finance Specialist
Dr Phil Munro	Clinician	Clinical User
Loraine Newberry	Project Support Officer	Project Management Configuration
Steph Phillips	Head of Strategic Planning & Performance	Management information
Pauline Hennessy	Project Support Officer	Project Management Configuration

In addition, SAS has utilised external support from aviation and legal experts, as well as additional support with the competitive dialogue process from National Services Scotland.

#### 9.3 Implementation Approach and Plans

This section contains initial work on implementation and the transition phase from the current contract to the new contract.

As the transition to a new contract does not involve a change in supplier this significantly reduces the complexity of the implementation. It was always part of the discussions with and the scoring of their option, that the EC145 helicopters would not be available until approximately May 2014. The current EC135 helicopters will remain in use until then.

Detailed implementation plans will be developed in conjunction with **second** to ensure that the ability to provide the air ambulance service is not affected during implementation. These plans will cover the following areas:

- Transition from old to new helicopters, including the equipping of the EC145's, maintaining operational cover, contingency planning, training and familiarisation for staff
- Transition to 24/7 cover at Glasgow
- Transition to the new EMDC arrangements.
- Implementation of the ICT enhancements

#### 9.1.3 Supplier Management

SAS will continue to use PRINCE 2 as its project management methodology for the air ambulance re-procurement project. Clearly defined deliverables will be developed for all aspects of the project.

Regular project reporting, for example highlight reports, will be used to report progress and highlight risks and issues.

#### 9.4 Risk Mitigation and Contingency

Full risk management and contingency plans will be developed as the project moves into the implementation phase.

#### 9.5 Post Project Evaluation

#### Purpose and Methodology

The aim of the post project evaluation is to learn lessons form completed projects with a view to improving future project appraisal, design management and implementation. Post project evaluation is a three stage process:

- Stage 1, Project Appraisal (outline business case/full business case): plan and cost the scope of the post project evaluation exercise.
- Stage 2, Monitor progress and evaluate the project *outputs* (physical, tangible assets such as buildings, staff, vehicles, equipment) on completion of implementation.

• Stage 3, Review the *outcomes* (service aspects) of the project once it is operational – were the expected outcomes realised and how did the actual project inputs (capital and revenue, time, project management resources) vary from the estimates envisaged at business case stage?

Therefore, at this stage (full business case), plans can be set out showing how the project would be evaluated on completion. The post project evaluation plan has three elements:

- Project Framework Matrix: Post project evaluation essentially looks at the extent to which the expected outcomes/benefits of the project were actually realised and the extent to which actual project inputs varied from what was planned. It is therefore helpful at the planning stage to set out clearly the expected linkages between the project inputs, outputs and outcomes/objectives, and the "project framework matrix" is the recommended way of showing these linkages.
- Evaluation Team: an indication of expected team composition.
- Costs and Timescales: an indication of expected costs of the evaluation, if any, and of likely timescales involved.

Appendix A in Air Ambulance Procurement Full Business Case



# SCOTTISH AMBULANCE SERVICE

# **Air Ambulance Re-Procurement**

# **Option Appraisal**

# **December 2011 (Final)**

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## The Scottish Ambulance Service Board Air Ambulance Re-Procurement: Option Appraisal

#### 1. Introduction

The Scottish Ambulance Service is a Special National Health Service (NHS) Board within Scotland. It is a National Service with its Headquarters in Edinburgh and divided geographically into five territorial ambulance Operating Divisions, three Emergency Medical Dispatch Centres (EMDC's) National Risk & Resilience Department and a National Air Wing. The Air Wing Headquarters is located at South West Ambulance Divisional Headquarters, Ayr. The Air Wing is managed by a General Manager and Head of Service supported by two regional Area Service Managers, one in the North and the other in the West.

Air ambulances augment and extend the service provided by conventional land ambulances. Aircraft have the ability to be used 24 hours a day, 365 days of the year to respond to Emergency, Urgent and Planned requests across the whole of Scotland, predominately, but not exclusively, in remote, rural and island locations. Air transport is also used to transport specialist retrieval teams such as Emergency Medical Retrieval, Neonatal and Paediatric.

The Scottish Ambulance Service Board provides air ambulance services to Health Boards in Scotland and at present contracts with one service provider for the provision of Air Ambulance Transport Services. This contract expires on 31<sup>st</sup> March 2013.

The service provided is complex and whilst primarily for the air transport of patients, may occasionally include ambulance and medical personnel only and/or equipment only. Patients will always be accompanied by one or more medically qualified staff, usually Scottish Ambulance Service Paramedics. The Scottish Ambulance Service and Health Boards are responsible for the clinical care of patients. There will also be occasions when family members or carers will travel with the patient.

#### 1.1 Objectives

Key project objectives of the new Air Ambulance service will be:

- To continue to meet the needs of patients and clinicians within the geographic area covered by NHS Scotland
- To provide the most appropriate response for the clinical need of our patients
- To ensure robust Performance Management processes within the contract ensuring that Key Performance Indicators (KPIs) are fit for purpose and widely understood.
- To continue to provide a value for money service
- To ensure that air ambulances and road ambulances offer comparable facilities in terms of clinical environment, space and equipment.
- To ensure appropriate conditions for patients and staff that comply with current Health and Safety Regulations, including infection control requirements.
- To seek flexible contractual arrangements that are responsive to changing models of health care delivery.

#### **1.2 Proposed Benefits for Patients**

The re-procurement process of introducing new air ambulances provides an opportunity to re-evaluate the service delivered to the patients of Scotland using the air ambulance service.

Following extensive engagement with all stakeholders of the service the aim is to provide a more reactive and flexible service using technology and new aircraft design, and where possible different aircrafts to achieve this which would also allow for better access to patients whilst in transit.

#### 1.3 Option Appraisal Process

The option appraisal was undertaken by:

Daren Mochrie	Project Sponsor & Acting Director of Service Delivery
Garry Fraser	Project Manager & Acting General Manager South West Division
Mike Fried	Senior Clinical Stakeholder
Marthinus Roos	Senior Clinical Stakeholder
Jenny Neville	Head of Procurement
Jane Strathern	Central Legal Office
Stuart Airey	Project Accountant
Stephanie Phillips	Head of Strategy

#### 2. Background

The contract was advertised in OJEU in December 2010. A total of 35 initial expressions of interest were received. Eighteen companies attended an open day held in January 2011, and 12 PQQs were eventually submitted. Following careful evaluation a shortlist of 3 bidders were selected. One of these companies withdrew from the process in September 2011.

The re-procurement process has been conducted using the Competitive Dialogue procedure using an output based Descriptive Document. This allows the bidders to determine what resources and base locations they believe to be required to meet the service levels specified. This has generated a large range of variant options including different aircraft types and different base locations. The project team need to narrow down this list of options to ensure that final bids are requested for options that maximise cost per benefit, minimise risk and are affordable overall.

This will make it easier for bidder to firm up proposals for a more narrowly defined requirement, and simplify the process of comparing these offers.

#### 3. Long List / Short List of options

As the bidders have offered different aircraft types which are not directly comparable, the project team have considered the following list of options for each aircraft type.

An operational view of each of these options including the benefits and limitations is included in Appendix 1.

Option	Description	Comment
Option 1	2 x EC135 + 2 x King Air	This is as close to the status quo as has
	(existing bases)	been offered.
Option 2	2 x EC135 (Glasgow &	This option moves the Inverness base
	Kirkwall) + 2 x King Air	to Kirkwall.
	(existing bases)	
Option 3	1 x EC135 (Inverness) 1 x	This option introduces 1 x EC145 when
	EC145 (Glasgow) + 2 x King	available (probably Year 2 of the

	Air at existing bases	contract).
Option 4	1 x EC135 (Kirkwall) 1 x EC145 (Glasgow) + 2 x King Air (existing bases)	This option introduces 1 x EC145 when available (probably Year 2 of the contract) and moves the Inverness base to Kirkwall.
Option 5	2 x EC145 + 2 x King Air (existing bases)	This option introduces 2 x EC145 when available (probably Year 2 of the contract).
Option 6	2 x EC145 (Kirkwall & Glasgow) + 2 x King Air (existing bases)	This option introduces 2 x EC145 when available (probably Year 2 of the contract) and moves the Inverness base to Kirkwall.
Option 7	1 x EC145 (Glasgow) 1 x EC135 (Inverness) 1 x EC135 (Kirkwall) + 1 x King Air (Glasgow)	This option introduces 1 x EC145 when available (probably Year 2 of the contract), and retains the existing EC135s with one being moved to Kirkwall. Only one King Air is retained.
Option 8	1 x EC145 (Glasgow) 1 x EC135 (Inverness) + 1 x King Air (Glasgow) + ad hoc King Air for out of Scotland activity	This option introduces 1 x EC145 when available (probably Year 2 of the contract), and retains one of the existing EC135s in Inverness. Only one King Air is retained. This would be supplemented by ad hoc provision of a King Air to do out of area transfers (potentially outwith the contract).
Option 1	2 x MD902 + 2 x King Air (existing airport locations)	This is as close to the status quo as has been offered, but includes a merged base at Glasgow Airport.
Option 2	2 x MD902 (Glasgow & Kirkwall) + 2 x King Air (existing airport locations)	This option moves the Inverness MD902 to Kirkwall.
Option 3	1 x MD902 (Inverness) 1 x AW139 (Glasgow) + 2 x King Air (existing airport locations)	This option introduces 1 x AW139.
Option 4	1 x MD902 (Kirkwall) 1 x AW139 (Glasgow) + 2 x King Air (existing airport locations)	This option introduces 1 x AW139 and moves the Inverness base to Kirkwall.
Option 5	2 x AW139 + 2 x King Air all (existing bases)	This option introduces 2 x AW139s.
Option 6	2 x AW139 (Kirkwall & Glasgow) + 2 x King Air (existing airport locations)	This option introduces 2 x AW139s and moves the Inverness base to Kirkwall.
Option 7	1 x AW139 (Glasgow) 1 x MD902 (Inverness) 1 x MD902 (Kirkwall) + 1 x King Air (Glasgow)	This option introduces 1 x AW139 and retains 2 x MD902s with one being moved to Kirkwall. Only one King Air is retained.
Option 8	1 x AW139 (Glasgow) 1 x MD902 (Inverness) + 1 x King Air (Glasgow) + ad hoc King Air for out of Scotland activity	This option introduces 1 x AW139 and retains one of the MD902s in Inverness. Only one King Air is retained. This would be supplemented by ad hoc provision of a King Air to do out of area transfers (potentially outwith the contract).

It was agreed by the project team not to short list from the above options but to proceed to analyse all of them on benefits, risks and costs in order to ascertain which are the best options to be included at final bid stage with regard to best value.

#### 4. Summary of Economic and Financial Appraisals

#### Economic Appraisal (Value for Money)

The table and figures below summarise the assessed benefits, costs and risks, for the all options. (Costings are based on the realistic demand projections.)

#### Table 1/1, Value for Money Analysis: Costs, Benefits and Risks

Option	Supplier	BENEFITS Weighted Benefit Score	COSTS Equivalent Annual Charge	Costs per Benefit £000 / Points	Costs per Benefit Rank Order (lowest cost per benefit first)	RISK Median risk quotient	Costs per Benefit % of Total	RISK % of Total
		Points	(£000s)	(£000s)				
Option 1		218			4	18	6	5
Option 1		218			3	27	6	8
Option 2		212			11	45	6	13
Option 2		218			7	45	6	13
Option 3		233			2	18	6	5
Option 3		230			10	27	6	8
Option 4		227			5	32	6	9
Option 4		239			12	32	6	9
Option 5		251			1	12	5	3
Option 5		247			14	12	7	3
Option 6		236			8	12	6	3
Option 6		283			6	8	6	2
Option 7		230			9	12	6	3
Option 7		239			13	12	7	3
Option 8		215			15	18	7	5
Option 8		211			16	27	7	8

#### **Financial Appraisal**

The relative Financial Appraisal of the options is set out in Table below

#### Table 1/2, Affordability Information

			Economic Analysis		Affordabilit	у
	Options	Supplier	Equivalent Annual Charge	rank	Average Annual Revenue (£)	rank
			£000		£000	
1	2 x EC135 (or MD902) + 2 x King Air all at existing bases (Status Quo)			2		2
1	2 x EC135 (or MD902) + 2 x King Air all at existing bases (Status Quo)			1		1
2	2 x EC135 (or MD902) at Glasgow & Kirkwall + 2 x King Air at existing bases			4		4
2	2 x EC135 (or MD902) at Glasgow & Kirkwall + 2 x King Air at existing bases			5		5
3	1 x EC135 (or MD902) at Inverness, 1 x EC145 (or AW139) at Glasgow + 2 x King Air at existing bases			3		3
3	1 x EC135 (or MD902) at Inverness, 1 x EC145 (or AW139) at Glasgow + 2 x King Air at existing bases			9		9
4	1 x EC135 (or MD902) at Kirkwall, 1 x EC145 (or AW139) at Glasgow + 2 x King Air at existing bases			7		7
4	1 x EC135 (or MD902) at Kirkwall, 1 x EC145 (or AW139) at Glasgow + 2 x King Air at existing bases			12		12
5	2 x EC145 (or AW139) + 2 x King Air all at existing bases			6		6
5	2 x EC145 (or AW139) + 2 x King Air all at existing bases			15		15
6	2 x EC145 (or AW139) at Kirkwall & Glasgow + 2 x King Air at existing bases			11		11
6	2 x EC145 (or AW139) at Kirkwall & Glasgow + 2 x King Air at existing bases			16		16
7	1 x EC145 (or AW139) at Glasgow, 1 x EC135 (or MD902) at Inverness, 1 x EC135 (or MD902) at Kirkwall + 1 x King Air at Glasgow			8		8

7	1 x EC145 (or AW139) at Glasgow, 1 x EC135 (or MD902) at Inverness, 1 x EC135 (or MD902) at Kirkwall + 1 x King Air at Glasgow		13	13
8	1 x EC145 (or AW139) at Glasgow, 1 x EC135 (MD902) at Inverness + 1 x King Air at Glasgow + ad hoc King Air for out of Scotland activity		10	10
8	1 x EC145 (or AW139) at Glasgow, 1 x EC135 (MD902) at Inverness + 1 x King Air at Glasgow + ad hoc King Air for out of Scotland activity		14	14

Note: This is a revenue only contract.

The comparable budget for 2011/12 for the Air Ambulance contract is £11.55m. We understand that this budget will be uplifted by 1% annually until 2014/15. The position beyond this date is unknown.

#### **Risk Assessment**

In the economic appraisal, the key risks attaching to each option were assessed to aid the value for money comparison of options. The table in Appendix 4 provides the risk assessments for each option considered.

#### 5. Conclusions and Recommendations

An option appraisal has been undertaken in accordance with guidance issued by the Scottish Executive Health Department and appropriate to the scale of the project.

None of the options considered are affordable within the current (2011/12) budget of £11.55m. Some are very substantially in excess of the current budget (up to in excess of £ over budget). This is because the Descriptive Document set out to achieve improvements on the current service provision in line with the feedback received during the consultation process e.g. clinical requirements for improved patient access and the transportation of specialist medical teams resulting in the need for larger helicopters, and the need to achieve KPIs throughout Scotland options for different bases and faster aircraft.

The top scoring option from the option appraisal is:

Option 5 This is based on the same operational bases as the current service, but allows for a larger helicopters based in Glasgow and Inverness.

This will be supplemented by the existing Search & Rescue framework document which the Service will seek to strengthen, and any other ad hoc arrangements bidders are able to offer in specific locations, such as Shetland.

Option 5 is the top ranked option from with Option 3 from being the second ranked option. The first ranked option from would be the status quo.

Option 5 from **second** is however £ greater than current funding levels in the first year of the contract and therefore at present is unaffordable within SAS resources.

Option 5 will provide the following improvements on the current service:

 $\sqrt{}$  Faster flying speed will provide improved coverage of Scotland within 60 minutes from existing contract.

 $\sqrt{}$  Enhance the Glasgow fixed wing coverage to 24/7 giving greater resilience and responsiveness for specialist retrieval high-acuity patients, with standby arrangements in Aberdeen.

 $\sqrt{1}$  Larger helicopters will facilitate better care for patients by giving clinicians more space and access to the whole of the patient. Maternity re-roles will not be required.

 $\sqrt{1}$  Larger helicopters will provide better support for the Specialist Retrieval Services by ensuring there is sufficient space for personnel and equipment.

 $\sqrt{}$  Larger helicopters with ensure parents and carers can travel with patients, specifically babies and children.

 $\sqrt{AII}$  aircraft will have tracking.

 $\sqrt{}$  The new helicopters will be night-vision capable making night HEMS a possibility once the CAA permits this.

 $\sqrt{}$  The arrangements for communicating with the service provider will be enhanced to improve the speed and quality of tasking decisions and resource allocation.

#### Recommendation

It is recommended that the Project Board approves that Option 5 along with the status quo (Option 1) are used as the basis of the Invitation to Submit Final Bids. In the meantime further work in respect of affordability is undertaken as part of the Final Business Case submission.

# **Appendix 1: Operational View of Options**

This paper aims to identify the operational benefits and limitations of each of the possible options being offered to the Scottish Ambulance Service in the re-procurement of air ambulances. There are 16 possible options from the two remaining suppliers. Listing each of the benefits and limitations without financial consideration will allow an understanding of the operational impact of using each aircraft within the current Scottish Air Ambulance Service provided. Added to this is a table which describes what the impact of each option would have on five specific areas of the air ambulance delivery of service.

#### Aviation options

#### Option 1: 2 x EC135 + 2 x King Air all at existing bases (Status Quo)

Operationally this option will provide a slightly better response than there is currently as the Glasgow King Air would have 24-hour live cover which would increase responsiveness. However it will not meet many of the desirables of the specification paper such as the flying time response and better access to patients in the helicopter.

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide the same	Will not meet the flying KPI of 60 minutes to all
service as there is currently.	of Scotland. It will miss out some of Orkney
	and all of Shetland for helicopter response.
It will provide a Glasgow King Air 24/7	Will not provide a timely emergency response
which will provide a more reactive	to the outlying communities of Scotland
response, currently on call at night time.	requiring a helicopter.
It will address the communication	Will not provide a helicopter resource that can
problems with EMDC and by	institute an inter-hospital transfer service with
having a member of within the	better passenger carrying ability and improved
EMDC.	working environment.
	Unlikely to increase any of the technology
	enhancements required on the aircraft,
	certainly not NVG.
	Will not reduce clinical risk in patient access.
	Will not reduce potential complaints.
	Will not reduce public or political pressures.

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Status Quo
Western Isles	Status Quo	Status Quo
Orkney	Status Quo	Status Quo
Shetland	Status Quo	Status Quo
Retrievals	Status Quo	Quicker response time from
		Giasgow King Air

#### Option 2: 2 x EC135 at Glasgow & Kirkwall + 2 x King Air at existing bases

HEMS audit displayed that if the same flights were carried out the average HMES response to each incident was 30 minutes longer if the aircraft was based in Kirkwall. If you add a 40 minute return flight to Kirkwall instead of Dalcross after each incident, this would mean each HEMS call would involve an additional 70 minutes flying = 70 hours on the period examined and approx 280 hours annually.

# Therefore, to base Helimed 2 in Kirkwall and do the exact same demand would result in an additional 367 hours of flying annually.

However, the key point is that if Helimed was based in Kirkwall then it probably would not carry out the same missions. It would be likely to do more Kirkwall to Aberdeen transfers and Aberdeen King Air would do more Western Isles and Wick transfers. It would be very difficult to predict how this demand pattern would look.

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service	Will not meet the flying KPI of 60 minutes to
that there is currently.	all of Scotland. It will miss out most of the
	Western Isles and the top of Shetland.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency
will provide a more reactive response,	response to the outlying communities of
currently on call at night time.	Scotland requiring a helicopter.
It will address the communication problems	Will not provide a helicopter resource that
with EMDC and by having a member	can institute an inter-hospital transfer service
of within the EMDC.	with better passenger carrying ability and
	improved working environment.
It will decrease response times to areas of	There will be an increased HEMS response
Orkney and Shetland which may require a	time to the majority of the HEMS calls that
helicopter response.	the North helicopter undertakes. On average
	30 minutes longer with increased over all
	flying time and hours flown.
	Unlikely to increase any of the technology
	enhancements required on the aircraft,
	certainly not NVG.
	Will not reduce clinical risk in patient access.
	Will not reduce potential complaints.
	Will not reduce public or political pressures.
	May increase fuel stops for journeys
	undertaken.

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Increased HEMS response	Status Quo
_	time	
Western Isles	Increased HEMS response	Status Quo
	time	
Orkney	Decreased HEMS response	Status Quo
	time	
Shetland	Decreased HEMS response	Status Quo
	time although still out with 60	
	minutes	
Retrievals	No marked difference in	Quicker response time from
	service currently provided	Glasgow King air

# Option 3: 1 x EC135 at Inverness, 1 x EC145 at Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to

there is currently.	all of Scotland. It will miss out some of Orkney and all of Shetland for helicopter
	response.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency response
currently on call at night time.	requiring a helicopter.
It will address the communication problems	One helicopter will not provide a resource
with EMDC and by having a member	that can institute an inter-hospital transfer
of within the EMDC.	service with better passenger carrying ability
	and improved working environment.
It will provide a larger working environment	Unlikely to increase any of the technology
for one of the helicopters and passenger	enhancements required on one of the
carrying capacity for escorts.	helicopters.
It will provide better access to the patient. No	Will not reduce clinical risk in patient access
need to re-role one of the aircrafts therefore	in one of the helicopters.
also more responsive.	
It will provide better technology	Will not reduce potential complaints due to
enhancements for one of the helicopters.	response flying times.
Will reduce some anxieties around patient	Will not reduce public or political pressures.
access from the clinical community and	
retrieval teams.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Status Quo
Western Isles	Status Quo	Status Quo
Orkney	Status Quo	Status Quo
Shetland	Status Quo	Status Quo
Retrievals	Better access to patients and more escort carrying capacity also slightly faster	Quicker response time from Glasgow King air

# Option 4: 1 x EC135 at Kirkwall, 1 x EC145 at Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to
there is currently.	all of Scotland. It will miss out some of
	Orkney and all of Shetland for helicopter
	response.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency response
will provide a more reactive response,	to the outlying communities of Scotland
currently on call at night time.	requiring a helicopter.
It will address the communication problems	One helicopter will not provide a resource
with EMDC and by having a member	that can institute an inter-hospital transfer
of within the EMDC.	service with better passenger carrying ability
	and improved working environment.
It will provide a larger working environment	Unlikely to increase any of the technology
for one of the helicopters and passenger	enhancements required in one of the
carrying capacity for escorts.	helicopters.
It will provide better access to the patient. No	Will not reduce clinical risk in patient access
need to re-role one of the helicopters	in one of the helicopters.
therefore also more responsive.	

It will provide better technology enhancements for one of the helicopters.	Will not reduce potential complaints due to response flying times.
Will reduce some anxieties around patient access from the clinical community and retrieval teams.	Will not reduce public or political pressures.
It will decrease response times to areas of Orkney and Shetland which require a helicopter response.	There will be an increased HEMS response time to the majority of the HEMS calls that the North helicopter undertakes. On average 30 minutes longer with increased over all flying time and hours flown.
	May increase fuel stops for journeys undertaken.

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Increased HEMS response	Status Quo
-	time	
Western Isles	Increased HEMS response	Status Quo
	time	
Orkney	Decreased HEMS response	Status Quo
	time	
Shetland	Decreased HEMS response	Status Quo
	time although still out with	
	60 minutes	
Retrievals	Better access to patients	Quicker response time from
	and more escort carrying	Glasgow King air
	capacity, also faster	

### Option 5: 2 x EC145 + 2 x King Air all at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to
there is currently.	all of Scotland. It will miss out all of Shetland
	for a helicopter response although a MOU
	with Coastguard may cover Shetland.
It will provide a Glasgow King Air 24/7 which	May not reduce potential complaints due to
will provide a more reactive response,	response flying times.
currently on call at hight time.	
It will address the communication problems	Will not reduce public or political pressures.
with EMDC and by having a member	
of within the EMDC.	
It will provide a larger working environment	
for both of the helicopters and passenger	
carrying capacity for escorts.	
It will provide better access to the patient. No	
need to re-role the helicopters therefore also	
more responsive.	
It will provide better technology	
enhancements for both of the helicopters.	
Will reduce most anxieties around patient	
access from the clinical community and	
retrieval teams.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Decreased HEMS response	Status Quo
_	time	
Western Isles	Decreased HEMS response	Status Quo
	time	
Orkney	Decreased HEMS response	Status Quo
	time	
Shetland	Decreased HEMS response	Status Quo
	time although still out with 60	
	minutes	
Retrievals	Better access to patients and	Quicker response time from
	more escort carrying capacity,	Glasgow King Air
	also faster	

### Option 6: 2 x EC145 at Kirkwall & Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as there is currently.	Will not meet the flying KPI of 60 minutes to all of Scotland. It will miss out the tip of Shetland for a helicopter response although a MOU with Coastguard may cover Shetland. And this will miss out parts of the Western Isles.
It will provide a Glasgow King Air 24/7 which will provide a more reactive response, currently on call at night time.	May not reduce potential complaints due to response flying times.
It will address the communication problems with EMDC and <b>Example</b> by having a member of within the EMDC.	May not reduce public or political pressures.
It will provide a larger working environment for both of the helicopters and passenger carrying capacity for escorts.	There will be an increased HEMS response time to the majority of the HEMS calls that the North helicopter undertakes. On average 20 minutes longer with increased over all flying time and hours flown.
It will provide better access to the patient. No need to re-role the helicopters therefore also more responsive.	May increase fuel stops for journeys undertaken.
It will provide better technology enhancements for both of the helicopters.	
Will reduce most anxieties around patient access from the clinical community and retrieval teams.	
It will provide a timely emergency response to most of the outlying communities of Scotland requiring a helicopter.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Increased HEMS response time	Status Quo
Western Isles	Increased HEMS response time	Status Quo

Orkney	Decreased HEMS response time	Status Quo
Shetland	Decreased HEMS response time to most of Shetland	Status Quo
Retrievals	Better access to patients and more escort carrying capacity, also faster	Quicker response time from Glasgow King air

# Option 7: 1 x EC145 at Glasgow, 1 x EC135 at Inverness, 1 x EC135 at Kirkwall + 1 x King Air at Glasgow

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will provide a different service from what	Will not meet the flying KPI of 60 minutes to
there is currently.	all of Scotland. It will miss out the tip of
	Shetland for helicopter response.
It will provide a Glasgow King Air 24/7 which	Will reduce the ability of response to patients
will provide a more reactive response,	and retrieval teams required to be moved
currently on call at night time.	longer distances or cross-border.
It will address the communication problems	Only one helicopter will provide a resource
with EMDC and by having a member	that can institute an inter-hospital transfer
of within the EMDC.	service with better passenger carrying ability
	and improved working environment.
It will provide a larger working environment	Unlikely to increase any of the technology
for one of the helicopters and passenger	enhancements required in two of the
carrying capacity for escorts.	helicopters.
It will provide better access to the patient. No	Will not reduce clinical risk in patient access
need to re-role one of the helicopters	in two of the helicopters.
therefore also more responsive.	
It will provide better technology	Will not reduce potential complaints due to
ennancements for one of the helicopters.	response flying times as helicopters fly at half
Will reduce come equiption enough actions	the speed of a King Air.
will reduce some anxieties around patient	May increase waiting times for patients
access from the clinical community and	requiring a King Air response.
It will decrease reasonable times to creas of	It will increase the flying time and fuel stone
It will decrease response times to areas of	for long distance transfere
balicapter reapones	for long distance transfers.
Mostly it will provide a timely amorgonou	Likoly to increase compleints from retrieval
response to the outlying communities of	tooms for long distance transfore
Scotland requiring a beliconter	
Likely to reduce public or political pressures	
Decrease in response times for HEMS	
around Scotland	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Longer response time due to availability
Western Isles	Status Quo	Longer response time due to availability
Orkney	Decreased HEMS response time	Longer response time due to availability
Shetland	Decreased HEMS response	Longer response time due to

	time to most of Shetland	availability
Retrievals	Better access to patients and more escort carrying capacity, also faster	Longer response time due to availability

### Option 8: 1 x EC145 at Glasgow, 1 x EC135 at Inverness + 1 x King Air at Glasgow + ad hoc King Air for out of Scotland activity

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will provide a Glasgow King Air 24/7 which	It will not to provide a similar service as there
will provide a more reactive response,	is currently.
currently on call at night time.	
It will address the communication problems	Will not meet the flying KPI of 60 minutes to
with EMDC and by having a member	all of Scotland. It will miss out some of
of within the EMDC.	Orkney and all of Shetland for helicopter
	response.
It will provide a larger working environment	Will not provide a timely emergency response
for one of the helicopters and passenger	to the outlying communities of Scotland
carrying capacity.	requiring a helicopter.
It will provide better access to the patient. No	One helicopter will not provide a resource
need to re-role one of the helicopters	that can institute an inter-hospital transfer
therefore also more responsive.	service with better passenger carrying ability
It will provide better technology	And improved working environment.
anhancoments for one of the belicenters	onhancoments required in one of the
enhancements for one of the helicopters.	heliconters and certainly not NVG
Will reduce some anxieties around patient	Will not reduce clinical risk in patient access
access from the clinical community and	in one of the helicopters.
retrieval teams.	
	Will not reduce potential complaints due to
	response flying times.
	Will not reduce public or political pressures.
	Will not reduce potential complaints due to
	response flying times as helicopters fly at half
	the speed of a King Air.
	May increase waiting times for patients
	requiring a King Air response.
	It will increase the flying time and fuel stops
	tor long distance transfers.
	Likely to increase complaints from retrieval
	teams for long distance transfers.

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Longer response time due to availability
Western Isles	Status Quo	Longer response time due to availability
Orkney	Status Quo	Longer response time due to availability
Shetland	Status Quo	Longer response time due to availability
Retrievals	Better access to patients	Longer response time due to

and more escort carrying	availability
capacity, also faster	

#### Medical Aviation Service Options

#### Option 1: 2 x MD902 + 2 x King Air all at existing bases.

Operationally this option will provide a slightly better response than there is currently as the Glasgow King Air would have 24 hour live cover which would increase responsiveness. However it will not meet some of the desirables of the specification paper such as the flying time response to patients in the helicopter.

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to
there is currently.	all of Scotland. It will miss out some of
	Orkney and all of Shetland for helicopter
	response.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency response
will provide a more reactive response,	to the outlying communities of Scotland
currently on call at night time.	requiring a helicopter.
It will address the communication problems	Will not reduce potential complaints.
with EMDC and air operations by having a	
member of within the EMDC.	
It will provide more access to the patient.	Will not reduce public or political pressures.
Does not require a re-role of helicopters for	
different patient access therefore is more	
responsive.	
It will provide a helicopter resource that can	
institute an inter-hospital transfer service	
with better passenger carrying ability and	
improved working environment.	
It will increase the use of technology	
enhancements required on the aircraft	
including night capability.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Status Quo
Western Isles	Status Quo	Status Quo
Orkney	Status Quo	Status Quo
Shetland	Status Quo	Status Quo
Retrievals	Slightly better patient access	Quicker response time from
		Glasgow King air

#### Option 2: 2 x MD902 at Glasgow & Kirkwall + 2 x King Air at existing bases

HEMS audit showed that if the same flights were carried out the average hems response to each incident was 30 minutes longer if based in Kirkwall. If you add a 40 minute return flight to Kirkwall instead of Dalcross after each incident, this would mean each HEMS call would involve an additional 70 minutes flying = 70 hours on the period examined and approx 280 hours annually.

Therefore, to base Helimed 2 in Kirkwall and do the exact same demand would result in an additional 367 hours of flying annually.

However, the key point is that if Helimed was based in Kirkwall then it probably would not carry out the same missions. It would be likely to do more Kirkwall to Aberdeen transfers and Aberdeen King Air would do more Western Isles and Wick transfers. It would be very difficult to predict how this demand pattern would look.

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service that there is currently.	Will not meet the flying KPI of 60 minutes to all of Scotland. It will miss out the Western Isles
It will provide a Glasgow King Air 24/7 which will provide a more reactive response, currently on call at night time. It will address the communication problems with EMDC and air operations by having a member of within the EMDC.	Will not provide a timely emergency response to the outlying communities of Scotland requiring a helicopter. There will be an increased HEMS response time to the majority of the HEMS calls that the North helicopter undertakes. On average 30 minutes longer with increased over all flying time and hours flown.
It will decrease response times to areas of Orkney and Shetland which require a helicopter response.	Will not reduce potential complaints.
It will provide more access to the patient. Does not require a re-role of aircraft for different patient access therefore is more responsive.	Will not reduce public or political pressures.
It will provide a helicopter resource that can institute an inter-hospital transfer service with better passenger carrying ability and improved working environment.	
It will increase the use of technology enhancements required on the aircraft including night capability.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Increased HEMS response time	Status Quo
Western Isles	Increased HEMS response time	Status Quo
Orkney	Decreased HEMS response time	Status Quo
Shetland	Decreased HEMS response time although still out with 60 minutes	Status Quo
Retrievals	Slightly better access to the patient	Quicker response time from Glasgow King air

# Option 3: 1 x MD902 at Inverness, 1 x AW139 at Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to
there is currently	all of Scotland. It will miss out some of

	Orkney and all of Shetland for helicopter
	response.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency
will provide a more reactive response,	response to the outlying communities of
currently on call at night time.	Scotland requiring a helicopter.
It will address the communication problems	Will not reduce potential complaints due to
with EMDC and air operations by having a	response flying times.
member of within the EMDC.	
It will provide a larger working environment	Will not reduce public or political pressures.
for both of the helicopters and passenger	
carrying capacity for escorts.	
It will provide better access to the patient. No	
need to re roll any of the helicopters	
therefore also more responsive.	
It will provide better technology	
enhancements for both of the helicopters.	
Will reduce some anxieties around patient	
access from the clinical community and	
retrieval teams.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Status Quo
Western Isles	Status Quo	Status Quo
Orkney	Status Quo	Status Quo
Shetland	Status Quo	Status Quo
Retrievals	Better access to patients and more escort carrying capacity also faster	Quicker response time from Glasgow King air

# Option 4: 1 x MD902 at Kirkwall, 1 x AW139 at Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes to
there is currently.	all of Scotland. It will miss out some of
	Orkney and all of Shetland for helicopter
	response.
It will provide a Glasgow King Air 24/7 which	Will not provide a timely emergency
will provide a more reactive response,	response to the outlying communities of
currently on call at night time.	Scotland requiring a helicopter.
It will address the communication problems	There will be an increased HEMS response
with EMDC and air operations by having a	time to the majority of the HEMS calls that
member of within the EMDC.	the North helicopter undertakes. On
	average 30 minutes longer with increased
	over all flying time and hours flown.
It will provide a larger working environment	Will not reduce potential complaints due to
for both of the helicopters and passenger	response flying times.
carrying capacity for escorts.	
It will provide better access to the patient. No	Will not reduce public or political pressures.
need to re-role any of the aircrafts therefore	
also more responsive.	
It will provide better technology	May increase fuel stops for journeys

enhancements for both of the helicopters.	undertaken
Will reduce some anxieties around patient	
access from the clinical community and	
retrieval teams.	
It will decrease response times to areas of	
Orkney and Shetland which require a	
helicopter response.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Increased HEMS response	Status Quo
	time	
Western Isles	Increased HEMS response	Status Quo
	time	
Orkney	Decreased HEMS response	Status Quo
	time	
Shetland	Decreased HEMS response	Status Quo
	time although still out with 60	
	minutes	
Retrievals	Better access to patients and	Quicker response time from
	more escort carrying capacity,	Glasgow King air
	also one aircraft is faster	

# Option 5: 2 x AW139 + 2 x King Air all at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service as	Will not meet the flying KPI of 60 minutes
there is currently.	Shetland.
It will provide a Glasgow King Air 24/7 which	May not reduce public or political
will provide a more reactive response,	pressures.
currently on call at night time.	
It will address the communication problems	
with EMDC and air operations by having a	
member of within the EMDC.	
It will provide a larger working environment for	
both of the helicopters and passenger carrying	
capacity for escorts.	
It will provide better access to the patient. No	
need to re-role the helicopters therefore also	
more responsive.	
It will provide better technology enhancements	
for both of the helicopters.	
Will reduce most anxieties around patient	
access from the clinical community and	
retrieval teams.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Decreased HEMS response	Status Quo
	time	
Western Isles	Decreased HEMS response	Status Quo
	time	
Orkney	Decreased HEMS response	Status Quo

	time	
Shetland	Decreased HEMS response	Status Quo
	time	
Retrievals	Better access to patients and more escort carrying capacity, also faster	Quicker response time from Glasgow King air

### Option 6: 2 x AW139 at Kirkwall & Glasgow + 2 x King Air at existing bases

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will continue to provide a similar service	There will be a small increased HEMS
as there is currently.	response time to some of the HEMS calls that
	the North helicopter undertakes, and increase
	time flying back to base.
It will meet the flying KPI of 60 minutes to	
all of Scotland.	
It will provide a Glasgow King Air 24/7	
which will provide a more reactive	
response, currently on call at night time.	
It will address the communication	
problems with EMDC and air operations	
by having a member of within the	
EMDC.	
It will provide a larger working	
environment for both of the helicopters	
and passenger carrying capacity for	
It will provide better access to the patient	
No need to re-role the heliconters	
therefore also more responsive.	
It will provide better technology	
enhancements for both of the helicopters.	
Will reduce most anxieties around patient	
access from the clinical community and	
retrieval teams.	
It will provide a timely emergency	
response to most of the outlying	
communities of Scotland requiring a	
helicopter.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Slight increased HEMS	Status Quo
	response time	
Western Isles	Slight increased HEMS	Status Quo
	response time	
Orkney	Decreased HEMS response	Status Quo
	time	
Shetland	Decreased HEMS response	Status Quo
	time to most of Shetland	
Retrievals	Better access to patients and	Quicker response time from
	more escort carrying capacity,	Glasgow King Air
	also faster	

# Option 7: 1 x AW139 at Glasgow, 1 x MD902 at Inverness, 1 x MD902 at Kirkwall + 1 x King Air at Glasgow

Benefits i.e. what will it do?	Limitations i.e. what it will not do?
It will provide a different service from what	Will not meet the flying KPI of 60 minutes
there is currently.	to all of Scotland. It will miss out the tip of
	Shetland for helicopter response.
It will provide a Glasgow King Air 24/7 which	Will reduce the ability of response to
will provide a more reactive response,	patients and retrieval teams required to
currently on call at night time.	be moved longer distances or cross
	border due to reduction in King Air.
It will address the communication problems	Will not reduce potential complaints due
with EMDC and air operations by having a	to response flying times as helicopters fly
member of within the EMDC.	at half the speed of a King Air.
It will provide a larger working environment for	May increase waiting times for patients
all of the helicopters and passenger carrying	requiring a King Air response.
capacity for escorts.	It will be an any the finite of the second field
It will provide better access to the patient. No	It will increase the flying time and fuel
need to re-role any of the helicopters therefore	stops for long distance transfers.
also more responsive.	Likely to increase compleints from
for all of the beliepitors	Likely to increase complaints from
Nill reduce come enviction around notiont	
will reduce some anxieties around patient	
retrieval teams	
It will decrease response times to areas of	
Orkney and Shetland which require a	
beliconter response	
Mostly it will provide a timely emergency	
response to the outlying communities of	
Scotland requiring a helicopter	
Likely to reduce public or political pressures	
Decrease in response times for HEMS around	
Scotland.	

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Longer response time due to availability
Western Isles	Status Quo	Longer response time due to availability
Orkney	Decreased HEMS response time	Longer response time due to availability
Shetland	Decreased HEMS response time to most of Shetland	Longer response time due to availability
Retrievals	Better access to patients and more escort carrying capacity, also one faster	Longer response time due to availability

#### Option 8: 1 x AW139 at Glasgow, 1 x MD902 at Inverness + 1 x King Air at Glasgow + ad hoc King Air for out of Scotland activity (ADDITIONAL OPTION)

Benefits i.e. what will it do?	Limitations i.e. what it will not do?					
It will provide a Glasgow King Air 24/7 which	It will not to provide a similar service as					
will provide a more reactive response,	there is currently.					
currently on call at night time.						
It will address the communication problems	Will not meet the flying KPI of 60 minutes to					
with EMDC and air operations by having a	all of Scotland. It will miss out some of					
member of within the EMDC.	Orkney and all of Shetland for helicopter response.					
It will provide a larger working environment	Will not provide a timely emergency					
for both of the helicopters and passenger	response to the outlying communities of					
carrying capacity for escorts.	Scotland requiring a helicopter.					
It will provide better access to the patient, no	Will not reduce potential complaints due to					
need to re roll any of the aircrafts therefore	response flying times.					
also more responsive.						
It will provide better technology	Will not reduce public or political pressures.					
enhancements for both of the helicopters.						
Will reduce some anxieties around patient	Will not reduce potential complaints due to					
access from the clinical community and	response flying times as helicopters fly at					
retrieval teams.	half the speed of a King Air.					
	May increase waiting times for patients					
	requiring a King Air response.					
	It will increase the flying time and fuel stops					
	for long distance transfers.					
	Likely to increase complaints from retrieval					
	teams for long distance transfers.					

Service area	Impact Helicopter	Impact Fixed Wing
Highland	Status Quo	Longer response time due to availability
Western Isles	Status Quo	Longer response time due to availability
Orkney	Status Quo	Longer response time due to availability
Shetland	Status Quo	Longer response time due to availability
Retrievals	Better access to patients and more escort carrying capacity, also faster	Longer response time due to availability

# Appendix 2: Benefit Scoring (Weighted Scores)

Air ambulance	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Service capability and availability	27	18	27	27	36	27	27	9	27	18	36	36	45	45	27	9
Ability to support clinical requirements (see below)																
(i) ability to accommodate optimum clinical crew numbers, patients and non clinical escorts	6	6	6	6	8	8	6	8	8	8	8	8	10	10	8	10
(ii) ability to transport maternity patients with minimal re rolling aircraft	1	1	2	2	4	4	1	4	4	4	4	4	5	5	4	5
(iii) ability to transport incubators, ECMO equipment etc	3	3	3	3	4	4	3	4	3	3	4	4	5	5	4	5
(iv) ease of access to patients	6	6	6	6	8	8	6	8	8	8	8	8	10	10	8	10
(v) ease of access to medical/clinical equipment	6	6	6	6	8	8	6	8	6	6	8	8	10	10	8	10
(vi) ability to meet infection control requirements	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Ability to support the Service to achieve KPIs	9	18	18	18	18	18	27	9	9	18	9	18	9	45	27	9
Air base proposals	30	24	30	24	30	24	24	30	18	18	18	18	18	18	18	18
Technology proposals	15	15	20	20	20	20	15	20	20	20	20	20	20	20	20	20
Triage & tasking proposals	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Environmental characteristics	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Implementation / transition plans	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Legal & commercial issues	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

# **Appendix 3: Scoring Methodology**

The Benefit Criteria shown in Appendix 2 were weighted as follows.

Air ambulance re-procurement	Score Weighting
Service capability and availability	9
Ability to support clinical requirements (see below)	
(i) ability to accommodate optimum clinical crew numbers, patients and non clinical escorts	2
(ii) ability to transport maternity patients with minimal re rolling aircraft	1
(iii) ability to transport incubators, ECMO equipment etc	1
(iv) ease of access to patients	2
(v) ease of access to medical/clinical equipment	2
(vi) ability to meet infection control requirements	1
Ability to support the Service to achieve KPIs	9
Air base proposals	6
Technology proposals	5
Triage & tasking proposals	6
Environmental characteristics	1
Implementation / transition plans	15
Legal & commercial issues	10

Scores were allocated as follows:

1 = Poor

- 2 = Partially acceptable
- 3 = Acceptable
- 4 = Good
- 5 = Excellent
# Appendix 4: Risk Assessments

Risk Assessment, Option 1, 2 x EC135 + 2 x King Air (existing bases)

P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	1	16	16	Low	Incumbent supplier already has bases established.
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	1	1	1	Very Low	Retention of existing aircraft.
Ρ	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Retention of existing aircraft being refurbished (potential for delay).
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	No changes for staff
Р	HR	Risk that service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol	Risk that adverse publicity	5	16	80	High	No improvement on current level of service to northern isles.
Ρ	Pol	Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	No improvement on current level of service to northern isles.
Р	Pol	Risk that KPIs are not achieved	5	25	125	High	No improvement on current level of service to northern isles.
Р	Tech	Risk that technology enhancements cannot be achieved	4	4	16	Low	Retention of existing aircraft with some minor improvements.
Р	Fin	Risk that option costs in excess of the current budget	5	16	80	High	Interim bids show costs higher than current contract.
Ρ	Supp	Risk that service provider difficulties during project cause delays/changes.	2	9	18	Low	Incumbent supplier so minimal issues expected.
р	Tech	Risk that the helicopters cannot carry the required number of escorts	5	9	45	Moderate	EC135s cannot carry preferred numbers of clinicians/escorts.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	5	16	80	High	EC135s do not provide desired level of access to patient.
Ρ	Tech	Risk that option is not future-proof	5	16	80	High	EC135s do not provide future proofing (capacity, technology - NVIS etc.)
Mediar	n Risk Q	uotient for the Job/Task/Project <sup>7</sup>			18.00	Low	
Mean F	Risk Quo	otient for the Job/Task/Project			40.80		

Risk Assessment, Option 2 - 2 x EC135 (Glasgow & Kirkwall) + 2 x King Air (existing bases)									
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25	Risk Quotient (Likelihoo d x	Risk Rating <sup>6</sup>	Rationale		
D	Teek	Disk that airbases are not available by the convice commencement		) 1		Veryley	Incumbent cumplion already has been actablished		
Г	Tech	date	5	I	3	Very Low	currently lack of detail around proposed Kirkwall base		
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	1	1	1	Very Low	Retention of existing aircraft.		
Ρ	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Retention of existing aircraft being refurbished (potential for delay).		
Ρ	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.		
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.		
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.		
Р	Pol	Risk that adverse publicity	5	16	80	High	Moving helicopter from Inverness to Kirkwall reduces		
							cover from north of Scottish mainland and negatively		
Р	Pol	Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	Stakeholders in north of Scotland likely to object to this		
							proposal.		
Р	Pol		5	25	125	High	Improvement on current level of service to northern isles at		
	Task	Risk that KPIs are not achieved	4	4	40		the expense of response times to mainland missions.		
Р	recn	Dialy that technology enhancements connet be exhibited	4	4	16	LOW	Retention of existing aircraft with some minor		
Р	Fin	Risk that technology enhancements cannot be achieved	5	25	125	High	Interim hids show costs higher than current contract. Cost		
•	• •••	Disk that antion posts in excess of the surront hudget	Ũ	20			premium for Kirkwall base (service provider & SAS).		
Р	Sunn	Risk that service provider difficulties during project cause	2	g	18	Low	Incumbent supplier so minimal issues expected		
•	Capp	delays/changes.	2	0	10	2011			
р	Tech	Risk that the helicopters cannot carry the required number of escorts	5	9	45	Moderate	EC135s cannot carry preferred numbers of clinicians/escorts.		
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	5	16	80	High	EC135s do not provide desired level of access to patient.		
Р	Tech	Risk that option is not future-proof	5	16	80	High	EC135s do not provide future proofing (capacity, technology - NVIS etc.)		
Mediar	n Risk Q	uotient for the Job/Task/Project <sup>7</sup>			45.00	Moderate	, , , , , , , , , , , , , , , , , , ,		
Mean I	Risk Quo	otient for the Job/Task/Project			53.47				
							28		

PfBs   Risk   Risk Description   Likelihood of occurrence to (Scale 1-5)   Risk mapacity   Risk mapacity   Rationale     P   Tech   Risk that airbases are not available by the service commencement def   1   16   Low   Incumbent supplier aircady has bases established.     P   Tech   Risk that airbases are not available by the service commencement def   1   16   Low   Incumbent supplier aircady has bases established.     P   Tech   Risk that any new aircraft required may not be delivered in the aplenet aircraft being relatined, impact of favo favore and favore provide favore provide favore and favore provide favore provide favore and favore provide favore and favore provide favore provide favore and favore provide favore provide favore and favore provide favore and favore provide favore provide favore and favore provide favore provide favore and favore provide favore favor	Risk Ass	essment,	Option 3 - 1 x EC135 (Inverness) 1 x EC145 (Glasgow)	) + 2 x King Air	at existing ba	ses		
P Tech Risk that airbases are not available by the service commencement date 1 16 16 Low Incumbent supplier aireadly has bases established.   P Tech Risk the existing Service standards are affected by introducing different incalt hypes. Three out of four aircraft being retained, change of helicopter type (work) (same manufacture) - minimal issues expected.   P Tech Risk that any new aircraft required may not be delivered in the aparend timescale and timescale. Three out of four aircraft being retained, impact of delay of new paramed timescale.   P HR Risk that any new aircraft required may not be delivered in the aparend timescale. 3 4 12 Low Three out of four aircraft being retained, impact of delay of new EC143 likely to be minimal.   P HR Risk that any new aircraft required may not be delivered in the aparend timescale. 1 1 1 Very Low Not mayes for staff   P HR Risk that service cannot staff changes/HR issues. 1 1 1 Very Low Not relevant to this option.   P HQ Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low Not improvement on current level of service to northem isles.   P Pol Risk that adverse publicity<	P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
P Tech Risk that existing Service standards are affected by introducing 2 1 2 Very Low Three out of four aircraft being retained, change of helicopter type only (same manufacture) - minimal issue sexpected.   P Tech Risk that any new aircraft tequired may not be delivered in the planned timescale 3 4 12 Low Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.   P HR Risk that any new aircraft tequired my not be delivered in the planned timescale 3 4 12 Low Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.   P HR Risk that the option results in major staff changes/HR issues. 1 1 1 Very Low No changes for staff   P HR Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low No trelevant to this option.   P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northern isles.   P Pol Risk that technology enhancements cannot be achieved 5 16 80 Higt No improvement on current level of service to northern isle	Р	Tech	Risk that airbases are not available by the service commencement date	1	16	16	Low	Incumbent supplier already has bases established.
P Tech Risk that any new aircraft required may not be delivered in the planend timescale interaction timescale interactional control four aircraft being retained, impact of delay of new EC145 killed to be minimal.   P HR Risk for reduced pilot availability (exceeding hours/sick/holiday) 3 4 12 Low Paragements.   P HR Risk that the option results in major staff changes/HR issues. 1 1 1 Very Low No changes for staff   P HR Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low No trelevant to this option.   P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northern isles.   P Pol Risk that stakeholder expectations cannot be achieved 5 25 16 80 High No improvement on current level of service to northern isles.   P Pol Risk that stakeholder expectations cannot be achieved 5 25 165 80 High No improvement on current level of service to northern isles.   P Tech Risk that stakeholder expectations cannot be achieved 5 26 16 <td>Р</td> <td>Tech</td> <td>Risk that existing Service standards are affected by introducing different aircraft types.</td> <td>2</td> <td>1</td> <td>2</td> <td>Very Low</td> <td>Three out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.</td>	Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	1	2	Very Low	Three out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.
P HR Risk of reduced pilot availability (exceeding hours/sick/holiday) 3 4 12 Low Possibility assessed in the light of proposed crewing arrangements.   P HR Risk that the option results in major staff changes/HR issues. 1 1 1 Very Low No changes for staff   P HR Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low No trajectorial for proposed crewing arrangements.   P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northern isles.   P Pol Risk that Stakeholder expectations cannot be met or managed. 5 25 125 High No improvement on current level of service to northern isles.   P Pol Risk that KPIs are not achieved 5 25 125 High No improvement on current level of service to northern isles.   P Tech Risk that technology enhancements cannot be achieved 5 16 80 High Incumbrit bids show costs higher than current contract. EC145 will offer some improvement sepacially when based in displaychanges. Pisk that option costs in excess of the current budget 2 <td>Р</td> <td>Tech</td> <td>Risk that any new aircraft required may not be delivered in the planned timescale</td> <td>3</td> <td>4</td> <td>12</td> <td>Low</td> <td>Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.</td>	Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.
P HR Risk that the option results in major staff changes/HR issues. 1 1 1 Very Low No changes for staff   P HR Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low No trelevant to this option.   P Pol Risk that diverse publicity 5 16 80 High No improvement on current level of service to northem isles.   P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northem isles.   P Pol Risk that takeholder expectations cannot be met or managed. 5 25 125 High No improvement on current level of service to northem isles.   P Tech Risk that technology enhancements cannot be achieved 5 25 16 80 High Interim bids show costs higher than current contract. EC145 will offer some improvements.   P Fine Risk that technology enhancements cannot be achieved 2 9 18 Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fine Risk that technology enhancements cannot be achieved 2 <td>Р</td> <td>HR</td> <td>Risk of reduced pilot availability (exceeding hours/sick/holiday)</td> <td>3</td> <td>4</td> <td>12</td> <td>Low</td> <td>Possibility assessed in the light of proposed crewing arrangements.</td>	Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
P HR Pol Risk that Service cannot staff remotely based aircraft 1 1 1 Very Low Not relevant to this option.   P Pol Risk that adverse publicity 5 16 80 High No improvement on current level of service to northem isles.   P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northem isles.   P Pol Risk that KPIs are not achieved 5 25 125 High No improvement on current level of service to northem isles.   P Fin Risk that technology enhancements cannot be achieved 5 16 80 High No improvements.   P Fin Risk that technology enhancements cannot be achieved 5 16 80 High No improvements.   P Fin Risk that technology enhancements cannot be achieved 5 16 80 High No improvements.   P Fin Risk that technology enhancements cannot be achieved 2 9 18 Low Interim bids show costs higher than current contract. EC145 will provement sepecially when based in Glasgow (for refrieval team	Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	No changes for staff
P Pol Risk that adverse publicity 5 16 80 High No improvement on current level of service to northem isles.   P Pol <risk be="" cannot="" expectations="" managed.<="" met="" or="" stakeholder="" th="" that=""> 5 9 45 Moderate No improvement on current level of service to northem isles.   P Pol<risk be="" cannot="" expectations="" managed.<="" met="" or="" tastakeholder="" th="" that=""> 5 25 125 High No improvement on current level of service to northem isles.   P Tech Risk that technology enhancements cannot be achieved 5 25 16 80 High Pile No improvement on current level of service to northem isles.   P Tech Risk that technology enhancements cannot be achieved 5 16 80 High Pile No improvements.   P Fin Risk that technology enhancements cannot be achieved 5 16 80 High Pile No improvements.   P Supp Risk that advice provider difficulties during project cause 2 9 18 Low EC145 would give an improvement especially when based in Glasgo (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/ecorts. EC145 would give an improvement especially when based in Glasgo (for retrieval teams). EC135 does not provide desired level of access to patient. EC145 wou</risk></risk>	Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
P Pol Risk that stakeholder expectations cannot be met or managed. 5 9 45 Moderate No improvement on current level of service to northern isles.   P Pol Risk that KPIs are not achieved 5 25 125 High No improvement on current level of service to northern isles.   P Tech Risk that KPIs are not achieved 5 25 125 High No improvement on current level of service to northern isles.   P Tech Risk that technology enhancements cannot be achieved 5 16 80 High Interim bids show costs higher than current contract. EC145 will offer some improvements.   P Fin Risk that option costs in excess of the current budget 5 16 80 High Interim bids show costs higher than current contract. EC145 will offer some ignovements.   P Supp Risk that echnology enhancements cannot carry the required number of escores 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retriveal teams). EC135 cannot carry preferred numbers of clinicians/escorts. EC145 wull give an improvement especially when based in Glasgow (for retriveal teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech Risk that option is not future-proof <td>Р</td> <td>Pol</td> <td>Pick that adverse publicity</td> <td>5</td> <td>16</td> <td>80</td> <td>High</td> <td>No improvement on current level of service to northern isles.</td>	Р	Pol	Pick that adverse publicity	5	16	80	High	No improvement on current level of service to northern isles.
P Pol median Risk Quotient for the Job/Task/Project Risk that KPIs are not achieved 5 25 125 High Might No improvement on current level of service to northern isles.   P Tech Risk that technology enhancements cannot be achieved 3 4 12 Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Risk that technology enhancements cannot be achieved 5 16 80 High Interim bids show costs higher than current contract. EC145 represents significant additional cost.   P Supp Risk that technology enhancements cannot carry the required number of ealary/changes. 2 9 18 Low Interim bids show costs higher than current contract. EC145 represents significant additional cost.   P Tech Risk that the helicopters cannot carry the required number of easorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide deired level of access to patient. EC145 will prov	Р	Pol	Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	No improvement on current level of service to northern isles.
P Tech 3 4 12 Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Risk that potion costs in excess of the current budget 5 16 80 High Interim bids show costs higher than current contract. EC145 million a cost.   P Supp Risk that potion costs in excess of the current budget 2 9 18 Low Interim bids show costs higher than current contract. EC145 million a cost.   P Supp Risk that service provider difficulties during project cause delays/changes. 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/secorts.   P Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.   P Tech Risk that option is not future-proof 4 16 64 High EC145 will give an improvement especially, but this will not be available from the start of the contract. EC135 does not provide desired level of access to patient.   P Tech Risk that option is not future-proof <td>Р</td> <td>Pol</td> <td>Risk that KPIs are not achieved</td> <td>5</td> <td>25</td> <td>125</td> <td>High</td> <td>No improvement on current level of service to northern isles.</td>	Р	Pol	Risk that KPIs are not achieved	5	25	125	High	No improvement on current level of service to northern isles.
P Fin	Р	Tech	Risk that technology enhancements cannot be achieved	3	4	12	Low	Retention of most of existing aircraft but EC145 will offer some improvements.
P Supp delays/changes. Risk that service provider difficulties during project cause delays/changes. 2 9 18 Low Incumberts supplier so minimal issues expected.   P Tech escorts Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech patient in helicopters Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 4 16 64 High   P Tech Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)   Median Risk Quotient for the Job/Task/Project7 18.00 Low	Р	Fin	Rick that option costs in excess of the current hudget	5	16	80	High	Interim bids show costs higher than current contract. EC145
P Tech Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   P Tech Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)   Median Risk Quotient for the Job/Task/Project7 18.00 Low   Mean Risk Quotient for the Job/Task/Project 34.53	Р	Supp	Risk that service provider difficulties during project cause	2	9	18	Low	Incumbent supplier so minimal issues expected.
P Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.   P Tech Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)   Median Risk Quotient for the Job/Task/Project <sup>7</sup> 18.00 Low   Mean Risk Quotient for the Job/Task/Project 34.53	Ρ	Tech	Risk that the helicopters cannot carry the required number of escorts	2	9	18	Low	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.
P Tech Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)   Median Risk Quotient for the Job/Task/Project <sup>7</sup> 18.00 Low   Mean Risk Quotient for the Job/Task/Project 34.53	Ρ	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.
Median Risk Quotient for the Job/Task/Project 18.00 Low   Mean Risk Quotient for the Job/Task/Project 34.53	Ρ	Tech	Risk that option is not future-proof	4	16	64	High	EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)
Mean Risk Quotient for the Job/Task/Project 34.53	Median R	Iedian Risk Quotient for the Job/Task/Project <sup>7</sup>						
	Mean Ris	k Quotien	t for the Job/Task/Project			34.53		

Risk Ass	sessment,	Option 4 - 1 x EC135 (Kirkwall) 1 x EC145 (Glasgo	w) + 2 x King Air	(existing bases)	1		
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	3	1	3	Very Low	Incumbent supplier already has bases established.
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	1	2	Very Low	Three out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.
Р	Pol	Disk that advance in hills it.	5	16	80	High	Moving helicopter from Inverness to Kirkwall reduces cover from north of Scottish mainland and negatively impacts on
Р	Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	timescales. Stakeholders in north of Scotland likely to object to this proposal
Р	Pol	Dial, that I/DIa are not achieved	5	25	125	High	Improvement on current level of service to northern isles at the
Р	Tech		3	4	12	Low	Retention of most of existing aircraft but EC145 will offer some
Р	Fin	Risk that technology enhancements cannot be achieved	5	25	125	High	Improvements. Interim bids show costs higher than current contract. EC145s
		Risk that option costs in excess of the current budget					represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS).
Р	Supp	Risk that service provider difficulties during project cause delays/changes.	2	9	18	Low	Incumbent supplier so minimal issues expected.
р	Tech	Risk that the helicopters cannot carry the required number of escorts	2	9	18	Low	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient
Ρ	Supp	Risk that option is not future-proof	4	16	64	High	EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)
Median I	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			32.00	Moderate	
Mean Ri	sk Quotien	t for the Job/Task/Project			47.20		
							30

Risk Asse	ssment,	Option 5 - 2 x EC145 + 2 x King Air (existing bases	5)				
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating⁰	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	1	16	16	Low	Incumbent supplier already has bases established.
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	1	2	Very Low	Two out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Two out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	No changes for staff
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol		5	16	80	High	No significant improvement on current level of service to
Ρ	Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	northern isles. No significant improvement on current level of service to northern isles.
Р	Pol		5	25	125	High	No significant improvement on current level of service to
р	Tech	Risk that KPIs are not achieved	3	4	12	Low	northern isles. EC145s will offer some improvements following introduction.
P	Fin	Risk that technology enhancements cannot be achieved	5	25	125	High	Interim bids show costs higher than current contract. EC145s represent significant additional cost.
Р	Supp	Risk that option costs in excess of the current budget Risk that service provider difficulties during project cause delays/changes.	2	9	18	Low	Incumbent supplier so minimal issues expected.
р	Tech	Risk that the helicopters cannot carry the required number of escorts	2	1	2	Very Low	EC145s would give an improvement following introduction.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	1	2	Very Low	EC145s would give an improvement following introduction.
Ρ	Supp	Risk that option is not future-proof	1	1	1	Very Low	EC145 will provide greater capability, although not be available from the start of the contract. (Night HEMS may not be approved in this timescale anyway.)
Median Risk Quotient for the Job/Task/Project <sup>7</sup>						Low	
Mean Risl	Quotien	t for the Job/Task/Project			30.27		

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Risk Assessment,		Option 6 - 2 x EC145 (Kirkwall & Glasgow) + 2 x Ki	Option 6 - 2 x EC145 (Kirkwall & Glasgow) + 2 x King Air (existing bases)									
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rational					
Р	Tech	Risk that airbases are not available by the service commencement date	3	1	3	Very Low	Incumbent supplier already has bases established, currently lack of detail around proposed Kirkwall base.					
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	1	2	Very Low	Two out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.					
Ρ	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Two out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.					
Ρ	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.					
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.					
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.					
Р	Pol	Diele that advance publicity	5	16	80	High	Moving helicopter from Inverness to Kirkwall reduces cover from north of Scottish mainland and negatively impacts on					
Р	Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	timescales. Stakeholders in north of Scotland likely to object to this proposal.					
Р	Pol	Risk that KPIs are not achieved	5	25	125	High	Improvement on current level of service to northern isles at the expense of response times to mainland missions.					
Р	Tech	Risk that technology enhancements cannot be achieved	3	4	12	Low	EC145s will offer some improvements following introduction.					
Р	Fin		5	25	125	High	Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall					
Ρ	Supp	Risk that option costs in excess of the current budget Risk that service provider difficulties during project cause delays/changes	2	9	18	Low	base (service provider & SAS). Incumbent supplier so minimal issues expected.					
р	Tech	Risk that the helicopters cannot carry the required number of escorts	2	1	2	Very Low	EC145s would give an improvement following introduction.					
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	1	2	Very Low	EC145s would give an improvement following introduction.					
Ρ	Supp	Risk that option is not future-proof	1	1	1	Very Low	EC145 will provide greater capability, although not be available from the start of the contract. (Night HEMS may not be approved in this timescale anyway.)					
Median Ri	isk Quotie	ent for the Job/Task/Project <sup>7</sup>			12.00	Low						
Mean Risl	<pre>c Quotien</pre>	t for the Job/Task/Project			39.93							

PIB Risk Risk Description Likelihood of (Scale 1-5) Magnitude of (Scale 1-5) Risk (Scale 1-5) Risk (Likelihood x Impact)* Rational   P Tech Risk that airbases are not available by the service commencement date 3 1 3 Very Low (Incumbent suppler aiready has bases established, currently lack of detail around proposed (Kiwall base. 1 3 Very Low (Very Low) Incumbent suppler aiready has bases established, currently lack of detail around proposed (Kiwall base.   P Tech Risk that airbases are not available by the service commencement date 3 1 3 Very Low (Very Low) Incumbent suppler aiready has bases established, currently lack of detail around proposed (Kiwall base.   P Tech Risk that airpose standards are affected by introducing different aircraft types. 5 16 80 High Significant issues for Service staff.   P HR Risk that the option results in major staff changes/HR issues. 5 16 80 High Significant issues for Service staff.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low No adverse publicity expected.   P Pol Risk that technology enhancements cannot be achieved 1 1 <t< th=""><th colspan="2">Risk Assessment,</th><th colspan="11">Option 7 - 1 x EC145 (Glasgow) 1 x EC135 (Inverness) 1 x EC135 (Kirkwall) + 1 x King Air (Glasgow)</th></t<>	Risk Assessment,		Option 7 - 1 x EC145 (Glasgow) 1 x EC135 (Inverness) 1 x EC135 (Kirkwall) + 1 x King Air (Glasgow)										
P Tech Risk that alrbases are not available by the service commencement date	P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rational					
P Tech Risk that existing Services standards are affected by introducing different arizer at being retained, change of helicopter planned timescale 1 3 Very Low Three out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.   P Risk that any new aircraft required may not be delivered in the planned timescale 3 4 12 Low Three out of four aircraft being retained, impact of delay of new EC 143 likely to be minimal.   P HR Risk that any new aircraft required may not be delivered in the planned timescale 5 16 80 High Significant issues for Service staff.   P HR Risk that extensing arrangements. 5 16 80 High Major challenges in recruiting staff in Kirkwall.   P Pd Risk that extensing expected. 1 1 1 Very Low No adverse publicity expected.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 12 Low Represented astacholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.   P Pol Risk that technology enhancements cannot be achieved 1 1 12 Low Represented astacholder expectation for nos	Р	Tech	Risk that airbases are not available by the service commencement date	3	1	3	Very Low	Incumbent supplier already has bases established, currently lack of detail around proposed Kirkwall base.					
P Tech planed timescale Risk that any new aircraft required may not be delivered in the planed timescale 3 4 12 Low new EC145 likely to be minimal.   P HR Risk of reduced pilot availability (exceeding hours/sick/holiday) 2 4 8 Low new EC145 likely to be minimal.   P HR Risk that exprise cannot staff remotely based aircraft 5 16 80 High Significant issues for Service staff.   P Pd Risk that steves publicity 1 1 1 Very Low arrangements. No adverse publicity expected.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low Shelland stakeholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.   P Pol Risk that Stakeholder expectations cannot be met or managed. 2 25 25 Usw Relention of moust of existing aircraft but EC145 will offer some improvements.   P Pol Risk that technology enhancements cannot be achieved 5 25 25 High base (service provider & SAS). This option has not been improvement. Neetherion of moust as interast readitional distinct additional cost. Cost premium for Kirkwall base (service provider difficuities during project cause	Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	3	1	3	Very Low	Three out of four aircraft being retained, change of helicopter type only (same manufacturer) - minimal issues expected.					
P HR Risk of reduced pilot availability (exceeding hours/sick/holiday) 2 4 8 Low Possibility assessed in the light of proposed crewing arrangements.   P HR Risk that the option results in major staff changes/HR issues. 5 16 80 High Significant issues for Service staff.   P HR Risk that Service cannot staff remotely based aircraft 5 16 80 High Major challenges in recruiting staff in Kirkwall.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low No adverse publicity expected.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low Shelland stakeholders may be concerned about removal of Abordeen King Air, reduced capacity for out of area transfers.   P Pol Risk that technology enhancements cannot be achieved 1 1 1 Very Low Shelland stakeholders may be concerned. Start Risk Wail of proposed crewing arrangements.   P Fin Risk that technology enhancements cannot be achieved 1 1 1 Low Interim bids show costs higher than current contract. EC145 will offer some improvements.   P	Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Three out of four aircraft being retained, impact of delay of new EC145 likely to be minimal.					
P HR Risk that the option results in major staff changes/HR issues. 5 16 80 High High High Pol Significant issues for Service staff.   P Pol Risk that Service cannot staff remotely based aircraft 5 16 80 High High High Significant issues for Service staff.   P Pol Risk that deverse publicity Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low Low Neadware publicity Risk that stakeholder expectations cannot be met or managed. 1 1 1 Very Low No adverse publicity Risk that KPIs are not achieved 1 1 1 Very Low Expect to meet KPIs from this option.   P Pol Risk that KPIs are not achieved 1 1 1 Very Low Expect to meet KPIs from this option.   P Fin Risk that technology enhancements cannot be achieved 3 4 12 Low Retention of most of existing aircraft but EC145 will offer some improvements. Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Fin Risk that aption costs in excess of the current budget Risk that associate provider difficulties duing project cause 2 9 18 <t< td=""><td>Р</td><td>HR</td><td>Risk of reduced pilot availability (exceeding hours/sick/holiday)</td><td>2</td><td>4</td><td>8</td><td>Low</td><td>Possibility assessed in the light of proposed crewing arrangements.</td></t<>	Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	2	4	8	Low	Possibility assessed in the light of proposed crewing arrangements.					
P HR Risk that Service cannot staff remotely based aircraft 5 16 80 High Major challenges in recruiting staff in Kirkwall.   P Pol Risk that adverse publicity 1 1 1 Very Low No adverse publicity expected.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low Shetland stakeholders may be concerned about removal of Abordeen King Air, reduced capacity for out of area transfers.   P Pol Risk that KPIs are not achieved 1 1 1 Very Low Expect to meet KPIs from this option.   P Tech Risk that technology enhancements cannot be achieved 3 4 12 Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Fin Fin 5 25 125 High Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so come assumptions about costs have been made. Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so come assumptions about costs have been made. Interim bids show co	Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.					
P Pol Risk that adverse publicity 1 1 1 Very Low No adverse publicity expected.   P Pol Risk that stakeholder expectations cannot be met or managed. 2 4 8 Low Sheland stakeholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.   P Pol Risk that KPIs are not achieved 1 1 1 Very Low Sepact to meet KPIs from this option.   P Pol Risk that technology enhancements cannot be achieved 1 1 1 Very Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Fin 5 25 125 High Interim bids solvo costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by costs and expected.   P Supp Risk that option costs in excess of the current budget 2 9 18 Low Incumbent supplier so minimal issues expected.   P Supp Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry pref	Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.					
PPolRisk that stakeholder expectations cannot be met or managed.248LowShetland stakeholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.PPolRisk that KPIs are not achieved111Very LowExpect to meet KPIs from this option.PTechRisk that technology enhancements cannot be achieved3412LowRetention of most of existing aircraft but EC145 will offer some improvements.PFinFinSuppRisk that technology enhancements cannot be achieved525125HighInterim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kinwall base (service provider & SAS). This option have been made.PSuppRisk that service provider difficulties during project cause escorts2918LowEC145 would give an improvement especially when based in Glagow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.pTechRisk that clinicians are unable to effectively access the whole patient in helicopters21632Moderate EC145 would give an improvement especially when based in Glagow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.pTechRisk that clinicians are unable to effectively access the whole patient in helicopters21632Moderate ec145 would give an improvement especially when based in Glagow (for retrieval teams). EC135 does not provide desired level of access to patient.P </td <td>Р</td> <td>Pol</td> <td>Risk that adverse publicity</td> <td>1</td> <td>1</td> <td>1</td> <td>Very Low</td> <td>No adverse publicity expected.</td>	Р	Pol	Risk that adverse publicity	1	1	1	Very Low	No adverse publicity expected.					
P Pol Tech Risk that KPIs are not achieved 1 1 1 Very Low Expect to meet KPIs from this option.   P Tech Risk that technology enhancements cannot be achieved 3 4 12 Low Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin Fin Fis Support the provider of the current budget 5 25 125 High Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so some assumptions about costs have been made.   P Supp Risk that perior provider difficulties during project cause delays/changes. 2 9 18 Low Incumbent supplier so minimal issues expected.   p Tech Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low Incumbent supplier so minimal issues expected.   p Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.   P Supp Risk that option is no	Р	Pol	Risk that stakeholder expectations cannot be met or managed.	2	4	8	Low	Shetland stakeholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.					
P Tech Risk that technology enhancements cannot be achieved 3 4 12 Low Improvements. Retention of most of existing aircraft but EC145 will offer some improvements.   P Fin 5 25 125 High P Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so some assumptions about costs have been made.   P Supp P Risk that service provider difficulties during project cause delays/changes. 2 9 18 Low EC145 wull give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   p Tech P Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate P EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 coannot carry preferred numbers of clinicians/escorts.   p Tech patient in helicopters Risk that option is not future-proof 4 16 64 High P EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 coes not provide esired level of access to patient.	Р	Pol	Risk that KPIs are not achieved	1	1	1	Very Low	Expect to meet KPIs from this option.					
P Fin 5 25 125 High Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so some assumptions about costs have been made.   P Supp Risk that option costs in excess of the current budget 2 9 18 Low Incerime to supplier so minimal issues expected.   p Tech Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low Incumbert supplier so minimal issues expected.   p Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate   P Supp Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be	Ρ	Tech	Risk that technology enhancements cannot be achieved	3	4	12	Low	Retention of most of existing aircraft but EC145 will offer some improvements					
P Supp delays/changes. Risk that service provider difficulties during project cause delays/changes. 2 9 18 Low Incumbent supplier so minimal issues expected.   p Tech Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   p Tech Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.   P Supp Risk that option is not future-proof 4 16 64 High	Ρ	Fin		5	25	125	High	Interim bids show costs higher than current contract. EC145s represent significant additional cost. Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so some assumptions about costs have been made					
P Supp delays/changes. Risk that service provider difficulties during project cause delays/changes. 2 9 18 Low Incumbent supplier so minimal issues expected.   p Tech escorts Risk that the helicopters cannot carry the required number of escorts 2 9 18 Low EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.   p Tech patient in helicopters Risk that clinicians are unable to effectively access the whole patient in helicopters 2 16 32 Moderate EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.   P Supp Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be	_	-	Risk that option costs in excess of the current budget										
pTechRisk that the helicopters cannot carry the required number of escorts2918LowEC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.pTechRisk that clinicians are unable to effectively access the whole patient in helicopters21632ModerateEC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.PSuppRisk that option is not future-proof41664High	Р	Supp	Risk that service provider difficulties during project cause delays/changes.	2	9	18	Low	Incumbent supplier so minimal issues expected.					
pTechRisk that clinicians are unable to effectively access the whole21632ModerateEC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.PSuppRisk that option is not future-proof41664HighEC145 will provide greater capability, but this will not be	р	Tech	Risk that the helicopters cannot carry the required number of escorts	2	9	18	Low	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.					
P Supp Risk that option is not future-proof 4 16 64 High EC145 will provide greater capability, but this will not be	р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.					
available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)	Р	Supp	Risk that option is not future-proof	4	16	64	High	EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)					
Median Risk Quotient for the Job/Task/Project <sup>7</sup>	Median F	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			12.00	Low						
Mean Risk Quotient for the Job/Task/Project 31.00	Mean Ris	k Quotien	t for the Job/Task/Project			31.00							

Risk Asse Scotland	essment, activity	Option 8 - 1 x EC145 (Glasgow) 1 x EC135 (Inverne	ess) + 1 x King A	.ir (Glasgow) + a	d hoc King Air fo	or out of	
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	1	16	16	Low	Incumbent supplier already has bases established.
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	5	25	125	High	Reducing core service to three aircraft rather than four, with reliance on ad hoc arrangement for out of area transfers.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	4	12	Low	Two out of three aircraft being retained, impact of delay of new EC145 likely to be minimal.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	No changes for staff
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol		5	16	80	High	Significant adverse publicity likely due to reduction in core
		Risk that adverse publicity					service.
P	Pol	Risk that stakeholder expectations cannot be met or managed.	5	16	80	High	Stakeholders likely to find this unacceptable.
Р	Pol	Risk that KPIs are not achieved	5	25	125	High	KPIs will not be met with reduced capacity of service.
Р	Tech	Disk that to should be an explored and the section of	3	4	12	Low	Retention of two of existing aircraft but EC145 will offer some
Р	Fin	Risk that technology enhancements cannot be achieved	1	4	4	Very Low	Improvements. Interim bids do not include this option, assumptions made that
							reducing core service would bring cost under budget. Cost of
<b>D</b>	0	Risk that option costs in excess of the current budget	0	0	40		ad hoc service would have to added.
٢	Supp	delays/changes.	2	9	18	LOW	incumbent supplier so minimal issues expected.
р	Tech	Risk that the helicopters cannot carry the required number of escorts	2	9	18	Low	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 cannot carry preferred numbers of clinicians/escorts.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	EC145 would give an improvement especially when based in Glasgow (for retrieval teams). EC135 does not provide desired level of access to patient.
Р	Supp	Risk that option is not future-proof	4	16	64	High	EC145 will provide greater capability, but this will not be available from the start of the contract. EC135s do not provide future proofing (capacity, technology - NVIS etc.)
Median R	isk Quotie	ent for the Job/Task/Project <sup>7</sup>	18.00	Low			
Mean Ris	k Quotien	t for the Job/Task/Project	40.00				

Risk Ass	sessment,	Option 1 - 2 x MD902 + 2 x King Air (existing bases	locations)				
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	2	4	8	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	Minimal changes for staff
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol		5	16	80	High	No improvement on current level of service to northern isles.
P P	Pol Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5 5	9 25	45 125	Moderate High	No improvement on current level of service to northern isles. No improvement on current level of service to northern isles.
		Risk that KPIs are not achieved					
Р	Tech	Risk that technology enhancements cannot be achieved	4	4	16	Low	MD902s will offer some improvements.
Р	Fin		5	16	80	High	Interim bids show costs higher than current contract.
		Risk that option costs in excess of the current budget					
Р	Supp	Risk that service provider difficulties during project cause delays/changes.	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider & SAS).
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	3	16	48	Moderate	MD902s provide improved access to the patient.
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS etc.
Median I	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			27.00	Moderate	-
Mean Ri	sk Quotien	t for the Job/Task/Project			36.20		

Risk Asse	essment,	Option 2 - 2 x MD902 (Glasgow & Kirkwall) + 2 x Ki	ng Air (existing	bases)			
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	2	4	8	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.
Ρ	Pol		5	16	80	High	Moving helicopter from Inverness to Kirkwall reduces cover from north of Scottish mainland and negatively impacts on timescales.
Р	Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	Stakeholders in north of Scotland likely to object to this proposal.
Р	Pol	Risk that KPIs are not achieved	5	25	125	High	Improvement on current level of service to northern isles at the expense of response times to mainland missions.
Р	Tech	Risk that technology enhancements cannot be achieved	4	4	16	Low	MD902s will offer some improvements.
Р	Fin		5	25	125	High	Interim bids show costs higher than current contract. Cost premium for Kirkwall base (service provider & SAS).
Ρ	Supp	Risk that option costs in excess of the current budget Risk that service provider difficulties during project cause delays/changes	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider &
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	3	16	48	Moderate	MD902s provide improved access to the patient.
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS etc.
Median R	isk Quoti	ent for the Job/Task/Project <sup>7</sup>			45.00	Moderate	
Mean Ris	k Quotien	t for the Job/Task/Project			49.73		

Risk Ass	essment,	Option 3 - 1 x MD902 (Inverness) 1 x AW139 (Glasg	ow) + 2 x King A	ir (existing base	s)		
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rational
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	Minimal changes for staff
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol	Pick that adverse publicity	5	16	80	High	No improvement on current level of service to northern isles.
Р	Pol	Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	No improvement on current level of service to northern isles.
P	Pol		5	25	125	High	No improvement on current level of service to northern isles.
		Risk that KPIs are not achieved	-				(AW139 only circa 15% faster than existing aircraft.)
Р	Tech	Disk that technology anhancements cannot be achieved	3	4	12	Low	MD902s will offer some improvements. AW139 has de-icing capability.
Р	Fin		5	25	125	High	Interim bids show costs higher than current contract. AW139 represents a significant additional cost (2 pilots, fuel burn, additional landing charges, purchase price).
Ρ	Supp	Risk that option costs in excess of the current budget Risk that service provider difficulties during project cause delays/changes.	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider & SAS).
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat. AW319 largest helicopter offered.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	MD902s provide improved access to the patient. AW139 would offer all round patient access.
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.
Median F	Median Risk Quotient for the Job/Task/Project <sup>7</sup>				27.00	Moderate	
Mean Ris	k Quotien	t for the Job/Task/Project			38.13		-

<b>Risk As</b>	sessment,	Option 4 - 1 x MD902 (Kirkwall) 1 x AW139 (Glasgo	w) + 2 x King Air	(existing bases)	)		
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact)⁵	Risk Rating⁵	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.
Р	Pol		5	16	80	High	Moving helicopter from Inverness to Kirkwall reduces cover from north of Scottish mainland and negatively impacts on
Р	Pol	Risk that adverse publicity Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	timescales. Stakeholders in north of Scotland likely to object to this
р	Pol		5	25	105	High	proposal.
Г	FUI	Risk that KPIs are not achieved	5	25	125		expense of response times to mainland missions.
Р	Tech	Dist that to she do no sub-second source the solution of	3	4	12	Low	MD902s will offer some improvements. AW139 has de-icing
Р	Fin	Risk that technology enhancements cannot be achieved	5	25	125	High	Interim bids show costs higher than current contract. Cost
				-	-	, v	premium for Kirkwall base (service provider & SAS). AW139 represents a significant additional cost (2 pilots, fuel burn,
в	Sunn	Risk that option costs in excess of the current budget	2	0	97	Mederate	additional landing charges, purchase price).
P	Supp	delays/changes.	3	9	21	woderate	SAS).
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat. AW319 largest helicopter offered.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	2	16	32	Moderate	MD902s provide improved access to the patient. AW139 would offer all round patient access.
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.
Median	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			32.00	Moderate	
Mean Ri	sk Quotier	t for the Job/Task/Project			48.67		-

1131 A330	, someni,						
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rationale
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	Minimal changes for staff
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.
Р	Pol	Risk that adverse publicity	5	9	45	Moderate	No improvement on current level of service to northern isles.
Р	Pol	Risk that stakeholder expectations cannot be met or managed.	5	9	45	Moderate	No improvement on current level of service to northern isles.
Р	Pol	Dialy that KDIs are not exhibited	5	25	125	High	No improvement on current level of service to northern isles. (AW139 only circa 15% faster than existing aircraft.)
Р	Tech	Risk that technology ophonoments connet to achieved	2	4	8	Low	AW139 has de-icing capability and offers other improvements.
Ρ	Fin	Risk that technology enhancements cannot be achieved	5	25	125	High	Interim bids show costs higher than current contract. 2 x AW139 represent a very significant additional cost (2 pilots, fuel burn, additional landing charges, purchase price)
Р	Supp	Risk that option costs in excess of the current budget Risk that service provider difficulties during project cause	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider &
		delays/changes.					SAS).
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	AW319 largest helicopter offered.
р	Tech	Risk that clinicians are unable to effectively access the whole patient in belicopters	1	1	1	Very Low	AW139 would offer all round patient access.
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.
Median R	isk Quotie	ent for the Job/Task/Project <sup>7</sup>			12.00	Low	
Mean Ris	k Quotien	t for the Job/Task/Project			33.47		

# Risk Assessment, Option 5 - 2 x AW139 + 2 x King Air all (existing bases)

Risk Assessment,		Option 6 - 2 x AW139 (Kirkwall & Glasgow) + 2 x King Air (existing bases)											
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rational						
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.						
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	2	4	8	Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.						
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.						
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.						
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.						
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.						
Р	Pol	Risk that adverse publicity	1	1	1	Very Low	Minimal issues expected.						
Р	Pol	Risk that stakeholder expectations cannot be met or managed.	1	1	1	Very Low	Minimal issues expected.						
Р	Pol	Risk that KPIs are not achieved	1	1	1	Very Low	Expect KPIs would be met.						
Р	Tech	Risk that technology enhancements cannot be achieved	2	4	8	Low	AW139 has de-icing capability and some other improvements.						
Ρ	Fin	Risk that option costs in excess of the current budget	5	25	125	High	Interim bids show costs higher than current contract. Cost premium for Kirkwall base (service provider & SAS). 2 x AW139 represent a very significant additional cost (2 pilots, fuel burn, additional landing charges, purchase price).						
Ρ	Supp	Risk that service provider difficulties during project cause delays/changes.	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider & SAS).						
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	AW319 largest helicopter offered.						
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	1	1	1	Very Low	AW139 would offer all round patient access.						
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.						
Median I	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			8.00	Low							
Mean Ri	sk Quotien	t for the Job/Task/Project			29.87								

Risk Assessment,		Option 7 - 1 x AW139 (Glasgow) 1 x MD902 (Inverness) 1 x MD902 (Kirkwall) + 1 x King Air (Glasgow)											
P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating <sup>6</sup>	Rational						
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.						
Р	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	3	1	3	Very Low	Fixed wing same as existing. Proposed helicopters not expected to present any risk to service standards.						
Р	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.						
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.						
Р	HR	Risk that the option results in major staff changes/HR issues.	5	16	80	High	Significant issues for Service staff.						
Р	HR	Risk that Service cannot staff remotely based aircraft	5	16	80	High	Major challenges in recruiting staff in Kirkwall.						
Р	Pol	Risk that adverse publicity	1	1	1	Very Low	No adverse publicity expected.						
Р	Pol	Risk that stakeholder expectations cannot be met or managed.	2	4	8	Low	Shetland stakeholders may be concerned about removal of Aberdeen King Air, reduced capacity for out of area transfers.						
Р	Pol	Risk that KPIs are not achieved	1	1	1	Very Low	Expect to meet KPIs from this option.						
Р	Tech	Risk that technology enhancements cannot be achieved	3	4	12	Low	Aircraft mix provides enhanced capabilities.						
Ρ	Fin	Risk that option costs in excess of the current budget	5	25	125	High	Interim bids show costs higher than current contract. Cost premium for Kirkwall base (service provider & SAS). AW139 represents a significant additional cost (2 pilots, fuel burn, additional landing charges, purchase price). Cost premium for Kirkwall base (service provider & SAS). This option has not been offered by so some assumptions about costs have been made.						
Р	Supp	Risk that service provider difficulties during project cause delays/changes.	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider & SAS).						
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat. AW319 largest helicopter offered.						
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	1	1	1	Very Low	MD902s provide improved access to the patient. AW139 would offer all round patient access.						
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.						
Median R	lisk Quotie	ent for the Job/Task/Project <sup>7</sup>			12.00	Low							
Mean Ris	k Quotien	t for the Job/Task/Project			30.27								

P/B Risk <sup>1</sup>	Risk Cat <sup>2</sup>	Risk Description	Likelihood of Occurence <sup>3</sup> (Scale 1-5)	Magnitude of Impact <sup>4</sup> (Scale 1,4,9,16,25)	Risk Quotient (Likelihood x Impact) <sup>5</sup>	Risk Rating⁵	Rationale					
Р	Tech	Risk that airbases are not available by the service commencement date	3	25	75	High	New bases required. Minimal information provided to date.					
Ρ	Tech	Risk that existing Service standards are affected by introducing different aircraft types.	5	25	125	High	Reducing core service to three aircraft rather than four, with reliance on ad hoc arrangement for out of area transfers.					
Ρ	Tech	Risk that any new aircraft required may not be delivered in the planned timescale	3	9	27	Moderate	All aircraft to be acquired.					
Р	HR	Risk of reduced pilot availability (exceeding hours/sick/holiday)	3	4	12	Low	Possibility assessed in the light of proposed crewing arrangements.					
Р	HR	Risk that the option results in major staff changes/HR issues.	1	1	1	Very Low	No changes for staff					
Р	HR	Risk that Service cannot staff remotely based aircraft	1	1	1	Very Low	Not relevant to this option.					
Ρ	Pol	Risk that adverse publicity	5	16	80	High	Significant adverse publicity likely due to reduction in core service.					
P P	Pol Pol	Risk that stakeholder expectations cannot be met or managed. Risk that KPIs are not achieved	5 5	16 25	80 125	High High	Stakeholders likely to find this unacceptable. KPIs will not be met with reduced capacity of service.					
Р	Tech	Risk that technology enhancements cannot be achieved	3	4	12	Low	Aircraft mix provides enhanced capabilities.					
Ρ	Fin	Risk that option costs in excess of the current budget	5	16	80	High	Interim bids do not include this option, assumptions made that reducing core service would bring cost under budget. Cost of ad hoc service would have to added.					
Ρ	Supp	Risk that service provider difficulties during project cause delays/changes.	3	9	27	Moderate	Transition will involve TUPE, staff training (service provider & SAS).					
р	Tech	Risk that the helicopters cannot carry the required number of escorts	1	1	1	Very Low	MD902s provide an additional seat. AW319 largest helicopter offered.					
р	Tech	Risk that clinicians are unable to effectively access the whole patient in helicopters	1	1	1	Very Low	MD902s provide improved access to the patient. AW139 would offer all round patient access.					
Р	Supp	Risk that option is not future-proof	1	1	1	Very Low	This option would provide future proofing re capacity, potential for night HEMS, de-icing capability etc.					
Median F	Risk Quoti	ent for the Job/Task/Project <sup>7</sup>			27.00	Moderate						
Mean Ris	sk Quotien	t for the Job/Task/Proiect			43.20							

#### Appendix B in Air Ambulance Procurement Full Business Case Air Ambulance Contract 2013/14 to 2019/20 Full Cost of all Options

			Economic Analysis		Affordability	Revenue	costs by y	r				_							
			Fauivalent		Average			1	2	3	4	5	6	7	8	9	10	11	12
Short description also worksheet name	Full description	rank	Annual Charge	Points	Annual Revenue														
-			£000		(£) £000	2011/12 £000	2012/13 £000	2013/14 £000	2014/15 £000	2015/16 £000	2016/17 £000	2017/18 £000	2018/19 £000	2019/20 £000	2020/21 £000	2021/22 £000	2022/23 £000	2023/24 £000	2024/25 £000
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#### Appendix C1 – Air Ambulance Cover for Island Health Boards

This document summarises the provision, under the preferred option, for the Island Health Boards and the relevant benefits and improvements.

#### Shetland

The fixed wing aircraft based in Glasgow and Aberdeen will be on live shift 24 hours a day, which is an enhancement of the current 1 hr standby for the Glasgow aircraft. This will allow for rapid deployment of the fixed wing aircraft to Shetland from Aberdeen or with a retrieval team from Glasgow. In relation to Helicopters the EC 145 will provide increased seating capacity, longer range, better access to the patient and equipment whilst on board and new technology enhancements. This option also allows for the BP Jigsaw aircraft to be utilized for emergency patients on the outer isles of Shetland to be repatriated into Shetland. There will also be continued use of the Coastguard for emergency helicopter access when required.

#### Orkney

The fixed wing aircraft based in Glasgow and Aberdeen will be on live shift 24 hours a day, which is an enhancement of the current 1 hr standby for the Glasgow aircraft. This will allow for rapid deployment of the fixed wing aircraft to Orkney from Aberdeen or with a retrieval team from Glasgow. In relation to Helicopters the EC 145 will provide increased seating capacity, longer range, better access to the patient and equipment whilst on board and new technology enhancements. This option also allows for the EC 145 to be reach all parts of Orkney and outer isles in 60 minutes flying time for emergency patients. There will also be continued use of the MOD/Coastguard for emergency helicopter access when required. In addition there is access to a Super Puma helicopter based in Aberdeen.

#### Western Isles

The fixed wing aircraft based in Glasgow and Aberdeen will be on live shift 24 hours a day, which is an enhancement of the current 1 hr standby for the Glasgow aircraft. This will allow for rapid deployment of the fixed wing aircraft to the Western Isles from Aberdeen or with a retrieval team from Glasgow. In relation to Helicopters the EC 145 will provide increased seating capacity, longer range, better access to the patient and equipment whilst on board and new technology enhancements. This option also allows for the EC 145 to be reach all of the Western Isles within 60 minutes flying time for emergency patients. Added to this there will also be continued use of the MOD/Coastguard for emergency helicopter access when required.

#### **All Island Boards**

In addition, all Islands will benefit from the presence of a co-located Air crew paramedic, dispatcher and aviation assistant in the EMDC along with improved technology to track and communicate with aircraft will bring about much faster triage and tasking thus improving joint clinical decision making, response times and the quality of patient care.

The following diagrams show the ranges of the relevant aircraft.



11163\_15 June 2011

To preserve commercial and confidentiality interests, some elements of this document have been redacted.



11163\_16 January 2012

To preserve commercial and confidentiality interests, some elements of this document have been redacted.

King Air B200C Range Rings

