



Chief Ambulance Services Commissioner EMRTS Service Review Options Appraisal Process (Final)

Emergency Medical Retrieval and Transfer Service - Service Review

12 January 2024



**GIG
CYMRU
NHS
WALES**

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Emergency Ambulance
Services Committee

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Introduction

As the Chief Ambulance Services Commissioner, I would like to specifically thank all health board and trust staff for agreeing to help me develop the Emergency Medical Retrieval and Transfer Service to ensure it provides the best possible service for the people of Wales. The Emergency Ambulance Services Committee asked me at the end of 2022 to lead the Review of EMRTS to include four specific areas related to base activity: Geographical coverage; Rapid Response Vehicle Usage (RRV), Utilisation and Unmet need.

I have led the formal engagement process which has had two phases to date. I have listened to members of the public and key stakeholders, have received an excellent response and heard key messages for consideration within my Review. This options appraisal workshop is a key step in identifying a recommendation to present for approval at EASC in March 2024.

Thanks again – Stephen Harrhy

This document will:

- Give an overview of the work to date
- Confirm the scenarios identified
- Provide the long list of options
- Show the table from the experts in modelling used for the work (Optima)
- Identify the options discounted and explain why
- Describe the short list discussed during the formal engagement phases
- Introduce a potential emerging option (based on feedback received)
- Provide information for additional consideration
- Provide key information relating to each of the shortlisted options, setting out:
 - the bases involved
 - hours of operation
 - use of aircraft and RRVs
 - staffing configuration
 - benefits and drawbacks
- Set out the agreed factors, definitions and weightings
- Present the information against each factor for each option:
 - performance indicators
 - operational perspective
 - likely workforce implications
 - financial costings
- Ask you to score the options
- Apply agreed weightings to the scores
- Options will then be ranked and a preferred option will be identified.

Background

Chronology for the Emergency Medical Retrieval and Transfer Service (EMRTS Cymru) Service Review

Aug 2022	Public and press interest in potential changes to air bases being discussed by the Wales Air Ambulance Charity and the EMRTS team. Public concern particularly at the current base localities
Sep 2022	Focus on session at the Emergency Ambulance Services Committee (EASC) the Joint Committee of all health boards on the EMRTS Service and potential opportunities
Oct 2022	Briefing note 1 – sent to all key stakeholders and the public Start of pre-engagement phase 0
Nov 2022	Comprehensive proposal received at EASC from the EMRTS Team supported by the Charity – members asked for more information
Dec 2022	Chief Ambulance Services Commissioner to undertake a review of the EMRT service – starting afresh
Jan 2023	Briefing note 4 circulated; update report to EASC on 17 Jan and briefing note 5 circulated following the meeting. Engagement material shared with Community Health Councils (CHCs – now Llais)
Feb 2023	Charity announced new aviation partner – Gama Aviation PLC
Mar 2023	Briefing note 6 shared; Phase 1 public engagement started 15 March. Survey by the Picker Institute

Apr 2023	<p>Formal engagement process - events led by the Chief Ambulance Services Commissioner (CASC) and supported by the Emergency Ambulance Services Committee Team (EASC Team)</p> <p>4 April Newtown – drop ins and evening meeting</p> <p>11 April – virtual meetings lunchtime and evening</p> <p>13 April - Welshpool drop ins</p> <p>13 April – Builth Wells evening meeting</p> <p>17 April – virtual lunchtime and evening meeting</p> <p>18 April – Knighton evening meeting</p> <p>20 April – virtual evening meeting</p> <p>26 April – Welshpool drop ins and evening meeting</p> <p>27 April – Dolgellau – drop in</p> <p>27 April – Caernarfon - evening meeting</p> <p>28 April – Pwllheli – evening meeting</p> <p>Numerous meetings with key stakeholders – EMRTS staff, local and national politicians (all requests obliged)</p>
May 2023	<p>3 May – Wrexham - drop ins and evening meeting</p> <p>4 May – Colwyn Bay drop ins</p> <p>4 May – Tywyn drop ins</p> <p>16 May EASC meeting</p> <p>23 May – Machynlleth evening meeting</p> <p>24 May – Tywyn evening meeting</p> <p>25 May – Bodedern evening meeting</p>
Jun 2023	<p>5 June - Newtown evening meeting</p> <p>Phase 1 public engagement closed 16 June 2023 – 14 week period which included 33 engagement sessions:</p> <ul style="list-style-type: none"> - 8 in-person drop in sessions - 11 virtual online public meetings - 14 in-person public meetings <p>External supplier report (Picker Institute)</p> <ul style="list-style-type: none"> - Yougov panel survey 999 - Online survey 198 - Paper survey 53 <p>Stakeholder update 8</p>
Jul 2023	<p>Report to EASC 18 July, end of Phase 1 all emergent themes re EMRTS and broader health and care system concerns presented to the Joint Committee. Discussion with Llais to update on progress</p>

Aug 2023	Data modelling underway. Stakeholder update 9.
Sep 2023	EASC meeting 19 September 2023 update report provided. Outline of options developed from Phase 1 feedback, seeking public and stakeholder comments on options developed before option to be recommended to EASC. Stakeholder update 10
Oct 2023	<p>Phase 2 Formal Engagement commenced 9 October 2023</p> <p>12 October - Welshpool drop in and evening meeting</p> <p>13 October – Newtown drop in and evening meeting</p> <p>16 October – Machynlleth drop in and evening meeting</p> <p>17 October – Bangor drop in and evening meeting</p> <p>18 October – Pwllheli drop in and evening meeting</p> <p>19 October virtual evening meeting</p> <p>20 October virtual lunchtime meeting</p> <p>All evening meetings professionally recorded; online feedback form and telephone line available. 403 responses received, 5 hard copy and 11 telephone messages. Stakeholder update 11</p>
Nov 2023	<p>Phase 2 closed on Sunday 12 November 2023</p> <p>EASC meeting 21 November 2023 – update report provided. Concerns raised by Llais and Swansea Bay UHB. Stakeholder update 12</p>
Dec 2023	EASC meeting 21 December 2023. Further formal public engagement/consultation required by Llais for 4 weeks. Stakeholder update 14
Jan 2024	Options Appraisal process with health boards; EASC meeting 30 Jan to confirm start of Phase 3.

Options Development

As part of the phase 1 public engagement 3 broad areas of proposed model options were discussed:

- Existing bases and changes to these
- Having a new base in the centre of North Wales (by closing other bases)
- Additional ideas or scenarios (to be informed by engagement process)

Following Phase 1 these broad areas were further refined into the following 6 scenarios:

- **Scenario 1:** Status Quo – Keeping things as they are now
- **Scenario 2:** Existing Bases / Existing Capacity – Testing different shift times 14:00 – 02:00 and 20:00 – 08:00 for crews at the existing bases.
- **Scenario 3:** Consolidated Base / Existing Capacity – Merging two bases into one at a centralised location and testing different shift times 08:00 – 20:00, 14:00 – 02:00 and 20:00 – 08:00 for crews at this base.
- **Scenario 4:** Consolidated Base / Additional Capacity – Taking the best variation for scenario 3, and adding an extra car crew in a different location and testing different shift times 08:00 – 20:00, 14:00 – 02:00 and 20:00 – 08:00 for this crew.
- **Scenario 5:** Status Quo / Additional Capacity – Taking the status quo and adding an extra crew to some bases and testing different shift times 14:00 02:00 and 20:00 – 08:00.
- **Scenario 6:** Existing Bases / Additional Capacity – Taking the best variation for scenario 2, and adding an extra car crew in a different location and testing different shift times 08:00 – 20:00, 14:00 – 02:00 and 20:00 – 08:00 for this crew

These scenarios were developed as '**Options**' and a number of variations were developed, these are set out in Table 1 and act as the long list of twenty options.

- **Scenario 1: "Status quo":**
 - Baseline. This scenario is the Baseline as described above.
- **Scenario 2: Existing Bases, Existing Capacity:**
 - 2A) Welshpool 14-02. Change the Welshpool shift to 14:00 - 02:00 hours.
 - 2B) Caernarfon 14-02. Change the Caernarfon shift to 14:00 - 02:00 hours.
 - 2C) Welshpool & Caernarfon 14-02. Change the Welshpool and Caernarfon shifts to 14:00 - 02:00 hours.
 - 2D) Welshpool 20-08. Change the Welshpool shift to 20:00 - 08:00 hours.
 - 2E) Caernarfon 20-08. Change the Caernarfon shift to 20:00 - 08:00 hours.
- **Scenario 3: "Consolidated Base, Existing Capacity":**
 - 3A) North Central Wales near A55 2x 08-20. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 (2 shifts).
 - 3B) Best Alternative. Merge Welshpool and Caernarfon into the best alternative (2 shifts).
 - 3C) North Central Wales near A55 08-20 + 20-08. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 and change the shift timings to 08:00 - 20:00 and 20:00 - 08:00.
 - 3D) North Central Wales near A55 08-20 + 14-02. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 and change the shift timings to 08:00 - 20:00 and 14:00 - 02:00.
- **Scenario 4: "Additional Capacity to Scenario 3":**
 - 4A) Extra car 08-20. Uses the best-performing variation of scenario 3, then adds a car-only shift (08:00 - 20:00 hours) to a new, well-covering location in the north Wales.
 - 4B) Extra car 14-02. Similar to the previous, but make the car-only shift 14:00 - 02:00 hours.
 - 4C) Extra car 20-08. Similar to the previous, but make the car-only shift 20:00 - 08:00 hours.

- **Scenario 5: “Additional Capacity to Baseline”:**
 - 5A) Welshpool add 20-08. Add a 20:00 - 08:00 crew to Welshpool.
 - 5B) Welshpool add 14-02. Add a 14:00 - 02:00 crew to Welshpool. During the shift overlap (14:00 - 20:00), if the helicopter is already being used, then the second crew will use the car.
 - 5C) Caernarfon add 20-08. Add a 20:00 - 08:00 crew to Caernarfon.
 - 5D) Caernarfon add 14-02. Add a 14:00 - 02:00 crew to Caernarfon. During the shift overlap (14:00 - 20:00), if the helicopter is already being used, then the second crew will use the car.
- **Scenario 6: “Additional Capacity to Scenario 2”:**
 - 6A) Extra car 08-20. Uses the best-performing variation of scenario 2, then adds a car-only shift (08:00 - 20:00 hours) to a new, well-covering location in the north Wales.
 - 6B) Extra car 14-02. Similar to the previous, but make the car-only shift 14:00 - 02:00 hours.
 - 6C) Extra car 20-08. Similar to the previous, but make the car-only shift 20:00 - 08:00 hours

Please note:

Optima Table 1 below shows North Central Wales near A55 as ‘Rhuddlan’.

Long List of Options

The long list of twenty options were modelled by an external provider (Optima) using a combined dataset from the period 1 June 2022 to 31 May 2023. This time period was chosen to reflect the EMRTS development (since 2015 at its inception) and it provided the best opportunity to use the data of the current service.

Table 1 below shows the modelling information which provides the following performance indicators:

- **Dispatches:** how often a vehicle was dispatched (not necessarily arrived i.e. stood down). [count]
- **Scene arrivals:** how often a vehicle arrived at scene. [count]
- **Crew Utilisation:** time assigned to incidents / planned shift time (e.g. 4h / 12h = 33%). [percentage] - In the results per best-performing scenario variation, these are also broken down by base.
- **Response Duration:** Clock Start Time --> First Vehicle Arrived Time. [mm:ss]
- **Vehicle Reflex Duration:** Vehicle Dispatch Time --> Vehicle Scene Arrival Time. [mm:ss]
- **Residual unmet need:** the count of all incidents in the input incident dataset, minus the count of incidents with a simulated dispatch.

Please note that the modelling takes into account daylight flying hours and bad weather probabilities in the process.

Table 1
From Optima

The best performing variation under each scenario is marked with a ★

For Rhuddlan please read North Central Wales near A55

Scenario	Dispatches	Scene Arrivals	Residual Unmet Need	Crew Utilisation	Response Duration (avg)	Veh. Reflex Duration (avg)
1) Baseline	3,650	2,696	858 (19%)	30%	56:21	26:20
Scenario 2: Existing Bases, Existing Capacity. The best-performing variation is marked as ★.						
2A) Welshpool 14-02	3,739	2,785	769 (17%)	31%	55:13	25:59
2B) Caernarfon 14-02 ★	3,748	2,793	760 (17%)	31%	55:25	26:36
2C) Welshpool & Caernarfon 14-02	3,684	2,730	824 (18%)	30%	55:50	25:12
2D) Welshpool 20-08	3,679	2,727	829 (18%)	30%	56:48	26:13
2E) Caernarfon 20-08	3,708	2,753	800 (18%)	31%	57:05	26:35
Scenario 3: Consolidated Base, Existing Capacity. The best-performing variation is marked as ★.						
3A) Rhuddlan 2x 08-20	3,661	2,707	847 (19%)	30%	56:36	26:09
3B) Best Alternative 2x 08-20	3,671	2,717	937 (21%)	31%	56:10	26:03
3C) Rhuddlan 08-20 + 20-08	3,767	2,812	741 (16%)	31%	53:58	24:43
3D) Rhuddlan 08-20 + 14-02 ★	3,791	2,835	717 (16%)	32%	53:23	25:22
Scenario 4: Additional Capacity to Scenario 3. The best-performing variation is marked as ★.						
4A) Extra car 08-20	3,817	2,861	691 (15%)	27%	54:29	25:08
4B) Extra car 14-02	3,843	2,888	665 (15%)	27%	53:02	24:34
4C) Extra car 20-08 ★	3,859	2,904	649 (14%)	27%	52:33	24:12
Scenario 5: Additional Capacity to Baseline. The best-performing variation is marked as ★.						
5A) Welshpool add 20-08	3,746	2,792	762 (17%)	26%	55:55	25:55
5B) Welshpool add 14-02	3,733	2,779	775 (17%)	26%	55:52	25:41
5C) Caernarfon add 20-08 ★	3,755	2,801	753 (17%)	26%	55:19	25:30
5D) Caernarfon add 14-02	3,738	2,785	770 (17%)	26%	56:06	25:50
Scenario 6: Additional Capacity to Scenario 2. The best-performing variation is marked as ★.						
6A) Extra car 08-20	3,777	2,823	731 (16%)	26%	54:06	25:55
6B) Extra car 14-02	3,834	2,878	674 (15%)	27%	52:44	25:08
6C) Extra car 20-08 ★	3,857	2,901	651 (14%)	27%	51:47	24:50

Options Discounted from the Long List

Having considered the modelling, the following thirteen options have been discounted and will not be taken forward as part of the options appraisal process. Options as described in Table 1 above:

No.	Option	Justification for not taking forward to Short List
1	2C) Welshpool & Caernarfon 1400-0200 Change the Welshpool and Caernarfon shifts to 14:00 - 02:00 hours.	Similar option to 2A and 2B but: <ul style="list-style-type: none"> • reduced available capacity between 0800-1400- • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation
2	2D) Welshpool 2000-0800 Change the Welshpool shift to 20:00 - 08:00 hours.	Similar option to 2A and 2B but: <ul style="list-style-type: none"> • reduced available capacity between 0800-2000 • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation
3	2E) Caernarfon 2000-0800 Change the Caernarfon shift to 20:00 - 08:00 hours.	Similar option to 2A and 2B but: <ul style="list-style-type: none"> • reduced available capacity between 0800-2000 • provides less scene arrivals and therefore smaller reduction in unmet need
4	3A) North Central Wales near A55 2x 0800-2000. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 (2 shifts).	Similar option to 3D but: <ul style="list-style-type: none"> • reduced available capacity after 2000 • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation
5	3B) Best Alternative. Merge Welshpool and Caernarfon into the best alternative (2 shifts).	Similar option to 3D but: <ul style="list-style-type: none"> • reduced available capacity after 2000 • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation

No.	Option	Justification for not taking forward to Short List
6	3C) North Central Wales near A55 0800-2000 + 2000-0800 (Rhuddlan). Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 and change the shift timings to 08:00 - 20:00 and 20:00 - 08:00.	Similar option to 3D but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation
7	4A) Extra car 0800-2000. Uses the best-performing variation of scenario 3, then adds a car-only shift (08:00 - 20:00 hours) to a new, well-covering location in the north Wales.	Similar option to 4C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need
8	4B) Extra car 1400-0200. Similar to the previous, but make the car-only shift 14:00 - 02:00 hours.	Similar option to 4C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need
9	5A) Welshpool add 2000-0800. Add a 20:00 - 08:00 crew to Welshpool.	Similar option to 5C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need
10	5B) Welshpool add 1400-0200. Add a 14:00 - 02:00 crew to Welshpool. During the shift overlap (14:00 -20:00), if the helicopter is already being used, then the second crew will use the car.	Similar option to 5C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need
11	5D) Caernarfon add 1400-0200. Add a 14:00 - 02:00 crew to Caernarfon. During the shift overlap (14:00 -20:00), if the helicopter is already being used, then the second crew will use the car.	Similar option to 5C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need
12	6A) Extra car 0800-2000. Uses the best-performing variation of scenario 2, then adds a car-only shift (08:00 - 20:00 hours) to a new, well-covering location in the north Wales.	Similar option to 6C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need • results in lower crew utilisation
13	6B) Extra car 1400-0200. Similar to the previous, but make the car-only shift 14:00 - 02:00 hours.	Similar option to 6C but: <ul style="list-style-type: none"> • provides less scene arrivals and therefore smaller reduction in unmet need

Short list of Options

Following the assessment of the long list of potential options, the 'Do Nothing- baseline' and remaining six options are carried forward as the short list of options.

These will now be evaluated as part of the option appraisal process (using the agreed evaluation framework) **although an additional option has emerged** (described as Option 7 in the table below) which is explained in the 'Emerging Option' section on the next page.

Short List Option No.	Option
-	Do Nothing – Baseline
1	2A) Welshpool 1400-0200. Change the Welshpool shift to 14:00 - 02:00 hours.
2	2B) Caernarfon 1400-0200. Change the Caernarfon shift to 14:00 - 02:00 hours.
3	3D) North Central Wales near A55 0800-2000 + 1400-0200. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 and change the shift timings to 08:00 - 20:00 and 14:00 - 02:00.
4	4C) Improve 3D, adding car shift 2000-0800 in Wrexham.
5	5C) Improve the baseline, adding air and road shift 2000-0800 in Caernarfon.
6	6C) Improve 2B, adding car shift 2000-0800 in North Central Wales near A55.
7	Emerging Option 7

Throughout the formal engagement process the Chief Ambulance Services Commissioner has made commitment that a decision on the preferred option would not be based on modelling alone. The agreed factors, definitions and weightings (i.e. the evaluation framework) will be utilised to evaluate the options.

Following this exercise, a refined short list of options, to include a preferred option will be shared with the public and stakeholders for comment in a third and final phase of engagement. Phase 3 of the public engagement process will take place in February 2024.

Emerging option

Based on public and stakeholder feedback throughout Phases 1 and 2 of the formal engagement, there were several emerging themes that needed to be considered and these are explained in detail within EAS Committee reports:

- Phase 1 Emerging Themes (EAS Committee Paper) [July 2023 - Emergency Ambulance Services Committee \(nhs.wales\)](#)
- Phases 2 Emerging Themes (EAS Committee Paper) [December 2023 - Emergency Ambulance Services Committee \(nhs.wales\)](#)

Please note that some issues are not within the scope of the Review (such loss of public services in rural communities for example). However, the role of the Chief Ambulances Services Commissioner presents a unique opportunity to consider an additional emerging option that would help address some of the issues from the public and stakeholder feedback, specifically:

- Concern about WAST services regularly being pulled out of area and lengthy handover delays adversely affecting ability to respond to communities
- Concerns that mid, rural, and coastal communities are more vulnerable and 'less equal' than those in urban areas located closer to better road infrastructures and general hospitals and therefore need something more bespoke to reflect their rural needs
- Concern that EMRTS is too specialised and could respond to a wider range of conditions for rural and remote areas through a more bespoke clinical model
- Concern about paramedic staffing levels in mid and rural north Wales
- Concerns about EMRTS staff retention with any base moves
- Concerns that the Charity will lose the goodwill of support in base location areas and the impact on charitable donations which could decrease and destabilise this important service provided in partnership
- Concern about vulnerability of rural communities generally ('lost all other services already')
- Current bases perceived as a 'local lifeline' and visual presence is reassuring

The emerging option – **Emerging Option 7** – has developed through the ongoing option appraisal process and has surfaced in response to the extensive listening during both phases of formal engagement. Work is currently being undertaken with Optima to model additional cars in North Powys and the North West Wales coast areas.

Additional considerations

There are a number of additional considerations to be aware of, these include:

- This is an all Wales highly complex critical care service and requires a mix of practitioners with high levels of expertise from WAST and EMRTS
- Staff can take up to 5 years from appointment to work at optimum practice
- There is a need to ensure that critical care practitioner (CCP) staff have the opportunity to work with both Consultants and other CCPs
- Retaining existing staff and their training, knowledge, experience and clinical leadership is a priority for the service
- Low turnover rates are very important for the service
- Staff wellbeing and welfare is a strong consideration
- Investment in training, practice and development is strong in the service
- The impact of change for some staff could be significant in terms of the vast geographical locations and potential moves
- This is not just a helicopter provided service, Teams also utilise cars across Wales
- Emerging Option 7 could allow an opportunity to develop and continue the clinical staff pipeline
- Difficulties for health and care services to recruit in rural or coastal areas recognised

The EMRTS Management Team were asked to rate the Options in relation to whether staff recruitment/retention was Highly likely, Likely, Unlikely, Highly unlikely.

For each of the options the following are in place as this is a National Service which could be activated to respond across Wales (current service baseline):

- in South East and South West Wales bases, each day there is a crew consisting of 1x Consultant and 1x Critical Care Practitioner (Dafen, Llanelli) and a crew of 2x Critical Care Practitioners (CCPs) (Cardiff)
- EMRTS Critical Care Hub (ECCH at Cwmbran Ambulance Control) – 1x EMRTS CCP and 1x Dispatcher are based in the ambulance call centre 24-hours per day to review 999 calls and if needed send one or more EMRTS crews from anywhere in Wales (the closest team are sent first with potential other teams depending on the incident requirement)
- The night shift consists 1x Consultant and 1x CCP based at Cardiff with access to a helicopter and rapid response vehicle (RRV)
- The EMRT Service undertake flights under two types of operation:
 - **Helicopter Emergency Medical Services (HEMS)** – this type of flight allows for specific risk alleviations to be granted in recognition of an emergency situation
 - **Air Ambulance** – this type of flight is considered a normal transport task and so does not attract any of the alleviations present in HEMS Flights.

Short Listed Options - Descriptors

Do Nothing – Baseline

- 5 shifts / teams (4 day, 1 night) with access to helicopters and rapid response vehicles (RRVs) based at:
 - Caernarfon – 0800-2000
 - Welshpool – 0800-2000
 - Dafen – 0700-1900
 - Cardiff – 24 hours (0700-1900 and 1900-0700)
- Resource capacity each day: **60 hours**
- Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs
- Mid and North Wales bases, each day there is 1 crew consisting of a Consultant (Caernarfon or Welshpool) and 1 crew of 2 CCPs (Caernarfon or Welshpool)
- **This is a national service; each crew could be activated to any part of Wales.**

How does it work?



Each day there are 4 teams with access to helicopters and rapid response vehicles (RRVs) based at:

- Caernarfon
- Welshpool
- Llanelli and
- Cardiff

At night, there is one team based at Cardiff with access to a helicopter and RRV.

Teams	Location
1 x Consultant Doctor & 1 x CCP or 2 x CCP Every day there is one Consultant Doctor and a Critical Care Practitioner (CCP) at one base and two CCPs at the other	Caernarfon 12-hour day
	Welshpool 12-hour day
1 x Consultant Doctor & 1 x CCP	Llanelli Cardiff 12-hour
1 x Consultant Doctor & 1 x CCP	Night Cardiff 12-hour
2 x CCP	Cardiff 12-hour day

Option 1

Short List Option 1: 2A) Welshpool 1400-0200. Change the Welshpool shift to 14:00 - 02:00 hours.	
<p>Operational Model:</p> <ul style="list-style-type: none"> • 5 shifts / teams (3 day, 1 twilight, 1 night) with access to helicopters and rapid response vehicles (RRVs) based at: <ul style="list-style-type: none"> ○ Caernarfon – 0800-2000 ○ Welshpool – 1400-0200 ○ Dafen – 0700-1900 ○ Cardiff – 24 hours (0700-1900 and 1900-0700) • Resource capacity each day: 60 hours • Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs • This is a national service; each crew could be activated to any part of Wales. 	<p>Operational comments, observations and concerns:</p> <ul style="list-style-type: none"> ○ It is likely that the Critical Care Practitioner (CCP) staff would not want to work permanent 1400-0200 shifts all of the time ○ It is likely CCP staff would not want to work across Welshpool and Caernarfon bases on a regular basis in order to work different shift times, due to the travel time ○ It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night) ○ Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff ○ Working at Welshpool is not attractive in this option (only 1400-0200 shifts) ○ Impact on patients of less resource capacity from 0800 and more resource capacity from 1400 ○ The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas ○ There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres ○ Base infrastructure requirements (bedrooms etc for 0200 finishes) ○ Financial consequences in terms of travel, accommodation costs etc ○ Impact on GAMA (aviation provider) to be considered as part of Phase 3 ○ Requirement for flying during hours of darkness need to be considered
<p>Overall view from EMRTS Management Team (retention and recruitment):</p> <ul style="list-style-type: none"> • Unlikely - 20% probability of covering 	<p>The Team do not feel that this option is likely to be deliverable in terms of retaining existing staff (a priority for the service) and is not likely to be able to recruit additional staff to work permanent 1400-0200 shifts.</p> <p>Low likelihood of achieving – high probability of staff attrition and roster unattractive to backfill. Likely lose high proportion of senior (QCCP/shift Leads) working a 1400-0200 shift only.</p>

Option 2

Short List Option 2: 2B) Caernarfon 1400-0200. Change the Caernarfon shift to 14:00 - 02:00 hours

Operational Model:

- 5 teams / shifts (3 day, 1 twilight, 1 night) with access to helicopters and rapid response vehicles (RRVs) based at:
 - Caernarfon – 1400-0200
 - Welshpool – 0800-2000
 - Dafen – 0700-1900
 - Cardiff – 24 hours (0700-1900 and 1900-0700)
- Resource capacity each day: **60 hours**
- Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs
- This is a national service; each crew could be activated to any part of Wales.

Operational comments, observations and concerns:

- It is likely that the Critical Care Practitioner (CCP) staff would not want to work permanent 1400-0200 shifts all of the time
- It is likely CCP staff would not want to work across Welshpool and Caernarfon bases on a regular basis in order to work different shift times, due to the travel time
- It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night)
- Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff
- Working at Caernarfon is not attractive in this option (only 1400-0200 shifts)
- Impact on patients of less resource capacity from 0800 and more resource capacity from 1400
- The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas
- There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres
- Base infrastructure requirements (bedrooms etc for 0200 finishes)
- Financial consequences in terms of travel, accommodation costs etc
- Impact on GAMA (aviation provider) to be considered as part of Phase 3
- Requirement for flying during hours of darkness need to be considered

Overall view from EMRTS Management Team (retention and recruitment):

- **Unlikely** - 20% probability of covering

The Team do not feel that this option is likely to be deliverable in terms of retaining existing staff (a priority for the service) and is not likely to be able to recruit additional staff to work permanent 1400-0200 shifts.

Low likelihood of achieving – high probability of staff attrition and roster unattractive to backfill. Likely lose high proportion of senior (QCCP/shift Leads) working a 1400-0200 shift only.

Option 3

Short List Option 3: 3D) North Central Wales near A55 0800-2000 + 1400-0200. Merge Welshpool (1 shift) and Caernarfon (1 shift) into North Central Wales near A55 and change the shift timings to 08:00 - 20:00 and 14:00 - 02:00.

Operational Model:	Operational comments, observations and concerns:
<ul style="list-style-type: none"> 5 teams / shifts (3 day, 1 twilight, 1 night) with access to helicopters and rapid response vehicles (RRVs) based at: <ul style="list-style-type: none"> North Central Wales near A55 – 0800-2000 and 1400-0200 Dafen – 0700-1900 Cardiff – 24 hours (0700-1900 and 1900-0700) Resource capacity each day: 60 hours Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs This is a national service; each crew could be activated to any part of Wales. 	<ul style="list-style-type: none"> Change in base location for all staff currently based at Welshpool and Caernarfon Additional journey time for majority of staff It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night) Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres Would require coordination of teams in a new base Impact on patients of less resource capacity from 0800 and more resource capacity from 1400 Base infrastructure requirements (bedrooms etc for 0200 finishes) Financial consequences in terms of OCP protection, travel, accommodation costs etc Impact on GAMA (aviation provider) to be considered as part of Phase 3 Requirement for flying during hours of darkness need to be considered
<p>Overall view from EMRTS Management Team (retention and recruitment):</p> <ul style="list-style-type: none"> Likely – 90% probability of covering if funding is secured to relocate resources 	<p>This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams of staff from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with Consultants and other CCPs. Major opposition will be in relation to location change with undertones of 'leaving communities' (that have existing support but left lacking). Backfill achievable, but potential to lose some of the most qualified staff.</p>

Option 4

Short List Option 4: 4C) Improve 3D, adding car shift 2000-0800 in Wrexham

Operational Model:

- 6 teams / shifts (3 day, 1 twilight, 2 night) with access to helicopters and rapid response vehicles (RRVs) based at:
 - North Central Wales near A55 – 0800-2000 and 1400-0200
 - Wrexham (car only) – 2000-0800
 - Dafen – 0700-1900
 - Cardiff – 24 hours (0700-1900 and 1900-0700)
- Resource capacity each day: **72 hours**
- Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs
- The additional “Wrexham (car only) – 2000-0800” shift is costed at 1 Consultant and 1 CCP
- This is a national service; each crew could be activated to any part of Wales.

Operational comments, observations and concerns:

- Change in base location for all staff currently based at Welshpool and Caernarfon
- Additional journey time for majority of staff
- It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night)
- Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff
- The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas
- Would require coordination of teams in a new base
- 2000-0800 shift is car only, not flying (night HEMS) – impact on population coverage against air and road response
- Negative impact of a full night driving shift on staff
- Staff reluctance to do full night shifts (2000-0800) due to likely low demand
- Impact on patients of less resource capacity from 0800 and more from 1400 and 2000
- There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres/ limited out of hours provision to use Taxis etc., from Stoke/Liverpool/ Birmingham etc.
- 2/3rds of a CCP rota would be Twilight/Night shift working (unsocial hours)
- Base infrastructure requirements (bedrooms etc for 0200 finishes)
- Financial consequences in terms of OCP protection, travel, accommodation costs etc
- Impact on GAMA (aviation provider) to be considered as part of Phase 3
- Requirement for flying during hours of darkness need to be considered

Overall view from EMRTS Management Team (retention and recruitment):

- **Unlikely** – 60% probability of covering if funding secured to relocate and additional resource

This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with consultants and other CCPs. In terms of operational delivery and the retention and recruitment of staff, the negative impact of the overnight 20-0800 car shift on staff is likely to be extremely challenging. Additional recruitment and additional funding would be required to support this option.

Option 5

Short List Option 5: 5C) Improve the baseline, adding air and road shift 2000-0800 in Caernarfon.

Operational Model:

- 6 teams / shifts (4 day, 2 night) with access to helicopters and rapid response vehicles (RRVs) based at:
 - Caernarfon – 0800-2000
 - Caernarfon – 2000-0800
 - Welshpool – 0800-2000
 - Dafen – 0700-1900
 - Cardiff – 24 hours (0700-1900 and 1900-0700)
- Resource capacity each day: **72 hours**
- Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs
- The additional "Caernarfon (car only) – 2000-0800" shift is costed at 1 Consultant and 1 CCP
- This is a national service; each crew could be activated to any part of Wales.

Operational comments, observations and concerns:

- Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff
- It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night)
- The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas
- There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres
- Base infrastructure requirements (bedrooms etc for 0200 finishes)
- Staff reluctance to do full night shifts (2000-0800) due to likely low demand
- Requirement for flying during hours of darkness need to be considered

Overall view from EMRTS Management Team (retention and recruitment):

- **Unlikely** - 60% probability of covering if funding secured to add additional resource envelope

This option would not improve on the current daytime model but would provide road cover overnight 2000-0800 from Caernarfon. Under-utilisation for full night shift. Would need additional recruitment (Dr & CCP). Area challenging for staff recruitment.

Option 6

Short List Option 6: 6C) Improve 2B, adding car shift 2000-0800 in North Central Wales near A55.	
<p>Operational Model:</p> <ul style="list-style-type: none"> 6 teams / shifts (3 day, 1 twilight, 2 night) with access to helicopters and rapid response vehicles (RRVs) based at: <ul style="list-style-type: none"> Caernarfon – 1400-0200 North Central Wales near A55 (car only) – 2000-0800 Welshpool – 0800-2000 Llanelli – 0700-1900 Cardiff – 24 hours (0700-1900 and 1900-0700) Resource capacity each day: 72 hours Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs The additional “North Central Wales near A55 or Wrexham (car only) – 2000-0800” shift is costed at 1 Consultant and 1 CCP This is a national service; each crew could be activated to any part of Wales. 	<p>Operational comments, observations and concerns:</p> <ul style="list-style-type: none"> Unlikely CCP staff would want to work permanent 1400-0200 shifts all of the time Unlikely CCP staff would want to work across Welshpool and Caernarfon bases either in order to work different shift times It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night) Despite higher utilisation levels and unsocial hour payments it is felt that this change would impact on the retention of existing CCP staff Working at Caernarfon not attractive in this option, only 1400-0200 or 2000-0800 shifts available for Caernarfon staff Impact on patients of less resource capacity from 0800 and more resource capacity from 1400 and from 2000 The later finish (0200 or later) is likely to impact the following day for Consultant staff with a potential impact on job plans and it may be more difficult to fill rotas There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres 2000-0800 shift is car only, not flying (night HEMS) – impact on population coverage against air and road response Negative impact of a full night driving shift on staff Staff reluctance to do full night shifts (2000-0800) due to likely low demand Financial consequences in terms of OCP protection, travel, accommodation costs etc Impact on GAMA (aviation provider) to be considered as part of Phase 3 Requirement for flying during hours of darkness need to be considered
<p>Overall view from EMRTS Management Team (retention and recruitment):</p> <ul style="list-style-type: none"> Unlikely - 25% probability of covering the rotas without significant additional funding 	<p>This option does provide the opportunity to work different shift patterns from different bases and for CCP staff to work with Consultants and other CCPs. In terms of operational delivery and the retention and recruitment of staff, the negative impact of the overnight 2000-0800 car shift on staff is likely to be extremely challenging. All shifts in the North would be unsocial – Extremely unappealing – Low likelihood of recruiting to backfill coupled with known issues with recruitment in that area.</p>

Option 7 – Emerging Option

Short List Option 7: Emerging Option 7 - adds car shifts to north Powys and the north west Wales coast

Operational Model:

- 7 teams / shifts (5 day, 1 twilight, 1 night) with access to helicopters and rapid response vehicles (RRVs) based at:
 - North Central Wales near A55 – 0800-2000 and 1400-0200
 - Location, shift time and skill mix TBC North Powys (car only) – 0800-2000 TBC
 - Location, shift time and skill mix TBC North West Wales (car only) – 0800-2000 TBC
 - Dafen– 0700-1900
 - Cardiff – 24 hours (0700-1900 and 1900-0700)
- Resource capacity each day: **84 hours**
- Each crew comprises either 1x Consultant and 1x CCP or 2x CCPs (staff mix for car only shifts TBC)
- This is a national service; each crew could be activated to any part of Wales.

Operational comments, observations and concerns:

- Option to change base location for staff currently based at Welshpool and Caernarfon
- Additional journey time for these staff
- It should be noted that some staff left employment in an ambulance service to avoid working unsocial hours (part or full night)
- Despite higher utilisation levels and unsocial hour payments it is felt that this change may impact on the retention of existing CCP staff
- Would require coordination of teams in a new base
- Potentially attractive for existing EMRTS staff not wishing to change base, travel implications etc
- The later finish (0200 or later) is likely to impact the following day for consultant staff with a potential impact on job plans and it may be more difficult to fill rotas
- There is a potential impact of a later shift finish (0200 or later) with less infrastructure to support a return to base e.g. from specialist/major trauma centres
- Positive impact on patients of more resource capacity from 0800 and more resource capacity from 1400
- Base infrastructure requirements (bedrooms etc for 0200 finishes)
- Financial consequences in terms of OCP protection, travel, accommodation costs etc
- Impact on GAMA (aviation provider) to be considered as part of Phase 3
- Requirement for flying during hours of darkness need to be considered

Short List Option 7: Emerging Option 7 - adds car shifts to north Powys and the north west Wales coast

Overall view from EMRTS

Management Team (retention and recruitment):

- **Likely** - 90% probability with significant additional investment in both people and infrastructure

This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams of staff from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with consultants and other CCPs. The option provides the opportunity to meet the need in rural areas and for staff to continue to work in these areas.

Meets rural/community needs therefore likely more acceptable to existing staff. Retention of existing skilled practitioners likely for the majority. Recruitment requirements for additional resources. Model would need further discussion regarding crew configuration, tasking criteria, risks associated with EMRTS tasking and impact on utilisation. Consideration of adding 'North and Mid' EMRTS Critical Care Hub capacity for management of additional and varied teams within Mid and North Wales – support the strengthening of capture of high acuity calls.

Agreed Factors and Weightings

The following table confirms the factors, definitions and weightings that have been agreed as part of the EMRTS Service Review public engagement process.

Investment Objective (Factor)	Revised weighting	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Health Gain	25	To improve the quality of care and outcomes for patients in Wales	To ensure EMRTS are as operationally efficient and effective as possible and as many patients as possible should get a service	<ul style="list-style-type: none"> • Proportion of met need • Residual unmet need • Scene arrivals • Increased number of arrivals at scene over baseline • Creation of new unmet need • Total crew utilisation (including range across bases – for context)
Equity	25	To ensure that the whole population of Wales receive adequate and timely access to specialised pre-hospital critical care	To make the most comprehensive population coverage by air, road and time of day	<ul style="list-style-type: none"> • Response times (reflex times) • Available capacity between 0800-1400 • Population coverage – road (30m, 60m, 90m) • Population coverage - air • %age of total unmet need (for context) • Unmet need per 10k (for context) • Weather (per base) (for context)
Clinical and skills sustainability	20	To retain and retrain staff and enable them to utilise their skills to the top of their skill set and to attract and recruit the best people for the service	To ensure resources are located, available and equipped to respond to the needs of the whole population of Wales	<ul style="list-style-type: none"> • Utilisation by base and asset • EMRTS Management Team's operational view • No arrival days (for context)
Affordability	15	To ensure the service delivered is able to operate effectively within the financial constraints of NHS Wales and Wales Air Ambulance Charity Trust	To ensure that the costs of service delivery are within agreed income limits	<ul style="list-style-type: none"> • Additional recurrent cost to baseline (pay and non-pay costs) • Transition/project costs • Additional capital costs
Value for money	15	To maximise efficiency, ensure that the population attain the highest possible level of health gain for the given level of expenditure	To maximise the number of incidents the service can attend and increase the utilisation of each asset	<ul style="list-style-type: none"> • Additional cost to the baseline • Increased number of arrivals at scene over baseline • Cost per additional scene arrival
	100			

Scoring

Using the factors and weighting information on page 25, which has been agreed by the EAS Joint Committee you are asked to (in advance of 12 January):

- Read and examine the information provided in each factor, using a commissioning lens and utilising what can be measured (and mindful that there will be some cross over with each factor)
- Review the six options provided and make an assessment using a scale of 1-5

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

- For each option, make an assessment whether you think the option provides the most impact against the information provided in each factor – the most impact could score 4 or 5. If you think there is less impact you could score 1 or 2
- A scoring sheet is provided to assist you
- At the workshop on 12 January, you will be allocated to a group for further discussion on each factor
- Subject matter experts will be on hand to help and answer any queries
- Its important that you feel able to ask any questions during the workshop

The aim of the workshop is to assist the CASC in developing a recommendation for EASC.

Factor 1: Health Gain

The Health Gain factor relates to improving the quality of care and outcomes for patients in Wales. This section will focus on met need, the creation of new unmet need and increased number of arrivals at scene over the baseline. Utilisation across the service is used for Factor 3 (Clinical and skills sustainability), however it has also been added here for context.

Investment Objective (Factor)	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Health Gain	To improve the quality of care and outcomes for patients in Wales	To ensure EMRTS are as operationally efficient and effective as possible and as many patients as possible should get a service	<ul style="list-style-type: none">• Proportion of met need• Residual unmet need• Scene arrivals• Increased number of arrivals at scene over baseline• Creation of new unmet need• Total crew utilisation (incl range across bases for context)

The Health Gain impact on each of the shortlisted options is provided in the following table:

Health Gain	Do Nothing - Baseline	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08- 20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve the baseline, add shift 20-08 in Caernarfon	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7:
Proportion of met need	3,650 (81%)	3,739 (83%)	3,748 (83%)	3,791 (84%)	3,859 (86%)	3,755 (83%)	3,857 (86%)	
Residual unmet need	858 (19%)	769 (17%)	760 (17%)	717 (16%)	649 (14%)	753 (17%)	651 (14%)	
Scene arrivals	2,696	2,785	2,793	2,835	2,904	2,801	2,901	
Increased number of arrivals at scene over baseline	-	89	97	139	208	105	205	
Creation of new unmet need (LA split)	-	0	Less than 5	Less than 6	Less than 5	Less than 5	0	
For context: Total crew utilisation* (range across bases)	30% (14-42%)	31% (20-40%)	31% (19-40%)	32% (22-39%)	27% (8-35%)	26% (13-40%)	27% (12-38%)	
Scoring (using a score of 1 to 5 low to high)								

Benefits and drawbacks - Health Gain

Health Gain	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Factor 1: Health Gain							
Increase in number of patients seen / patient arrivals over and above the baseline	✓	✓	✓	✓	✓	✓	
Reduces unmet need from the baseline	✓	✓	✓	✓	✓	✓	
Creates new unmet need		<5	<6	<5	<5		
Maintains or increases the available capacity 0800-1400 in line with the baseline (if you get a service now you will get a service in the future)	X	X	X	X	✓	X	

Scoring – Health Gain

Each short listed option is scored by stakeholders using a score of 1 to 5.

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

Factor 2: Equity

The Equity factor relates to ensuring that the whole population of Wales receive adequate and timely access to specialised pre-hospital critical care. This section will focus on population coverage, response times and available resource capacity. Information relating to unmet need and weather are also included for context (in blue).

Investment Objective (Factor)	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Equity	To ensure that the whole population of Wales receive adequate and timely access to specialised pre-hospital critical care	To make the most comprehensive population coverage by air, road and time of day	<ul style="list-style-type: none">• Response times (reflex times)• Available capacity between 0800-1400• Population coverage – road (30m, 60m, 90m)• Population coverage - air• %age of total unmet need (for context)• Unmet need per 10k (for context)• Weather (per base) (for context)

The equity impact on each of the shortlisted options is provided in the following tables:

For context:

	ABUHB	BCUHB	CVUHB	CTMUHB	HDUHB	SBUHB	PTHB	OOA
%age of total unmet need of people resident in that HB The 'Do nothing – baseline' option total is 1,039 potential patients (patient numbers in brackets)	15.7% (163)	33.0% (343)	15.0% (156)	10.7% (111)	11.3% (117)	9.9% (103)	4.3% (45)	0.1% (1)
Unmet need per 10k population from the 'Do Nothing – baseline' option	2.76	4.98	3.09	2.5	3.04	2.69	3.36	-

*This information is not available for each option only for the baseline

Weather

Weather data has been sourced from an external organisation, using Met Office information. Adjustments were made to account for any height level discrepancy between weather stations and base locations. The table below provides the percentage of occasions when the weather was below the thresholds of 600ft cloud base or visibility below 3,000m during the period September 2017 to April 2022.

Location	Represented by (weather station)	%age of occasions weather below flying thresholds
Dafen	Pembrey Sands	11.5
Cardiff Heliport	St Athan	7.4
North Central Wales near A55	Rhyl	3.2
Welshpool	Shawbury	5.2
Caernarfon	Caernarfon	7.7

Equity	Do Nothing – Baseline	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Response times (reflex times)	56m 21s (26m20s)	55m 13s (25m59s)	55m 25s (26m36s)	53m 23s (25m22s)	52m 33s (24m12s)	55m 19s (25m30s)	51m 47s (24m50s)	
Available capacity 0800-1400	4 crews nationally	3 crews nationally	3 crews nationally	3 crews nationally	3 crews nationally	4 crews nationally	3 crews nationally	
Population coverage (road) 30, 60 & 90m	See Appendix 1							
Population covered by air in 60 minutes	At peak hours, if all aircraft are flying, all of the population of Wales is covered by air in 60mins							
Population not covered by air at 0800	See Appendix 2							
	All of Wales covered by air (day) within 30 minutes	All of Wales not covered by air (day) within 30m at 0800 (99.97%)	All of Wales not covered by air (day) within 30m at 0800 (98.75%)	All of Wales covered by air (day) within 30 minutes	All of Wales covered by air (day) within 30 minutes	All of Wales covered by air (day) within 30 minutes	All of Wales not covered by air (day) within 30m at 0800 (98.75%)	
Scoring (using a score of 1 to 5 low to high)								

Benefits and drawbacks – Equity

Equity	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) Rhudd- lan 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Maintains the current available capacity 0800-1400 in line with the baseline <i>(if you get a service now you will get a service in the future)</i>	X	X	X	X	✓	X	
Increase in resource capacity per day over baseline (60 hours)	X same	X same	X same	✓ (72 hrs)	✓ (72 hrs)	✓ (72 hrs)	
Increases available capacity from 1400	✓	✓	✓	✓	X	✓	
Increases available capacity from 2000	✓	✓	✓	✓	✓	✓	
Increases available capacity from 0200	X	X	X	✓	✓	✓	
Increased population coverage by road (30 minutes) above the baseline from 0800 (Baseline 1,496,240)	X (1,447,276) 96.7%	X (1,419,482) 94.9%	✓ (1,616,598)	✓ (1,616,598)	Same	X (1,419,482) 94.9%	
Increased population coverage by road (30 minutes) above the baseline from 1400 (Baseline 1,496,240)	Same	Same	✓ (1,616,598)	✓ (1,616,598)	Same	Same	
Increased population coverage by road (30 minutes) above the baseline from 2000 (Baseline 878,191)	✓ (927,155)	✓ (954,949)	✓ (1,124,271)	✓ (1,362,413)	✓ (954,949)	✓ (1,201,029)	
Increased population coverage by road (30 minutes) above the baseline from 0200 (Baseline 878,191)	Same	Same	Same	✓ (1,116,333)	✓ (954,949)	✓ (1,124,271)	
Improve response times	✓	✓	✓	✓	✓	✓	

Scoring – Equity

Each short listed option is scored by stakeholders using a score of 1 to 5.

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

Factor 3: Clinical and skills sustainability

The clinical and skills sustainability factor relates to retaining and retraining staff and enabling them to utilise their skills to the top of their skill set and to attract and recruit the best people for the service. This section will focus on utilisation by base and asset and operational comments, observations and concerns from the EMRTS Management Team. The number of no arrival days for the current service in 2022, have also been included for context.

Investment Objective (Factor)	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Clinical and skills sustainability	To retain and retrain staff and enable them to utilise their skills to the top of their skill set and to attract and recruit the best people for the service	To ensure resources are located, available and equipped to respond to the needs of the whole population of Wales	<ul style="list-style-type: none"> • Utilisation by base and asset • Operational view from the EMRTS Management Team • <i>No arrival days for Do Nothing option (2022) for context only</i>

For context: Actual 2022

Do Nothing – Baseline. *Cardiff figures include 2x shifts (1 day shift, 1 night shift)	
No arrival days (air or road)	Caernarfon 146; Cardiff 7; Dafen 43; Welshpool 133
No arrival days (air)	Caernarfon 172; Cardiff 127; Dafen 89; Welshpool 133
No arrival days (road)	Caernarfon 321; Cardiff 41; Dafen 254; Welshpool 312

Likelihood of retaining and or recruiting the required staff

The likelihood of retaining and or recruiting staff and utilisation rates for each of the shortlisted options is provided in the following tables:

Short List Option No.	Option	Likelihood of retaining and or recruiting the required staff
1	2A) Welshpool 1400-0200.	The Team do not feel that this option is likely to be deliverable in terms of retaining existing staff (a priority for the service) and is not likely to be able to recruit additional staff to work permanent 1400-0200 shifts. Low likelihood of achieving – high probability of staff attrition and roster unattractive to backfill. Likely lose high proportion of senior (QCCP/shift Leads) working a 1400-0200 shift only.
2	2B) Caernarfon 1400-0200.	The Team do not feel that this option is likely to be deliverable in terms of retaining existing staff (a priority for the service) and is not likely to be able to recruit additional staff to work permanent 1400-0200 shifts. Low likelihood of achieving – high probability of staff attrition and roster unattractive to backfill. Likely lose high proportion of senior (QCCP/shift Leads) working a 1400-0200 shift only.
3	3D) North Central Wales near A55 0800-2000 + 1400-0200	This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams of staff from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with Consultants and other CCPs. Major opposition will be in relation to location change with undertones of 'leaving communities' (that have existing support but left lacking). Backfill achievable, but potential to lose some of the most qualified staff.
4	4C) Improve 3D, add car shift 2000-0800 (Wrexham)	This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with consultants and other CCPs. In terms of operational delivery and the retention and recruitment of staff, the negative impact of the overnight 20-0800 car shift on staff is likely to be extremely challenging. Additional recruitment and additional funding would be required to support this option.

Short List Option No.	Option	Likelihood of retaining and or recruiting the required staff
5	5C) Improve baseline, add shift 2000-0800 (Caernarfon)	<p>This option would not improve on the current daytime model but would provide road cover overnight 2000-0800 from Caernarfon. In terms of operational delivery and the retention and recruitment of staff, the negative impact of the overnight 2000-0800 car shift on staff is likely to be extremely challenging. Under-utilisation for full night shift.</p> <p>Would need additional recruitment (Dr & CCP). Area challenging for staff recruitment.</p>
6	6C) Improve 2B, add car shift 2000-0800 (North Central Wales near A55)	<p>This option does provide the opportunity to work different shift patterns from different bases and for CCP staff to work with Consultants and other CCPs. In terms of operational delivery and the retention and recruitment of staff, the negative impact of the overnight 2000-0800 car shift on staff is likely to be extremely challenging. All shifts in the North would be unsocial – Extremely unappealing – Low likelihood of recruiting to backfill coupled with known issues with recruitment in that area.</p>
7	Emerging Option 7	<p>This option presents a number of challenges for the service in terms of a change in base location for staff, bringing teams of staff from different bases together and infrastructure requirements. However, the option does provide the opportunity to work different shift patterns and for CCP staff to work with consultants and other CCPs. The option provides the opportunity to meet the need in rural areas and for staff to continue to work in these areas.</p> <p>Meets rural/community needs therefore likely more acceptable to existing staff. Retention of existing skilled practitioners likely for the majority. Recruitment requirements for additional resources. Model would need further discussion regarding crew configuration, tasking criteria, risks associated with EMRTS tasking and impact on utilisation. Consideration of adding 'North and Mid' EMRTS Critical Care Hub capacity for management of additional and varied teams within Mid and North Wales – support the strengthening of capture of high acuity calls.</p>

Utilisation on a national and base level

Clinical and skills sustainability	Do Nothing – Baseline	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Total crew utilisation	30%	31%	31%	32%	27%	26%	27%	
Caernarfon base	17%	21%	21%	-	-	13%	20%	
Cardiff base	42%	40%	40%	39%	27%	40%	38%	
Dafen base	36%	35%	35%	35%	35%	36%	35%	
Welshpool base	14%	20%	19%	-	-	14%	19%	
North Central Wales near A55 base	-	-	-	22%	21%	-	12%	
NE Wales base	-	-	-	-	8%	-	-	

No arrival days

	Do Nothing – Baseline	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Total no arrival days	376	352	359	126	400	374	599	
No arrival days - Caernarfon	163	142	142			99	153	
No arrival days – Cardiff	2	4	3	2	2	1	7	
No arrival days - Dafen base	7	64	69	69	67	64	70	
No arrival days - Welshpool base	204	142	145			210	148	
No arrival days - North Central Wales near A55 base				55	66		221	
No arrival days - NE Wales base					265			
Scoring (using a score of 1 to 5 low to high)								

Benefits and drawbacks – Clinical and skills sustainability

Clinical and skills sustainability	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) Rhudd- lan 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20- 08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Likelihood of delivering required shifts	20%	20%	90%	60%	60%	25%	
Increased total crew utilisation from the baseline	✓	✓	✓	X	X	X	
No individual base utilisation rate below e.g. 20%	✓	X	✓	X	X	X	

Scoring – Clinical and Skills Sustainability

Each short listed option is scored by stakeholders using a score of 1 to 5.

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

Factor 4: Affordability

The affordability factor relates to ensuring the service delivered is able to operate effectively within the financial constraints of NHS Wales and Wales Air Ambulance Charitable Trust. This section will focus on additional recurrent costs. Additional project costs and capital costs are also included for context.

Investment Objective (Factor)	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Affordability	To ensure the service delivered is able to operate effectively within the financial constraints of NHS Wales and Wales Air Ambulance Charity Trust	To ensure that the costs of service delivery are within agreed income limits	<ul style="list-style-type: none">• Additional recurrent cost to baseline (pay and non pay costs)• Transition/project costs• Additional capital costs

The affordability impact on each of the shortlisted options is provided in the following table:

Affordability	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Additional EMRTS recurrent cost to baseline (pay)	£140,444	£90,934	£90,934	£323,916	£493,136	£555,893	
Additional EMRTS capital costs	£0	£0	£30k	£183k	£153k	£153k	
EMRTS Transition/ project costs	£0	£0	£92k	£152k	£57k	£57k	

Notes:

(Note provided by SBUHB) - Additional EMRTS recurrent costs to baseline (pay):

- Provided by EMRTS and Swansea Bay UHB Finance Department
- Medical (Welsh and English T&Cs) and Critical Care Practitioner costs
- Pay costs - middle of the pay scale, this will fluctuate going forward as staff increment to the next pay point

(Note provided by EMRTS) - EMRTS capital and transition costs:

- Costed on a worse-case scenario, EMRTS will use existing equipment where possible
- Consolidation of bases provides better resilience
- Satellite bases have additional requirements for resilience
- Adding an extra RRV requires an additional vehicle, additional equipment & associated running costs
- Infrastructure costs are not included (Rental/Lease, energy bills, insurance etc)

Scoring – Affordability

Each short listed option is scored by stakeholders using a score of 1 to 5.

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

Factor 5: Value for Money

The value for money factor relates to maximising efficiency, ensuring that the population attains the highest possible level of health gain for the given level of expenditure. This section will focus on additional cost to the baseline and increased number of arrivals at scene over the baseline, providing a cost per additional scene arrival.

Investment Objective (Factor)	Commissioning Objective	Commissioning Strategy	Commissioning Approach
Value for money	To maximise efficiency, ensure that the population attain the highest possible level of health gain for the given level of expenditure	To maximise the number of incidents the service can attend and increase the utilisation of each asset	<ul style="list-style-type: none">• Additional cost to the baseline• Increased number of arrivals at scene over baseline• Cost per additional scene arrival

The value for money impact on each of the shortlisted options is provided in the following table:

Value for Money	Do Nothing - Baseline	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Option 7
Additional EMRTS recurrent cost to the baseline (pay)		£140,444	£90,934	£90,934	£323,916	£493,136	£555,893	
Scene arrivals	2,696	2,785	2,793	2,835	2,904	2,801	2,901	
Increased no. of arrivals at scene over baseline		89	97	139	208	105	205	
(Add'l cost to baseline / Inc arrivals at scene over baseline) = Cost per incident	-	£1,578 <i>per incident</i>	£937 <i>per incident</i>	£654 <i>per incident</i>	£1,557 <i>per incident</i>	£4,697 <i>per incident</i>	£2,712 <i>per incident</i>	

Scoring – Value for Money

Each short listed option is scored by stakeholders using a score of 1 to 5.

Option has less significant impact against this factor	1
Option has significant impact against this factor	5

Summary (scores to be pulled through from above)

Factor	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08- 20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Health Gain							
Equity							
Clinical skills and sustainability							
Affordability							
Value for money							
Total	X	X	X	X	X	X	X

Weighted Score example (Scores x weighting)

Factor (<i>x Weighting</i>)	Short List Option 1: 2A) Welshpool 14-02	Short List Option 2: 2B) Caernarfon 14-02	Short List Option 3: 3D) North Central Wales near A55 08-20 + 14-02	Short List Option 4: 4C) Impr 3D, add car shift 20-08 (Wrexham)	Short List Option 5: 5C) Improve baseline, add shift 20-08 (Caernarfon)	Short List Option 6: 6C) Impr 2B, add car shift 20-08 (North Central Wales near A55)	Emerging Option 7
Health Gain (<i>x25</i>)							
Equity (<i>x25</i>)							
Clinical Skills and Sustainability (<i>x20</i>)							
Affordability (<i>x15</i>)							
Value for money(<i>x15</i>)							
Total Weighted Score	X	X	X	X	X	X	X
Ranking							

Appendix 1

Equity Table 1: Population Coverage – Road (Population of Wales 3.137m)

Option	Hours	Bases Available	Population 30m	Population 60m	Population 90m
2A Welshpool 14:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Caernarfon	1,447,276	2,343,954	2,471,716
	14:00 – 20:00	Cardiff, Dafen, Caernarfon, Welshpool	1,496,240	2,434,594	2,607,555
	20:00 – 02:00	Cardiff, Welshpool	927,155	1,569,711	1,619,843
	02:00 – 08:00	Cardiff	878,191	1,479,071	1,484,004
2B Caernarfon 14:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Welshpool	1,419,482	2,264,179	2,235,983
	14:00 – 20:00	Cardiff, Dafen, Caernarfon, Welshpool	1,496,240	2,434,594	2,607,555
	20:00 – 02:00	Cardiff, Caernarfon	954,949	1,649,487	1,655,576
	02:00 – 08:00	Cardiff	878,191	1,479,071	1,484,004
3D North Central Wales near A55 08:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), North Central Wales near A55	1,616,598	2,430,303	2,556,938
	14:00 – 20:00	Cardiff, Dafen, North Central Wales near A55	1,616,598	2,430,303	2,556,938
	20:00 – 02:00	Cardiff, North Central Wales near A55	1,124,271	1,735,836	1,740,798
	02:00 – 08:00	Cardiff	878,191	1,479,071	1,484,004
4C Improve 3D, add car shift 2000-0800 (Wrexham)	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), North Central Wales near A55	1,616,598	2,430,303	2,556,938
	14:00 – 20:00	Cardiff, Dafen, North Central Wales near A55	1,616,598	2,430,303	2,556,938
	20:00 – 02:00	Cardiff, North Central Wales near A55, Wrexham	1,362,413	1,982,722	1, ,987,698
	02:00 – 08:00	Cardiff, Wrexham	1,116,333	1,725,957	1,730,904
5C Improve baseline, add shift 2000-0800 (Caernarfon)	08:00 – 20:00	Cardiff (7am start), Dafen (7am start), Caernarfon, Welshpool	1,496,240	2,434,594	2,607,555
	20:00 – 08:00	Cardiff, Caernarfon	954,949	1,649,487	1,655,576
6C Improve 2B, add car shift 2000-0800 (North Central Wales near A55)	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Welshpool	1,419,482	2,264,179	2,235,983
	14:00 – 20:00	Cardiff, Dafen, Welshpool, Caernarfon	1,496,240	2,434,594	2,607,555
	20:00 – 02:00	Cardiff, Caernarfon, North Central Wales near A55	1,201,029	1,906,252	1,912,370
	20:00 – 08:00	Cardiff, North Central Wales near A55	1,124,271	1,735,836	1,740,798

Appendix 2

Equity Table 2: Population coverage – Air

Option	Hours	Bases Available	Population 30m	Population 40m (night)	Population 60m
2A Welshpool 14:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Caernarfon	3,136,070 (99.97%)	3,137,127	3,137,127
	14:00 – 20:00	Cardiff, Dafen, Caernarfon, Welshpool	3,137,127	3,137,127	3,137,127
	20:00 – 02:00	Cardiff, Welshpool	-	3,137,127	-
	02:00 – 08:00	Cardiff	-	2,606,214 (83.1%)	-
2B Caernarfon 14:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Welshpool	3,098,068 (98.75%)	3,137,127	3,137,127
	14:00 – 20:00	Cardiff, Dafen, Caernarfon, Welshpool	3,137,127	3,137,127	3,137,127
	20:00 – 02:00	Cardiff, Caernarfon	-	3,137,127	-
	02:00 – 08:00	Cardiff	-	2,606,214 (83.1%)	-
3D North Central Wales near A55 08:00 – 02:00	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), North Central Wales near A55	3,137,127	3,137,127	3,137,127
	14:00 – 20:00	Cardiff, Dafen, North Central Wales near A55	3,137,127	3,137,127	3,137,127
	20:00 – 02:00	Cardiff, North Central Wales near A55	-	3,137,127	-
	02:00 – 08:00	Cardiff	-	2,606,214 (83.1%)	-
4C Improve 3D, add car shift 2000-0800 (Wrexham)	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), North Central Wales near A55	3,137,127	3,137,127	3,137,127
	14:00 – 20:00	Cardiff, Dafen, North Central Wales near A55	3,137,127	3,137,127	3,137,127
	20:00 – 02:00	Cardiff, North Central Wales near A55, Wrexham	-	3,137,127	-
	02:00 – 08:00	Cardiff, Wrexham	-	3,137,127	-
5C Improve baseline, add shift 20-08 (Caernarfon)	08:00 – 20:00	Cardiff (7am start), Dafen (7am start), Caernarfon, Welshpool	3,137,127	3,137,127	3,137,127
	20:00 – 08:00	Cardiff, Caernarfon	-	3,137,127	-
6C Improve 2B, add car shift 20-08 (North Central Wales near A55)	08:00 – 14:00	Cardiff (7am start), Dafen (7am start), Welshpool	3,098,068 (98.75%)	3,137,127	3,137,127
	14:00 – 20:00	Cardiff, Dafen, Welshpool, Caernarfon	3,137,127	3,137,127	3,137,127
	20:00 – 02:00	Cardiff, Caernarfon, North Central Wales near A55	-	3,137,127	-
	20:00 – 08:00	Cardiff, North Central Wales near A55	-	3,137,127	-



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