



Elusen
Ambiwlans
Awyr
CYMRU | **WALES**
Air
Ambulance
Charity



GIG
CYMRU
NHS
W A L E S

Gwasanaeth Casglu a
Throsglwyddo Meddygol Brys
Emergency Medical
Retrieval & Transfer Service

*Achub Bywydau. Dros Gymru.
Saving Wales. Saving Lives.*

Presentation Overview

- WAA Five-Year Strategy Objectives
- EMRTS Strategy and Commissioning
- Unmet Need
- Demand and Capacity Deep Dive Summary
- Optima Modelling



New WAA Mission and Vision

Mission

To deliver lifesaving, advanced medical care to people across Wales, whenever and wherever they need it.

Vision

To improve the lives of patients and their families by being a world leader in advanced, time-critical care.

WAA five-year strategy objectives informing this work

To enable the delivery of 24/7 emergency department standard care, in a pre-hospital environment to the people of Wales, wherever and whenever it is needed.

To ensure that the service is delivered in the most cost effective manner, maximising the impact of our funds across the whole of Wales.

Proactively seek out opportunities to improve patient care and outcomes.

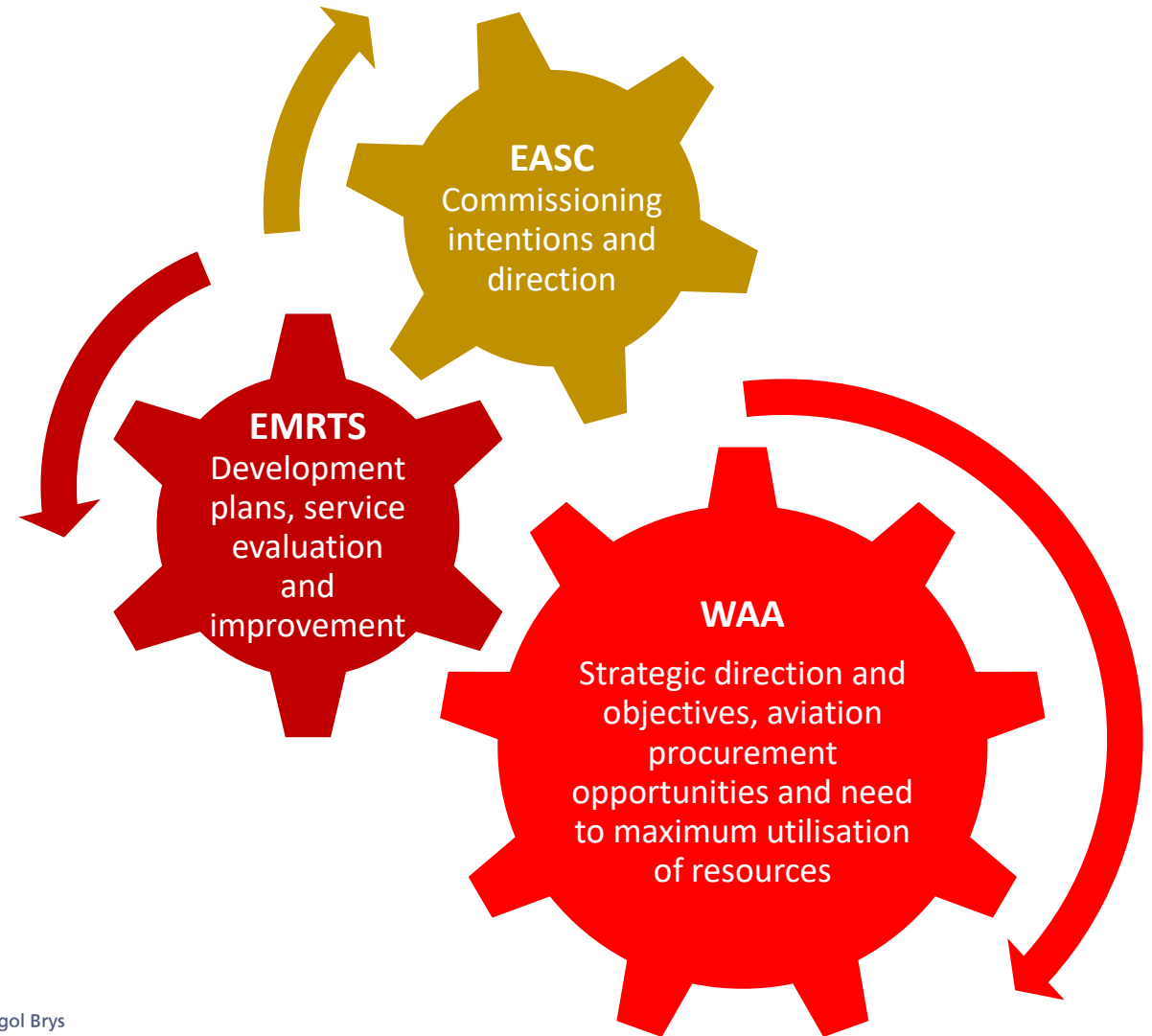
To repay the trust that the people of Wales have placed in us by adopting the highest ethical standards, embedding sustainability and value for money in all that we do.

To recognise the unique relationship that we have with the people of Wales, celebrating our national identity and ensuring our activities are inclusive and reflect the needs of all the different communities that we serve.

Our drivers and our joint objectives

Joint Outcome

To determine the optimal operational configuration and physical footprint for our lifesaving services that brings greatest benefit to all the people of Wales

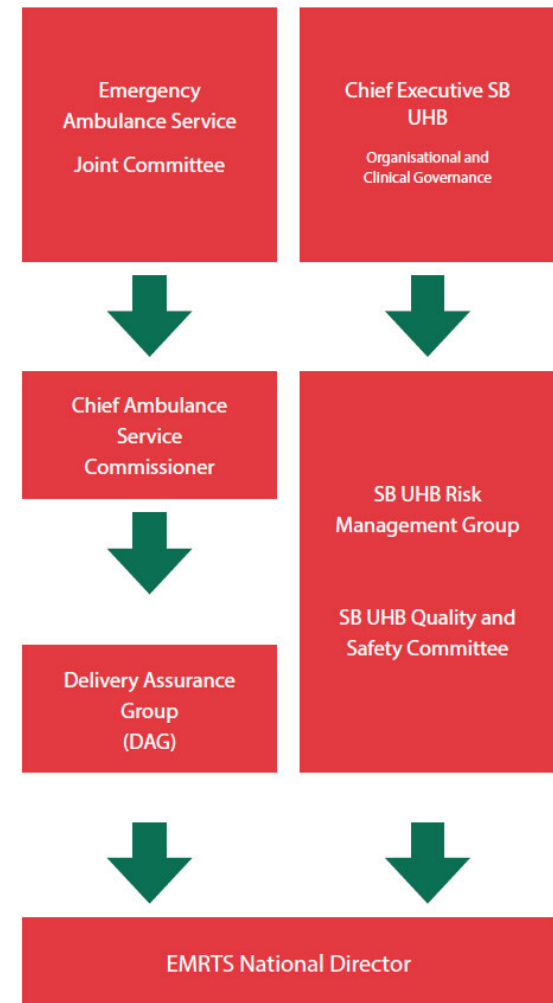


Strategy



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Pwyllgor Gwasanaethau
Ambiwlans Brys
Emergency Ambulance
Services Committee



Emergency Ambulance Services Committee – Emergency Medical Retrieval and Transfer Service Commissioning Intentions 2022-23

Service Benefits

Equity of access to emergency care across Wales



Improved patient outcomes



Enhanced clinical skills across NHS Wales



Downstream benefits for other NHS services



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Quality attributes of services for people who are critically ill in Wales

- Equitable
- Safe
- Effective
- Efficient
- Person centred
- Timely



GUIDANCE

Care of the critically ill: quality statement

What we are doing to improve care for people who are critically ill.

First published: 7 October 2021

Last updated: 7 October 2021

EMRTS Commissioning Intentions 2022-23



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Ambiwylans Brys
Emergency Ambulance
Services Committee

EMRTS Commissioning Intention – CI1: Service Expansion

EMRTS Commissioning Intention – CI2: Adult Critical Care Transfer Service (ACCTS)

EMRTS Commissioning Intention – CI3: Service Evaluation

EMRTS Commissioning Intention – CI4: System Transformation

EMRTS Commissioning Intention – CI1: Service Expansion

CI1a	Enhanced CCP-led response – Building on the findings of recent winter initiatives and demand and capacity planning undertaken within the service, support the implementation of an enhanced daytime response that will ensure more effective use of resources, improve service quality and the patient experience and provide opportunities for workforce development.
CI1b	Planning – Build on the implementation and consolidation of Phase 1 of the EMRTS Service Expansion project, working collaboratively with commissioners to plan the implementation of the remaining phases of the EMRTS Service Expansion programme.

EMRTS Commissioning Intention – CI2: Adult Critical Care Transfer Service (ACCTS)

CI2a	Service Delivery – The ACCTS team will continue to manage ongoing service delivery and will ensure robust performance management with a focus on outcomes, value, quality and safety of service delivery.
CI2b	Engagement – Building on established relationships, continue to engage with all stakeholders to review and strengthen the service model(s) implemented to maximise the clinical outcomes, value, quality and safety of service delivery.
CI2c	Evaluation and Review – Undertake evaluation and review relating to the implementation of the ACCTS, reporting on lessons learned, service activity and providing the required assurance regarding the realisation of anticipated outcomes and benefits going forward.

EMRTS Commissioning Intention – CI3: Service Evaluation

CI3a Improvement Plan – Develop and implement an improvement plan in response to the EMRTS Service Evaluation Report.

EMRTS Commissioning Intention – CI4: System Transformation

CI4a Demand and Capacity Strategy – To continue with the work on a collaboratively developed demand and capacity strategy will set out the ongoing arrangements for proactively undertaking this work for the next decade, this will include the use of forecasting, modelling and health economic evaluations.

Work to date



24 hour service review



10 year analysis



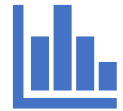
Deep dive into base activity



Service Evaluation



Night service reviews



Comprehensive demand and capacity analysis



Review of dispatch criteria



Review of EMRTS strategy



Road & Air Isochrones



5 year forecast



Continuous monitoring and improvement

→ Strategic Review & Optima Modelling



Headlines

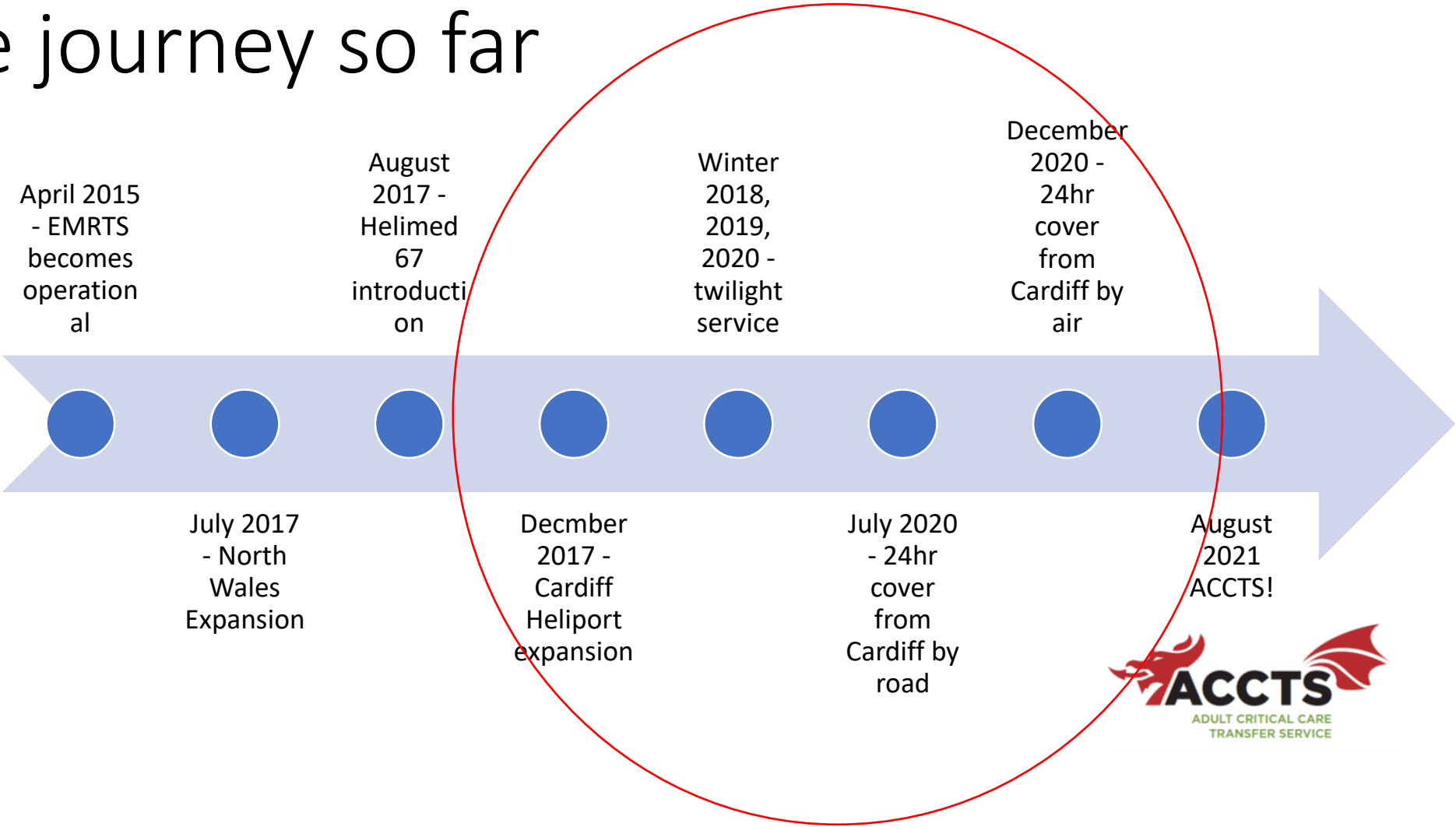
- Under Utilisation
- Unmet need
 - Geographic
 - Overnight
 - Hours of darkness
- Analysis and modelling to date
 - Extended hours
 - Optimise location
 - Road vs Air

Current Service

Activity



The journey so far



Current 4-year average actual activity

WAA BASE	1	2	3	4	5	6	7	8	9	10	11	12	Total
WAA Caernarfon (North)	45	37	41	47	55	51	48	56	45	40	37	35	535
Rapid Response Vehicle	18	11	8	8	6	6	7	8	7	10	13	13	111
Air Ambulance	27	27	34	40	51	46	42	50	39	31	24	24	433
WAA Welshpool (Mid-Wales)	44	40	53	52	58	54	66	62	57	47	44	40	616
Rapid Response Vehicle	13	10	14	8	6	6	6	5	9	10	13	16	110
Air Ambulance	33	32	41	45	53	50	63	59	51	38	31	26	521
WAA Cardiff (South East)	83	88	87	77	88	77	82	83	82	74	73	96	989
Air Ambulance	15	17	19	26	27	24	25	24	22	18	16	15	248
Rapid Response Vehicle	69	72	69	53	63	55	58	61	61	58	58	81	757
WAA Dafen (South)	107	94	100	90	108	98	113	110	104	100	100	99	1,221
Rapid Response Vehicle	65	49	43	19	23	25	29	34	30	37	47	60	459
Air Ambulance	44	46	61	73	88	76	87	81	77	68	56	42	798
Total	261	244	265	246	283	262	285	286	269	242	237	251	3,128

- Caernarfon + Welshpool = 968

Utilisation of current resource

4-year average actual activity

WAA BASE	Autumn	Spring	Summer	Winter
WAA Caernarfon (North)	1.3	1.6	1.7	1.3
WAA Cardiff (South East)	2.5	2.8	2.7	3.0
WAA Dafen (South)	3.4	3.3	3.6	3.3
WAA Welshpool (Mid-Wales)	1.6	1.8	2.0	1.4

Ave utilization by medical team

WAA BASE	Autumn	Spring	Summer	Winter
WAA Caernarfon (North)				
Air Ambulance	1.0	1.4	1.5	0.9
Rapid Response Vehicle	0.3	0.2	0.2	0.5
WAA Cardiff (South East)				
Air Ambulance	0.6	0.8	0.8	0.5
Rapid Response Vehicle	2.0	2.1	1.9	2.5
WAA Dafen (South)				
Air Ambulance	2.2	2.5	2.7	1.5
Rapid Response Vehicle	1.3	0.9	1.0	1.9
WAA Welshpool (Mid-Wales)				
Air Ambulance	1.3	1.5	1.9	1.0
Rapid Response Vehicle	0.3	0.3	0.2	0.4

*

Ave utilization by response mode

** NB – average utilization at Cardiff (aircraft) affected by ring fencing of HM67 for transfers*

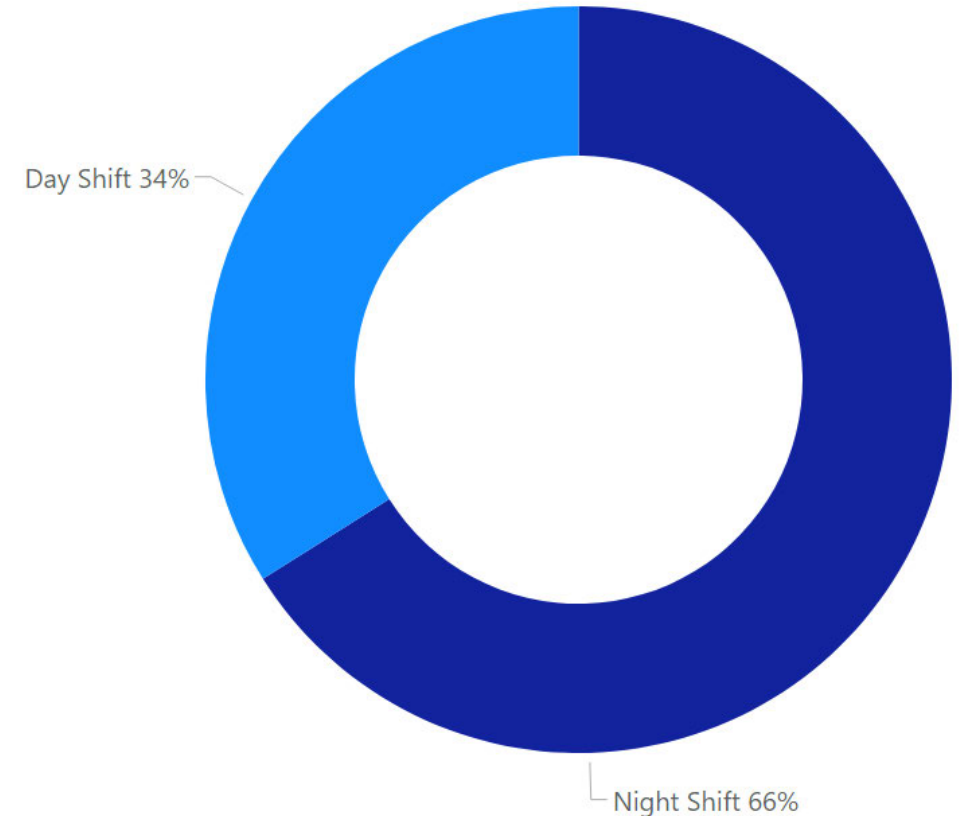
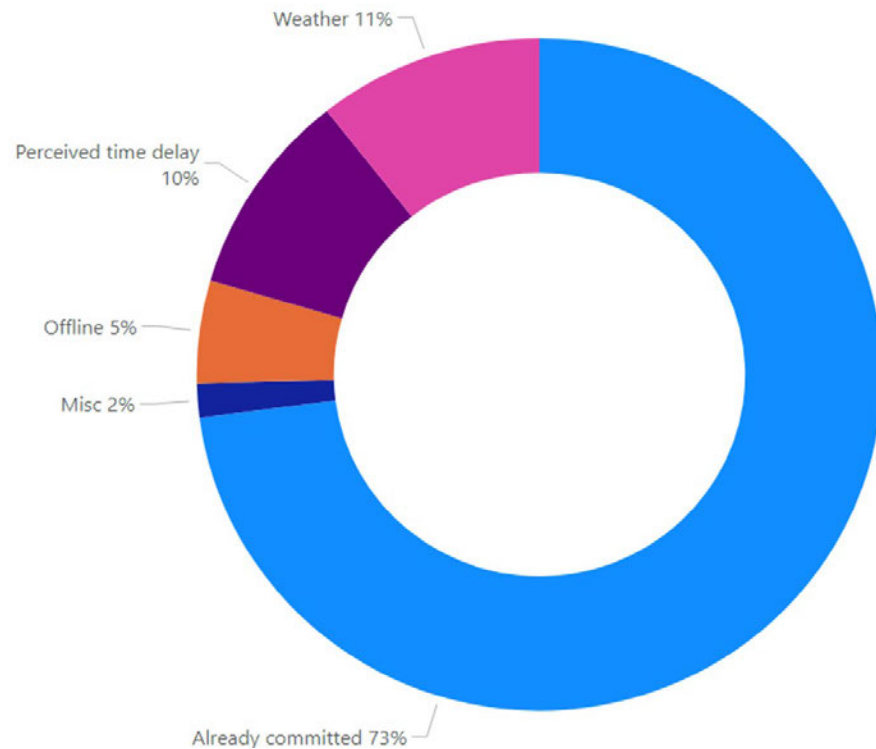
Utilisation of current resource – 2021

Base	Day Shift	Night Shift	Autumn	Spring	Summer	Winter
WAA Cardiff (South East)	-	37%	41%	35%	41%	32%
WAA Dafen (South)	54%	-	56%	55%	56%	50%
WAA Welshpool (Mid-Wales)	27%	-	27%	33%	33%	17%
WAA Caernarfon (North)	21%	-	18%	21%	31%	16%

Actual utilization by Shift, based on minutes from allocation to clear, and assuming 12 hour shift. Will under estimate

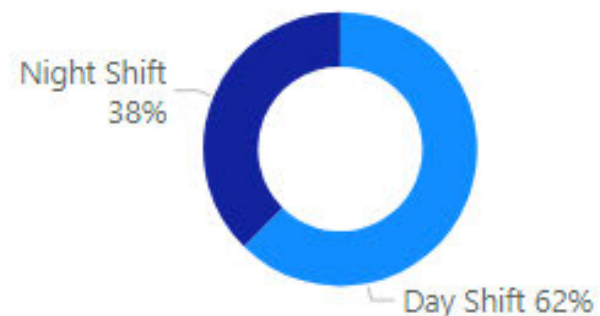
Pan-Wales overall unmet need – 2-year average

	Month												
Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	61	34	21	49	33	44	47	40	42	22	21	38	452
Night Shift	50	58	59	75	78	108	89	95	75	72	66	54	879
Total	111	92	80	124	111	152	136	135	117	94	87	92	1331



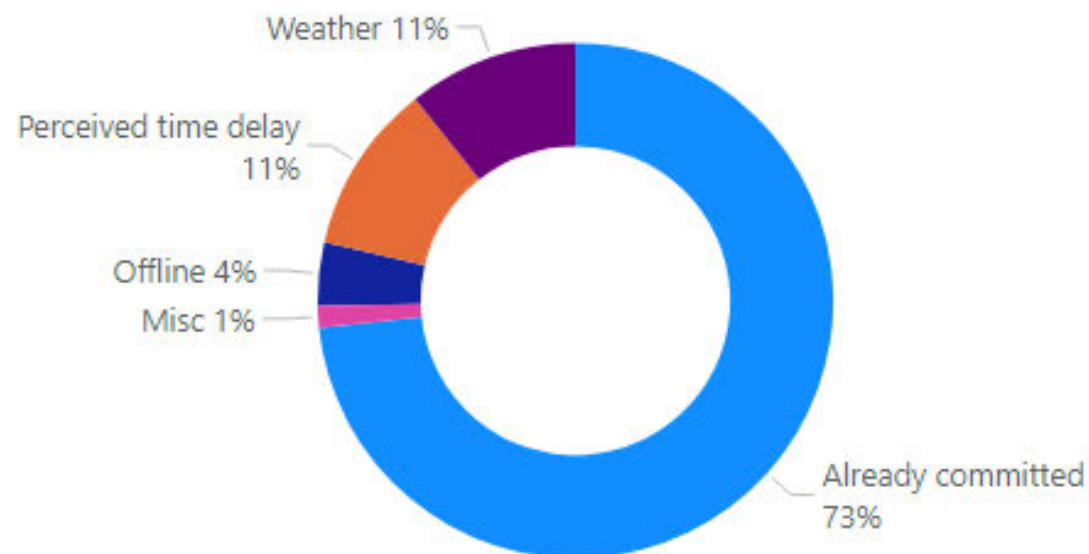
All Wales Current Demand

		Month												
Hour	1	2	3	4	5	6	7	8	9	10	11	12	Total	
0	11	9	7	15	17	11	14	9	10	19	9	12	143	
1	8	14	7	14	11	14	9	12	14	14	6	9	132	
2	4	7	4	4	8	5	4	12	9	10	11	7	85	
3	6	5	6	7	10	2	10	8	1	12	6	6	79	
4	4	4	7	7	9	6	3	7	4	5	4	13	73	
5	8	4	5	4	2	9	4	6	10	2	5	7	66	
6	6	4	7	3	6	4	8	8	6	1	11	4	68	
7	14	16	13	8	13	10	13	11	10	10	9	7	134	
8	17	10	10	15	22	13	19	10	17	12	13	6	164	
9	21	13	12	17	15	15	19	13	21	19	15	18	198	
10	13	15	19	25	17	21	17	27	29	19	21	25	248	
11	29	25	24	30	24	18	26	25	35	22	22	22	302	
12	16	19	29	24	37	34	30	21	37	25	25	22	319	
13	20	17	20	20	18	16	24	31	13	25	23	27	254	
14	21	17	19	30	22	23	24	34	32	26	15	22	285	
15	25	19	22	30	21	25	22	21	27	33	28	25	298	
16	22	13	24	27	25	26	24	18	29	19	24	22	273	
17	23	24	20	22	20	23	24	18	27	21	15	23	260	
18	12	18	16	24	21	21	22	15	26	13	14	12	214	
19	15	20	16	14	23	26	24	21	18	16	17	11	221	
20	21	11	16	16	22	31	34	24	15	16	20	14	240	
21	13	14	11	17	14	28	29	15	17	20	25	12	215	
22	7	11	19	23	15	18	14	25	22	16	15	14	199	
23	14	11	12	18	22	28	14	15	17	16	13	17	197	
Total	350	320	345	414	414	427	431	406	446	391	366	357	4667	



Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	233	206	228	272	255	245	264	244	303	244	224	231	2949
Night Shift	117	114	117	142	159	182	167	162	143	147	142	126	1718
Total	350	320	345	414	414	427	431	406	446	391	366	357	4667

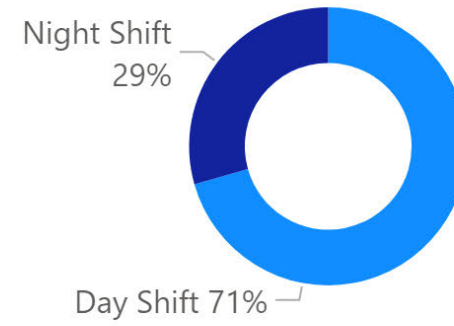
Missed Task Breakdown



Betsi Cadwaladr

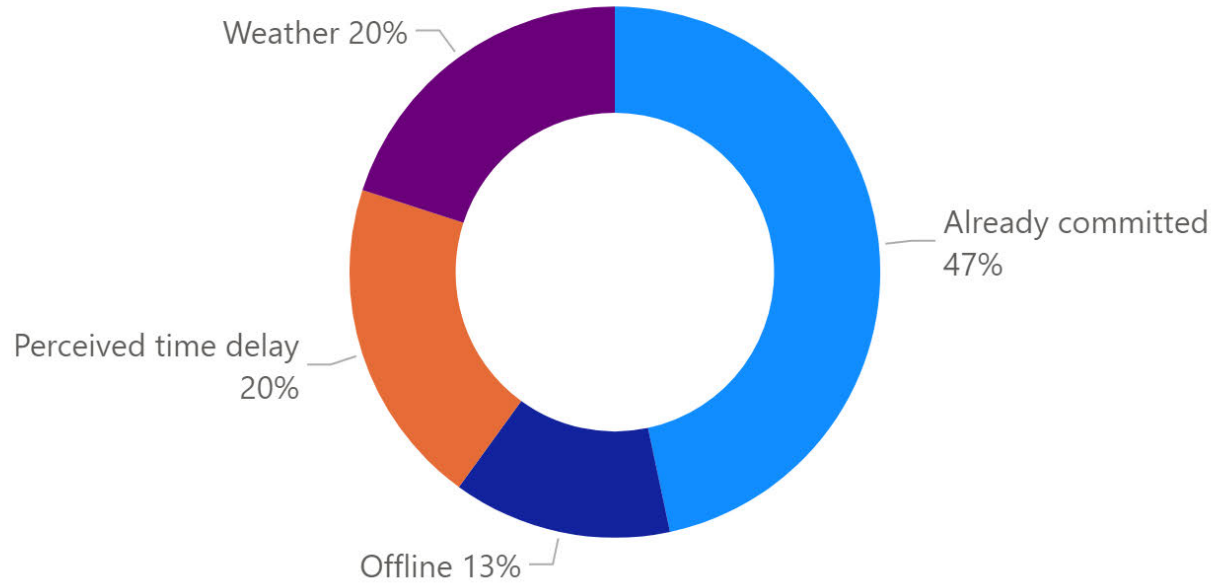
Current Demand

		Month												
Hour	1	2	3	4	5	6	7	8	9	10	11	12	Total	
0	1		1	4	1	4		2	1	4	3	1	22	
1	1	4		2	1	5	2	3	4	3	3	2	30	
2	1	1				1		2		1	1		7	
3	1			1	3		2	1		1	2	1	12	
4	1				2	2		2		2		1	10	
5	2	1	1	1			2	1	2	1		1	12	
6	3		2		1		1	2	2		2		13	
7	4	4	2	1	3	3	3	3	1	2			26	
8	5	3	3	2	8	2	4	4	5	2	2	1	41	
9	3	1	4	4	6	1	7	2	3	4	4	7	46	
10	4	3	2	7	3	2	5	5	6	7	2	7	53	
11	6	5	3	4	4	5	3	6	9	2	5	2	54	
12	1	2	7	7	6	11	10	6	9	6	4	4	73	
13	4	3	3	5	3	4	7	10	4	8	10	4	65	
14	5	3	4	9	8	9	7	14	5	5	5	5	79	
15	6	3	1	7	5	8	9	7	7	8	9	7	77	
16	5	2	5	7	10	7	7	1	12	6	8	6	76	
17	3	4	1	3	8	10	6	4	3	7	3	10	62	
18	4	4	5	5	6	4	6		2	5	4	2	49	
19	2	4	1	2	8	6	4	3	1	4	1	2	38	
20	2	1	5	4	4	4	4	8	5	1	2	2	42	
21	2	2	2	3	3	5	4	6	5	5	4	3	44	
22		1	2	5		2	2	5	4	2	2	3	28	
23	1	5	1	4	3	2	4	5	1	1	1	4	32	
Total	67	56	55	87	96	97	99	104	94	86	75	75	991	



Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	50	37	40	61	70	66	74	64	69	61	54	55	701
Night Shift	17	19	15	26	26	31	25	40	25	25	21	20	290
Total	67	56	55	87	96	97	99	104	94	86	75	75	991

Missed Task Breakdown

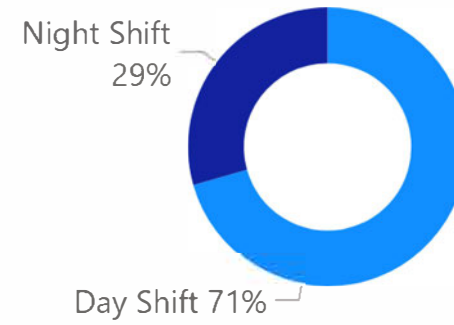


Betsi Cadwaladr

Unmet need

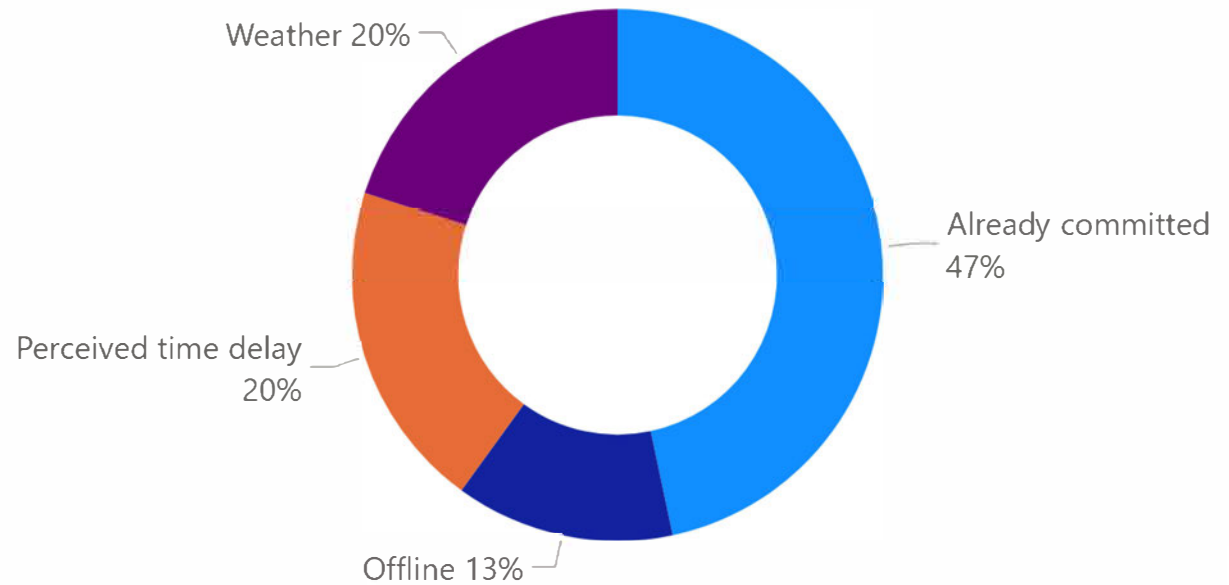
Month

Hour	1	2	3	4	5	6	7	8	9	10	11	12	Total
0	1		1	3	1	4		2	1	4	3	1	21
1	1	4		2	1	5	1	3	4	2	2	2	27
2		1				1		2		1	1		6
3	1			1	3		1	1		1	2	1	11
4	1				2	2		2		2		1	10
5	2	1	1	1			2	1	2	1		1	12
6	2		1		1		1	2	2		2		11
7	3	3	1	1	1	2	3	1		1			16
8						1		1					2
9			1			1	1					1	4
10									1			1	2
11				2		2		2	1				7
12			1	1			1		2				5
13					1			1	1				3
14				2		2	1	2	1				8
15	3	1		1					3	1		1	10
16	2				2	1	1		2	1		2	11
17	1	1		1	2	3			1	1		3	13
18				1		1	3	1		1			7
19		2			2	2	1			4		2	13
20	2		4	4	4	2	3	6	4	1	2	1	33
21	2	2	1	2	2	5	4	4	5	3	4	3	37
22		1	2	5		2	2	5	4	2	2	2	27
23	1		1	3	3	2	4	4	1	1	1	4	30
Total	22	21	14	30	25	38	29	40	35	27	19	26	326



Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	9	5	3	9	6	13	10	8	12	5		8	88
Night Shift	13	16	11	21	19	25	19	32	23	22	19	18	238
Total	22	21	14	30	25	38	29	40	35	27	19	26	326

Missed Task Breakdown

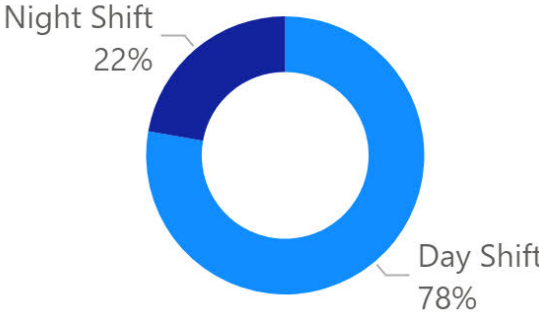


Powys

Month

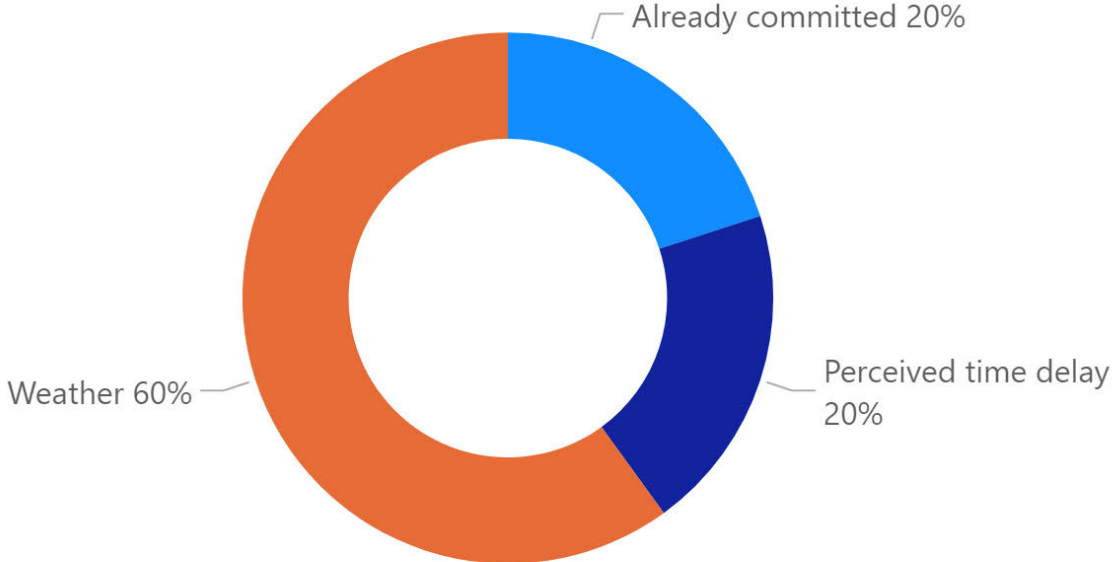
Hour	1	2	3	4	5	6	7	8	9	10	11	12	Total
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1	2	1							2				5
2					2								2
3			1		1		1						3
4			1			1		1		1		1	5
5			1					1	1				3
6							1						1
7	1	3	1		1								6
8	2	1		2			1	1	2	1	1		11
9	5	2	1	2		4	2		1	3		1	21
10			1	1	4	2		1	3	1	2	1	16
11		2	2	3	1	2	4	2	4		4	1	25
12	1	1	1	2	2	1	2	2	3	2	1	2	20
13	3	1	1	2	3	1	1	3				1	16
14			1	4	2	3	2	2	3	2	1		20
15	1	2	1	3	1	3			4	6		1	22
16	1	1	2	2	2	4	1	2	3	1	1	2	22
17	2	1	3	1	1		1	1	2			1	13
18		1	1	1	2		3	2	4				14
19					1	1	2		3				7
20					1	3	2	1		1			8
21						1			1	1	2	1	6
22			1	2	1			3	1	1			9
23					1	1	2	1	1	1	1	1	9
Total	19	17	19	26	26	28	24	23	37	21	13	13	266

Current Demand



Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	16	15	15	23	19	20	17	16	29	16	10	10	206
Night Shift	3	2	4	3	7	8	7	7	8	5	3	3	60
Total	19	17	19	26	26	28	24	23	37	21	13	13	266

Missed Task Breakdown

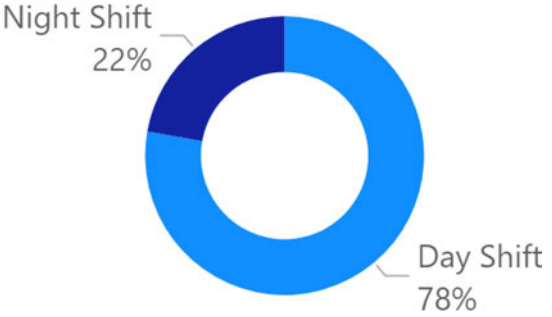


Powys

Month

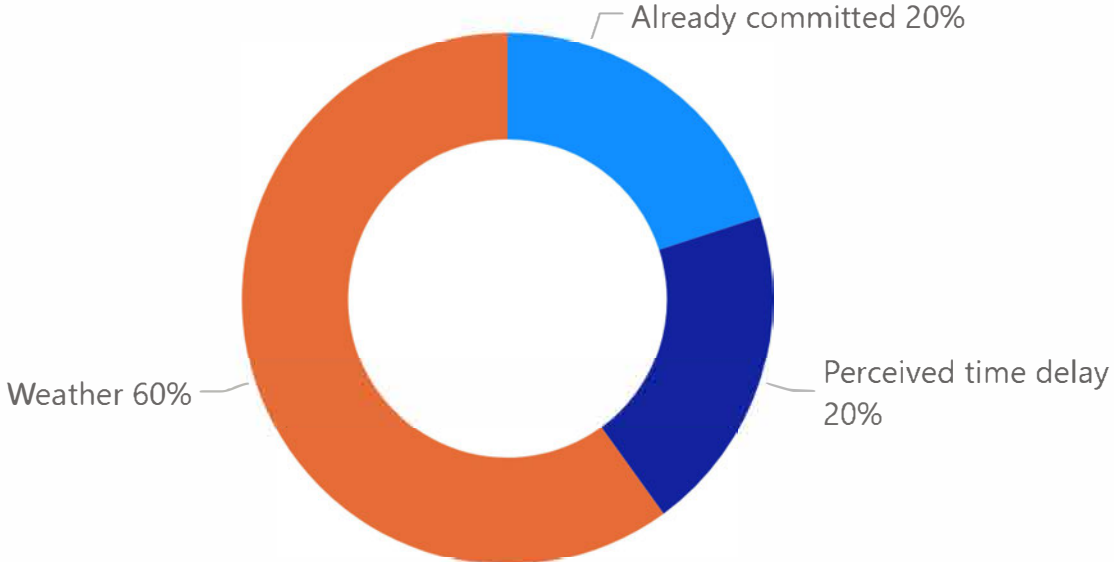
Hour	1	2	3	4	5	6	7	8	9	10	11	12	Total
0	1	1											2
1	1	1							1				3
2					2								2
3			1		1		1						3
4										1		1	2
5			1					1					2
6								1					1
7	1	2											3
8								1					1
9	1							1					2
10									1				1
11											1		1
12					1				1				2
13						1		1					2
14			1					1	1				3
15						1							1
16						1					1		2
17	1	1										1	3
18					1				1				2
19							2		1				3
20					1		2	1					4
21						1						2	3
22		1	1	1				1					7
23			1		2		1	1		1		1	7
Total	5	5	3	3	6	7	8	9	7	2	4	3	62

Unmet need

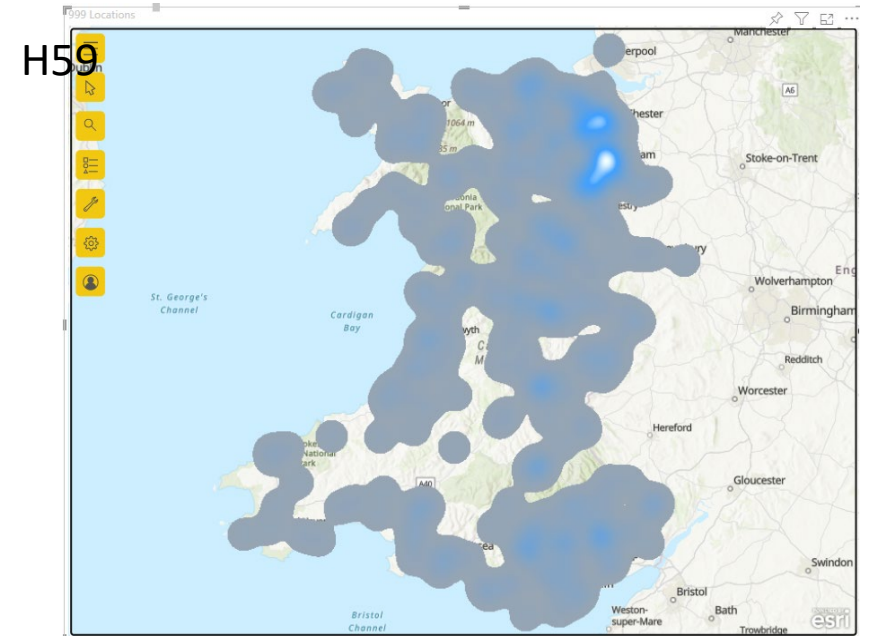
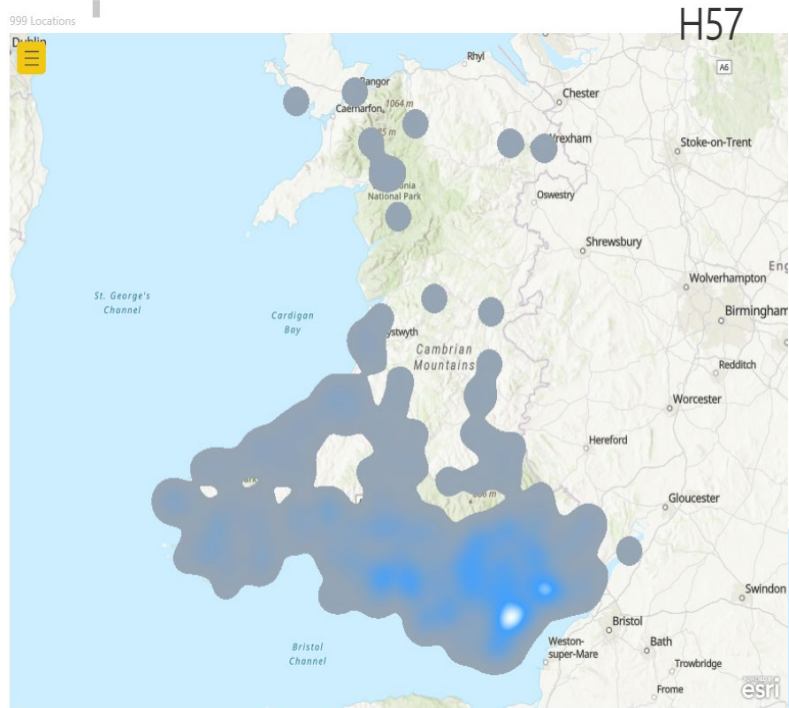


Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	3	3		1	2	3	1	3	4		2	1	23
Night Shift	2	2	3	2	4	4	7	6	3	2	2	2	39
Total	5	5	3	3	6	7	8	9	7	2	4	3	62

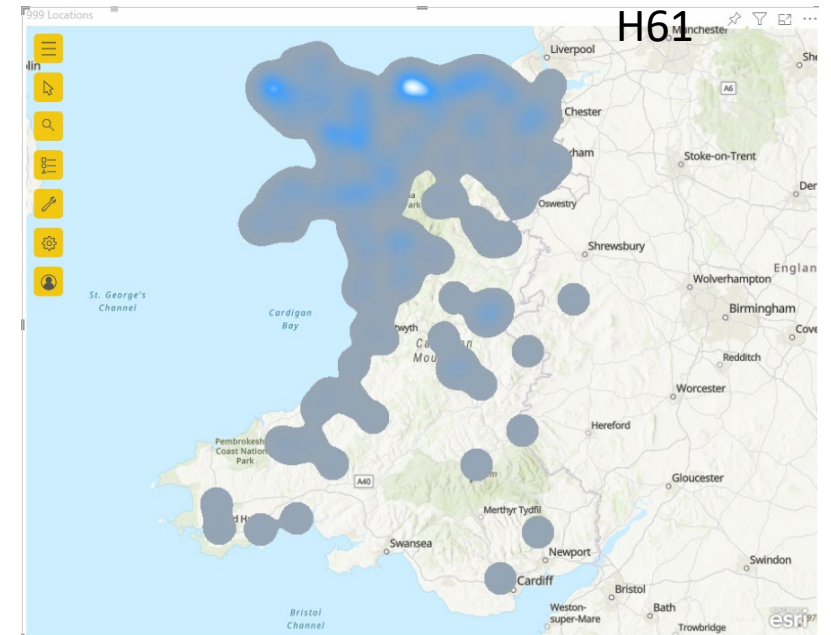
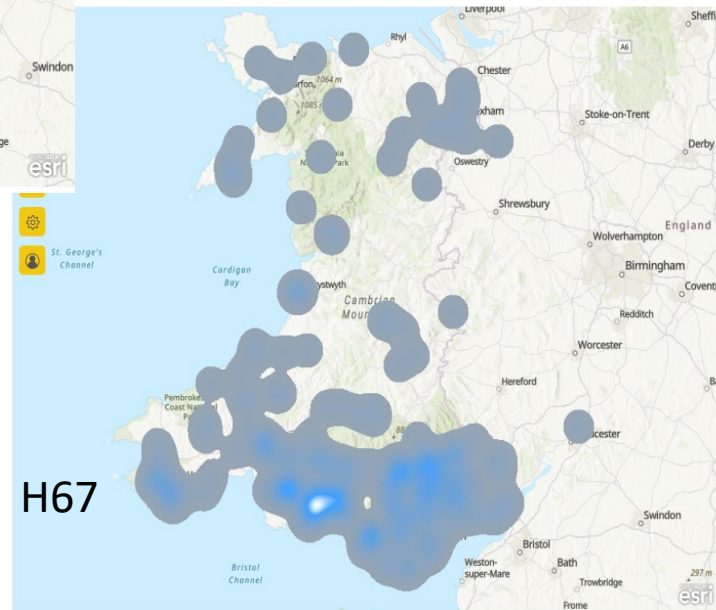
Missed Task Breakdown



Current pattern of aircraft deployment



Nb. Density relative to volume of each asset



Summary

- Air: Dafen 50%, Welshpool / Caernarfon 25% each
- Cardiff: Transfer / Childrens AA – small numbers. Car activity very high
- Welshpool poor coverage / poor infrastructure / difficult recruitment
- Combine Welshpool / Caernarfon – better / maintained coverage



Historical Activity (18-20)

- 1356 Cases per year
- 62% Air
- 38% Road
- 19.6% Air Stand Down rate

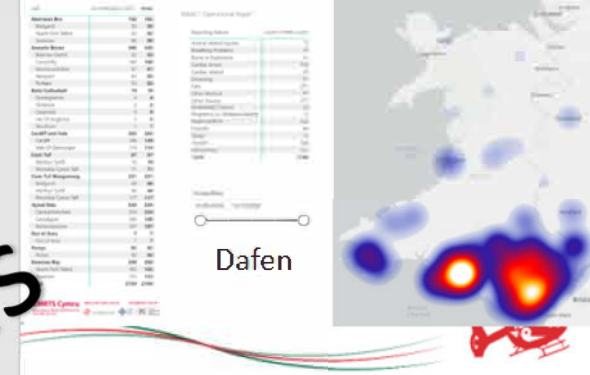
Planning data

- 1554 cases per year estimated
- Road population coverage
 - 30 Mins : 19%
 - 60 Mins : 67%
 - 90 Mins : 76%



Road population coverage

- 30 Mins : 19%
- 60 Mins : 67%
- 90 Mins : 76%



Dafen

17

18

19

20

Caernarfon Base

Historical Activity (18-20)

- 567 Cases per year
- 80% Air
- 20% Road
- 13.7% Air Stand Down rate

Planning data

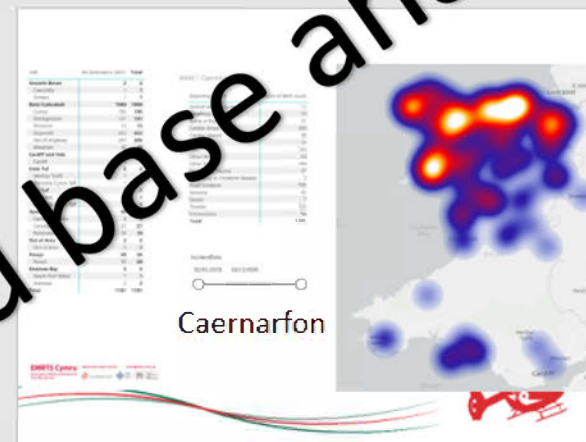
- 666 cases per year estimated
- Road population coverage
 - 30 Mins : 3%
 - 60 Mins : 11%
 - 90 Mins : 24%



Caernarfon Base

Road population coverage

- 30 Mins : 3%
- 60 Mins : 11%
- 90 Mins : 24%



Caernarfon

21

22

23

24

Welshpool Base

Historical Activity (18-20)

- 649 Cases per year
- 82% Air
- 18% Road
- 20.9% Air Stand Down rate

Planning data

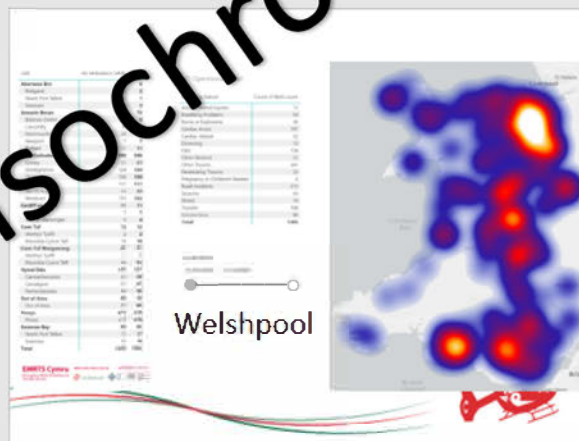
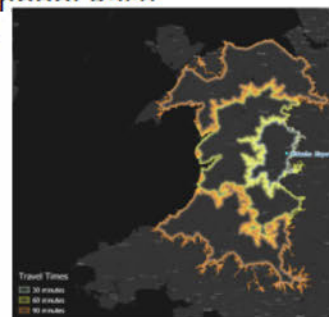
- 786 cases per year estimated
- Road population coverage
 - 30 Mins : 2%
 - 60 Mins : 5%
 - 90 Mins : 28%



Welshpool Base

Road population coverage

- 30 Mins : 2%
- 60 Mins : 5%
- 90 Mins : 28%



Welshpool

Cardiff Base

Historical Activity (18-20)

- Air
 - 377 Transfer Cases
 - 24 Primary Responses
- Road
 - 1945 Primary responses
 - 48% of RRV activity for whole period
 - 1322 during 2020
 - 65% of RRV activity

Planning data

- 1788 cases per year estimated
- Road population coverage
 - 30 Mins : 39%
 - 60 Mins : 65%
 - 90 Mins : 69%



Cardiff Base

Road population coverage

- 30 Mins : 39%
- 60 Mins : 65%
- 90 Mins : 69%





























Isochrone and base analysis

Road population coverage

Scenario	30 mins	%	60 mins	%	90 mins	%
Glan Clwyd, Cardiff, Dafen	2136070	69%	2892550	93%	3087190	99%
Caernarfon, Dafen, Cardiff	1915320	62%	2600620	84%	3059750	98%
Caernarfon	106064	3%	354833	11%	731599	24%
Glan Clwyd	326813	10%	646759	21%	733470	24%
Cardiff	1217530	39%	2023200	65%	2145440	69%
Dafen	603183	19%	2087130	67%	2353720	76%
Welshpool	51948	2%	162614	5%	869642	28%

What are we achieving?

Time Period	Attended	n unmet	met %
Day Shift	2549	452	85% 
Night Shift	923	879	51% 
Total	3472	1331	72%

Hour	Attended	n unmet	met %
0	76	75	50% 
1	58	80	42% 
2	54	36	60% 
3	44	42	51% 
4	42	33	56% 
5	39	30	57% 
6	46	24	66% 
7	107	27	80% 
8	148	19	89% 
9	170	36	83% 
10	229	20	92% 
11	264	40	87% 
12	294	35	89% 
13	224	33	87% 
14	244	47	84% 
15	262	44	86% 
16	225	50	82% 
17	208	58	78% 
18	174	43	80% 
19	152	80	66% 
20	114	139	45% 
21	95	127	43% 
22	108	105	51% 
23	95	108	47% 
Total	3472	1331	72%

Shift & area met need %

Time Period	1	2	3	4	5	6	7	8	9	10	11	12	Total
Day Shift	78%	83%	91%	84%	88%	85%	82%	85%	87%	93%	94%	85%	86%
Mid	81% ●	80% ●	100% ●	96% ●	89% ●	85% ●	94% ●	81% ●	86% ●	100% ●	80% ●	90% ●	89%
North	77% ●	88% ●	93% ●	86% ●	92% ●	82% ●	88% ●	89% ●	84% ●	92% ●	100% ●	86% ●	88%
South East	78% ●	85% ●	90% ●	80% ●	87% ●	89% ●	78% ●	82% ●	89% ●	93% ●	91% ●	83% ●	86%
South West	78% ●	74% ●	88% ●	83% ●	83% ●	82% ●	78% ●	84% ●	85% ●	90% ●	94% ●	87% ●	84%
Night Shift	63%	57%	54%	52%	54%	47%	51%	46%	52%	55%	56%	60%	54%
Mid	33% ●		25% ●	33% ●	43% ●	50% ●		14% ●	63% ●	60% ●	33% ●	33% ●	35%
North	33% ●	18% ●	27% ●	24% ●	35% ●	22% ●	27% ●	21% ●	10% ●	19% ●	13% ●	13% ●	22%
South East	75% ●	74% ●	64% ●	63% ●	63% ●	55% ●	62% ●	58% ●	68% ●	68% ●	71% ●	72% ●	65%
South West	59% ●	44% ●	46% ●	47% ●	53% ●	48% ●	53% ●	58% ●	48% ●	50% ●	48% ●	74% ●	53%
Total	73%	74%	78%	73%	75%	68%	70%	69%	76%	78%	79%	76%	74%

Optima Data Analysis



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Elusen
Ambiwlans
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CYMRU

WALEs
Air
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Optima

Workplan

EMRTS Commissioning Intention – CI4: System Transformation

CI4a	Demand and Capacity Strategy – To continue with the work on a collaboratively developed demand and capacity strategy will set out the ongoing arrangements for proactively undertaking this work for the next decade, this will include the use of forecasting, modelling and health economic evaluations.
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Optima tuning

- Using WAST base model
- Adjustments for EMRTS RRV and WAA Helicopter
- 2021
- AVL data tuning
- Travel to scene
- Scene to hospital
- WAST vs EMRTS
 - E.g. abandoned calls
 - Joint working
 - Transport “Normal”

4.1.1 ECAR Responses

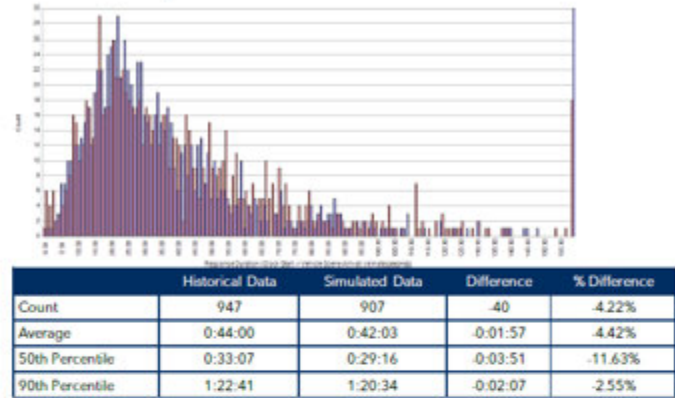


Figure 4 Response Times for ECAR Responses

4.1.2 AIR Responses

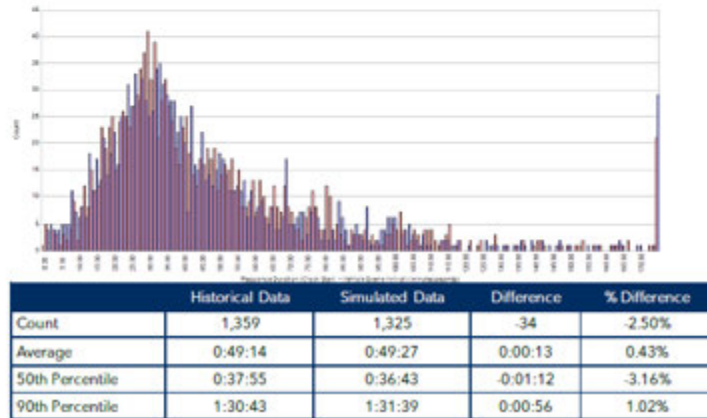
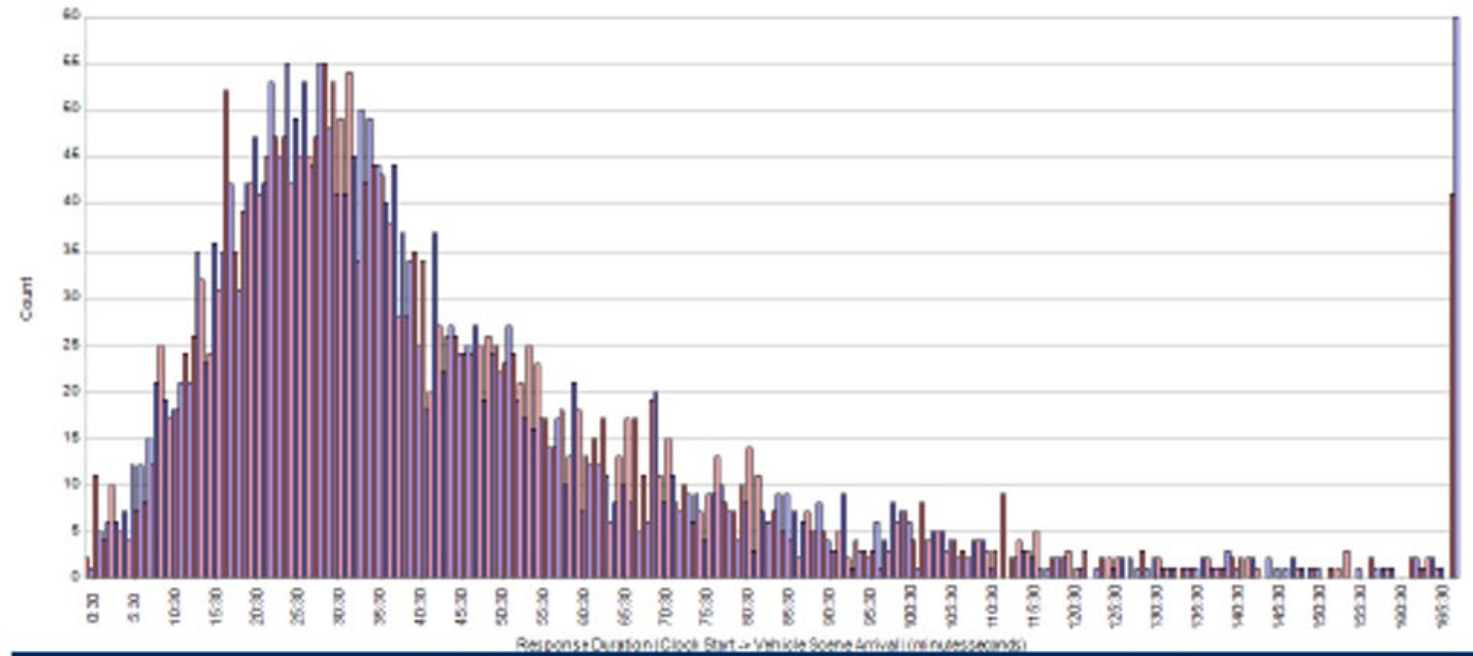


Figure 5 Response Times for AIR Responses

4.1.3 All EMRTS Calls



	Historical Data	Simulated Data	Difference	% Difference
Count	2,238	2,199	-39	-1.74%
Average	0:46:28	0:46:28	0:00:00	-0.00%
50th Percentile	0:35:33	0:33:53	-0:01:40	-4.69%

Model performance

Modelling

- Assumptions

- Cardiff day shift doesn't exist in baseline data (started 2022)
- 3 aircraft initially
- 12-hour shifts, no break, available full shift
- Unmet need data included
- Assume same number of clinical teams available irrespective of transport method

- Outputs

1. Number of incidents responded to
2. Change in incident numbers for all bases for each scenario (impact)
3. Utilisation % of shift
4. Incident by locality – change
5. Proportion of total demand met (inc. unmet need)
6. median/ mean response times

Scenarios

1. Add a day shift to Cardiff Heliport 07:00-19:00
2. Merging of Welshpool and Caernarfon into the following locations as a single shift (08:00-20:00)
 - a. Caernarfon (LL54)
 - b. Welshpool (SY21)
 - c. **North Central** Conwy County (LL32)
 - d. **North Central** Denbighshire (LL18)
3. Adding a “twilight” shift to 2a,b,c,d – within the hours of 8am – 02:00 – 12-hour shift (we are considering 12-12, 13:00-01:00, 14:00-02:00 as options but want to find the optimum)
 - a. With this additional shift if an additional aircraft were available to the teams, what would be the optimum timing and location be
4. Additional question, following optimum placement of item 2/3 latest finish 02:00.
 - a. Adding a twilight to Cardiff base,
 - b. or shifting the start time to the right

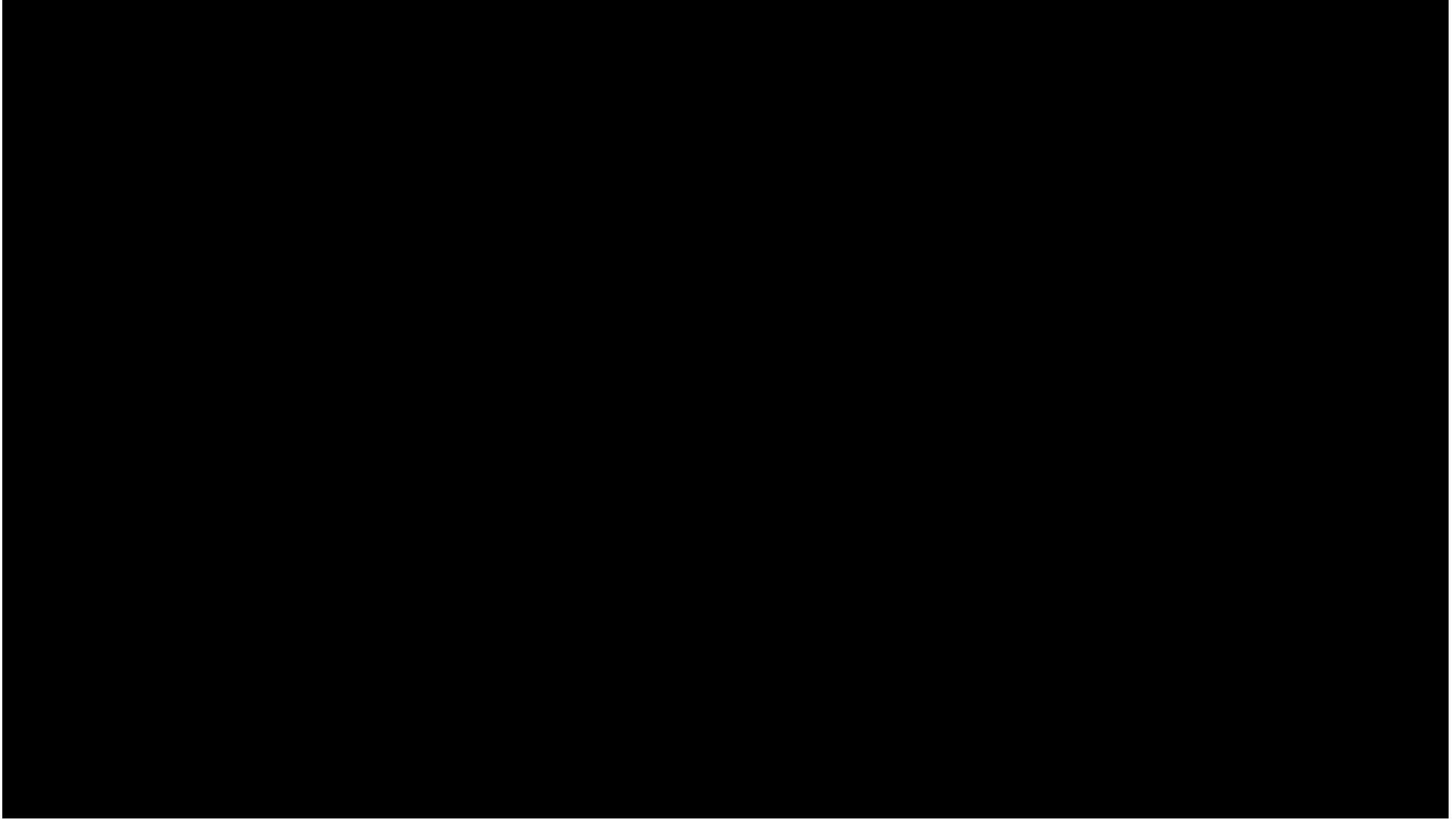


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Results

Results of part 1

Caution: Relative change vs absolute numbers



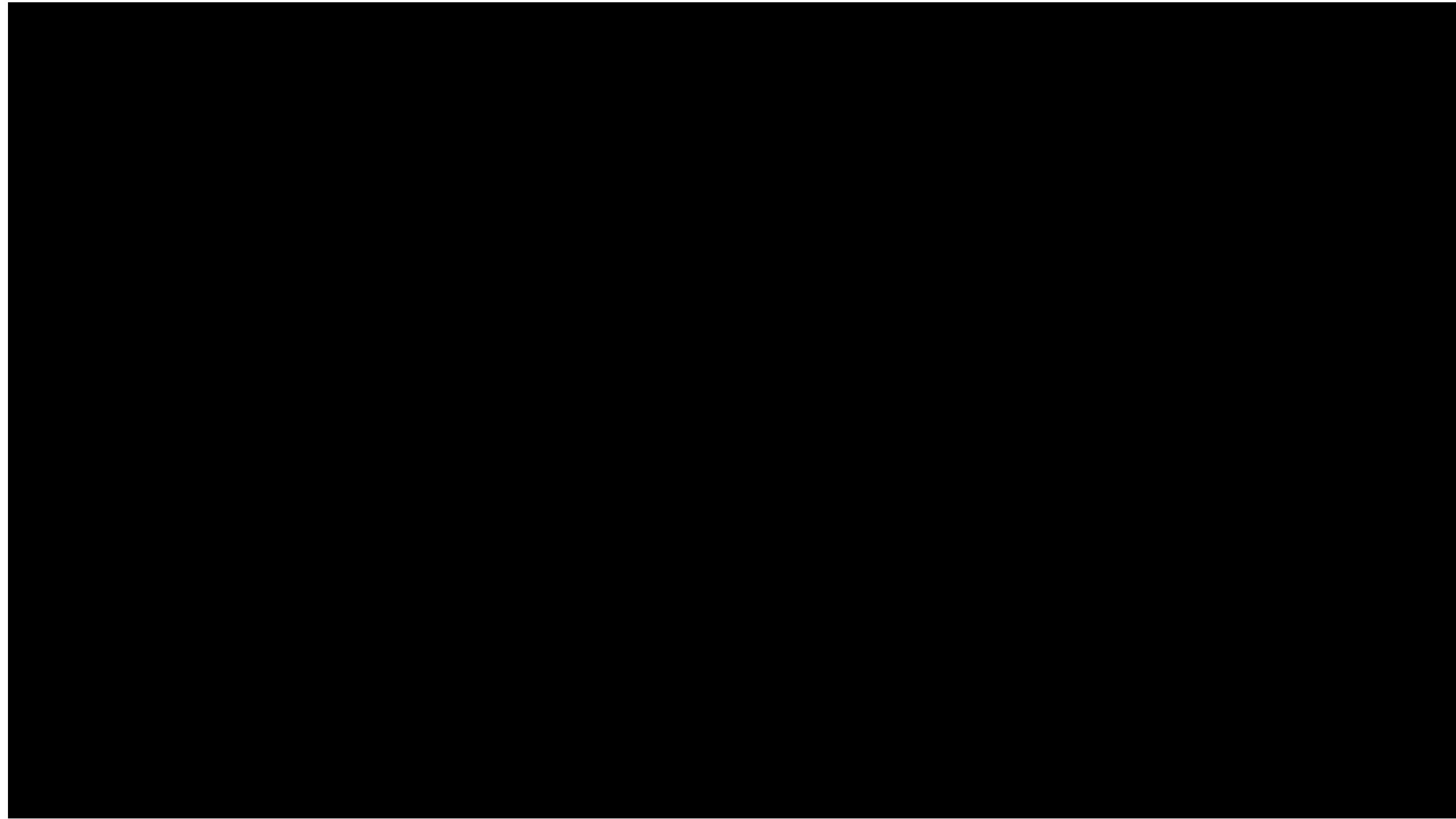
Merged base and extended hours (3 helicopters)

Headlines impact

- keeping same clinical staffing
- 100% aircraft availability
- 490 incidents, resulting in 486 additional patients attended
- Average response time improved 1:05 minutes to 54 minutes
- 86% of total demand met

EMRTS identified limitations

- Hospital Transports via WAST
- Coding
- Seasonality (e.g. for additional helicopter)
- Aircraft availability e.g. weather, technical, staffing
- Recruitment & Retention, Resource envelope
- Factor in road population coverage from previous work

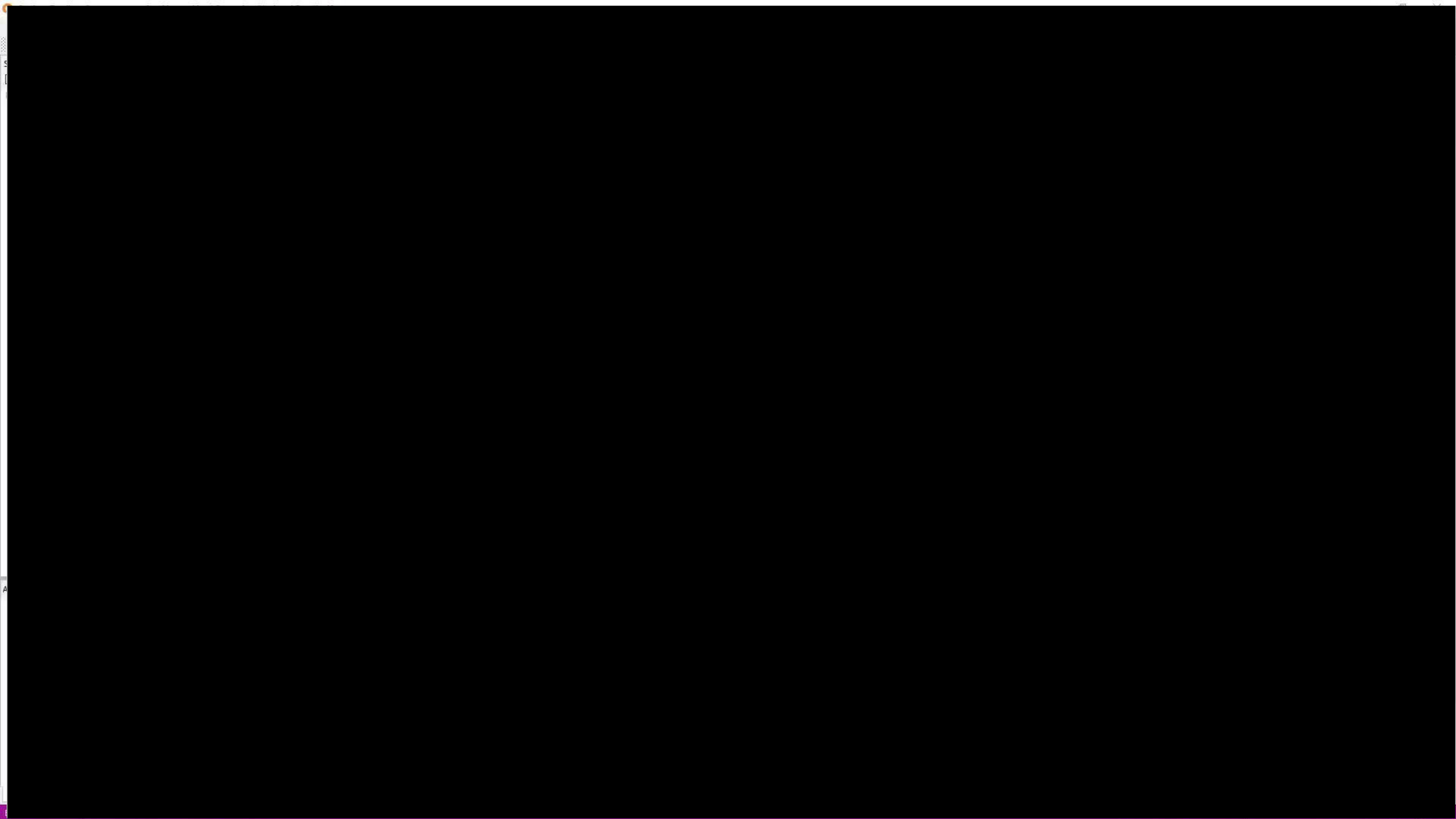


Videos of the model

EMRTS vs WAST

Drag and Drop a base







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UNMET NEED SCENARIOS:

SCENARIOS 05 - 09

Part 2

EMERGENCY MEDICAL RETRIEVAL AND TRANSFER SERVICE

Version 2.0
30 May 2022

Created by: Tef Jansma
Optima Predict version: 22.4.0.54394

Questions

- Combined scenarios
- Expectations vs reality?
 - Weather/ Unavailability
 - Hours of darkness “in the day”
 - 1 day shift 285 flying hours lost (9%)
 - Extended hours (8am – 02:00) = 2430 flying hours lost (37%)
 - 2 shifts 2915 flying hours lost (north) (46%)
 - 3 shift 3400 flying hours lost (36%)
- How to test?
 - Assume no flying possible in dark
 - Assume aircraft unavailable
 - Worst case- work backwards

Abbreviation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Aircraft start time	08:00	08:00	07:00	07:00	06:00	05:00	05:00	05:00	06:00	07:00	07:00	08:00
Aircraft end time	17:00	18:00	20:00	21:00	22:00	22:00	22:00	21:00	19:00	18:00	16:00	16:00

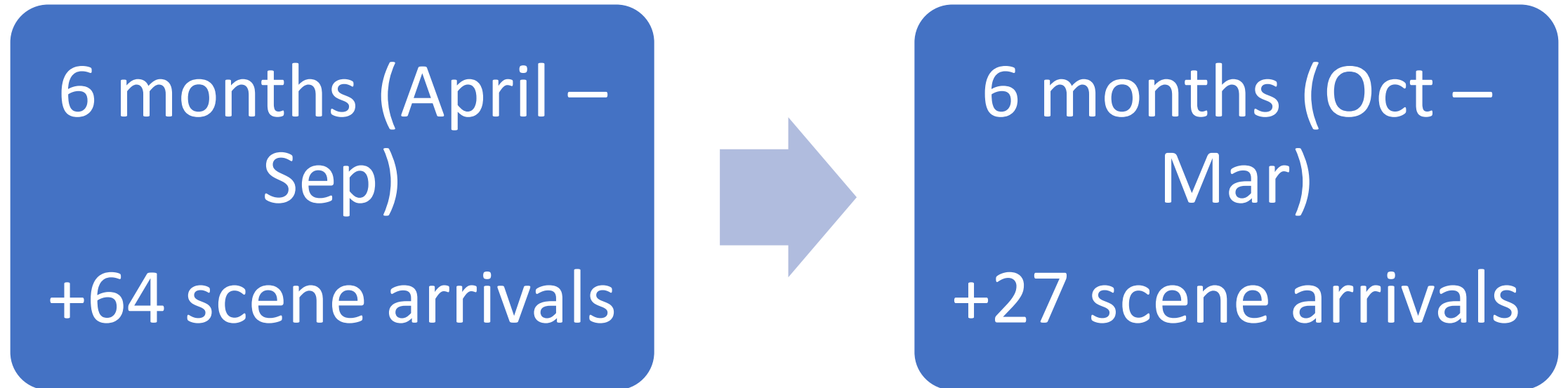
Caution!

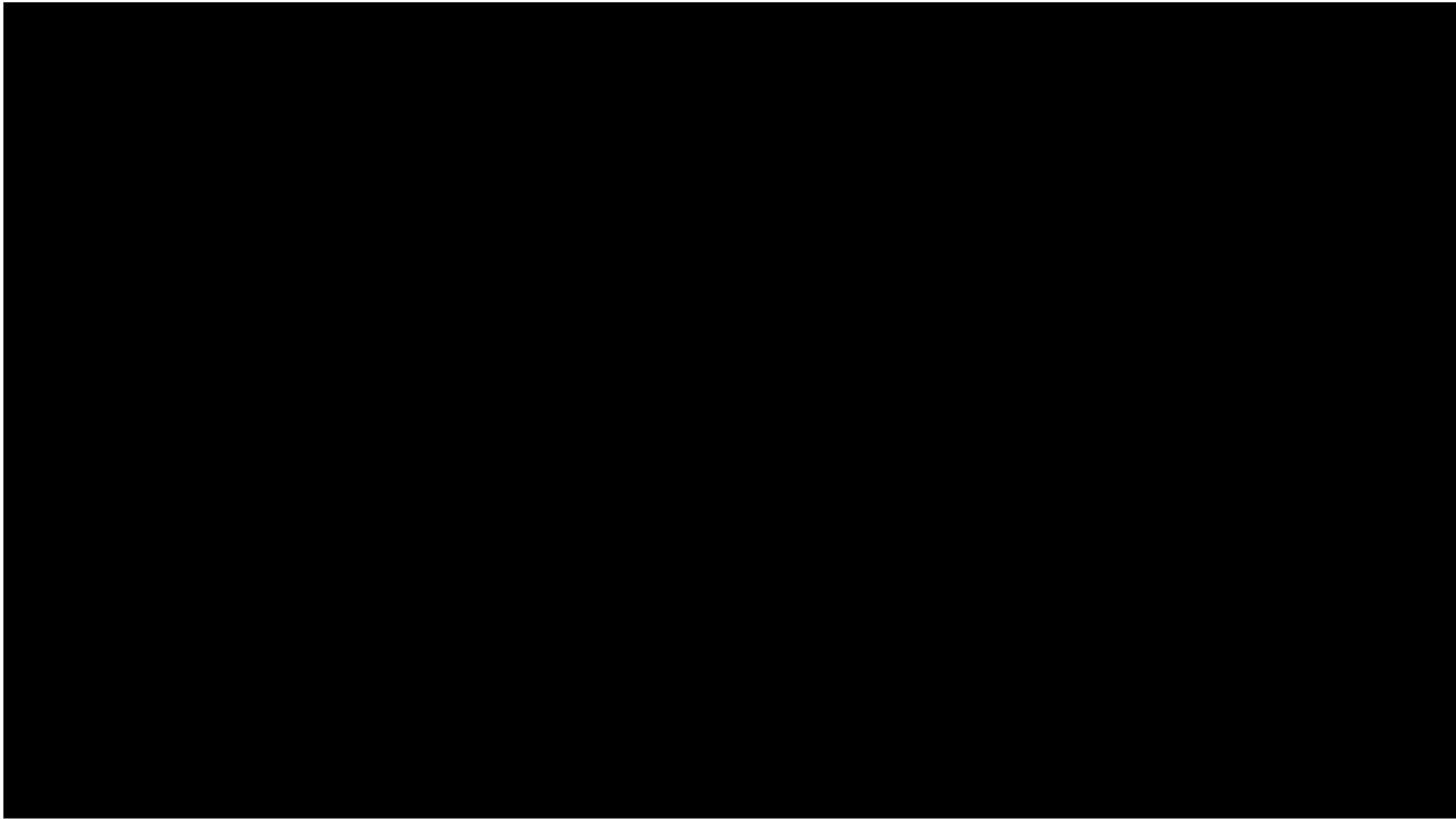
- No air response = road, and shorter response distance/ duration
- Reflex vs response
- Response = 999 call → on scene
- Reflex = Allocation → on scene

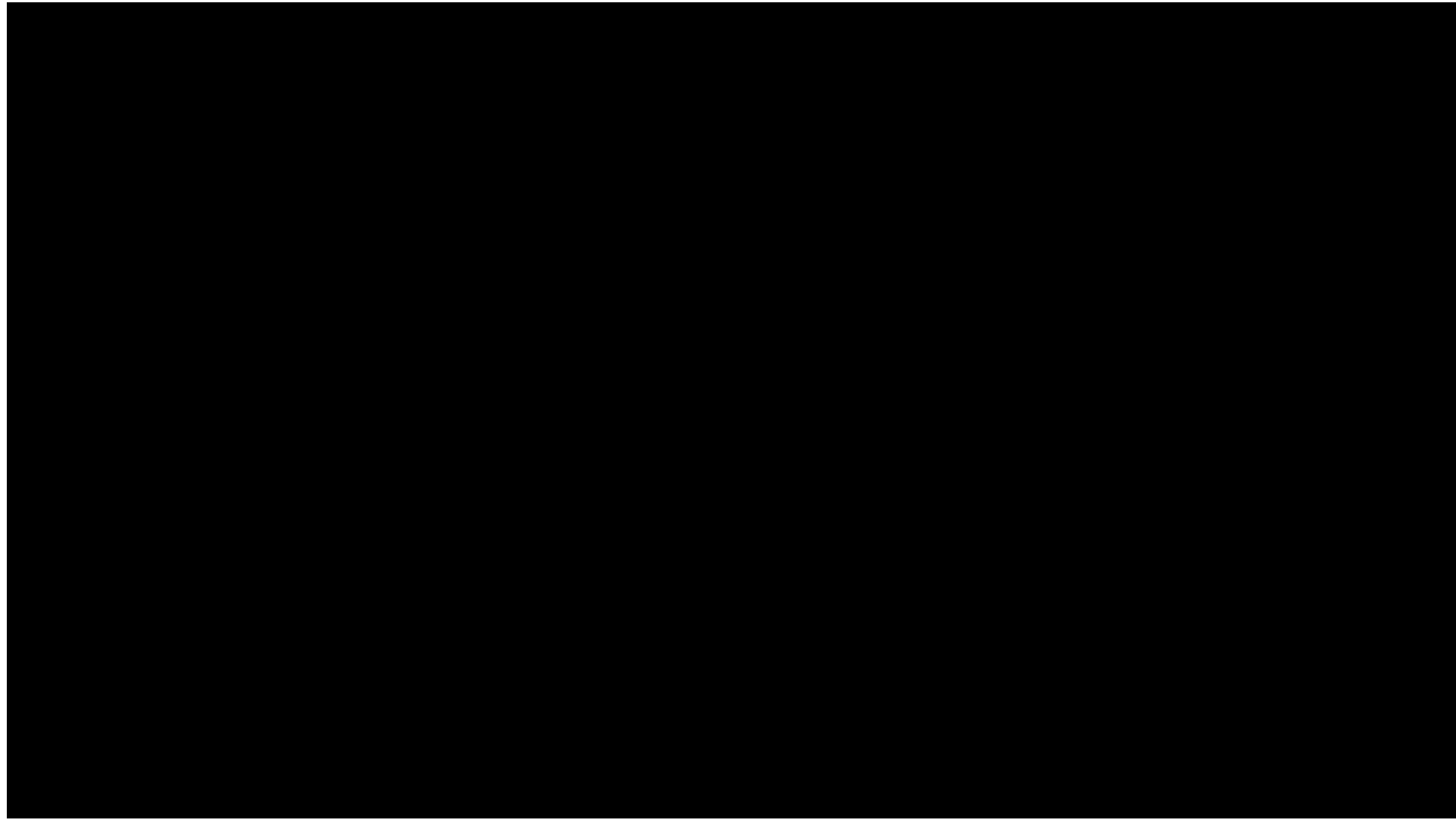
Summary of Scenarios 5 - 9:

- Best performing +
- 5 = Second North Wales central Helicopter
- 6 = Heli for 6 months
- 7 = Daylight flying
- 8 = Permanent aircraft unavailability (moving Cardiff shift to right)
- 9 = Permanent aircraft unavailability (+Twilight Cardiff Car)

Scenario 5 & 6 – Additional helicopter in North Central (14:00-02:00)







Summary of Scenarios 5 - 9:

- 5 = Second North Central Helicopter (+91) (12 months)
- 6 = No Winter Helicopter for 6 months (-27)
- 7 = Daylight flying only (ex Cardiff) (-76)

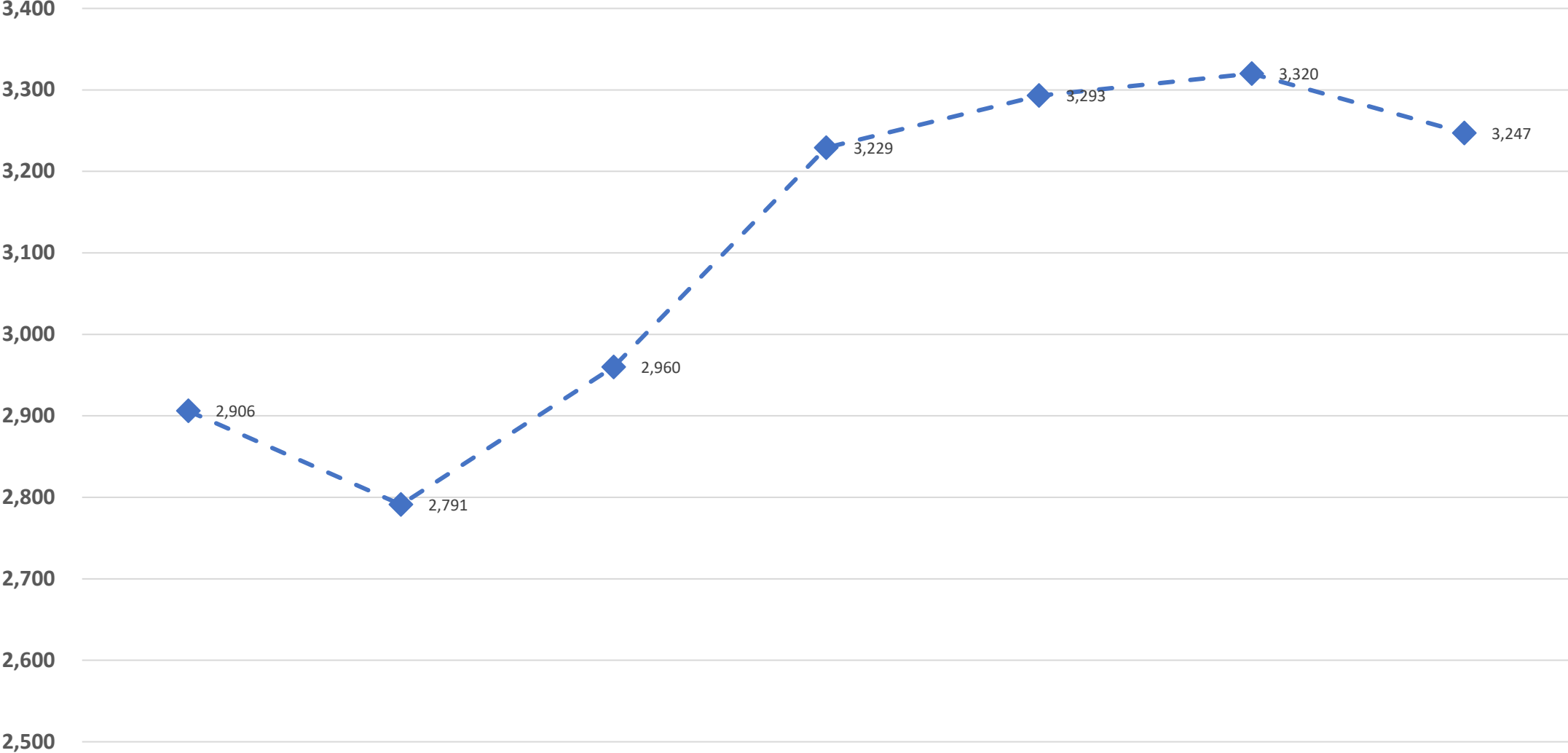
- 8 & 9 reveal the importance of the aircraft, with a loss of 1132-1300 scene arrivals per year

Extended hours and merged central North Wales base

Headlines impact

- Maintaining or increasing clinical staffing
- 4 x H-145 aircraft
- Hours of darkness NVIS
- Up to **583** additional incidents attended (**577** patients)
- Average response time improved 1h 05 minutes to 54 minutes
- Average reflex 28 to 25 mins
- **88%** of total demand met

Optima Modelling - scene arrivals



Start (Scenario 1)

Scenario 2: Merged NWB (1 a/c) (day shift)

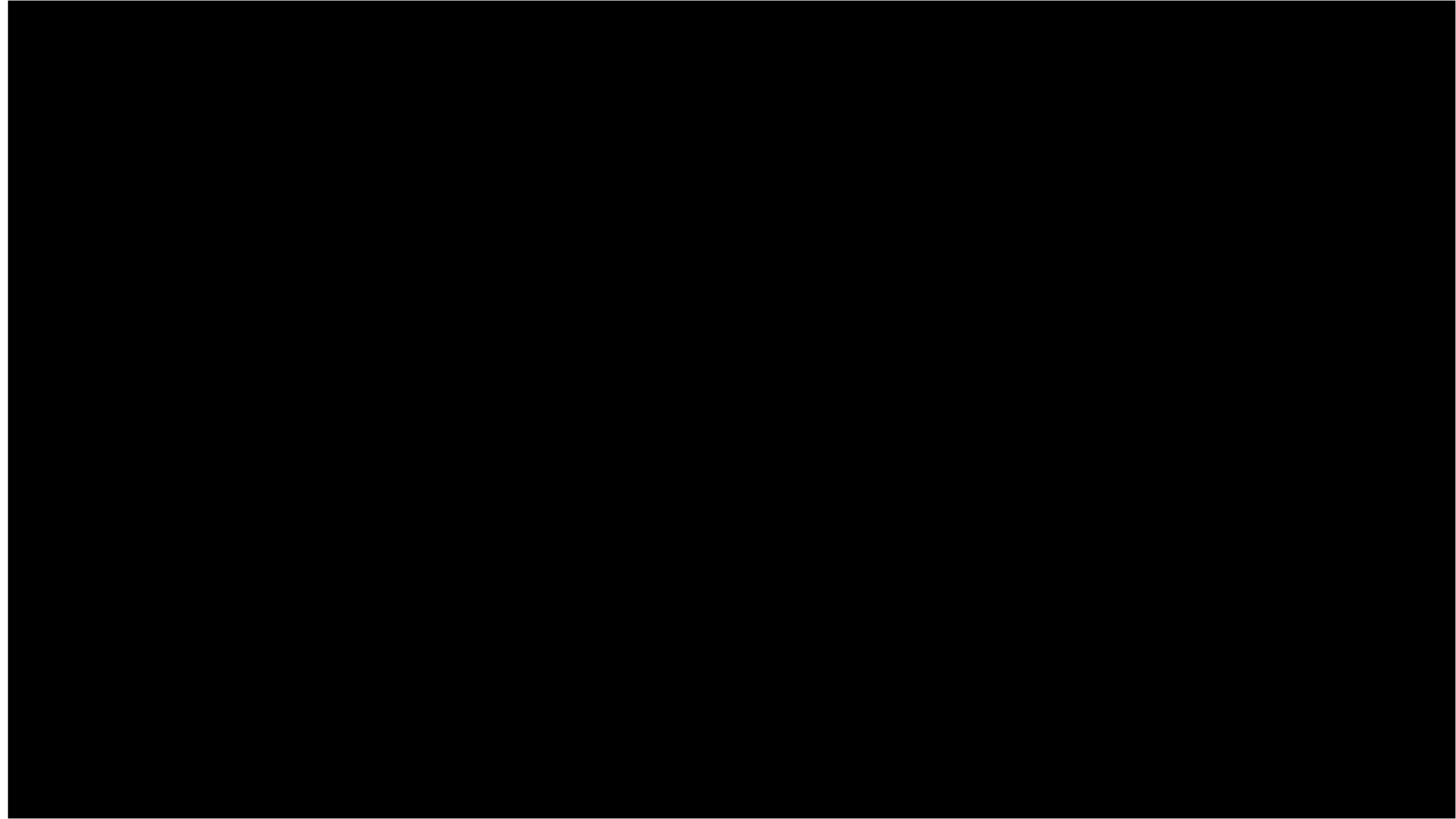
Scenario 3d - Add 2nd crew (car) to NWB 2pm-2am

Scenario 4 (change): add another CDF day shift (car) 2pm-2am

Scenario 6: NWB 2nd a/c for 6 months only

Scenario 5: Add 2nd a/c to NWB

Scenario 7: Daylight only flying (ex Cardiff)



WAA Trustee decisions and next steps

Trustees agreed that the model to move to single central NW base with extended hours was their preferred option.

This would be delivered via a fleet of 4 x H-145 helicopters, with fourth aircraft supplying maintenance back up and seasonal operation in North Wales during summer demand peak. All air missions to be NVIS capable during daylight shifts in addition to late shifts.

Whilst modelling showed clear benefit from central located base using patient need data, an options appraisal will be presented to Trustees at the end of July ensuring all factors are included to determine base location, including equity of HEMS service to patients across Wales.

Anonymous feedback



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