Appendix X: Travel analysis

Off-peak travel times

The travel time isochrones were created based on modelling travel by car at 03:00 on a Tuesday. **This was chosen as the best available proxy for modelling ambulance "blue light" travel times.**

The methodology used is as follows:

- Point datasets of Hyperacute Stroke Unit locations were created based on the options identified in the draft reconfiguration report.
- For each option in the report, TravelTime analysis (https://traveltime.com) was used to generate isochrones showing the area from within which it is possible to drive to one of the identified HASU locations.
- Isochrones for 15, 30, 45 and 60 minute drive times were created.
- Office for National Statistics mid-year population estimates 2019 at Census Output Area (COA) level was used to calculate the resident population aged 50 and over within Somerset. The location of this resident population was represented using COA population weighted centroid points.
- The dataset representing location of residents aged 50 and over was overlaid against the travel time isochrones. Point in polygon analysis was used to calculate the residential population aged 50 within each travel time band for each identified option.

The following analysis is based on the following HASU configurations, as described in the stroke options longlist. The HASU locations included in each option are as follows:

- **Option 1, 2 and 3** - Musgrove Park Hospital, Yeovil District Hospital, Southmead Hospital, Royal United Hospital, Salisbury District Hospital, Royal Bournemouth Hospital, Royal Devon & Exeter Foundation Hospital
- **Option 4, 5 and 6** - Musgrove Park Hospital, Southmead Hospital, Royal United Hospital, Salisbury District Hospital, Royal Bournemouth Hospital, Royal Devon & Exeter Foundation Hospital
- **Option 7** - Southmead Hospital, Royal United Hospital, Salisbury District Hospital, Royal Bournemouth Hospital, Royal Devon & Exeter Foundation Hospital
- **Option 8 and 9** - Yeovil District Hospital, Southmead Hospital, Royal United Hospital, Salisbury District Hospital, Royal Bournemouth Hospital, Royal Devon & Exeter Foundation Hospital

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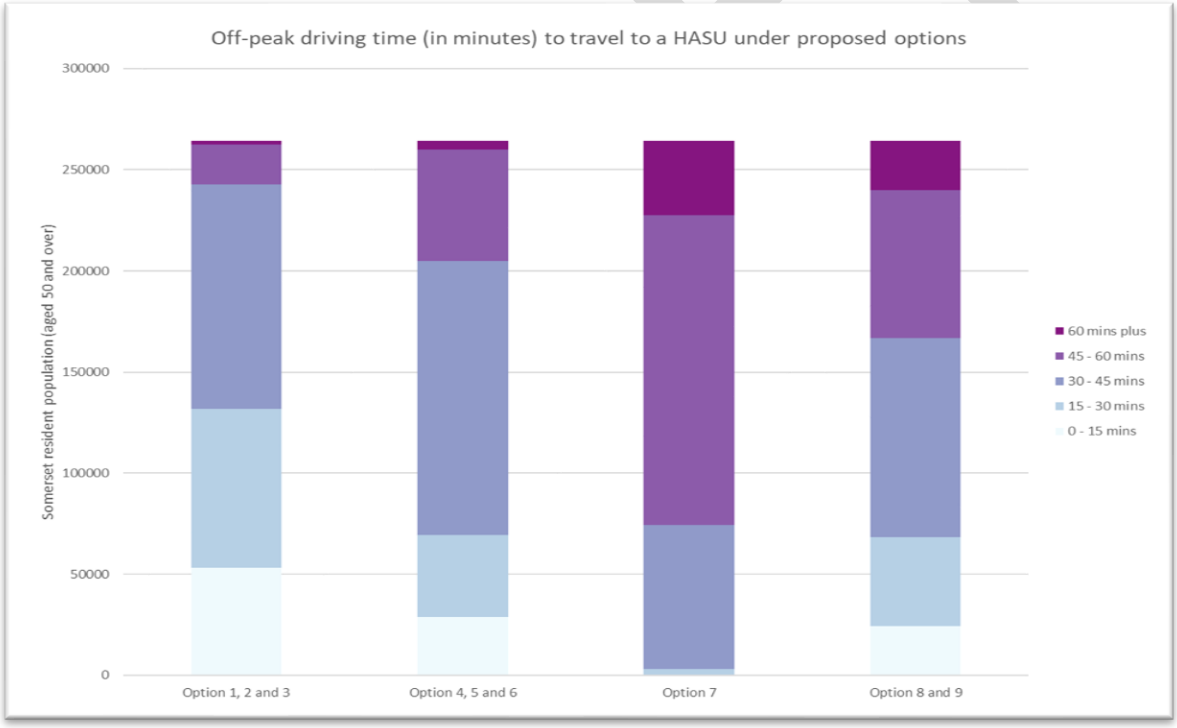

Summary findings

- Options 1, 2 and 3 offer the highest proportion of access within 30 minutes
- Option 7 offers the worst access with the majority of access available in over 30 minutes
- Options 4, 5, 6, 8 and 9 are similar in terms of access in under 30 minutes
- Options 4, 5 and 6 have a larger proportion of coverage in under 45 minutes than options 8 and 9

Resident population aged 50 and over in **individual** time bands:

Journey Time Band	Option 1, 2 and 3	Option 4, 5 and 6	Option 7	Option 8 and 9
0 – 15 mins	53324	28910	0	24414
15 – 30 mins	78683	40641	2905	44015
30 – 45 mins	110861	135450	71311	98262
45 – 60 mins	19489	55177	153266	73352
60 mins plus	2053	4232	36928	24367

Resident population aged 50 and over within **cumulative** travel time bands:

Journey Time Band	Option 1, 2 and 3	Option 4, 5 and 6	Option 7	Option 8 and 9
0 – 15 mins	53324	28910	0	24414
0 – 30 mins	132007	69551	2905	68429
0 – 45 mins	242868	205001	74216	166691
0 – 60 mins	262357	260178	227482	240043
0 – over 60 mins	264410	264410	264410	264410

Percentage of resident population aged 50 and over within **cumulative** travel time bands:

Journey Time Band	Option 1, 2 and 3	Option 4, 5 and 6	Option 7	Option 8 and 9
0 - 15 mins	**20.2**	**10.9**	**0.0**	**9.2**
0 - 30 mins	**49.9**	**26.3**	**1.1**	**25.9**
0 - 45 mins	**91.9**	**77.5**	**28.1**	**63.0**
0 - 60 mins	**99.2**	**98.4**	**86.0**	**90.8**
0 - over 60 mins	**100.0**	**100.0**	**100.0**	**100.0**

Red: Less than 50%
Orange: Between 50 – 75%
Yellow: Between 75 – 90%
Green: Over 90%

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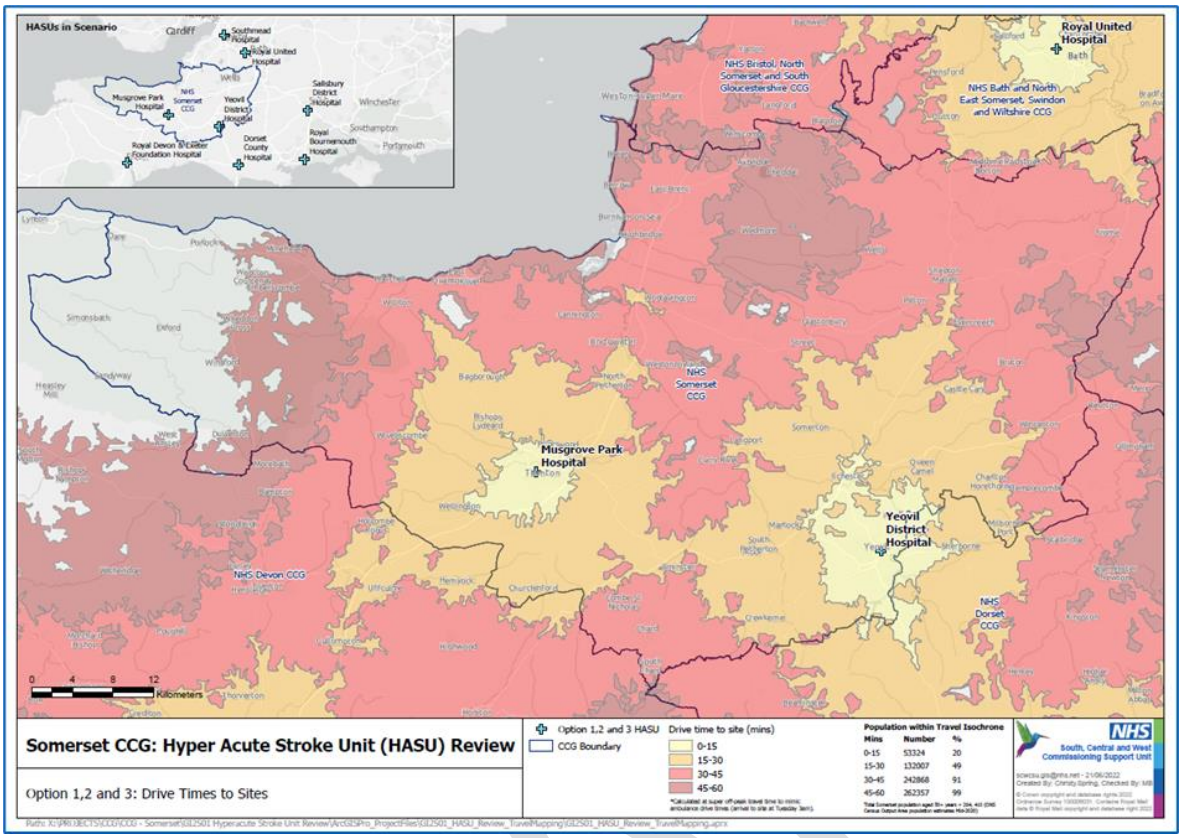
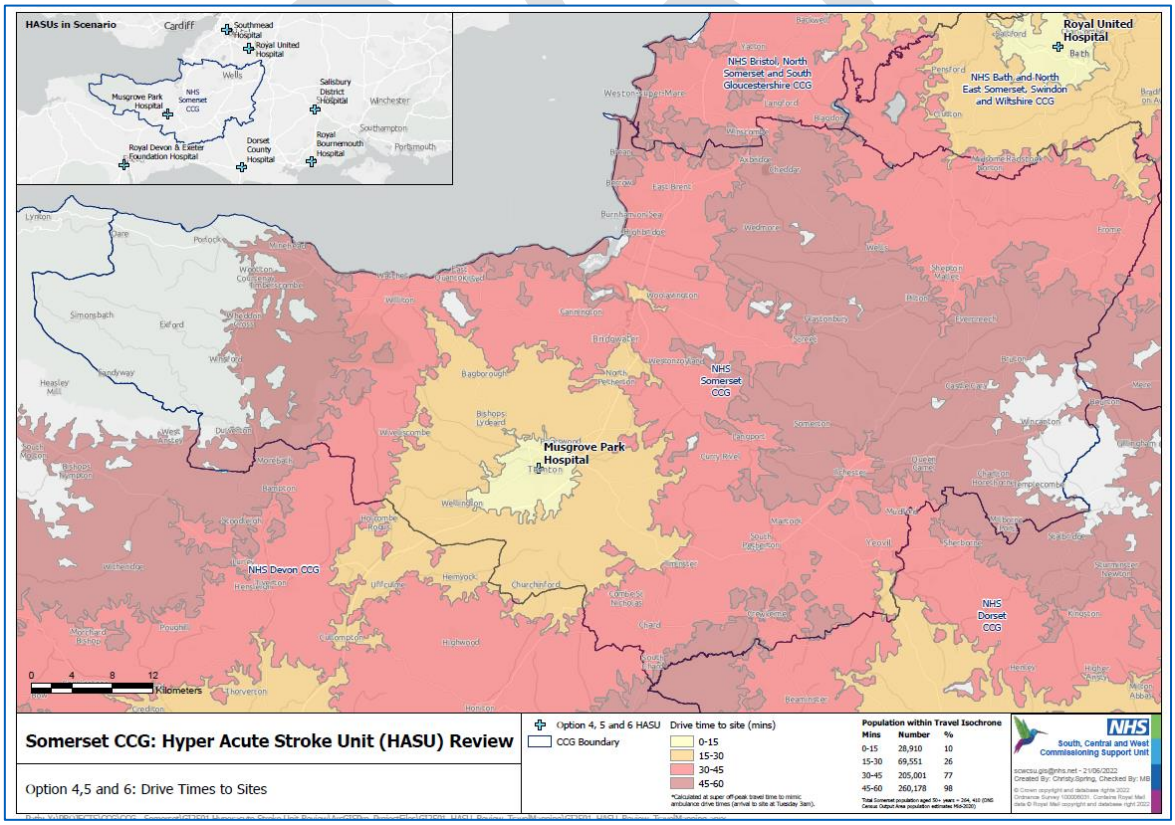

HASUs in Scenario
Cardiff
Southmead Hospital
Royal United Hospital
Musgrove Park Hospital
NHS Somerset CCG
Yeovil District Hospital
Salisbury District Hospital
Winchester
Southampton
Royal Bournemouth Hospital
Portsmouth
Royal Devon & Exeter Foundation Hospital
Dorset County Hospital
Royal United Hospital
Bath
NHS Bristol, North Somerset and South Gloucestershire CCG
NHS Bath and North East Somerset, Swindon and Wiltshire CCG
NHS Somerset CCG
Musgrove Park Hospital
Yeovil District Hospital
NHS Devon CCG
NHS Dorset CCG
0 4 8 12
Kilometers
Somerset CCG: Hyper Acute Stroke Unit (HASU) Review
Option 1,2 and 3: Drive Times to Sites
Option 1,2 and 3 HASU
CCG Boundary
Drive time to site (mins)
0-15
15-30
30-45
45-60
Population within Travel Isochrone
Mins Number %
0-15 53324 20
15-30 132007 49
30-45 242868 91
45-60 262357 99
NHS
South, Central and West Commissioning Support Unit


HASUs in Scenario
Cardiff
Southmead Hospital
Royal United Hospital
Musgrove Park Hospital
NHS Somerset CCG
Salisbury District Hospital
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Royal Devon & Exeter Foundation Hospital
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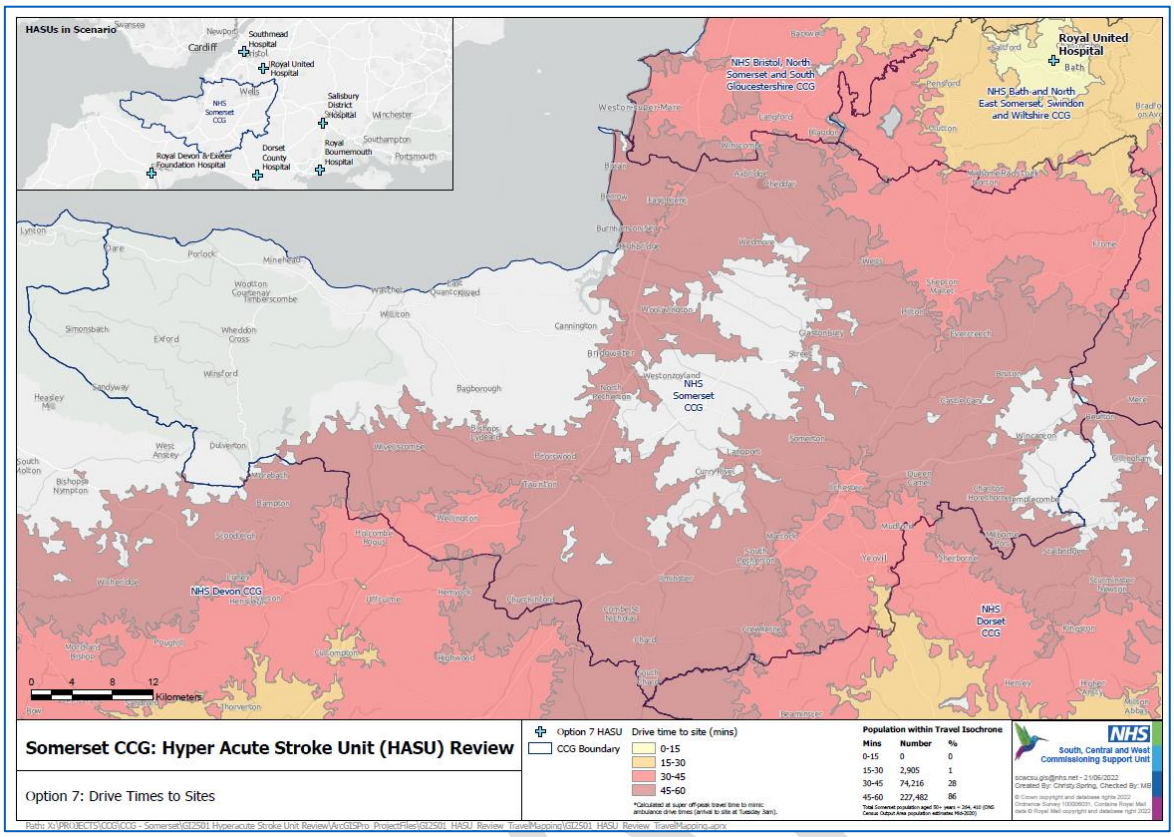
Bath
NHS Bristol, North Somerset and South Gloucestershire CCG
NHS Bath and North East Somerset, Swindon and Wiltshire CCG
NHS Somerset CCG
Musgrove Park Hospital
NHS Devon CCG
NHS Dorset CCG
0 4 8 12
Kilometers
Somerset CCG: Hyper Acute Stroke Unit (HASU) Review
Option 4,5 and 6: Drive Times to Sites
Option 4, 5 and 6 HASU
CCG Boundary
Drive time to site (mins)
0-15
15-30
30-45
45-60
Population within Travel Isochrone
Mins Number %
0-15 28,910 10
15-30 69,551 26
30-45 205,001 77
45-60 260,178 98
NHS
South, Central and West Commissioning Support Unit


HASUs in Scenario
Cardiff
Southmead Hospital
Bristol
Royal United Hospital
Wells
NHS Somerset CCG
Salisbury District Hospital
Winchester
Southampton
Portsmouth
Royal Bournemouth Hospital
Dorset County Hospital
Royal Devon & Exeter Foundation Hospital
Royal United Hospital
Bath
NHS Bristol, North Somerset and South Gloucestershire CCG
NHS Bath and North East Somerset, Swindon and Wiltshire CCG
NHS Somerset CCG
NHS Devon CCG
NHS Dorset CCG
0 4 8 12 Kilometers
Somerset CCG: Hyper Acute Stroke Unit (HASU) Review
Option 7: Drive Times to Sites
Option 7 HASU
CCG Boundary
Drive time to site (mins)
0-15
15-30
30-45
45-60
*Calculated at super off-peak travel time to mimic ambulance drive times (arrival to site at Tuesday 3am).
Population within Travel Isochrone
Mins Number %
0-15 0 0
15-30 2,905 1
30-45 74,216 38
45-60 227,482 86
Total Somerset population aged 50+ years = 264, 410 (ONS Census Output Area population estimates Mid-2020)
NHS
South, Central and West Commissioning Support Unit
scwcsu.gis@nhs.net - 21/06/2022
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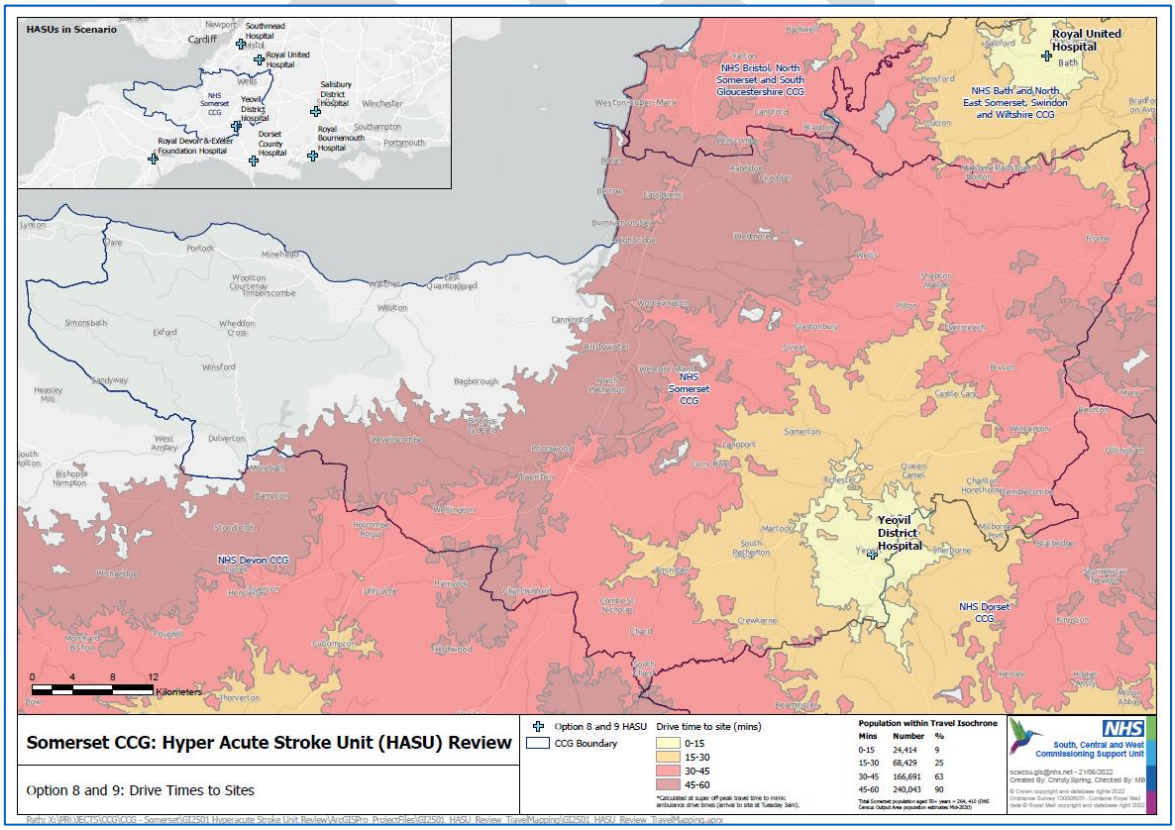
HASUs in Scenario
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Yeovil District Hospital
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Portsmouth
Royal Bournemouth Hospital
Dorset County Hospital
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Royal United Hospital
Bath
NHS Bristol, North Somerset and South Gloucestershire CCG
NHS Bath and North East Somerset, Swindon and Wiltshire CCG
NHS Somerset CCG
Yeovil District Hospital
NHS Devon CCG
NHS Dorset CCG
0 4 8 12 Kilometers
Somerset CCG: Hyper Acute Stroke Unit (HASU) Review
Option 8 and 9: Drive Times to Sites
Option 8 and 9 HASU
CCG Boundary
Drive time to site (mins)
0-15
15-30
30-45
45-60
*Calculated at super off-peak travel time to mimic ambulance drive times (arrival to site at Tuesday 3am).
Population within Travel Isochrone
Mins Number %
0-15 24,414 9
15-30 68,429 25
30-45 166,691 63
45-60 240,043 90
Total Somerset population aged 50+ years = 264, 410 (ONS Census Output Area population estimates Mid-2020)
NHS
South, Central and West Commissioning Support Unit
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