

Travel and Transport Impact Assessment for Clinical Service Reviews Phase 1

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Table of Acronyms and Abbreviations

CHSFT	City Hospitals Sunderland Foundation Trust
NEAS	North East Ambulance Service
SRH	Sunderland Royal Hospital
STDH	South Tyneside District Hospital
STFT	South Tyneside Foundation Trust
QEG/QEH	Queen Elizabeth Hospital Gateshead
RVI	Royal Victoria Infirmary

Executive Summary

This Travel Impact Assessment report focuses upon the future provision of Stroke services, Paediatrics services and Maternity and Gynaecology services across South Tyneside and Sunderland, and assesses the travel impact of the possible service models and solutions put forward for consultation and consideration. The report should be read in conjunction with the Baseline Report.

Consideration has been given to new journey patterns, particularly amongst South Tyneside residents who may, in future, need to travel to Sunderland Royal Hospital for their health care needs instead of South Tyneside District Hospital, and journey time and cost comparisons have been examined. Two public transport field testing exercises and one car based field testing exercise have been undertaken to capture real experience of using public transport and travelling by car across the local areas to access four of the closest hospitals (STDH, SRH, QEG and RVI) and validate modelling results. The possibility of some South Tyneside residents choosing to access their healthcare needs at other hospitals in the area, e.g. Queen Elizabeth Hospital in Gateshead and the Royal Victoria Infirmary in Newcastle has also been explored. In addition, public transport and car based journey times from areas of north and east Durham have been explored, as a comparison to any potential future journeys from South Tyneside to SRH.

The analysis uses accessibility (journey time) modelling to determine how long it takes to travel to each hospital (South Tyneside District Hospital or Sunderland Royal Hospital) by public transport, car and walking. Car based accessibility modelling has also been undertaken to the Queen Elizabeth Hospital in Gateshead and the Royal Victoria Infirmary in Newcastle. This inevitably involves a number of simplifications and assumptions including that public transport services run according to timetable, which may have the effect of underestimating journey times at busy times of the day. The car based accessibility modelling has been updated to utilise a more detailed road speed dataset, Trafficmaster data, to that used in the previous car based accessibility modelling, undertaken in 2016. The Trafficmaster speed dataset utilises their market-leading raw GPS speed data drawn from a whole year.

The postcode location of previous patients attending each of the different clinical services under review is identified and used to calculate the number of patients/visitors that fall into the different journey time bands (10-20 minutes, 20-30 minutes, etc). By comparing the travel times to STDH and SRH it is then possible to assess the impact on travel time of the various different service review options. To corroborate this analysis, other datasets are used, depending on the clinical service being considered. So, for example, the accessibility of the South Tyneside and Sunderland population aged over 60 to each hospital is analysed in the case of Stroke services. Staff travel survey data is currently being collected amongst staff

working in the relevant clinical services. However, brief snapshot surveys of patients and visitors have been undertaken to provide an indication of how people travel to each hospital, the frequency of visits, length of stay, etc. This has been used to supplement the postcode and census analyses by examining whether people would make different travel decisions if services were switched to another hospital, and to estimate what the impact on parking might be.

The key findings from the travel and transport impact assessments are shown below.

Stroke services

South Tyneside residents only who experience an acute stroke, and their families, will be affected by the proposals to centralise acute Stroke services at SRH.

It is visitors to Stroke patients who will be affected predominantly, as the majority of acute Stroke cases arrive at hospital by Emergency Ambulance. Therefore, visitors will be required to travel to SRH, rather than STDH, to visit family / a friend who have suffered a stroke. The number of days that visitors will be required to travel to SRH, instead of STDH, will depend on the final Service option taken forward for implementation.

Amongst the South Tyneside population aged 60+ (the category of population most at risk from a Stroke), and depending on the time of day and direction of travel, the average public transport journey time to STDH is 24-26 minutes, whilst for SRH it is 42-47 minutes. This suggests an increase in the average journey time by public transport of 18-21 minutes for those having to access SRH rather than STDH. The analysis of the postcodes of previous Stroke patients living in South Tyneside / treated at STDH shows that the average public transport journey time to SRH (instead of STDH) would increase by 20-25 minutes, reinforcing the findings from the census data analysis.

For journeys by car to SRH, instead of STDH, the average travel time will be 9 – 11 minutes longer.

The Visitor Travel Survey results suggest that following the temporary location of acute Stroke services to SRH, around 40% travel by car on their own and a further 57% travel in the car with others. The remainder, 7%, travel to SRH by bus. Previously, when the service was provided at STDH, a proportion of these visitors reported that they would have travelled differently, including by walking.

The relocation of services to SRH is estimated to have a very small impact on parking demands (and by extension on the local road network), with just 1-2 additional vehicles during afternoon visiting hours, and 2-6 vehicles during evening visiting time (based on the results collated from the travel survey).

Paediatric services

South Tyneside parents only who currently take their child to STDH Paediatric ED will be affected, particularly between the hours of 20:00 and 08:00 the following day when no Paediatric ED or nurse-led minor injury or illness service will be available at STDH.

The analysis of the postcodes of previous Paediatric patients living in South Tyneside and treated at STDH shows that the public transport journey time to SRH (instead of STDH) increases by 18-20 minutes depending on the time of day. Journeys by car to SRH, instead of STDH, will take around 8-11 minutes longer on average.

For Option 1 (Provision of a seven-day, 12 hour (8am to 8pm paediatric ED and CSSAU at STDH), the travel survey suggests that parents/guardians would use slightly different ways of getting to SRH as compared to STDH, with more using bus and metro, and less driving by car. There would be a small increase in parking demand at SRH, but this would be overnight, when there is plenty of spare capacity and would not add a significant level of traffic onto the local road network (based on the results collated from the travel survey).

For Option 2 (development of a nurse-led minor injury or illness service open 08:00 - 22:00), the impacts would be broadly similar and small increases in parking demand at SRH would be expected.

Maternity services

South Tyneside mothers, and their visitors only, will be the population category affected by this review. Depending on the Option that is taken forward, it could be that all South Tyneside mothers will be affected (in the case of Option 2) or only those that are deemed to be having a high risk birth (Option 1), and will be required to travel to SRH for the birth.

The analysis of the postcodes of previous Maternity patients living in South Tyneside / having their children at STDH shows that the public transport journey time to SRH (instead of STDH) increases by 21-25 minutes depending on the time of day and direction of journey. Journeys by car to SRH will take on average 9-11 minutes longer than if the journey was made to STDH.

The travel survey indicates that South Tyneside visitors/patients would use broadly similar modes of transport to get to STDH and SRH, although more people would use the metro and less people would walk to SRH.

Under Option 1, in which all high risk births would transfer from STDH to SRH, it is estimated that there would be an increase in the demand for parking at SRH of up to around 4 vehicles per day. Under Option 2, in which all births would transfer from STDH to SRH for treatment,

the potential increase in parking demand at SRH is up to around 7 vehicles per day. The impact on the local road network would be small and would be spread across the day. (All parking scenarios are based on the results collated from the travel survey).

Gynaecology services - inpatients

South Tyneside Gynaecology inpatients will be affected by the service proposals and will be required to travel to SRH instead of STDH for their treatment. The analysis of the postcodes of previous Gynaecology patients living in South Tyneside and treated at STDH shows that the average public transport journey time to SRH would be around 20 minutes longer than to STDH. Journeys by car would be on average 12 minutes longer.

The travel survey suggests that 77% of in-patients currently travelling to the Gynaecological services at STDH use a car based mode (33% as a passenger and accompanied in hospital, 44% as a passenger and dropped off) and 23% use taxi. If the services were switched to SRH, the survey indicates that a greater proportion (89%) would travel by car (67% as a passenger and 22% would drive themselves), and 11% would use the bus. Additional parking demand at SRH would be negligible due to the relatively small number of patients involved (based on the results collated from the travel survey).

Potential Measures

There are a number of measures that could be employed to assist in reducing the travel impact of the proposed service changes, particularly for South Tyneside residents who may be required to travel to Sunderland Royal Hospital for their healthcare needs and / or their visitors. These include:

- Ensuring patients and visitors have accurate, up to date information about their travel choices, including public transport information, and ticketing information in particular, and are aware of (online) journey planning tools
- Ensuring patients and visitors have accurate information about parking choices and costs
- Providing users with information about schemes that offer assistance with travel costs
- Providing travel information with appointment letters
- Promoting the existing policy of allowing patients to discuss and schedule appointment times that ease their travel arrangements
- Introducing improved and new bus routes, including the possibility of a new secured express service from Hebburn and Jarrow, and from Hetton, Houghton and

Washington, to STDH and SRH. The North East Commissioning Support Unit is currently in discussion with NEXUS on this matter.

1. Introduction

- 1.1 Integrated Transport Planning Ltd has been appointed by South Tyneside and Sunderland NHS Partnership to provide a Travel and Transport Impact Assessment for the various Clinical Service Reviews taking place over the course of the next two years that are designed to continue the provision of sustainable and safe healthcare services to the populations of South Tyneside and Sunderland.
- 1.2 This Travel Impact Assessment report focuses upon the future provision of Stroke services, Paediatrics services and Maternity and Gynaecology services across South Tyneside and Sunderland, and assesses the travel impact of the possible service models and solutions put forward for consultation and consideration.
- 1.3 Prior to this report, ITP has produced a Baseline Report to present the current transport situation at both South Tyneside District Hospital (STDH) and Sunderland Royal Hospital (SRH), to review various elements of transport related to hospital operations, including reviews of public transport, parking, accessibility, existing travel behaviour, NHS Policies and Patient Transport Services. The Baseline Report is available to view on the path to excellence website - <https://pathtoexcellence.org.uk/>
- 1.4 This report is structured in the following manner:
 - Chapter 2 provides a general assessment of the impact that moving clinical services from STDH to SRH will have on the wider South Tyneside population. It includes analysis focussing on areas of deprivation within South Tyneside and ward based journey time information. This assessment is relevant to all clinical service reviews in this report.
 - Chapter 3 describes the current service model for Stroke clinical services and proposed solutions to reconfigure Stroke services across South Tyneside and Sunderland.
 - Chapter 4 presents the travel and transport impact assessment of the options for Stroke services, including visitor travel survey data and results
 - Chapter 5 describes the current service model for Paediatrics clinical services and proposed solutions to reconfigure Paediatrics services across South Tyneside and Sunderland.
 - Chapter 6 presents the travel and transport impact assessment of the options for Paediatrics services, including parental travel survey data and results

- Chapter 7 describes the current service model for Maternity and Gynaecology clinical services and proposed solutions to reconfigure Maternity and Gynaecology services across South Tyneside and Sunderland.
- Chapter 8 presents the travel and transport impact assessment of the options for Maternity, including patient and visitor travel survey data and results.
- Chapter 9 presents the travel and transport impact assessment of the options for Gynaecology services, including patient travel survey data and results.
- Chapter 10 presents a range of measures to reduce the impact of the proposed service models upon patient and visitor transport and travel.

2. Overall impact of moving services to SRH from STDH

- 2.1 This chapter explores the travel impact on the wider South Tyneside population of moving healthcare services from STDH to SRH. The two main categories of population that have been assessed in this section are the whole South Tyneside population, according to census data from 2011, and households with no access to a car. In addition, analysis is also focussed on areas of deprivation (areas of low car ownership and health deprivation) within South Tyneside
- 2.2 The travel impact on these population categories has been undertaken using accessibility modelling, which is explained further into the chapter.
- 2.3 In addition, results from the updated car based accessibility analysis have been included in this chapter (and the clinical service chapters). Furthermore, car based accessibility analysis to Queen Elizabeth Hospital and Royal Victoria Infirmary has also been undertaken for the South Tyneside population.

South Tyneside Population

- 2.4 According to Census data from 2011, there are 148,127 people residing in South Tyneside.

Car ownership levels across South Tyneside

- 2.5 Census 2011 datasets show a range of data relating to South Tyneside. Table 2-1 provides figures relating to the number of cars / vans per household across South Tyneside. The data shows that 38.5 % of households have no access to a car or van and therefore are reliant upon public transport, walking, cycling, taxis and lifts from friends/ family for their travel needs. This is significantly higher than the proportion across England, for which the figure is 26%. In contrast, 41.1% of South Tyneside households have access to one car / van in their household and the remaining 20.4% of South Tyneside households have access to two or more cars within their household.

Table 2-1: Access to a car or van

Local Authority area	Total number of households		No cars/vans in household		1 car/van in household		2+ car/van in household	
South Tyneside LA	67,167	100%	25,830	38.5%	27,639	41.1%	13,698	20.4%
England	22.1m	100%	5,7m	26%	9.3m	42%	7.1m	32%

Public transport provision at STDH

- 2.6 At the time of reviewing the public transport services, in November 2016, South Tyneside District Hospital was served by 10 high frequency services and two low frequency services, primarily within 400m of the hospital site and extending to up to 650m of the site. This level of service is comparable to or greater than the level of bus service serving other similar hospitals in the North East.

Accessibility modelling and statistics

- 2.7 Accessibility modelling is a type of analysis that enables the reporting of the potential levels of access to a certain destination, in this case, the level of access to South Tyneside District Hospital (STDH) and Sunderland Royal Hospital (SRH), by various modes of transport. Car based accessibility to Queen Elizabeth Hospital (QEG) and the Royal Victoria Infirmary (RVI) has also been undertaken. In this context, accessibility refers to travel time rather than other definitions which might relate to the ease of access by the mobility impaired.
- 2.8 Using the industry standard regional accessibility modelling software 'Visography TRACC' (TRACC) it is possible to produce a number of maps showing journey times to a destination, i.e. STDH from the local area, and report various demographic outputs in numerical form.
- 2.9 As mentioned previously, a more detailed road speed dataset has been used to update the car based accessibility modelling exercise for this version of the report. The updated road speed data is a new road speed dataset produced with Trafficmaster, utilising their market leading raw GPS speed data, which has been optimised to work with the TRACC software. Data from the whole of 2015 has been used to provide typical road speeds for

the road links across Tyne and Wear, which take into account delays encountered over the year along the various road links.

- 2.10 The updated car based accessibility modelling exercise has modelled journeys to the hospital only and makes the assumption that car based journey times to the hospital will be similar to those journey times experienced when people are travelling home from the hospital.
- 2.11 In this version (version 5) of the Travel Impact Assessment report TRACC utilises Trafficmaster road speed data and public transport service data provided by Local Authorities and uses this to show the level of accessibility for any chosen destination using a number of assumptions and simplifications, including:
- How far people will walk to access the public transport network at the start of their journey, which is 400m. It is acknowledged that for some users this distance may represent a barrier to accessing the service.
 - Use of up to date public transport timetable data and Trafficmaster road speed data to provide a model showing transport access (journey times) by mode. Clearly, timetabled public transport services, can be subject to delay, which may mean that journey times are underestimated under some circumstances.
- 2.12 Notwithstanding the above, the accessibility outputs are particularly useful for comparing different scenarios, where the change in travel time is more important than the absolute time.
- 2.13 The baseline report includes a range of accessibility modelling scenarios as detailed in Table 2-2 below, however, the travel impact assessment reports focus on the time periods most pertinent to the proposed service model options for each healthcare service.

Table 2-2: Accessibility scenarios produced for both STDH and SRH

Accessibility type	Time periods
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Accessibility type	Time periods
Public transport accessibility (bus and metro)	<ul style="list-style-type: none"> • 7am - 9am • 2pm - 4pm • 5pm - 7pm • 7pm - 9pm
Public transport accessibility travelling away from the hospital	<ul style="list-style-type: none"> • 7pm - 9pm
Accessibility by private car	<ul style="list-style-type: none"> • 7am - 9am • 2pm - 4pm • 5pm - 7pm • 7pm - 9pm • Free flowing conditions that represent condition between midnight and 2am
Accessibility by bike	Any as TRACC uses a default cycling speed (16kmh / 10mph)
Accessibility by walking	Any as TRACC uses a default walking speed (4.8kmh / 3mph)

2.14 For each accessibility plot, the following demographic outputs have been produced in tabular format:

- Numbers and percentage of total population in each Local Authority (LA) that is within each 10 minute time band, and the average journey time to STDH and SRH
- Numbers and percentage of households in each LA with no access to a car / van within each 10 minute time band, and the average journey time to STDH and SRH
- Number and percentage of residents living in areas of low car ownership and the associated journey times to STDH and SRH
- Number and percentage of residents living in areas of poor health and the associated journey times to STDH and SRH

Relevant accessibility statistics relating to STDH

- 2.15 For the majority of clinical services being considered later in this report, accessibility statistics have been selected according to the time periods that relate to visiting time, i.e. travelling to the hospital between 14:00 and 16:00 to account for afternoon visiting times and travelling away from the hospital between 19:00 and 21:00 to account for visitors leaving following the end of evening visiting hours. The time period of 14:00 and 16:00 has also been chosen as it represents general daytime hours.
- 2.16 Therefore this initial chapter of the accessibility assessment looks at the current levels of accessibility to South Tyneside District Hospital amongst the South Tyneside population for the time periods outlined above and by different modes of transport.

Accessibility statistics for the South Tyneside population

- 2.17 Table 2-3 below shows that, between 14:00 and 16:00, the vast majority of the South Tyneside population can access STDH by car within 30 minutes, whilst 64% of the population can access the hospital by public transport within the same time frame, as can 21% on foot. For the 60 minute timeframe, the figures for public transport and walking are 83% and 61% respectively.
- 2.18 Average journey times have been calculated for each mode in order to provide a simple and useful way of comparing the modes of transport. For this time period, the average public transport journey time to STDH amongst the South Tyneside population is 23 minutes, whilst by car it is ten minutes and on foot it is 47 minutes. As noted above, journey times are based on published timetables and typical road conditions from 2015, and the car journey times do not include the time it takes to park. Additionally, the averages are calculated using the mid-range of the time bands in the Table; this may also have the effect of distorting the results somewhat.
- 2.19 Table 2-4 below shows that, between 19:00 and 21:00, all of the South Tyneside population can travel home from STDH by car within 30 minutes, whilst 57% of the population can travel back from STDH by public transport within the same time frame, as can 21% on foot. For the 60 minute timeframe, the figures for public transport and walking are 81% and 61% respectively.
- 2.20 For this time period, the average public transport journey time to STDH amongst the South Tyneside population is 24 minutes, whilst by car it is nine minutes and on foot it is 47 mins.

Table 2-3: Accessibility of South Tyneside Residents to STDH (14:00 - 16:00)

Travel Time (mins)	Number and percentage of South Tyneside residents					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	3,630	2%	98,407	66%	1,232	1%
11 - 20	47,125	32%	49,536	33%	9,240	6%
21 - 30	43,833	30%	76	1%	21,324	14%
31 - 40	25,314	17%	-	-	30,956	21%
41 - 50	3,321	2%	-	-	17,002	11%
51 - 60	15	0%	-	-	11,419	8%
61 - 70	285	0%	-	-	17,740	12%
71 - 80	0	0%	-	-	17,265	12%
81 - 90	0	0%	-	-	9,164	6%
Average	23 mins		10 mins		47 mins	
< 30 mins	94,588	64%	148,019	100%	31,796	21%
< 60 mins	123,238	83%	148,019	100%	91,173	61%
< 90 mins	123,523	83%	148,019	100%	135,342	91%
Total	148,127	100%	148,127	100%	148,127	100%

Table 2-4: Accessibility of South Tyneside Residents from STDH (19:00 to 21:00)

Travel Time (mins)	Number and percentage of South Tyneside residents					
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Travel Time (mins)	Number and percentage of South Tyneside residents					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	5,713	4%	119,814	81%	1,232	1%
11 - 20	42,401	29%	28,300	19%	9,240	6%
21 - 30	35,859	24%	13	0%	21,324	14%
31 - 40	26,579	18%	-	-	30,956	21%
41 - 50	9,769	7%	-	-	17,002	11%
51 - 60	307	0%	-	-	11,419	8%
61 - 70	2	0%	-	-	17,740	12%
71 - 80	0	0%	-	-	17,265	12%
81 - 90	0	0%	-	-	9,164	6%
Average	24 mins		9 mins		47 mins	
< 30 mins	83,973	57%	148,127	100%	31,796	21%
< 60 mins	120,628	81%	148,127	100%	91,173	61%
< 90 mins	120,630	81%	148,127	100%	135,342	91%
Total	148,127	100%	148,127	100%	148,127	100%

Accessibility statistics for South Tyneside households without access to a car / van

- 2.21 Table 2-5 shows the accessibility statistics for STDH relating to public transport for South Tyneside households with no access to a car / van for the time periods between 14:00 and 16:00 (travel to the hospital) and 19:00 and 21:00 (travelling away from the hospital).
- 2.22 Between 14:00 and 16:00, 68% of these households can access STDH within 30 minutes and 86% can access it within 60 minutes. For this time period, the average public transport journey time to STDH amongst the South Tyneside population is 23 minutes.
- 2.23 Between 19:00 and 21:00, 62% of these households can travel home within 30 minutes and 85% can travel home within 60 minutes. For this time period, the average public transport journey time to STDH amongst the South Tyneside population is 24 minutes.

Table 2-5: Accessibility of South Tyneside Households with no access to a car to/from STDH

Travel Time (mins)	Number and percentage of South Tyneside households with no access to a car or van			
	By public transport between 14:00 and 16:00		By public transport between 19:00 and 21:00	
	number	%	number	%
0 - 10	628	2%	1,032	4%
11 - 20	9,519	37%	8,849	34%
21 - 30	7,611	29%	6,138	24%
31 - 40	4,097	16%	4,382	17%
41 - 50	401	2%	1,590	6%
51 - 60	5	0%	42	0%
61 - 70	85	0%	1	0%
71 - 80	0	0%	0	0%
81 - 90	0	0%	0	0%
Average	23 mins		24 mins	
< 30 mins	17,758	68%	16,019	62%
< 60 mins	22,261	86%	22,033	85%
< 90 mins	22,346	87%	22,034	85%
Total	25,830	100%	25,830	100%

Relevant accessibility statistics relating to SRH

2.24 In order to assess the travel impact upon the South Tyneside population of travelling to SRH for healthcare services, further accessibility modelling and statistics provide relative figures for accessibility to SRH amongst the South Tyneside population, providing comparative figures to those figures measuring accessibility to STDH across

the most relevant time periods, as demonstrated above. This analysis for SRH is presented below and focuses on travelling by public transport and car only.

- 2.25 Table 2-6 below show that the vast majority of the South Tyneside population can access SRH by car within 30 minutes, between 14:00 and 16:00 whilst 3% of the population can access SRH by public transport within the same time frame. For the 60 minute timeframe, the figure for public transport is 81%.
- 2.26 During this time period, the average public transport journey time to SRH amongst the South Tyneside population is 43 minutes and the average car journey time is 19 minutes.
- 2.27 Table 2-7 below shows the accessibility statistics for the general South Tyneside population for the time period between 19:00 and 21:00 when leaving SRH. The vast majority of the South Tyneside population can travel home from SRH by car within 30 minutes, whilst 2% of the population can travel home from SRH by public transport within the same time frame. For the 60 minute timeframe, the accessibility figure for public transport is 69%.
- 2.28 The average public transport journey time from SRH is 48 minutes and the average car journey time is 16 minutes.

Table 2-6: Accessibility of South Tyneside Residents to SRH (14:00 to 16:00)

Travel Time (mins)	Number and percentage of South Tyneside residents
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Travel Time (mins)	Number and percentage of South Tyneside residents			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	1	0%
11 - 20	0	0%	85,192	58%
21 - 30	3,898	3%	62,804	42%
31 - 40	40,507	27%	31	0%
41 - 50	56,986	38%	-	-
51 - 60	18,455	12%	-	-
61 - 70	3,165	2%	-	-
71 - 80	138	0%	-	-
81 - 90	240	0%	-	-
Average	43 mins		19 mins	
< 30 mins	3,898	3%	147,997	100%
< 60 mins	119,846	81%	148,028	100%
< 90 mins	123,389	83%	148,028	100%
Total	148,127	100%	148,127	100%

Table 2-7: Accessibility of South Tyneside Residents from SRH (19:00 to 21:00)

Travel Time (mins)	Number and percentage of South Tyneside residents	
	By public transport	By car

Travel Time (mins)	Number and percentage of South Tyneside residents			
	number	%	number	%
0 - 10	0	0%	58	0%
11 - 20	0	0%	136,897	92%
21 - 30	3,253	2%	11,166	8%
31 - 40	25,258	17%	6	0%
41 - 50	52,704	36%	-	-
51 - 60	20,680	14%	-	-
61 - 70	7,962	5%	-	-
71 - 80	8,073	5%	-	-
81 - 90	2,373	2%	-	-
Average	48 mins		16 mins	
< 30 mins	3,253	2%	148,127	100%
< 60 mins	101,895	69%	148,127	100%
< 90 mins	120,303	81%	148,127	100%
Total	148,127	100%	148,127	100%

Accessibility statistics for South Tyneside households without access to a car / van

2.29 Table 2-8 shows the accessibility statistics for SRH relating to public transport for South Tyneside households with no access to a car / van for the time periods between 14:00 to 16:00 (travel to the hospital) and 19:00 and 21:00 (travelling away from the hospital). Between 14:00 to 16:00, 2% of these households can travel home from SRH within 30 minutes and 84% can travel home within 60 minutes. Between 19:00 and 21:00, 1% of these households can travel home within 30 minutes and 72% can travel home within 60 minutes.

2.30 The average public transport journey time to SRH during the 14:00 - 16:00 time period for South Tyneside households with no access to a car is 44 minutes, whilst during the 19:00 - 21:00 the average journey time from SRH amongst this population is 49 minutes.

Table 2-8: Accessibility of South Tyneside Households with no access to a car to SRH

Travel Time (mins)	Number and percentage of South Tyneside households with no access to a car or van			
	By public transport between 14:00 and 16:00		By public transport between 19:00 and 21:00	
	number	%	number	%
0 - 10	0	0%	0	0%
11 - 20	0	0%	0	0%
21 - 30	388	2%	344	1%
31 - 40	6,688	26%	3,987	15%
41 - 50	11,195	43%	9,758	38%
51 - 60	3,490	14%	4,401	17%
61 - 70	468	2%	1,595	6%
71 - 80	14	0%	1,479	6%
81 - 90	70	0%	408	2%
Average	44 mins		49 mins	
< 30 mins	388	2%	344	1%
< 60 mins	21,761	84%	18,490	72%
< 90 mins	22,313	86%	21,972	85%
Total	25,830	100%	25,830	100%

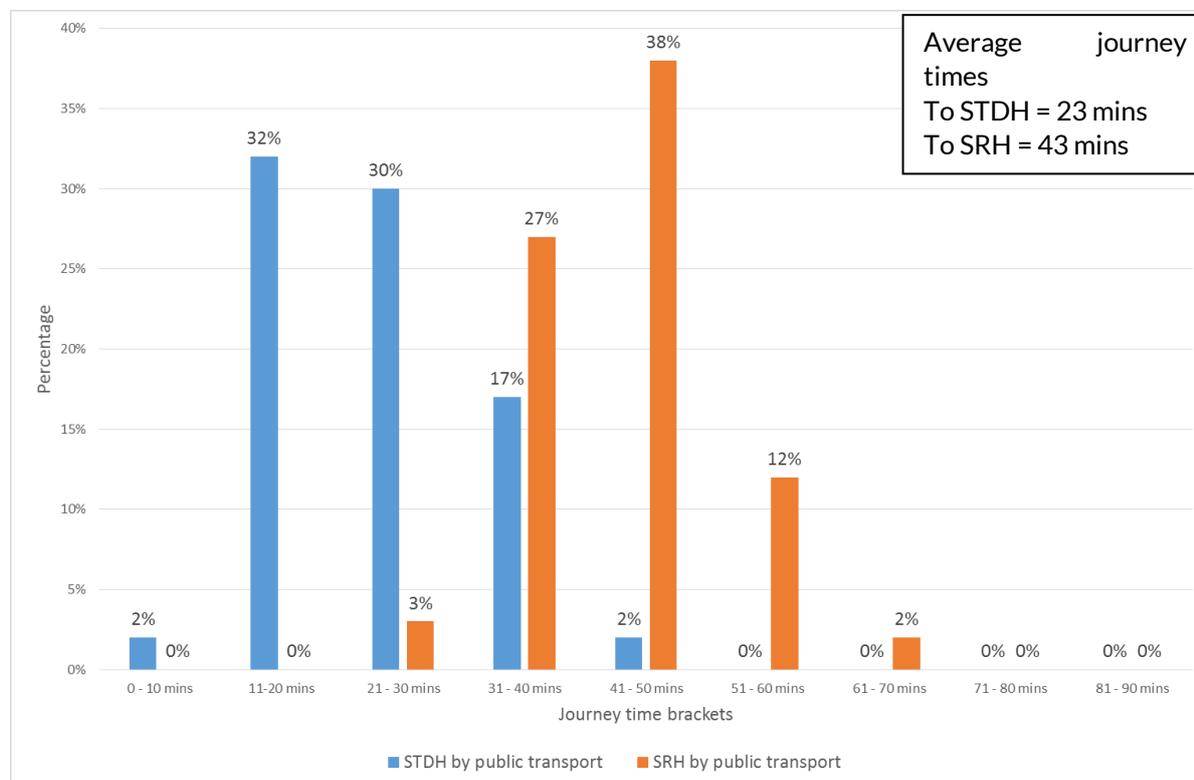
Comparison of accessibility statistics for travel to STDH and SRH

- 2.31 The following section provides a comparison of the accessibility figures for accessing both STDH and SRH during the aforementioned time periods, firstly by public transport, amongst the South Tyneside populations.

Public transport accessibility amongst total South Tyneside population to STDH and SRH

- 2.32 Figure 2-1 shows the proportion of the South Tyneside population that can access both hospitals within the different 10 minute journey time bands, and illustrates the differences in accessibility travelling to the hospitals between 14:00 and 16:00. The overall finding is that journey times to access healthcare services at SRH will be longer for the majority of people than if accessing STDH, with a higher proportion of the population experiencing journeys taking between 31 and 50 minutes to access SRH, rather than the previous higher proportions of the population whose journey took between 11 and 30 minutes to access STDH.
- 2.33 Currently, 32% of the population could access STDH in between 11 and 20 minutes journey time and a further 30% could access it between 21 and 30 minutes journey time. In comparison, 27% of the South Tyneside population will experience a journey time to SRH between 31 and 40 minutes and a further 38% will experience a journey time of between 41 and 50 minutes.

Figure 2-1: Accessibility of South Tyneside Residents to STDH and SRH (14:00 to 16:00)



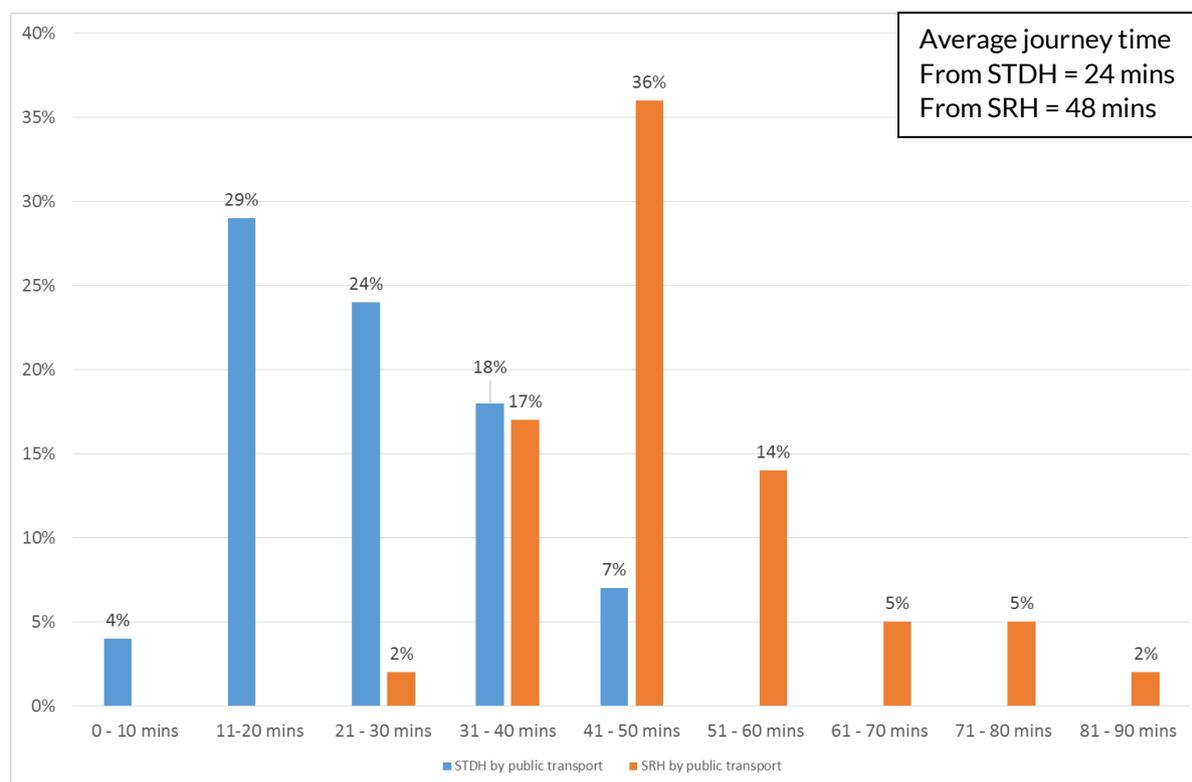
2.34 Figure 2-2 shows the proportion of the South Tyneside population that can travel home from both hospitals within the different 10 minute journey time bands, and illustrates the differences in accessibility travelling away from the hospitals between 19:00 and 21:00. Again, the overall finding is that journey times to access healthcare services at SRH will generally be longer for the majority than if accessing STDH.

2.35 Currently, 29% of the population could travel home from STDH in between 11 and 20 minutes journey time and a further 24% could travel home from STDH between 21 and 30 minutes journey time during this time period. In comparison, a similar proportion of the South Tyneside population will be able to travel home within 31 and 40 minutes (17%), 36% of the South Tyneside population will experience a journey time home from SRH between 41 and 50 minutes and a further 14% will experience a journey time of between 51 and 60 minutes.

2.36 During this evening time period, a larger proportion of the South Tyneside population will have longer journey times back from SRH of between 41 minutes and 60 minutes (50% of the South Tyneside population) compared to the South Tyneside population

travelling to the hospital, where a larger proportion of journey times range between 31 and 50 minutes (65% of the South Tyneside population).

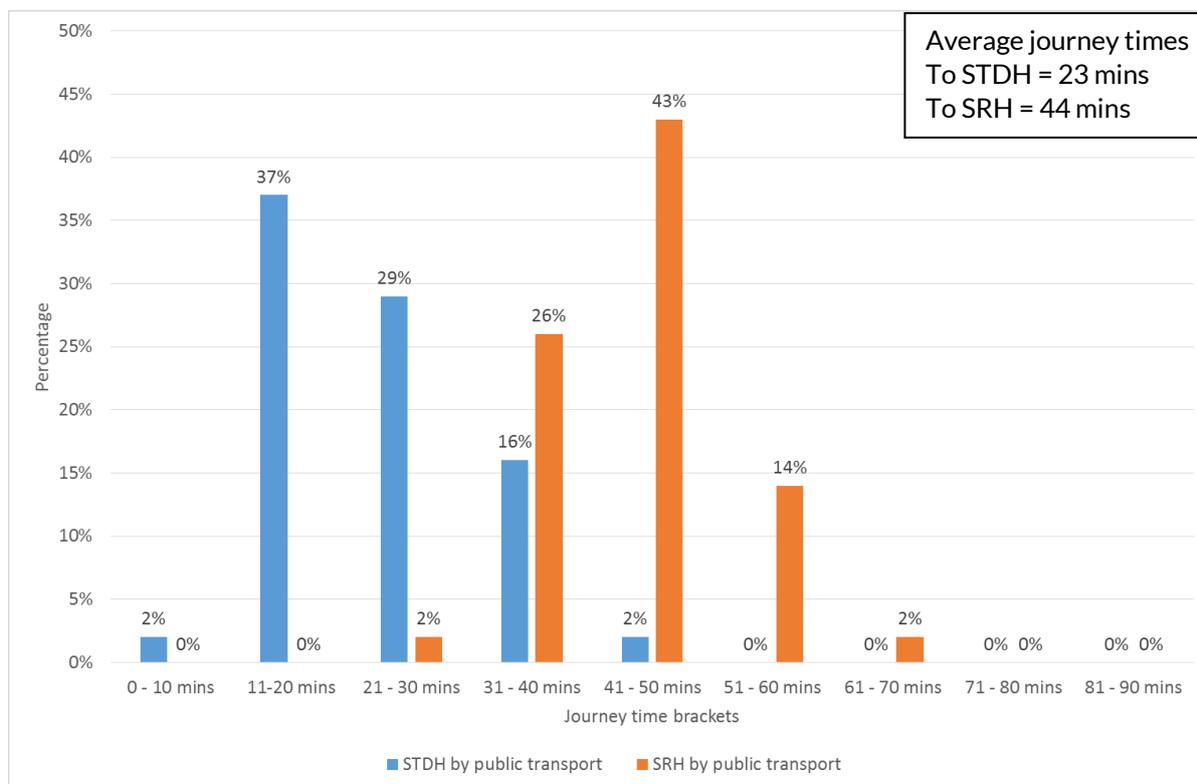
Figure 2-2: Accessibility of South Tyneside Residents from STDH and SRH (19:00 to 21:00)



Public transport accessibility amongst South Tyneside households with no access to a car to STDH and SRH

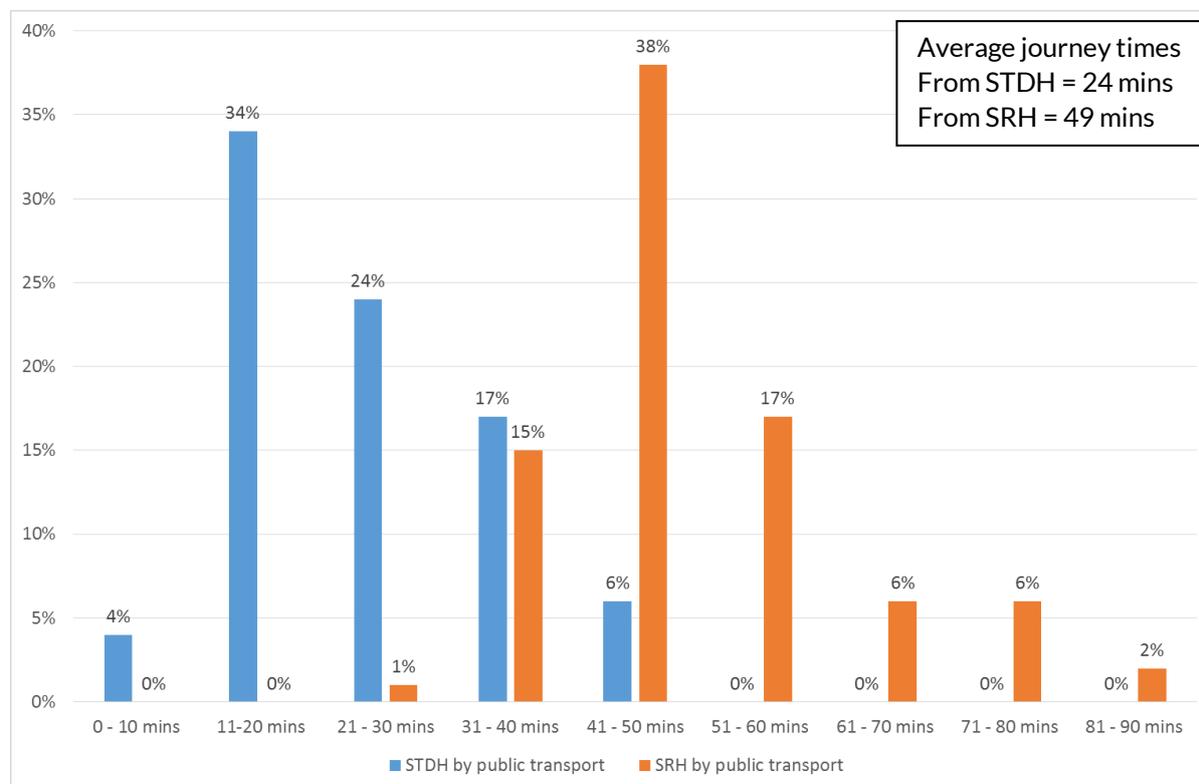
- 2.37 Figure 2-3 below shows the proportion of South Tyneside households without access to a car that can access each hospital within the different 10 minute journey time bands, and illustrates the differences in accessibility travelling to the hospitals between 14:00 - 16:00.
- 2.38 Currently, 37% of South Tyneside households with no access to a car could access STDH in between 11 and 20 minutes journey time and a further 29% could access it between 21 and 30 minutes journey time. In comparison, 26% of South Tyneside households with no access to a car will experience a journey time to SRH between 31 and 40 minutes and a further 43% will experience a journey time of between 41 and 50 minutes.

Figure 2-3: Accessibility of South Tyneside Households with no access to a car who can access STDH and SRH (14:00 to 16:00)



- 2.39 Figure 2-4 shows the proportion of South Tyneside households without access to a car that can access each hospital within the different 10 minute journey time bands, and illustrates the differences in accessibility travelling away from the hospitals between 19:00 - 21:00.
- 2.40 Currently, 34% of South Tyneside households with no access to a car could access STDH in between 11 and 20 minutes journey time and a further 24% could access it between 21 and 30 minutes journey time. In comparison, 38% of South Tyneside households with no access to a car will experience a journey time to SRH between 41 and 50 minutes and a further 17% will experience a journey time of between 51 and 60 minutes.
- 2.41 During this evening time period, a larger proportion of South Tyneside households with no access to a car will have longer journey times back from SRH of between 41 minutes and 60 minutes (55% of the South Tyneside population) compared to South Tyneside households with no access to a car travelling to the hospital, where a larger proportion of journey times range between 31 and 50 minutes (69% of the South Tyneside population).

Figure 2-4: Accessibility of South Tyneside Households with no access to a car from STDH and SRH (19:00 to 21:00)

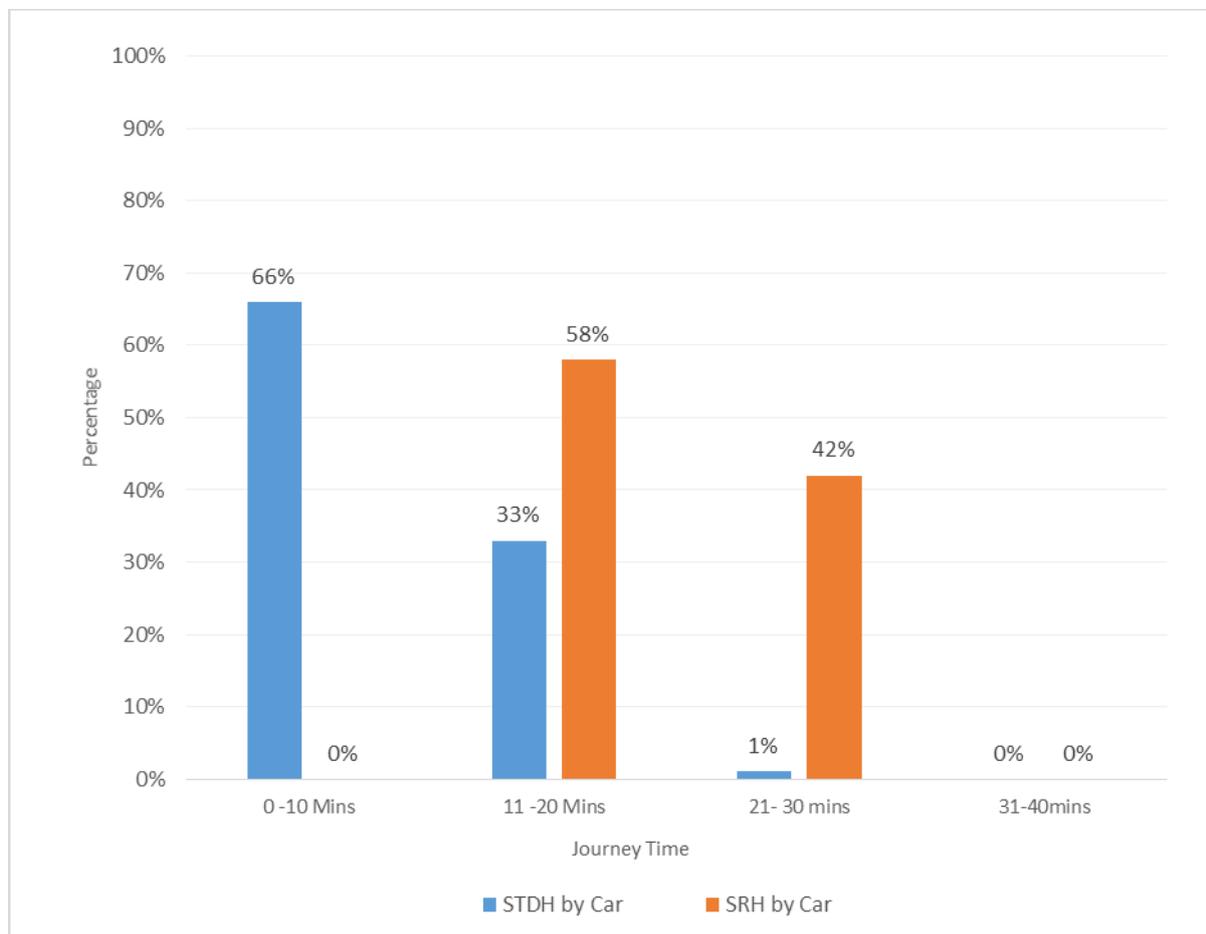


Car accessibility amongst total South Tyneside population to STDH and SRH

2.42 Figure 2-5 shows the proportion of the South Tyneside population that can access each hospital by car within the different 10 minute journey time bands between 14:00 – 16:00. The overall finding is that journey times to access healthcare services at SRH will be slightly longer for the majority of people than if accessing STDH, with a higher proportion of the population experiencing journeys taking between 11 and 20 minutes to access SRH, rather than the previous higher proportions of the population whose journey took between 0 and 10 minutes to access STDH.

2.43 Currently, 66% of the population could access STDH in between 0 and 10 minutes journey time and a further 33% could access it between 11 and 20 minutes journey time. In comparison, 0% of the ST population can access SRH between 0 and 10 minutes, whilst 58% will experience a journey time of between 11 and 20 minutes and 42% will experience a journey time between 21 and 30 minutes.

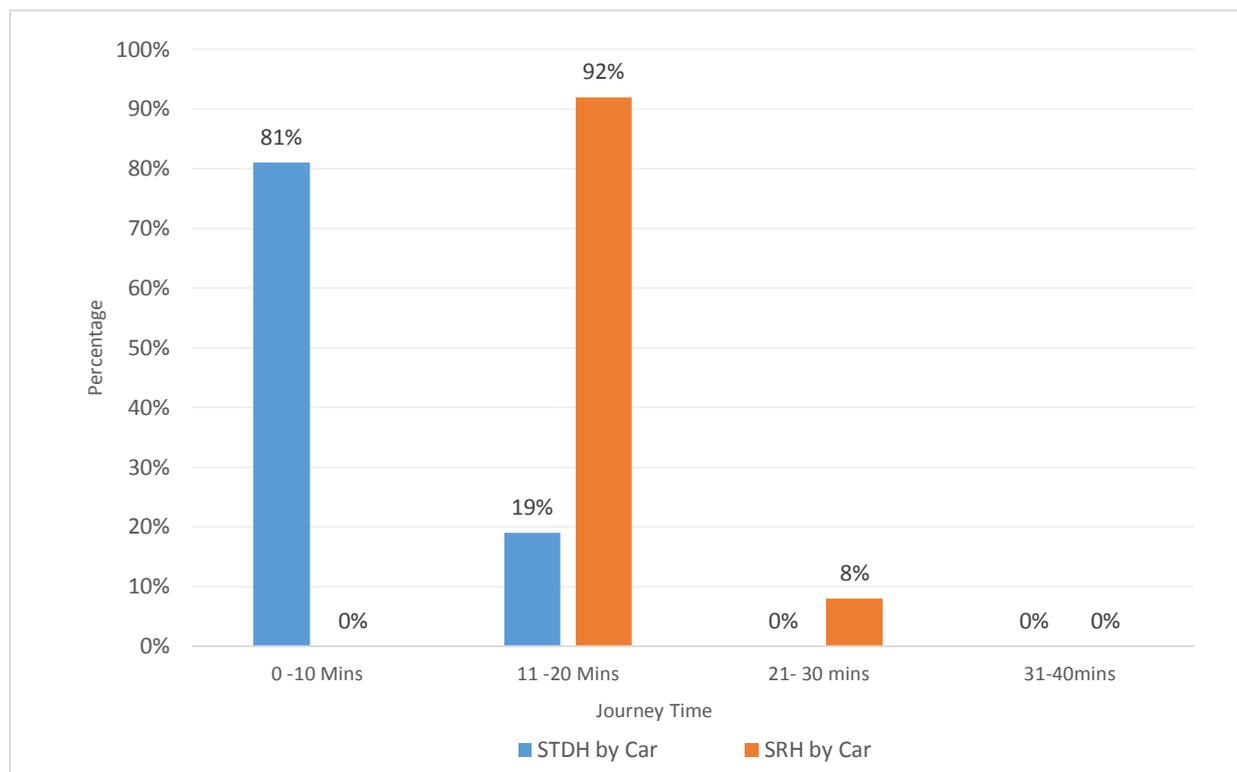
Figure 2-5: Car Accessibility of South Tyneside Residents to STDH and SRH 14:00-16:00



2.44 Figure 2-6 shows the proportion of the South Tyneside population that can access each hospital by car within the different 10 minute journey time bands between 19:00 – 21:00. The overall finding is that journey times to access healthcare services at SRH will be slightly longer for the majority of people than if accessing STDH, with a higher proportion of the population experiencing journeys taking between 11 and 20 minutes to access SRH, rather than the previous higher proportions of the population whose journey took between 0 and 10 minutes to access STDH.

2.45 Currently, 81% of the population could access STDH in between 0 and 10 minutes journey time and a further 19% could access it between 11 and 20 minutes journey time. In comparison, 0% of the ST population can access SRH between 0 and 10 minutes, whilst 92% will experience a journey time of between 11 and 20 minutes and 8% will experience a journey time between 21 and 30 minutes.

Figure 2-6: Accessibility of South Tyneside Residents to STDH and SRH 19:00-21:00

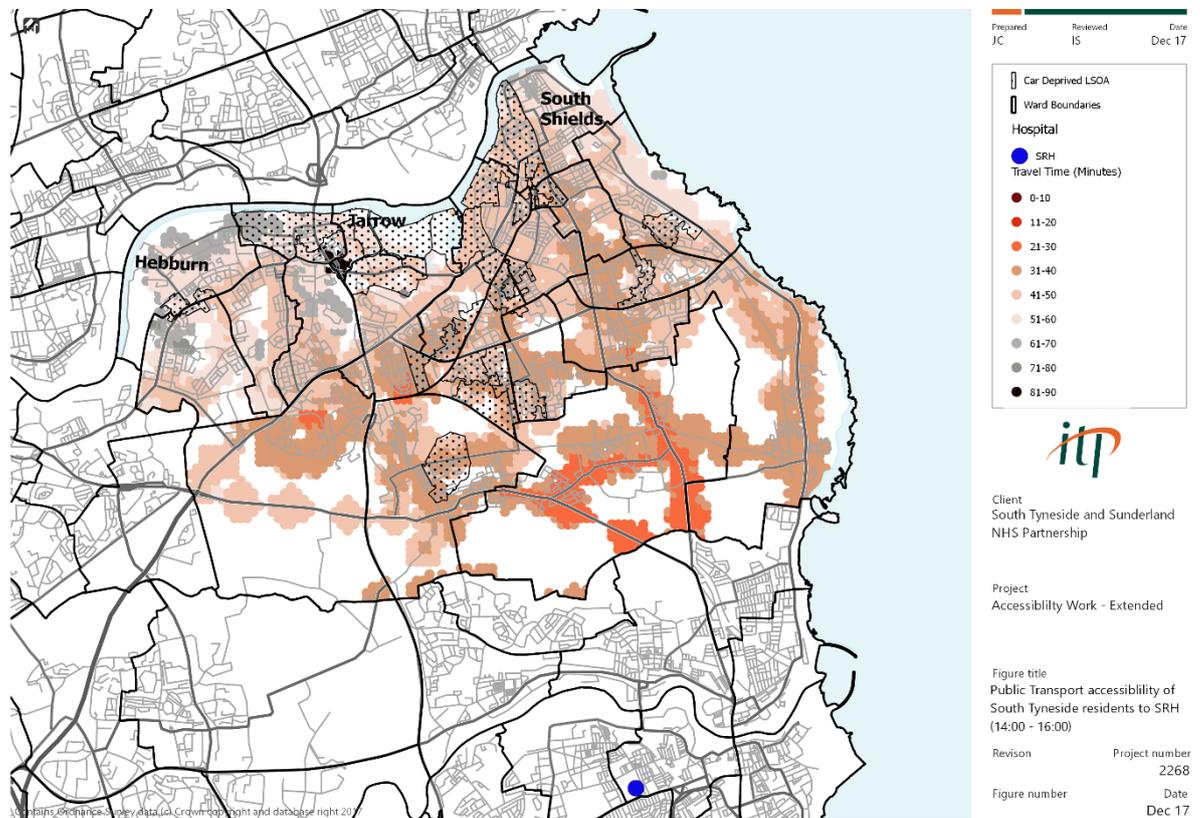


Accessibility to hospitals from deprived areas of South Tyneside

Accessibility in areas of South Tyneside that experience high car deprivation

- 2.46 26,111 people living in South Tyneside live in areas classified as areas of low car ownership (more than 50% of the residents do not have access to a car or van), which represents 17% of the total South Tyneside population.
- 2.47 Analysis has been undertaken to understand the accessibility (journey times to SRH) of South Tyneside residents living in areas of high car deprivation (defined as areas where 50% or more households do not have access to a car or van).
- 2.48 Figure 2-7 below shows the locations of areas of high car deprivation in the context of public transport accessibility (journey times) to SRH between 14:00 and 16:00.

Figure 2-7: PT Accessibility amongst South Tyneside residents in areas of low car ownership to SRH (14:00-16:00)



2.49 Table 2-9: provides an overview of the public transport journey times from areas of low car ownership to both STDH and SRH, noting the time difference. The data shows that the average journey time from areas of low car ownership to STDH is 21 minutes and to SRH is 45 minutes. Journeys to SRH will on average increase by 24 minutes amongst this demographic.

Table 2-9: Comparison of public transport journey times (14:00 – 16:00) to STDH and SRH from South Tyneside areas with low car ownership

Ward	No of LSOA's with low car ownership within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward (mins)	PT Journey time to SRH from centre of LSOA cluster in the ward (mins)	Journey time difference (mins)
West Park	1	17	38	31
Whitburn and Marsden	0	0	0	0
Whiteleas	0	0	0	0
Beacon and Bents	2	21	46	25
Bede	3	26	50	24
Biddick and All Saints	5	18	39	21
Boldon Colliery	1	24	38	14
Cleadon and East Boldon	0	0	0	0
Cleadon Park	0	0	0	0
Fellgate and Headworth	0	0	0	0
Harton	1	13	45	31
Hebburn North	1	30	54	24
Hebburn South	0	0	0	0
Horsley Hill	1	23	46	22

Ward	No of LSOA's with low car ownership within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward (mins)	PT Journey time to SRH from centre of LSOA cluster in the ward (mins)	Journey time difference (mins)
Monkton	0	0	0	0
Primrose	0	0	0	0
Simonside and Rekendyke	4	30	49	18
Westoe	2	18	39	21
Average journey time	-	21	45	24

Accessibility in areas of South Tyneside that have high levels of health deprivation

- 2.50 58,284 people living in South Tyneside live in areas classified as areas of poor health (rated as 1, most deprived, on a scale of 1 to 10) which represents 39% of the total South Tyneside population
- 2.51 Figure 2-8 below shows the locations of areas of health deprivation in the context of public transport accessibility (journey times) to SRH between 14:00 and 16:00.

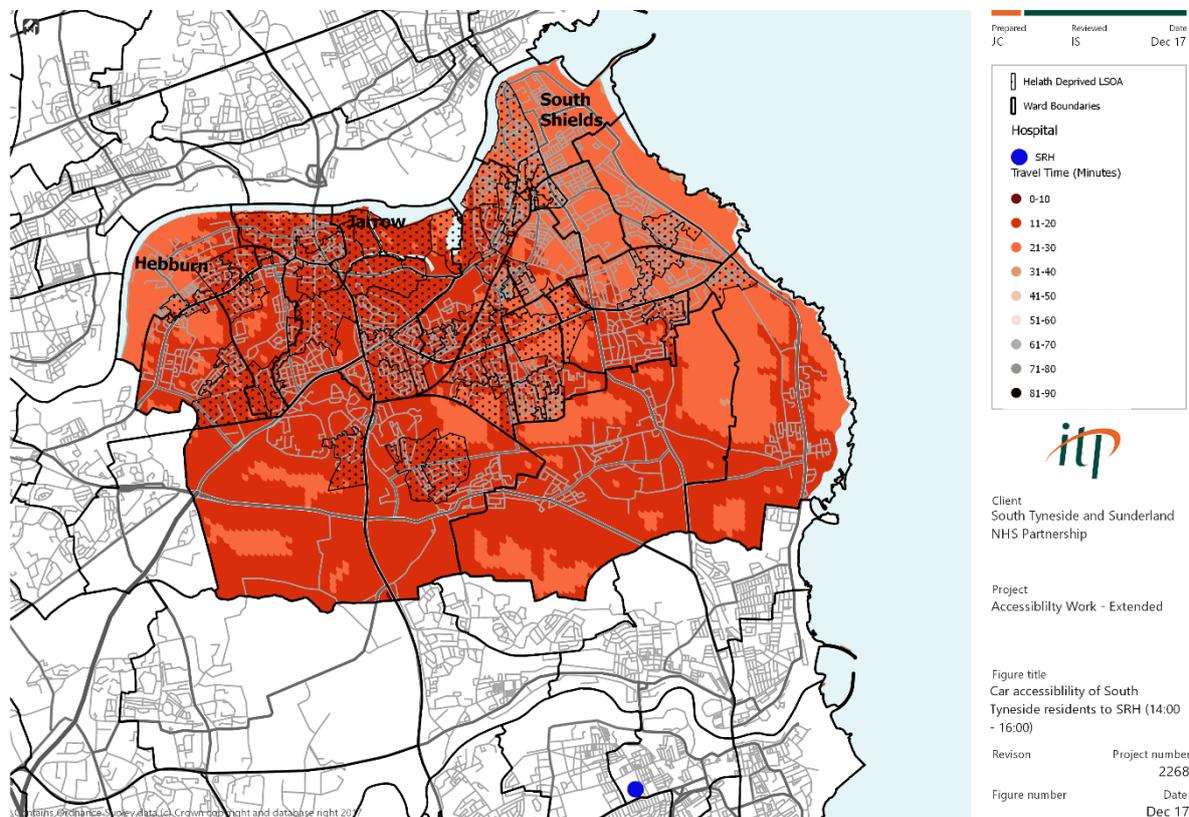
Table 2-10: Comparison of public transport journey times (14:00 – 16:00) to STDH and SRH from South Tyneside areas exhibiting health deprivation

Ward	No of LSOA's exhibiting health deprivation within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward	PT Journey time to SRH from centre of LSOA cluster in the ward	Journey time difference
West Park	0	0	0	0
Whitburn and Marsden	1	17	40	23
Whiteleas	2	17	36	19
Beacon and Bents	2	20	46	26
Bede	5	23	52	29
Biddick and All Saints	5	20	42	22
Boldon Colliery	2	24	38	14
Cleadon and East Boldon	0	0	0	0
Cleadon Park	2	11	41	30
Fellgate and Headworth	1	32	35	3
Harton	2	15	46	31
Hebburn North	3	29	50	21
Hebburn South	1	39	54	15
Horsley Hill	1	18	45	27

Ward	No of LSOA's exhibiting health deprivation within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward	PT Journey time to SRH from centre of LSOA cluster in the ward	Journey time difference
Monkton	2	36	49	13
Primrose	4	32	57	25
Simonside and Rekendyke	6	16	46	30
Westoe	1	18	39	21
Average journey time	-	23	45	22

2.53 Figure 2-9 below shows the locations of areas of health deprivation in the context of car based accessibility (journey times) to SRH between 14:00 and 16:00.

Figure 2-9: Car Accessibility amongst South Tyneside residents in areas of health deprivation to SRH (14:00-16:00)



2.54 Table 2-11 Table 2-9: provides an overview of the car journey times from areas of health deprivation to both STDH and SRH, noting the time difference. The data shows that the average journey time from areas of health deprivation to STDH is 8 minutes and to SRH is 19 minutes. Journeys to SRH will on average increase by 11 minutes.

Table 2-11: Comparison of car journey times (14:00 – 16:00) to STDH and SRH from South Tyneside areas with Low Health

Ward	No of LSOA's exhibiting health deprivation within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward	PT Journey time to SRH from centre of LSOA cluster in the ward	Journey time difference
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Ward	No of LSOA's exhibiting health deprivation within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward	PT Journey time to SRH from centre of LSOA cluster in the ward	Journey time difference
West Park	0	0	0	0
Whitburn and Marsden	1	8	22	14
Whiteleas	2	7	22	15
Beacon and Bents	2	9	21	12
Bede	5	7	16	9
Biddick and All Saints	5	3	18	15
Boldon Colliery	2	9	19	10
Cleadon and East Boldon	0	0	0	0
Cleadon Park	2	4	15	11
Fellgate and Headworth	1	10	19	9
Harton	2	8	16	8
Hebburn North	3	14	23	9
Hebburn South	1	10	20	10
Horsley Hill	1	9	16	7
Monkton	2	13	24	9

Ward	No of LSOA's exhibiting health deprivation within ward boundary	PT Journey time to STDH from centre of LSOA cluster in the ward	PT Journey time to SRH from centre of LSOA cluster in the ward	Journey time difference
Primrose	4	9	15	6
Simonside and Rekendyke	6	7	20	13
Westoe	1	8	22	14
Average journey time	-	8	19	11

Public Transport Field Testing Exercises

2.55 Two public transport field testing exercises and one car based field testing exercise have been undertaken to capture real time experience of using public transport and travelling by car across the local areas to access four of the closest hospitals (STDH, SRH, QEG and RVI) and validate modelling results.

Initial Public Transport Field Testing exercise

2.56 To ensure the robustness of previously undertaken TRACC accessibility modelling and journey planning in Google, and to understand real world public transport conditions, ITP conducted field testing of public transport over two weekdays – 29th and 30th March 2017, covering typical operation at both STDH and SRH. The final field testing technical note can be found in Appendix B, whilst the following text provides an overview of the technical note.

2.57 Journeys were made by public transport from the following locations to both STDH and SRH:

- Aln Street, Hebburn
- Market Walk, Jarrow

- Broughton Road, South Shields

- 2.58 These locations were chosen at random, and were designed to be representative of the surrounding population and the public transport services and options available to them.
- 2.59 All transport journeys were made according to the most direct or fastest routes, minimal walking distances and time, interchanges at significant points (such as bus stations or town centres) and use of the first available bus/metro train to the destination. Where the walking distances to the nearest metro station exceeded 800m, a bus service was used to access the relevant station or destination. Additionally, to test the wider public transport network, buses run by both Go North East and Stagecoach were used, in addition to Nexus metro services.
- 2.60 Making comparisons between the observed journeys and TRACC, all observed journeys to STDH are longer than predicted in TRACC, however align closely to a number of Google journey planner times. The observed journey times from Jarrow to SRH and from South Shields to SRH are closely aligned to that predicted. However, from Hebburn to SRH, the observed journey time is significantly longer than predicted. This is illustrated in Tables 2-9 and 2-10 overleaf.
- 2.61 It is important to recognise however that the majority of the observed journeys were made by bus, and TRACC calculates journey times based on both / either bus or metro services so is not directly comparable. The TRACC journey times do appear to relate more closely to planned Google metro journey times. Whilst the journey times in TRACC are generally shorter than those observed in the field testing, TRACC is still a valid tool because a key objective of the travel and transport impact assessment is understanding the changes in journey time accessibility arising from the service reviews, rather than the absolute times. It is also the best tool available to make comparisons on a network-wide basis.

Table 2-12: Comparison of observed journey times to and from STDH against Google journey planner & TRACC accessibility modelling

Origin	Direction	Mode Used (Observed)	Time journey started (observed/planned)	STDH				TRACC time period
				Actual (Observed)	Google (Bus) ¹	Google (Metro) ²	TRACC ³	
Aln Street, Hebburn	To	Bus	12:30	49 mins	45 mins	32 mins	29 mins	14:00 – 16:00
	From	Bus/Metro	13:20	35 mins	44 mins	31 mins	Not undertaken	14:00 – 16:00
Market Walk, Jarrow	To	Bus	14:17	48 mins	46 mins	33 mins	30 mins	14:00 – 16:00
	From	Bus	15:06	52 mins	56 mins	32 mins	Not undertaken	14:00 – 16:00
Broughton Road, South Shields	To	Bus	16:18	40 mins ⁴	19 mins	-	20 mins	17:00 – 19:00
	From	Bus	16:59	17 mins	18 mins	-	Not undertaken	17:00 – 19:00

1. Interchanges used during field testing may differ to that planned by Google. Journey times in Google have been made as comparable as possible to that recorded (using same buses or metro lines).
2. Metro results not included for journeys to South Shields due to the longer walking distances at beginning / end of trip.
3. TRACC results drawn from same time periods as observed journeys undertaken.
4. 24 mins of this journey was spent waiting for a bus at South Shields.

Table 2-13: Comparison of observed journey times to and from SRH against Google journey planner & TRACC accessibility modelling

Origin	Direction	Mode Used (Observed)	Time journey started (observed/planned)	SRH				TRACC time period
				Actual (Observed)	Google (Bus) ¹	Google (Metro) ²	TRACC ³	
Aln Street, Hebburn	To	Bus	13:53	1 hour 35 mins	1 hour 13 mins	47 mins	54 mins	14:00 – 16:00
	From	Metro	15:28	1 hour	1 hour 17 mins	46 mins	Not undertaken	14:00 – 16:00
Market Walk, Jarrow	To	Metro/Bus	11:43	57 mins	1 hour 8 mins	54 mins	52 mins	14:00 – 16:00
	From	Bus	12:40	1 hour 3 mins	1 hour 8 mins	53 mins	Not undertaken	14:00 – 16:00
Broughton Road, South Shields	To	Bus	09:07	51 mins	56 mins	-	47 mins	14:00 – 16:00
	From	Bus	10:01	1 hour 18 mins	1 hour 6 mins	-	Not undertaken	14:00 – 16:00

1. Interchanges used during field testing may differ to that planned by Google. Journey times in Google have been made as comparable as possible to that recorded (using same buses or metro lines).
2. Metro results not included for journeys to South Shields due to the longer walking distances at beginning / end of trip.
3. TRACC results drawn from same time periods as observed journeys undertaken.

Area Wide Field Testing Exercise

- 2.62 This journey time field testing exercise was undertaken by local Council members and volunteers from across South Tyneside and Sunderland. They undertook public transport and car journeys from the main settlement areas in South Tyneside to four local hospitals - namely, STDH, SRH, QEH and RVI.
- 2.63 Table 2-14 shows a summary of the differences in journey times between recorded and TRACC, and between different modes of travel. It can be seen that the majority of journey times that were recorded were within five minutes of or faster than that predicted by TRACC. Not all journeys that were field tested had been modelled in TRACC, so this table only includes journeys where valid comparisons could be made.

Table 2-14: Summary of journey time differences

Mode of travel	Up to 5 minutes longer than or faster than TRACC	Up to 10 minutes longer than TRACC	More than 10 minutes longer than TRACC
Car	27	8	9
Public Transport	7	6	21
Total	34	14	30

- 2.64 On public transport journeys, there was a substantial proportion of field-tested public transport journeys which were more than ten minutes longer than predicted by TRACC. It was noted during the previous field testing exercise that the TRACC public transport journey times appeared to align more closely with the metro journey times and a number of the public transport field testing journeys that have been recorded as longer than the TRACC times have been undertaken by bus. Whilst some journey time differences between field testing and TRACC were significant, for some public transport journeys the most time efficient route was not always used. For example, for the public transport journey from South Shields to STDH, by using the most efficient route, approximately 30 minutes could have been saved on the journey time (Table 3-4). Similar time savings can be identified for trips to SRH. This may be due to unfamiliarity of the testers with the public transport network and with the journey that they were asked to make.
- 2.65 With regards to car journeys, the correspondence between field tested journey times and TRACC average journey times was much better, giving good confidence in the TRACC accessibility modelling results. Longer field testing journey times may be due to field testers being unfamiliar with certain routes or they may have encountered

particularly heavy traffic conditions, since there is significant journey time variability in urban travel.

- 2.66 TRACC and Google journey time planner both use data gathered from a range of sources, including published public transport timetables and typical road conditions gathered from Trafficmaster raw GPS speed data. Information feeding into these datasets has been sourced over hundreds of days. Conversely the field testing journeys are a small number for journeys taken on a few occasions, so are only a ‘snapshot’ of conditions on one day.

Journey time analysis from north and east Durham locations

- 2.67 Journey time analysis has been undertaken to understand public transport and car based journey times from four different locations in north and east Durham to Sunderland Royal Hospital (the closest hospital), as a comparison to any potential future journeys from South Tyneside to SRH
- 2.68 Table 2-15 summarises the headline journey times via public transport and car from the example locations to SRH. It can be identified, that from these locations to SRH, a journey via public transport takes between 33 and 56 minutes (assuming an arrival time before 18:00 on a weekday). By car, the same journeys take between 14 and 28 minutes.
- 2.69 In terms of time differences, for a journey between Stoneycroft Way, Seaham and SRH, there is a time difference of between 15 to 19 minutes between a journey made by public transport and a journey made by car. From Murton, Easington and Peterlee, these journey time differences increase to over 20 minutes. However, it is important to recognise the lack of stopping time required by car, and that a more direct route can be taken.

Table 2-15: Example journey times to SRH

Origin	Public transport journey time	Car journey time	Difference
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Origin	Public transport journey time	Car journey time	Difference
Stoneycroft Way, Seaham	33 mins	14-18 mins	15-19 mins
Luke Crescent, Murton	47 mins	16-24 mins	23-31 mins
North Crescent, Easington	48 mins	16-24 mins	23-31 mins
Kirkland Hill, Peterlee	56 mins	20-28 mins	28-36 mins

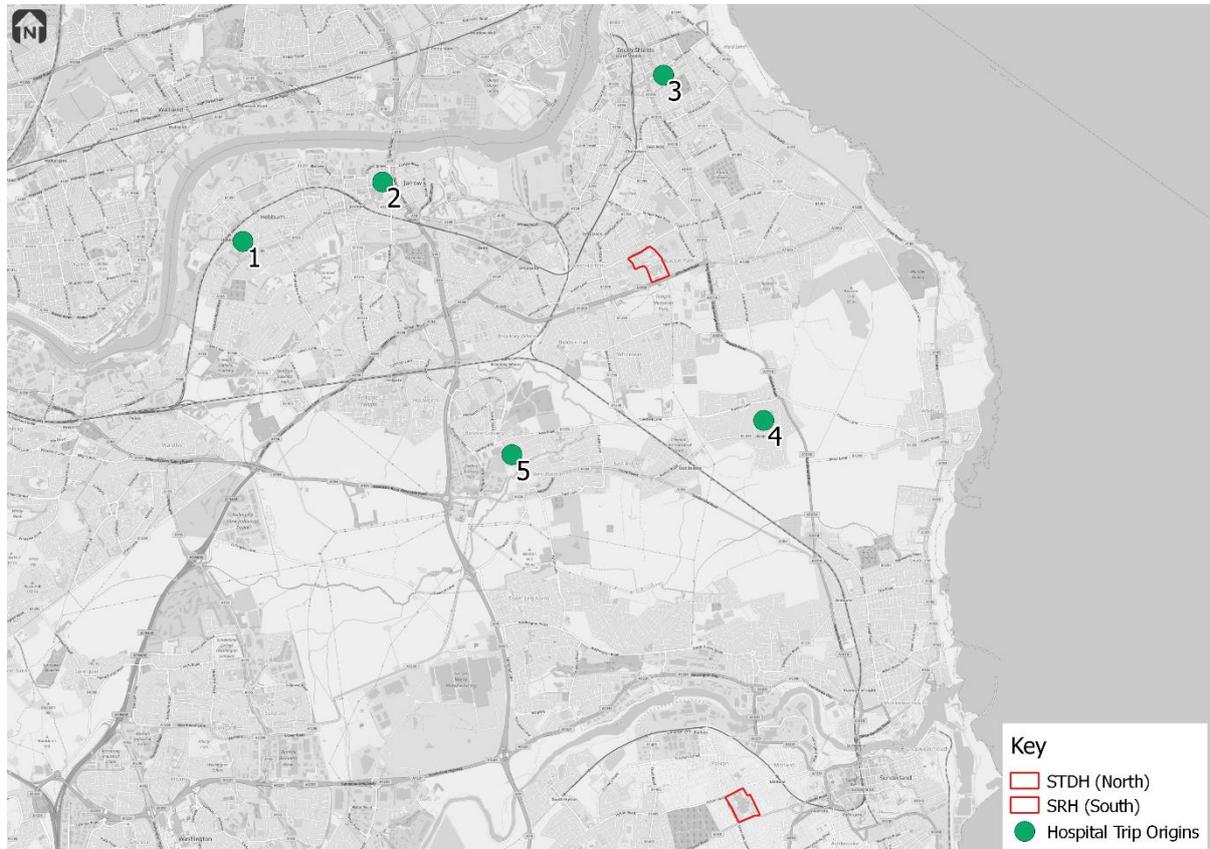
Public transport journey time and cost analysis

- 2.70 In addition to the accessibility analysis, a range of public transport journey options and their associated costs have been researched between five different settlements in South Tyneside and both STDH and SRH.

Example Journeys between South Tyneside, STDH and SRH

- 2.71 The following section reviews the findings from research undertaken into the cost implications of a number of example journeys from areas within South Tyneside to STDH and SRH via public transport. The journeys chosen were based on a five minute walking time to the nearest public transport stop, and have minimised walking time and distance for interchanges. The bus services and costs researched were correct at the time of research in March 2017. The full research is presented in a technical note located in Appendix C.
- 2.72 Figure 2-10 shows the origins for the example journeys investigated to both STDH and SRH.

Figure 2-10: Origins of example journeys to STDH and SRH



Hebburn

- 2.73 Residents travelling from Hebburn to SRH instead of STDH will likely experience an increased journey time of between 20 – 30 minutes when travelling by public transport. The increase in the cost of a daily bus ticket when travelling to SRH would be in the order of £1.35.

Jarrow

- 2.74 Jarrow residents travelling to SRH instead of STDH may experience an increased journey time of around 30 minutes when travelling by public transport, whilst the cost of a daily bus ticket would increase by approximately £1.35.

South Shields

- 2.75 When travelling to SRH instead of STDH, South Shields residents will likely experience an increase in journey time by approximately 30 minutes, whilst the daily bus ticket would increase by approximately £1.20.

Cleadon

- 2.76 Residents travelling from Cleadon to SRH instead of STDH will likely experience an increased journey time of between 10 - 20 minutes when travelling by public transport. The increase in the cost of a daily bus ticket when travelling to SRH would be in the order of £1.05.

Boldon Colliery

- 2.77 Boldon Colliery residents travelling to SRH instead of STDH may experience an increased journey time of around 40 minutes when travelling by public transport, whilst the cost of a daily bus ticket would increase by approximately £1.35.

Use of alternative hospitals by Jarrow and Hebburn residents

- 2.78 It has been noted through some of the Phase 1 clinical service reviews that residents living in Jarrow and Hebburn, South Tyneside who currently access the clinical services at STDH that are being reviewed in this first phase and may be transferred to SRH, may choose to access the relevant clinical services at hospitals outside of the South Tyneside and Sunderland boundaries and may travel to either Queen Elizabeth Hospital in Gateshead (QEG) or the Royal Victoria Infirmary (RVI) in Newcastle, instead of travelling to SRH. This travel possibility is most applicable to the paediatrics and maternity and gynaecology clinical service reviews being undertaken.
- 2.79 To gain an appreciation of the factors behind this possible shift in travel behaviour, the journey times from two origin points in Jarrow and Hebburn to STDH, SRH, QEG and RVI have been reviewed by distance and journey time (using google journey planner) at different times of the day.
- 2.80 The full technical note can be found in Appendix D showing the text below highlights some of the main points from the review.
- 2.81 From the point of origin in Jarrow utilised in this exercise:

- Jarrow is approximately two miles closer to QEG than to SRH or RVI
- Car journey times are comparable between SRH and QEG, but are slightly quicker to SRH
- Car journey times to RVI are 10 - 20 minutes longer than to QEG and SRH
- Metro journey times are quicker to RVI than to SRH
- Bus journey times are quicker to QEG than to SRH
- Bus journey times are comparable for journeys to SRH and RVI.

2.82 From the point of origin in Hebburn utilised in this exercise:

- Again, Hebburn is geographically closer to QEG than to STDH and SRH.
- Car journey times are quicker to QEG than to SRH, however journey times to SRH are quicker than the equivalent to RVI
- Car journey times to QEG are comparable to those to STDH
- If travelling to QEG by the Metro, residents will also likely need to take a bus to complete their journey to QEG from Heworth or Felling Metro Stations
- According to the journey planner, it is quicker to take two buses to QEG than to take one bus to STDH
- Bus journey times are almost twice as long to SRH as they are to QEG, with bus times to RVI sitting somewhere in between but closer to journey times for QEG
- The majority of bus journeys to SRH require travelling on three different bus services
- All journey times to QEG are comparable to journey times to STDH.

2.83 It is very difficult to estimate the travel choices that the residents of Jarrow and Hebburn, in particular, will make and their impacts however reviewing the observations above, it is clear that people's choices will depend on their perception of the distance, what mode of transport they will be using to access a hospital and at what time of day they will be doing so, as well as non-transport related factors and personal views on the standard of care they believe they will receive at each hospital etc.

2.84 Looking at the observations above, Jarrow residents travelling by car may choose to travel to SRH as it is a quicker journey, whilst those residents travelling by public transport may choose to travel to QEG. For Hebburn residents, travelling to QEG is comparable in journey times to travelling to STDH which may be an important factor.

2.85 The choice of hospital used by Jarrow and Hebburn residents may also be influenced by people’s existing travel patterns for other trips, such as shopping and leisure and commuting trips and their familiarity with the transport network.

Car based accessibility to QEG and RVI

2.86 When updating the car based accessibility modelling to STDH and SRH, the decision was made to also undertake car based accessibility modelling to both QEG and RVI too, in response to the understanding that some South Tyneside residents may choose to access their healthcare needs at these hospitals.

2.87 Therefore, car based accessibility modelling has been undertaken for all four hospitals over the five time periods as outlined in Table 2-2. The five tables below illustrate the number and proportion of the South Tyneside population that fall into each ten minute journey time bracket to each of the four hospitals. Average journey times amongst the South Tyneside population to each hospital have been calculated, for comparative purposes.

2.88 Table 2-16: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 07:00 and 09:00 shows the results from the car based accessibility modelling to all four hospitals between 07:00 and 09:00. During this time period 65% of the South Tyneside population can access South Tyneside District Hospital within 10 minutes. 47% can access SRH in between 20 minutes and 53% can access SRH in between 21 and 30 minutes.

2.89 The average journey time was 8 minutes to STDH increasing to 20 minutes to SRH, 21 minutes to QEG and 31 minutes to RVI.

Table 2-16: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 07:00 and 09:00

Time period: 07:00 – 09:00								
Journey time bracket	STDH		SRH		QEG		RVI	
	number	%	number	%	number	%	number	%
0-10	96,334	65%	-	0%	-	0%	-	0%
11-20	51,762	35%	69,577	47%	57,600	39%	-	0%

Time period: 07:00 – 09:00								
21-30	90	0%	78,423	53%	88,423	60%	60,684	41%
31-40	-	-	20	0%	1,989	1%	85,669	58%
41-50	-	-	-	-	-	-	1946	1%
51-60	-	-	-	-	-	-	-	-
Average journey time	8	-	20	-	21	-	31	-

2.90 Table 2-17 shows the results from the car based accessibility modelling to all four hospitals between 14:00 and 16:00. During this time period 66% of South Tyneside residents can access STDH within 10 minutes. 58% can access SRH within 20 minutes and another 42% can access SRH in between 21 and 30 minutes.

2.91 The average journey time was 10 minutes to STDH increasing to 19 to SRH, 20 minutes to QEG and 26 minutes to RVI.

Table 2-17: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 14:00 and 16:00

Time period: 14:00 and 16:00								
Journey time bracket	STDH		SRH		QEG		RVI	
	number	%	number	%	number	%	number	%
0-10	98,406	66%	-	-	-	-	-	-
11-20	49,536	33%	85,191	58%	73,880	50%	5010	3%
21-30	76	0%	62,804	42%	73,483	49%	125,469	85%
31-40	-	-	30	0%	749	1%	17,402	12%
41-50	-	-	-	-	-	-	219	0%
Average journey time	10	-	19	-	20	-	26	-

- 2.92 Table 2-18 shows the results from the car based accessibility modelling to all four hospitals between 17:00 and 19:00. Only in the case of travel to STDH were South Tyneside residents able to access the hospital within 0-10 minutes. 45% of South Tyneside residents can access SRH within 20 minutes, whilst 46% can access QEG within 20 minutes.
- 2.93 The average journey time was 8 minutes to STDH increasing to 20 minutes to both STDH and QEG and 28 minutes to RVI.

Table 2-18: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 17:00 and 19:00

Time period: 17:00 and 19:00								
Journey time bracket	STDH		SRH		QEG		RVI	
	number	%	number	%	number	%	number	%
0-10	90,442	65%	-	-	-	-	-	-
11-20	57,493	35%	66,845	45%	67,940	46%	39	0%
21-30	59	0%	81,189	55%	79,268	54%	94,476	64%
31-40	-	-	25	0%	918	1%	53,553	36%
41-50	-	-	-	-	-	-	485	0%
Average journey time	8	-	20	-	20	-	28	-

- 2.94 Table 2-19 shows the results from the car based accessibility modelling to all four hospitals between 19:00 and 21:00. 81% of South Tyneside residents can access STDH within 10minutes, whilst 92% can access SRH within 20 minutes and 75% can access QEG within 20 minutes.
- 2.95 The average journey time was 8 minutes to STDH compared with 16 minutes to SRH, 17 minutes to QEG and 21 minutes to RVI.

Table 2-19: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 19:00 and 21:00

Time period: 19:00 and 21:00								
Journey time bracket	STDH		SRH		QEG		RVI	
	number	%	number	%	number	%	number	%
0-10	119,821	81%	57	0%	58	0%	-	-
11-20	28,302	19%	136,911	92%	111,014	75%	53,503	36%
21-30	13	0%	11,167	8%	36,722	25%	93,135	63%
31-40	-	-	5	0%	174	0%	1,483	1%
41-50	-	-	-	-	-	-	-	-
Average journey time	9	-	16	-	17	-	21	-

2.96 Table 2-20 shows the results from the car based accessibility modelling to all four hospitals between 00:00 and 02:00 (free flowing conditions). A large proportion (92%) of South Tyneside residents can access STDH within 10 minutes.

2.97 The average journey time was 6 minutes to STDH compared with 15 minutes to SRH, 17 minutes to QEG and 20 minutes to RVI.

Table 2-20: Car based accessibility of South Tyneside residents to STDH, SRH, QEG and RVI between 00:00 and 02:00

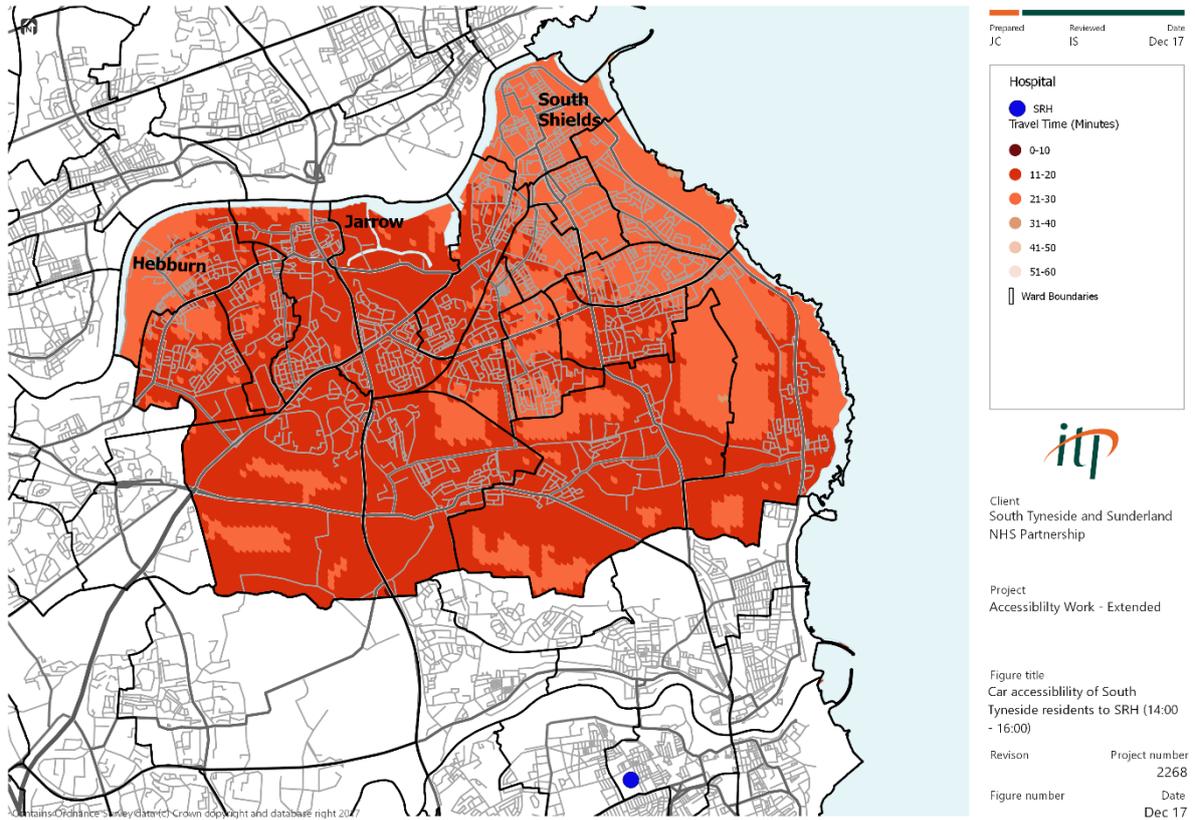
Time period: 00:00 and 02:00								
Journey time bracket	STDH		SRH		QEG		RVI	
	number	%	number	%	number	%	number	%
0-10	135,595	92%	194	0%	-	-	-	-
11-20	12,530	8%	146,934	99%	115,300	78%	80,277	54%
21-30	21	0%	841	1%	32,555	22%	67,778	46%

Time period: 00:00 and 02:00								
31-40	-	-	-	-	143	0%	471	0%
41-50	-	-	-	-	-	-	-	-
Average journey time	6	-	15	-	17	-	20	-

Car based accessibility from the various South Tyneside wards.

- 2.98 The following figures illustrate the accessibility (journey times) across the South Tyneside area and show the South Tyneside ward boundaries. The figures show that the journey time across each ward is not uniform, particularly when looking at the public transport accessibility plots. Therefore producing data which details the journey time to each hospital from the centre of each ward would not provide an accurate journey time for the residents living in that ward. The illustrative plots present the most relevant data.
- 2.99 Figure 2-11 and Figure 2-12 illustrate the car journey times to STDH and SRH respectively during the 14:00 to 16:00 time period. As noted elsewhere in this report, journey times to SRH increase amongst the South Tyneside population as is to be expected, and journey times tend to increase more amongst areas to the east and north east of South Tyneside and also to the north western corner of the Borough towards Hebburn.

Figure 2-12: Car accessibility of South Tyneside residents to SRH (14:00–16:00)



2.100 Figure 2-13 and Figure 2-14 illustrate the public transport journey times to STDH and SRH respectively during the 14:00 to 16:00 time period. As noted elsewhere in this report, journey times to SRH increase amongst the South Tyneside population as is to be expected. Journey times tend to increase more amongst areas to the west and north west of South Tyneside especially towards Hebburn. There is also significant increase in Journey times to the north eastern parts of the South Shields area.

Figure 2-13: Public Transport accessibility of South Tyneside residents to STDH (14:00–16:00)

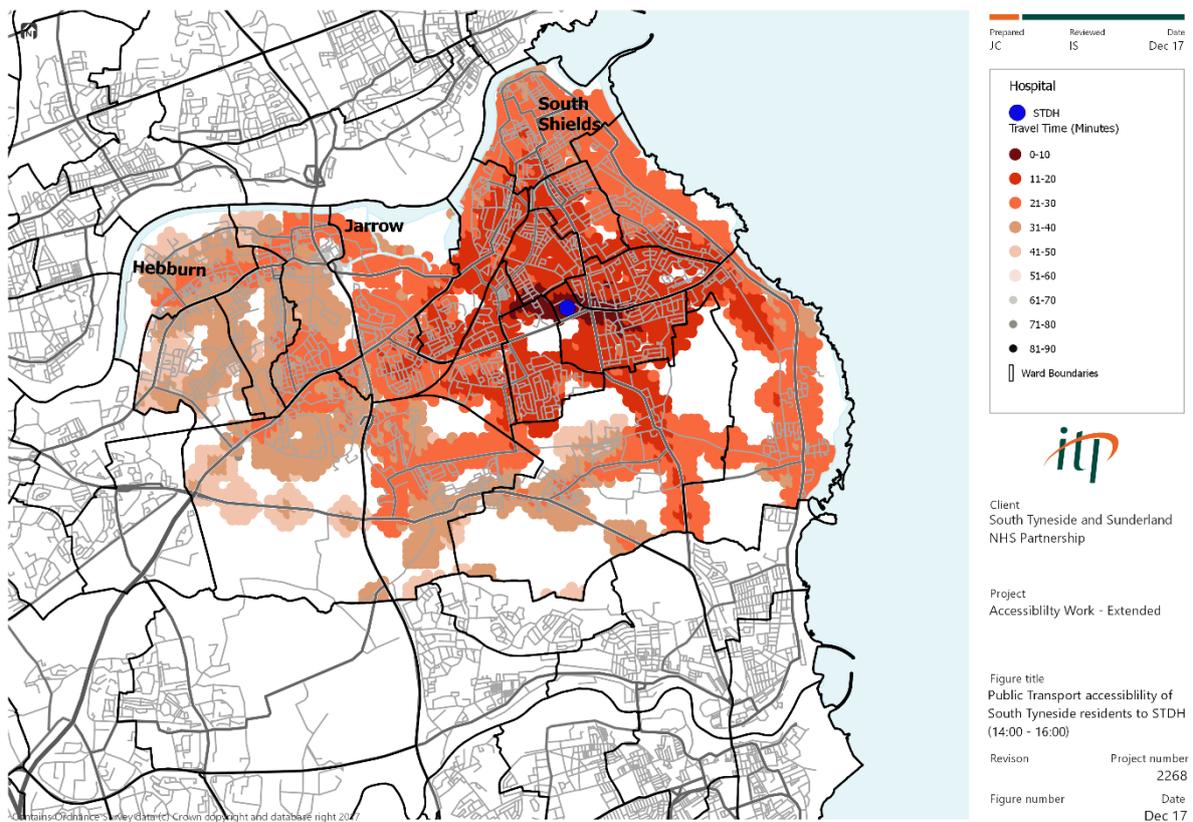
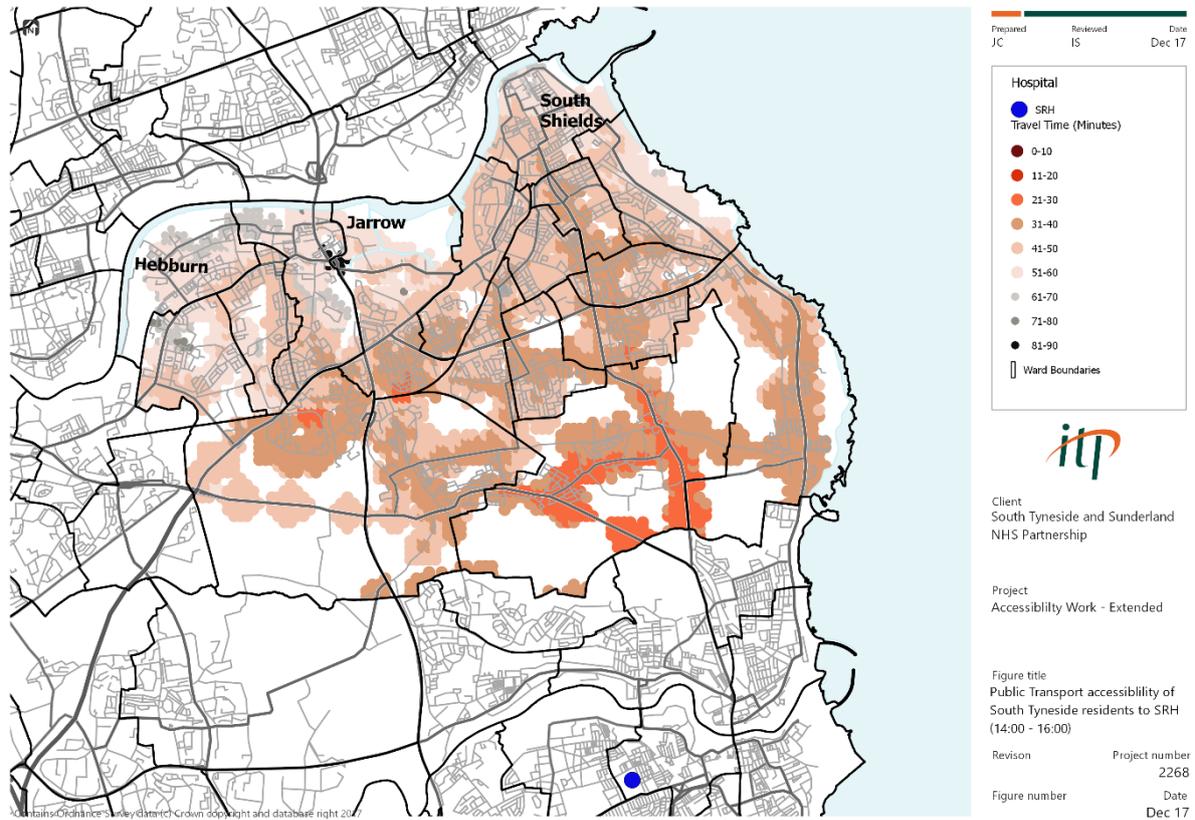


Figure 2-14: Public Transport accessibility of South Tyneside residents to SRH (14:00–16:00)



2.101 Figure 2-15 and Figure 2-16 Figure 2-12 illustrate the car journey times to QEG and RVI respectively during the 14:00 to 16:00 time period. Journey times to RVI are, as would be expected, longer than to QEG. Journey times to QEG and RVI increase in all locations, but especially in the eastern Whitburn area. This increase in car journey times is especially notable in the RVI map.

Figure 2-15: Car accessibility of South Tyneside residents to QEG (14:00–16:00)

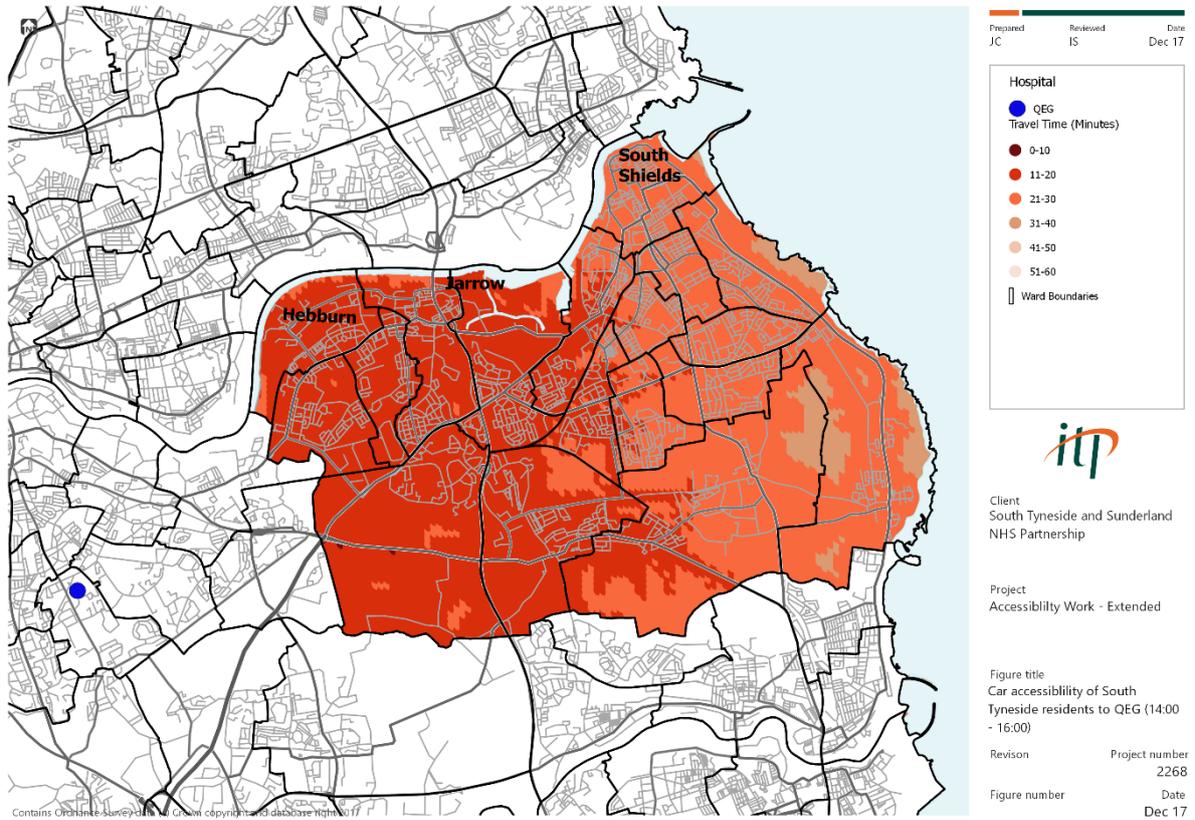
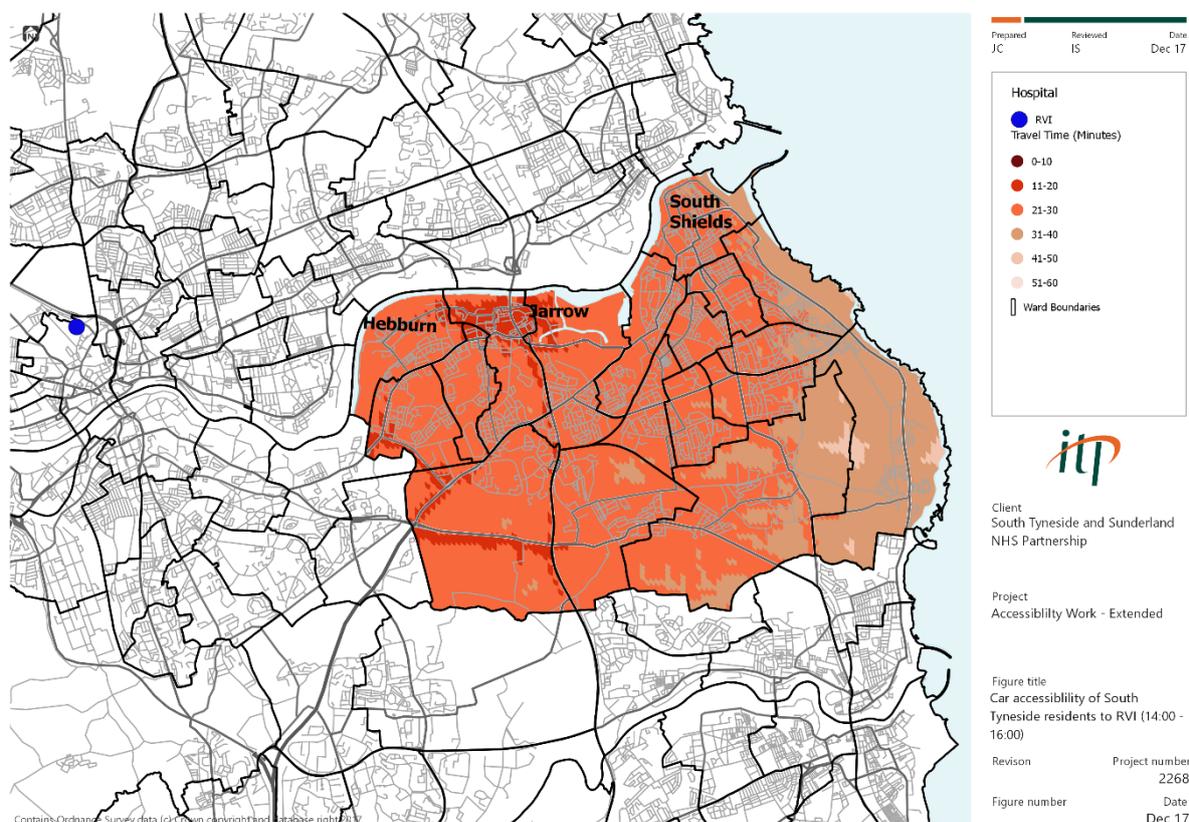


Figure 2-16: Car accessibility of South Tyneside residents to RVI (14:00–16:00)



Key findings

- 2.102 Amongst the South Tyneside population during the 14:00 to 16:00 time period, the average public transport journey time to STDH is 23 minutes. In terms of accessibility to SRH, the average public transport journey time is 43 minutes. This means that the average public transport journey time will increase by 20 minutes. The car journey time increases by nine minutes (10 minutes to STDH compared to 19 minutes to SRH).
- 2.103 Amongst the South Tyneside population during the 19:00 to 21:00 time period, the average public transport journey time to STDH is 24 minutes. In terms of accessibility to SRH, the average public transport journey time is 48 minutes. This means that the average public transport journey time will increase by 24 minutes. The car journey time increases by 7 minutes (9 minutes to STDH compared to 16 minutes to SRH).

- 2.104 Amongst the South Tyneside population with no access to a car, during the 14:00 to 16:00 time period, the average public transport journey time to STDH is 23 minutes. In terms of accessibility to SRH, the average public transport journey time is 44 minutes. This means that the average public transport journey time will increase by 24 minutes amongst this population. The public transport journey time increases by 25 minutes in the 19:00 to 21:00 time period (24 minutes to STDH compared to 49 minutes to SRH).
- 2.105 26,111 people living in South Tyneside live in areas classified as areas of low car ownership (more than 50% of the residents do not have access to a car or van), which represents 17% of the total South Tyneside population.
- 2.106 The average public transport journey time to STDH from these areas of deprivation is 21 minutes whilst the average journey time to SRH is 45 minutes; a difference of 24 minutes.
- 2.107 58,284 people living in South Tyneside live in areas classified as areas of poor health (rated as 1, most deprived, on a scale of 1 to 10) which represents 39% of the total South Tyneside population.
- 2.108 The average public transport journey time to STDH from these areas of deprivation is 23 minutes whilst the average journey time to SRH is 45 minutes; a difference of 22 minutes. The average car journey time to STDH from these areas is 8 minutes compared to 19 minutes to SRH, a difference of 11 minutes.
- 2.109 Findings from the first public transport field testing report undertaken show that whilst the observed journey times (those undertaken as part of the research exercise) to STDH are longer than predicted using the TRACC accessibility modelling software, they align closely in terms of journey time to a number of the journeys planned using Google journey planner. Observed journey times from Jarrow and South Shields to SRH are similar to those predicted in TRACC.
- 2.110 Findings from the area wide journey time field testing exercise showed that there were a number of field tested public transport journeys that were more than ten minutes longer than the calculated TRACC times. Whilst some journey time differences between field testing and TRACC were significant, for some public transport journeys the most time efficient route was not always used. This may be due to unfamiliarity of the testers with the public transport network and with the journey that they were asked to make.
- 2.111 With regards to car journeys, the correspondence between field tested journey times and TRACC average journey times was much better, giving good confidence in the TRACC accessibility modelling results.

- 2.112 Overall, TRACC journey times do appear to relate more closely to planned Google metro journey times rather than bus journey times. Whilst the journey times in TRACC are generally shorter than those observed in the field testing, TRACC is still a valid tool because a key objective of the travel and transport impact assessment is understanding the changes in journey time accessibility arising from the service reviews, rather than the absolute times. It is also the best tool available to make comparisons on a network-wide basis.
- 2.113 Residents living in the five settlements of Hebburn, Jarrow, South Shields, Cleadon and Boldon Colliery who use public transport to access SRH instead of STDH may experience an increase in the average journey time in the order of 28 minutes, whilst the cost of accessing SRH (instead of STDH) by public transport would likely increase by an average of £1.26.
- 2.114 The possibility of Jarrow and Hebburn residents choosing to travel to other hospitals in the north east, specifically Queen Elizabeth Hospital in Gateshead and the Royal Victoria Infirmary in Newcastle has been explored in terms of physical distance and journey times to these two hospitals in comparison with distances and journey times to STDH and SRH.
- 2.115 It was found through the car based accessibility modelling for all four hospitals that the quickest journey times were unsurprisingly to STDH followed by SRH, QEG and finally RVI. This was consistent at all times of day. Most people could access STDH, SRH and QEG within 30 minutes at all of the time periods.
- 2.116 It is difficult to predict the travel choices that individuals may make in the future, and also how they will make those choices, e.g. the factors (transport and non-transport related) they will consider. However, people's travel choices will likely be influenced by other journeys they make in the local area for other purposes as well as their familiarity with the local transport network and the length of time it is likely to take to access the other hospitals. It is possible that some Jarrow and Hebburn residents may choose to access their healthcare needs at QG or RVI, however it is difficult to estimate how many and the impacts these choices will have.

3. Stroke service models across South Tyneside and City Hospitals Sunderland Foundation Trusts

- 3.1 Until recently, acute Stroke services have been provided at both South Tyneside District Hospital and Sunderland Royal Hospital, in addition to other stroke services such as Transient Ischaemic Attack (TIA) clinics. During 2014/2015, 230 acute stroke patients were admitted to STDH, whilst approximately 510 acute stroke patients were admitted to SRH.
- 3.2 In December 2016, all acute Stroke services across South Tyneside and Sunderland were temporarily relocated to Sunderland Royal Hospital, as a result of concerns around quality and safety, primarily due to staffing challenges.
- 3.3 The Clinical Service Review for Stroke services proposes three possible solutions summarised below:
 - Option 1
 - Combine all hyperacute and acute stroke care at Sunderland Royal Hospital.
 - Patients from both South Tyneside and Sunderland will have their continuing hospital-based rehabilitation at Sunderland Royal Hospital before being discharged to their local community stroke teams who will provide any further rehabilitation and support locally.
 - Option 2
 - Combine all hyperacute and acute stroke care at Sunderland Royal Hospital.
 - After **seven days** patients who live in South Tyneside can be moved to South Tyneside District Hospital for continuing in hospital rehabilitation before being discharged to their local community stroke rehabilitation team for support locally.
 - Sunderland patients will continue to receive their stroke rehabilitation care at Sunderland Royal Hospital before being discharged to their local community stroke rehabilitation team for support locally.
 - Option 3
 - Combine all hyperacute stroke care at Sunderland Royal Hospital.

- After **three days** patients who live in South Tyneside can be moved to South Tyneside District Hospital for their acute stroke care and continuing in hospital rehabilitation before being discharged to their local community stroke rehabilitation team for support locally.
 - Sunderland patients will continue to receive their acute stroke care and in hospital rehabilitation care at Sunderland Royal Hospital before being discharged to their local community stroke rehabilitation team for support locally.
- 3.4 People who suffer a stroke (the stroke patients), for the purposes of this report, are not categorised as being directly affected in terms of travel and transport because, following the successful FAST campaign (Facial drooping, Arm weakness, Speech difficulties and Time to call emergency services) that helps members of the public to identify the symptoms that indicate a stroke and the action to be taken, a large majority of stroke patients arrive at hospital by emergency ambulance.
- 3.5 Therefore, in line with the three options summarised above, the main travel and transport implications will impact on South Tyneside residents, and specifically those who would have previously visited stroke patients at STDH but, going forward, will be required to travel to SRH to pay a visit to the family member / friend on the stroke ward.
- 3.6 The stroke service models proposed all involve acute stroke patients being treated at Sunderland Royal Hospital for at least three days, therefore visitors of South Tyneside patients will no longer travel to STDH to visit Stroke patients but will instead be required to travel to SRH over a time period of at least three days, in the case of option 3 and quite possibly longer in the case of options 1 and 2.
- 3.7 The other main impact will be upon Patient Transport Services (PTS) required, following the discharge of stroke patients residing in South Tyneside once they are medically stable for transfer, either back to their home or to South Tyneside District Hospital for rehabilitation / further care (and depending on the Clinical Service Review solution that is taken forward).
- 3.8 For the purposes of clarity, Sunderland residents will not be affected by the changes to acute stroke services in terms of transport and travel and neither will any patients who currently live in Durham, for whom the nearest hospital is Sunderland Royal Hospital.
- 3.9 In 2014/15, in the South Tyneside area, 230 people experienced an acute Stroke, a figure that is less than 1% of the population aged 60+ (the category of population that is at most risk of suffering a stroke). At present the number of acute Strokes is relatively

stable however there may be an increase in the number of Strokes due to the increasing prevalence of heart disease etc.

4. Travel and Transport Impact Assessment of Stroke Clinical Service Review

- 4.1 This chapter examines and assesses the transport and travel impacts resulting from the review of Stroke services, and reviews accessibility statistics and data that is more relevant to the occurrence of Strokes, and presents the results from a visitor travel survey undertaken amongst visitors to stroke patients and the potential impacts upon car parking demand and costs to visitors.

Information sources for assessing the Travel and Transport Impact

- 4.2 In addition to the accessibility statistics presented in Chapter 2, a number of additional data sources, assessment methods and further data collection have been utilised to assess the impacts of relocating acute Stroke services to Sunderland Royal Hospital, as listed below:
- Postcode data of acute Stroke patients admitted to STDH during the 2015/16 financial year and the 2016/17 financial year up to the end of October 2016
 - Findings from a Stroke visitor travel survey undertaken between 10th February 2017 and 28th February 2017 at Sunderland Royal Hospital. It should be noted that this provides just a snapshot of information, that sample size is relatively small, and that responses have been taken at face value even where they may appear counter-intuitive. Appropriate caution should therefore be taken with the results.
 - Parking costs at SRH and STDH
- 4.3 A number of assumptions have been applied to various areas of assessment and these assumptions are noted throughout this report in the appropriate sections.
- 4.4 A staff travel survey amongst the clinical staff working in stroke services at both STDH and SRH is currently underway. The staff travel survey will examine how staff travel to work now and how they would travel in the future, should their place of work change. The results will assist in informing the potential parking impact at the relevant hospital sites, and the trusts and commissioning officer will have this information prior to decision making.

Accessibility analysis by age to and from STDH

- 4.5 Statistics produced by the Stroke Association in January 2017 state that the population sector most likely to have a stroke are those aged over 55. Therefore accessibility statistics have been produced relating to the South Tyneside population aged 60+, which is the closest Census data age band to 55+, to produce more targeted analysis and assess the impact upon those most at risk.
- 4.6 There are 36,490 people aged 60+ in the South Tyneside area, however it is worth pointing out that in 2014/15, 230 people experienced an acute Stroke, a figure that is less than 1% of the population aged 60+. At present the number of acute Strokes is relatively stable however there may be an increase in the number of Strokes, due to the increasing prevalence of heart disease etc.
- 4.7 As it has already been established that visitors will be impacted more than actual stroke patients, there is a certain level of assumption in the methodology that many patients who suffer a stroke will receive at least one visitor with whom they live.
- 4.8 Table 4-1 below shows that, amongst those South Tyneside residents aged 60+, 61% can access STDH within 30 minutes by public transport and 83% can access it within 60 minutes by public transport, between 14:00 and 16:00. The average journey time is 24 minutes.
- 4.9 When leaving the hospital between 19:00 and 21:00, 54% can travel home within 30 minutes by public transport and 80% can travel home within 60 minutes by public transport. The average journey time is 26 minutes.

Table 4-1: Accessibility amongst South Tyneside residents aged 60+ to/from STDH

Travel Time (mins)	Number and percentage of South Tyneside residents aged 60+			
	By public transport to STDH between 14:00 and 16:00		By public transport from STDH between 19:00 and 21:00	
	number	%	number	%
0 - 10	0	0%	0	0%
11 - 20	11,358	31%	10,195	28%
21 - 30	11,081	30%	9,346	26%
31 - 40	6,789	19%	6,367	17%
41 - 50	1,036	30%	2,896	8%
51 - 60	8	0%	237	1%
61 - 70	64	0%	13	0%
71 - 80	0	0%	0	0%
81 - 90	0	0%	0	0%
Average	24 mins		26 mins	
< 30 mins	22,439	61%	19,541	54%
< 60 mins	30,272	83%	29,040	80%
< 90 mins	30,336	83%	29,054	80%
Total	36,490	100%	36,490	100%

Accessibility analysis for previous patient postcodes to and from STDH

- 4.10 To target the accessibility analysis further, South Tyneside Foundation Trust has provided the home locations of admitted stroke patients during the 2015/16 financial year and 2016/17 financial year up to the end of October, and this dataset has been used to understand the accessibility of these patients and some of their visitors to / from STDH, taking into account the assumption about visitors made above, i.e. that a good proportion will live with the stroke patient.
- 4.11 Table 4-2 below shows the number of separate postcodes that fall within each 10 minute journey time band when accessing STDH between 14:00 and 16:00. 71% of the postcodes fall within a 30 minute public transport journey, compared to 51% by foot and 100% by car. Within a 60 minute timeframe 91% of the postcodes fall within a 60 minute public transport journey and 88% fall within a 60 minute journey on foot. Average journeys times are eight minutes by car, 23 minutes by public transport and 25 minutes on foot.
- 4.12 Table 4-3 shows the number of separate postcodes that fall within each 10 minute journey time band when leaving the hospital between 19:00 and 21:00. 68% of the postcodes fall within a 30 minute public transport journey compared to 59% by foot and 100% by car. Within a 60 minute timeframe 88% of the postcodes fall within both a 60 minute public transport journey and 60 minute journey on foot. Average journeys times are seven minutes by car, 23 minutes by public transport and 25 minutes on foot.

Table 4-2: Accessibility of South Tyneside stroke patient postcodes to STDH (14:00 to 16:00)

Travel Time (mins)	Number and percentage of South Tyneside stroke patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	5	3%	129	68%	9	5
11 - 20	72	38%	61	32%	54	28
21 - 30	57	30%	-	-	49	26
31 - 40	35	18%	-	-	42	22
41 - 50	3	2%	-	-	12	6
51 - 60	1	1%	-	-	1	1
61 - 70	-	-	-	-	-	-
71 - 80	-	-	-	-	-	-
81 - 90	-	-	-	-	-	-
Average ¹	23 mins		8 mins		25 mins	
91mins +	17	9%	-	-	-	-
< 30 mins	134	71%	190	100%	112	59%
< 60 mins	173	91%	190	100%	167	88%
< 90 mins	173	91%	190	100%	167	88%
Total	190	100%	190	100%	190	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

Table 4-3: Accessibility of South Tyneside stroke patient postcodes from STDH (19:00 to 21:00)

Travel Time (mins)	Number and percentage of South Tyneside stroke patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	8	4%	160	85%	9	5
11 - 20	56	29%	30	15%	54	28
21 - 30	65	34%	-	-	49	26
31 - 40	32	17%	-	-	42	22
41 - 50	5	3%	-	-	12	6
51 - 60	1	1%	-	-	1	1
61 - 70	-	-	-	-	-	-
71 - 80	-	-	-	-	-	-
81 - 90	-	-	-	-	-	-
Average ¹	23 mins		7 mins		25 mins	
91mins +	23	12%	-	-	-	-
< 30 mins	129	68%	190	100%	112	59%
< 60 mins	167	88%	190	100%	167	88%
< 90 mins	167	88%	190	100%	167	88%
Total	190	100%	190	100%	190	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Accessibility analysis by age to and from SRH

- 4.13 Comparative figures for accessibility to SRH have also been produced for the South Tyneside population aged 60+. Again, there is a certain level of assumption in the methodology that many patients will receive at least one visitor who they live with.
- 4.14 Table 4-4 below shows that, amongst those South Tyneside residents aged 60+, 5% can access SRH within 30 minutes by public transport and 83% can access it within 60 minutes by public transport, between 14:00 and 16:00. The average journey time is 42 minutes.
- 4.15 When leaving the hospital between 19:00 and 21:00, 5% can travel home within 30 minutes by public transport and 72% can travel home within 60 minutes by public transport. The average journey time is 47 minutes.

Table 4-4: Accessibility amongst South Tyneside Residents aged 60+ to/from SRH

Travel Time (mins)	Number and percentage of South Tyneside residents aged 60+			
	By public transport to SRH between 14:00 and 16:00		By public transport from SRH between 19:00 and 21:00	
	number	%	number	%
0 - 10	0	0	0	0%
11 - 20	0	0	1	0%
21 - 30	1,662	5%	1,643	5%
31 - 40	11,213	31%	6,982	19%
41 - 50	13,222	36%	12,600	35%
51 - 60	4,245	12%	4,865	13%
61 - 70	755	2%	1,695	5%
71 - 80	38	0%	2,548	7%
81 - 90	54	0%	0	0%
Average	42 mins		47 mins	
< 30 mins	1,662	5%	1644	5%
< 60 mins	30,342	83%	26,091	72%
< 90 mins	31,189	85%	30,355	83%
Total	36,490	100%	36,490	100%

Accessibility analysis for previous patient postcodes to and from SRH

- 4.16 To present further comparative accessibility analysis, the Stroke patient postcode dataset provided by South Tyneside Foundation Trust has been used to understand the accessibility of these patients to / from SRH and some of their visitors, taking into account the assumption about visitors made above, that a good proportion will live with the Stroke patient.
- 4.17 Table 4-5 below shows the number of separate postcodes that fall within each 10 minute journey time band when accessing the hospital between 14:00 and 16:00. 5% of the postcodes fall within a 30 minute public transport journey compared to 100% by car. 88% of the postcodes fall within a 60 minute public transport journey. The average journey time by public transport is 43 minutes and 19 minutes by car.
- 4.18 Table 4-6 shows the number of separate postcodes that fall within each 10 minute journey time band when leaving the hospital between 19:00 and 21:00. 4% of the postcodes fall within a 30 minute public transport journey compared to 100% by car. 75% of the postcodes fall within a 60 minutes public transport journey. The average journey time by public transport is 48 minutes and 16 minutes by car.

Table 4-5: Accessibility of South Tyneside Stroke patient postcodes to SRH (14:00 to 16:00)

Travel Time (mins)	Number and percentage of South Tyneside stroke patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	0	0%
11 - 20	0	0%	108	57%
21 - 30	9	5%	82	43%
31 - 40	53	28%	-	-
41 - 50	77	41%	-	-
51 - 60	28	15%	-	-
61 - 70	5	3%	-	-
71 - 80	-	-	-	-
81 - 90	-	-	-	-
Average¹	43 mins		19 mins	
91mins +	18	9%	-	-
< 30 mins	9	5%	190	100%
< 60 mins	167	88%	190	100%
< 90 mins	172	91%	190	100%
Total	190	100%	190	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

Table 4-6: Accessibility of South Tyneside stroke patient postcodes from SRH (19:00 to 21:00)

Travel Time (mins)	Number and percentage of South Tyneside stroke patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	1	1%
11 - 20	1	1%	171	90%
21 - 30	7	4%	18	9%
31 - 40	31	16%	-	-
41 - 50	80	42%	-	-
51 - 60	23	12%	-	-
61 - 70	11	6%	-	-
71 - 80	9	5%	-	-
81 - 90	5	3%	-	-
Average ¹	48 mins		16 mins	
91mins +	23	12%	-	-
< 30 mins	8	4%	190	100%
< 60 mins	142	75%	190	100%
< 90 mins	167	88%	190	100%
Total	190	100%	190	100%

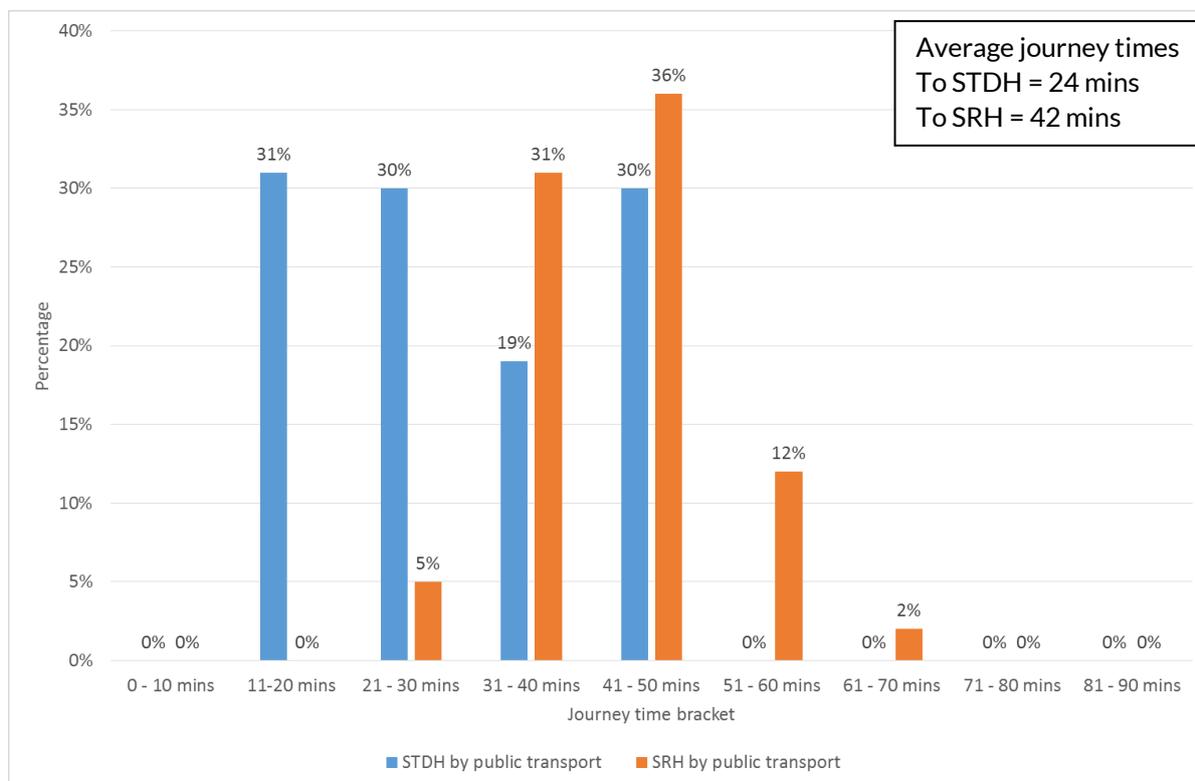
1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Comparison of Stroke accessibility statistics for STDH and SRH

Accessibility amongst South Tyneside population aged 60+ to STDH and SRH

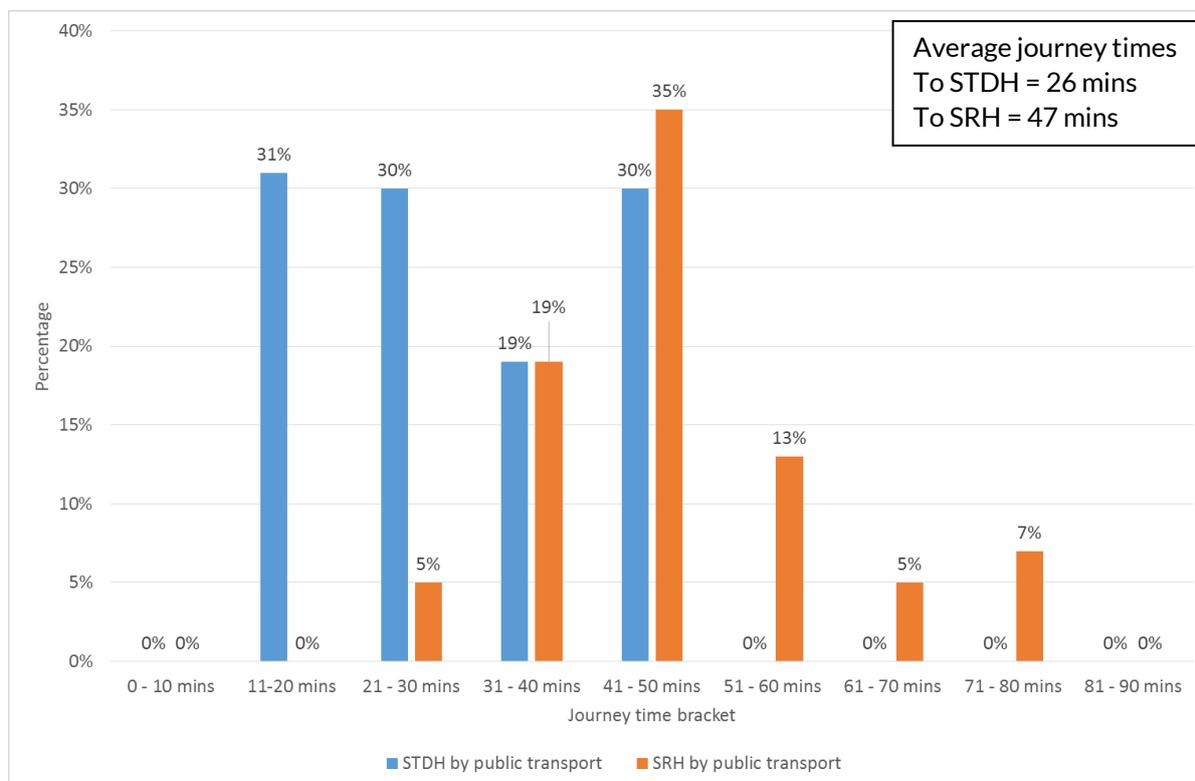
- 4.19 Figure 4-1 below shows the proportion of the South Tyneside population aged 60+ that can access both hospitals within the different 10 minute journey time bands and illustrates the difference in accessibility travelling to the hospitals between 14:00 and 16:00 by public transport.
- 4.20 Currently, 31% of the South Tyneside population aged 60+ could access STDH in between 11 and 20 minutes journey time and a further 30% could access it between 21 and 30 minutes journey time. In comparison, 31% of the South Tyneside population aged 60+ will experience a journey time to SRH between 31 and 40 minutes and a further 36% will experience a journey time of between 41 and 50 minutes. The average journey time will increase by 18 minutes.

Figure 4-1: Accessibility of South Tyneside Residents aged 60+ to STDH and SRH (14:00 to 16:00)



- 4.21 Figure 4-2 below shows the proportion of the South Tyneside population aged 60+ that can access both hospitals within the different 10 minute journey time bands and illustrates the difference in accessibility travelling home from the hospitals between 19:00 and 21:00 by public transport.
- 4.22 Currently, 31% of the South Tyneside population aged 60+ could access STDH in between 11 and 20 minutes journey time and a further 30% could access it between 21 and 30 minutes journey time. In comparison, 19% of the South Tyneside population aged 60+ will experience a journey time to SRH between 31 and 40 minutes and a further 35% will experience a journey time of between 41 and 50 minutes.
- 4.23 The average journey time increases by 21 minutes.

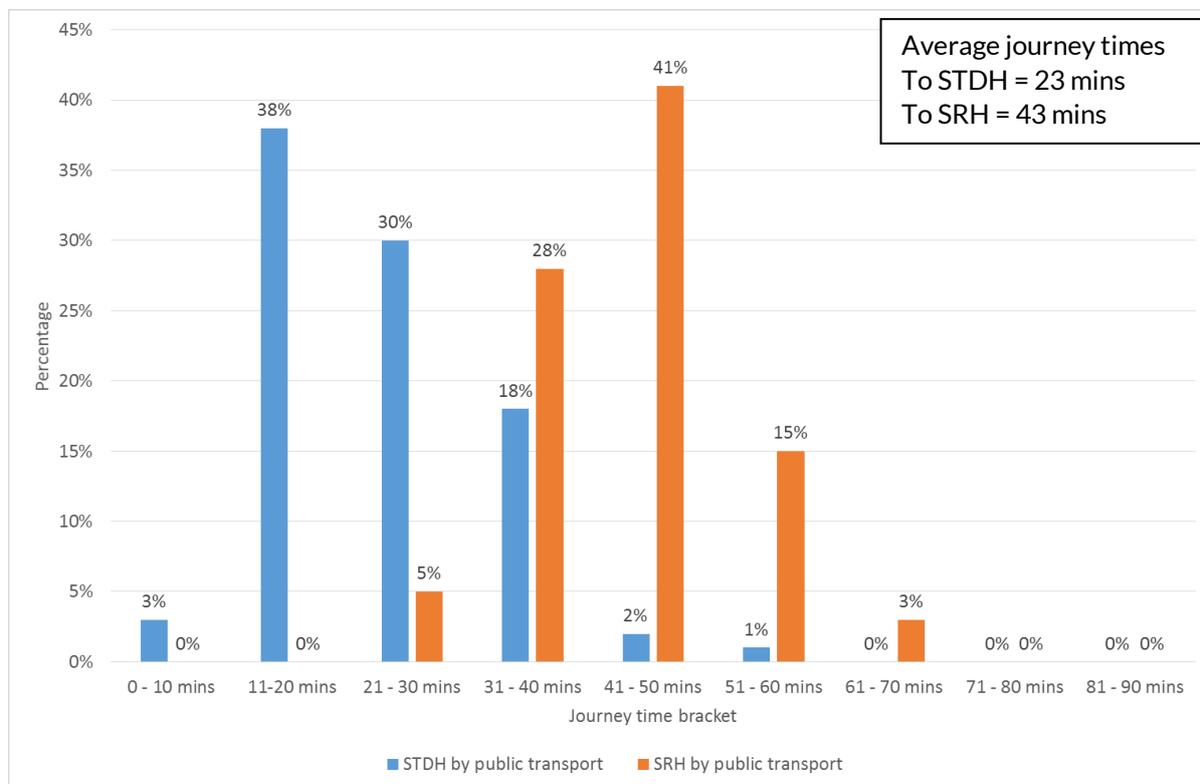
Figure 4-2: Accessibility of South Tyneside Residents aged 60+ from STDH and SRH (19:00 - 21:00)



Accessibility amongst previous Stroke patients to STDH and SRH

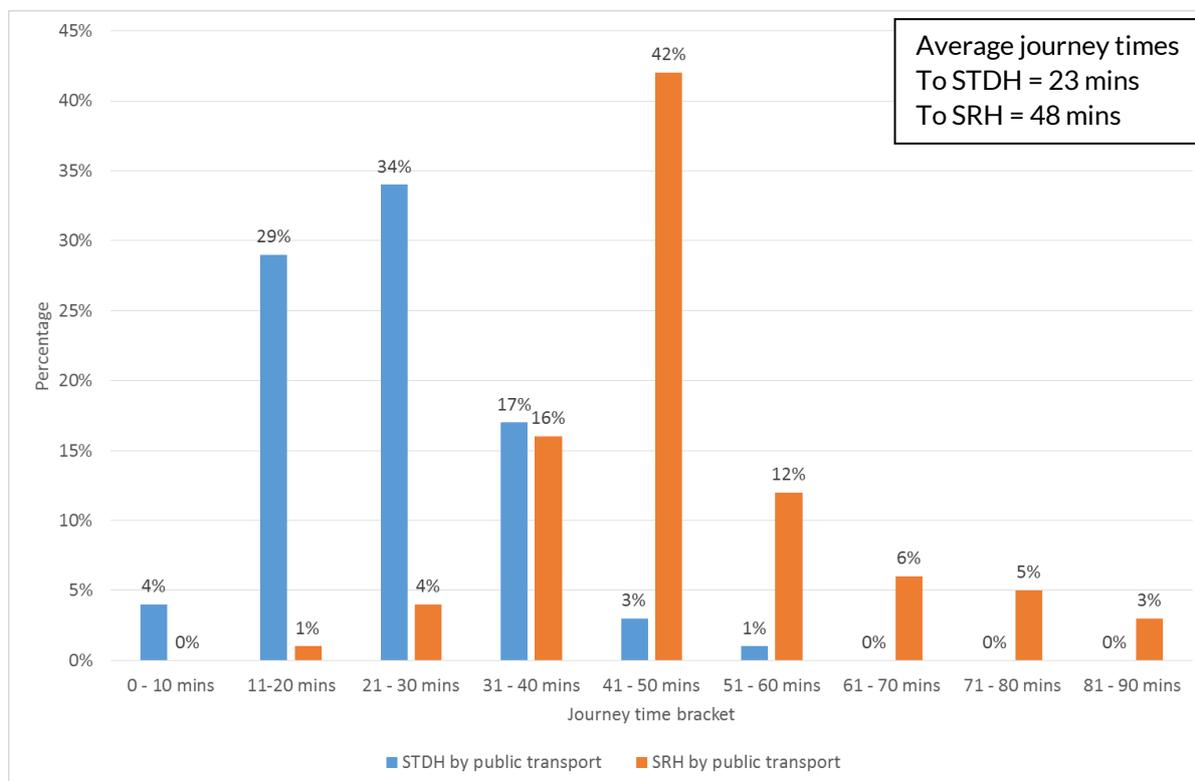
- 4.24 Figure 4-3 below shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals between 14:00 and 16:00 and illustrates the difference in accessibility of these postcodes to both hospitals by public transport.
- 4.25 Pre December 2016, 38% of the separate postcodes were within 11 and 20 minutes journey time of acute Stroke Services at STDH and a further 30% were within 21 and 30 minutes journey time. Post December 2016 when acute Stroke Services moved to SRH, 28% of the separate postcodes are within 31 and 40 minutes and a further 41% will be within 41 and 50 minutes. The average journey time increases by 20 minutes.

Figure 4-3: Accessibility of South Tyneside Stroke patient postcodes to STDH and SRH (14:00 to 16:00)



- 4.26 Figure 4-4 shows the proportion of separate postcodes that fall within each 10 minute journey time band when leaving the hospitals between 19:00 and 21:00 and illustrates the difference in accessibility of these postcodes to both hospitals by public transport.
- 4.27 Pre December 2016, 29% of the separate postcodes were within 11 and 20 minutes journey time of acute Stroke services at STDH and a further 34% were within 21 and 30 minutes journey time. Post December 2016 when acute Stroke services were moved to SRH, 16% of the separate postcodes are within 31 and 40 minutes and a further 42% will be within 41 and 50 minutes. The average journey time increases by 25 minutes.
- 4.28 Using these datasets going forward, visitors going to visit stroke patients at SRH will, on the whole, experience a longer public transport journey time travelling to SRH for afternoon visiting hours than if travelling to STDH, and more visitors will experience slightly longer journey times when leaving the hospital after evening visiting hours than they would do if travelling in the afternoon.

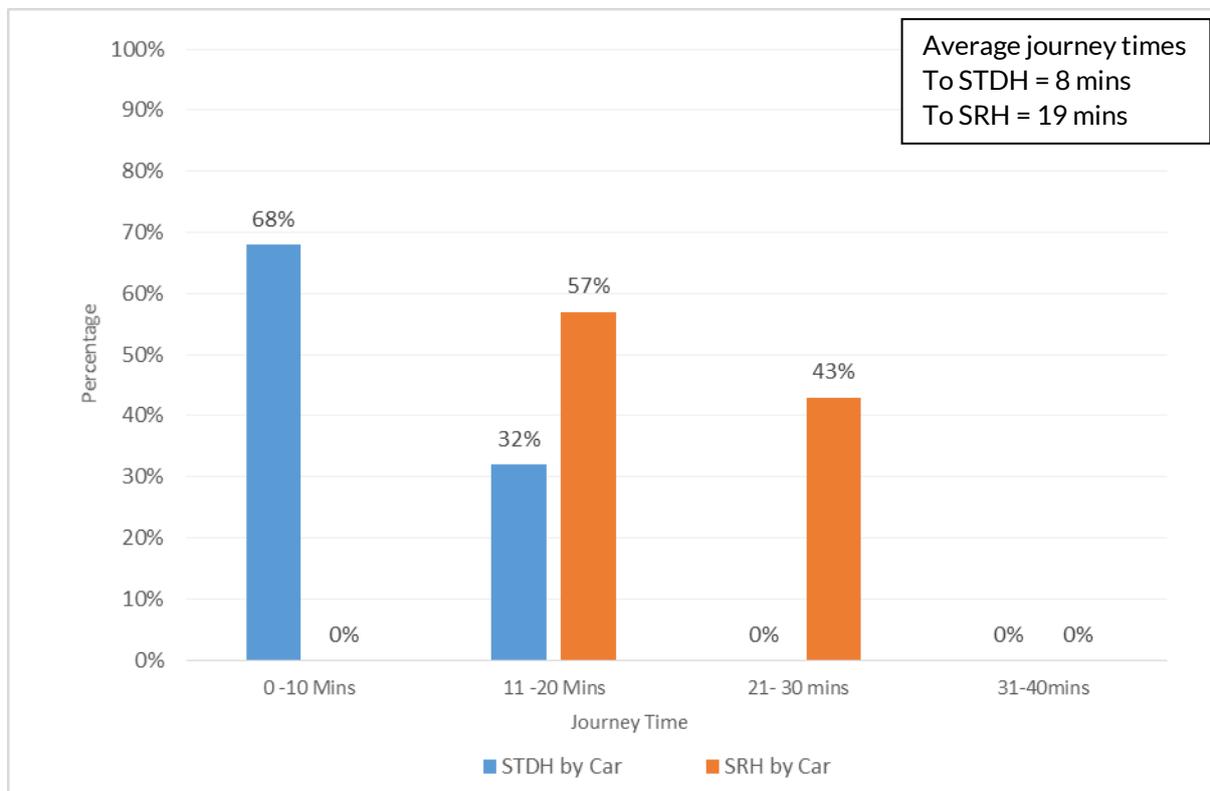
Figure 4-4: Accessibility of South Tyneside Stroke patient postcodes from STDH and SRH (19:00 to 21:00)



4.29 Figure 4-5 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 14:00 – 16:00 and illustrates the difference in accessibility of these postcodes to both hospitals.

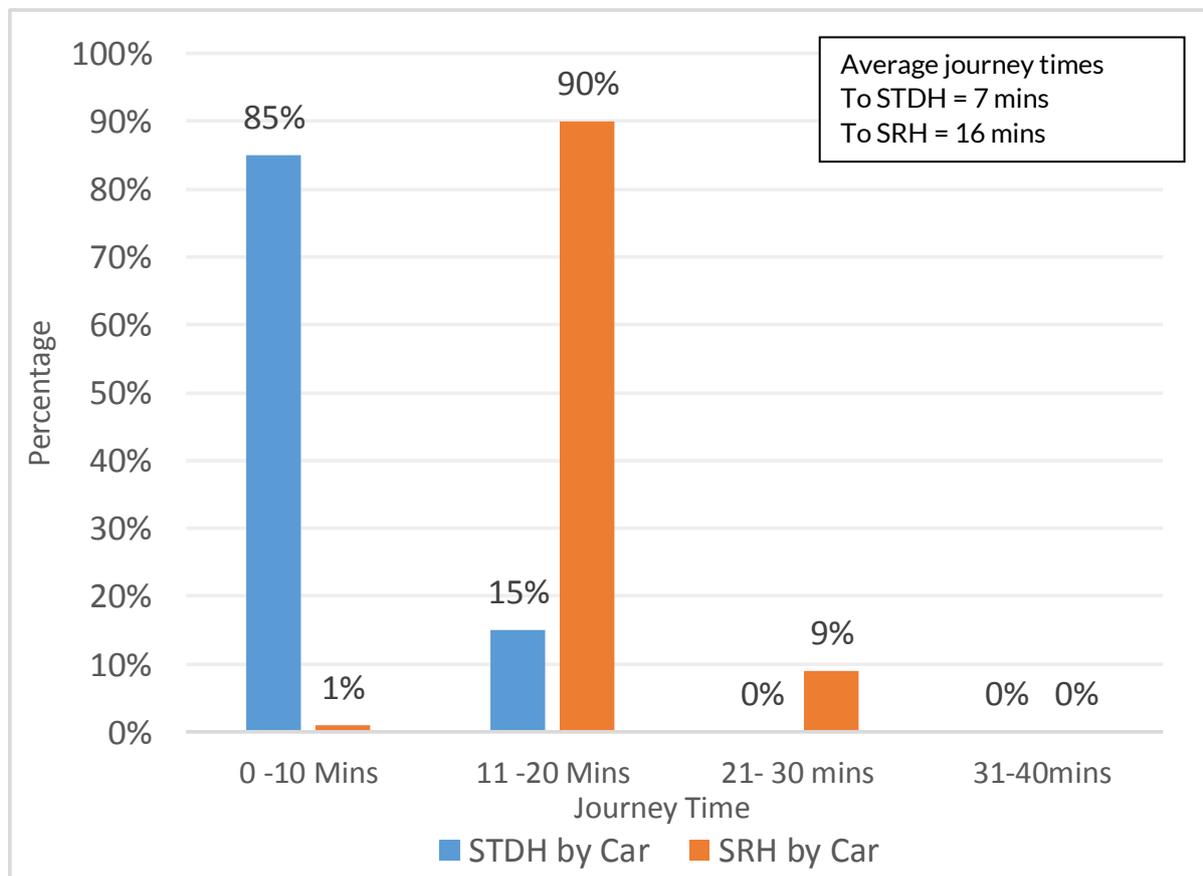
4.30 Pre December 2016, 68% of the separate postcodes were within 0 to 10 minutes journey time of acute Stroke services at STDH and a further 32% were within 11 to 20 minutes journey time. Post December 2016 when acute Stroke services were moved to SRH, 0% of the separate postcodes were within 0 to 10 minutes and 57% were within 11 to 20 minutes. Another 43% are within 21-30 minutes of SRH. The average journey time will increase by 11 minutes.

Figure 4-5: Accessibility of South Tyneside Stroke patient postcodes to STDH and SRH by car 14:00 – 16:00



- 4.31 Figure 4-6 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 19:00 – 21:00 and illustrates the difference in accessibility of these postcodes to both hospitals.
- 4.32 Pre December 2016, 84% of the separate postcodes were within 0 and 10 minutes journey time of acute Stroke Services at STDH and a further 16% were within 11 and 20 minutes journey time. Post December 2016 when acute Stroke services were moved to SRH, 1% of the separate postcodes are within 0 and 10 minutes and a further 90% will be within 11 and 20 minutes. Another 9% are within 21-30 minutes of SRH. The average journey time will increase by 9 minutes.

Figure 4-6: Accessibility of South Tyneside Stroke patient postcodes from STDH and SRH by car 19:00 - 21:00



Stroke visitor travel survey results

- 4.33 This section reviews the findings of the Stroke Services visitor travel survey, conducted at Sunderland Royal Hospital (SRH) between 10th and 28th February, with a total of 37 visitors responding to the survey.

Residence of patients

- 4.34 37 visitors responded to the Stroke Services travel survey. Of these, 49% (n=18) of patients' residences that were provided by visitors were in Sunderland, 41% (n=15) were in South Tyneside, and a further 11% (n=4) were in County Durham. This is illustrated in Table 4-7 below.

Table 4-7: Residences of patients at Stroke Services at SRH

Patient Residence	Number	%
County Durham	4	11%
South Tyneside	15	41%
Sunderland	18	48%
Total	37	100%

Source: ITP Survey, February 2017

Origin of visitor trip

- 4.35 Following the above question, visitors were asked the origin of their trip to hospital (work or home). As shown in Table 4-8, 97% (n=36) of visitors' trips originated at home, with only 3% (n=1) of trips originating from work.

Table 4-8: Origin of visitor trip

Origin of visitor trip	Number	%
Home	36	97%
Work	1	3%
Total	37	100%

Source: ITP Survey, February 2017

Number of visitors sharing postcodes with patient

- 4.36 Table 4-9 shows the number of visitor postcodes which match patient postcodes. This question was specifically asked to understand the profile of visitors, and to obtain evidence regarding the proportion of visitors that live with the patient. As can be identified, 12 respondents' (32%) postcodes matched the postcode of the patient they were visiting. 25 respondents' (68%) postcodes did not match the postcode of the patient they were visiting.

Table 4-9: Number of visitor postcodes which match patient postcodes

Postcode Match	South Tyneside		Sunderland		Overall	
	Count	Percentage	Count	Percentage	Count	Percentage
Yes	5	14%	6	16%	12	32%
No	10	27%	12	32%	25	68%
Total	15	41%	18	49%	37	100%

Source: ITP Survey, February 2017

Modal share of visitors

4.37 Table 4-10 shows the modal share of visitors to Stroke Services at SRH. As can be observed the most commonly used mode is car with others - 2 other people in car, representing 38% of visitor trips. This is followed by single occupancy car use (30%). Additionally, it is important to note that bus use is low for trips to Stroke Services at SRH, with only one respondent (3%) reporting to have travelled by bus. Further, the number of visitors walking to hospital is also very low, at just 5% of respondents.

Table 4-10: Modal share of visitors for Stroke Services at SRH

Mode of travel	South Tyneside		Sunderland		Overall	
	Count	Percentage	Count	Percentage	Count	Percentage
Bus	1	7%	0	0%	1	3%
Car by yourself	6	40%	4	22%	11	30%
Car, with others (unspecified)	1	7%	0	0%	1	3%
Car, with others - 1 person in the car	2	13%	1	6%	3	8%
Car, with others - 2 people in the car	4	27%	8	44%	14	38%
Car, with others - 3 people in the car	1	7%	3	17%	4	11%
Car, with others - 4 people in the car	0	0%	0	0%	1	3%

Mode of travel	South Tyneside		Sunderland		Overall	
	Count	Percentage	Count	Percentage	Count	Percentage
Walk	0	0%	2	11%	2	5%
Total	15	101%*	18	100%	37	101%*

Source: ITP Survey, February 2017

*due to rounding

4.38 Following this question, respondents from South Tyneside (n=15) were also asked how they would have travelled if the patient they were visiting was at STDH. Four respondents (27%) stated a different mode of travel than the one used for their journey to SRH, whilst the remaining 11 respondents (73%) did not state a change in travel. The changes in transport mode amongst these four respondents are detailed in Table 4-11 below. The one respondent who would have travelled by car on their own to STDH, car shared to SRH, whilst the three respondents who would have walked to STDH, either car shared, drove by themselves or caught the bus to SRH.

Table 4-11: Changes in modal choice for journeys to SRH and STDH

Mode of travel	To STDH		To SRH		% point Change
	Count	Percentage	Count	Percentage	
Car, with others - 2 people	0	0%	2	50%	50%
Car by yourself	1	25%	1	25%	0%
Bus	0	0%	1	25%	25%
Walk	3	75%	0	0%	-75%
Total	4	100%	4	100%	-

Source: ITP Survey, February 2017

Visitor Arrival Profile

4.39 Table 4-12 shows the arrival profile for those visiting Stroke Services patients at SRH. A number of respondents did not state their arrival time in 24 hour format, and as such their response has been amended to provide an accurate arrival profile. As can be seen, approximately 28% (n=4) of visitors from South Tyneside arrive during the afternoon

visiting period (14:00-16:00), and a further 72% (n=11) before and during the evening visiting period (18:00-20:00). Looking at total visitor patterns, this trend is repeated, with 72% of visitors arriving between 17:00 - 19:45 and 20% between 13:00 - 16:00. Interestingly, 8% of visitors arrive outside of these visiting hours.

Table 4-12: Arrival Profile of visitors at Stroke Services (SRH) (n=37)

Arrival Time	South Tyneside		Sunderland		Overall	
	Count	Percentage	Count	Percentage	Count	Percentage
08:30 - 08:45	0	0%	1	6%	1	3%
12:00 - 12:15	0	0%	1	6%	1	3%
13:00 - 13:15	1	7%	0	0%	1	3%
14:00 - 14:15	3	21%	1	6%	5	14%
15:45 - 16:00	0	0%	0	0%	1	3%
16:30 - 16:45	1	7%	0	0%	1	3%
17:00 - 17:15	0	0%	2	11%	2	5%
17:30 - 17:45	2	13%	2	11%	4	11%
18:00 - 18:15	2	13%	4	22%	6	16%
18:16 - 18:30	2	13%	3	16%	5	14%
18:31 - 18:45	0	0%	3	16%	4	11%
19:00 - 19:15	0	0%	1	6%	2	5%
19:16 - 19:30	2	13%	0	0%	2	5%
19:31 - 19:45	2	13%	0	0%	2	5%
Total	15	100%	18	100%	37	101%*

Source: ITP Survey, February 2017

*due to rounding

Duration of visits

4.40 Table 4-13 shows the duration of visit for those visiting patients in Stroke Services at SRH. The most common duration of visit is between one and two hours (43%, n=16). Of these, six visitors (16%) arrive from South Tyneside and eight (22%) from Sunderland. An additional two visitors come from outside of these two areas. The least common duration of visit is up to one hour (14%, n=5), however this is largely represented by visitors from South Tyneside, with one visitor coming from outside South Tyneside or Sunderland.

Table 4-13: Visiting duration of respondents

Duration of visit	South Tyneside		Sunderland		Overall	
Up to 1 hour	6	40%	0	0%	7	19%
1-2 hours	6	40%	8	44%	16	43%
2-4 hours	2	13%	8	44%	10	26%
4-24 hours	1	7%	2	11%	4	11%
Total	15	100%	18	99%*	37	99%*

Source: ITP Survey, February 2017

*due to rounding

Visiting frequency

4.41 Table 4-14 shows the visiting frequency of those visiting Stroke Services patients at SRH. Most respondents (50%, n=18) stated that they visited Stroke Services once every two days, followed by 22% (n=8) of respondents who stated that they visit more than once per day. The least common visiting frequencies were once every three days (6%, n=2) and less often (6%, n=2).

Table 4-14: Visiting frequency of respondents

Visiting frequency	South Tyneside	Sunderland	Overall
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Visiting frequency	South Tyneside		Sunderland		Overall	
	Count	Percentage	Count	Percentage	Count	Percentage
Once a day	2	13%	0	0%	2	6%
More than once a day	2	13%	5	29%	8	22%
Once every two days	9	60%	6	35%	18	50%
Once every three days	1	7%	5	29%	6	17%
Less often	1	7%	1	6%	2	6%
Total	15	100%	17	99%*	36	101%*
Average number of visits per visitor per day	0.7285		0.8559		0.8083	

Source: ITP Survey, February 2017

*due to rounding

Potential impact on parking

4.42 One of the impacts of transferring clinical services between hospitals will be changes in parking demand. In the case of Stroke services, the effect will be an increase in the demand for parking at SRH arising from South Tyneside residents who would previously have visited patients at STDH. Table 4-15 shows the worst case scenarios for parking at SRH, using the above visitor survey data for those arriving from South Tyneside only, and patient data from the Clinical Service Review Report (2016) detailing the number of Stroke patients admitted to STDH taken from the previous year's data, which ensures that the modelling of car parking is accurate. The following assumptions have been made in order to produce these figures.

- Median stay of patient - eight days
- Average of four patient admissions per week (based on approximately 230 patient admissions to stroke services at STDH in 2014/15)
- 93% of visitors arriving by car (Table 4-10)
- Average number of visits per visitor per day (weighted by proportions of visiting frequency) - 0.7285 (Table 4-14)
- 72% of visitors arriving for evening visiting from South Tyneside (Table 4-12)
- 28% of visitors arriving for afternoon visiting from South Tyneside (Table 4-12)

- All additional cars are likely to be parked at the same time, based on the length of stay data in Table 4-13. Therefore, there will be low or no turnover in parking.
- 4.43 In lieu of any information pertaining to the average number of visitors that each Stroke patient receives, for both the afternoon and evening visiting hours period, assumptions have been made and additional parking demands have been modelled in line with these assumptions. As shown in Table 4-15, if three separate visitors visit a patient during each visiting hours period the number of visitor vehicles generated by stroke services would be two in the afternoon and six in the evening. From SRH Parking Eye data, the existing maximum number of vehicles parked is 1,559 in the afternoon visiting hours period. With the additional stroke services visitors, this would rise to 1,561. This equates to approximately 91% of total capacity available (1,714 total parking spaces).
- 4.44 The number of additional visitor vehicles, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity.

Table 4-15: Additional parking demand at SRH - stroke service visitors

Visitors per patient (individual)	Afternoon			Evening		
	Existing parking demand*	Additional parking demand***	Total demand	Existing parking demand**	Additional parking demand***	Total demand
1	1559	1	1560	595	2	597
2	1559	2	1561	595	4	599
3	1559	2	1561	595	6	601

* Existing afternoon parking demand based on worst case number of vehicles parked at SRH (14:30 on 29/09/16 - 1559 vehicles). Drawn from three weeks of Parking Eye data at SRH (WC 12/09/16 to WC 26/09/16)

** Existing evening parking demand based on worst case number of vehicles parked at SRH during evening visiting hours (18:45 on 15/09/16 - 595 vehicles). Drawn from three weeks of Parking Eye data at SRH (WC 12/09/16 to WC 26/09/16)

***Additional parking demand generated by visitors to stroke patients attending SRH rather than STDH.

Parking costs

- 4.45 Previously, when patients have been admitted to STDH, the median length of stay has been calculated at 10 days, however the median length of stay at SRH has been measured at eight days. This shorter length of stay in hospital obviously means that the overall number of visitor trips will decrease too.
- 4.46 Table 4-16 below shows the difference in parking costs incurred for the median length of patient stay at each hospital. The shorter length of stay at SRH means that parking becomes less of an expenditure than if the patient had been admitted to STDH. However, fuel costs may increase due to the longer distances travelled.

Table 4-16: Comparison of parking costs incurred at both hospitals, assuming visiting a stroke patient once a day

Duration of visit	Cost of parking at STDH	Cost over 10 days	Cost of parking at SRH	Cost over 8 days
Up to 1 hour	£1.50	£15.00	£2.00	£16.00
1-2 hours	£3.00	£30.00	£3.00	£24.00
2-4 hours	£4.50	£45.00	£4.50	£36.00

Key findings

- 4.47 South Tyneside residents who experience an acute stroke, and their families, will be affected by the proposals to centralise Acute Stroke services at SRH.
- 4.48 It is visitors to Stroke patients who will be affected predominantly as the majority of acute Stroke cases arrive at hospital by Emergency Ambulance. Therefore visitors will be required to travel to SRH, rather than STDH, to visit family / a friend who have suffered a stroke. The number of days that visitors will be required to travel to SRH, instead of STDH, will depend on the final Service option taken forward for implementation.
- 4.49 Amongst the South Tyneside population aged 60+ (the category of population most at risk from a Stroke), during the 14:00 to 16:00 time period, the average public transport journey time to STDH is 24 minutes. In terms of accessibility to SRH, the average public transport journey time is 42 minutes. This means that the average public transport

journey time will increase by 18 mins if acute stroke services are centralised at SRH and visitors in this age category would like to go and visit their family / friend in hospital. The public transport journey time increases by 21 minutes in the 19:00 to 21:00 time period (26 minutes to STDH compared to 47 minutes to SRH).

- 4.50 The analysis of the postcodes of previous Stroke patients living in South Tyneside / treated at STDH shows that the public transport journey time to SRH (instead of STDH) during the 14:00 to 16:00 time period increases by 20 minutes (23 minute average journey time to STDH compared to 43 minute average journey time to SRH). During the 19:00 to 21:00 time period, the public transport journey time increases by 25 minutes (23 minute average journey time to STDH compared to 48 minute average journey time to SRH). The results using data for the 60+ population and the Stroke patient postcodes are therefore broadly similar.
- 4.51 Journeys by car to SRH, instead of STDH, between 14:00 – 16:00 will take 11 minutes longer (average eight minute journey to STDH compared to an average 19 minute journey to SRH). In between the hours of 19:00 – 21:00 car journeys to SRH will take nine minutes longer (average 7 minute journey to STDH compared to an average 16 minute journey to SRH).
- 4.52 The Visitor Travel Survey results have been very useful to assist in understanding visitor travel patterns. Following the temporary location of acute Stroke services to SRH, the visitor survey has captured how South Tyneside visitors are travelling to SRH and show that 40% travel by car on their own and a further 57% travel in the car with others. The remainder, 7%, travel to SRH by bus.
- 4.53 Some difference in choice of transport mode amongst South Tyneside visitors was captured and showed that four respondents had changed the way they travelled to visit at the hospital. One respondent who would have previously travelled by car to STDH had car shared to SRH and the three respondents who would have previously walked to STDH, either travelled by car on their own, car shared or caught the bus to SRH.
- 4.54 The visiting profile for this sample shows that 28% of visitors visited in the afternoon visiting time period and 72% visited during evening visiting hours.
- 4.55 The survey shows a slight difference in visiting frequency amongst South Tyneside and Sunderland visitors, with 13% of South Tyneside visitors visiting more than once a day, 13% visiting once a day and 60% of South Tyneside visiting every two days. Figures amongst Sunderland visitors show that 29% visit more than once a day, 0% visit once per day, 35% visit once every two days and 29% visit every three days.

4.56 Bearing in mind the increased numbers of visitors attending during evening visiting hours, the potential parking demand from South Tyneside visitors is shown below:

- During the afternoon, additional parking demand is forecast to range from one - two vehicles (depending on the number of visitors a patient receives)
- During the evening, additional parking demand is forecast to range from two to six vehicles (depending on the number of visitors a patient receives).

5. Paediatrics service models across South Tyneside and City Hospitals Sunderland Foundation Trusts

- 5.1 The Paediatric Emergency Care Department (ED) at South Tyneside District Hospital is staffed by medical and nursing staff trained in paediatrics, and is open 24 hours a day, seven days a week. Attached to the Emergency Department unit is a three bedded Children's Short Stay Assessment Unit.
- 5.2 The Sunderland Paediatric Emergency Department is staffed by Paediatric and A&E Consultants and RSCN trained nurses. It is in the process of being reconfigured as part of a new ED build on the SRH site, and when fully operational will provide a phased approach to reception and triage, resuscitation, high acuity, low acuity and CSSAU (Children's Short Stay Assessment Unit) that appropriately reflects the patient pathway.
- 5.3 The Clinical Service Review for Paediatric services proposes two possible solutions summarised below:
- Option 1
 - Provision of a seven-day, 12 hour (8am to 8pm) paediatric emergency department and children's short stay assessment unit at South Tyneside District Hospital with 24 hour, seven days a week paediatric emergency department at Sunderland Royal Hospital.
 - Option 2
 - Development of a nurse-led paediatric minor injury or illness service between 8am and 8pm at South Tyneside District Hospital with a 24 hour, seven days a week paediatric emergency department at Sunderland Royal Hospital.
- 5.4 Both options effectively involve the closure of overnight paediatric emergency services between the hours of 8pm and 8am.
- 5.5 The Paediatric ED currently caters for children aged between 0 and 16 and therefore the vast majority of children presenting at the ED will have been transported by their parents. Therefore, ultimately the main travel and transport implications will impact upon South Tyneside parents who currently take their child to STDH Paediatric ED, if required at any time of the day. Going forward, there will not be a Paediatric Emergency Department available, essentially, to attend between 20:00 and 08:00 the next morning.

Also the current daytime Paediatric ED services may be replaced with a nurse-led minor injury or illness service that will also operate between 08:00 to 22:00 (20:00 for last attendances / admissions).

- 5.6 During the 2015/16 financial year, 15,380 Paediatric attendances were recorded at the STDH Paediatric A and E. It has been assumed that 60% of Paediatric attendances between 08:00 and 20:00 will be addressed at the nurse-led minor injury or illness service and the remaining 40% will require Paediatric ED Treatment at SRH.
- 5.7 For the purposes of clarity, Sunderland residents will not be affected by the changes to Paediatric services in terms of transport and travel and neither will any patients who currently live in Durham, for whom the nearest hospital is Sunderland Royal Hospital.

6. Travel and Transport Impact Assessment of Paediatrics Clinical Service Review

- 6.1 This chapter examines and assesses the transport and travel impacts resulting from the review of Paediatric services, and reviews accessibility statistics and data that is more relevant to the occurrence of Paediatrics. This chapter also presents the results from a travel survey undertaken amongst parents / guardians of Paediatric patients visiting the paediatric ED at STDH and the potential impacts upon car parking demand and costs to parents / guardians.

Information sources for assessing the Travel and Transport Impact

- 6.2 In addition to the accessibility statistics presented in Chapter 2, a number of additional data sources and further data collection have been utilised to assess the impacts of the proposals for Paediatric services at South Tyneside District Hospital, as listed below:
- Postcode data collated from Paediatric patients attending STDH during the 2015/16 financial year and the 2016/17 financial year up to the end of October 2016
 - Findings from a Parental travel survey undertaken between 10th February 2017 and 28th February 2017 at STDH Paediatric ED. It should be noted that this provides just a snapshot of information, that sample size is relatively small, and that responses have been taken at face value even where they may appear counter-intuitive. Appropriate caution should therefore be taken with the results.
 - Data concerning STFT Paediatric ED attendances over 2015 / 2016 financial year
- 6.3 A number of assumptions have been applied to various areas of assessment and these assumptions are noted throughout this report in the appropriate sections.
- 6.4 A staff travel survey amongst the clinical staff working in paediatric services at both STDH and SRH is currently underway. The staff travel survey will examine how staff travel to work now and how they would travel in the future, should their place of work change. The results will assist in informing the potential parking impact at the relevant

hospital sites, and the trusts and commissioning officer will have this information prior to decision making.

- 6.5 The STFT Paediatric ED attendance information notes that 15,380 attendances at A and E were recorded between April 2015 and March 2016.

Accessibility analysis for previous patient postcodes to and from STDH

- 6.6 To target the wider accessibility analysis further, STFT has provided the postcodes of paediatric attendances at the Paediatric ED at STDH during the 2015/16 year and the 2016/17 financial year up to the end of October 2016. This dataset has been used to understand the accessibility of these patients to / from STDH Paediatric ED as a representative sample of patients in South Tyneside. The analysis assumes that patients have travelled with their parents to Paediatric ED from their home location. A total of 12,731 postcodes of attending patients were recorded during the 2015/16 financial year and the 2016/17 up to 31st October 2016. However only 2,502 separate postcodes were recorded and so have subsequently been mapped. These figures suggest that many patients and parents have made numerous trips to the STDH Paediatric ED.
- 6.7 Table 6-1 below shows the number of separate postcodes that fall within each 10 minute journey time band when accessing the STDH Paediatric ED between 14:00 and 16:00. 65% of the postcodes fall within a 30 minute public transport journey, compared to 21% on foot and 99% by car. 86% of the postcodes fall within a 60 minute public transport journey and 60% fall within a 60 minute walk. The average journey times range from 8 minutes by car, 24 minutes by public transport to 47 minutes on foot.
- 6.8 Table 6-2 below shows the number of separate postcodes that fall within each 10 minute journey time band when travelling to the STDH Paediatric ED between 17:00 and 19:00. 67% of the postcodes fall within a 30 minute public transport journey, compared to 21% on foot and 99% by car. 86% of the postcodes fall within a 60 minute public transport journey and 60% fall within a 60 minute walk. The average journey times range from 9 minutes by car, 22 minutes by public transport to 47 minutes on foot.

Table 6-1: Accessibility of South Tyneside Paediatric patient postcodes to STDH (14:00 - 16:00)

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	55	2%	1671	66%	20	1%
11 - 20	827	33%	804	32%	157	6%
21 - 30	743	30%	5	0%	357	14%
31 - 40	478	19%	16	1%	520	21%
41 - 50	59	2%	-	-	269	11%
51 - 60	0	0%	-	-	169	7%
61 - 70	4	0%	-	-	337	13%
71 - 80	1	0%	-	-	290	12%
81 - 90	2	0%	-	-	146	6%
Average¹	24 mins		8 mins		47 mins	
91mins +	333	13%	6	1%	371	15%
< 30 mins	1625	65%	2496	99%	534	21%
< 60 mins	2162	86%	2496	99%	1492	60%
< 90 mins	2169	87%	2496	99%	2265	91%
Total	2502	100%	2502	100%	2502	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Table 6-2: Accessibility of South Tyneside Paediatric patient postcodes away from STDH (17:00 – 19:00)

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	107	4%	1526	61%	20	1%
11 - 20	838	33%	942	37%	157	6%
21 - 30	741	29%	10	0%	357	14%
31 - 40	373	15%	18	1%	520	21%
41 - 50	98	4%	-	-	269	11%
51 - 60	5	0%	-	-	169	7%
61 - 70	1	0%	-	-	337	13%
71 - 80	1	0%	-	-	290	12%
81 - 90	2	0%	-	-	146	6%
Average¹	22 mins		9 mins		47 mins	
91mins +	336	14%	6	0%	371	15%
< 30 mins	1686	67%	2478	99%	534	21%
< 60 mins	2162	86%	2496	99%	1492	60%
< 90 mins	2166	86%	2496	99%	2265	91%
Total	2502	100%	2502	100%	2502	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

Accessibility analysis for previous patient postcodes to and from SRH

- 6.9 To present further comparative accessibility analysis, the Paediatric postcode dataset has been used to understand the accessibility of these patients to / from SRH. Journey times for walking have not been assessed.
- 6.10 Table 6-4 below shows the number of separate postcodes that fall within each 10 minute journey time band when accessing SRH between 14:00 and 16:00. 4% of the postcodes fall within a 30 minute public transport journey, compared to 99% by car. 84% of the postcodes fall within a 60 minute public transport journey. The average journey time by public transport is 42 minutes and 19 minutes by car.
- 6.11 Table 6-5 below shows the number of separate postcodes that fall within each 10 minute journey time band when travelling away from SRH between 17:00 and 21:00. 5% of the postcodes fall within a 30 minute public transport journey, compared to 99% by car. 80% of the postcodes fall within a 60 minute public transport journey. The average journey time by public transport is 42 minutes and 19 minutes by car.

Table 6-3: Accessibility amongst South Tyneside Paediatric patient postcodes to SRH (14:00 - 16:00)

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	1	0%
11 - 20	0	0%	1565	63%
21 - 30	89	4%	912	36%
31 - 40	751	30%	18	0%
41 - 50	952	38%	0	0%
51 - 60	318	13%	0	0%

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
61 - 70	54	2%	0	0%
71 - 80	1	0%	0	0%
81 - 90	1	0%	0	0%
Average ¹	42 mins		19 mins	
91mins +	336	13%	6	0%
< 30 mins	89	4%	2478	99%
< 60 mins	2110	84%	2496	99%
< 90 mins	2166	87%	2496	99%
Total	2502	100%	2502	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Table 6-4: Accessibility amongst South Tyneside Paediatric patient postcodes to SRH (17:00 – 19:00)

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	1	0%
11 - 20	1	0%	1224	49%
21 - 30	145	5%	1252	50%
31 - 40	710	28%	19	0%
41 - 50	866	34%	0	0%
51 - 60	288	11%	0	0%

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
	Number	%	Number	%
61 - 70	110	4%	0	0%
71 - 80	3	0%	0	0%
81 - 90	13	1%	0	0%
Average ¹	42 mins		19 mins	
91mins +	366	15%	6	0%
< 30 mins	146	5%	2477	99%
< 60 mins	2010	80%	2496	99%
< 90 mins	2136	85%	2496	99%
Total	2502	100%	2502	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

6.12 Table 6-6 below shows the number of separate postcodes that fall within each 10 minute journey time band when travelling to STDH and SRH between the new time period 00:00 and 02:00 by car. 93% of postcodes can access STDH within 10 minutes, whilst 98% of postcodes can access SRH within 20 minutes. The average journey time is 6 minutes to STDH compared to 14 minutes to SRH.

Table 6-5: Accessibility amongst South Tyneside Paediatric patient postcodes to SRH and STDH by car (00:00 - 02:00)

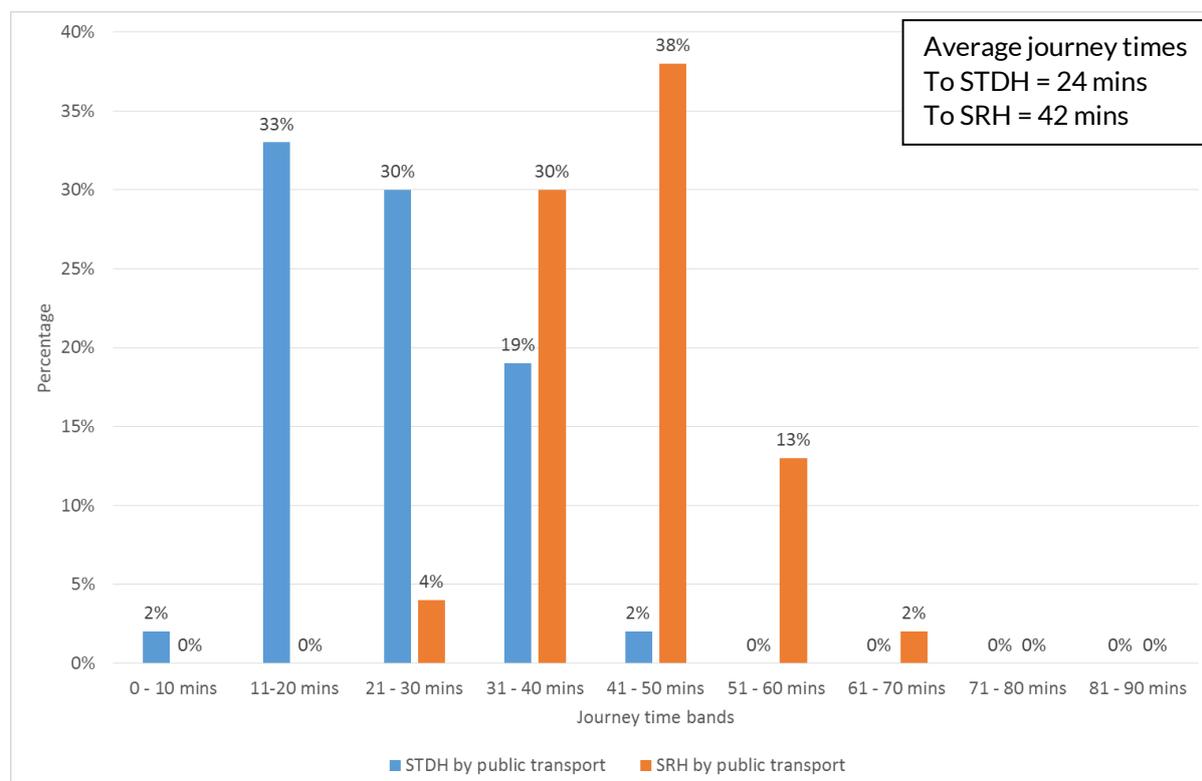
Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
	STDH		SRH	
	Number	%	Number	%
0-10	2327	93%	15	1%
11-20	149	6%	2456	98%
21-30	20	1%	25	1%

Travel Time (mins)	Number and percentage of South Tyneside paediatric patient postcodes			
31-40	-	-	-	-
Average	6 mins		14 mins	
91 mins +	6	0%	6	0%
<30 mins	2496	100%	2496	100%
<60 mins	2496	100%	2496	100%
<90 mins	2496	100%	2496	100%
Total	2502	100%	2502	100%

Accessibility amongst previous Paediatric patients to STDH and SRH

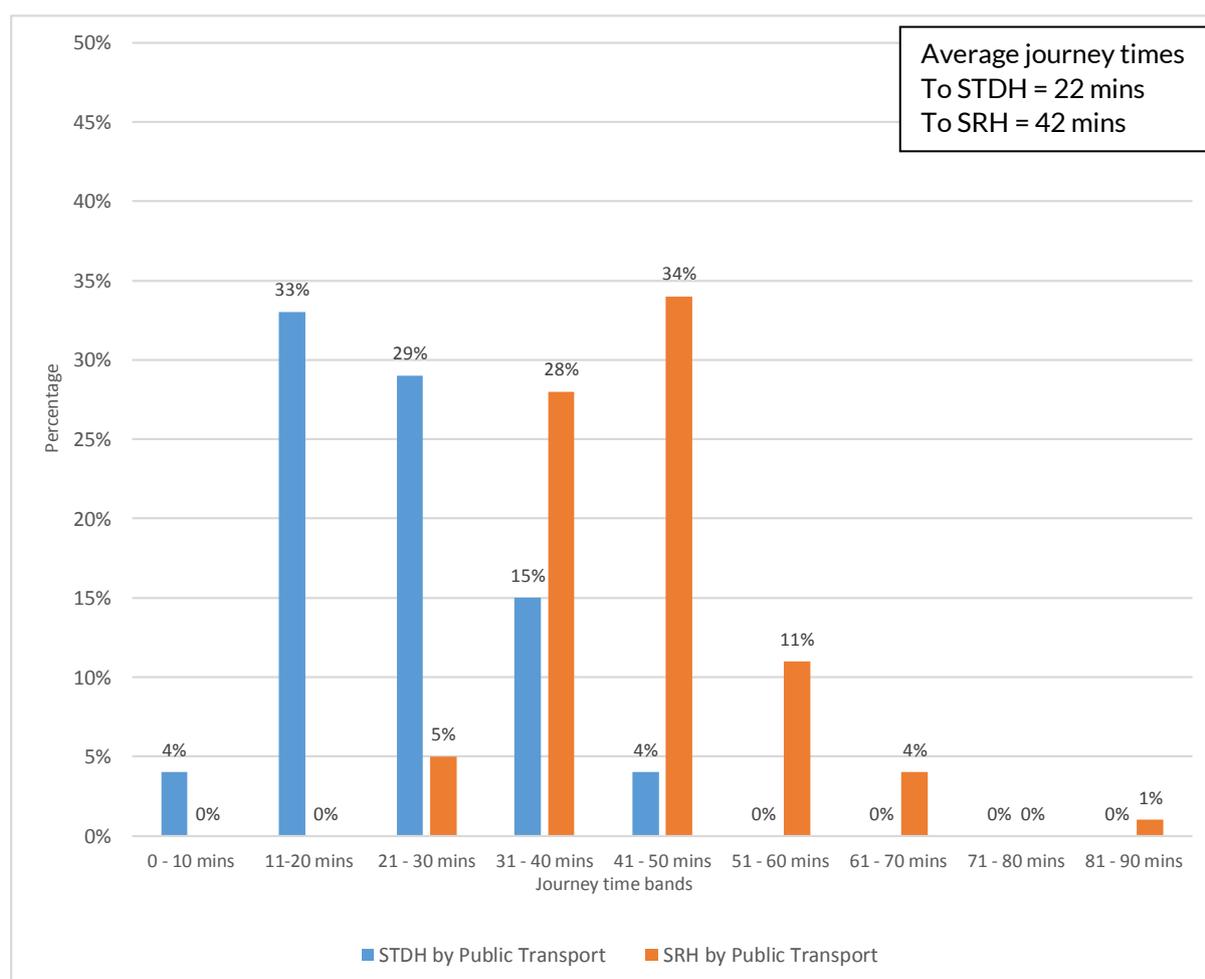
- 6.13 Figure 6-1 below shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals between 14:00 and 16:00 and illustrates the difference in accessibility of these postcodes to each hospital by public transport.
- 6.14 At present, 33% of the separate postcodes are within 11 and 20 minutes journey time of STDH and a further 30% are within 21 and 30 minutes. Travelling to SRH for Paediatric ED services means that 30% of the separate postcodes will be within 31 and 40 minutes journey time and a further 38% will be within 41 and 50 minutes journey time. The average journey time increases by 18 minutes.

Figure 6-1: Accessibility of South Tyneside Paediatric patient postcodes to STDH and SRH (14:00 - 16:00)



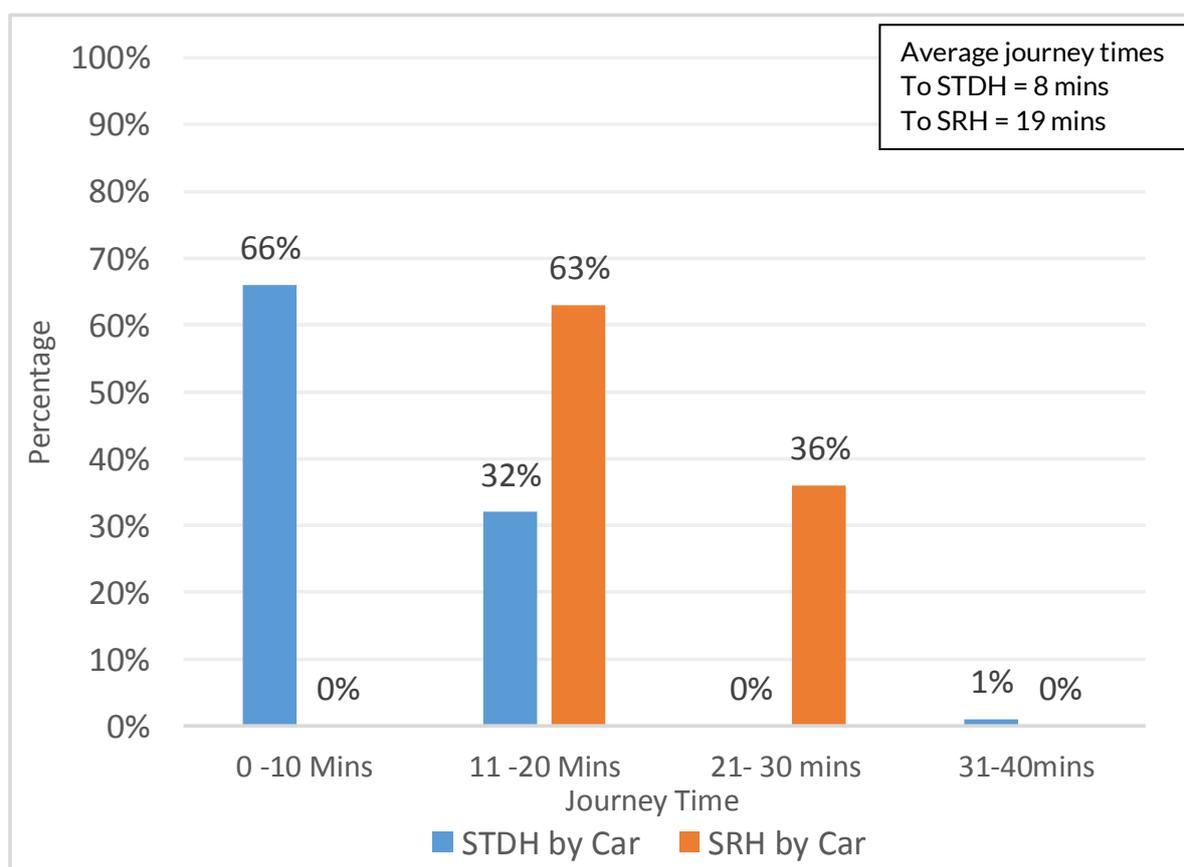
- 6.15 Figure 6-2 below shows the proportion of separate postcodes that fall within each 10 minute journey time band when travelling away from the hospitals between 17:00 and 19:00 and illustrated the difference in accessibility of these postcodes to both hospitals by public transport.
- 6.16 At present, 33% of the separate postcodes are within 11 and 20 minutes journey time of STDH and a further 29% are within 21 and 30 minutes. Travelling to SRH for Paediatric ED services means that 28% of the separate postcodes will be within 31 and 40 minutes journey time and a further 34% will be within 41 and 50 minutes journey time.
- 6.17 Using this postcode dataset, paediatric patients will on the whole experience a longer public transport journey travelling to SRH than if travelling to STDH. The average journey time increases by 18 minutes between 14:00 and 16:00 and by 22 minutes travelling to the hospitals between 17:00 and 19:00.

Figure 6-2: Accessibility of South Tyneside Paediatric patient postcodes travelling away from STDH and SRH (17:00 - 19:00)



- 6.18 Figure 6-3 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 14:00 – 16:00 and illustrates the difference in accessibility of these postcodes to both hospitals.
- 6.19 Currently, 66% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 32% are within 11 and 20 minutes journey time. Going forward, 0% of the separate postcodes are within 0 and 10 minutes, whilst 63% will be within 11 and 20 minutes. Another 36% will be within 21-30 minutes of SRH. The average journey time increases by 11 minutes.

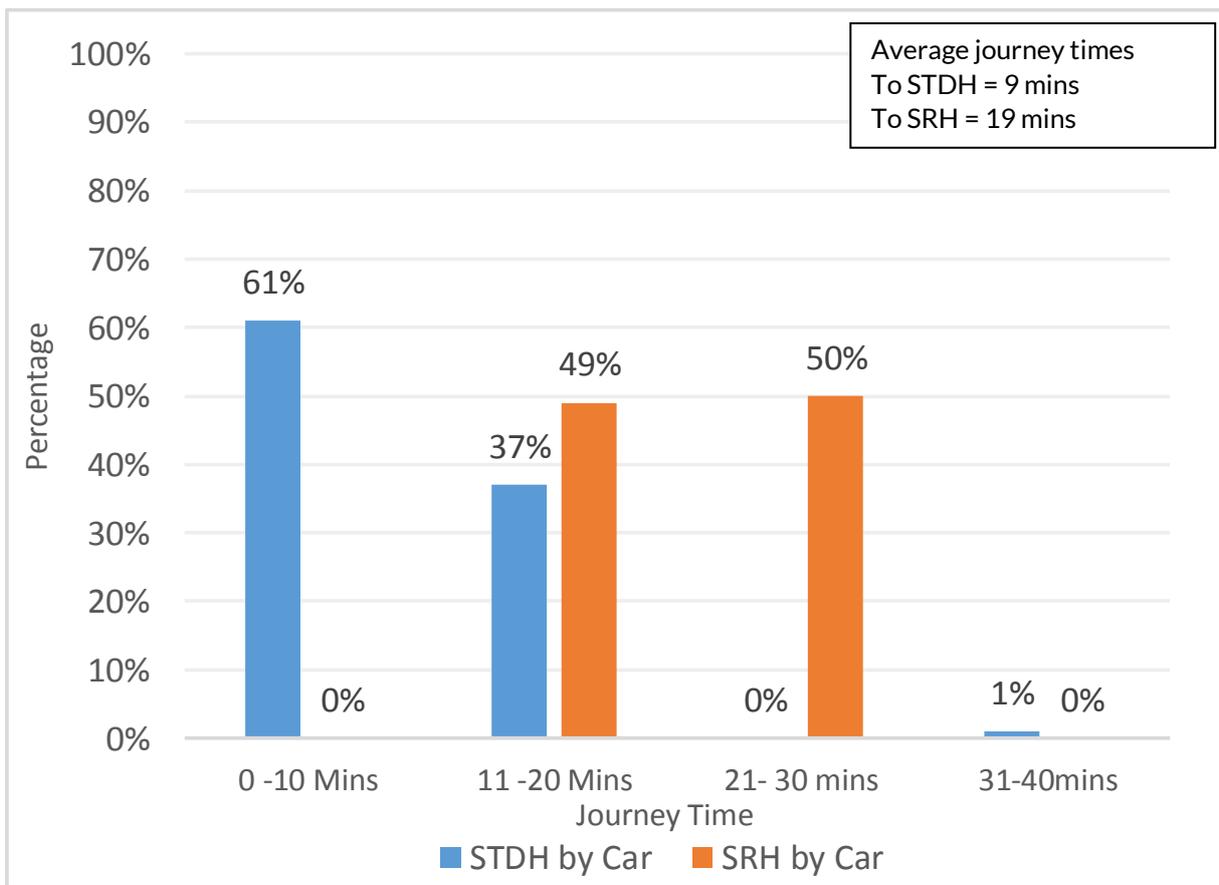
Figure 6-3: Accessibility of South Tyneside Paediatric patient postcodes to STDH and SRH by car 14:00 – 16:00



- 6.20 Figure 6-4 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 17:00 – 19:00 and illustrates the difference in accessibility of these postcodes to both hospitals.

6.21 Currently, 61% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 37% are within 11 and 20 minutes journey time. Going forward, 1% of the separate postcodes are within 0 and 10 minutes and a further 49% will be within 11 and 20 minutes. Another 48% will be within 21-30 minutes of SRH. The average journey time increases by 10 minutes.

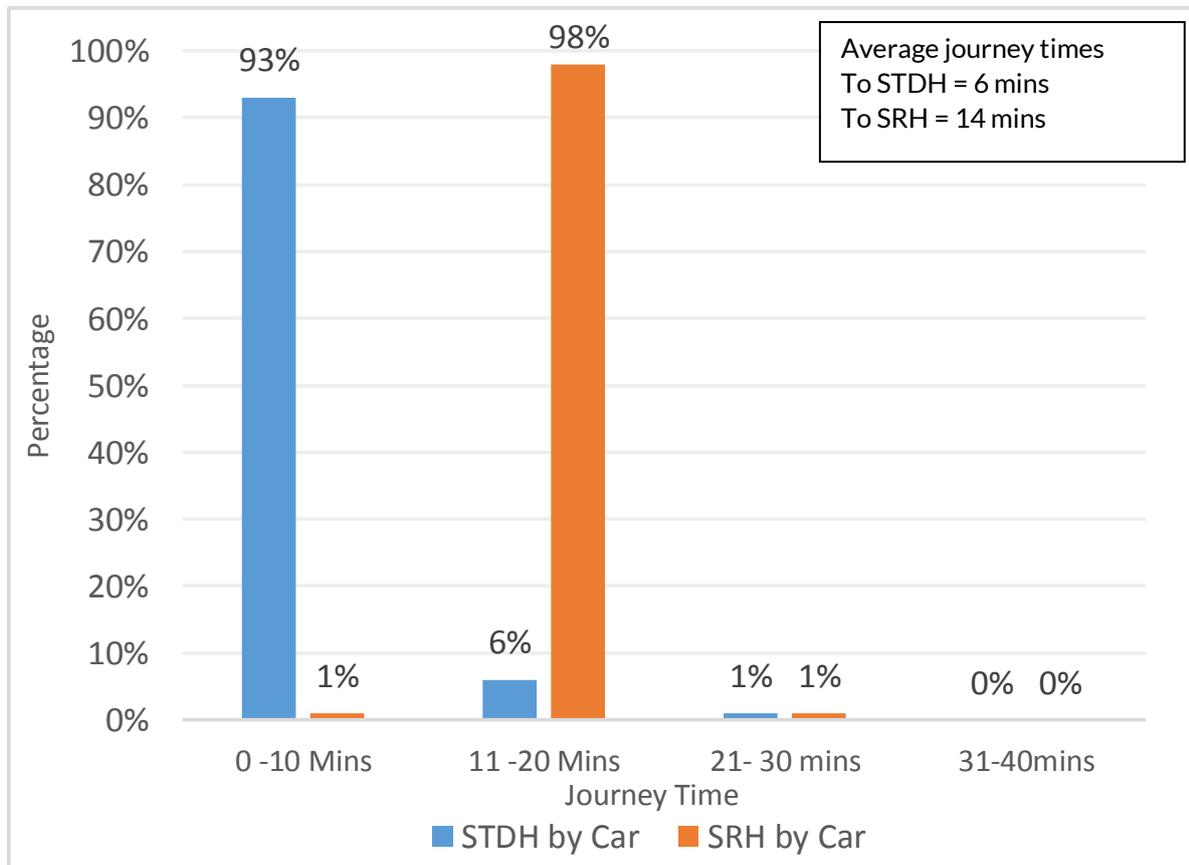
Figure 6-4: Accessibility of South Tyneside Paediatric patient postcodes to STDH and SRH by car 17:00 - 19:00



6.22 Figure 6-5 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 00:00 – 02:00 and illustrates the difference in accessibility of these postcodes to both hospitals.

6.23 Currently, 93% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 6% are within 11 and 20 minutes journey time. Going forward, 0% of the separate postcodes are within 0 and 10 minutes and a further 98% will be within 11 and 20 minutes. Another 1% will be within 21-30 minutes of SRH. The average journey time increases by 8 minutes.

Figure 6-5: Accessibility of South Tyneside Paediatric patient postcodes from STDH and SRH by car 00:00 - 02:00



Paediatrics Travel Survey Results

6.24 The complexity of the options proposed for Paediatric services has resulted in the travel survey responses being analysed twice, primarily due to the different time periods requiring analysis and the nature of the paediatric services proposed.

Option 1 - Provision of a seven-day, 12 hour (8am to 8pm) paediatric ED and CSSAU at STDH

- 6.25 This section reviews the findings of the Paediatric patient travel survey, conducted at South Tyneside District Hospital (STDH) between 20th and 28th February 2017, with a total of 121 parents and guardians of patients responding to the survey. 41 respondents specified that they were attending the Children's Day Unit. As this is foreseen to not be moving to SRH under Clinical Service review plans, these responses have been excluded from analysis. A further 40 respondents did not specify the ward/specialty they were attending, and have therefore been assumed to be attending the Emergency Care Centre (ECC) producing a final total of 80 valid responses.
- 6.26 As option 1 involves the closure of the Paediatric ED, effectively between 20:00 (when doors close to allow children to be treated and discharged before 22:00) and 08:00 the following day, this section of survey analysis reviews responses received by parents arriving at the current Paediatric ED between 20:00 and 08:00, to understand their journey patterns, arrival profile and choice of transport to access STDH. Therefore there are a total of 22 responses relating to Paediatric Emergency Care services at STDH that have been analysed to assist in assessing the impact of this option.
- 6.27 The analysis below assumes that presentations between 20:00 to 08:00 at the STDH Paediatric ED would therefore present at SRH Paediatric ED.

Residence of patients

- 6.28 22 patients responded to the travel survey for Paediatrics, stating their arrival time was between 20:00 and 08:00. All respondents stated that they currently live in South Tyneside.

Modal share of patients

- 6.29 The following tables show the modal share for patients attending Paediatrics at STDH between 20:00 and 08:00, and their likely modal share if they had to attend SRH. A number of respondents in each question gave more than one mode of travel in their response. These have been divided according to the number of modes of travel specified¹ to provide an accurate modal share, and to help establish likely parking usage.

¹ For example, if a respondent stated they would use bus or metro. This response would be divided by 2.

6.30 Table 6-6 shows the modal share of patients travelling to Paediatrics at STDH - arriving between 20:00 and 08:00. As can be observed, the most commonly used mode is using your own car, representing 68% (n=15) of trips. This is followed by lifts received by family or friends with 18% (n=4) of trips being made in this way. Additionally, it is important to note that taxi use contributes to 9% (n=2) of total trips, whilst trips by ambulance accounts for 5% (n=1).

Table 6-6: Modal share of patients arriving to Paediatrics at STDH (20:00 - 08:00)

Mode of travel	Number	%
Using your own car	15	68%
Given a lift by friends/ family	4	18%
Taxi	2	9%
Ambulance	1	5%
Total	22	100%

Source: ITP Survey, February 2017

6.31 Table 6-7 shows the planned modal share for trips from Paediatrics at STDH to the patient's residence. As might be expected, the modal share is similar to that in Table 6-6. However, an increase is seen in taxi trips, accounting for 14% (n=3) of indicative return trips.

Table 6-7: Planned modal share for patients departing Paediatrics at STDH (20:00 - 08:00)

Mode of travel	Number	%
Using your own car	15	68%
Catch a lift with friends/ family	4	18%
Taxi	3	14%
Total	22	100%

Source: ITP Survey, February 2017

6.32 Following these questions, respondents were also asked how they would have travelled if they were required to attend SRH for Paediatric services. The results are outlined in Table 6-8. The most commonly stated mode of travel is using your own car (60%, n=13), followed by lift obtained from family or friends (18%, n=4) and bus use (12%, n=3). Taxi and metro use meanwhile account for 10% of potential trips (n=2).

Table 6-8: Indicative modal share for patients attending Paediatrics at SRH (20:00 - 08:00)

Mode of travel	Number	%
Using your own car	13	60%
Obtain a lift from friends/family	4	18%
Bus	3	12%
Taxi	1	5%
Metro	1	5%
Total	22	100%

Source: ITP Survey, February 2017

Journey times

6.33 Table 6-9 shows the journey times for survey respondents arriving between 20:00 and 08:00. The majority of respondents stated that their journey to STDH took between 6-10 minutes (36%, n=8). This is followed by 27% (n=6) of journey times taking between 3-5 minutes, 14% (n=3) taking between 11-15 minutes, 14% (n=3) taking between 16-20 minutes and 9% (n=2) under two minutes.

Table 6-9: Journey times of Paediatrics patients

Journey time	Number	%
Under 2 minutes	2	9%
3-5 minutes	6	27%
6-10 minutes	8	36%
11-15 minutes	3	14%
16-20 minutes	3	14%
Total	22	100%

Source: ITP Survey, February 2017

Arrival profile

6.34 Table 6-10 shows the arrival profile for Paediatrics patients arriving between 20:00 and 08:00 at STDH. The busiest overnight period is between 21:01-22:00, with 23% (n=5) of patients arriving during this period, this is followed by 18% (n=4) of patients arriving between 04:01-05:00 and a further 18% (n=4) between 20:00-21:00.

Table 6-10: Arrival profile of Paediatrics patients at STDH

Arrival time (hour)	Number	%
00:00 - 01:00	1	5%
03:00 - 04:00	2	9%
04:01 - 05:00	4	18%
06:01 - 07:00	1	5%
20:00 - 21:00	4	18%
21:01 - 22:00	5	23%
22:01 - 23:00	3	14%
23:01 - 00:00	2	9%
Total	22	101%*

Source: ITP Survey, February 2017 *due to rounding

Potential impact on parking

- 6.35 One of the impacts of transferring clinical services between hospitals will be changes in parking demand. In the case of Paediatrics, the effect will be an increase in the demand for parking at SRH arising from South Tyneside residents who would previously have attended the ED / Emergency Care Centre at STDH.
- 6.36 Table 6-11 shows the worst case scenarios for parking at SRH, assuming that those arriving during the period 20:00-08:00 will travel to SRH instead of STDH, due to the fact that the ED / Emergency Care Centre will not be operating during those hours. These modelled parking scenarios are based on the annual number of attendances to STDH Paediatric ED in the 2015/2016 financial year to ensure that the modelling of additional parking forecasts is accurate.
- 6.37 Further to the above, the following additional assumptions have also been made in order to determine potential parking impact at SRH.
- 3,147 yearly attendances expected to transfer to SRH. This number is derived from the current number of ED attendances between 8pm and 8am which is 3,454 and subtracting 30% of the current Jarrow and Hebburn based patients that have been assumed will access ED services at either the Queen Elizabeth Hospital in Gateshead or the Royal Victoria Institute in Newcastle, which is equivalent to 307 ED attendances. (3,454 minus 307 = 3147)
 - 9 attendances per day (based on 3,147 overnight attendances/365 days = 9).
 - Those receiving lifts to hospital from friends/family will utilise parking for the duration of their stay
 - Parents arrival is in line with the arrival profile (Table 6-10)
 - 78% of patients will use a car based mode to attend SRH (using your own car or receiving a lift from friends/family) (Table 6-8).
- 6.38 As can be identified from Table 6-11, assuming all overnight paediatric attendances were to go to SRH for treatment there would be an additional parking demand of seven vehicles overnight. At the highest vehicle capacity derived from SRH Parking Eye data, the maximum number of vehicles parked including additional Paediatric attendances would be 421. This equates to approximately 25% of total capacity available (1,714 total parking spaces).

- 6.39 The number of additional vehicles, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity, especially during the evening / night time period.

Table 6-11: Additional parking demand at SRH - Paediatrics

	Arrival Period					
	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	03:00-04:00	04:00-05:00
Existing parking demand*	420	199	180	150	132	130
Additional parking demand**	1	2	1	1	1	1
Total demand	421	201	181	151	133	131

*Existing parking demand based on worst case parking between hours specified. Drawn from data from Thursday 29th September 2016

**Additional parking demand generated by paediatrics patients attending SRH rather than STDH.

Option 2 – Development of a nurse led minor injury or illness service open 08:00 - 22:00

- 6.40 This section reviews the findings of the Paediatric patient travel survey, conducted at South Tyneside District Hospital (STDH) between 20th and 28th February 2017, with a total of 121 parents and guardians of patients responding to the survey. 41 respondents specified that they were attending the Children's Day Unit. As this is foreseen to not be moving to SRH under Clinical Service review plans, these results have been excluded from analysis. A further 40 respondents did not specify the ward/specialty they were attending, and have therefore been assumed to be attending the Emergency Care Centre (ECC). Therefore there are a total of 80 responses relating to Paediatric Emergency Care services at STDH.
- 6.41 This option involves the development of a nurse-led paediatric minor injury or illness service at STFT that would operate between 8am and 10pm (doors closing at 8pm to allow children to be treated and discharged). All 80 responses have been analysed for the consideration of this option.

Residence of patients

- 6.42 80 parents/guardians of patients responded to the Paediatrics travel survey. Of these, 96% (n=77) stated that they currently live in South Tyneside, and 4% (n=3) stated that they current live in Sunderland. This is shown in Table 6-12 below.

Table 6-12: Residences of patients at Paediatrics at STDH

Patient Residence	Number	%
South Tyneside	77	96%
Sunderland	3	4%
Total	80	100%

Source: ITP Survey, February 2017

Modal share of patients

- 6.43 The following tables show the modal share for patients attending Paediatrics at STDH between 08:00 and 20:00, and their likely modal share if they had to attend SRH. A number of respondents in each question gave more than one mode of travel in their response. These have been divided according to the number of modes of travel specified² to provide an accurate modal share, and to help establish likely parking usage.
- 6.44 Table 6-13 shows the modal share of patients travelling to Paediatrics at STDH. One respondent did not answer this question, and has been excluded. As can be observed, the most commonly used mode is using your own car, representing 59% (n=32) of trips from South Tyneside and 67% (n=2) from Sunderland. This is followed by lifts received by family or friends with 26% (n=14) of trips from South Tyneside being made in this way. Additionally, it is important to note that bus use contributes to 6% (n=3) of total trips from South Tyneside, whilst walking accounts for 4% (n=2) of trips from South Tyneside.

Table 6-13: Modal share of patients arriving to Paediatrics at STDH (08:00 – 20:00)

Mode of travel	South Tyneside		Sunderland		Total	
	Number	%	Number	%	Number	%
Using your own car	32	59%	2	67%	34	60%
Given a lift by friends/family	14	26%	0	0%	14	25%

² For example, if a respondent stated they would use bus or metro. This response would be divided by 2.

Mode of travel	South Tyneside		Sunderland		Total	
Bus	3	6%	0	0%	3	5%
Taxi	2	4%	1	33%	3	5%
Walk	2	4%	0	0%	2	4%
Ambulance	1	2%	0	0%	1	2%
Total	54	101%*	3	100%	57	101%*

6.45 Source: ITP Survey, February 2017 Table 6-14 shows the stated modal share for trips from Paediatrics at STDH to the patient's residence. As expected, the modal share is similar to that in Table 6-13. However, an increase is seen in taxi trips, accounting for 9% (n=5) of all indicative return trips.

Table 6-14: Planned modal share for patients departing Paediatrics at STDH (08:00 – 20:00)

Mode of travel	South Tyneside		Sunderland		Total	
Using your own car	32	58%	2	67%	34	59%
Catch a lift with friends/ family	14	25%	0	0%	14	24%
Taxi	4	7%	1	33%	5	9%
Bus	3	5%	0	0%	3	5%
Walk	2	4%	0	0%	2	3%
Total	55	99%*	3	100%	58	100%

Source: ITP Survey, February 2017

*due to rounding

6.46 Following these questions, respondents were also asked how they would have travelled if they were required to attend SRH for Paediatric services. The results are outlined in Table 6-15. The most commonly stated mode of travel is using your own car (62%, n=36), followed by lift obtained from family or friends (19%, n=11) and bus use (9%, n=5). Taxi and metro use meanwhile account for 8% of potential trips (n=5), while other modes account for 2% (n=1).

Table 6-15: Indicative modal share for patients attending Paediatrics at SRH (08:00 – 20:00)

Mode of travel	South Tyneside		Sunderland		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
Using your own car	34	62%	2	67%	36	62%
Obtain a lift from friends/family	11	21%	0	0%	11	19%
Bus	5	9%	0	0%	5	9%
Taxi	3	5%	1	33%	4	6%
Metro	1	2%	0	0%	1	2%
Other	1	2%	0	0%	1	2%
Total	55	101%*	3	100%	58	100%

Source: ITP Survey, February 2017 *due to rounding

Journey times

6.47 Table 6-16 shows the journey times for survey respondents. The majority of respondents from South Tyneside stated that their journey to STDH took between 6-10 minutes (44%, n=34) with 67% (n=2) of respondents from Sunderland stating the same journey time. 8% (n=6) of respondents from South Tyneside stated a journey time of between 1-2 minutes, while a further 27% (n=21) of respondents stated a journey time of between 3-5 minutes. Only 3% (n=2) of respondents stated a journey time longer than 21 minutes.

Table 6-16: Journey times of Paediatrics patients to STDH

Journey time	South Tyneside		Sunderland		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
Under 2 minutes	6	8%	0	0%	6	8%
3-5 minutes	21	27%	1	33%	22	28%
6-10 minutes	34	44%	2	67%	36	45%
11-15 minutes	9	12%	0	0%	9	11%
16-20 minutes	5	6%	0	0%	5	6%
21+ minutes	2	3%	0	0%	2	3%

Journey time	South Tyneside		Sunderland		Total	
Total	77	100%	3	100%	80	101%*

Source: ITP Survey, February 2017

*due to rounding

Arrival Profile

6.48 Table 6-17 shows the arrival profile for all Paediatrics patients at STDH. It shows there is an even spread of patient arrivals across the day. However, there are a number of peak times amongst South Tyneside patients, namely 10:01-11:00 (9% of arrivals, n=7), 17:01-18:00 (10%, n=8) and 19:01-20:00 (9% of arrivals, n=7). The quietest periods of the day are between 01:01-03:00, 05:01-06:00 and 07:01-09:00, where there are zero arrivals (not shown in Table 6-17).

Table 6-17: Arrival profile of all Paediatrics patients at STDH

Arrival time (hour)*	South Tyneside		Sunderland		Total	
00:00 - 01:00	1	1%	0	0%	1	1%
03:01 - 04:00	2	3%	0	0%	2	3%
04:01 - 05:00	4	5%	0	0%	4	5%
06:01 - 07:00	1	1%	0	0%	1	1%
09:01 - 10:00	5	6%	0	0%	5	6%
10:01 - 11:00	7	9%	1	33%	8	10%
11:01 - 12:00	4	5%	0	0%	4	5%
12:01 - 13:00	5	6%	1	33%	6	8%
13:01 - 14:00	6	8%	0	0%	6	8%
14:01 - 15:00	4	5%	0	0%	4	5%
15:01 - 16:00	2	3%	0	0%	2	3%
16:01 - 17:00	2	3%	0	0%	2	3%
17:01 - 18:00	8	10%	1	33%	9	11%
18:01 - 19:00	5	6%	0	0%	5	6%
19:01 - 20:00	7	9%	0	0%	7	9%
20:01 - 21:00	4	5%	0	0%	4	5%
21:01 - 22:00	5	6%	0	0%	5	6%
22:01 - 23:00	3	4%	0	0%	3	4%
23:01 - 00:00	2	3%	0	0%	2	3%
Total	77	98%**	3	99%**	80	102%**

Source: ITP Survey, February 2017

*A number of time periods have been removed due to zero numbers of arrivals.

**due to rounding

Car and Van Ownership

6.49 Table 6-18 shows the car/van ownership by households of paediatric patients. For patients currently living in South Tyneside, 38% (n=29) of households own two cars/vans, 35% (n=27) own one car/van, 23% (n=18) do not own a car/van, 3% (n=2) own 3 cars/vans, and 1% (n=1) own 4 or more cars/vans. For patients currently living in Sunderland, 33% (n=1) own 2 cars/vans, 33% (n=1) own 3 cars/vans, and a further 33% (n=1) do not own a car/van.

Table 6-18: Cars/vans owned by households of paediatric patients

Number of cars/ vans owned	South Tyneside		Sunderland		Total	
0	18	23%	1	33%	19	24%
1	27	35%	0	0%	27	34%
2	29	38%	1	33%	30	38%
3	2	3%	1	33%	3	4%
4	1	1%	0	0%	1	1%
Total	77	100%	3	99%*	80	101%*

Source: ITP Survey, February 2017

*due to rounding

Potential impact on parking

- 6.50 One of the impacts of transferring clinical services between hospitals will be changes in parking demand. In the case of Paediatrics, the effect will be an increase in the demand for parking at SRH arising from South Tyneside residents who would previously have attended the Emergency Care Centre at STDH.
- 6.51 It has been assumed that 60% of current Paediatric ED attendances can be addressed at the nurse-led minor injury and illness service therefore 40% of Paediatric attendances will transfer to SRH between 08:00 and 20:00.
- 6.52 Further to the above, the following additional assumptions have also been made in order to determine potential parking impact at SRH. Again, the modelled parking scenarios are

based on the annual number of attendances to STDH Paediatric ED in the 2015/2016 financial year to ensure that the modelling of the additional parking demand is accurate.

- 11,926 yearly attendances currently attend STDH Paediatric ED between 08:00 and 20:00 (total number of AE attendances in 2015/16 was 15,380).
- 40%, equal to 4,771 attendances, of attendances are expected to travel to SRH for Paediatric ED treatment that cannot be addressed at the nurse-led minor injury or illness service at STDH
- 13 daily attendances between 08:00 – 20:00 (4,771 / 365 days)
- Those receiving lifts to hospital from friends/family will utilise parking for the duration of their stay
- 83% of patients will use a car based mode to attend hospital between 08:00-20:00 (Using your own car or receiving a lift from friends/family) (Table 6-15).

6.53 , As show in Table 6-19 assuming 40% of paediatric attendances were to go to SRH for treatment there would be an additional parking demand of ten vehicles per day (rounded). At the highest vehicle demand derived from SRH Parking Eye data, the maximum number of vehicles parked including additional paediatrics patients would be 1,560. This equates to approximately 91% of total capacity available (1,714 total parking spaces).

Table 6-19: Additional parking demand at SRH - Paediatrics (08:00 - 20:00)

	Arrival Period								
	09:01 – 10:00	10:01 – 11:00	11:01 – 12:00	12:01 – 13:00	13:01 – 14:00	14:01 – 15:00	17:01 – 18:00	18:01 – 19:00	19:01 – 20:00
Existing parking demand*	1,398	1,422	1,408	1,403	1,519	1,559	854	561	545
Additional parking demand**	1	1	1	1	1	1	2	1	1
Total demand	1,399	1,423	1,409	1,404	1,520	1,560	856	562	546

*Existing parking demand based on worst case parking between hours specified. Drawn from data from Thursday 29th September 2016.

**Additional parking demand generated by paediatrics patients attending SRH rather than STDH (presumed to be 40% of attendances).

- 6.54 The number of additional visitor vehicles, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity.
- 6.55 In addition to the above scenarios, it is also important to recognise those trying to access Paediatric ED services between 20:00-08:00 will have to travel to SRH, due to the opening hours of the nurse-led paediatric minor injury or illness service being 08:00-20:00. In light of this, the parking demand from option 1 is also relevant for option 2 as well.
- 6.56 As shown in Table 6-20, assuming all overnight paediatric attendances were to go to SRH for treatment there would be an additional parking demand of seven vehicles per day. At the highest vehicle demand derived from SRH Parking Eye data, the maximum number of vehicles parked including additional paediatric patients would be 421. This equates to approximately 25% of total capacity available (1,714 total parking spaces).

Table 6-20: Additional parking demand at SRH overnight - Paediatrics

	Arrival Period					
	20:00-21:00	21:00-22:00	22:00-23:00	23:00-00:00	03:00-04:00	04:00-05:00
Existing parking demand*	420	199	180	150	132	130
Additional parking demand**	1	2	1	1	1	1
Total demand	421	201	181	151	133	131

*Existing parking demand based on worst case parking between hours specified. Drawn from data from Thursday 29th September 2016.

**Additional parking demand generated by paediatrics patients attending SRH rather than STDH.

Key findings

- 6.57 South Tyneside parents who currently take their child to STDH Paediatric ED will be affected, particularly between the hours of 20:00 and 08:00 the following day when no Paediatric ED or nurse-led minor injury or illness service will be available at STDH.

- 6.58 The analysis of the postcodes of previous Paediatric patients living in South Tyneside and treated at STDH shows that the public transport journey time to SRH (instead of STDH) during the 14:00 to 16:00 time period increases by 18 minutes (24 minute average journey time to STDH compared to 42 minute average journey time to SRH). During the 19:00 to 21:00 time period, the public transport journey time increases by 23 minutes (25 minute average journey time to STDH compared to 48 minute average journey time to SRH).
- 6.59 Journeys by car to SRH, instead of STDH between 14:00 -16:00, will take 11 minutes longer (average 8 minute journey to STDH compared to an average 19 minute journey to SRH). Between 17:00 - 19:00 the journey will take 10 minutes longer to SRH (average 9 minute journey time to STDH and an average journey time of 19 minutes to SRH). For the time period 00:00 – 02:00 journey times to SRH increase by 8 minutes (average journey time to STDH 6 minutes compared to 14 minutes to SRH).
- 6.60 The Parent / Guardian Travel Survey results have been very useful to assist in understanding travel patterns to the STDH Paediatric ED and responses have been utilised to understand the travel and transport impacts arising from both Service proposals.

Option 1 – Provision of a seven-day, 12 hour (8am to 8pm) paediatric ED and CSSAU at STDH

- 6.61 The travel survey has captured how South Tyneside parents / guardians currently travel to the STDH Paediatric ED and shows that 68% use their own car, 18% are given a lift by friends / family and 9% travel by taxi. The modal share for departing Paediatric ED is very similar to these figures.
- 6.62 60% of respondents stated that they would travel to SRH Paediatric ED using their own car, 18% would obtain a lift from friends / family, 12% would take the bus, 5% would use a taxi and a further 5% would use the Metro.
- 6.63 The potential parking demand arising from South Tyneside Paediatric ED presentations needing to travel to SRH is shown below:
- Overnight (between 20:00 and 08:00), the forecast additional parking demand is seven vehicles spread over the night time period, but there is significant spare capacity at this time of day.

Option 2 – Development of a nurse-led minor injury or illness service open 08:00 - 22:00

- 6.64 The travel survey has captured how South Tyneside parents / guardians currently travel to the STDH Paediatric ED between 08:00 and 20:00 and shows that 59% use their own car, 26% are given a lift by friends / family, 4% travel by taxi, 6% catch the bus and 4% walk. The modal share for departing Paediatric ED by South Tyneside parents / guardians is very similar to these figures with a slight increase in taxi use at 7%.
- 6.65 62% of South Tyneside respondents stated that they would travel to SRH Paediatric ED using their own car, 21% would obtain a lift from friends / family, 9% would take the bus, 5% would use a taxi and a further 2% would use the Metro.
- 6.66 It is assumed that 60% of presentations at the current STDH Paediatric ED can be attended to at a nurse-led walk in centre, whilst 40% of presentations require ED treatment and will need to go to SRH. Therefore, the potential parking demand arising from South Tyneside Paediatric ED presentations needing to travel to SRH is shown below:
- Between 08:00 and 20:00, the forecast additional parking demand is ten vehicles, spread across the day and early evening time period.
 - Between 20:00 and 08:00, the forecast additional parking demand is seven vehicles spread over the night time period.
 - Therefore a total of 17 additional vehicles will park at SRH over a 24 hour period.

7. Maternity and Gynaecology service models across South Tyneside and City Hospitals Sunderland Foundation Trusts

- 7.1 There are approximately 4,500 birth across South Tyneside and Sunderland per year, 1,300 at STDH and 3,200 at SRH.
- 7.2 At STDH, Maternity services are provided in a traditional Maternity facility; the Delivery Suite was refurbished in 2003 and comprises nine rooms including one birthing pool room and a dedicated obstetric theatre. A separate Tier 1 SCBU is located adjacent to the Maternity Unit. Gynaecology services at STDH currently include Gynaecology outpatients, a Surgical Ward and Surgical Centre.
- 7.3 At SRH, Maternity services are primarily delivered from a purpose built Maternity Unit that opened in 2000. The Delivery Suite has 20 labour, delivery, recovery and postnatal rooms which are single en-suite rooms. There is also a water birth facility for patients that have experienced uncomplicated pregnancies and a dedicated maternity theatre with a second theatre for emergency use, also within the unit. A separate Tier 3 Neonatal Unit is located adjacent to the Maternity Unit. Gynaecology services at SRH include Gynaecology Outpatients, Gynaecology Ward, and a Fertility Service.
- 7.4 The Clinical Service Review for Maternity services proposes two possible solutions:
- Option 1
 - Retaining a consultant-led maternity unit at Sunderland Royal Hospital and continuing to provide alongside midwifery-led care for low risk births
 - Developing a free-standing midwifery-led unit at South Tyneside District Hospital for low risk births
 - The provision of community midwifery care, including all community antenatal and postnatal care will remain unchanged
 - Providing inpatient gynaecology surgery from Sunderland Royal Hospital while continuing to provide day-case operations at both South Tyneside District and Sunderland Royal Hospitals
 - Single special care baby unit at Sunderland Royal Hospital

- Option 2
 - Retaining a consultant-led maternity unit at Sunderland Royal Hospital and continuing to provide alongside midwifery-led care for low risk births
 - The provision of community midwifery care, including all community antenatal and postnatal care will remain unchanged
 - Providing inpatient gynaecology surgery from Sunderland Royal Hospital while continuing to provide day-case operations and outpatients consultations at both South Tyneside District and Sunderland Royal Hospitals
 - Single special care baby unit at Sunderland Royal Hospital
- 7.5 Essentially, in terms of Maternity services, all South Tyneside high risk births would be delivered at SRH, whilst South Tyneside low risk births would continue to be catered for at STDH.
- 7.6 The Clinical Service review notes that it is expected that 40% of South Tyneside pregnant women will elect to access birthing facilities at Newcastle or Gateshead, rather than access SRH, therefore the projected figures for the likely scenario going forward exclude these 40% of births, which is equivalent to 520 births leaving 780 births by South Tyneside mothers that will be transferred to SRH in the case of Option 2.
- 7.7 As alluded to above, the main population affected will be South Tyneside females and their families who wish to visit them after giving birth. If their birth is deemed to be of high risk, the facilities available across South Tyneside and Sunderland will mean that they will be required to travel to SRH to deliver their baby.
- 7.8 In the case of Option 1, it is expected that of the 4,500 births each year, 3,660 will be at SRH, 320 will take place at STDH and 520 births will transfer to either Newcastle or Gateshead.
- 7.9 In the case of Option 2, it is expected that 3,980 births will take place at SRH and 520 will transfer to either Newcastle or Gateshead.
- 7.10 For the purposes of clarity, Sunderland residents will not be affected by the proposals for Maternity or Gynaecology services. South Tyneside residents due to undergo an inpatient Gynaecology procedure will be required to travel to SRH instead of STDH as is the case currently.

8. Travel and Transport Impact Assessment of Maternity Clinical Service Review

- 8.1 This chapter examines and assesses the transport and travel impacts resulting from the review of Maternity services, and reviews accessibility statistics and data that is relevant to these services. This chapter also presents the results from a travel survey undertaken amongst Maternity patients and Maternity visitors at STDH and the potential impacts upon car parking demand and costs to South Tyneside residents, predominantly.

Information sources for assessing the Travel and Transport Impact

- 8.2 In addition to the Accessibility statistics presented in Chapter 2, a number of additional data sources and further data collection have been utilised to assess the impacts of the proposals for Maternity services at South Tyneside District Hospital, as listed below:
- Postcode data of Maternity patients admitted to STDH during the 2015/16 financial year and the 2016/17 financial year up to the end of October 2016
 - Findings from Maternity patient and Maternity visitor travel surveys undertaken between 10th February 2017 and 28th February 2017 at STDH. It should be noted that this provides just a snapshot of information, that sample size is relatively small, and that responses have been taken at face value even where they may appear counter-intuitive. Appropriate caution should therefore be taken with the results.
 - Data from the Clinical Service Review Paper pertaining to the number of births in the South Tyneside and Sunderland and likely outcomes as to where women will choose to give birth.
- 8.3 A number of assumptions have been applied to various areas of assessment and these assumptions are noted throughout this report in the appropriate sections.
- 8.4 A staff travel survey amongst the clinical staff working in maternity / gynaecology services at both STDH and SRH is currently underway. The staff travel survey will examine how staff travel to work now and how they would travel in the future, should their place of work change. The results will assist in informing the potential parking

impact at the relevant hospital sites, and the trusts and commissioning officer will have this information prior to decision making.

- 8.5 The Obstetrics Clinical Service Review Report notes that over the last few years the average figures for births in the area are 1,300 births at STDH and 3,200 births at SRH.

Accessibility analysis for previous patient postcodes to and from STDH

- 8.6 To target the wider accessibility analysis further, STFT has provided the postcodes of Maternity patients who gave birth at STDH during the 2015/16 year and the 2016/17 financial year up to the end of October. This dataset has been used to understand the accessibility of these patients and their visitors to / from the hospital. The analysis assumes that visitors and patients live at the same postcode and have travelled to STDH from their home location. A total of 1,276 postcodes have been mapped.
- 8.7 Table 8-1 below shows the number of separate postcodes that fall within each 10 minute journey time band when accessing STDH between 14:00 and 16:00. 70% of the postcodes fall within a 30 minute public transport journey, compared to 24% on foot and 100% by car. 87% of the postcodes fall within a 60 minute public transport journey and 66% fall within a 60 minute walk.
- 8.8 The average journey times are around 8 minutes by car, 22 minutes by public transport and 45 minutes on foot.
- 8.9 Table 8-2 shows the number of separate postcodes that fall within each 10 minute journey time band when travelling away from STDH between 19:00 and 21:00. 64% of the postcodes fall within a 30 minute public transport journey, compared to 24% on foot and 100% by car. 86% of the postcodes fall within a 60 minute public transport journey and 66% fall within a 60 minute walk.
- 8.10 The average journey times are 7 minutes by car, 23 minutes by public transport and 45 minutes on foot.

Table 8-1: Accessibility of South Tyneside Maternity patient postcodes to STDH (14:00 - 16:00)

Travel Time (mins)	Number and percentage of South Tyneside Maternity patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	35	3%	901	70%	15	1%
11 - 20	474	37%	372	30%	96	8%
21 - 30	389	30%	1	0%	195	15%
31 - 40	218	17%	-	-	328	26%
41 - 50	-	-	-	-	134	11%
51 - 60	-	-	-	-	73	6%
61 - 70	-	-	-	-	138	11%
71 - 80	-	-	-	-	135	11%
81 - 90	-	-	-	-	65	5%
Average¹	22 mins		8 mins		45 mins	
91mins +	160	13%	2	0%	98	8%
< 30 mins	898	70%	1274	100%	306	24%
< 60 mins	1116	87%	1274	100%	841	66%
< 90 mins	1116	87%	1274	100%	1178	92%
Total	1276	100%	1276	100%	1276	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

Table 8-2: Accessibility of South Tyneside Maternity patient postcodes away from STDH (19:00 - 21:00)

Travel Time (mins)	Number and percentage of South Tyneside Maternity patient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	59	5%	1089	85%	15	1%
11 - 20	429	34%	185	15%	96	8%
21 - 30	334	26%	-	-	195	15%
31 - 40	214	17%	-	-	328	26%
41 - 50	62	5%	-	-	134	11%
51 - 60	3	0%	-	-	73	6%
61 - 70	-	-	-	-	138	11%
71 - 80	-	-	-	-	135	11%
81 - 90	-	-	-	-	65	5%
Average¹	23 mins		7 mins		45 mins	
91mins +	175	14	2	0%	98	8%
< 30 mins	822	64%	1274	100%	306	24%
< 60 mins	1101	86%	1274	100%	841	66%
< 90 mins	1101	86%	1274	100%	1178	92%
Total	1276	100%	1276	100%	1276	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Accessibility analysis for previous patient postcodes to and from SRH

- 8.11 To present further comparative accessibility analysis, the Maternity postcode dataset has been used to understand the accessibility of these patients to / from SRH. Journey times for walking have not been assessed.
- 8.12 Table 8-3 shows the number of separate postcodes that fall within each 10 minute journey time band when accessing SRH between 14:00 and 16:00. 2% of the postcodes fall within a 30 minute public transport journey, compared to 100% by car. 85% of the postcodes fall within a 60 minute public transport journey. The average journey time by public transport is 43 minutes and 19 minutes by car.
- 8.13 Table 8-4 below shows the number of separate postcodes that fall within each 10 minute journey time band when travelling away from SRH between 19:00 and 21:00. 2% of the postcodes fall within a 30 minute public transport journey, compared to 100% by car. 73% of the postcodes fall within a 60 minute public transport journey. The average journey time by public transport is 48 minutes and 16 minutes by car.

Table 8-3: Accessibility amongst South Tyneside Maternity patient postcodes to SRH (14:00 - 16:00)

Travel Time (mins)	Number and percentage of South Tyneside Maternity patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	1	0%	1	0%
11 - 20	0	0%	756	60%
21 - 30	27	2%	517	40%
31 - 40	366	29%	-	-
41 - 50	539	42%	-	-
51 - 60	157	12%	-	-
61 - 70	26	2%	-	-
71 - 80	-	-	-	-
81 - 90	-	-	-	-
Average ¹	43 mins		19 mins	
91mins +	160	13	2	0%
< 30 mins	28	2%	1274	100%
< 60 mins	1090	85%	1274	100%
< 90 mins	1116	87%	1274	100%
Total	1276	100%	1276	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop. Plot included at Appendix A.

Table 8-4: Accessibility amongst South Tyneside Maternity patient postcodes away from SRH (19:00 - 21:00)

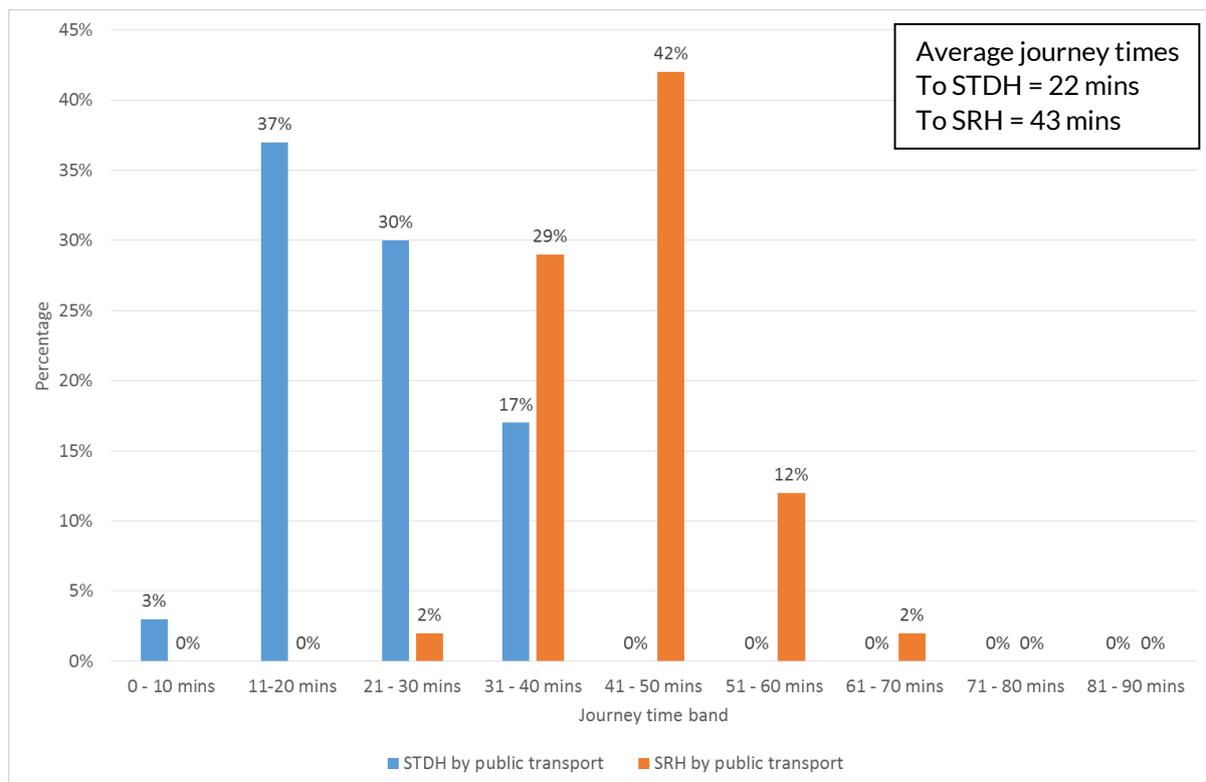
Travel Time (mins)	Number and percentage of South Tyneside Maternity patient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	1	0%	2	0%
11 - 20	0	0%	1189	93%
21 - 30	22	2%	83	7%
31 - 40	233	18%	-	-
41 - 50	466	37%	-	-
51 - 60	214	17%	-	-
61 - 70	76	6%	-	-
71 - 80	65	5%	-	-
81 - 90	19	1%	-	-
Average ¹	48 mins		16 mins	
91mins +	180	14%	2	0%
< 30 mins	23	2%	1274	100%
< 60 mins	936	73%	1274	100%
< 90 mins	1096	86%	1274	100%
Total	1276	100%	1276	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop

Accessibility amongst previous Maternity patients to STDH and SRH

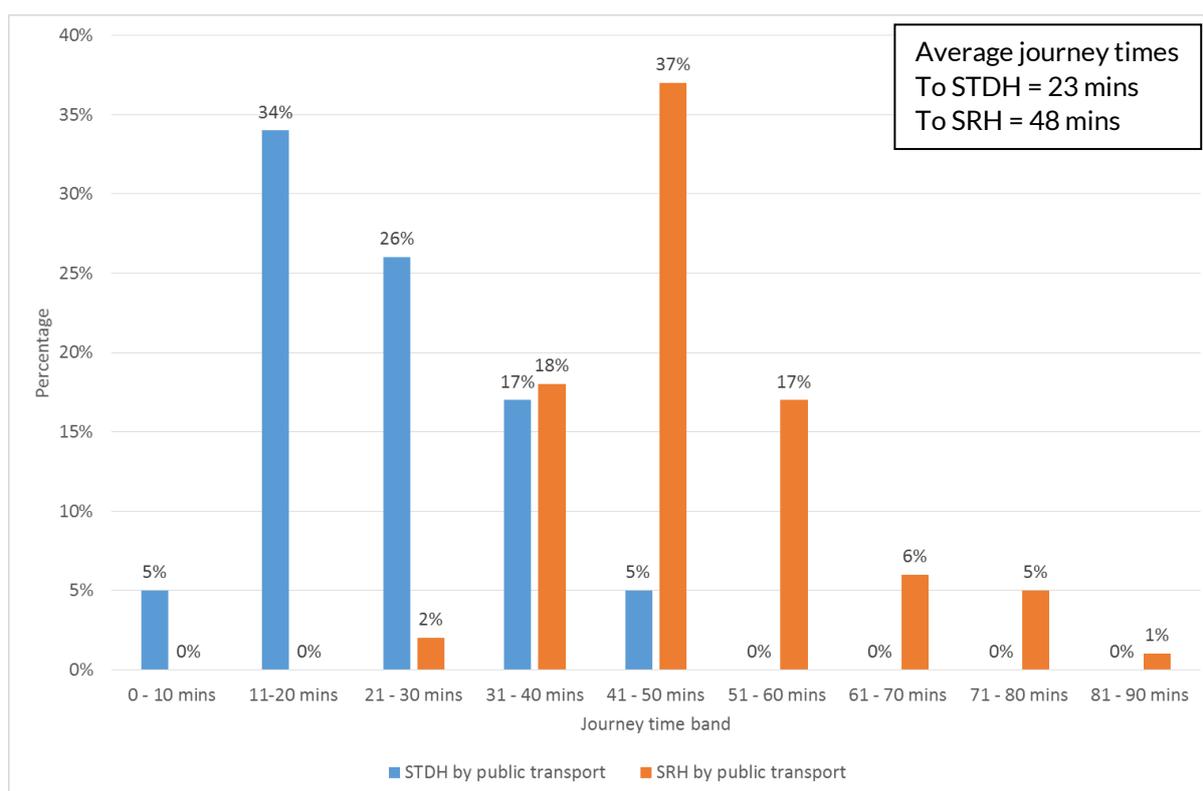
- 8.14 Figure 8-1 below shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals between 14:00 and 16:00 and illustrates the difference in accessibility of these postcodes to both hospitals by public transport.
- 8.15 At present, 37% of the separate postcodes are within 11 and 20 minutes journey time of STDH and a further 30% are within 21 and 30 minutes. Travelling to SRH for Maternity services means that 29% of the separate postcodes will be within 31 and 40 minutes journey time and a further 42% will be within 41 and 50 minutes journey time. The average journey time increases by 21 minutes.

Figure 8-1: Accessibility of South Tyneside Maternity patient postcodes to STDH and SRH (14:00 - 16:00)



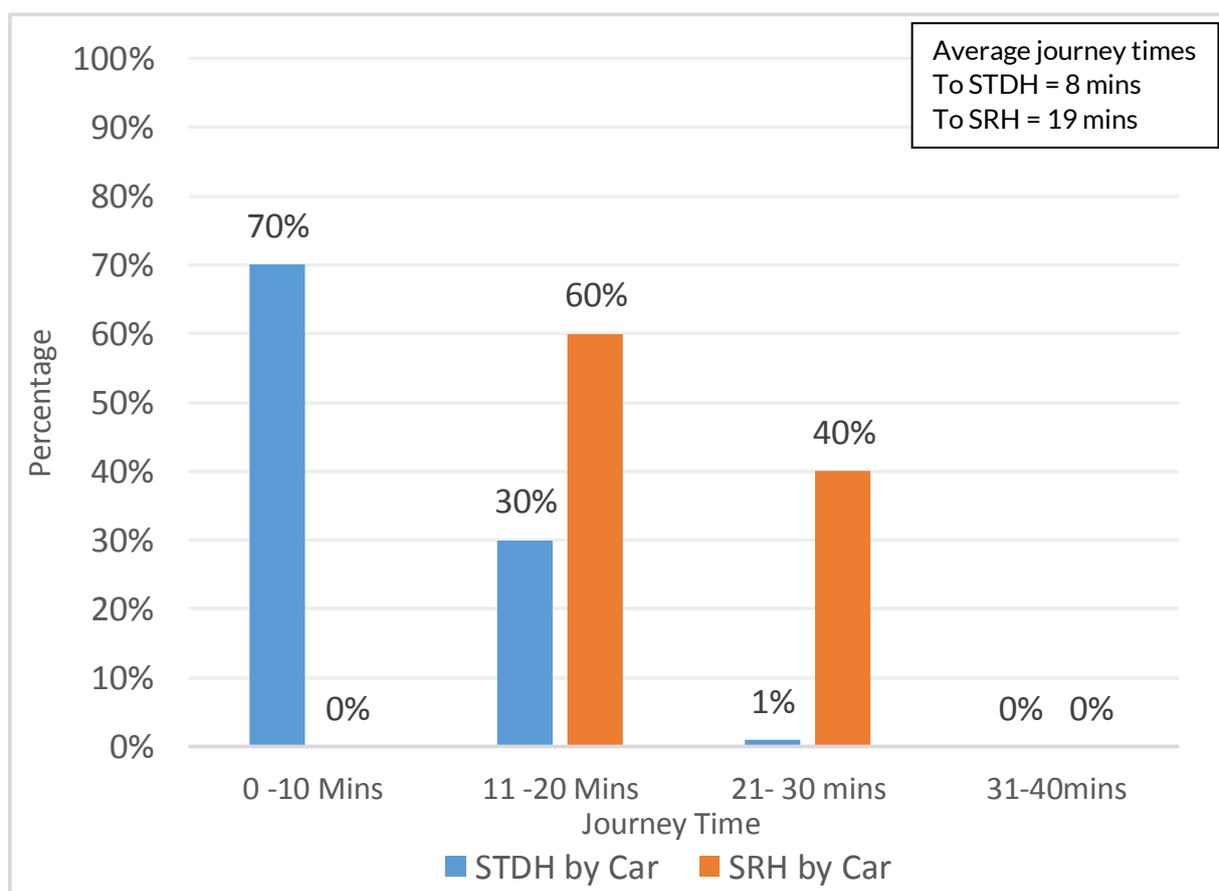
- 8.16 Figure 8-2 shows the proportion of separate postcodes that fall within each 10 minute journey time band when travelling away from the hospitals between 19:00 and 21:00 and illustrated the difference in accessibility of these postcodes to both hospitals by public transport.
- 8.17 At present, 34% of the separate postcodes are within 11 and 20 minutes journey time of STDH and a further 26% are within 21 and 30 minutes. Travelling to SRH for Maternity services means that 18% of the separate postcodes will be within 31 and 40 minutes journey time and a further 37% will be within 41 and 50 minutes journey time.
- 8.18 Using this postcode dataset, Maternity visitors/patients will on the whole experience a longer public transport journey travelling to SRH than if travelling to STDH. The average journey time increases by 25 minutes between travelling away from the hospitals between 19:00 and 21:00.

Figure 8-2: Accessibility of South Tyneside Maternity patient postcodes travelling away from STDH and SRH (19:00 - 21:00)



- 8.19 Figure 8-3 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 14:00 -16:00 and illustrates the difference in accessibility of these postcodes to both hospitals.
- 8.20 Currently, 70% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 30% are between 11 and 20 minutes journey time. Going forward, 0% of the separate postcodes are within 0 and 10 minutes whilst 60% would be within 11 and 20 minutes. The average journey time increases by eleven minutes.

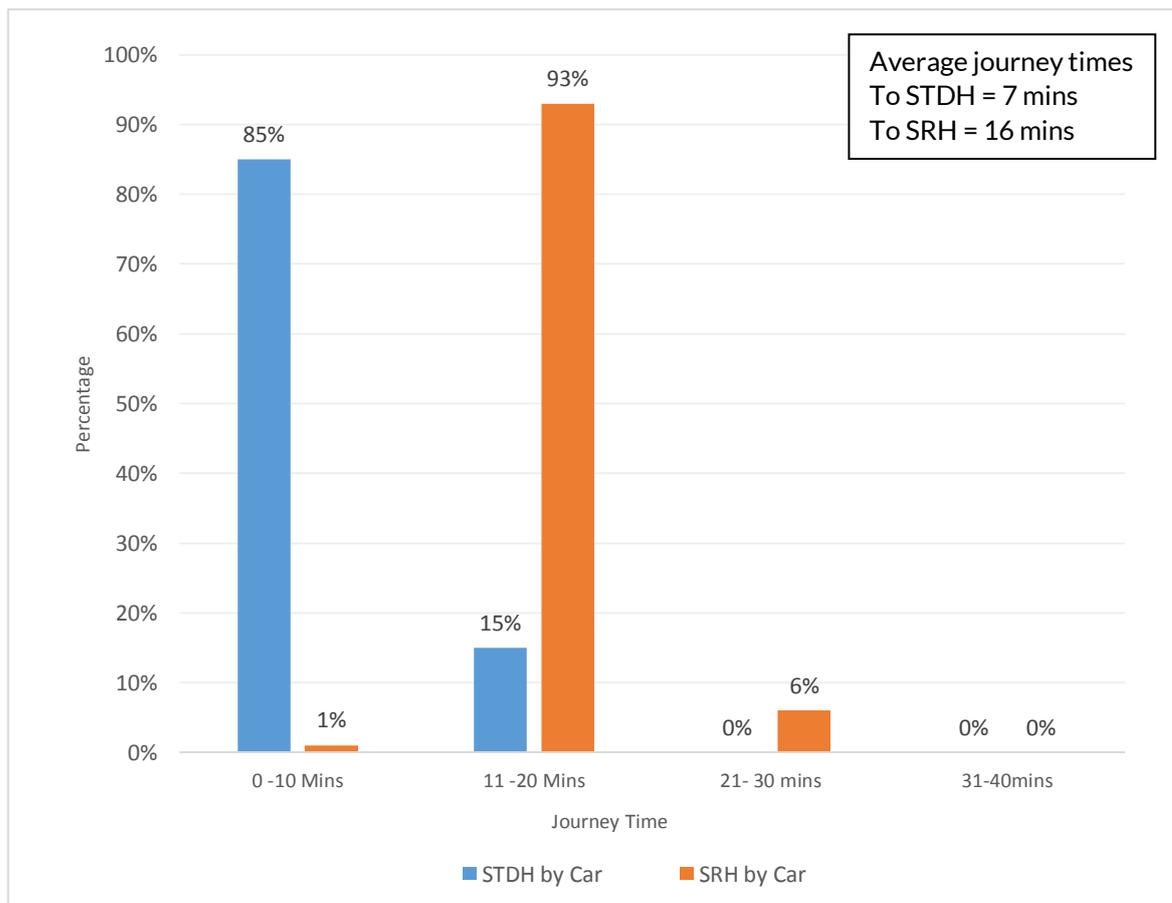
Figure 8-3: Accessibility of South Tyneside Maternity patient postcodes from STDH and SRH by car 14:00 – 16:00



- 8.21 Figure 8-4 shows the proportion of separate postcodes that fall within each 10 minute journey time bands when accessing the hospitals by car between 19:00 -21:00 and illustrates the difference in accessibility of these postcodes to both hospitals.

8.22 Currently, 85% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 15% are between 11 and 20 minutes journey time. Going forward, 1% of the separate postcodes are within 0 and 10 minutes and a further 93% would be within 11 and 20 minutes. Another 6% are within 21 and 30 minutes of STDH. The average journey time increases by 9 minutes.

Figure 8-4: Accessibility of South Tyneside Maternity Patient Postcodes from STDH and SRH by car 19:00 - 21:00



Maternity Travel Survey Results

- 8.23 This section reviews the findings of the Maternity Services visitor and patient travel survey, conducted at South Tyneside District Hospital (STDH) 17th and 27th February 2017, with a total of 35 visitors responding to the survey. In addition, responses from five maternity patients have been analysed alongside the visitor survey. 11 responses from the patient survey have been excluded to eliminate double counting of responses and to provide accurate modal share and parking forecasts. This is due to the fact these responses had identical postcodes and travel patterns to a number of visitors.

Residence of patients

- 8.24 Visitors to maternity services were asked to state the residence of the new mother they were visiting. 97% (n=34) of visitors stated the mother they were visiting currently lived in South Tyneside, while only 3% (n=1) stated that the mother they were visiting lived in Sunderland. Patients were also asked the same question, with 100% (n=5) of respondents stating they currently live in South Tyneside.

Origin of journey

- 8.25 Visitors were also asked to state where they had travelled from to STDH. All visitors (n=34) stated that they had travelled from home. One respondent did not answer this question.

Number of visitors sharing postcode with patient

- 8.26 Table 8-5 shows the number of visitor postcodes which match patient postcodes. This question was specifically asked to understand the profile of visitors, and to obtain evidence regarding the proportion of visitors that live with the patient. These figures exclude the 11 patients who stated an identical postcode and travel pattern to a number of visitors. As can be identified, 13 respondents' (37%) postcodes matched the postcode of the patient they were visiting. 22 respondents' (63%) postcodes did not match the postcode of the patient they were visiting.

Table 8-5: Number of visitor postcodes which match patient postcodes

Postcode Match	Number	%
Yes	13	37%
No	22	63%
Total	35	100%

Source: ITP Survey, February 2017

Modal share of visitors

8.27 Table 8-6 shows the modal share of visitors and patients to Maternity Services at STDH. The most commonly used mode is car with others - 2 other people in car, representing 50% (n=19) of total visitor and patient trips. This is followed by bus use (18%, n=7). Further to this, 14% (n=5) visitor and patient trips are made on foot, 13% (n=5) are as a single occupancy car user, and 10% (n=4) by taxi.

Table 8-6: Modal share of visitors and patients for maternity services at STDH

Mode of travel	Visitors		Patients		Total	
	Number	%	Number	%	Number	%
Car with others	18	54%	1	20%	19	50%
Bus	5	15%	2	40%	7	18%
Car, by yourself	5	15%	0	0%	5	13%
Taxi	4	12%	0	0%	4	10%
Walk	3	10%	2	40%	5	14%
Total	34	100%	5	100%	39	100%

Source: ITP Survey, February 2017

8.28 Table 8-7 shows how patients attending Maternity Services were intending to travel home. 40% (n=2) stated that they were using the bus to return home, whilst 20% (n=1) were using taxi, 20% (n=1) were walking and 20% (n=1) as a car passenger.

Table 8-7: Modal share of patients return journey home from STDH

Mode of travel	Number	%
Bus	2	40%
Taxi	1	20%
Walk	1	20%
Car as a passenger	1	20%
Total	5	100%

Source: ITP Survey, February 2017

8.29 Following these questions, respondents were also asked how they would have travelled if they were required to visit or attend Maternity Services at SRH. The results are outlined in Table 8-8. The most commonly stated mode of travel is using your own car (32%, n=13) and car with others (32%, n=13). This is followed bus use (20%, n=8), metro (4%, n=2), taxi (4%, n=2), metro and bus (3%, n=1), other (3%, n=1) and ambulance (3%, n=1).

Table 8-8: Indicative modal share to maternity services at SRH

Mode of travel	Visitors		Patients		Total	
	Number	%	Number	%	Number	%
Car, by yourself	13	36%	0	0%	13	32%
Car, with others	12	33%	1	20%	13	32%
Bus	6	17%	2	40%	8	20%
Metro	2	5%	0	0%	2	4%
Taxi	2	5%	0	0%	2	4%
Metro and Bus	0	0%	1	20%	1	3%
Other	1	3%	0	0%	1	3%
Ambulance	0	0%	1	20%	1	3%
Total	35	100%	5	100%	40	100%

Source: ITP Survey, February 2017

Journey times

- 8.30 Table 8-9 shows the journey times for visitors and patients for Maternity Services at STDH. The majority of respondents stated that their journey to STDH took between 6-10 minutes (30%, n=12). This is followed by 23% (n=9) of journey times taking between 3-5 minutes, 20% (n=8) taking between 11-15 minutes, 8% (n=3) taking over 41 minutes and 8% (n=3) taking between 31-40 minutes.

Table 8-9: Journey times of visitors and patients to maternity services at STDH

Journey time	Visitors		Patients		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
1-2 minutes	1	3%	0	0%	1	3%
3-5 minutes	9	26%	0	0%	9	23%
6-10 minutes	12	34%	0	0%	12	30%
11-15 minutes	6	17%	2	40%	8	20%
16-20 minutes	1	3%	1	20%	2	5%
21-30 minutes	2	6%	0	0%	2	5%
31-40 minutes	1	3%	2	40%	3	8%
41+ minutes	3	9%	0	0%	3	8%
Total	35	100%	5	100%	40	100%

Source: ITP Survey, February 2017

Visitor Arrival Profile

- 8.31 Table 8-10 shows the arrival profile for maternity services patients and visitors at STDH. 2 respondents did not answer this question, and have therefore been excluded from the analysis. Approximately 21% (n=7) of visitors arrive between 06:00 - 07:00, followed by 15% (n=5) between 18:00-19:00. A further 12% (n=4) of visitors arrived between 05:00-06:00 and 12% (n=4) between 13:00-14:00. For patients, 20% (n=1) arrive between 08:00 - 09:00, 20% (n=1) arrive between 09:00 - 10:00, 20% (n=1) arrive between 10:00 - 11:00 and 40% (n=2) arrive between 16:00 - 17:00.

Table 8-10: Arrival profile of visitors and patients at maternity services (STDH)

Arrival time (hour)	Visitors		Patients		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
03:00 - 04:00	1	3%	0	0%	1	3%
05:00 - 06:00	4	12%	0	0%	4	11%
06:01 - 07:00	7	21%	0	0%	7	18%
07:01 - 08:00	1	3%	0	0%	1	3%
08:01 - 09:00	2	6%	1	20%	3	8%
09:01 - 10:00	3	9%	1	20%	4	11%
10:01 - 11:00	0	0%	1	20%	1	3%
11:01 - 12:00	3	9%	0	0%	3	8%
13:00 - 14:00	4	12%	0	0%	4	11%
14:01 - 15:00	2	6%	0	0%	2	5%
16:00 - 17:00	1	3%	2	40%	3	8%
18:00 - 19:00	5	15%	0	0%	5	13%
Total	33	100%	5	100%	38	100%

Source: ITP Survey, February 2017

Duration of visits

8.32 Table 8-11 shows the duration of visit for those visiting patients in Maternity Services at STDH. 15 respondents did not answer this question, and have therefore been excluded from the analysis. The most common duration of visit is between one and two hours (47%, n=9), followed by four to 24 hours (32%, n=6) and up to one hour (16%, n=3). The least common duration of visit is between two to four hours, with only one respondent (5%) stating this as their duration of visit.

Table 8-11: Visiting duration of visitor respondents

Duration of visit	Number	%
Up to 1 hour	3	16%
1-2 hours	9	47%
2-4 hours	1	5%
4-24 hours	6	32%
Total	19	100%

Source: ITP Survey, February 2017

Visiting frequency

8.33 Table 8-12 shows the visiting frequency of those visiting Maternity Services patients at STDH. Most respondents (55%, n=18) stated that they visited STDH more than once a day, followed by 35% (n=11) of respondents who stated they visited once a day and 10% (n=3) who stated they visited less often.

Table 8-12: Visiting frequency of respondents

Visiting frequency	Number	%
More than once a day	17	55%
Once a day	11	35%
Less often	3	10%
Total	31	100%
Average number of visits per visitor per day	1.5	

Source: ITP Survey, February 2017

Potential impact on parking

Option 1

Option 1 involves the transfer of high risk births from STDH to SRH. Using the data contained within the Obstetrics and Gynaecology service review report (2016), it can be identified that approximately 460 high risk births will transfer to SRH under Option 1.

8.34 Table 8-13 shows the worst case scenarios for parking at SRH, using the above visitor survey data, and patient data from the Clinical Service Review Report (2016). The following assumptions have been taken in order to produce these figures and the modelled parking scenarios are based on the forecast number of high risk births at STDH, as detailed in the Service Review Report.

- Median stay of patient - two days
- Average of one patient admission per day (based on approximately 460 high risk births per year at STDH)
- Those arriving as a passenger of a car will be parked for a proportion/full duration of their visit
- 69% of visitors arriving by car (Table 8-8)
- Average number of visits per visitor per day (weighted by proportions of visiting frequency) - 1.5 (Table 8-12)
- All additional cars are likely to be parked at the same time, based on the length of stay data in Table 8-11. Therefore, there will be low or no turnover in parking.

8.35 In lieu of any information pertaining to the average number of visitors that each Maternity patient receives, assumptions have been made and additional parking demands have been modelled in line with these assumptions. Assuming three separate visitors visit a patient across the course of the day, the number of visitor vehicles generated by maternity services would be 4. From SRH Parking Eye data, the existing maximum number of vehicles parked is 1,542, between 13:00 and 14:00. With the additional maternity services visitors, this would rise to 1,543. This equates to approximately 90% of total capacity available (1,714 total parking spaces).

8.36 The number of additional vehicles, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity, particularly as they will be spread over the course of the day.

It is also understood that there will be a negligible minority of patients who will elect to drive themselves to hospital. Due to the low numbers of daily admissions, this is not foreseen to have a significant impact on existing levels of traffic in the SRH area or wider vicinity.

Table 8-13: Additional parking demand at SRH - maternity service visitors (option 1)

	05:00 - 06:00	06:01 - 07:00	13:00 - 14:00	18:00 - 19:00
Existing parking demand*	129	199	1542	595
Additional parking demand (1 visitor)**	0	1	0	0
Total demand (1 visitor)	129	200	1542	595
Additional parking demand (2 visitors)**	1	1	0	1
Total demand (2 visitors)	130	200	1542	596
Additional parking demand (3 visitors)**	1	1	1	1
Total demand (3 visitors)	130	200	1543	596

* Existing parking demand based on worst case parking between hours specified. Drawn from data from Thursday 29th September 2016.

** Assumed number of visitors per patient. Additional parking demand generated by visitors to maternity visitors attending SRH rather than STDH.

Option 2

8.37 Option 2 involves the transfer of all births from STDH to SRH. Using the data contained within the Obstetrics and Gynaecology service review report (2016), it can be identified that approximately 780 births would transfer to SRH under Option 2. Table 8-14 shows the worst case scenarios for parking at SRH, using the above visitor survey data, and patient data from the Clinical Service Review Report (2016). The following assumptions

have been taken in order to produce these figures and the modelled parking scenarios are based on the forecast number of births that are due to transfer from STDH to SRH.

- Median stay of patient - two days
- Average of 2 patient admissions per day (based on approximately 780 births being transferred to SRH)
- Those arriving as a passenger of a car will be parked for a proportion/full duration of their visit
- 69% of visitors arriving by car (Table 8-8)
- Average number of visits per visitor per day (weighted by proportions of visiting frequency) - 1.5 (Table 8-12)
- All additional cars are likely to be parked at the same time, based on the length of stay data in Table 8-11. Therefore, there will be low or no turnover in parking.

8.38 In lieu of any information pertaining to the average number of visitors that each Maternity patient receives, assumptions have been made and additional parking demands have been modelled in line with these assumptions. Assuming three separate visitors visit a patient across the course of the day, the number of visitor vehicles generated by maternity services would be 7. From SRH Parking Eye data, the existing maximum number of vehicles parked at any one time is 1,542. With the additional maternity services visitors, this would rise to 1,543. This equates to approximately 90% of total capacity available (1,714 total parking spaces).

8.39 The number of additional vehicles, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity, particularly as the vehicles will arrive over the course of the day.

8.40 It is also understood that there will be a negligible minority of patients who will elect to drive themselves to hospital. Due to the low numbers of daily admissions, this is not foreseen to have a significant impact on existing levels of traffic in the SRH area or wider vicinity.

Table 8-14: Additional parking demand at SRH - maternity service visitors (option 2)

	05:00 - 06:00	06:01 - 07:00	08:01 - 09:00	09:01 - 10:00	11:01 - 12:00	13:00 - 14:00	18:00 - 19:00
Existing parking demand*	129	199	1217	1444	1486	1542	595
Additional parking demand (1 visitor)**	0	1	0	0	0	0	1
Total demand (1 visitor)	129	200	1217	1444	1486	1542	596
Additional parking demand (2 visitors)**	1	1	0	0	0	1	1
Total demand (2 visitors)	130	200	1217	1444	1486	1543	596
Additional parking demand (3 visitors)**	1	1	1	1	1	1	1
Total demand (3 visitors)	130	200	1218	1445	1487	1543	596

* Existing parking demand based on worst case parking between hours specified. Drawn from data from Thursday 29th September 2016.

** Assumed number of visitors per patient. Additional parking demand generated by visitors to maternity visitors attending SRH rather than STDH.

Parking costs

8.41 Table 8-15 below shows the difference in parking costs incurred for the median length of stay for maternity patients at each hospital. For visits between 0-4 hours, the cost of parking is similar at SRH in comparison to STDH. However, for visits over 4 hours, the cost of parking would be an extra £3 per day, or an extra £6 over the median stay of the patient (two days).

Table 8-15: Comparison of parking costs incurred at both hospitals assuming visiting a maternity patient once a day

Duration of visit	Cost of parking at STDH	Cost over 2 days	Cost of parking at SRH	Cost over 2 days
Up to 1 hour	£1.50	£3.00	£2.00	£4.00
1-2 hours	£3.00	£6.00	£3.00	£6.00
2-4 hours	£4.50	£9.00	£4.50	£9.00
4-24 hours	£5.00	£10.00	£8.00	£16.00

8.42 The provision of a single SCBU at SRH means that the South Tyneside parents of babies being treated in the SCBU will need to travel to SRH for a longer period of time. Data shows that during 2015/2016 financial year the average length of stay was 9.5 days and data taken from April 2016 to August 2016 shows an average length of stay of 10 days.

8.43 Visitors to SRH can purchase a monthly parking ticket for £20 that will actually cover their parking cost for four weeks. The comparative ticket and cost at STDH would be a weekly pass, priced at £10. Bearing in mind an average length of stay of 10 days, the most cost effective parking costs solution would be to purchase two weekly tickets, resulting in a £20 charge, which is the same cost charged at SRH for a monthly ticket. However, fuel costs may increase due to the longer distances travelled over a period of time.

Key findings

8.44 South Tyneside mothers will be the affected category of population. Depending on the Option that is taken forward, it could be that all South Tyneside mothers will be affected (in the case of Option 2) or only those that are deemed to be having a high risk birth (Option 1), and will be required to travel to SRH for the birth.

- 8.45 The analysis of the postcodes of previous Maternity patients living in South Tyneside / having their children at STDH shows that the public transport journey time to SRH (instead of STDH) during the 14:00 to 16:00 time period increases by 21 minutes (22 minute average journey time to STDH compared to 43 minute average journey time to SRH). During the 19:00 to 21:00 time period, the public transport journey time increases by 25 minutes (23 minute average journey time to STDH compared to 48 minute average journey time to SRH).
- 8.46 Journeys by car to SRH, instead of STDH, will take eleven minutes longer (average eight minute journey to STDH compared to an average 19 minute journey to SRH). Between 19:00 – 21:00 journeys to SRH, instead of STDH, will increase by 9 minutes (average 7 minute journey time to STDH compared to average 16 minute journey to SRH).
- 8.47 The travel survey has captured how visitors/patients currently travel to the STDH Maternity services and shows that for visitors 69% use a car based mode (car as passenger, or car by yourself), 15% use the bus, 12% use taxis and 10% walk. For patients, 20% arrive by car with others, 40% use the bus and 40% walk. However, due to the patient sample size it is difficult to draw a definitive conclusion.
- 8.48 69% of visitors stated that they would travel to SRH Maternity Services by car (as a passenger, or as a driver), 17% would use bus, 5% would use the metro and 5% would use taxi and 3% would use a mode classed as other. For patients, 20% would travel in a car with others, 40% would use the bus, 20% would use a combination of metro and bus and 20% would use an ambulance. Again, due to the patient sample size it is difficult to draw a definitive conclusion.
- 8.49 Under Option 1 for maternity services, all high risk births would transfer from STDH to SRH. The travel survey results show that the average number of visits per visitor per day is 1.5. Therefore, the potential parking demand arising from high risk South Tyneside Maternity service presentations needing to travel to SRH is shown below:
- Between one and four visitor vehicles per day arriving at SRH (depending on the number of visitors per patient)
- 8.50 Under Option 2, all births would transfer from STDH to SRH for delivery. The potential parking demand arising from all South Tyneside maternity service presentations needing to travel to SRH is as follows:
- Between two and seven visitor vehicles per day arriving at SRH (depending on the number of visitors per patient).

9. Travel and Transport Impact Assessment of Gynaecology Clinical Service Review

- 9.1 This chapter examines and assesses the transport and travel impacts resulting from the review of Gynaecology services, and reviews accessibility statistics and data that is relevant to Gynaecology services. This chapter also presents the results from a travel survey undertaken amongst Gynaecology patients at STDH and the potential impacts upon car parking demand and costs to South Tyneside residents, predominantly.

Information sources for assessing the Travel and Transport Impact

- 9.2 In addition to the accessibility statistics presented in Chapter 2, a number of additional data sources and further data collection have been utilised to assess the impacts of the proposals for Gynaecology services at STDH and SRH, as listed below:
- Postcode data of inpatient Gynaecology patients admitted to STDH during the 2015/16 financial year and the 2016/17 financial year up to the end of November 2016.
 - Findings from Gynaecology patient travel surveys undertaken between 10th February 2017 and 28th February 2017 at STDH. It should be noted that this provides just a snapshot of information, that sample size is relatively small, and that responses have been taken at face value even where they may appear counter-intuitive. Appropriate caution should therefore be taken with the results.
- 9.3 A number of assumptions have been applied to various areas of assessment and these assumptions are noted throughout this report in the appropriate sections.
- 9.4 A staff travel survey amongst the clinical staff working in maternity / gynaecology services at both STDH and SRH is currently underway. The staff travel survey will examine how staff travel to work now and how they would travel in the future, should their place of work change. The results will assist in informing the potential parking impact at the relevant hospital sites, and the trusts and commissioning officer will have this information prior to decision making.

Accessibility analysis for previous Gynaecology inpatient postcodes to STDH and SRH

- 9.5 To target the wider accessibility analysis further, STFT has provided the postcodes of Gynaecology inpatients during the 2015/16 year and the 2016/17 financial year up to the end of October. This dataset has been used to understand the accessibility of these patients to STDH and also SRH. The analysis has looked at accessibility statistics during the 07:00 and 09:00 time period and a total of 848 postcodes have been mapped.
- 9.6 Table 9-1 shows the number of separate postcodes that fall within each 10 minute journey time band when accessing STDH between 07:00 and 09:00. 64% of the postcodes fall within a 30 minute public transport journey, compared to 24% on foot and 100% by car. 83% of the postcodes fall within a 60 minute public transport journey and 67% fall within a 60 minute walk. The average journey times are eight minutes by car, 22 minutes by public transport and 45 minutes on foot.
- 9.7 Table 9-2 shows the number of separate postcodes that fall within each 10 minute journey time band when travelling away from SRH between 07:00 and 09:00. 4% of the postcodes fall within a 30 minute public transport journey, compared to 100% by car. 82% of the postcodes fall within a 60 minute public transport journey. The average journey times are 20 minutes by car and 43 minutes by public transport.

Table 9-1: Accessibility of South Tyneside Gynaecology inpatient postcodes to STDH (07:00 – 09:00)

Travel Time (mins)	Number and percentage of South Tyneside Gynaecology inpatient postcodes					
	By public transport		By car		By walking	
	number	%	number	%	number	%
0 - 10	0	0%	599	70%	6	1%
11 - 20	321	37%	249	30%	61	7%
21 - 30	225	27%	-	-	134	16%
31 - 40	136	16%	-	-	216	25%
41 - 50	13	2%	-	-	94	11%
51 - 60	9	1%	-	-	57	7%
61 - 70	4	0%	-	-	85	10%
71 - 80	0	0%	-	-	96	11%
81 - 90	0	0%	-	-	35	4%
Average¹	22 mins		8 mins		45 mins	
91mins +	140	17%	0	0%	64	8%
< 30 mins	546	64%	848	100%	201	24%
< 60 mins	704	83%	848	100%	568	67%
< 90 mins	708	83%	848	100%	784	92%
Total	848	100%	848	100%	848	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop.

Table 9-2: Accessibility of South Tyneside Gynaecology inpatient postcodes to SRH (07:00 – 09:00)

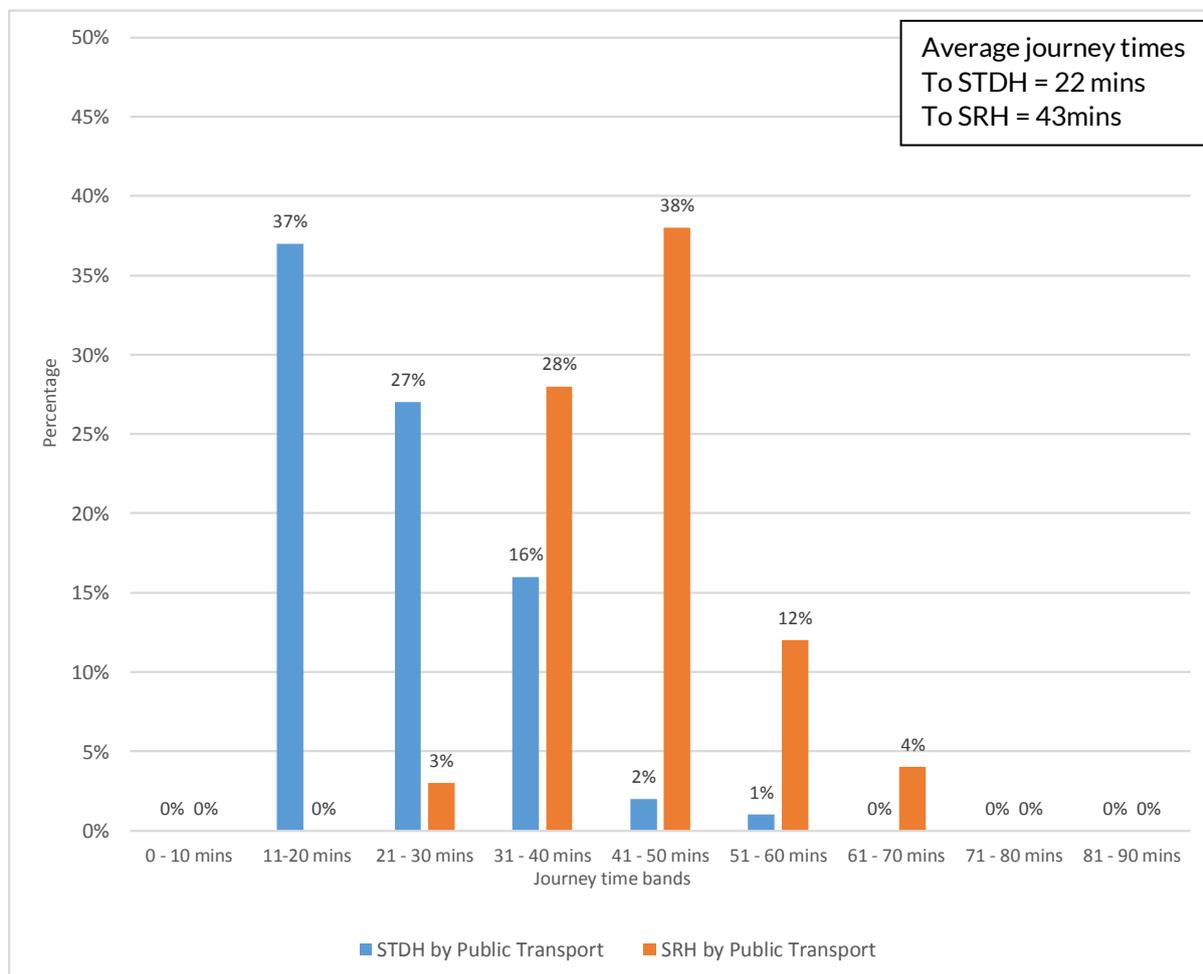
Travel Time (mins)	Number and percentage of South Tyneside Gynaecology inpatient postcodes			
	By public transport		By car	
	number	%	number	%
0 - 10	0	0%	0	0%
11 - 20	3	0%	383	45%
21 - 30	29	3%	465	55%
31 - 40	237	28%	-	-
41 - 50	328	38%	-	-
51 - 60	101	12%	-	-
61 - 70	36	4%	-	-
71 - 80	3	0%	-	-
81 - 90	0	0%	-	-
Average¹	43 mins		20 mins	
91mins +	111	13%	0	0%
< 30 mins	32	4%	848	100%
< 60 mins	698	82%	848	100%
< 90 mins	737	87%	848	100%
Total	848	100%	848	100%

1. Excludes postcodes beyond 90 minutes or more than 400m from a public transport stop.

Accessibility amongst previous Gynaecology inpatient postcodes to STDH and SRH

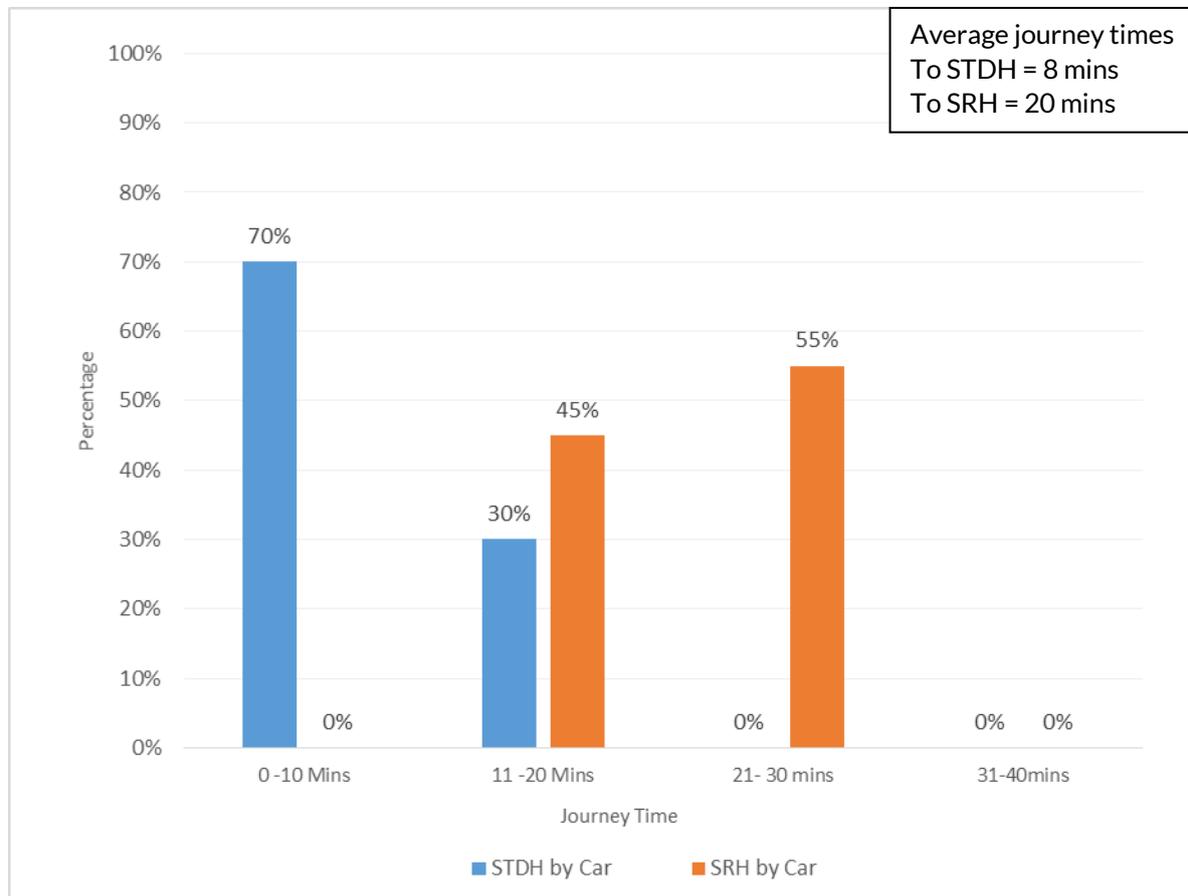
- 9.8 Figure 9-1 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals between 07:00 and 09:00 and illustrates the difference in accessibility of these postcodes to both hospitals by public transport.
- 9.9 At present, 37% of the separate postcodes are within 11 to 20 minutes journey time of STDH and a further 27% are within 21 and 30 minutes. Travelling to SRH for Gynaecology inpatient services means that 28% of the separate postcodes will be within 31 and 40 minutes journey time and a further 38% will be within 41 to 50 minutes journey time. The average journey time increases by 21 minutes.

Figure 9-1: Accessibility of South Tyneside Gynaecology inpatient postcodes to STDH and SRH (07:00 – 09:00)



9.10 Figure 9-2 shows the proportion of separate postcodes that fall within each 10 minute journey time band when accessing the hospitals by car between 07:00 – 09:00 and illustrates the difference in accessibility of these postcodes to both hospitals. Currently, 70% of the separate postcodes are within 0 and 10 minutes journey time of STDH and a further 30% are within 11 and 20 minutes journey time. When considering SRH, 0% of the separate postcodes are within 0 and 10 minutes whilst 45% will be within 11 and 20 minutes. Another 55% will be within 21 and 30 minutes of SRH. The average journey time increases by 12 minutes.

Figure 9-2: Accessibility of South Tyneside Gynaecology inpatient postcodes from STDH and SRH by car 07:00 – 09:00



Gynaecology Travel Survey Results

Gynaecological Inpatients

- 9.11 This section reviews the findings of the Gynaecological Services patient travel survey, conducted at South Tyneside District Hospital (STDH) between 19th and 22nd February, with a total of nine patients responding to the survey.

Residence of patients

- 9.12 Gynaecological patients at STDH were asked where they currently live as part of the travel survey. As shown in Table 9-3, 78% (n=7) of patients stated that they currently live in South Tyneside, whilst 22% (n=2) stated they currently live in Sunderland.

Table 9-3: Residences of patients at Gynaecological Services at STDH

Patient residence	Number	%
South Tyneside	7	78%
Sunderland	2	22%
Total	9	100%

Source: ITP Survey, February 2017

Modal share of patients

- 9.13 The following tables show the modal share for patients attending Gynaecological services at STDH, and their likely modal share if they had to attend SRH. A number of respondents in each question gave more than one mode of travel in their response. These have been divided according to the number of modes of travel specified³ to provide an accurate modal share, and to help establish likely parking usage.
- 9.14 Table 9-4 shows the modal share of patients travelling to Gynaecology at STDH. The most commonly used mode is car as a passenger (accompanied inside) representing 42% (n=3) of trips from South Tyneside. This is followed by car (dropped off) representing 29% (n=2) of trips from South Tyneside and 44% (n=4) of trips overall, and taxi (29% of trips from South Tyneside, n=2).

³ For example, if a respondent stated they would use bus or metro. This response would be divided by 2.

Table 9-4: Modal share of patients arriving to Gynaecology at STDH

Mode of travel	South Tyneside		Sunderland		Total	
Car, as a passenger and accompanied inside	3	42%	0	0%	3	33%
Car, dropped off	2	29%	2	100%	4	44%
Taxi	2	29%	0	0%	2	23%
Total	7	100%	2	100%	9	100%

Source: ITP Survey, February 2017

9.15 Table 9-5 shows the planned modal share for trips from Gynaecology at STDH back to the patient's residence. As expected, the modal share is similar to that seen in Table 9-4. However, more trips are being made by car (as a passenger), representing 86% (n=6) of trips to South Tyneside. Taxi trips are also reduced, representing only 14% (n=1) of trips back to South Tyneside.

Table 9-5: Planned modal share for patients departing Gynaecology at STDH

Mode of travel	South Tyneside		Sunderland		Total	
Car, as a passenger	6	86%	2	100%	8	89%
Taxi	1	14%	0	0%	1	11%
Total	7	100%	2	100%	9	100%

Source: ITP Survey, February 2017

9.16 Following these questions, respondents were also asked how they would have travelled if they were required to attend SRH for Gynaecological services. The results are outlined in Table 9-6. The most commonly stated mode of travel is car as a passenger, representing 71% (n=5) of trips from South Tyneside and 50% (n=1) from Sunderland. This is followed by car by yourself, representing 22% (n=2) of total trips to STDH and bus (11% of total trips, n=1).

Table 9-6: Indicative modal share for patients attending Gynaecological services at SRH

Mode of travel	South Tyneside	Sunderland	Total
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Mode of travel	South Tyneside		Sunderland		Total	
Car, as a passenger	5	71%	1	50%	6	67%
Car, by yourself	1	14%	1	50%	2	22%
Bus	1	14%	0	0%	1	11%
Total	7	99%*	2	100%	9	100%

Source: ITP Survey, February 2017 * due to rounding

Journey times

- 9.17 Table 9-7 shows the journey times for Gynaecological patients travelling to STDH. As can be observed the most common journey time to STDH for gynaecological patients is between 6-10 minutes, representing 71% (n=5) of trips from South Tyneside and 100% (n=2) from Sunderland. This is followed by 1-5 minutes, representing 14% (n=1) of trips from South Tyneside, and 11+ minutes (14% of trips from South Tyneside, n=1).

Table 9-7: Journey times of Gynaecology patients at STDH

Journey time	South Tyneside		Sunderland		Total	
1-5 minutes	1	14%	0	0%	1	11%
6-10 minutes	5	71%	2	100%	7	78%
11+ minutes	1	14%	0	0%	1	11%
Total	7	100%	2	100%	9	100%

Source: ITP Survey, February 2017

Potential impact on parking

- 9.18 Under both clinical service solutions for Gynaecological services, all inpatient gynaecological care would be transferred to SRH. Using the data contained within the Obstetrics and Gynaecology service review report (2016), it can be identified that approximately 600 inpatient cases would transfer from STDH to SRH. However, a third of these cases, around 200 cases, are expected to travel to Queen Elizabeth Hospital, Gateshead or Royal Victoria Institute Gateshead Table 9-8 shows the worst case scenario for parking at SRH, using the above patient survey data, and patient data from

the Clinical Service review report (2016). The following assumptions have been taken in order to produce these figures.

- Average of one gynaecological inpatient per day (based on approximately 400 cases per year at STDH)
- 85% of patients will arrive by car (Table 9-6)
- Those arriving as a passenger of a car will be parked on site for a proportion/full duration of their visit

9.19 In the absence of any arrival data from the Gynaecological travel surveys, and due to the low estimated additional parking impact (1 vehicle per day), parking impact has been calculated based on a worst case scenario at SRH. Table 9-8 therefore shows the impact of the additional parking demand during a worst case scenario at SRH. From SRH Parking Eye data, the existing maximum number of vehicles parked is 1,559. With the additional gynaecology inpatients services visitors, this would rise to 1,560. This equates to approximately 91% of total capacity available (1,714 total parking spaces).

9.20 The additional vehicle, as described above, will not have a significant impact upon existing levels of traffic in the SRH area or the wider vicinity.

Table 9-8: Additional parking demand at SRH - gynaecology inpatients

	Worst Case
Existing parking demand*	1,559
Additional parking demand	1
Total parking demand	1,560

* Existing parking demand based on worst case number of vehicles parked at STDH (14:30 on 29/09/16 - 1559 vehicles). Drawn from three weeks of Parking Eye data at SRH (WC 12/09/16 to WC 26/09/16)

Key findings

Gynaecology inpatients

- 9.21 South Tyneside Gynaecology inpatients will be affected by the service proposals and will be required to travel to SRH for their treatment, instead of STDH where they are currently treated.
- 9.22 The analysis of the postcodes of previous Gynaecology patients living in South Tyneside and treated at STDH shows that the average public transport journey time to SRH (instead of STDH) during the 14:00 to 16:00 time period increases by 20 minutes (23 minute average journey time to STDH compared to 43 minute average journey time to SRH). Journeys by car to SRH, instead of STDH, will take 12 minutes longer (average 8 minute journey to STDH compared to an average 20 minute journey to SRH).
- 9.23 The travel survey has captured how patients currently travel to the STDH Gynaecological services and shows 77% use a car based mode (33% as a passenger and accompanied in hospital, 44% as a passenger and dropped off) and 23% use taxi. For departing Gynaecological services at STDH, 89% stated they would do so by car and 11% would use a taxi. 89% of Gynaecological inpatients stated that they would travel to SRH by car (67% would be a passenger in a car and 22% would drive themselves) and 11% would use the bus.
- 9.24 Under both options for Gynaecological services, all gynaecological inpatients at STDH would transfer to SRH for treatment. Therefore, the potential parking demand arising from gynaecological inpatient presentations needing to travel to SRH is shown below:
- one additional patient vehicle parked on site per day

10. Potential Travel and Transport Impact Reduction Measures

- 10.1 There are a number of measures that could be employed to assist in reducing the travel impact, particularly on South Tyneside residents that may be required to travel to Sunderland Royal Hospital for their healthcare needs and / or their visitors.

Travel planning / travel advice

- 10.2 The provision of relevant information is key to informing and educating hospital users about travel choices. Signposting hospital users to the different sources of information, for example, online journey planners, bus operator websites, metro services and hard copies of up to date public transport timetables and bus network maps produced by the main public transport operators in the area, namely Go North East and Stagecoach, will help visitors to plan their journeys. Information on ticketing options in particular will be key to ensure that hospital users purchase the best value ticket for their needs and for their journey.
- 10.3 Due to the reconfiguration of services across both STDH and SRH, it will be useful to have access to public transport information for both Sunderland and South Tyneside in both hospitals and on both Hospital / Trust websites. Information may also be conveyed through information boards in communal areas and / or hospital (administration) staff.
- 10.4 An online journey planner is available on the NEXUS website, as well as up to date public transport timetables. The NEXUS website also provides information on various ticketing options and links / signposts users to the bus operators' websites for further information.
- 10.5 The NHS Choices website offers a journey planning service to each hospital and both Trust websites currently offer brief information on public transport options.
- 10.6 With regard to parking at the hospitals and information provision on parking, it is important to ensure that car park users are aware of the parking facilities on site, the parking monitoring / management schemes in operation, i.e. Parking Eye, the costs associated with parking and the different ways to pay. Most of this information is already displayed on both Hospital websites, with only cost data missing from the STDH website.

Travel costs

- 10.7 Some Hospital users may be concerned with the difference in travel costs that may potentially be incurred if travelling to a different site, located further away.
- 10.8 It will be important to promote the current schemes available that can provide assistance with travel costs, for example the Healthcare Travel Costs Scheme. It is important to provide information on this scheme to Hospital users, perhaps in the form of an information leaflet with FAQs so potential hospital users are aware of what they may be entitled to and how they can claim assistance with their travel costs.
- 10.9 The provision of a patient and visitor travel information leaflet(s) that is issued on the wards and / or with appointment letters may be a useful communication channel.

Appointment times

- 10.10 Both Hospital Trusts are open to discussing and rescheduling appointment times with patients to accommodate patients' needs and assist in easing any perceived travel issues, for example a longer travel journey time.

Improved bus routes and connections

- 10.11 To provide more direct, frequent, seamless and reliable bus services and connections to STDH and SRH for the South Tyneside and Sunderland populations, either existing bus services could be extended and/or new bus services could be introduced. There are, of course, cost implications to both options for improving public transport services to both hospitals. Further work will be required to understand the full impact of the clinical service reviews and the transport and travel impacts upon patients and visitors in particular to understand levels of potential demand and the scale of subsidy that might be required, if any.
- 10.12 The Leaders of both South Tyneside and Sunderland City Council have written to NEXUS to ask if they can work with commercial operators to ensure accessibility to both hospitals is considered in any future service changes. They have asked if arrangements could be put in place for new secured express bus services from Hebburn and Jarrow to STDH and SRH, and from Hetton, Houghton and Washington to SRH and STDH.
- 10.13 The North East Commissioning Support Unit are currently in discussion with NEXUS on this matter.

Appendix A

Accessibility Plots

Appendix B

Public transport field testing report

Appendix C

South Tyneside origins – public transport journey and cost comparison

Appendix D

Journey time comparison to STDH, SRH, QEG and RVI

Appendix E

Results from area based journey time field testing exercise

Appendix F

Journey time comparison from County Durham origins to SRH