



Huddersfield Royal Infirmary

New A&E Department Transport Assessment

June 2021

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1 Introduction

1.1 Introduction

This Transport Assessment (TA) has been prepared on behalf of Calderdale and Huddersfield Solutions Ltd (“the Applicant”) in support of a full planning application for the erection of a clinical building to accommodate an Accident and Emergency (A&E) Department together with associated vehicular access, car and cycle parking spaces, plant and landscaping at Huddersfield Royal Infirmary (HRI), Acre Street, Huddersfield, HD3 3EA. The application site totals 0.88 hectares and is located in Lindley, approximately 3km north-west of Huddersfield town centre.

1.2 BREEAM Assessment

This TA has been developed in accordance with BREEAM UK New Construction (2018) guidance and incorporates key Tra01 criteria including a review of accessible amenities and calculation of the site’s Accessibility Index.

1.3 Report Scope and Content

In accordance with National Planning Policy and Kirklees Council guidance, the purpose of this TA is to identify the traffic and transportation implications of the proposed development and will accompany a planning application being submitted to the local planning authority, Kirklees Council.

Following this introduction, the remainder of this report is structured as follows:

- Section 2 provides a review of pertinent transport related planning policies at the local, regional and national level;
- Section 3 summarises the existing conditions at the site and the surrounding area, including a review of the local highway network, analysis of road safety information and an overview of the accessibility of the site by sustainable modes of travel;
- Section 4 outlines the development proposals;
- Section 5 summarises the likely traffic impact of the proposed development;
- Section 6 outlines the likely traffic impact of construction of the proposed development; and
- Section 7 identifies the key conclusions of the report.

2 Policy Review

2.1 Introduction

This chapter provides an overview of the national and local policy context that applies to transport issues arising from development sites.

2.2 National Planning Policy Framework 2019

The National Planning Policy Framework (NPPF) aims to promote sustainable development. The NPPF is relevant to the proposed development as follows:

Paragraph 102 states that: “Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- The potential impacts of development on transport networks can be addressed;
- Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised - for example in relation to the scale, location or density of development that can be accommodated;
- Opportunities to promote walking, cycling and public transport use are identified and pursued;
- The environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account - including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
- Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.”

Furthermore, in assessing applications for development, it should be ensured that:

- Appropriate opportunities to promote sustainable transport modes can be - or have been - taken up, given the type of development and its location;
- Safe and suitable access to the site can be achieved for all users; and
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.”

Applications for development should:

- “Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second - so far as possible - to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- Create places that are safe, secure and attractive - which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- Allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.”

The NPPF defines a TA as: “A comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies measures required to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport, and measures that will be needed deal with the anticipated transport impacts of the development.” (NPPF, page 72).

2.3 Guidance on Travel Plans, Transport Assessments and Statements 2014

The Government’s National Planning Practice Guidance (NPPG) on ‘Travel Plans, Transport Assessments and Statements’ provides details on the overarching principles of TAs in decision making. The guidance states: “Transport Assessments and Statements are ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development)” (NPPG Paragraph 004).

Travel Plans, Transport Assessments and Statements can positively contribute to:

- Encouraging sustainable travel;
- Lessening traffic generation and the associated detrimental impacts;
- Reducing carbon emissions and climate impacts;
- Creating accessible, connected and inclusive communities,
- Improving health outcomes/quality of life;
- Improving road safety; and
- Reducing the need for developments to increase existing road capacity/provide new roads.

2.4 West Yorkshire Transport Strategy 2040

This Strategy recognises the importance of the links between West Yorkshire and the wider Leeds City Region. The vision of the transport strategy 2040 is to ‘enhance business success and people’s lives by providing modern, world-class, well-connected transport that makes travel around West Yorkshire easy and reliable’.

The following policies are considered relevant to the proposed development:

- Encourage healthy, active travel by improving cycling and walking facilities supported by training and promotional campaigns:
 - “We will provide infrastructure on and off-road of the highest possible quality to provide safer and better journeys for cyclists, building on the step-change achieved by our CityConnect programme including the Cycle Superhighway and canal towpath improvements”
 - “We will provide behaviour change programmes, including training, and access to cycles through grant and sharing schemes, and promotional campaigns, that encourage walking, cycling and public transport use for healthier travel and lifestyles.”
- Provide safer, more convenient networks for walking and cycling:
 - “We will provide strategic and local networks of high quality walking and cycling routes that are safe and convenient to use and provide access to town centres, local services and the wider public transport network, with enhanced cycle parking provision for joined up ‘door to door’ journeys.”
- Integrate and enhance the public transport network:

- “We will better integrate all tiers and modes of transport, including physical interchange, timetabling, ticketing and payment.”

2.5 Kirklees Local Plan, February 2019

2.5.1 Policy LP19 Transport Infrastructure

“The ability to move goods and people is particularly important given the district's strategic position on the national motorway and rail networks, its links with regional facilities such as airports/ports and its central position between the Leeds, Sheffield and Manchester City regions. This gives the district a distinct locational advantage. Efficient access for goods and services is also a key factor in supporting the vitality of urban areas. The aim is to achieve a balanced and integrated transport network which makes the most efficient and effective use of road, rail and public transport.

The Council is committed to ensuring that new developments have safe and convenient access to the West Yorkshire Key Route Network where possible, the main arterial routes and the West Yorkshire Core Bus Network that connect the region. Development will be strategically placed along core networks where available and the developing core cycle network, all of which will be improved and maintained where possible to reduce congestion and reliance on the private car.

Proposals will be encouraged where they assist to bring forward strategic transport infrastructure where possible, particularly where they would directly benefit from these schemes.

Proposals that may prejudice the future development of the following will not be permitted: strategic transport infrastructure; identified highway improvements; traffic management schemes; proposed public transport facilities, including the improvement of existing rail stations and rail corridors and walking and cycling infrastructure; and strategic cross boundary schemes.

Detailed transport schemes that require planning permission will have regard to the constraints and considerations as set out in Local Plan such as impact on designated heritage assets and any other environmental impacts.

The Key Route Network should be taken into account by developers when considering new development. Planning applications and Travel Plans should identify how the Key Routes have been integrated into new development, and specify how potential improvements to the Key Routes proposed by the regional agencies and the council will contribute to the sustainable development of the site.”

Key Routes include both the A640 and A629 near the hospital site.

2.5.2 Policy LP20 Sustainable Travel

“New development will be located in accordance with the spatial development strategy to ensure the need to travel is reduced and that essential travel needs can be met by forms of sustainable transport other than the private car. The council will support development proposals that can be served by alternative modes of transport such as public transport, cycling and walking and in the case of new residential development is located close to local facilities or incorporates opportunities for day to day activities on site and will accept that variations in opportunity for this will vary between larger and smaller settlements in the area.

The council will support demand management measures which discourage single occupancy car travel within new development and encourage the use of low emission vehicles to improve areas with low levels of air quality. Proposals should include measures to encourage the use of sustainable travel options, including public transport, the promotion of personal journey planning, walking, cycling, car sharing, electronic communication and home working.

Travel plans will normally be required for all major planning applications in accordance with current guidance and should set targets and monitoring arrangements to ensure sustainable travel patterns are maintained. Travel plans should include agreed and defined outcomes related to a package of specified measures to be implemented including an approach to lower carbon emissions where applicable.

The requirement of a travel plan will also be considered on case by case basis where the proposed development falls below the major application category where it has the potential to generate significant transport movements and/or has insufficient off-street parking within the vicinity of a stressed part of the highway network.

Proposals for new development shall be designed to encourage sustainable modes of travel and demonstrate how links have been utilised to encourage connectivity. Proposals will be required to facilitate the needs of the following user hierarchy:

- a) pedestrians
- b) cyclists
- c) public transport
- d) private vehicles.”

2.5.3 Policy LP21 Highways and Access

“Proposals shall demonstrate that they can accommodate sustainable modes of transport and be accessed effectively and safely by all users.

New development will normally be permitted where safe and suitable access to the site can be achieved for all people and where the residual cumulative impacts of development are not severe.

Proposals shall demonstrate adequate information and mitigation measures to avoid a detrimental impact on highway safety and the local highway network. Proposals shall also consider any impacts on the Strategic Road Network.

All proposals shall:

- a) ensure the safe and efficient flow of traffic within the development and on the surrounding highway network;
- b) where needed, provide new infrastructure or improvements on or off site to ensure safe access from the highway network for pedestrians, cyclists, public transport users and private vehicles;
- c) be accompanied by a supporting Transport Assessment or Transport Statement where the development would generate significant trip generation, providing detail as to the impact on highway safety, air quality, noise and light restrictions;
- d) take into account changes in site levels and topography to ensure the development can be accessed easily and safely by all sections of the community and by different modes of transport;
- e) take into account the features of surrounding roads and footpaths and provide adequate layout and visibility to allow the development to be accessed safely;
- f) take into account access for emergency, service and refuse collection vehicles;
- g) provide on-site safe, secure and convenient cycle parking/storage facilities to encourage sustainable travel modes.”

2.5.4 Policy LP22 Parking

“The provision of parking will be based on the following principles:

- a) in town, district and local centres, carparks close to the main shopping area will be for short-stay use and peripheral car parks for long stay use;
- b) long stay parking in town centres will be reduced progressively in conjunction with improvements to sustainable transport opportunities, where appropriate;
- c) provision of private non-residential parking in town centres will not be permitted unless it can be demonstrated that it is required for operational reasons. Where such provision is permitted appropriate arrangements will need to be put in place to provide management arrangements consistent with public parking in the centre;
- d) provision of residential parking schemes within town centres for private vehicles/motorcycles/and cycles will be permitted; where appropriate and where schemes can be shown to enhance residential developments in the town centre;
- e) car parking provision in new developments will be determined by the availability of public transport, the accessibility of the site, location of the development, local car ownership levels and the type, mix and use of the development;
- f) new developments will incorporate flexibly designed minimum parking spaces for private cars, considering a range of solutions, to provide the most efficient arrangement of safe, secure, convenient and visually unobtrusive car parking within the site including a mix of on and off street parking in accordance with current guidance;
- g) provision will be made to meet the needs of cyclists for cycling parking in new developments;
- h) provision will be made to accommodate the needs of disabled people for the parking of vehicles. All proposals shall provide full details of the design and levels of proposed parking provision. They should demonstrate how the design and amount of parking proposed is the most efficient use of land within the development as part of encouraging sustainable travel.”

2.5.5 Policy LP23 Core Walking and Cycling Network

“The core cycling and walking network will be safeguarded and extended to provide opportunities to reduce the number of car journeys and to link settlements, employment sites and transport hubs. The safeguarding of the network will also provide further opportunities for leisure uses, cycling, walking and riding in the countryside by linking to existing bridleways and national trails where appropriate.

Proposals shall seek to integrate into existing and proposed cycling and walking routes as identified in the core walking and cycling network by providing connecting links where appropriate; and regard shall also be had to linking to Strategic Green Infrastructure networks.”

2.6 Kirklees Highways Design Guide (Adopted November 2019)

Kirklees Council have not set local parking standards for residential or non-residential development. However, Kirklees Highway Design Guide whilst emphasising guidance for residential development outlines principles for designing parking that are applicable to the site. This includes the principles that proposals should:

- a) “use a mixture of parking strategies to create the best possible public realm
- b) use realistic calculations for [staff]* and visitor parking demand taking into account the location, availability and frequency of public transport together with local car ownership trends
- c) use landscaping, contrasting ground materials, metal plates or block markers to mark out and number spaces instead of relying on painted white lines

- e) provide a generous amount of accessible, secure and convenient cycle parking at various locations
- f) look into measures to reduce car ownership and parking.”

2.7 Leeds City Region Transport Strategy

“In 2007, the City Region generated a GVA of £46 billion with a workforce of 1.5 million, 60% of the total for the Yorkshire & Humber region. Significant housing and employment growth is planned for the City Region. Good transport links are central to supporting our economy and need to be continually improved to ensure they continue this role in the future. The Strategy is consistent with Government policy on transport, as set out in the document Delivering a Sustainable Transport System (DaSTS)”.

The priority themes are:

1. reducing carbon emissions and improving energy resilience;
2. strengthening the contribution of the bus;
3. improving strategic connectivity to tackle congestion;
4. developing a strategic framework for demand management; and
5. more effective land use policy / transportation integration.

This can be achieved through generic interventions such as:

- Smarter choices;
- Strategic cycling;
- Home to school extension;
- Transform local bus services;
- Improved express buses;
- Additional rail carriages;
- Reduced bus fares;
- Demand management;
- Efficiency of the rail network;
- Full ticket integration;
- Land use policies;
- Strategic corridor improvements; and
- Rail freight enhancement.

3 Existing Conditions

3.1 Introduction

This chapter provides a review of the existing baseline transport-related conditions within the vicinity of the development site.

3.2 Site Location

HRI is located on Acre Street, Lindley, HD3 3EA in Huddersfield, in the county of Kirklees. It is approximately 3 kilometres north-west of Huddersfield town centre, set in a residential area. The hospital offers a range of services, including an A&E Department. Acre Mills across the road from the main hospital site is the base for outpatient appointments. A map of the site's existing buildings can be found in Appendix A.

The site location plan can be found in Appendix B.

3.3 Existing Site Use

The HRI site currently operates as a hospital and is part of the Calderdale and Huddersfield NHS Foundation Trust. It is in the suburb of Lindley and provides general, emergency and specialist medical services. The site is located in a predominantly residential area. The number of staff based at HRI is approximately 3317. The site is open 24 hours a day, seven days a week. Prior to the COVID-19 pandemic, the main visiting hours were between 14:00 and 20:00 daily, with a high frequency of visitors outside of these hours attending for scheduled appointments or walk-in / emergency cases. Due to the COVID-19 pandemic, visiting restrictions are currently in place.

The area to be redeveloped is at the southern corner of the hospital site and currently comprises 2 storey buildings, known as Saville Court and some surface car parking.

3.3.1 Travel Patterns of Existing Users

3.3.1.1 Staff

A staff travel survey was undertaken in November 2020 with all staff currently employed by the hospital invited to participate. Responses were received from 707 HRI members of staff. As the UK was still in the midst of the global COVID-19 pandemic, participants were asked to think about their travel before any current restrictions.

Respondents were asked how they usually travel to work. A summary of the modal split of travel by staff is presented below. This demonstrates that the most common mode of travel to the site is in single occupancy vehicles (63%) and the second highest modal share is walking (11%).

Table 3.1: Main mode of travel by staff

Normal mode of travel to work	HRI % of survey respondents
Bicycle	1%
Bus	9%
Car driver (on your own)	63%
Car driver (with passenger(s))	4%
Car passenger	4%

Normal mode of travel to work	HRI % of survey respondents
Motorcycle/moped/scooter	0%
Shuttle bus (between the two hospitals)	2%
Taxi	3%
Train	1%
Walk	11%

Staff were asked what factors they consider when choosing their mode of travel to work, they could select more than one factor, their responses are summarised in Table 3.2. Convenience / time savings was the most popular for the site (19%). Cost, personal safety and the ability to run errands before or after work were also important.

Table 3.2: Factors considered when choosing main mode of travel

Factor	HRI % of survey respondents
Convenience/time savings	19%
Cost	12%
Environmental factors such as carbon emissions and air quality	4%
Essential for work purposes	11%
Health - fitness purposes	4%
Health restrictions (inc. disability)	2%
No alternative	9%
Parental or caring responsibilities	9%
Personal Safety	11%
Privacy	4%
Receive/give a lift to family/friend/colleague	3%
Run errands before or after work	11%
Other	1%

Staff were asked how far they travelled to work. Staff travel a range of distances however, 59% of respondents travel 5 miles or less to work.

Table 3.3: Distance travelled to work

Distance Travelled	HRI %
Less than 1 mile	11%
1 - 5 miles	48%
6 - 10 miles	25%
11 - 15 miles	8%
16 - 20 miles	5%
Over 21 miles	4%

3.3.1.2 Patients / Visitors

A patient and visitors' travel survey was undertaken in November 2020. Due to the ongoing COVID-19 pandemic and infection control measures in place, it was only possible to do an online survey. There were 84 patients and 20 visitor respondents in total.

Table 3.4: Main mode of travel by patients and visitors

Normal mode of travel	HRI % of patient survey respondents	HRI % of visitor survey respondents
Car driver (on your own)	38%	40%
Car driver (with passengers)	12%	45%
Car passenger	26%	5%
Taxi	7%	-
Bus	4%	-
Train	-	-
Walk	12%	10%
Bicycle	-	-
Patient Transport Service	1%	-

Respondents were asked why they used this model of travel, they could select more than one reason, their responses are summarised in Table 3.5. Convenience / time savings was the most popular response for visitors and patients.

Table 3.5: Reason for using main mode of travel by patients and visitors

Normal mode of travel	HRI % of patient survey respondents	HRI % of visitor survey respondents
No alternative	21%	23%
Ambulance called	-	-
Convenience/time savings	33%	39%
Cost	6%	6%
Health – fitness purposes	4%	3%
Health restrictions (inc. disability)	12%	6%
Unable to drive myself	2%	-
Personal safety	11%	10%
Receive/give a lift to family/friend	5%	3%
I live near the hospital	2%	3%
Environmental factors such as carbon emissions and air quality	2%	-
COVID-19	1%	-
Privacy	3%	6%

3.3.2 Travel Patterns of Future Users

The travel patterns of future staff and visitors / outpatients are likely to be reflective of those identified through the travel plan surveys, with the trends showing car as the main mode amongst staff and visitors / outpatients.

3.4 Site Access

Figure 3.1 shows the vehicular site accesses. The main hospital site can be accessed from Acre Street and Occupation Road, both of which link to internal estate roads that cross the hospital site and provide access to clusters of on-site parking bays and car parks that surround the main hospital buildings and serve patients, visitors and staff.

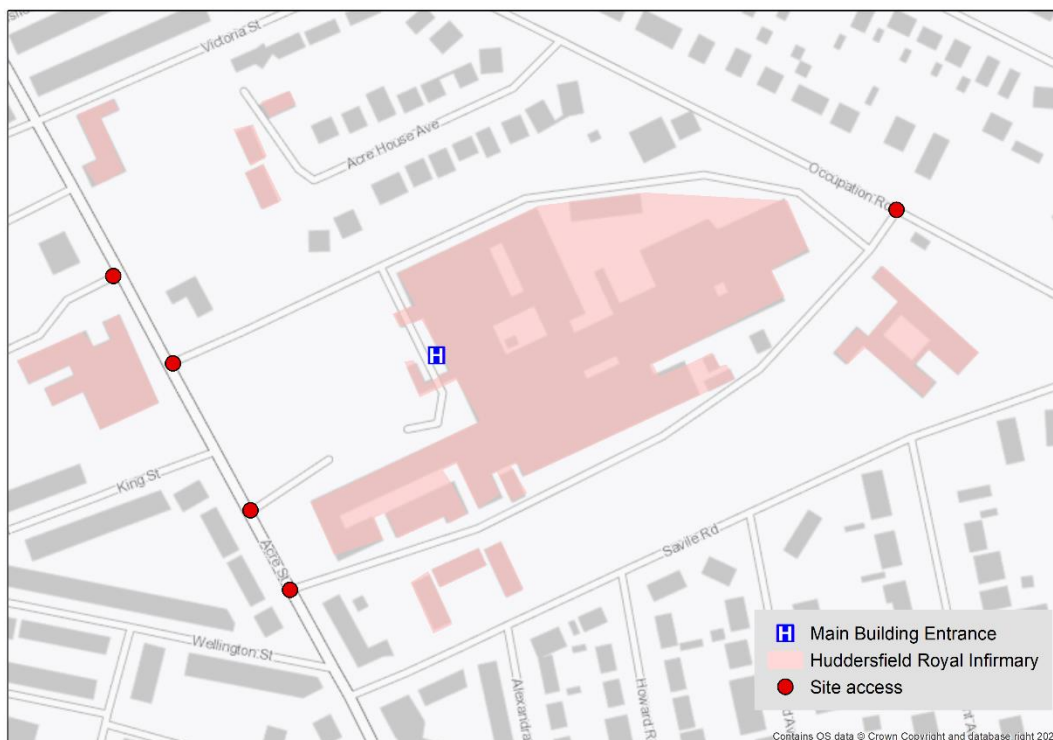
There are currently three vehicular access points from Acre Street onto the main hospital site:

- A two-way access off Acre Street providing entry to the hospital's northern perimeter road, associated parking and drop off points and the existing A&E Department as well as egress from the main patient and visitor car park;
- A one-way barriered entry to the main patient and visitor car park off Acre Street; and
- A further two-way access off Acre Street providing barriered access and egress to the southern estate road (South Drive) and further car parks and hospital facilities.

There is also a two-way access off Occupation Road leading to the hospital's northern perimeter road and barriered access to South Drive and its car parks.

Access to the Acre Mills site is provided via a two-way access off Acre Street, approximately 130m north of the hospital's main entrance.

Figure 3.1: Site access

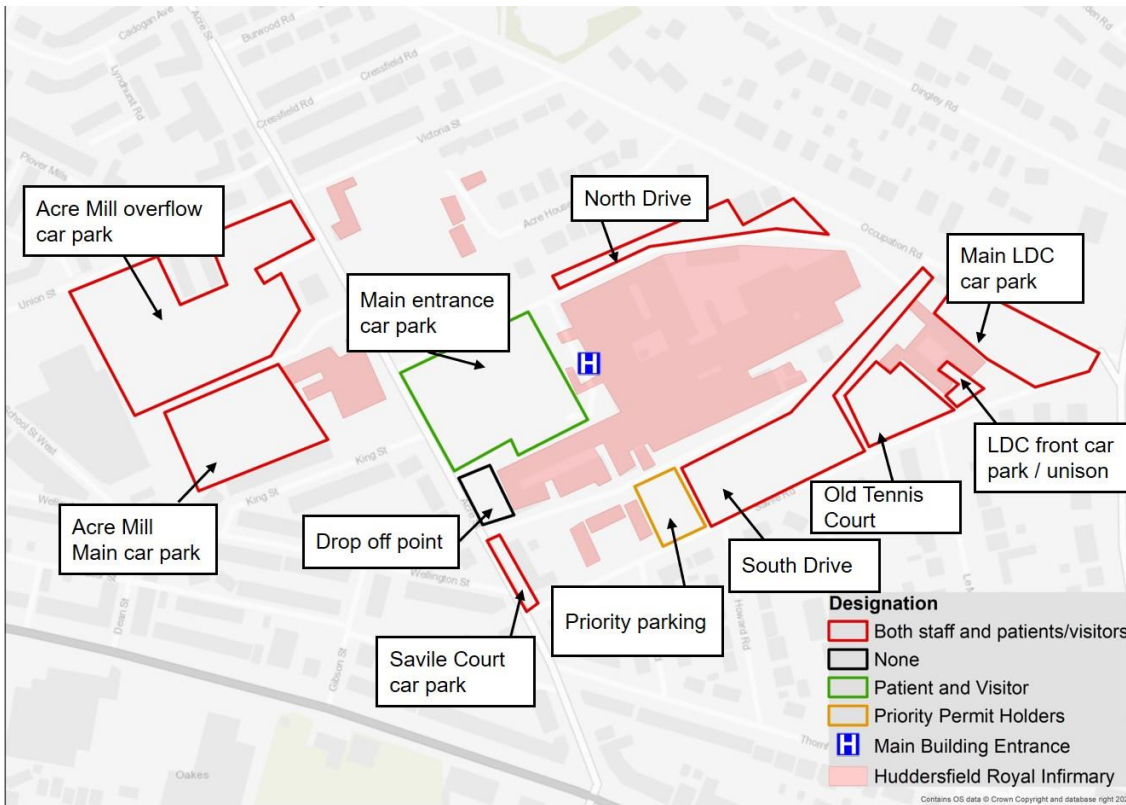


3.5 On-site Parking

In total at the main HRI site there are 854 parking spaces (including 53 blue badge bays) and a total of 709 parking spaces (including 10 blue badge bays) at Acre Mills. Figure 3.2 shows the car park locations and their designations. The Glen Acre House car park was sold in 2021 reducing provision by 9 standard spaces and 1 blue badge bay and is therefore not shown on the figure.

There are four dual 7.5kw Electric Vehicle (EV) charging stations available across the site. Two at Acre Mills for use by the general public and two on the two estates / deliveries yards on South Drive for fleet and contractor vehicles. At all four stations electricity is not charged at the point of use.

Figure 3.2: HRI car parks



3.6 On-site Staff Parking

There are two car parks on the Acre Mills site and seven on the main site that staff can utilise. Staff must display their parking permits. The car parks, their access control arrangements, payment methods and capacities are detailed in Table 3.7 and Table 3.6.

3.7 On-site Visitor and Outpatient Car Parking

Visitors and outpatients can use both car parks on the Acre Mills site and seven of the car parks on the main site. There is one pay and display car park (North Drive) the rest are pay on exit. Pay stations are located throughout the sites. The car parking charges are shown in Table 3.8.

Table 3.6: HRI main site car parks

Car Park Area	Designation	Access Control	Payment	Total Capacity	Blue Badge Bays
Main Entrance Car Park	Patient and Visitor Pay on Exit	2 designated barriers and 2 access terminals (separate entrance/exit)	2 designated pay machines (1 coin and notes only and the other coin, note, card and contactless). Located within the Main Entrance	209	33
North Drive	Staff Permit Holders and Pay and Display	Open access	One Metric mains operated, coin only pay and display machine. Located near to the Mortuary/Nursery	121	4
Learning and Development Car Park (Main)	Staff Permit Holders and Pay on Exit	2 designated barriers and 2 access terminals (single segregated entrance/exit).	1 designated pay machine (coin and notes only). Located at the Learning and Development Centre entrance	112	N/A
Learning and Development Centre Car Park (Front)/Unison	Staff Permit Holders and Pay on Exit	Open access but controlled by designated access control equipment on South Drive	As above	37	3
South Drive	Staff Permit Holders and Pay on Exit	2 designated barriers and 2 access terminals (single segregated entrance/exit)	1 designated pay machine (coin and notes only). Located outside Day Surgery Entrance	214	9
Old Tennis Court	Staff Permit Holders and Pay on Exit	Open access but controlled by designated access control equipment on South Drive	Nearest pay station is at the Learning and Development Centre entrance	70	N/A
Priority Car Park	Reserved for priority staff users	2 designated barriers and 2 access terminals (single segregated entrance/exit)	N/A	70	N/A
Saville Court Car Park	Staff and Pay on Exit (spaces reserved for Renal Patients)	Open access but controlled by designated access control equipment on South Drive	Nearest pay station is at the Day Surgery Building	21	4

Source: Calderdale and Huddersfield NHS Foundation Trust

Table 3.7: Acre Mills car parks

Car Park Area	Designation	Access Control	Payment	Total Capacity	Blue Badge Bays
Acre Mills Outpatients Main Car Park	Patient and Visitor Pay on Exit and Staff Permit Holders	2 Designated barriers and 2 access terminals (single segregated entrance/exit)	2 designated pay machines (1 coin and notes only and the other card only). Located at the within the Main Entrance	209	10
Acre Mills Overflow Car Park	Patient and Visitor Pay on Exit and Staff Permit Holders	2 Designated barriers and 2 access terminals (single segregated entrance/exit)	1 designated pay machine (coin and notes only). Located within the Overflow Car Park	Approx: 500	N/A

Source: Calderdale and Huddersfield NHS Foundation Trust

Table 3.8 shows the applicable parking charges for patients and visitors. Further concessions are available in qualifying circumstances, with authorisation forms obtained from the ward. All blue badge holders are eligible for free parking, with six-month passes issued by the General Office¹.

Table 3.8: Car park charges

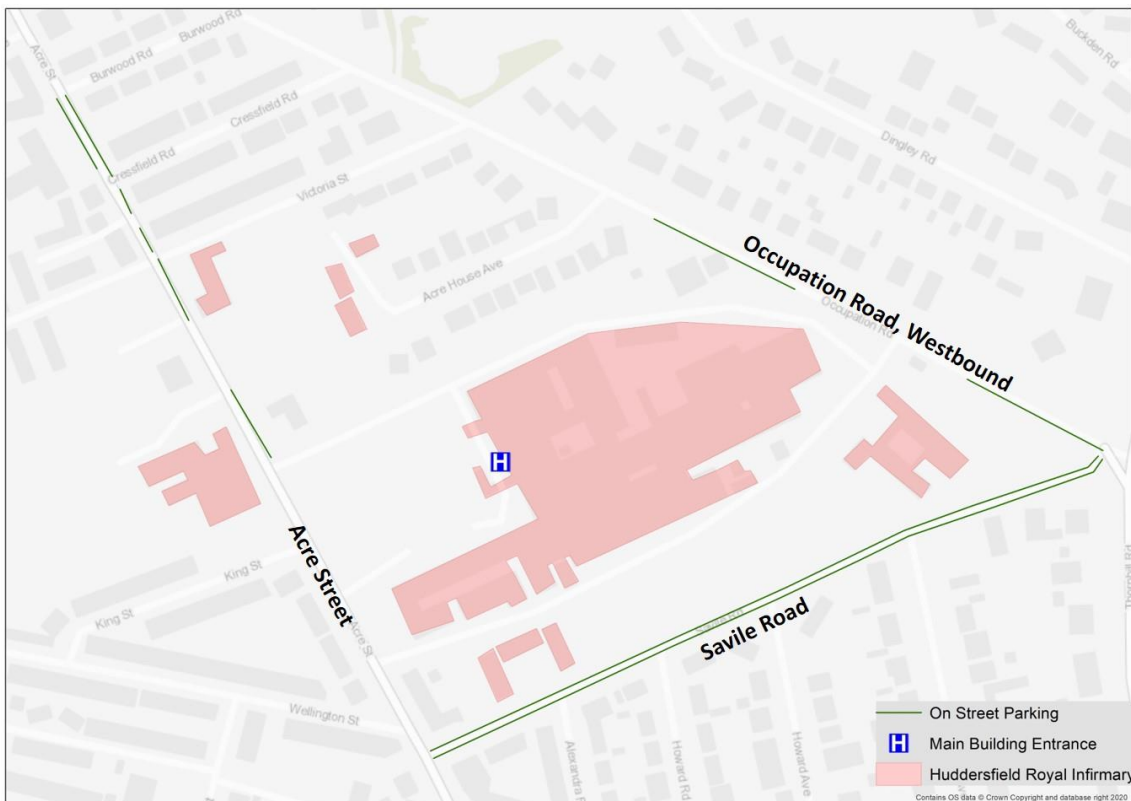
Duration	Cost
Up to 2 hours	£3.00
2-4 hours	£5.00
4-6 hours	£6.00
More than 6 hours	£8.00
Weekly pass	£35.00

3.8 Off-site Parking

Parking restrictions vary along the length of Acre Street with some on street parking including sections of permit parking, as well as short stay 1 hour and no return within 1-hour parking. There are short sections of on street parking with no parking restrictions north-west of the main hospital site. There are no parking restrictions along the length of Savile Road. Similarly, there are no parking restrictions along sections of the westbound carriageway of Occupation Road. Off-site on-street parking is shown in Figure 3.3.

¹ <https://www.cht.nhs.uk/patients-visitors/finding-us/car-parking/>

Figure 3.3: HRI on-street parking



3.9 Walking

Figure 3.4 shows the walking infrastructure in the vicinity of the site. The site benefits from good pedestrian accessibility to public transport services and local amenities. There are footways on both sides of Acre Street which connects southwards with New Hey Road, providing walking access to a number of local businesses including a pub, restaurant, hair salon and a bank. Northwards Acre Street provides access to the residential area of Lindley and Daisy Lea Lane Recreation Ground. There are dropped kerbs to facilitate pedestrians crossing the minor junctions on Acre Street.

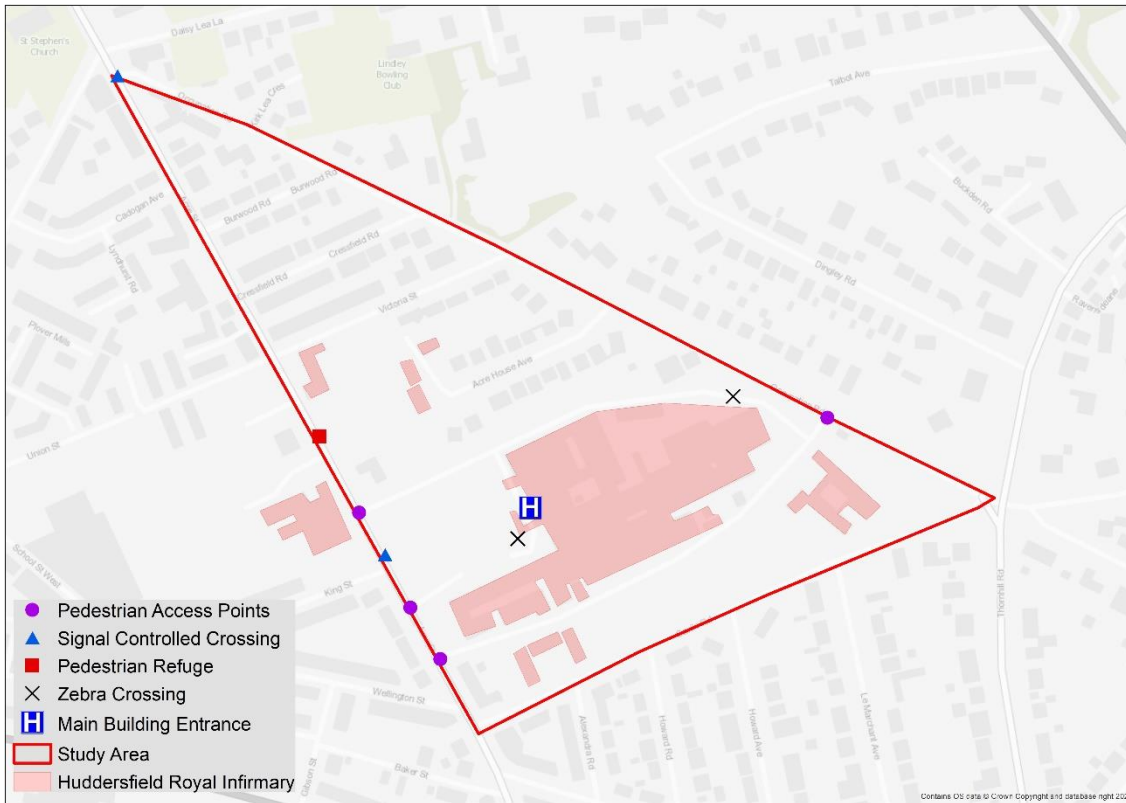
There is a signalised pedestrian crossing on Acre Street, approximately 45m north of the hospital's main public entrance denoted by dropped kerbs, tactile paving and short sections of guard railing adjacent to both carriageways. There is another crossing point over Acre Street approximately 60m further north, with dropped kerbs, tactile paving and a refuge island. Near the junctions with Occupation Road and Lidget Street there is a zebra crossing, with dropped kerbs, tactile paving and short sections of guard railing adjacent to both carriageways. 15m south of the junction with Thornhill Avenue there is a crossing point over Acre Street, denoted by dropped kerbs, tactile paving and a refuge island.

There are dropped kerbs and tactile paving at the junction of Occupation Road and Acre Street. There is a footway on the north-westbound side of Occupation Road.

There are short sections of uneven footway at either end of Savile Road. From the north, this extends for approximately 70m adjacent to the southwest bound side. From the junction with Acre Street, an uneven footway extends along the southwest bound side of Savile Road for approximately 140m until Howard Road.

Acre House Avenue provides a pedestrian access point into the site. There are footways on both sides of Acre House Avenue. These connect to a footpath which travels from Acre House Avenue to Acre Street. Local roads all provide street lighting.

Figure 3.4: Pedestrian infrastructure



3.10 Accessible Amenities

As part of the BREEAM transport criteria, sites are scored for their proximity to local amenities which are accessible via appropriate pedestrian routes within 500m of the building’s main entrance. The BREEAM compliant local amenities are outlined in Table 3.9. This shows that the site is accessible to four of the six possible local amenity categories for the building type.

Table 3.9: Accessible amenities

Local Amenity	Description	Walking Distance from Main Entrance (Metres)
Appropriate food outlet	Costa coffee / Spice of Life restaurant / The League of Friends Tea-bar / Amigo convenience store	On-site
Access to cash	ATM	On-site (main reception area)
Access to an outdoor space	Daisy Lea Lane / Playing Field New Hey Road	650m
Access to a recreation or leisure facility for fitness or sports	Reform Gym New Hey Road	800m
Publicly available postal facility	Post box	On-site (main reception)

Local Amenity	Description	Walking Distance from Main Entrance (Metres)
Over the counter services associated with a pharmacy	Rowlands Pharmacy	On-site (main entrance)

Whilst there are some outdoor spaces with benches available on-site, there are not enough to satisfy BREEAM criteria given the scale of the site.

3.11 Cycling

To the south of the site there are intermittent on-road cycle lanes along the A640 New Hey Road. Travelling southeast towards Huddersfield the cycle lane ends at the junction with Smiths Avenue. Travelling northwest the cycle lane extends to Salendine Nook. There are no greenways that connect to the site.

The closest National Cycle Network (NCN) route to the site is NCN Route 69 which connects Morecambe with Grimsby. Access to the route is located to the north of Huddersfield ring road approximately 2km east of the site.

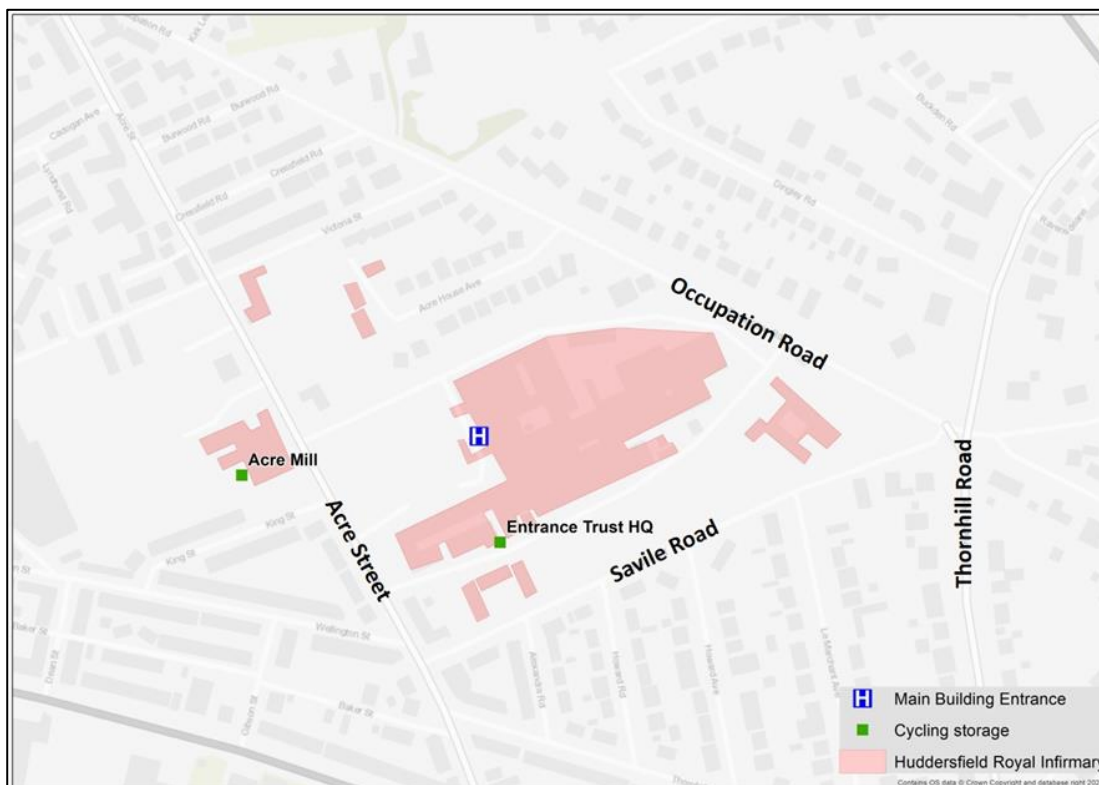
The Trust has advised that there are three cycle storage areas within the site at two locations (Figure 3.5) which provide storage for approximately 19 bicycles. The provision is outlined in Table 3.10

Table 3.10: Existing cycle storage

Location	Type	Capacity
Acre Mills OP	Cycle shelter with Sheffield stands	Six Bicycles
Entrance by Trust HQ	Cycle shelter with Sheffield stands	Two Bicycles
Entrance by Trust HQ	Locker	Eleven Bicycles

Source: Calderdale and Huddersfield NHS Foundation Trust

Figure 3.5: HRI cycle storage locations



The Trust has advised that there is a large female locker room with one shower, a male locker room with one shower and two further small locker rooms in the basement corridor of block 1 (see Appendix A). All of which require door codes to enter. The Trust’s Cycle Provision and Use Site Survey (October 2020) notes that these facilities are mainly used by clinical staff and are not signposted and it is therefore assumed that non-clinical staff are unaware these facilities exist.

3.12 Public transport

As part of the BREEAM Accessibility Index (AI) scoring process, bus stops that are within 650m and rail stops / stations that are within 1km of the building’s main entrance have been identified. There are 19 bus stops and no rail stations which meet the BREEAM compliant public transport node criteria, the services and facilities available at these nodes are discussed in further detail below. Please note that since 2020 services are operating at a reduced level and in some cases have been suspended due to the ongoing COVID-19 pandemic.

3.12.1 Community Transport

Home from Hospital Service²

Community Transport Calderdale and Age UK Calderdale work in partnership to offer a free ‘Home from Hospital’ service to elderly and vulnerable patients in Calderdale and Greater Huddersfield. The service supports patients and residents who lack support with transport home after a stay in hospital. The Home from Hospital Service operates from both HRI and Calderdale Royal Hospital (CRH). Patients can also be met at home by Age UK staff who are able to offer

² <https://www.ctcalderdale.co.uk/seamless-home-from-hospital>

and arrange further support for those in need. Bookings are made through staff on the hospital ward.

Community Car Service³

Community Car Service provides support for the older and vulnerable who may struggle to leave their home due to having mobility problems, limited access to public transport and not having any family or friends nearby. This service can be used by patients attending medical appointments. There is a minimum charge of £2.25 per journey, with a mileage charge of 45p / mile after 5 miles. It is important to note that the mileage costs apply from the passenger leaving their home and returning there.

Patient Transport Service (PTS)⁴

Yorkshire Ambulance PTS provides NHS funded transport for eligible patients who are unable to travel to their healthcare appointment by other means due to their medical condition. The service undertakes almost one million non-emergency journeys every year, making it one of the largest providers in the UK.

Bookings can be made between 08:00 and 18:00 by calling 0300 330 2000. Patients are given a collection time to be taken to their appointment. From the point the PTS is notified that the patient is ready to be collected, they should not have to wait any more than 90 minutes.

3.12.2 Public Transport - Bus

The Institution of Highways and Transportation (IHT) publication 'Guidelines for Planning for Public Transport in Developments' recommends a maximum walking distance to bus stops of 400m, with a preference for less than 300m.

The two closest bus stops to the hospital are Huddersfield Royal Infirmary / Acre Street (southbound) which is approximately a 110m walk from the hospital's main entrance and Huddersfield Royal Infirmary / opp Acre Street (northbound) which is approximately a 215m walk.

Pedestrians can travel via the footways on Acre Street before crossing the hospital car park entrance and utilising the footpath which runs adjacent to the hospital car park leading to the main entrance. Pedestrians travelling to / from the Acre Street northbound stop can cross Acre Street at a signalised pedestrian crossing located approximately 50m south of the bus stop. The footways on Acre Street have street lighting and are a minimum of 2m wide.

The Acre Street southbound bus stop has a shelter and raised bus boarding kerbs and the Acre Street northbound stop is denoted by a flag post and raised bus boarding kerbs.

There are 19 bus stops within 650m of the main building's entrance which is the BREEAM compliant public transport node criteria. The location of the bus stops is shown in Figure 3.6. The available services and their corresponding frequencies are outlined below in Table 3.11. Please note that since 2020 services are operating at a reduced level and in some cases have been suspended because of the ongoing COVID-19 pandemic.

³ <https://www.ctcalderdale.co.uk/community-car-service>

⁴ <https://www.yas.nhs.uk/our-services/patient-transport-service-pts/managing-your-booking/>

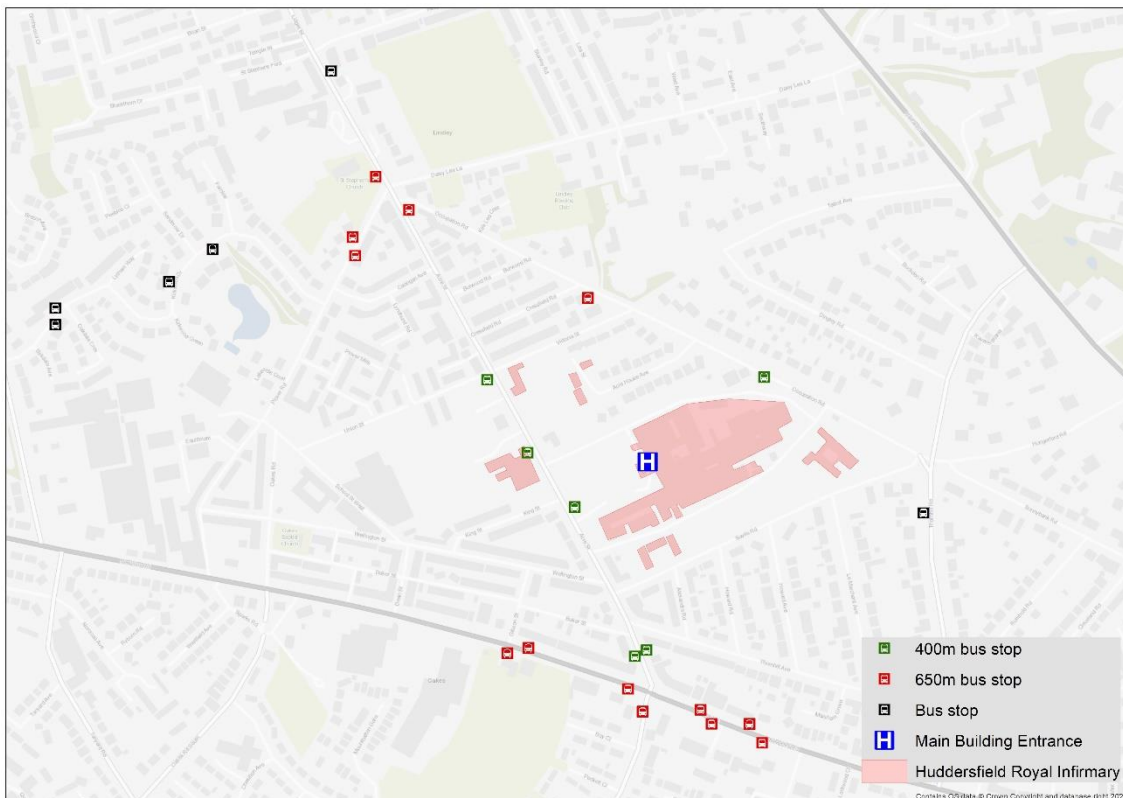
Table 3.11: Bus services

Table Bus Service	Route	Operator	Nearest Stop	Quantity of Weekday Services (07:00 – 20:00)	Average Number of Services per Hour
317	Lindley - Milnsbridge - Lockwood - Almondbury	Stotts Coaches	Huddersfield Royal Infirmary-Acre Street (SB) 110m	2	0.15
343	Huddersfield - Marsh - Royal Infirmary - Lindley - Blackley - Elland - Barkisland - Halifax	Yorkshire Tiger	Huddersfield Royal Infirmary-Acre Street (SB) 110m	12	0.92
370	Rawthorpe – Huddersfield – Lindley Circular	First Bus	Huddersfield Royal Infirmary-Acre Street (SB) 110m	36	2.77
371	Lindley – Salendine Nook – Huddersfield – Dalton	First Bus	Huddersfield Royal Infirmary-Opp Acre Street (NB) 215m	34	2.61
372	Almondbury – Waterloo – Huddersfield – Marsh – Royal Infirmary – Lindley	First Bus	Huddersfield Royal Infirmary-Acre Street (SB) 110m	62	4.77
378	Huddersfield – Marsh – Oakes – Lindley – Mount	CT Plus (Yorkshire)	Huddersfield Royal Infirmary-Acre Street (SB) 110m	12	0.92
388	Huddersfield Royal Infirmary - Milnsbridge - Linthwaite - Helme - Meltham	Stotts Coaches / Metro	Huddersfield Royal Infirmary-Acre Street (SB) 110m	4	0.31
501	Huddersfield – Marsh – Lindley – Ainley Top – Elland – West Vale – Halifax	First Bus	Huddersfield Royal Infirmary-Acre Street (SB) 110m	2	0.15
503	Halifax – Edgerton – Ainley Top – Elland - Huddersfield	First Bus	Halifax Rd / Hungerford Road (800m)	68	5.23
536	Huddersfield - Outlane - Stainland - Halifax	Yorkshire Tiger	New Hey Road / Acre Street (500m)	1	0.07

Table Bus Service	Route	Operator	Nearest Stop	Quantity of Weekday Services (07:00 – 20:00)	Average Number of Services per Hour
537	Huddersfield - Marsh - Outlane - Stainland - Elland - Halifax	Yorkshire Tiger	New Hey Road / Acre Street (500m)	1	0.07
901	Huddersfield - Stainland - Barkisland - Ripponden - Cragg Vale - Mytholmroyd - Hebden Bridge	TLC Travel	New Hey Road / Acre Street (500m)	5	0.38

Source: [Stotts Coaches](#); [Yorkshire Tiger](#); [TLC Travel](#), accessed June 2021

Figure 3.6: Bus stops



Source: Mott MacDonald

3.12.3 Public Transport – Rail

The closest station is Huddersfield Rail Station situated approximately 3.1km (2.7km when travelling on foot) from the hospital site in the town centre. The station has a Cycle Hub located on platform 1 that has 54 storage spaces and there is a taxi rank outside of the station. Northern Railway and TransPennine Express operate the station. Huddersfield station provides connections to key stations such as Leeds, Bradford Interchange and Manchester Victoria.

Lockwood Station is approximately 4.4km from the hospital site. This is a local station and is a calling point on the Northern service between Sheffield and Huddersfield. There are 10 bicycle storage stands located in the station car park. There is no taxi service available. Northern railway operate the station.

The available services and their corresponding journey times and frequency are shown in Table 3.12. Please note that since 2020, services are operating at a reduced level and in some cases have been suspended because of the ongoing COVID-19 pandemic.

Table 3.12: Rail services

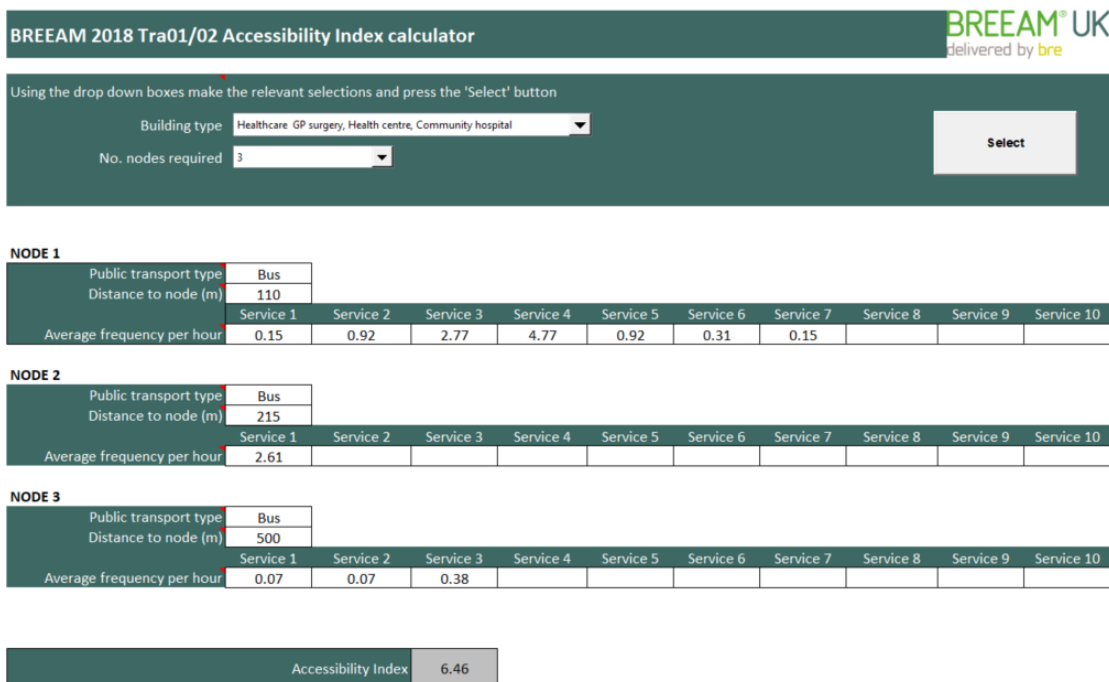
Destination	Journey Time (Approx.)	Frequency (trains per hour)
Leeds	24 minutes	4
Halifax	21 minutes	1
Bradford Interchange	49 minutes	3
Manchester Victoria	30 minutes	2
Sheffield	1 hour 20 minutes	1
Wakefield Kirkgate	1 hour	2

Source: National Rail

3.13 Public Transport Accessibility Index

The site's Accessibility Index (AI) has been calculated based on an assessment of existing public transport options at the compliant nodes identified in Section 3.12. The assessment uses the BREEAM Tra01/02 Accessibility Index calculator and considers public transport type, distance to the node and the average frequency of services per hour. Figure 3.7 shows that HRI has an Accessibility Index score of 6.46.

Figure 3.7: Accessibility Index



Source: Mott MacDonald

3.14 Staff Benefits

There are a number of schemes operated by the Trust to support staff travel. These are advertised on the benefits page of the Trust's intranet and on posters inside and outside the General Offices at both sites.

3.14.1.1 Cycle to Work Scheme

The bike scheme allows staff members to purchase a bike and pay for it through a salary sacrifice arrangement. The cost of the bike is spread out over 18 months and is paid through pre-tax pay. In October 2020, the Trust advised that 36 bikes had been ordered in the past year. This is the figure for the whole Trust.

3.14.1.2 Salary Sacrifice / Car Benefit Scheme

The Salary Sacrifice and Car Benefit Scheme allows employees to drive a brand-new car, and a fixed price cost is paid directly out of their salary. Staff have the option to choose an electric vehicle. In October 2020, the Trust advised that 239 cars were in use by staff via the scheme across the whole of the Trust.

3.14.1.3 Parking Permits

The workplace benefits service works with payroll to provide colleagues the opportunity to pay for their parking permit through a benefits scheme, meaning their permits cost them less each month.

3.14.1.4 Discounted Metrocards

Staff can save 12% of the cost of travel with a Corporate Metrocard / MCard, valid on buses and trains throughout West Yorkshire. Staff can apply at any time of year and pay monthly through their salary. The Trust advised that prior to the COVID-19 pandemic approximately 60 staff were members of the scheme. This is the figure for the whole Trust, not just those staff working at HRI.

3.14.2 Shuttle Bus⁵

Calderdale and Huddersfield NHS Foundation Trust offers a free shuttle bus service for staff that runs between CRH and HRI. Services run between 06:30 and 22:00 Monday to Friday and between 13:00 and 21:00 Saturday and Sunday. Three buses operate between 06:30 and 18:30 Monday to Friday. One bus runs in the evenings and at weekends.

The shuttle bus is a non-stopping express service, operating via the A629 from bus stops at the HRI main entrance and CRH main entrance. There is a designated parking space for the bus at HRI but no further bus stop infrastructure. Passengers are asked to wait in the foyer of the hospital in inclement weather. CRH has its own designated stop outside the main entrance, parking restrictions prevent parking at any time by any other vehicles, and there is a small shelter for passengers.

The Trust has advised that between April 2019 and March 2020, the service carried a total of 134,753 passengers. The average utilisation on weekdays at peak times was 55%. During the evenings and weekends the average utilisation was 25% and 19% respectively.

⁵ <https://www.cht.nhs.uk/patients-visitors/finding-us/shuttle-bus-service-for-timetables-see-below/>

The peak travel times were identified as Monday to Friday:

- 07:00 - 0900;
- 11.30 - 13.00; and
- 16.00 - 18.00.

The average journey time during the peak periods was 25 minutes and during off-peak / evenings / weekends was 14 minutes.

3.15 Local Highway Network

The hospital site is bounded by Acre Street to the west, Savile Road to the south and Occupation Road to the east. Acre Street is a 30mph single carriageway road, extending from Lidget Street in the north to the A640 New Hey Road in the south. Parking restrictions vary along the length of Acre Street with some on road parking including sections of permit parking, as well as short stay 1 hour and no return within 1 hour parking with double yellow restrictions elsewhere. Permit holder parking for residents is available; opposite Wellington Street, opposite the hospital main public access road, near Union Street and opposite Burwood Road to the north of the site.

Acre Street meets the A640 New Hey Road at a roundabout junction 230m south from the hospital's main public entrance. The A640 New Hay Road has a 30mph speed limit in the vicinity of the site. New Hey Road connects with the Huddersfield ring road and onwards to the A629 and A642 for eastward connectivity to the urban centres of Wakefield and Barnsley. Travelling north westwards the A640 meets the M62 at junction 23. The M62 provides connections to Rochdale and onwards towards Bradford and Leeds. The A629 Halifax Road northeast of the site is a 40mph single carriageway road, which connects to the M62 at junction 24 and the A62 Huddersfield ring road to the south.

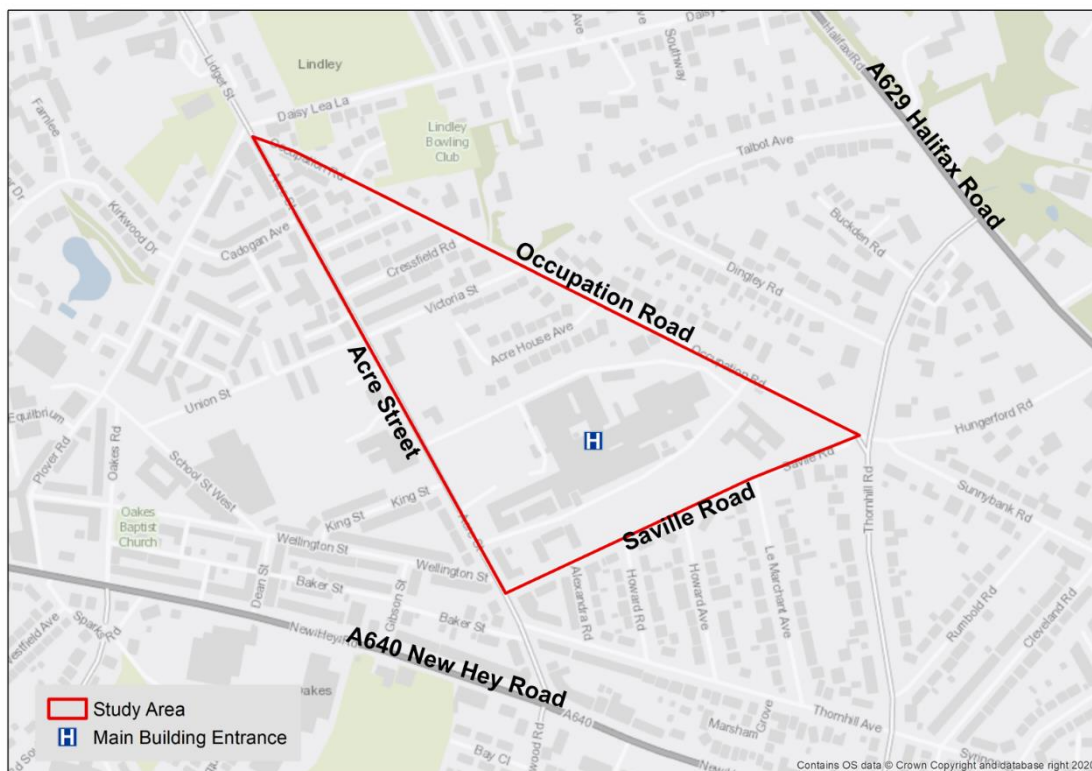
The main public vehicular access to the site from Acre street is provided by a private, one-way single-track estate road with double yellow parking restrictions along its length. This leads to the main car park, which exits onto the 5mph private estate road along the northern perimeter of the site, which in turn meets Acre street at a priority junction. There is a private barrier controlled estate road (South Drive) which is open to the public and which runs parallel to Savile Road and extends the length of the site from Acre Street in the west to Occupation Road in the east. From here the private estate road network extends around the northern perimeter of the site to the exit from the main car park. This section of the estate road network has no designated access controls.

Occupation Road is a single-track 30mph residential road of varying width, extending from the Savile Road / Thornhill Road / Hungerford Road / Sunnybank Road junction to Acre Street to the north. Parking restrictions vary along its length with some on-street permit parking and a mixture of single and double yellow restrictions.

Savile Road is an unadopted single-track road of varying width extending along the southern length of the site. This connects to several residential roads at priority junctions. On-street parking is available in both directions with no restrictions in place.

Figure 3.8 shows the local highway network surrounding the site.

Figure 3.8: Local highway network



Source: Mott MacDonald

3.16 Personal Injury Accident Data

Personal Injury Accident (PIA) records have been obtained from Kirklees Council for the last five-year period (January 2016 to April 2021) (see Appendix C). The data has been analysed to identify any potential clusters of collisions within the study area. For the purpose of this assessment, a collision cluster has been defined as five or more collisions within a 30-metre radius of each other.

The accident data shows that there are no collision clusters, (five or more collisions), within the study area within the last five-year period. The individual collisions that occurred within the study area during this time period are illustrated in Figure 3.9.

Figure 3.9: Personal injury accident locations



In total seven accidents occurred within the study area between 2016 and 2021, four of which were serious. Four accidents involved pedestrians, two slight and two serious accidents.

The two accidents which occurred closest to the site were both serious, one of which involved a pedestrian. One serious collision occurred in the vicinity of the hospital's Acre Street access to its northern perimeter road. This occurred on Friday 7th July 2017 at 14:39 and involved one vehicle leaving the hospital's northern perimeter road and colliding with the wall opposite the junction in front of the Medical Centre. No pedestrians were involved.

North of this, a further serious collision occurred on Monday 14th November 2016 at 17:40 on Acre Street just south of Victoria Street. A pedestrian entered the carriageway from the nearside and was hit by a vehicle.

4 Development Proposals

4.1 Introduction

This section summarises the development proposals.

4.2 Overview of Proposed Developments

This TA has been prepared in support of the proposed reconfiguration of facilities at HRI by Calderdale and Huddersfield Solutions Ltd. The proposals involve the demolition of existing staff residence buildings and construction a new A&E Department (circa 2,534 sqm) together with associated vehicular access, car and cycle parking spaces, plant and landscaping. The reconfiguration of hospital services in tandem with the proposals at CRH will see staff levels at HRI change from approximately 3317 to 2478 and bed numbers from approximately 420 to 168. The existing A&E building will be decommissioned, once services have been decanted to the new facility, and there are no plans for expansion of services within the space.

An estate masterplan has been prepared by Calderdale and Huddersfield NHS Foundation Trust and development area 3 has been identified as the preferred location for the new A&E Department, as shown in Figure 4.1.

The proposed development is on the site of an existing two storey building (Savile Court) and surface car parking. Savile Court has historically provided staff rest accommodation. However, Savile Court is coming to the end of its functional life and is largely vacant with limited use. Alternative rest accommodation will be provided in existing hospital floorspace on the estate.

Figure 4.1: Proposed development area 3



Source: IBI HRI Estate Masterplan draft January 2021

4.3 Proposed Access Arrangements

The reconfiguration will leave much of the current access arrangements unchanged but will relocate the A&E to a new building off South Drive. The proposed 'blue light' ambulance access / egress route and A&E Department drop off area will therefore move to the existing two-way access that leads to South Drive and South Drive itself will be re-routed round the new A&E Department to run closer to Saville Street. This relocation may entail a minor reduction in length of the existing permit holder only parking bay opposite the South Drive access, to ensure blue light ambulances can exit the site, but all other access points and external highway provision will remain unchanged. Please see Appendix D for the results of the swept path analysis.

4.4 Hours of Operation

Operating hours will remain the same and, whilst the site will remain open at all times, the hospital's current main hours of operation are 07:00-20:00, seven days a week. The new A&E Department will operate 24 hours a day. It is anticipated that nurse shift patterns will be 8:00-16:00, 12:00-20:00 and 16:00-00:00 (midnight).

4.5 Proposed Parking

The proposed development is on the site of an existing two storey building (Savile Court) and surface car parking. The proposed development will have a total of 37 staff and visitor parking spaces including 22 standard parking spaces, 9 disabled parking spaces and 6 electric vehicle charging spaces. There will also be four ambulance bays. Overall, this will result in a net loss of 96 standard staff and visitor parking spaces, see Table 4.1, but it should be noted that the Trust is seeking to increase the capacity at Acre Mills Outpatients car park to offset this loss.

Table 4.1: Proposed parking

Parking Format	Proposal	Comments	
	Car - standard	22	Net loss of 96 spaces
	Car – disabled	9	No net loss
	Car – Electric Vehicle	6	
	Car - Total	37	Net loss of 96 spaces
Staff and Visitors	Bicycles - long-stay (secure / covered)	19	8 net additional. Commitment to deliver an additional 2 spaces elsewhere on the estate
	Bicycles - short-stay (Sheffield stands or similar around the development)	0	Commitment to deliver an additional 10 spaces elsewhere on the estate
	Bicycles - Total	19	
Ambulance	Standard	4	

Source: Calderdale and Huddersfield NHS Foundation Trust

4.5.1 Visitors / outpatients

Currently there are 854 spaces including 53 blue badge bays across the main HRI site and 709 total spaces including 10 blue badge bays at Acre Mills. As noted above, the Trust is seeking to increase the capacity at Acre Mills Outpatients car park to offset any loss resulting from the development proposals.

4.5.2 Staff

There are two car parks on the Acre Mills site and eight on the main site that staff can utilise. Staff must display their parking permits. The car parks, their access control arrangements, payment methods and capacities are detailed in Table 3.7 and Table 3.6

4.6 Parking During Construction

Whilst much of the 854 spaces across the main site will be unaffected during construction, there will be some permanent changes to the numbers of parking spaces along South Drive. Construction is expected to start in Q4 2021 and will conclude in Q1 2023. This will result in a permanent net loss of 96 standard staff and visitor parking spaces but it should be noted that the Trust is seeking to increase the capacity at Acre Mills Outpatients car park to offset this loss.

4.7 Staff and Servicing Arrangements

Existing staff at HRI will continue to operate the proposed development upon completion. The Trust has advised that there will be a reduction in staff at HRI once the reconfiguration proposals at both hospitals are complete in 2026 (as detailed in Section 4.5).

The servicing of the site with respect to deliveries and waste will remain unchanged from the current arrangements.

5 Operational Impact Assessment

5.1 Introduction

This chapter summarises the likely traffic and transportation impacts of the proposed development.

5.2 Analysis Period

An independent car parking accumulation and beat survey was undertaken on Thursday 10th December and Saturday 12th December 2020 for all of the areas of parking at HRI (see Appendix E). According to the car park accumulation and parking beat survey the weekday AM peak period for hospital trips is 08:00 - 09:00 and PM peak period is 16:00 - 17:00. However, the PM peak falls outside the peak period of demand on the highway network.

As such, the TA considers the following peak periods for trip generation associated with the proposed development:

- Weekday AM Peak: 08:00 - 09:00; and
- Weekday PM Peak: 17:00 - 18:00.

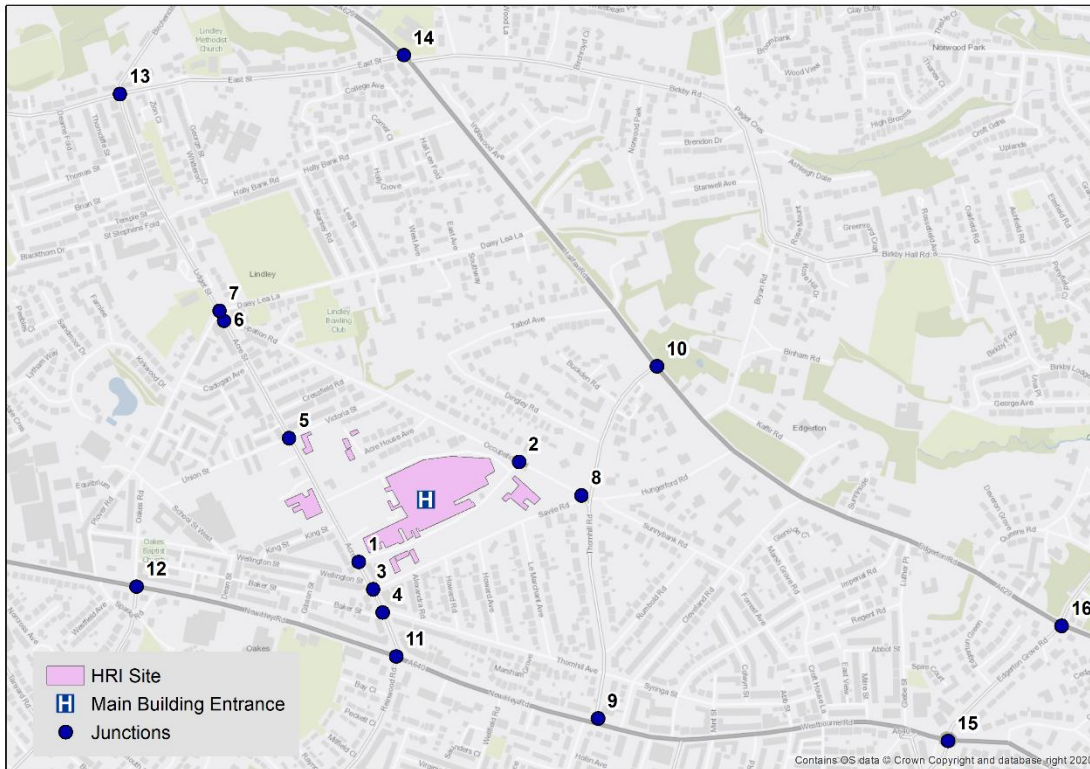
This approach is considered to provide a robust, worst-case assessment for hospital trip generations.

5.3 Traffic Surveys

Due to the ongoing impacts of the COVID-19 pandemic, traffic data surveys could not be commissioned and, as such, following discussion with the local authority data was acquired for the wider highway network from Calderdale and Kirklees' Strategic Transport Model. Because of the scale of the SATURN model, data for the junctions in the immediate vicinity of the hospital (junctions 1 - 6 in Figure 5.1) could not be obtained. However, data for the wider network was obtained for the following junctions:

- 7. Lidget Street / Acre Street / Plover Road;
- 8. A629 Halifax Road / Occupation Road / Hungerford Road / Sunnybank Road / Savile Road (only the A629 Halifax Road is modelled);
- 9. A640 New Hay Road / Thornhill Road;
- 10. A629 Halifax road / Thornhill Road;
- 11. A640 New Hay Road / Acre Street / Reinwood Road;
- 12. A640 New Hay Road / Sparks Road / Plover Road;
- 13. West Street / Birchencliffe Road / East Street / Lidget Street;
- 14. A629 Halifax Road / Birkby Road;
- 15. A640 Westbourne road / Edgerton Grove Road / A640 Trinity Street / Gledholt Road; and
- 16. A629 Edgerton Road / Blacker Road / Edgerton Grove Road.

Figure 5.1: Traffic data junctions



Source: Mott MacDonald

5.4 Assessment Assumptions and Limitations

The operational assessment that has been undertaken and reported within this TA is based on the data provided from, and accuracy thereof, of the Calderdale and Kirklees' Strategic Transport Model.

5.5 Scenarios

Whilst construction of the HRI proposed development is due to be completed in 2023, the proposed development at CRH is not due for completion until 2026. As the development proposals between the two sites are linked and service and staffing changes will only take place at HRI once CRH is complete, an opening year of 2026 has been assessed.

Assessments have been undertaken to consider the operation of the highway network both with and without the proposed development. The following scenarios have therefore been considered:

- Forecast Year (2026) Do-Minimum (without the proposed development); and
- Forecast Year (2026) Do-Something (with the proposed development in place).

The Do-Minimum scenarios assume no development at HRI. However, traffic growth from committed developments contained within Calderdale and Kirklees' Strategic Transport Model, as detailed in section 5.6 below, are applied to the base 2026 data.

The Do-Something scenarios assume that the proposed development at HRI is in place. These scenarios replicate the Do-Minimum Scenarios, but account for the reductions in traffic that will result from the reduced bed and staff numbers at HRI.

5.6 Committed Developments

The A629 Phase 1b scheme is included in the Do Minimum forecasts and therefore flows along the Calderdale section of the A629 have increased as a result of the additional capacity.

5.7 Development Trip Generation

5.7.1 Trip Generation Overview

This section details the trip generation methodology for the proposed development of a new A&E Department at HRI.

There is an absence of suitably representative TRICS sites available to forecast the likely development traffic and hence a TRICS-based approach to trip generation forecasting has been discounted. An alternative methodology has therefore been used based on recently captured car parking survey information and the proposed reduction in bed numbers across the HRI site expected as a result of the reconfiguration works. This alternative methodology is deemed to more accurately reflect the likely changes in trips resulting from the development proposals.

An independent car parking survey was undertaken on Thursday 10th December and Saturday 12th December 2020 for all of the areas of parking at HRI. The survey results captured the total inbound and outbound traffic movements, along with the parking accumulation and occupancy at each individual car park at 15-minute intervals (Appendix E). For the purposes of this trip generation exercise, only the weekday parking survey results have been utilised, as it is considered that weekend traffic flows on the surrounding network will be reduced and the weekday AM and PM periods represent the worst case.

The car parking beat surveys have been undertaken at the following locations:

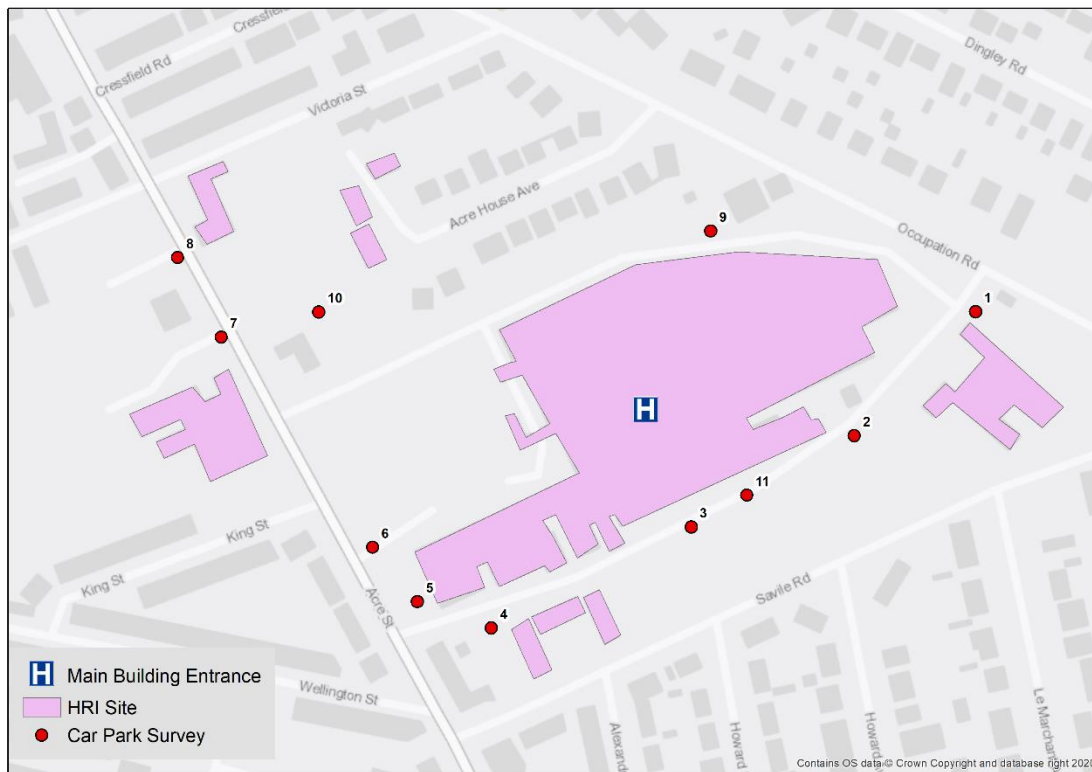
- 1. Learning and Development Centre Car Park (Main);
- 2. Old Tennis Court Car Park;
- 3. Priority Car Park;
- 4. Saville Court Car Park;
- 5. Drop Off Point;
- 6. Main Car Park;
- 7. Acre Mills Main Car Park;
- 8. Acre Mills Overflow;
- 9. North Drive;
- 10. Glen Acre House; and
- 11. South Drive.

The location of the parking survey counts are shown in Figure 5.2.

Data was collected for the full 24-hour period during normal (albeit COVID-19 pandemic) traffic flow usage conditions during school term time. Weather conditions were recorded as overcast.

Further details of the method applied to derive changes in trip generations is provided in the following sections.

Figure 5.2: Car parking survey locations



Source: Mott MacDonald

5.7.2 Do-Something Trip Generation

The proposed reconfiguration programme will involve the Trust moving to operate a planned care site at HRI and an unplanned care site at CRH. Under the proposals acute care and longer stay patients will be at CRH, with HRI carrying out day case and elective procedures alongside the proposed emergency department. This model will see the bed base increase at CRH with a corresponding decrease in bed requirements at HRI. Overall the bed base will remain consistent with the current bed capacity across the Trust.

The Trust have confirmed that as part of the proposed reconfiguration works it is anticipated that there will be a reduction in bed numbers at HRI from 420 existing, to 168 proposed, a 60% decrease across the site. This has been considered further in the tables below.

Table 5.1 and Table 5.2 provide the total vehicle inbound and outbound traffic movements during the AM and PM periods respectively. This total has been calculated by combining the data from all of the car parking sites included in the recent survey on Thursday 10th December 2020. It is considered a very robust methodology as it includes trips that are short stay / drop-offs and pick-ups, trips that route around the site frequently, as well as servicing and delivery vehicles. These show that the peak weekday arrival time is 08:00-09:00 and the peak departure time is 16:00-17:00.

Table 5.1: Observed arrivals and departures in the AM peak

Thursday 10th December AM

Time	Inbound	Outbound
07:00	38	15
07:15	82	29
07:30	134	40
07:45	143	32
07:00 - 08:00	397	116
08:00	131	37
08:15	140	29
08:30	115	45
08:45	89	39
08:00 - 09:00	475	150
09:00	80	49
09:15	79	54
09:30	62	50
09:45	56	43
09:00 - 10:00	277	196

Source: 2020 Traffic Surveys

Table 5.2: Observed arrivals and departures in the PM peak

Thursday 10th December PM

Time	Inbound	Outbound
15:00	42	88
15:15	41	62
15:30	48	70
15:45	34	60
15:00 - 16:00	165	280
16:00	30	94
16:15	42	88
16:30	35	96
16:45	38	100
16:00 - 17:00	145	378
17:00	26	124
17:15	19	69
17:30	17	60
17:45	13	38
17:00 - 18:00	75	291

Source: 2020 Traffic Surveys

The 60% decrease in bed numbers has then been applied to the surveyed inbound and outbound movements to determine a suitable trip generation for the post reconfiguration situation. The resultant reduced traffic flows are shown in Table 5.3 and Table 5.4.

Table 5.3: Arrivals and departures in the AM peak post reconfiguration

Time	Inbound	Outbound
07:00	15	6

07:15	33	12
07:30	54	16
07:45	57	13
07:00 - 08:00	159	46
08:00	52	15
08:15	56	12
08:30	46	18
08:45	36	16
08:00 - 09:00	190	60
09:00	32	20
09:15	32	22
09:30	25	20
09:45	22	17
09:00 - 10:00	111	78

Source: Mott MacDonald

Table 5.4: Arrivals and departures in the PM peak post reconfiguration

Time	Inbound	Outbound
15:00	17	35
15:15	16	25
15:30	19	28
15:45	14	24
15:00 - 16:00	66	112
16:00	12	38
16:15	17	35
16:30	14	38
16:45	15	40
16:00 - 17:00	58	151
17:00	10	50
17:15	8	28
17:30	7	24
17:45	5	15
17:00 - 18:00	30	116

Source: Mott MacDonald

When accounting for the decrease in bed numbers there will be a decrease in trips at HRI. In the AM peak 475 inbound trips and 150 outbound trips will be reduced to 190 inbound and 60 outbound trips. In the PM peak 75 inbound trips and 291 outbound trips will be reduced to 30 inbound trips and 116 outbound trips.

The current circumstances relating to the COVID-19 virus and the potential impact on travel patterns are recognised by Mott MacDonald and the Trust. Generally, hospitals have remained extremely busy throughout this period and therefore the parking surveys in December 2020 are considered a robust basis. Notwithstanding this, information has been obtained from the Trust which compares the operation of the site in November 2019 (pre-pandemic) and December 2020 (the date of the parking surveys) and allow a COVID-19 adjustment to be made to the trip

forecasts. The Trust have confirmed that November is typically the busiest month of the year and hence the adjustment described below is considered robust and representative of the worst case.

A comparison exercise between the November 2019 and December 2020 data has indicated that there was an overall reduction in activity at in December 2020, particularly with regards to patients and visitors. It is therefore deemed appropriate to apply a suitable factor to uplift the proposed trip generation values to allow for this. On this basis a factor of 1.27 has been adopted, which takes into consideration the impact of the reduction in day cases, elective surgery and emergency appointments due to COVID-19. The above services are more typically associated with the traditional network peak hours with regards to arrival and departure times, whereas A&E and outpatient appointments are more generally spread across the daytime – outside of the network peak hour (and therefore have not been included in this exercise).

Table 5.5 shows the potential peak hour trip generation as a result of the decrease in bed numbers, with and without the COVID-19 uplift factor of 1.27 applied.

Table 5.5: Potential peak hour trip generation

Method	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Bed reduction post reconfiguration	-285	-90	-45	-175
Bed reduction post reconfiguration with uplift (COVID-19 uplift factor)	-362	-114	-57	-222

The values quoted in Table 5.5 have been used to inform the capacity assessment work.

5.8 Existing Trip Distribution

Data for the wider highway network for 2024 was provided by AECOM from the Calderdale and Kirklees' Strategic Transport Model. Traffic flows were projected to 2026 by applying factors extracted from the Department for Transport's (DfT) TEMPRO v7.2 program using the definitive NTEM v7.2 database and the current NTEM dataset in line with WebTAG Unit 3.15.2 Use of TEMPRO Data. Table 5.6 and Table 5.7 show the TEMPRO adjusted factors for A roads and minor roads.

Table 5.6: TEMPRO adjusted factors for principal A roads

Mode	2024 to 2026	AM Peak	PM Peak
Car	1.02	1.017	1.017
LGV	1.02	1.023	1.024
HGV	1.00	1.001	1.002
PSV	1.00	1.001	1.002
Total	1.02	1.017	1.018

Source: Mott MacDonald

Table 5.7: TEMPRO adjusted factors for minor roads

Mode	2024 to 2026	AM Peak	PM Peak
Car	1.02	1.017	1.018
LGV	1.02	1.026	1.026
HGV	1.00	1.000	1.001
PSV	1.00	1.001	1.002
Total	1.02	1.018	1.019

Source: Mott MacDonald

Appendix F shows the total network flows for the Do-Minimum scenario.

5.8.1 Forecast Trip Distribution

The proposed hospital reconfiguration will change the pattern of hospital trips within the study area. In the Do-Minimum scenario (i.e. if the development does not take place), staff, patients and visitors will continue to access the site as in the existing situation. In the Do-Something Scenario, the numbers of staff, patients and visitors accessing the site will be reduced.

The Trust have made available anonymised historical staff postcode data. This has, in part, been used to inform the general origin and destination of staff travel and their routes to and from the hospital. In the absence of origin data for patients and visitors, census data for the population over the age of 17 (i.e. driving age) within the Calderdale and Kirklees Local Authority areas has been used.

To assess the change in traffic patterns, the most likely highway routes that staff and patients / visitors currently use through the study area to travel to the hospital have been assessed using route planning and spatial analysis GIS software.

The spatial assessment of staff and patient / visitor data and existing journey routes in relation to the study junctions is shown in Appendix G. A summary of the route entry point into and through the study area is provided in Table 5.8.

Table 5.8: Route analysis

Route	Junctions	% of Trips
Route 1	11,4,3,1	11%
Route 2	12,11,4,3,1	9%
Route 3	13,7,6,5	45%
Route 4	15,9,11,4,3,1	26%
Route 5	16,8,2	3%
Route 6	8,2	3%
Route 7	9,11,4,3,1	3%

Source: Mott MacDonald

Based on Table 5.8 this distribution would suggest that 40% of trips would approach the site from the south via junctions 11, 4, 3 (Routes 1, 4 and 7) and 45% of trips travel to the site from the north along Acre Street. Only 6% of trips (Routes 5 and 6) approach the site from the east via Occupation Road. Observed car parking beat survey counts at the North Drive and Learning and Development car parks, which are accessible via the access point on Occupation Road, support this conclusion, with relatively lower inbound trips at these car parks.

Existing staff, patient and visitor figures were supplied by the Trust. These were used to estimate the daily total trips made to the site. Post reconfiguration figures for staff and patients were also supplied. It was assumed that for the 168 post reconfiguration bed spaces, 70% would have visitors and there would be 95% bed occupancy. This assumption was used to estimate the total number of visitor trips to the site post reconfiguration. Given that the origins of patients / visitors could not be distinguished from one another, their trips were combined. It is acknowledged that this is likely to over-estimate staff and patient / visitor trips during the peak periods, as the calculation assumes a worst case scenario in that all staff are working a shift pattern of 09:00-17:00 and therefore travel during the peak periods and that there is an even distribution of patients and visitors throughout the day, whereas visitors are in reality less likely to travel within the network peaks. However, a further granulated assessment was not possible given the available data.

Table 5.9: Proportion of peak trips post reconfiguration

Staff	Patients / Visitors	Total
68%	32%	100%

Table 5.9 shows that in the 2026 Do-Something scenario it is assumed that staff will make up 68% of trips to the site. The expected reduction in trips due to the decrease in bed numbers (Table 5.5) have therefore been allocated proportionately to staff and patients / visitors. Table 5.10 shows the reduction in trips expected to the site post reconfiguration for staff and patients / visitors.

Table 5.10: Development trips

	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Staff trips	-247	-78	-39	-151
Patient/Visitor Trips	-115	-36	-18	-70
Total	-362	-114	-57	-222

The development trips (Table 5.10) have been distributed amongst the most likely highway routes based on the percentage of employees and patients / visitors likely to travel along said route, as shown in Table 5.11. Appendix H shows the development flows.

Table 5.11: Route trip distribution post reconfiguration

	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Route 1	-40	-13	-12	-32
Route 2	-31	-10	-9	-25
Route 3	-163	-51	-50	-129
Route 4	-95	-30	-29	-76
Route 5	-12	-4	-4	-10
Route 6	-11	-3	-3	-9
Route 7	-10	-3	-3	-8
Total	-362	-114	-110	-288

Source: Mott MacDonald

The total network flows for the Do-Something scenario are provided in Appendix I, which comprises the Do-Minimum flows, plus the trips associated with the development.

5.9 Junction Operational Assessment

The proposed development will reduce the number of beds, the number of staff and the number of patients and visitors on site and the total network flows for the Do-Something scenario show an overall decrease in traffic flow across the network. This indicates that junction capacity assessments at the junctions identified in Section 5.3 are not needed, as the impacts are likely to be beneficial, or negligible.

5.10 Parking Assessment

There have been historical issues with staff parking on neighbouring streets. During the ongoing COVID-19 pandemic, the Trust have made staff parking onsite free of charge. This has increased staff usage and reduced issues on neighbouring streets.

A number of recent and / or soon to be implemented strategies will continue to reduce issues on neighbouring streets. Including the promotion of spare staff parking capacity in the Acre Mills Outpatients Main Car Park. Car Park barrier data provided by the Trust for 2019 - 2020 showed that on average, including staff, 37 spaces are occupied per hour compared with the 209 spaces available. Therefore, there are approximately 172 existing spaces per day available for staff to use, thus the loss of 96 spaces on the main site can be mitigated and accommodated within existing parking capacity.

In addition, the number of staff currently working from the hospital due to the ongoing COVID-19 pandemic and longer term operational strategy changes has significantly reduced over the past year. The Trust has advised that going forward working from home will continue to be part of its operational arrangements. As a result the demand for staff parking will be reduced.

A Park and Ride Scheme will also be launched in Autumn 2021. This will be provided by the Trust's transport service with car parks at Cedar Court at Ainley Top and Broad Street Plaza in Halifax. There are 50 spaces available at each park and ride facility, as well as more capacity provided on the shuttle service which includes a stopping point at Halifax railway station. Buses will depart at a minimum frequency of every 20 minutes. This is a staff only park and ride service and will be free to use. The scheme will be reviewed by the Trust at six monthly intervals to ensure any amendments can be incorporated to further refine and enhance the service.

Finally, once the reconfiguration proposals at both hospitals are complete in 2026, the number of staff at HRI will reduce from approximately 3317 to 2478. Thus in both the short and longer term the loss of 96 parking spaces will be mitigated by reduced demand for staff parking.

5.10.1 Visitors / outpatients

Visitors and outpatients can use both car parks on the Acre Mills site and seven of the car parks on the main site. There is one pay and display car park (North Drive) the rest are pay on exit. Pay stations are located throughout the site.

The development will cause a net loss of 96 car parking spaces along South Drive reducing visitors/outpatient parking in these car parks. However, priority parking provision for blue badge users will remain the same. As detailed above there is existing spare capacity in the Acre Mills car park which users will be signposted to via improved wayfinding.

5.10.2 Accessible Parking

Guidelines in the Kirklees Local Plan Policy LP21 are that provisions will be made to accommodate the needs of disabled people for the parking of vehicles. Despite the reduction in overall trips to HRI, and a reduction in overall parking provision, as a result of the development, the number of blue badge bay spaces will remain unchanged.

5.10.3 Electric Vehicles

Kirklees Council have not set local parking standards for residential or non-residential development. Ultra-low emission vehicles help to reduce greenhouse gas emissions and air pollution⁶. BREEAM UK New Construction (2018) guidance recommends that electric recharging stations of a minimum of 3kw for at least 10% of the total car parking capacity for the development should be installed. This equates to 4 electric vehicle parking spaces.

It is proposed that six electric vehicle parking spaces will be provided.

⁶ The Office for Low Emission Vehicles (OLEV): <https://www.gov.uk/government/organisations/office-for-low-emission-vehicles/about>

5.11 Walking and Cycling Impact

According to the 2020 Travel Plan survey 11% of staff currently walk to the site and 1% cycle. 12% of patients and 10% of visitors reported walking to the site but none reporting cycling to the site.

As part of the development proposals a significant increase in facilities are proposed to encourage trips by sustainable modes, including new cycle parking facilities. Eight additional long-stay cycle stands will be included within the development, as well as two additional long stay spaces and ten short stay spaces elsewhere on the site. Short stay spaces will be 'Sheffield stand' type facilities, the intention being that these are in a location that is convenient and secure through natural observation and near to a main entrance to their encourage use.

As part of the A629 Phase 4 scheme West Yorkshire Combined Authority, Kirklees Council and Calderdale Metropolitan Borough Council are working together and are proposing to create and improve cycle routes between Huddersfield and Halifax, which will involve; providing better links to HRI, using off-network green ways and on-highway cycle infrastructure. The additional provision of cycling facilities at HRI will help the Trust to capitalise on these improvements to encourage modal shift.

In 2021 the Trust also adopted a Travel Plan, which contains a range of practical measures designed to improve access to the site by sustainable modes of travel. This includes promoting cycle training and the cycle to work scheme for staff, engaging with Active Hospitals and promoting journey planning tools for staff and visitors. Full details can be found within the estate-wide Travel Plan.

5.12 Public Transport Impact

The development will not impact any existing bus stops or require amendments to any existing bus routes.

The Trust's Park and Ride Scheme, due to be launched in Autumn 2021, will provide staff with a regular free service to the hospital from Cedar Court at Ainley Top, Broad Street Plaza in Halifax and Halifax railway station. This will improve sustainable transport access to the site.

5.13 Safety

As detailed in section 3.153.16 no collision clusters, (five or more collisions), have been identified within the study area using the specified criteria within the last five-year period. However, it is noted that four accidents involved pedestrians, two slight and two serious within the study area.

The two accidents which occurred closest to the site were both serious, one of which involved a pedestrian. The closest accident to the site involving a pedestrian, was a serious collision on Acre Street just south of Victoria Street. However, the pattern of traffic is forecast to change and the total traffic volume is forecast to reduce once the schemes at both sites (HRI and CRH) become operational in 2026, which should benefit road safety within the study area.

The provision of new footways into the development from the junction with Acre Street, around the proposed A&E Department and within the proposed car parking areas, together with wayfinding signage will ensure connectivity for pedestrians.

Within the parking areas, the prioritisation of pedestrians will be enforced through the provision of zebra crossings and the 5mph speed limit will ensure vehicle speeds are kept low. The development proposals are therefore not anticipated to have a significant safety impact within the hospital site itself.

6 Construction Impact

6.1 Introduction

This chapter provides a consideration of the impact of construction traffic and activities on the surrounding area.

6.2 Construction Traffic

It is likely that there will be an increase in transport movements during the construction phase as a result of the contractor workforce, material delivery and waste removal.

Prior to the commencement of any works on site, it is likely that Kirklees Council will require a Construction Traffic Management Plan (CTMP) to be formulated and submitted by the contractor for agreement. The objective of a CTMP is to minimise the impacts of construction traffic on the local highway network and to avoid unnecessary disruption to local residents, schools, and businesses.

Notwithstanding the above it is currently expected that construction staff parking, offices and materials stores etc. would be located within the hospital site in order to minimise disruption to adjacent residential streets during the construction phase.

7 Conclusion

This TA has considered the traffic and transportation impacts of the development proposals in support of a planning application for the erection of a clinical building to accommodate an A&E Department together with associated vehicular access, car and cycle parking spaces, plant and landscaping at Huddersfield Royal Infirmary.

This Transport Assessment has been assembled in accordance with National Planning Policy Framework guidance, Kirklees Council guidance and best practice. The methodology used to determine the likely transport impacts of the development has been discussed with the local Highway Authority, Kirklees Council, and is detailed within this report. Any assumptions made are considered to be reasonable and offer a robust assessment of the scheme.

The accessibility of the site by walking and cycling has been considered. The number of staff, patient and visitors that travel to HRI by walking or cycling is currently very low. As part of the proposals for the development, an increase in facilities are proposed to encourage trips by sustainable modes, including new footways and secure cycle parking facilities.

The site is well connected to the wider pedestrian and cycling network, which provide safe and appropriate access to local amenities that are within the IHT and BREEAM guidance recommended distances, as well as to local public transport provision which provides onward connections to key nearby towns.

An estate-wide Travel Plan has been developed with the aim of improving access for staff, patients and visitors to the site by sustainable modes of travel. A number of objectives and measures have been proposed to achieve this.

In relation to BREEAM UK New Construction (2018) it has been established that HRI has an Accessibility Index score of 6.46 and is within 500m of four accessible amenities.

The proposed development will result in a net decrease in vehicle trips. It is therefore considered that it will have a beneficial, or negligible, impact on the surrounding highway network. It has also been demonstrated that there are no road safety concerns in the vicinity of the site that would be exacerbated by the development proposals.

In conclusion, the scheme is in accordance with relevant local and national transport planning policies with regards to ease of access to sustainable travel modes and the promotion of active travel. The proposed infrastructure minimises conflicts between traffic and pedestrians and maintains access to public transport. The residual impact on highway network performance has been demonstrated to be negligible.

A. Existing Building Maps

Figure 7.1: HRI existing building maps



Source: [Calderdale and Huddersfield NHS Foundation Trust](https://www.nhs.uk)

B. Site Location Plan



Notes:

- This drawing is copyright.
- Do not scale dimensions from this drawing.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

North Sign / Key Plan

Scale : 1:1250

The following external model files are included within this drawing:

P02	20/04/21	AMENDED PRE-APPLICATION DRAWING	KT	JK
P01	19/04/21	PRE-APPLICATION DRAWING	KT	JK
Rev	Date	Revision Notes	Dn	Rv

Client / Contractor

Intelligence Buildings Infrastructure
www.ibigroup.com

Project
Huddersfield Royal Infirmary: Emergency Department

Drawing Title
Site Location Plan

Job Number HG0052	Date 20/04/20	Scale@A2 1:1250
Status S	Purpose	

Drawing Number HG0052-IBI-ED-XX-PL-A-100004	Revision P02
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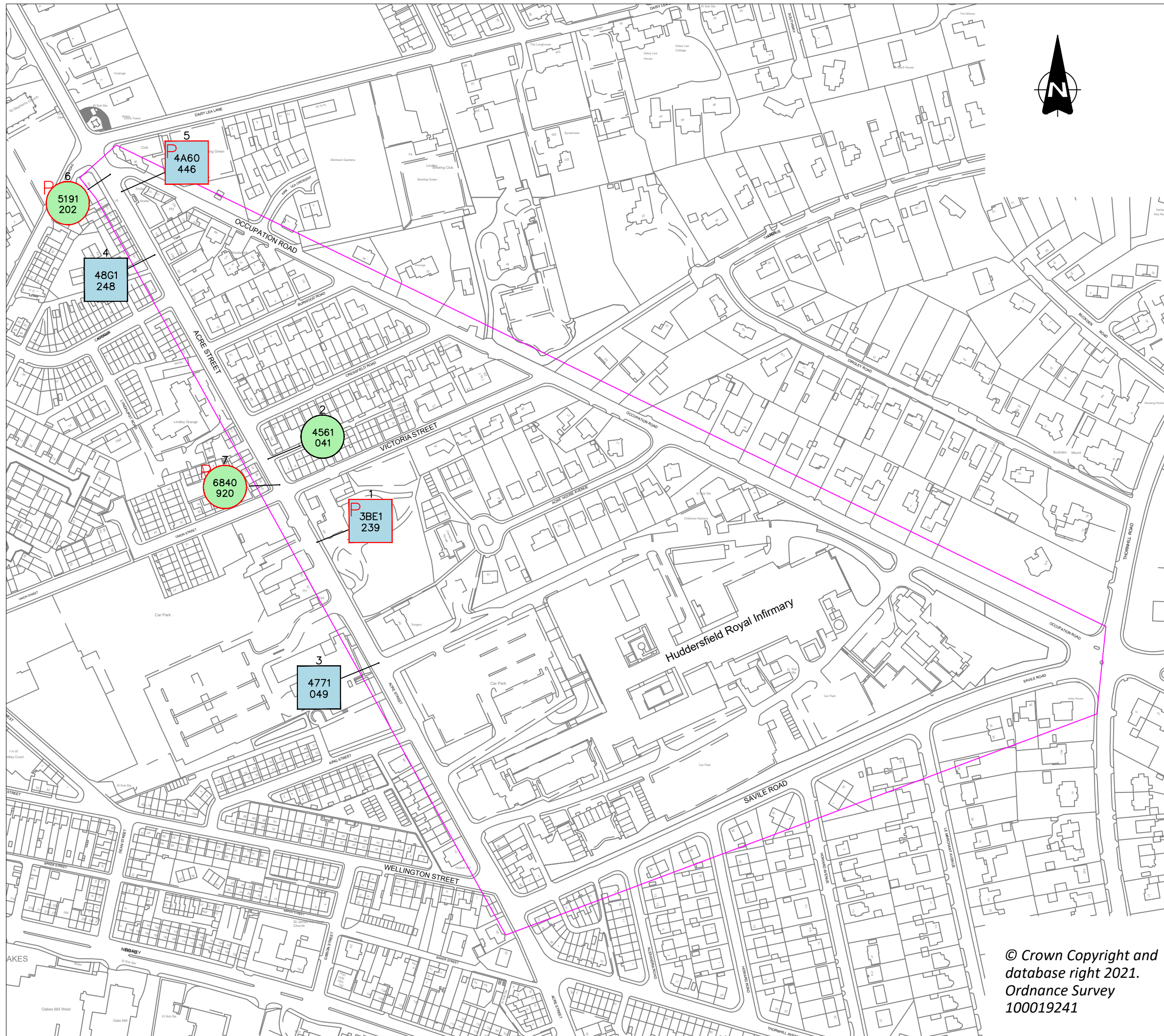
C. Accident Data

Huddersfield Royal Infirmary
Study Area
Provided by Kirklees Council
to Mott Macdonald

8th June 2021

Accident date range

01.01.2016
to
15.04.2021



Full Details Report Summary - Huddersfield Royal Infirmary Study Area - report

Accidents Found Date Range: 14/11/2016 - 04/08/2019

Grid Coordinate Range: 411891,417676 - 412078,418016

Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

Accident Severity

	2016	2017	2018	2019	Total
Serious	1	3	0	0	4
Slight	0	1	1	1	3
Total	1	4	1	1	7

Casualty Severity

	2016	2017	2018	2019	Total
Serious	1	3	0	0	4
Slight	0	1	1	1	3
Total	1	4	1	1	7

Casualty KSI

	2016	2017	2018	2019	Total
Adult KSI	1	3	0	0	4
Slight	0	1	1	1	3
Total	1	4	1	1	7

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:3BE1239 Serious Acre Street

Accident 1 of 7

1.7 Date & 1.9 Time.....Monday 14/11/2016 17:40	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....412035/417760	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....Not at or within 20m of junction
1.12/1.13 1st road identity..U	1.17 Junction control.....
1.18/1.19 2nd road identity..	1.24 Special conditions...None
1.22 Weather.....Rain	1.25 Carriageway hazards..None
1.21 Light conditions.....Dark/lights lit	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Wet

Contributory Factors

Crossed road masked by stationary or parked vehicle (Pedestrian)
 Failed to look properly (Pedestrian)
 Failed to judge vehicle's path/speed (Pedestrian)
 Stationary or parked vehicle(s) (Driver/Rider - Vision Affected)
 Dazzling headlights (Driver/Rider - Vision Affected)

Participant Confidence Did a police officer attend?

Casualty 001 Possible
 Casualty 001 Very likely
 Casualty 001 Possible
 Vehicle 001 Possible
 Vehicle 001 Possible

Accident Description

This collision has involved one vehicle and a pedestrian and has resulted in the pedestrian suffering serious injuries and damage to the vehicle. It is believed the circumstances of this collision are as follows: V1 is travelling along ACRE STREET and has just passed VICTORIA STREET to its nearside. V1 is positioned towards the centre of the road as there are parked cars on the nearside, near to the bus stop. It is believed that the pedestrians enters the carriageway from the nearside, masked by the parked cars and is hit by the vehicle. The weather was wet and the road surface wet. Traffic was fairly heavy due to the time of day. It was dark but there were street lights illuminated.

1 Vehicle

2.4 Veh ref no.....1	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Not at junction	2.18 Parts damaged..... / /
2.9 Restricted location..On main carriageway	2.21 Driver gender.....Female
2.8 Movement from/to...North west South east	2.22 Driver age.....28
2.7 Manoeuvres.....Going ahead other	
2.11 Skidding.....No	2.24 Hit and Run.....No
2.13 Left c'way.....Did not leave c'way	2.23 Breath test.....Negative
2.6 Towing.....No	2.29 Journey purpose.....Unknown
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Pedestrian	3.16 PSV passenger.....No
3.7 Gender.....Female	3.14 Seat belt usage.....Not applicable
3.8 Age.....23	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Serious	3.10 Pedestrian location..In c'way crossing elsewhere
3.4 Vehicle no.....1	3.11 Pedestrian movement..Crossing from drivers nearside
3.12 Ped Direction.....South west	3.12 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:4561041 Slight Acre Street Accident 2 of 7

1.7 Date & 1.9 Time.....Friday 05/05/2017 14:50	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....412001/417818	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....Not at or within 20m of junction
1.12/1.13 1st road identity..U	1.17 Junction control.....
1.18/1.19 2nd road identity..	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Daylight	1.5 Number of vehicles...2
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Dry

Contributory Factors

Careless/Reckless (Driver/Rider - Behaviour)
 Failed to look properly (Driver/Rider - Error)

Participant	Confidence	Did a police officer attend?
Vehicle 002	Very likely	
Vehicle 002	Possible	No - reported over the counter

Accident Description

V1 is a Ford Focus M16 MAE. V2 is a VW Golf (private plate) changed from . V1 was stationary on Acre Street when V2 collided with the rear causing slight damage and slight injury to the driver of V1. Details were exchanged at the scene.

2 Vehicles

2.4 Veh ref no.....1	2.16 First impact.....Back
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Not at junction	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Male
2.8 Movement from/to....Parked Parked	2.22 Driver age.....68
2.7 Manoeuvres.....Waiting to go ahead but held up	2.24 Hit and Run.....No
2.11 Skidding.....No	2.23 Breath test.....Not contacted
2.13 Left c'way.....Did not leave c'way	2.29 Journey purpose.....Unknown
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

2.4 Veh ref no.....2	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Not at junction	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Female
2.8 Movement from/to....North west South east	2.22 Driver age.....38
2.7 Manoeuvres.....Going ahead other	2.24 Hit and Run.....No
2.11 Skidding.....No	2.23 Breath test.....Not contacted
2.13 Left c'way.....Did not leave c'way	2.29 Journey purpose.....Unknown
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Driver or Rider	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Unknown
3.8 Age.....68	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Slight	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....1	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:4771049 Serious Acre Street

Accident 3 of 7

1.7 Date & 1.9 Time.....Friday 07/07/2017 14:39	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....412078/417676	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....T or Staggered junction
1.12/1.13 1st road identity..U	1.17 Junction control.....Give way sign or uncontrolled
1.18/1.19 2nd road identity..U	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Daylight	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Dry

Contributory Factors

Poor turn or manoeuvre (Driver/Rider - Error)
 Loss of control (Driver/Rider - Error)

Participant	Confidence	Did a police officer attend?
Vehicle 001	Very likely	
Vehicle 001	Very likely	Yes

Accident Description

Vehicle 1 is the only vehicle involved and the driver has accelerated out of a give way junction across Acre Street and collided with the wall opposite of the Medical Centre bringing the car to a sudden stop and the vehicle then flipped on to the driver side trapping the driver in the vehicle.

1 Vehicle

2.4 Veh ref no.....1	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.Wall or fence
2.10 Junction location...Mid junction	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Male
2.8 Movement from/to....North east South west	2.22 Driver age.....87
2.7 Manoeuvres.....Turning right	2.24 Hit and Run.....No
2.11 Skidding.....Overtaken	2.23 Breath test.....Not provided
2.13 Left c'way.....Left c'way near-side	2.29 Journey purpose.....Other
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Driver or Rider	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Not applicable
3.8 Age.....87	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Serious	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....1	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:48G1248 Serious Junction of Occupation Road and Acre Street Accident 4 of 7

1.7 Date & 1.9 Time.....Wednesday 16/08/2017 16:15	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....411922/417960	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....Crossroads
1.12/1.13 1st road identity..U	1.17 Junction control....Give way sign or uncontrolled
1.18/1.19 2nd road identity..U	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Daylight	1.5 Number of vehicles...2
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Dry

Contributory Factors

Failed to look properly (Driver/Rider - Error)
 Careless/Reckless (Driver/Rider - Behaviour)

Participant	Confidence	Did a police officer attend?
Vehicle 001	Very likely	
Vehicle 001	Very likely	Yes

Accident Description

VEHICLE 2 HAS BEEN DRIVING ALONG LIDGET STREET TOWARDS ACRE STREET. VEHICLE 1 HAS BEEN DRIVING ALONG OCCUPATION ROAD TOWARDS THE JUNCTION WITH ACRE STREET, AS IF TO TURN RIGHT ONTO LIDGET STREET. VEHICLE 2 HAS PRIORITY AS VEHICLE 1 WOULD HAVE TO STOP AT THE JUNCTION. VEHICLE 1 PULLS OUT OF THE JUNCTION AND COLLIDES WITH VEHICLE 2 CAUSING THE RIDER TO FALL INTO THE ROAD. AT THE TIME OF THE INCIDENT. THERE WERE SOME TEMPORARY TRAFFIC LIGHTS APPROXIMATELY 15 YARDS FROM THE JUNCTION OF OCCUPATION ROAD AND ACRE STREET, ON LIDGET STREET ITSELF ON THE LEFT HAND SIDE OF THE ROAD HEADING TOWARDS ACRE STREET. THIS WOULD OBSCURE THE VIEW FOR VEHICLES ENTERING LIDGET STREET.

2 Vehicles

2.4 Veh ref no.....1	2.16 First impact.....Nearside
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Mid junction	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Male
2.8 Movement from/to....East West	2.22 Driver age.....32
2.7 Manoeuvres.....Going ahead other	
2.11 Skidding.....No	2.24 Hit and Run.....No
2.13 Left c'way.....Did not leave c'way	2.23 Breath test.....Negative
2.6 Towing.....No	2.29 Journey purpose.....Unknown
2.28 Foreign vehicle.....Not foreign	

2.4 Veh ref no.....2	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....M/cycle 50 - 125cc	2.14 Hit object off c'way.None
2.10 Junction location...Approaching or parked on approach	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Male
2.8 Movement from/to....South North	2.22 Driver age.....52
2.7 Manoeuvres.....Going ahead other	
2.11 Skidding.....No	2.24 Hit and Run.....No
2.13 Left c'way.....Did not leave c'way	2.23 Breath test.....Not provided
2.6 Towing.....No	2.29 Journey purpose.....Unknown
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Driver or Rider	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Not applicable
3.8 Age.....52	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Serious	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....2	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:4A60446 Serious Junction of Acre Street and Daisy Lea Lane Accident 5 of 7

1.7 Date & 1.9 Time.....Friday 06/10/2017 09:30	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....411899/418004	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....Crossroads
1.12/1.13 1st road identity..U	1.17 Junction control.....Give way sign or uncontrolled
1.18/1.19 2nd road identity..U	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Daylight	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....Zebra crossing	1.23 Surface.....Dry

Contributory Factors

Disobeyed pedestrian crossing (Driver/Rider - Injudicious)
 Failed to look properly (Driver/Rider - Error)
 Careless/Reckless (Driver/Rider - Behaviour)

Participant	Confidence	Did a police officer attend?
Vehicle 001	Very likely	
Vehicle 001	Very likely	
Vehicle 001	Very likely	Yes

Accident Description

V1 is travelling on Acre Road in the direction of Huddersfield Royal Infirmary. V1 approaches a Zebra crossing and fails to see the pedestrian who is in the process of crossing and collides with the pedestrian causing the pedestrian to be thrown over the front bonnet of V1 and onto the floor.

1 Vehicle

2.4 Veh ref no.....1	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Entering main road	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Male
2.8 Movement from/to....North west South east	2.22 Driver age.....36
2.7 Manoeuvres.....Going ahead other	2.24 Hit and Run.....No
2.11 Skidding.....No	2.23 Breath test.....Negative
2.13 Left c'way.....Did not leave c'way	2.29 Journey purpose.....Other
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Pedestrian	3.16 PSV passenger.....No
3.7 Gender.....Female	3.14 Seat belt usage.....Not applicable
3.8 Age.....63	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Serious	3.10 Pedestrian location..On ped crossing facility
3.4 Vehicle no.....1	3.11 Pedestrian movement..Crossing from drivers nearside
3.12 Ped Direction.....West	3.19 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference: 5191202 Slight Junction of Acre Street and Occupation Road Accident 6 of 7

1.7 Date & Time.....Tuesday 09/01/2018 16:30	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....411891/418016	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....T or Staggered junction
1.12/1.13 1st road identity..U	1.17 Junction control.....Give way sign or uncontrolled
1.18/1.19 2nd road identity..U	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Dark/lights lit	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties..1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Dry

Contributory Factors

Failed to look properly (Pedestrian)

Participant	Confidence	Did a police officer attend?
Casualty 001	Very likely	Yes

Accident Description

Taken from form 299 completed by PC 2163 Preston. V1 travelling on Acre Street away from HRI. V1 stops on Acre Street on junction of Occupation Road to turn right onto Occupation Road. V1 makes the turn. The pedestrian crosses Occupation Road at the junction behind another vehicle on Occupation Road that was waiting to turn onto Acre Street. V1 collides with the pedestrian at low speed which causes the IP to fall to the floor causing a cut nose, lip and a bruised left leg. The IP was taken to the HRI.

1 Vehicle

2.4 Veh ref no.....1	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Leaving main road	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Female
2.8 Movement from/to....South North	2.22 Driver age.....46
2.7 Manoeuvres.....Turning right	2.24 Hit and Run.....No
2.11 Skidding.....No	2.23 Breath test.....Negative
2.13 Left c'way.....Did not leave c'way	2.29 Journey purpose.....Unknown
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Pedestrian	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Not applicable
3.8 Age.....79	3.13 School pupil.....Other (3.19 School)
3.9 Severity.....Slight	3.10 Pedestrian location..In c'way crossing elsewhere
3.4 Vehicle no.....1	3.11 Pedestrian movement..Crossing from drivers nearside
3.12 Ped Direction.....Unknown	3.12 Roadworker injured...No

Huddersfield Royal Infirmary Study Area - report
 Accident Date BETWEEN '01-Jan-2016' AND '15-Apr-2021'

1.3 Accident Reference:6840920 Slight Junction of Acre Street and Victoria Street Accident 7 of 7

1.7 Date & 1.9 Time.....Sunday 04/08/2019 12:56	1.15 Speed limit.....30 Mph
1.11 Grid co-ordinates.....412009/417800	1.14 Road type.....Single c'way
1.10 Local Authority.....Kirklees	1.16 Junction detail.....T or Staggered junction
1.12/1.13 1st road identity..U	1.17 Junction control.....Give way sign or uncontrolled
1.18/1.19 2nd road identity..U	1.24 Special conditions...None
1.22 Weather.....Fine	1.25 Carriageway hazards..None
1.21 Light conditions.....Daylight	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.1
1.20b Crossing(physical).....No crossing facility within 50m	1.23 Surface.....Dry

Contributory Factors

Failed to judge vehicle's path/speed (Pedestrian)
 Poor turn or manoeuvre (Driver/Rider - Error)

Participant	Confidence
Casualty 001	Possible
Vehicle 001	Possible

Did a police officer attend?
 No - reported over the counter

Accident Description

At the time of the collision IP is said to have been walking his dog when V1 was travelling along Acre Street and turned into the side road, On doing so V1 clipped IP causing him to fall to the floor, IP suffered minor injuries and refused hospital treatment by ambulance at the time of the collision, IP later sees medical treatment for minor injuries.

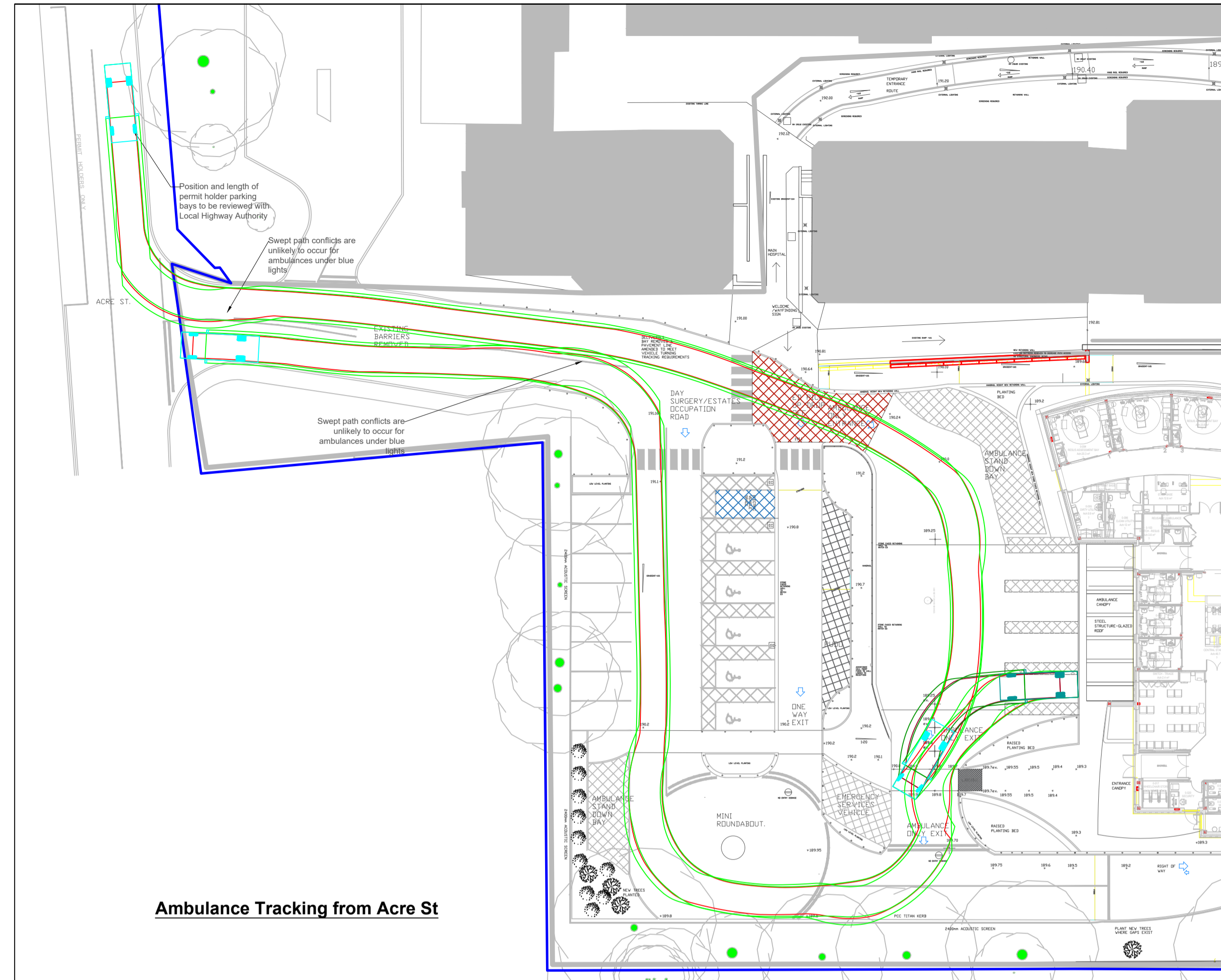
1 Vehicle

2.4 Veh ref no.....1	2.16 First impact.....Front
2.17 Other vehicle.....0	2.12 Hit object in c'way..None
2.5 Vehicle class.....Car	2.14 Hit object off c'way.None
2.10 Junction location...Approaching or parked on approach	2.18 Parts damaged..... / /
2.9 Restricted location.On main carriageway	2.21 Driver gender.....Female
2.8 Movement from/to....North east South east	2.22 Driver age.....-1
2.7 Manoeuvres.....Turning left	2.24 Hit and Run.....No
2.11 Skidding.....No	2.23 Breath test.....Not contacted
2.13 Left c'way.....Did not leave c'way	2.29 Journey purpose.....Unknown
2.6 Towing.....No	
2.28 Foreign vehicle.....Not foreign	

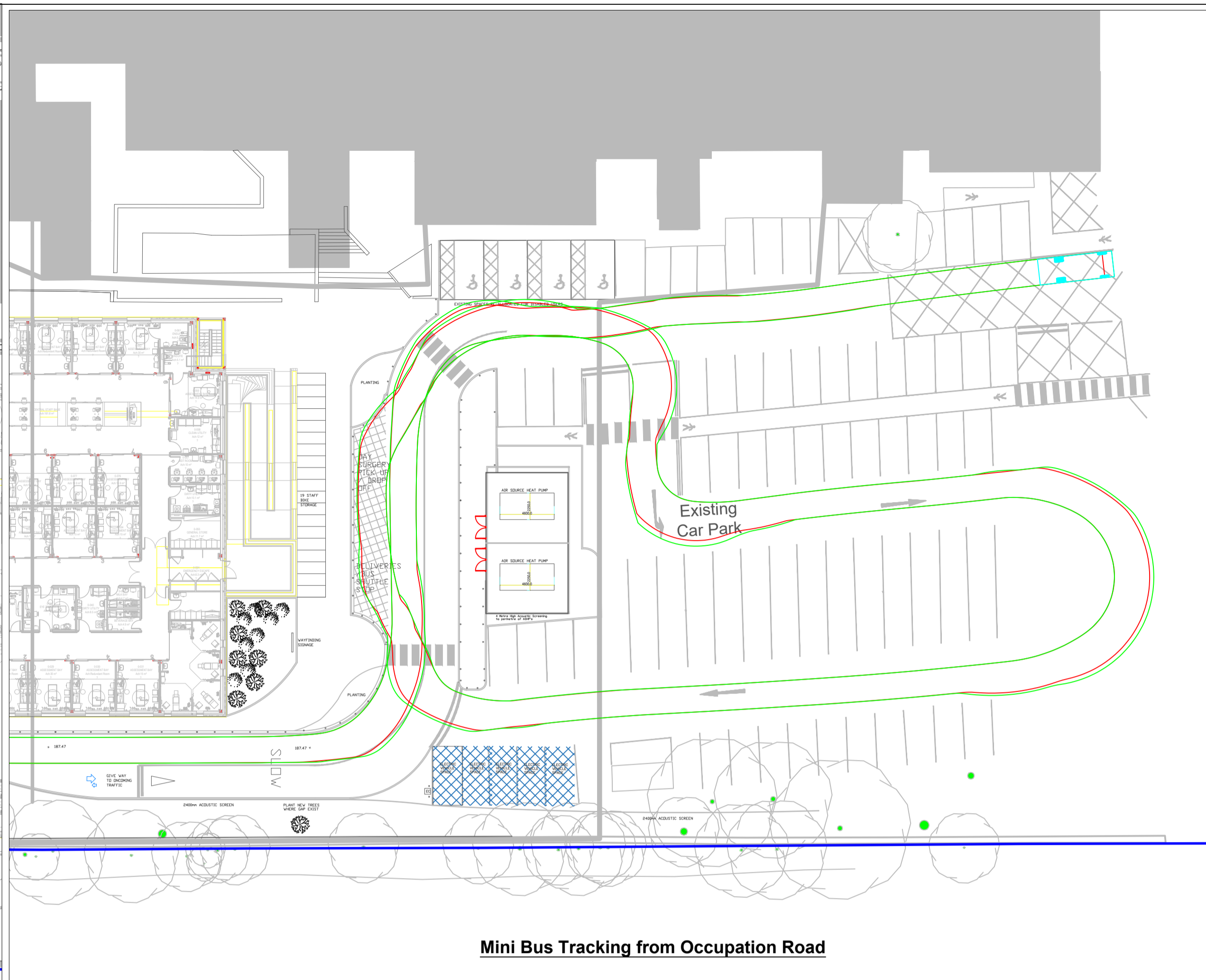
1 Casualty

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Pedestrian	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Not applicable
3.8 Age.....51	3.13 School pupil.....Other (3.19 School
3.9 Severity.....Slight	3.10 Pedestrian location..Unknown or other
3.4 Vehicle no.....1	3.11 Pedestrian movement..Crossing from drivers nearside
3.12 Ped Direction.....South west	3.19 Roadworker injured...No

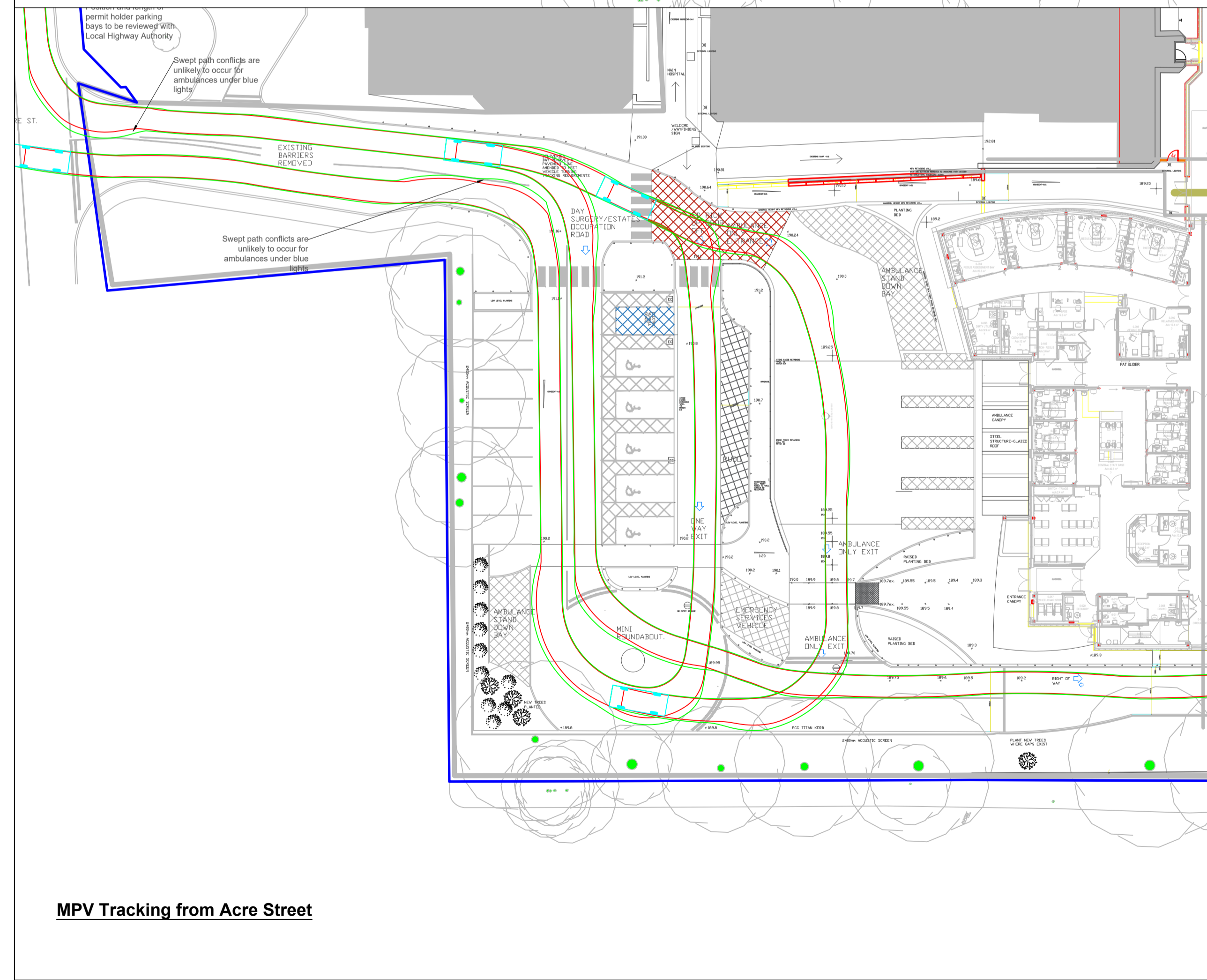
D. Acre Street Access Swept Path Analysis



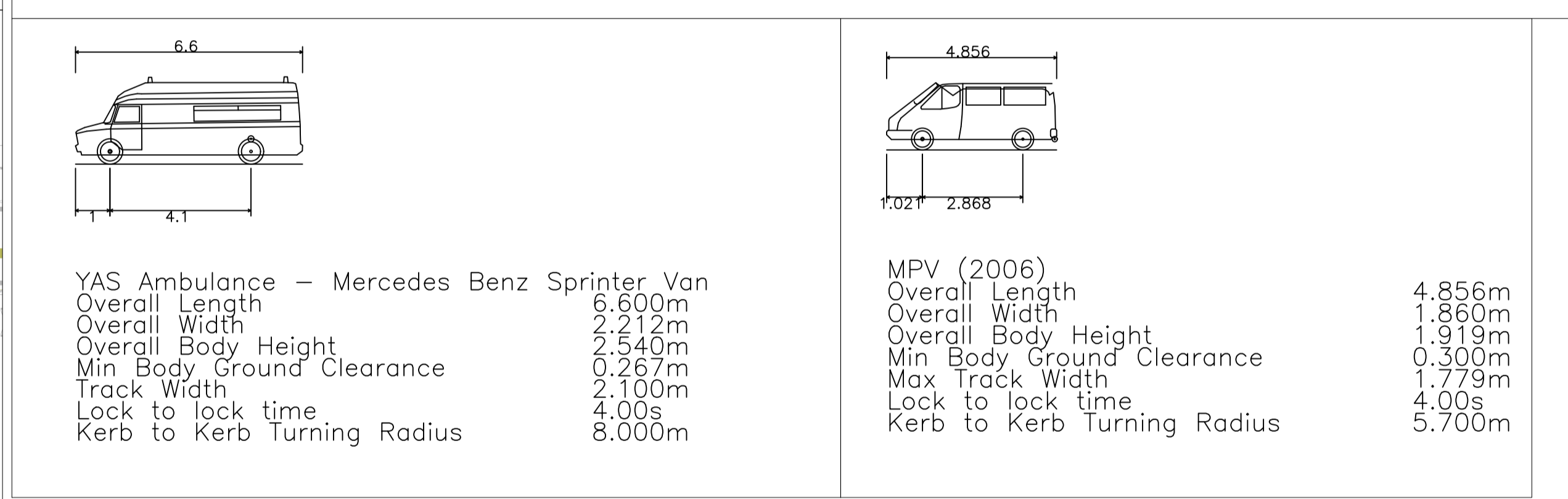
Ambulance Tracking from Acre St



Mini Bus Tracking from Occupation Road



MPV Tracking from Acre Street

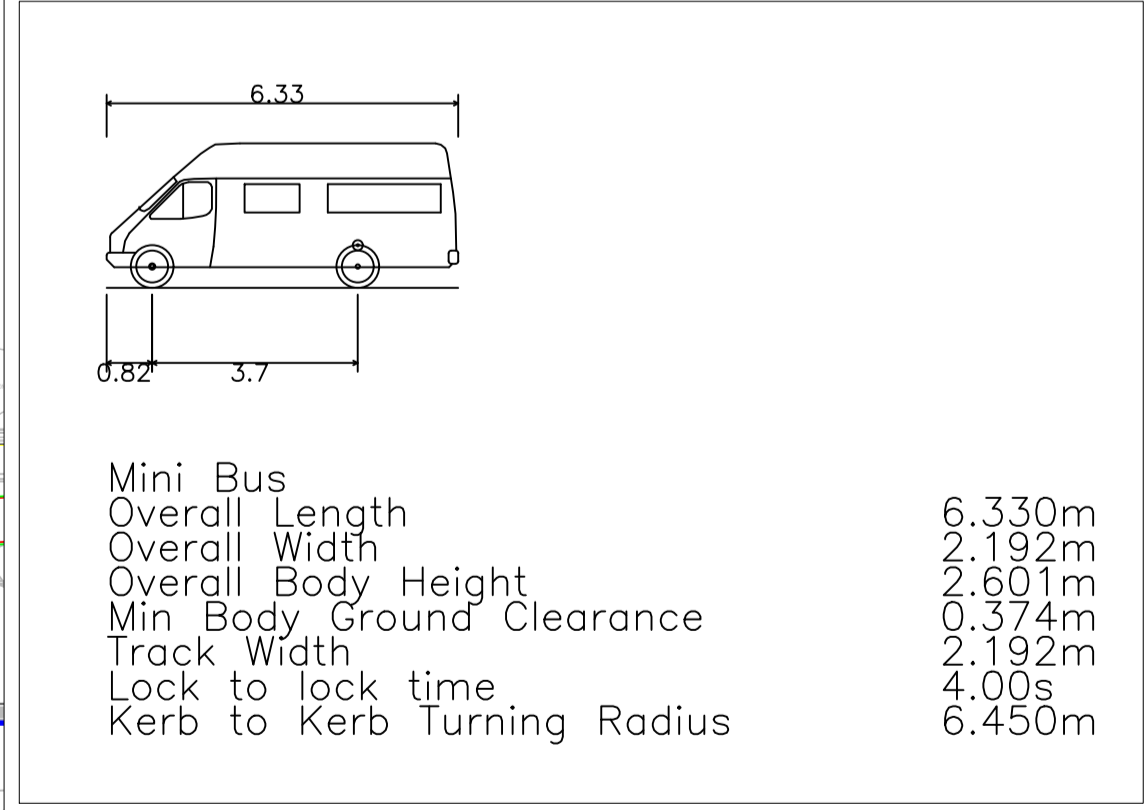


YAS Ambulance – Mercedes Benz Sprinter Van
 Overall Length 6.600m
 Overall Width 2.212m
 Overall Body Height 2.540m
 Min Body Ground Clearance 0.267m
 Track Width 2.100m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 8.000m

MPV (2006)
 Overall Length 4.856m
 Overall Width 1.860m
 Overall Body Height 1.919m
 Min Body Ground Clearance 0.300m
 Max Track Width 1.779m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 5.700m

Ambulance Tracking from Acre St

MPV Tracking from Acre Street



Mini Bus
 Overall Length 6.330m
 Overall Width 2.192m
 Overall Body Height 2.601m
 Min Body Ground Clearance 0.374m
 Track Width 2.192m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 6.450m

Mini Bus Tracking from Occupation Road

Notes

- Any swept path conflicts within internal estate roads are likely to be resolved through drivers giving way to each other as necessary and are not deemed to be of concern and "Swept path conflicts for ambulance manoeuvres under blue lights are not expected to be an issue as other vehicles will cede right of way"
- Drawing number is based off of IBI

Key to symbols

Swept Path Analysis Key

- Outline of Body
- Outline of Wheels

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
-----	------	-------	-------------	--------	-------

M M
MOTT MACDONALD

Ground floor
 Royal Liver Building
 Liverpool
 L3 1JH
 United Kingdom
 T +44 (0)151 482 9910
 F +44 (0)151 236 2985
 W mottmac.com

Client

Title

**Huddersfield Royal Infirmary
 Ambulance, Shuttle Bus and
 Drop off Vehicle Tracking**

Designed	M S Davies	MSD	Eng check	M S Davies	MSD
Drawn	R Gregg	RG	Coordination	M S Davies	MSD
Dwg check	M S Davies	MSD	Approved	M S Davies	MSD
Scale at A1	Status	Rev	Security		
1:500	PRE	A	STD		

Drawing Number **Tracking 1**

E. Parking Survey Information

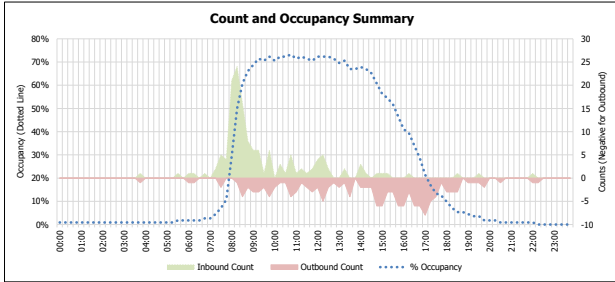
Intelligent Data Collection Limited



Client: Mott MacDonald
 Project Number: ID05611
 Site Name: Main IDC Car Park
 Date of Survey: 10.12.2020
 Survey Type: Parking Accumulation

Input by: David Brown
 Checked by: Luke Martin

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

	Total Spaces	112	Start Count	1
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
00:00	0	0	1	1%
00:15	0	0	1	1%
00:30	0	0	1	1%
00:45	0	0	1	1%
01:00	0	0	1	1%
01:15	0	0	1	1%
01:30	0	0	1	1%
01:45	0	0	1	1%
02:00	0	0	1	1%
02:15	0	0	1	1%
02:30	0	0	1	1%
02:45	0	0	1	1%
03:00	0	0	1	1%
03:15	0	0	1	1%
03:30	0	0	1	1%
03:45	1	1	1	1%
04:00	0	0	1	1%
04:15	0	0	1	1%
04:30	0	0	1	1%
04:45	0	0	1	1%
05:00	0	0	1	1%
05:15	0	0	1	1%
05:30	1	0	2	2%
05:45	0	0	2	2%
06:00	1	1	2	2%
06:15	1	1	2	2%
06:30	0	0	2	2%
06:45	1	0	3	3%
07:00	0	0	3	3%
07:15	2	0	5	4%
07:30	5	2	8	7%
07:45	4	0	12	11%
08:00	21	0	33	29%
08:15	24	1	56	50%
08:30	16	4	68	61%
08:45	8	2	74	66%
09:00	6	3	77	69%
09:15	6	3	80	71%
09:30	1	2	79	71%
09:45	6	4	81	72%
10:00	0	2	79	71%
10:15	3	1	81	72%
10:30	1	1	81	72%
10:45	5	4	82	73%
11:00	1	3	80	71%
11:15	2	1	81	72%
11:30	1	2	80	71%
11:45	2	3	79	71%
12:00	4	2	81	72%
12:15	5	5	81	72%
12:30	2	2	81	72%
12:45	0	1	80	71%
13:00	0	2	78	70%
13:15	2	1	79	71%
13:30	0	4	75	67%
13:45	0	0	75	67%
14:00	3	2	76	68%
14:15	1	2	75	67%
14:30	0	2	73	65%
14:45	1	6	68	61%
15:00	1	6	63	56%
15:15	1	3	61	54%
15:30	0	3	58	52%
15:45	0	6	52	46%
16:00	0	6	46	41%
16:15	1	3	44	39%
16:30	0	6	38	34%
16:45	0	6	32	29%
17:00	0	8	24	21%
17:15	0	5	19	17%
17:30	0	4	15	13%
17:45	0	1	14	13%
18:00	0	3	11	10%
18:15	0	3	8	7%
18:30	1	3	6	5%
18:45	0	0	6	5%
19:00	0	1	5	4%
19:15	0	1	4	4%
19:30	1	1	4	4%
19:45	0	2	2	2%
20:00	0	0	2	2%
20:15	0	0	2	2%
20:30	0	0	1	1%
20:45	0	0	1	1%
21:00	0	0	1	1%
21:15	0	0	1	1%
21:30	0	0	1	1%
21:45	0	0	1	1%
22:00	1	1	1	1%
22:15	0	1	0	0%
22:30	0	0	0	0%
22:45	0	0	0	0%
23:00	0	0	0	0%
23:15	0	0	0	0%
23:30	0	0	0	0%
23:45	0	0	0	0%
Daily Total	143	144	-	-

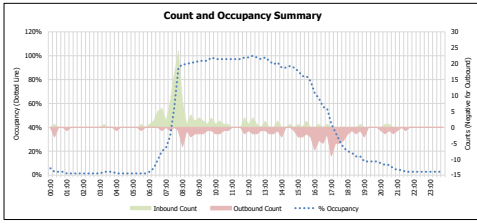
Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: S94.11
Site Name: Old Tennis Court
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation

Input by: David Brown
Checked by: Luke Moran

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

	Total Spaces	70	Start Count	4
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
07:00	0	0	0	0%
07:15	1	0	1	3%
07:30	0	0	2	3%
07:45	0	0	2	3%
08:00	0	0	1	1%
08:15	0	0	1	1%
08:30	0	0	1	1%
08:45	0	0	1	1%
09:00	0	0	1	1%
09:15	1	0	2	3%
09:30	0	0	2	3%
09:45	0	0	2	3%
10:00	0	0	1	1%
10:15	1	0	2	3%
10:30	0	0	1	1%
10:45	0	0	1	1%
11:00	0	0	1	1%
11:15	0	0	1	1%
11:30	0	0	1	1%
11:45	1	0	2	3%
12:00	0	0	1	1%
12:15	0	0	1	1%
12:30	1	0	2	3%
12:45	0	0	1	1%
13:00	1	0	2	3%
13:15	2	0	4	6%
13:30	5	0	9	13%
13:45	6	1	14	20%
14:00	3	0	16	23%
14:15	8	1	23	33%
14:30	17	0	40	57%
14:45	24	1	63	90%
15:00	8	0	65	93%
15:15	1	1	65	93%
15:30	4	0	66	94%
15:45	2	2	66	94%
16:00	3	2	67	96%
16:15	2	2	67	96%
16:30	1	1	67	96%
16:45	3	1	69	99%
17:00	1	2	68	97%
17:15	2	2	68	97%
17:30	1	1	68	97%
17:45	1	0	68	97%
18:00	0	0	68	97%
18:15	0	0	68	97%
18:30	0	0	68	97%
18:45	3	2	69	99%
19:00	1	1	69	99%
19:15	3	2	70	100%
19:30	1	2	69	99%
19:45	0	1	68	97%
20:00	2	1	69	99%
20:15	0	2	67	96%
20:30	0	2	65	93%
20:45	2	1	66	94%
21:00	0	3	63	90%
21:15	0	0	63	90%
21:30	1	0	64	91%
21:45	0	1	63	90%
22:00	1	3	61	87%
22:15	0	3	58	83%
22:30	2	2	58	83%
22:45	0	3	55	79%
23:00	0	7	48	69%
23:15	1	4	45	64%
23:30	0	5	40	57%
23:45	1	2	39	56%
24:00	0	9	30	43%
24:15	0	5	25	36%
24:30	0	5	20	29%
24:45	0	4	16	23%
25:00	0	2	14	20%
25:15	0	1	13	19%
25:30	0	2	11	16%
25:45	1	1	11	16%
26:00	0	3	8	11%
26:15	0	0	8	11%
26:30	0	0	8	11%
26:45	0	0	8	11%
27:00	0	1	7	10%
27:15	1	2	6	9%
27:30	1	2	6	9%
27:45	0	2	4	6%
28:00	0	1	3	4%
28:15	0	0	3	4%
28:30	0	1	2	3%
28:45	0	0	2	3%
29:00	0	0	2	3%
29:15	0	0	2	3%
29:30	0	0	2	3%
29:45	0	0	2	3%
30:00	0	0	2	3%
30:15	0	0	2	3%
30:30	0	0	2	3%
30:45	0	0	2	3%
Daily Total	118	120	-	-

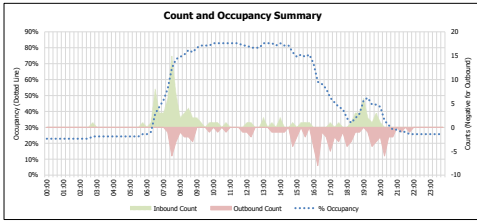
Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: SNA 12
Site Name: Priority Parking
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation

Input by: David Brown
Checked by: Luke Moran

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

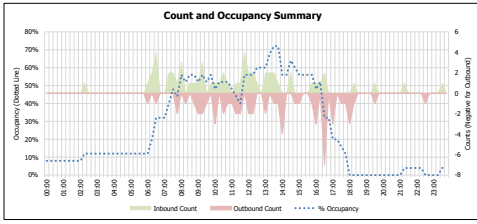
	Total Spaces	70	Start Count	16
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	16	23%
06:15	0	0	16	23%
06:30	0	0	16	23%
06:45	0	0	16	23%
07:00	0	0	16	23%
07:15	0	0	16	23%
07:30	0	0	16	23%
07:45	0	0	16	23%
08:00	0	0	16	23%
08:15	0	0	16	23%
08:30	0	0	16	23%
08:45	0	0	16	23%
09:00	0	0	16	23%
09:15	0	0	16	23%
09:30	0	0	16	23%
09:45	0	0	16	23%
10:00	0	0	16	23%
10:15	0	0	16	23%
10:30	0	0	16	23%
10:45	0	0	16	23%
11:00	0	0	16	23%
11:15	0	0	16	23%
11:30	0	0	16	23%
11:45	0	0	16	23%
12:00	0	0	16	23%
12:15	0	0	16	23%
12:30	0	0	16	23%
12:45	0	0	16	23%
13:00	0	0	16	23%
13:15	0	0	16	23%
13:30	0	0	16	23%
13:45	0	0	16	23%
14:00	0	0	16	23%
14:15	0	0	16	23%
14:30	0	0	16	23%
14:45	0	0	16	23%
15:00	0	0	16	23%
15:15	0	0	16	23%
15:30	0	0	16	23%
15:45	0	0	16	23%
16:00	0	0	16	23%
16:15	0	0	16	23%
16:30	0	0	16	23%
16:45	0	0	16	23%
17:00	0	0	16	23%
17:15	0	0	16	23%
17:30	0	0	16	23%
17:45	0	0	16	23%
18:00	0	0	16	23%
18:15	0	0	16	23%
18:30	0	0	16	23%
18:45	0	0	16	23%
19:00	0	0	16	23%
19:15	0	0	16	23%
19:30	0	0	16	23%
19:45	0	0	16	23%
20:00	0	0	16	23%
20:15	0	0	16	23%
20:30	0	0	16	23%
20:45	0	0	16	23%
21:00	0	0	16	23%
21:15	0	0	16	23%
21:30	0	0	16	23%
21:45	0	0	16	23%
22:00	0	0	16	23%
22:15	0	0	16	23%
22:30	0	0	16	23%
22:45	0	0	16	23%
23:00	0	0	16	23%
23:15	0	0	16	23%
23:30	0	0	16	23%
23:45	0	0	16	23%
Daily Total	96	94	-	-

Intelligent Data Collection Limited



Client: Mott MacDonald
 Project Number: ID05611
 Site Number: SNA 13
 Site Name: Saville Court Car Park
 Date of Survey: 10.12.2020
 Survey Type: Parking Accumulation
 Input by: David Brown
 Checked by: Luke Martin

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

	Total Spaces	25	Start Count	2
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	2	8%
06:15	0	0	2	8%
06:30	0	0	2	8%
06:45	0	0	2	8%
07:00	0	0	2	8%
07:15	0	0	2	8%
07:30	0	0	2	8%
07:45	0	0	2	8%
08:00	0	0	2	8%
08:15	0	0	2	8%
08:30	0	0	2	8%
08:45	0	0	2	8%
09:00	0	0	2	8%
09:15	0	0	2	8%
09:30	0	0	2	8%
09:45	0	0	2	8%
10:00	0	0	2	8%
10:15	0	0	2	8%
10:30	0	0	2	8%
10:45	0	0	2	8%
11:00	0	0	2	8%
11:15	0	0	2	8%
11:30	0	0	2	8%
11:45	0	0	2	8%
12:00	0	0	2	8%
12:15	0	0	2	8%
12:30	0	0	2	8%
12:45	0	0	2	8%
13:00	0	0	2	8%
13:15	0	0	2	8%
13:30	0	0	2	8%
13:45	0	0	2	8%
14:00	0	0	2	8%
14:15	0	0	2	8%
14:30	0	0	2	8%
14:45	0	0	2	8%
15:00	0	0	2	8%
15:15	0	0	2	8%
15:30	0	0	2	8%
15:45	0	0	2	8%
16:00	0	0	2	8%
16:15	0	0	2	8%
16:30	0	0	2	8%
16:45	0	0	2	8%
17:00	0	0	2	8%
17:15	0	0	2	8%
17:30	0	0	2	8%
17:45	0	0	2	8%
18:00	0	0	2	8%
18:15	0	0	2	8%
18:30	0	0	2	8%
18:45	0	0	2	8%
19:00	0	0	2	8%
19:15	0	0	2	8%
19:30	0	0	2	8%
19:45	0	0	2	8%
20:00	0	0	2	8%
20:15	0	0	2	8%
20:30	0	0	2	8%
20:45	0	0	2	8%
21:00	0	0	2	8%
21:15	0	0	2	8%
21:30	0	0	2	8%
21:45	0	0	2	8%
22:00	0	0	2	8%
22:15	0	0	2	8%
22:30	0	0	2	8%
22:45	0	0	2	8%
23:00	0	0	2	8%
23:15	0	0	2	8%
23:30	0	0	2	8%
23:45	0	0	2	8%
Daily Total	57	58	-	-

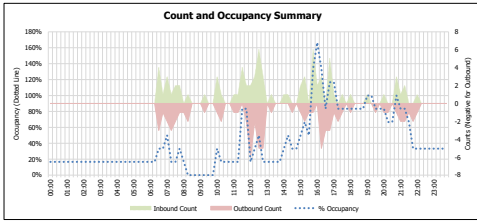
Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: SNA 14
Site Name: Drop Off Point
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation

Input by: David Brown
Checked by: Luke Moran

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	1	17%
06:15	0	0	1	17%
06:30	0	0	1	17%
06:45	0	0	1	17%
07:00	0	0	1	17%
07:15	0	0	1	17%
07:30	0	0	1	17%
07:45	0	0	1	17%
08:00	0	0	1	17%
08:15	0	0	1	17%
08:30	0	0	1	17%
08:45	0	0	1	17%
09:00	0	0	1	17%
09:15	0	0	1	17%
09:30	0	0	1	17%
09:45	0	0	1	17%
10:00	0	0	1	17%
10:15	0	0	1	17%
10:30	0	0	1	17%
10:45	0	0	1	17%
11:00	0	0	1	17%
11:15	0	0	1	17%
11:30	0	0	1	17%
11:45	0	0	1	17%
12:00	0	0	1	17%
12:15	0	0	1	17%
12:30	0	0	1	17%
12:45	0	0	1	17%
13:00	0	0	1	17%
13:15	0	0	1	17%
13:30	0	0	1	17%
13:45	0	0	1	17%
14:00	0	0	1	17%
14:15	0	0	1	17%
14:30	0	0	1	17%
14:45	0	0	1	17%
15:00	0	0	1	17%
15:15	0	0	1	17%
15:30	0	0	1	17%
15:45	0	0	1	17%
16:00	0	0	1	17%
16:15	0	0	1	17%
16:30	0	0	1	17%
16:45	0	0	1	17%
17:00	0	0	1	17%
17:15	0	0	1	17%
17:30	0	0	1	17%
17:45	0	0	1	17%
18:00	0	0	1	17%
18:15	0	0	1	17%
18:30	0	0	1	17%
18:45	0	0	1	17%
19:00	0	0	1	17%
19:15	0	0	1	17%
19:30	0	0	1	17%
19:45	0	0	1	17%
20:00	0	0	1	17%
20:15	0	0	1	17%
20:30	0	0	1	17%
20:45	0	0	1	17%
21:00	0	0	1	17%
21:15	0	0	1	17%
21:30	0	0	1	17%
21:45	0	0	1	17%
22:00	0	0	1	17%
22:15	0	0	1	17%
22:30	0	0	1	17%
22:45	0	0	1	17%
23:00	0	0	1	17%
23:15	0	0	1	17%
23:30	0	0	1	17%
23:45	0	0	1	17%
Daily Total	77	76	-	-

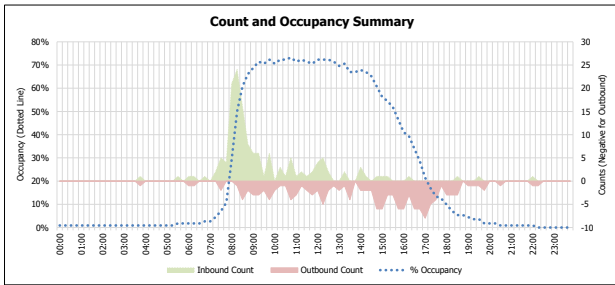
Intelligent Data Collection Limited



Client: Mott MacDonald
 Project Number: ID05611
 Site Name: Main IDC Car Park
 Date of Survey: 10.12.2020
 Survey Type: Parking Accumulation

Input by: David Brown
 Checked by: Luke Martin

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

	Total Spaces	112	Start Count	1
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
00:00	0	0	1	1%
00:15	0	0	1	1%
00:30	0	0	1	1%
00:45	0	0	1	1%
01:00	0	0	1	1%
01:15	0	0	1	1%
01:30	0	0	1	1%
01:45	0	0	1	1%
02:00	0	0	1	1%
02:15	0	0	1	1%
02:30	0	0	1	1%
02:45	0	0	1	1%
03:00	0	0	1	1%
03:15	0	0	1	1%
03:30	0	0	1	1%
03:45	1	1	1	1%
04:00	0	0	1	1%
04:15	0	0	1	1%
04:30	0	0	1	1%
04:45	0	0	1	1%
05:00	0	0	1	1%
05:15	0	0	1	1%
05:30	1	0	2	2%
05:45	0	0	2	2%
06:00	1	1	2	2%
06:15	1	1	2	2%
06:30	0	0	2	2%
06:45	1	0	3	3%
07:00	0	0	3	3%
07:15	2	0	5	4%
07:30	5	2	8	7%
07:45	4	0	12	11%
08:00	21	0	33	29%
08:15	24	1	56	50%
08:30	16	4	68	61%
08:45	8	2	74	66%
09:00	6	3	77	69%
09:15	6	3	80	71%
09:30	1	2	79	71%
09:45	6	4	81	72%
10:00	0	2	79	71%
10:15	3	1	81	72%
10:30	1	1	81	72%
10:45	5	4	82	73%
11:00	1	3	80	71%
11:15	2	1	81	72%
11:30	1	2	80	71%
11:45	2	3	79	71%
12:00	4	2	81	72%
12:15	5	5	81	72%
12:30	2	2	81	72%
12:45	0	1	80	71%
13:00	0	2	78	70%
13:15	2	1	79	71%
13:30	0	4	75	67%
13:45	0	0	75	67%
14:00	3	2	76	68%
14:15	1	2	75	67%
14:30	0	2	73	65%
14:45	1	6	68	61%
15:00	1	6	63	56%
15:15	1	3	61	54%
15:30	0	3	58	52%
15:45	0	6	52	46%
16:00	0	6	46	41%
16:15	1	3	44	39%
16:30	0	6	38	34%
16:45	0	6	32	29%
17:00	0	8	24	21%
17:15	0	5	19	17%
17:30	0	4	15	13%
17:45	0	1	14	13%
18:00	0	3	11	10%
18:15	0	3	8	7%
18:30	1	3	6	5%
18:45	0	0	6	5%
19:00	0	1	5	4%
19:15	0	1	4	4%
19:30	1	1	4	4%
19:45	0	2	2	2%
20:00	0	0	2	2%
20:15	0	0	2	2%
20:30	0	0	1	1%
20:45	0	0	1	1%
21:00	0	0	1	1%
21:15	0	0	1	1%
21:30	0	0	1	1%
21:45	0	0	1	1%
22:00	1	1	1	1%
22:15	0	1	0	0%
22:30	0	0	0	0%
22:45	0	0	0	0%
23:00	0	0	0	0%
23:15	0	0	0	0%
23:30	0	0	0	0%
23:45	0	0	0	0%
Daily Total	143	144	-	-

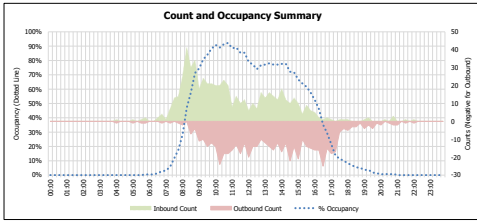
Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: SNA 16
Site Name: Acre Mill Main Car Park
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation

Input by: David Brown
Checked by: Luke Moran

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	0	0%
06:15	0	0	0	0%
06:30	0	0	0	0%
06:45	0	0	0	0%
07:00	0	0	0	0%
07:15	0	0	0	0%
07:30	0	0	0	0%
07:45	0	0	0	0%
08:00	0	0	0	0%
08:15	0	0	0	0%
08:30	1	1	0	0%
08:45	0	0	0	0%
09:00	0	0	0	0%
09:15	0	0	0	0%
09:30	0	0	0	0%
09:45	0	0	0	0%
10:00	1	1	0	0%
10:15	0	0	0	0%
10:30	0	0	0	0%
10:45	0	0	0	0%
11:00	1	1	0	0%
11:15	2	1	1	0%
11:30	0	0	1	0%
11:45	0	0	1	0%
12:00	2	0	3	1%
12:15	4	1	6	3%
12:30	0	0	7	3%
12:45	7	0	13	6%
13:00	13	0	26	12%
13:15	14	1	39	18%
13:30	25	1	62	29%
13:45	41	0	103	47%
14:00	39	7	136	59%
14:15	34	4	156	71%
14:30	18	11	163	74%
14:45	24	10	177	81%
15:00	21	14	184	84%
15:15	21	12	193	88%
15:30	20	14	199	91%
15:45	20	24	195	89%
16:00	23	18	200	91%
16:15	20	18	202	92%
16:30	8	16	194	89%
16:45	14	13	195	89%
17:00	10	18	187	85%
17:15	12	12	187	85%
17:30	6	20	173	79%
17:45	10	14	169	77%
18:00	7	14	162	74%
18:15	16	10	168	77%
18:30	13	12	169	77%
18:45	16	14	171	78%
19:00	14	16	169	77%
19:15	12	12	169	77%
19:30	18	17	170	78%
19:45	12	12	170	78%
20:00	10	22	158	72%
20:15	13	14	157	72%
20:30	10	21	146	67%
20:45	4	10	140	64%
21:00	9	14	135	62%
21:15	6	15	136	62%
21:30	5	16	115	53%
21:45	2	16	101	46%
22:00	1	26	77	35%
22:15	2	16	64	29%
22:30	1	18	47	21%
22:45	0	17	30	14%
23:00	1	6	25	11%
23:15	1	4	22	10%
23:30	1	5	18	8%
23:45	0	3	15	7%
24:00	0	3	12	5%
24:15	0	12	11	5%
24:30	1	4	8	4%
24:45	2	2	8	4%
25:00	0	4	4	2%
25:15	0	1	3	1%
25:30	0	2	1	0%
25:45	1	0	2	1%
26:00	0	0	1	0%
26:15	3	2	2	1%
26:30	0	0	0	0%
26:45	0	0	0	0%
27:00	1	1	0	0%
27:15	0	0	0	0%
27:30	0	0	0	0%
27:45	0	0	0	0%
28:00	0	0	0	0%
28:15	0	0	0	0%
28:30	0	0	0	0%
28:45	0	0	0	0%
29:00	0	0	0	0%
29:15	0	0	0	0%
29:30	0	0	0	0%
29:45	0	0	0	0%
Daily Total	586	586	-	-

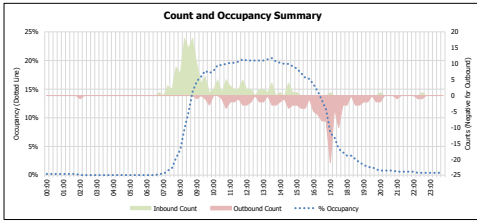
Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: SNA 17
Site Name: Acre Mill Overflow
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation

Input by: David Brown
Checked by: Luke Martin

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

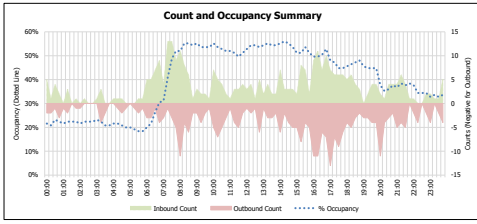
	Total Spaces	500	Start Count	1
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	1	0%
06:15	0	0	1	0%
06:30	0	0	1	0%
06:45	0	0	1	0%
07:00	0	0	1	0%
07:15	0	0	1	0%
07:30	0	0	1	0%
07:45	0	0	1	0%
08:00	0	0	1	0%
08:15	0	0	1	0%
08:30	0	0	1	0%
08:45	0	0	1	0%
09:00	0	0	1	0%
09:15	0	1	0	0%
09:30	0	0	0	0%
09:45	0	0	0	0%
10:00	0	0	0	0%
10:15	0	0	0	0%
10:30	0	0	0	0%
10:45	0	0	0	0%
11:00	0	0	0	0%
11:15	0	0	0	0%
11:30	0	0	0	0%
11:45	0	0	0	0%
12:00	0	0	0	0%
12:15	0	0	0	0%
12:30	0	0	0	0%
12:45	0	0	0	0%
13:00	0	0	0	0%
13:15	0	0	0	0%
13:30	0	0	0	0%
13:45	0	0	0	0%
14:00	0	0	0	0%
14:15	0	0	0	0%
14:30	0	0	0	0%
14:45	0	0	0	0%
15:00	0	0	0	0%
15:15	0	0	0	0%
15:30	0	0	0	0%
15:45	0	0	0	0%
16:00	0	0	0	0%
16:15	0	0	0	0%
16:30	0	0	0	0%
16:45	0	0	0	0%
17:00	0	0	0	0%
17:15	0	0	0	0%
17:30	0	0	0	0%
17:45	0	0	0	0%
18:00	0	0	0	0%
18:15	0	0	0	0%
18:30	0	0	0	0%
18:45	0	0	0	0%
19:00	0	0	0	0%
19:15	0	0	0	0%
19:30	0	0	0	0%
19:45	0	0	0	0%
20:00	0	0	0	0%
20:15	0	0	0	0%
20:30	0	0	0	0%
20:45	0	0	0	0%
21:00	0	0	0	0%
21:15	0	0	0	0%
21:30	0	0	0	0%
21:45	0	0	0	0%
22:00	0	0	0	0%
22:15	0	0	0	0%
22:30	0	0	0	0%
22:45	0	0	0	0%
23:00	0	0	0	0%
23:15	0	0	0	0%
23:30	0	0	0	0%
23:45	0	0	0	0%
Daily Total	142	141	-	-

Intelligent Data Collection Limited



Client: Mott MacDonald
 Project Number: ID05611
 Site Number: SWS 22
 Site Name: North Drive
 Date of Survey: 10.12.2020
 Survey Type: Parking Accumulation
 Input by: Gabriela Zelenkova
 Checked by: David Brown

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

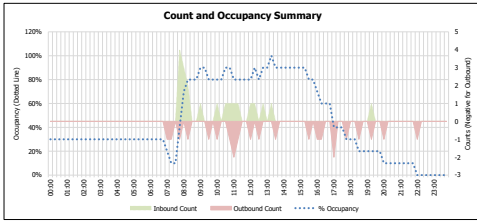
	Total Spaces	125	Start Count	24
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	1	0	25	20%
06:15	1	0	26	21%
06:30	4	1	29	23%
06:45	2	1	28	22%
07:00	0	0	27	22%
07:15	3	2	28	22%
07:30	0	0	28	22%
07:45	1	1	28	22%
08:00	0	1	27	22%
08:15	1	0	28	22%
08:30	0	0	28	22%
08:45	3	0	29	23%
09:00	3	0	28	22%
09:15	1	0	29	23%
09:30	0	0	28	22%
09:45	1	1	27	22%
10:00	1	2	26	21%
10:15	0	0	25	20%
10:30	1	1	24	19%
10:45	0	1	23	18%
11:00	1	2	23	18%
11:15	5	3	25	20%
11:30	5	3	27	22%
11:45	9	4	38	30%
12:00	4	1	39	31%
12:15	13	1	51	41%
12:30	13	3	61	49%
12:45	9	1	65	52%
13:00	11	11	65	52%
13:15	8	4	69	55%
13:30	6	6	69	55%
13:45	1	2	68	54%
14:00	3	2	69	55%
14:15	2	4	67	54%
14:30	7	5	69	55%
14:45	5	2	67	54%
15:00	4	5	66	53%
15:15	2	2	65	52%
15:30	1	1	65	52%
15:45	3	4	64	51%
16:00	3	5	62	50%
16:15	4	2	64	51%
16:30	3	1	66	53%
16:45	3	1	66	53%
17:00	4	2	68	54%
17:15	5	3	68	54%
17:30	5	6	67	54%
17:45	2	1	68	54%
18:00	4	3	69	55%
18:15	2	2	69	55%
18:30	3	5	67	54%
18:45	3	5	64	51%
19:00	8	8	64	51%
19:15	7	4	67	54%
19:30	2	5	64	51%
19:45	9	11	62	50%
20:00	11	11	62	50%
20:15	7	6	63	50%
20:30	10	7	66	53%
20:45	7	13	60	48%
21:00	6	7	59	47%
21:15	6	6	56	45%
21:30	5	9	56	45%
21:45	6	6	56	45%
22:00	5	9	57	46%
22:15	6	5	58	46%
22:30	4	3	59	47%
22:45	3	2	60	48%
23:00	0	3	57	46%
23:15	2	3	56	45%
23:30	4	4	56	45%
23:45	4	4	56	45%
24:00	2	11	47	38%
24:15	1	4	44	35%
24:30	4	3	45	36%
24:45	4	2	47	38%
25:00	4	4	46	37%
25:15	6	4	48	38%
25:30	4	5	47	38%
25:45	1	0	48	38%
26:00	1	2	47	38%
26:15	0	4	43	34%
26:30	0	0	43	34%
26:45	2	2	43	34%
27:00	2	4	41	33%
27:15	1	0	42	34%
27:30	1	0	41	33%
27:45	5	4	42	34%
Daily Total	340	322	-	-

Intelligent Data Collection Limited



Client: Mott MacDonald
Project Number: ID05611
Site Number: SNA 23
Site Name: Glen Acre House
Date of Survey: 10.12.2020
Survey Type: Parking Accumulation
Input by: Gabriela Zelenkova
Checked by: David Brown

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

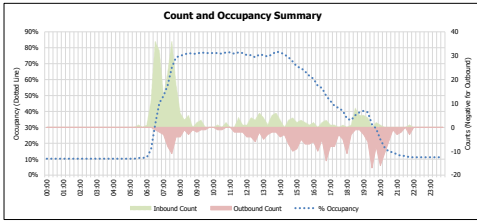
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	3	30%
06:15	0	0	3	30%
06:30	0	0	3	30%
06:45	0	0	3	30%
07:00	0	0	3	30%
07:15	0	0	3	30%
07:30	0	0	3	30%
07:45	0	0	3	30%
08:00	0	0	3	30%
08:15	0	0	3	30%
08:30	0	0	3	30%
08:45	0	0	3	30%
09:00	0	0	3	30%
09:15	0	0	3	30%
09:30	0	0	3	30%
09:45	0	0	3	30%
10:00	0	0	3	30%
10:15	0	0	3	30%
10:30	0	0	3	30%
10:45	0	0	3	30%
11:00	0	0	3	30%
11:15	0	0	3	30%
11:30	0	0	3	30%
11:45	0	0	3	30%
12:00	0	0	3	30%
12:15	0	0	3	30%
12:30	0	0	3	30%
12:45	0	0	3	30%
13:00	0	0	3	30%
13:15	0	0	3	30%
13:30	0	0	3	30%
13:45	0	0	3	30%
14:00	0	0	3	30%
14:15	0	0	3	30%
14:30	0	0	3	30%
14:45	0	0	3	30%
15:00	0	0	3	30%
15:15	0	0	3	30%
15:30	0	0	3	30%
15:45	0	0	3	30%
16:00	0	0	3	30%
16:15	0	0	3	30%
16:30	0	0	3	30%
16:45	0	0	3	30%
17:00	0	0	3	30%
17:15	0	0	3	30%
17:30	0	0	3	30%
17:45	0	0	3	30%
18:00	0	0	3	30%
18:15	0	0	3	30%
18:30	0	0	3	30%
18:45	0	0	3	30%
19:00	0	0	3	30%
19:15	0	0	3	30%
19:30	0	0	3	30%
19:45	0	0	3	30%
20:00	0	0	3	30%
20:15	0	0	3	30%
20:30	0	0	3	30%
20:45	0	0	3	30%
21:00	0	0	3	30%
21:15	0	0	3	30%
21:30	0	0	3	30%
21:45	0	0	3	30%
22:00	0	0	3	30%
22:15	0	0	3	30%
22:30	0	0	3	30%
22:45	0	0	3	30%
23:00	0	0	3	30%
23:15	0	0	3	30%
23:30	0	0	3	30%
23:45	0	0	3	30%
Daily Total	20	23	-	-

Intelligent Data Collection Limited



Client: Mott MacDonald
 Project Number: ID05611
 Site Number: SNA 24
 Site Name: South Drive
 Date of Survey: 10.12.2020
 Survey Type: Parking Accumulation
 Input by: Gabriela Zelenkova
 Checked by: David Brown

Count and Occupancy Summary



Outbound counts are plotted as negative values to separate them from the inbound vehicles.

Count and Occupancy Data

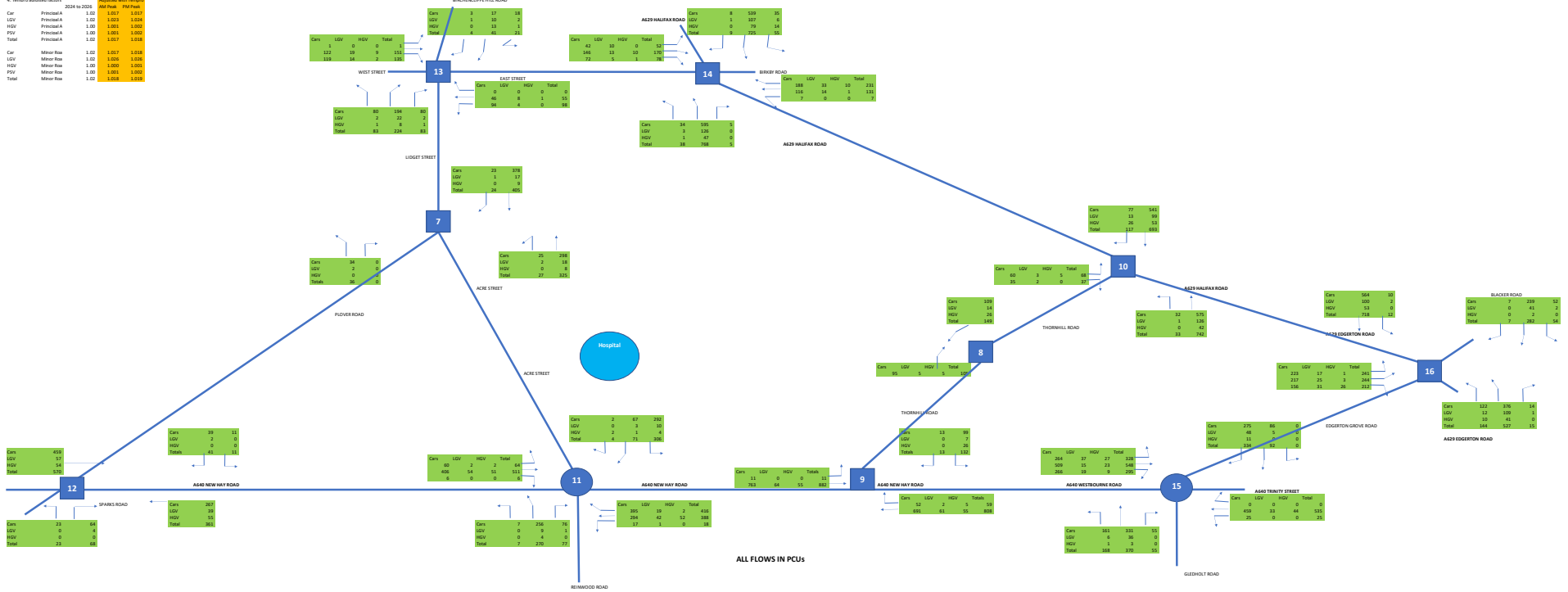
	Total Spaces	223	Start Count	23
Time	Inbound Count	Outbound Count	Accumulation	% Occupancy
06:00	0	0	23	10%
06:15	0	0	23	10%
06:30	0	0	23	10%
06:45	0	0	23	10%
07:00	0	0	23	10%
07:15	0	0	23	10%
07:30	0	0	23	10%
07:45	0	0	23	10%
08:00	0	0	23	10%
08:15	0	0	23	10%
08:30	0	0	23	10%
08:45	0	0	23	10%
09:00	0	0	23	10%
09:15	0	0	23	10%
09:30	0	0	23	10%
09:45	0	0	23	10%
10:00	0	0	23	10%
10:15	0	0	23	10%
10:30	0	0	23	10%
10:45	0	0	23	10%
11:00	0	0	23	10%
11:15	0	0	23	10%
11:30	0	0	23	10%
11:45	0	0	23	10%
12:00	0	0	23	10%
12:15	0	0	23	10%
12:30	0	0	23	10%
12:45	0	0	23	10%
13:00	0	0	23	10%
13:15	0	0	23	10%
13:30	0	0	23	10%
13:45	0	0	23	10%
14:00	0	0	23	10%
14:15	0	0	23	10%
14:30	0	0	23	10%
14:45	0	0	23	10%
15:00	0	0	23	10%
15:15	0	0	23	10%
15:30	0	0	23	10%
15:45	0	0	23	10%
16:00	0	0	23	10%
16:15	0	0	23	10%
16:30	0	0	23	10%
16:45	0	0	23	10%
17:00	0	0	23	10%
17:15	0	0	23	10%
17:30	0	0	23	10%
17:45	0	0	23	10%
18:00	0	0	23	10%
18:15	0	0	23	10%
18:30	0	0	23	10%
18:45	0	0	23	10%
19:00	0	0	23	10%
19:15	0	0	23	10%
19:30	0	0	23	10%
19:45	0	0	23	10%
20:00	0	0	23	10%
20:15	0	0	23	10%
20:30	0	0	23	10%
20:45	0	0	23	10%
21:00	0	0	23	10%
21:15	0	0	23	10%
21:30	0	0	23	10%
21:45	0	0	23	10%
22:00	0	0	23	10%
22:15	0	0	23	10%
22:30	0	0	23	10%
22:45	0	0	23	10%
23:00	0	0	23	10%
23:15	0	0	23	10%
23:30	0	0	23	10%
23:45	0	0	23	10%
Daily Total	283	281	-	-

F. Do-Minimum Network Flows

DO MINIMUM FLOWS 2026 - AM

4. Temporal adjusted factors		2024 to 2026		Adj. Flow		Peak Flow	
Car	Prorated A	1.02	1.017	1.017	1.017		
LDV	Prorated A	1.00	1.021	1.024	1.024		
HDV	Prorated A	1.00	1.001	1.001	1.001		
PSV	Prorated A	1.00	1.001	1.001	1.001		
Total	Prorated A	1.01	1.017	1.018	1.018		
Car	Minor Res	1.02	1.017	1.018	1.018		
LDV	Minor Res	1.00	1.026	1.026	1.026		
HDV	Minor Res	1.00	1.000	1.001	1.001		
PSV	Minor Res	1.00	1.001	1.001	1.001		
Total	Minor Res	1.02	1.018	1.019	1.019		

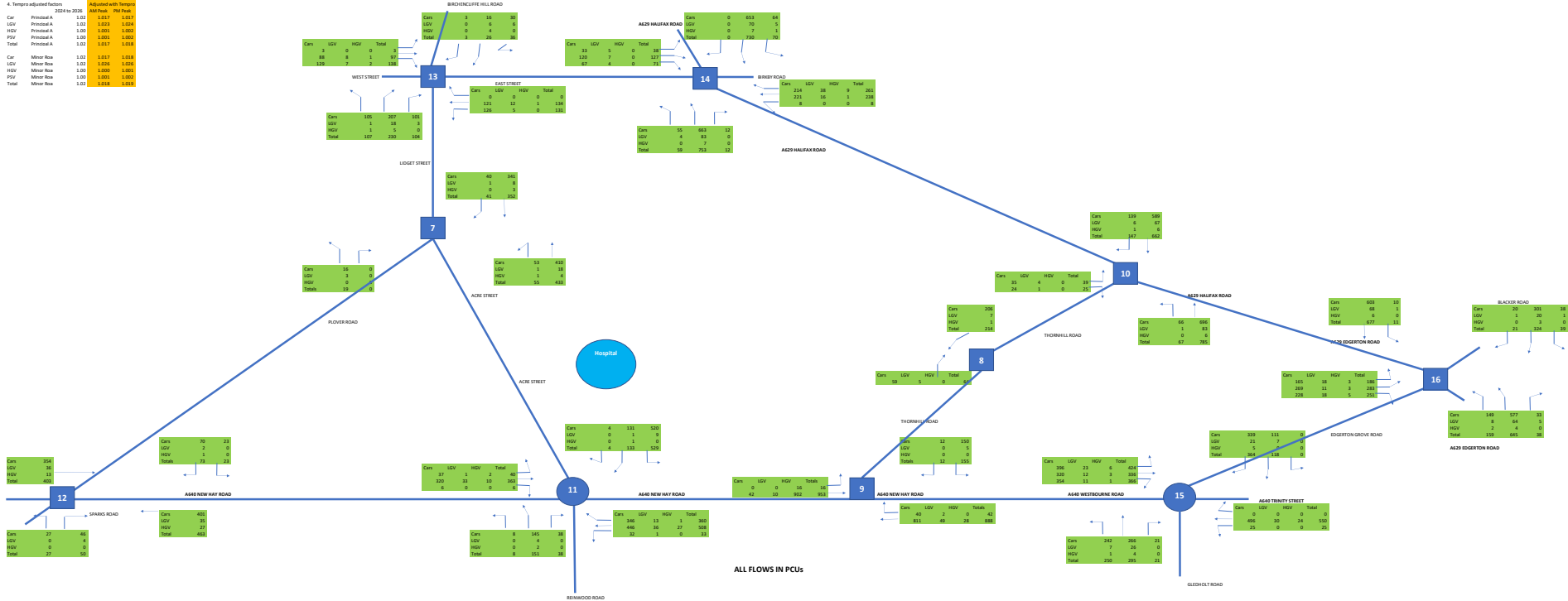
ALL FLOWS IN PCUS



DO MINIMUM FLOWS 2026 - PM

4. Tempora adjusted factors		Adjusted with Tempora	
	2024 to 2026	Adj Factor	Adj Flow
Cars	Practical A	1.03	1.0317
LDV	Practical A	1.03	1.0311
HDV	Practical A	1.00	1.0001
PSV	Practical A	1.00	1.0001
Total	Practical A	1.03	1.0317
Cars	Minor Res	1.03	1.0317
LDV	Minor Res	1.03	1.0311
HDV	Minor Res	1.00	1.0001
PSV	Minor Res	1.00	1.0001
Total	Minor Res	1.03	1.0317

ALL FLOWS IN PCUS



ALL FLOWS IN PCUS

G. Route Catchment Areas

Figure 7.2: HRI staff and patient / visitor route catchment areas

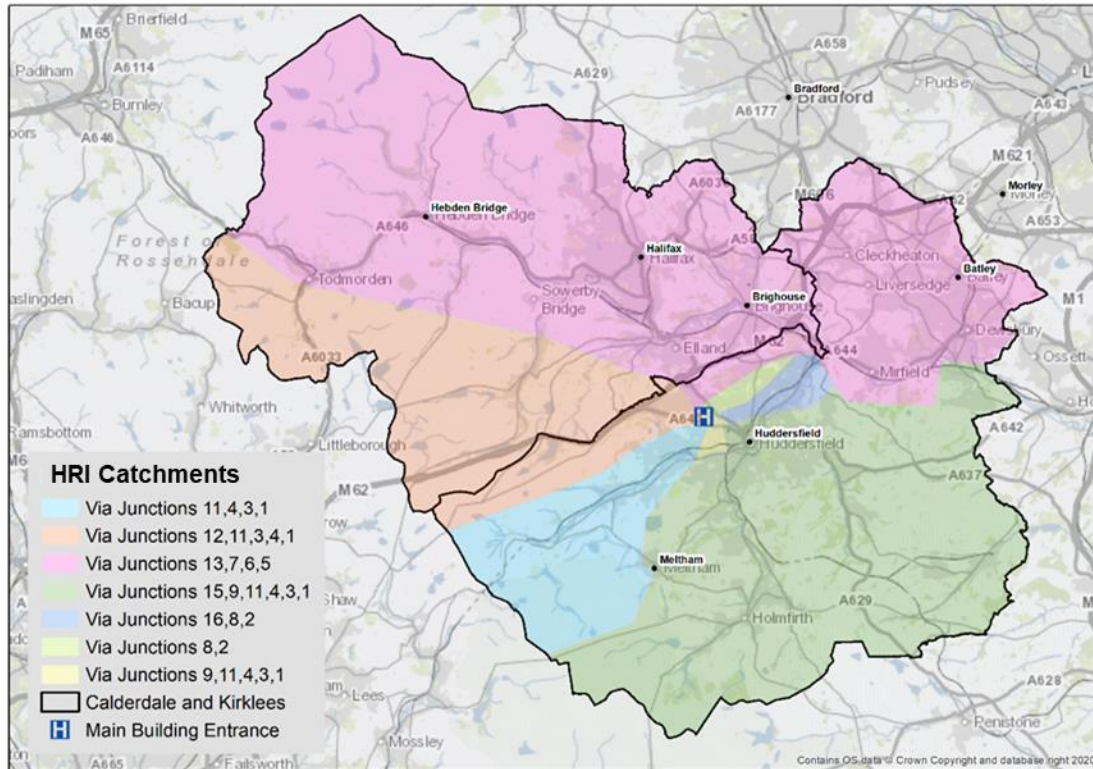


Figure 7.3: HRI staff and patient / visitor route catchment areas

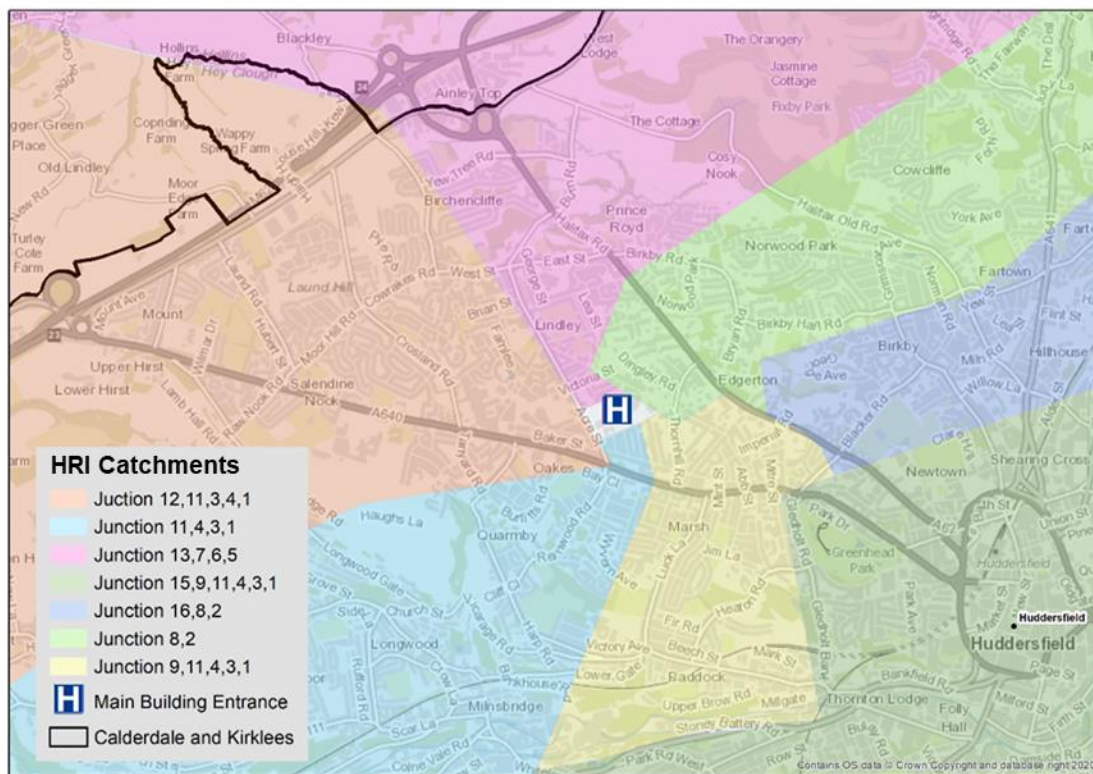
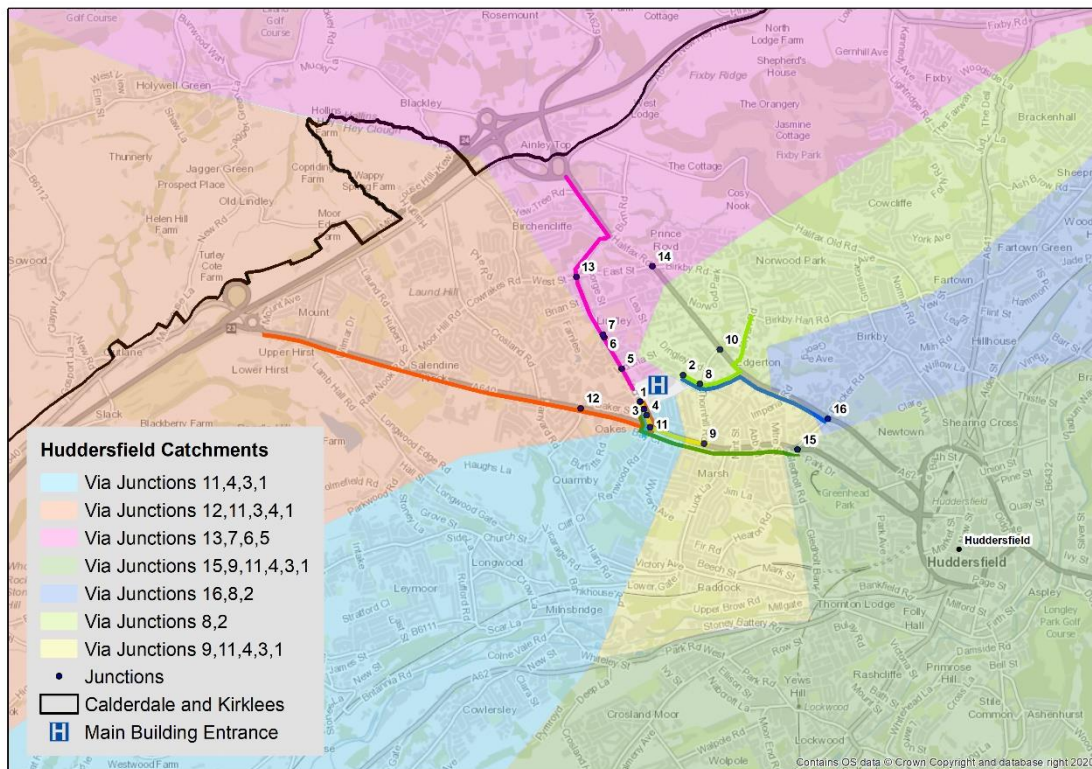


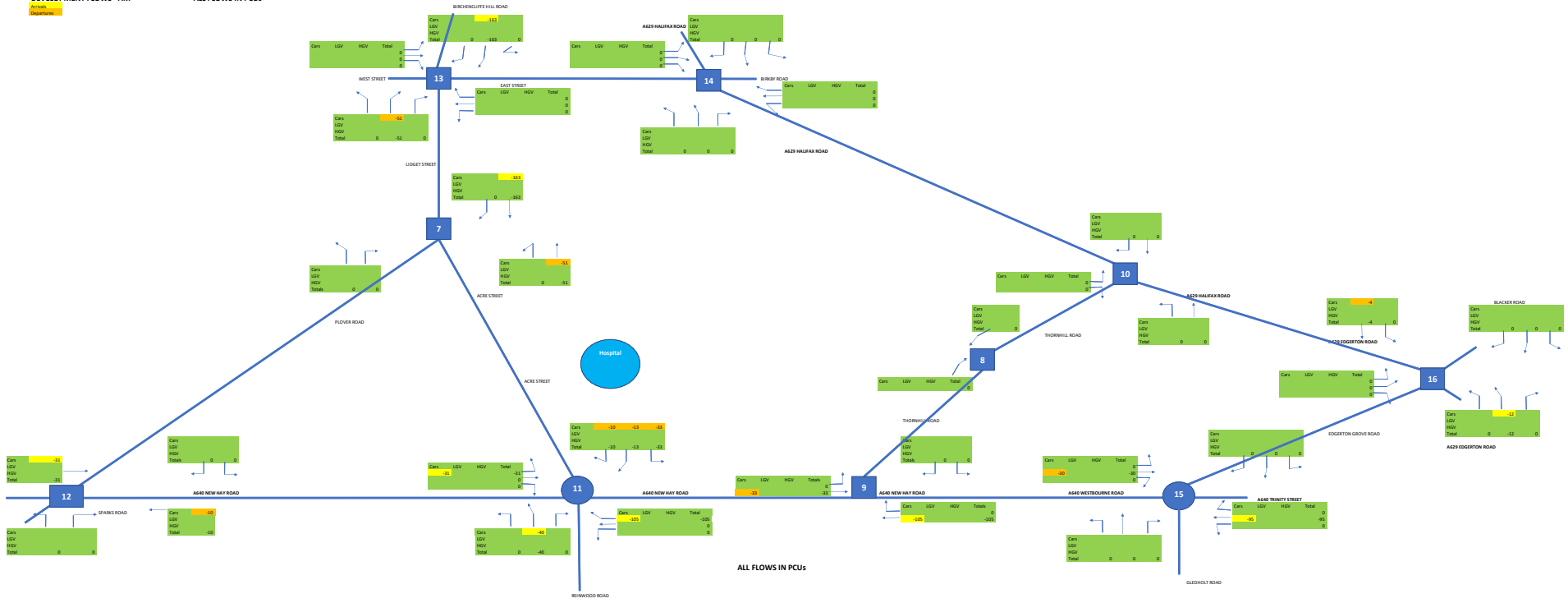
Figure 7.4: HRI staff and patient / visitor routes



H. Development route distribution

DEVELOPMENT FLOWS - AM
 A1000
 Development

ALL FLOWS IN PCUs



I. Do something network flows

