**Norwich City Council**

**SCRUTINY COMMITTEE**

# Item No

**REPORT for meeting to be held on 22 June 2017**

# City Accessibility


**Summary:** The following report details the recent changes to the layout and transportation of the Norwich city area. It clarifies developments of certain areas in the city centre, and how these developments were carried out in consideration of the needs of residents and visitors, particularly those with protected characteristics under The Equality Act.

The report also considers the approach Hull has taken around city access issues in the Hull charter, and how this compares with the approach taken in Norwich.


**Recommendation:** To note the report and consider evidence about the delivery of transport and, highways projects; and
Consider examples of best practice to inform delivery of future projects


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## Background

1. In July 2016, some Norwich city councillors, officers and members of disability access groups took part in an access tour of Norwich to identify accessibility issues within the city area.

2. The members of the scrutiny committee will be provided with a current status of the council's transportation and highways strategies, as the report below.

3. This committee will also be provided with evidence and first-hand accounts of city access issues by a number of speakers representing different groups:

    - The Access Group – George Saunders
    - NNAB (The Norfolk and Norwich Association for the Blind) – Edward Bates
    - RNIB (Royal National Institute of Blind people) – Michael Wordingham
    - NDA (Norfolk Deaf Association) –Aliona Derrett
    - Age UK –Susan Ringwood
    - UEA Accessibility Taskforce – Dr. Katherine Deane

## Introduction

1. There has been significant change in the layout of Norwich City Centre over the past few years and this has raised concerns that some groups and individuals have been disadvantaged particularly when it comes to the issues surrounding pedestrian crossings and shared spaces. Most, but not all the issues raised have been consequent on the implementation of transport schemes within the City Centre aimed at supporting the Norwich Area Transportation Strategy.

## Equality Act

2. The Equality Act has specific requirements with respect to public bodies. Section 149 states

(1)A public authority must, in the exercise of its functions, have due regard to the need to—

(a)eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under this Act;

(b)advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it;

(c)foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

## Background

3. In terms of the Equality Act, the protected characteristics that are most likely to impact on the design of the public highway are disability and age. However, the public highway has to fulfil a wide number of functions, and cater so far as possible for all the demands made on it. In a busy City Centre this means we have to provide effective solutions that cater for pedestrians, cyclists and public transport, as well as private vehicle movement. In addition, the needs of various protected groups are wide and varied, and solutions that suit one individual or group of individuals can often be in direct conflict with the requirements of others.

4. We aim to meet the duty of the equality act through various measures, which are discussed in Appendix 1, and major schemes are subject to an Equality Impact Assessment. Every public space is different, however, as are the demands placed upon it, and the design of any space has to take into account the various demands for movement, public safety and convenience for everyone including those people with protected characteristics. As these demands are very often in conflict, and only one design solution can actually be built, any scheme has to strike a careful balance between the needs and desires of the various users it is catering for.

5. We are aware that some other cities have produced a ‘charter’ based around accessibility (notably Hull). This report makes reference to the Hull charter, and compares it with the current practice here in Norwich.

6. Norwich and its surrounding area is becoming an increasingly popular area to live, work and visit. It is the number one shopping destination in the eastern region and becoming one of the nation’s premier cultural centres. To ensure the Greater Norwich Area continues to be popular and grow, the transport systems need to be able to cope with the increased demand.

7. The Norwich Area Transportation Strategy (NATS), now more widely known as Transport for Norwich (TfN), is the adopted strategy which has guided the delivery of transport schemes over recent times and will shape the delivery of the transport improvements needed over the next 15 plus years. The strategy seeks to give people viable options on how they choose to travel and actively promotes sustainable and active transport.

8. NATS aims to make the City Centre more accessible by all modes, whilst improving the quality of the pedestrian environment, and reducing or removing through traffic from the centre so far as that is practically possible. Throughout the urban area, the strategy seeks to cater for the increasing demand for travel through means other than the private car, so enhancements to public transport routes, walking and cycling are key elements to the strategy.

9. The implementation plan for the Norwich Area Transportation Strategy (NATSIP) was agreed by Norfolk County Council in April 2010 and updated in November 2013: https://www.norfolk.gov.uk/-/media/norfolk/downloads/roads-and-transport/tfn/nats-ip-update.pdf?la=en. The plan sets out the range of transport measures, together with their general intended phasing, for delivery over the short to medium term.

10. The removal of several through routes within the City Centre has substantially reduced traffic levels on key streets within the primary retail area. For example, traffic levels on Rampant Horse Street have fallen from 4600 vehicles per day (vpd) to 1650, whilst on St Stephens Street; the numbers have fallen from 6000vpd to just under 3000.

**Shared spaces**

11. These are defined in recognised guidance as a street or place accessible to both pedestrians and vehicles that is designed to enable pedestrians to move more freely by reducing features that tend to encourage users of vehicles to assume priority. The guidance also advises that in areas where traffic levels are less than 100 vehicles per hour, pedestrians are likely to be comfortable congregating within any space where there are vehicles.

12. Within Norwich, we do not have any schemes that could be considered as shared spaces with high levels of traffic. All of our Pedestrian Zones have

traffic levels much lower than 100 vehicles per hour, and the consequence of this is that these spaces are dominated by pedestrians across the entire width of the street. Rampant Horse Street, whilst having some flush pavements is of a more traditional design, with a defined vehicle route. Even here, the volume of traffic is only 85 vehicles per hour (1000 vehicles over a 12 hour period) whilst almost 50,000 pedestrians cross the road during a typical day. St Stephens Street and Red Lion Street areas have clearly defined crossing points with central refuges, and two light controlled crossings. There are 2400 vehicle movements on St Stephens street over a 12 hour period.

**Light controlled junctions**

13. The reduction in traffic flows at key junctions within the City Centre (principally St Stephens Plain and Rouen Road/Farmers Avenue) has removed the requirement for light controlled junctions at these locations for traffic management purposes (which is the primary reason that these junction were light controlled originally) as the junctions are able to operate satisfactorily without lights as what is known as ‘priority junctions’. This not only saves substantial construction costs (a light controlled junction can typically cost £500,000 to install), but also the ongoing maintenance costs of these junctions which is substantial. Resources are finite, so providing light controlled junctions where these are not needed for traffic management purposes does not represent value for money.

**Pedestrian Crossing assessments**

14. The provision of new pedestrian crossings and the assessment of existing pedestrian crossings is undertaken according to the advice contained in ‘Local Transport Note 1/95 – The assessment of Pedestrian Crossings’ (LTN 1/95). This advice is nationally applicable and sets out ‘best practice’ in the determination of both the need and type of crossing facilities that should be provided. Light controlled crossings typically have a life span of around 25 years before equipment needs to be replaced due mainly to obsolescent replacement parts. This means that all light controlled crossings currently reaching this life span were installed before this advice was published.

15. The assessment method uses a framework to encourage informed decisions to be made as to whether a crossing is necessary and if so which type should be used. The framework is used to collate all the relevant information relating to a proposal. Installation and maintenance costs are included together with the consideration of road user needs and road safety aspects. The assessment includes particular reference to the needs of vulnerable groups, and in particular those protected under the Equality Act.

16. LTN 1/95 advises that factors most likely to have a bearing on the choice of pedestrian crossing type are:

- difficulty in crossing;
- vehicle delays during peak periods;
- carriageway capacity;
- local representations;
- cost (including maintenance);
- vehicle speeds.

17. There are a number of possible options for action when considering the provision of pedestrian crossings. These include:

    - do nothing;
    - provide traffic management (including refuge island);
    - provide a Zebra crossing;
    - provide a signal-controlled crossing

- LTN1/95 also gives guidance on the most appropriate form of pedestrian crossing provision, which is, of course, dependant on the characteristics of the individual locations. It may be possible to create a crossing through the provision of a refuge, installing traffic calming measures or narrowing the carriageway (to reduce the crossing time). Where more formal crossing facilities are needed, then either a Zebra, or a light controlled facility can be provided. Where a crossing is thought necessary but crossing flows are relatively low and traffic flows are no more than moderate, then a Zebra crossing may be suitable. Full light controlled facilities are advised in locations where

    - vehicle speeds are high, and other options are thought unsuitable;
    - there is normally a greater than average proportion of elderly or disabled pedestrians;
    - vehicle flows are very high and pedestrians have difficulty in asserting precedence;
    - there is a specific need for a crossing for cyclists or equestrians;
    - pedestrians could be confused by traffic management measures such as a contra-flow bus lane;
    - there is a need to link with adjacent controlled junctions or crossings
    - pedestrian flows are high and delays to vehicular traffic would otherwise be excessive.

18. There are a significant number of locations around the City where a review of existing and the new provision of pedestrian crossings is necessary, but resources are very limited, and consequently it is imperative that we provide the form of crossing that best suits the location and our statutory duty. A full light controlled crossing costs around five times as much as a Zebra. Road narrowings, local traffic calming and pedestrian refuges are a significantly lower cost option. Our current approach allows us to maximise

the number of locations where we can provide these much needed facilities.

19. To overcome concerns raised about accessibility by blind and partially sighted people, we have sought to maintain or provide light controlled crossings at strategic locations around the City Centre. The issues that need to be considered are discussed in the report contained in Appendix 1. It is important to note that light controlled crossings do not necessarily offer the best or the safest form of crossing, and this does need to be carefully considered. On St Andrews Street, for example, the previous light controlled crossing (that has been replaced by a Zebra) had a very poor safety record. There have been no accidents at the site since the Zebra was installed around ten years ago. The Rampant Horse Street crossing assessment is attached as Appendix 2.

**Related Issues**

20. At The Norwich City Council meeting in November 2016, it was resolved to ask Cabinet to introduce an Accessibility Charter along the lines of one that has been introduced in Hull, and to ask the Norwich Highways Agency Committee to ensure that people with disabilities are included in the process from the start when new schemes are considered. The Hull Charter is appended in Appendix 1, with a commentary on our current practice in each area.

**APPENDIX 1**

## Hull City 'Street Charter' - commentary

The Hull City Street Charter Covers commitment over the following areas:

1. Inaccessible crossings
2. Shared space
3. Parking on pavements
4. Adverting boards
5. Street/café furniture
6. Temporary street works
7. Wheelie bins/recycling bags
8. Overgrown shrubbery and branches
9. Dog fouling

### 1. Inaccessible Crossings

**Hull City Council will:**

- Work with disabled people to review and audit crossings.
- Work with disabled people to review the accessibility of pedestrian routes in the city centre.
- Enforce national guidance and equalities legislation when it comes to the use of audible beeps, rotating cones, tactile paving and dropped kerbs.

**What we do in Norwich**

- We have engaged with disabled people, very often from the earliest stages of a scheme to identify issues, which we then address if we can.
- The installation and replacement of crossings is undertaken in accordance with national guidance that includes consideration for disabled groups.
- We aim to maintain all our crossings to an appropriate standard.

### 2. Shared Space

**Hull City Council will:**

- Involve and consult with disabled people when new shared space schemes are put forward and make any necessary changes to the schemes where safety concerns are raised.

**What we do in Norwich**

- Involve and consult with disabled people when new shared space schemes are put forward and make any necessary changes to the

schemes where safety concerns are raised (subject to funding and a full consideration of all related factors).

Note:

Safety concerns can be raised for all sorts of reasons. In Rampant Horse Street near the Debenhams / M&S store entrances, for example, a light controlled crossing has not been provided because of safety concerns that this would effectively undermine pedestrian safety in an area otherwise dominated by pedestrian movement.

Most of the spaces that we have are pedestrianised areas, with very limited vehicle intrusion. These areas have a low accident record, particularly when compared to non-pedestrianised areas. The Rampant Horse Street junction has low levels of traffic movement, limited to buses, cycles and taxis only, and a myriad of pedestrian desire lines making formal crossing provision impractical and unsafe.

**3. Parking on Pavements**

**Hull City Council will:**

- Establish accessible ways to monitor and report instances of parking on pavements.
- Work with the police to use their existing powers under the Highways Act and other legislation to keep the pavement clear of obstructions caused by parked cars.
- Work with the police to engage with disabled people and the wider community to improve awareness of the dangers of parking on pavements.

**What we do in Norwich**

- Enforce parking restrictions, as these apply to the pavement as well as the road.
- Plan to review pavement parking and whether to introduce Traffic Regulation Orders (TRO) to control such parking.

Note:

The worst locations for pavement parking in the city are typically terraced streets. Whilst it could potentially be stopped through a TRO it would have major impact on the availability of on-street parking and would be likely to generate a very hostile reaction from the public for this reason.

**4. Advertising Boards**

**Hull City Council will:**

- Continue to enforce our zero tolerance of advertising boards on the highway.
- Have clear policies available to the public.
- Work with blind and partially sighted people to monitor and mitigate the impact of any temporary obstruction on the highway.
- Work with local business owners educationally so that they understand the difficulties all disabled people have with ‘A’ boards.
- Advise businesses on alternative forms of advertising.

**What we do in Norwich**

- Cabinet has recently adopted an ‘A’ Boards policy that was developed in association with local stakeholders including disability Groups.

**5. Pavement Cafes**

**Hull City Council will:**

- Continue to license all cafes on the highway. Their suitability will be assessed on the grounds that they do not constitute a hazard to disabled people and that they are adequately guarded.
- Continue to ensure that the terms of licence are being met, including that the café is using the agreed location and barriers.
- Take enforcement action against those that do not follow the agreed terms of the licence, which could include removal of the agreement.
- Remove pavement cafes which do not have a licence.
- Set up accessible ways for disabled people to report collisions and injuries in respect of highways and café furniture.
- In accordance with section 175 A and the Public Sector Equality Duty, when town centres and neighbourhoods are redeveloped, proactively and meaningfully engage with disabled people with regard to inclusive design and street furniture.

**What we do in Norwich**

- Consultation on applications takes place with the Norwich Access Group and Chatterbox (the talking newspaper for the blind) who are sent photographs of the proposed site and site plans detailing furniture layout and dimensions of the suggested licensed area.
- The standard conditions attached to all permissions contain a requirement that the barriers must be used to define the licensed area that include a ‘tapping rail’ to assist the visually impaired.

**6. Temporary Works**

**Hull City Council will:**

- Ensure that pavements which remain open to the public also remain accessible.

- Ensure that suitable alternative pedestrian routes are properly signed, accessible and as short as possible.
- That, unless it is unavoidably necessary, blue badge only parking bays are not taken away.
- That, if blue badge only parking bays are temporarily lost, nearby alternatives are provided.
- Contact points will be set up so that disabled people are informed of long term temporary works and how it may affect them, for example temporary changes to bus dropping off and picking up points.

**What we do in Norwich**

- We do all of these things.

**7. Wheelie Bins**

**Hull City Council will:**

- Make sure that all bin crews are trained in why it is so important to store bins as safely as possible.
- Promote awareness and encourage residents to be considerate in how they place their bins.

**What we do in Norwich**

The collection contractor, Biffa, has a stated policy on the returning of bins –

- Biffa bin collection operatives will handle wheelie bins in an orderly, tidy, and safe manner avoiding damage wherever possible.
- They will ensure drives, gateways, and pavements are not blocked and will return all emptied wheelie bins to the location from which they were collected.
- Bins will be returned in this way where safe to do so. But where it might cause an obstruction to pedestrians or vehicles, the wheelie bin will be left in a safe location within sight of where it was originally placed.
- In the case of assisted bin collections, wheelie bins will be returned to the agreed location within the boundary of the property.

**8. Overhanging Shrubs and Trees**

**Hull City Council will:**

- Set up accessible ways for disabled people to report overgrown shrubbery and branches.
- The Highways Act will be used to take appropriate action on overgrown shrubbery and branches.
- Promote awareness and encourage residents to be considerate in managing their shrubbery and trees

**What we do in Norwich**

- We do all of these things.

**9. Dog Fouling**

**Hull City Council will:**

- Develop accessible ways to monitor and report instances of dog fouling.
- Devise an awareness raising campaign in problem areas.

**What we do in Norwich**

- Arrange for clearance of dog fouling from areas of land within the administrative area of the city council, including all streets and pavements, parks, public gardens, recreation and sports grounds, cemeteries, car parks and all land in the open air where the public have access (with or without payment).
- Respond to all reports in the shopping centre within 2 hours of being reported to us. Other reported instances of dog fouling on public land will be cleared within 24 hours of it being reported.
- Members of the public can report dog fouling issues by ‘phone, email or an online form.
- Officers from Neighbourhood services will deal with dog fouling issues as part of routine duties and in targeted actions following complaints or proactively.

**APPENDIX 2**

# Rampant Horse Street, Norwich

# Pedestrian Crossing Assessment

**January 2017**

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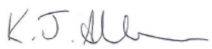
(Sig) 
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Issue Status: Final

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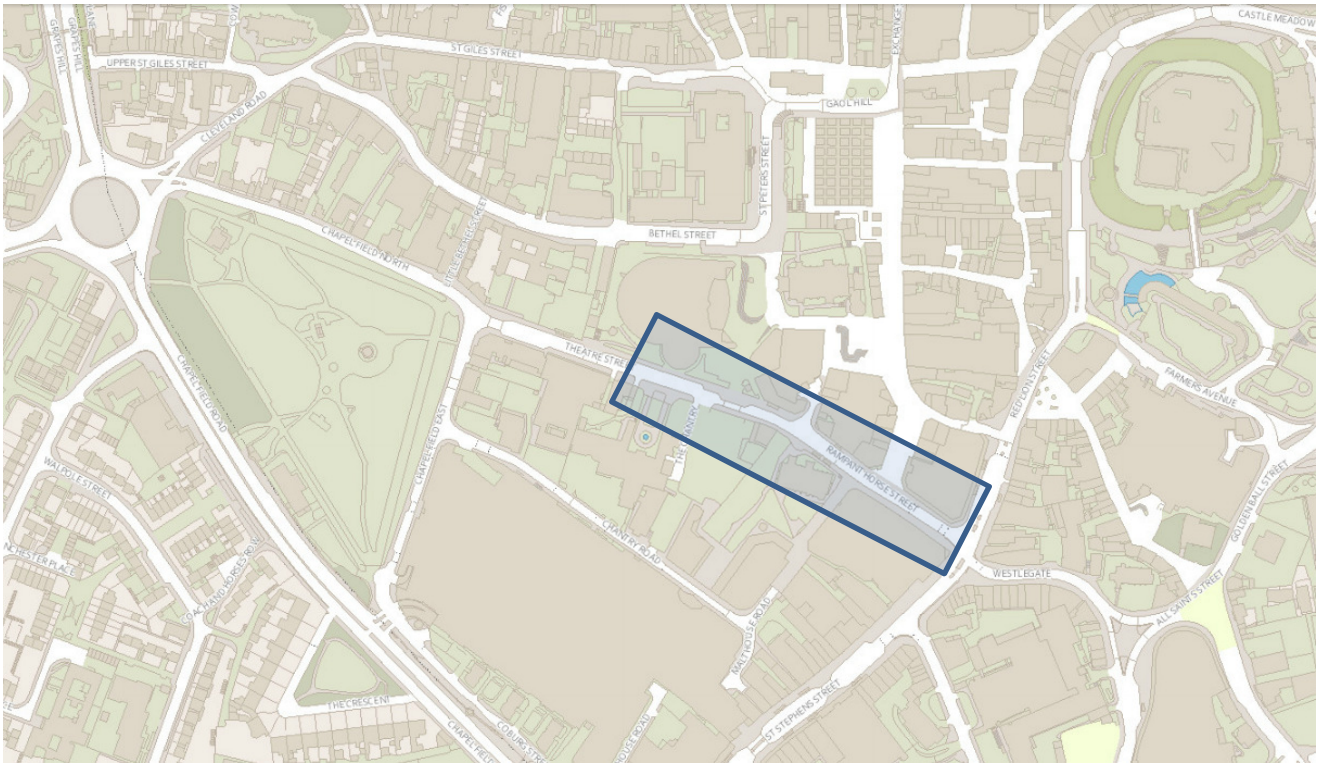
**APPENDICES**

## 1.0 Introduction

1.1 Various Transport for Norwich schemes which have been implemented over the last few years have sought to reduce through traffic from Norwich City Centre. The aim of these schemes has been to improve bus service provision and enhance the environment and hence safety for pedestrians and cyclists. In November 2014 a major reduction in through traffic was achieved through the implementation access restrictions at Chapelfield North and St Stephens Street, to the extent that removal of the signal controlled Westlegate/Red Lion Street junction was considered viable. This has reduced traffic speeds and catered for a wider range of pedestrian crossing desire lines, however, it has also removed all signal controlled pedestrian crossing provision for the Rampant Horse Street arm of the junction. The local Norfolk and Norwich Association for the Blind (NNAB) have expressed strong concern regarding this loss of signalised crossing provision and have stated that Rampant Horse Street is effectively a 'no go zone' for Visually Impaired Pedestrians (VIP's).

1.2 This study will assess the appropriateness and safety of the current uncontrolled crossing arrangements for all users and explore if further changes are required.

## 1.2 SITE LOCATION




| Figure 1 | NTS |
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## 2.0 Site Assessment Framework

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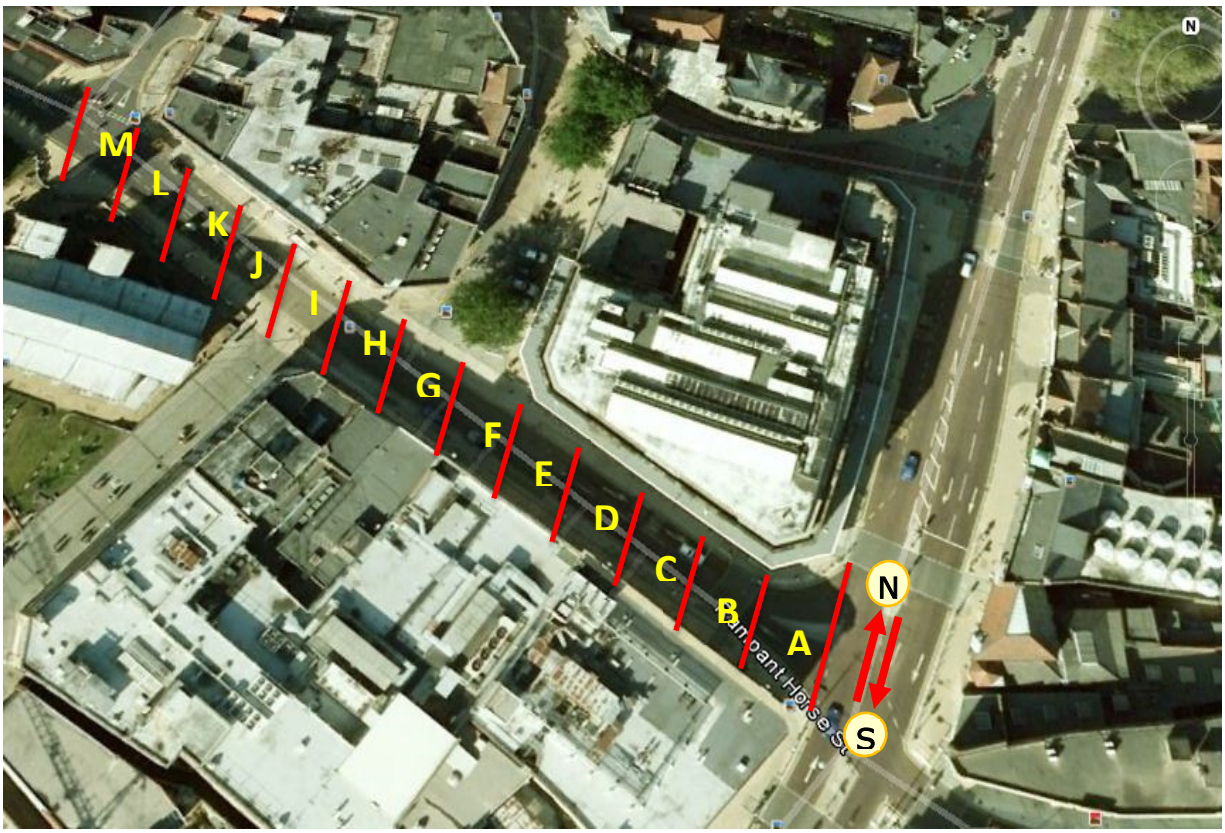
| **Location** | The site is located on C851Rampant Horse Street in Norwich. The area is dense urban and land use is almost entirely retail shopping. |
| **Site Characteristics** (See Appendix A for Existing layout plan) | Raised speed tables aimed to promote 'shared space' and increase pedestrian dominance are provided at St Stephen's Plain and Rampant Horse Street. The Rampant Horse Street speed table is relatively long at around 60m length. A zebra crossing on speed table is present at the northwest end of the study length.<br>Well used bus stops are present between Brigg Street and William Booth Street.<br>The study length is subject to a motor vehicle ban with exceptions for buses and taxis from Brigg Streeet to Red Lion Street. Northwest of Brigg Street the restriction permits buses, taxis and access only. |

**To assist with the analysis of such a long site, the area was divided into sections by the survey company. These are shown in Figures 2 and 3. The site has three uncontrolled crossing points marked with tactile paving at sections B, E, and H and a zebra crossing at point R. In addition, a raised table feature exists between the eastern end of section E to the western side of section I.**

**There are west bound bus stops located in section K and east bound stops in section J.**

**The major department stores have entrances in sections A, B, D, E and F. Pedestrianised streets can be located at F, G, I and R.**




| Figure 2 | NTS |
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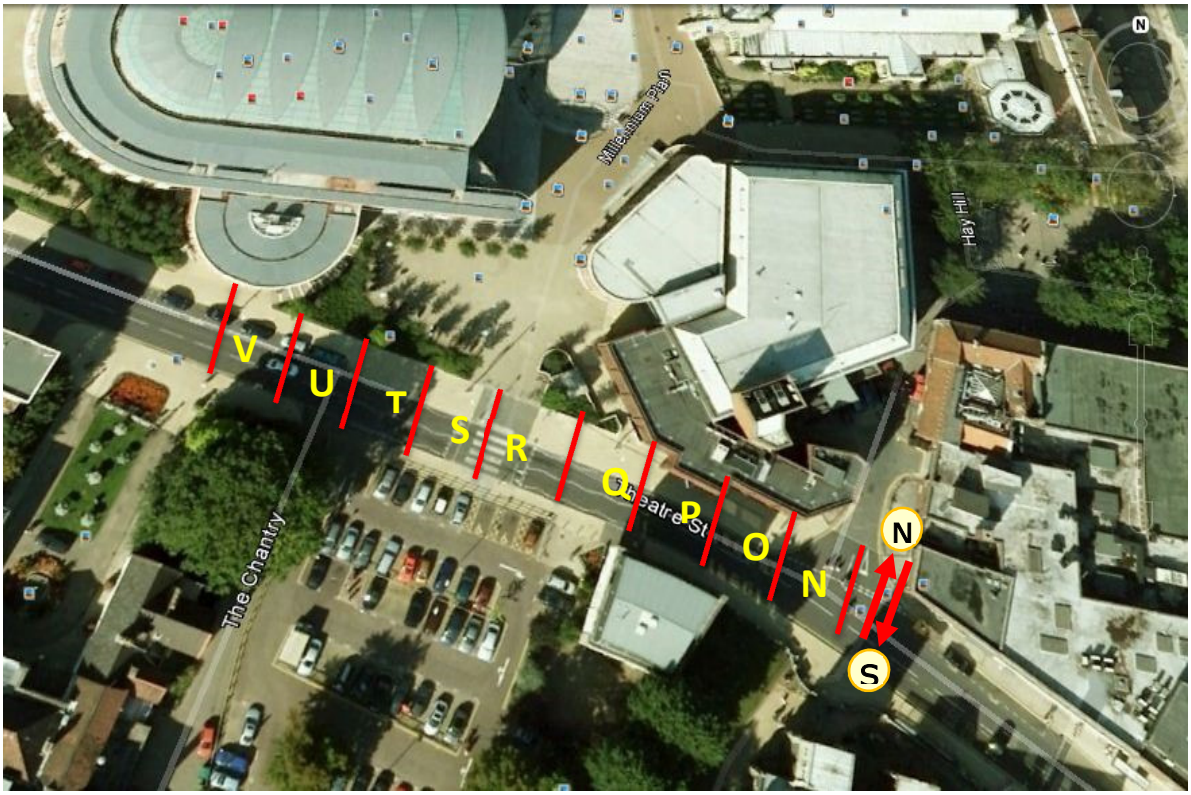
**This assessment focuses on the provision of facilities at locations B, E, H and R as these are the principle previously identified desire lines. The report considers if the current provision is adequate for all road users.**




| **Figure 3** | **NTS** |
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| | **Data and Comments:** |
| **Location** | Site A/B – 15m west of the junction with St Stephens Street<br><br>Site E –35 m west of the junction with St Stephens Street<br><br>Site H - 70 m west of the junction with St Stephens Street<br><br>Site R 170m west of the junction with St Stephens Street |
| **Site Characteristics**<br>(See Appendix A for Existing layout plan) | Rampant Horse street slopes from west to east. Site R is at the top of the slope with the greatest inclination between M and J. Sites A/B are located on the St Stephen's Plain raised table which promotes 'shared space'.<br><br>Rampant Horse St is not pedestrianised but vehicle movements have been greatly reduced by restricting traffic to buses, taxis, cyclists, vehicles accessing premises or vehicles |

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| | accessing blue badge parking. Traffic flow data shows that volumes have reduced from almost 3000 vehicles in 12 hours in 2012 to just over 1000 vehicles in the same period in 2016.<br><br>A raised table extends from locations E – H (a distance of approximately 60m), surfaced in paviours. Within this table there are two uncontrolled crossing points demarcated with tactile paving (sites E and H).<br><br>Location R is a controlled crossing point (zebra) 170 m west of St Stephens St, this links a pedestrianised area leading to The Forum, covered outdoor market, and city hall to a surface car park and access to Chapelfield Shopping Centre.<br><br>Location A/B<br><br>The closest junction is less than 15m to the east. This is a four arm junction with limited vehicle movements on a raised table. The eastern arm is pedestrianised with cycle path. The north/south arms are restricted to buses, cycles and taxis only and have an average 24hr flow of 3213 vehicles per day. The west arm (Rampant Horse Street) is also restricted to buses, taxis and cycles only.<br><br>There is a strong pedestrian desire to travel north/south in both directions as this links shopping areas within the city centre.<br><br>There are entrances to two major department stores adjacent to this site.<br><br>The carriageway is single two-way, with an average width of 7m at the crossing point. Vehicle movements in both directions are restricted to buses, cycles and taxis.<br><br>The northern footway is 5.2 m wide, the southern footway is 5.3m wide. There is a marked uncontrolled crossing point on a |

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| | raised table demarcated with tactile paving. The width of the crossing point is 3.1m. This is location B<br><br>Both footways are surfaced with paving flags. The carriageway is surfaced with asphalt with red chippings and raised to the height of the footway at the location of the uncontrolled crossing point. This raised table extends eastwards to cover location A and the rest of the junction area. There are no tactile paviours at location A.<br><br>There is NCC owned street lighting in place.<br><br>Site E<br><br>Site E is located 35m west of the junction with St Stephens Street and is on the eastern edge of a pedestrianised Brigg Street heading north towards Norwich Market and additional shopping areas. This pedestrianised street also contains 4 blue badge parking spaces.<br><br>The carriageway is single two-way, with an average width of 7 m at the crossing point.<br><br>Vehicle movements in both directions are restricted to buses, cycles and taxis.<br><br>The northern footway is 6m m wide, the southern footway is 5.1m wide. There is a marked uncontrolled crossing point on a raised table demarcated with tactile paving. The width of the crossing point is 6.7m.<br><br>Both footways are surfaced with paving flags. The carriageway is surfaced with block paviours which are raised to the height of the footway. This raised table extends west beyond the extents of the crossing point. |

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| | Site H<br><br>Location H is located 70m west of the junction with St Stephens Street and is on the eastern edge of a pedestrianised road (Malthouse Road) heading south towards Chapelfield Shopping Centre and additional shopping/restaurant areas. Chapelfield Shopping Centre has a large underground car park.<br><br>Location H is also on the western edge of a pedestrianised road heading north towards Norwich Market and additional shopping areas. This pedestrianised street also contains 4 blue badge parking spaces.<br><br>The carriageway is single two-way, with an average width of 7.3 m at the crossing point. Vehicle movements in both directions are restricted to buses, cyclists, taxis and vehicles seeking access to the two pedestrianised streets (i.e. for loading or blue badge parking.<br><br>The northern footway is 4m wide (at its narrowest point), the southern footway is 4.6m wide. There is a marked uncontrolled crossing point on a raised table demarcated with tactile paving. The width of the crossing point is 6.8m.<br><br>Both footways are surfaced with paving flags. The carriageway is surfaced with paviours raised to the height of the footways. The raised table extends eastwards beyond the extents of the crossing point.<br><br>Road lighting: owned by NCC yes<br>conforms to BS 5489 yes |

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| **Visibility** | Site A<br>Visibility to the west is excellent (130 m)<br>When crossing from the north to south the visibility to the east is constrained by the proximity to the junction with St Stephens Street. Clear visibility is 30m with a simple glance to the east (southern approach), extending to 25m if a person is able to turn fully to look north east.<br><br>When crossing south to north the visibility east is 22m to the southern approach and 37m to the northern approach.<br><br>Manual for Streets requires a SSD of 22m for speeds of 20mph which is available.<br><br>In practice the majority of pedestrians were observed to wait for vehicles which were indicating to turn into Rampant Horse Street. A maximum delay of 10secs was noted when a platoon of two buses and a taxi entered Rampant Horse St from the north.<br><br>Site E<br>Visibility to the west is excellent (108m – 120m)<br>Visibility to the east is good (52-55m)<br><br>Site H<br>Visibility to the west is excellent (81m-90m)<br>Visibility to the east is excellent at 78m<br><br>Site R (zebra crossing)<br>Visibility to the west is excellent (100m+)<br>Visibility to the east is good at 65 to 95m<br><br>Desirable standards met in both directions yes |

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| **Vehicle Flow**<br>(See Appendix B for pedestrian/ vehicle count data) | Date of survey: Tuesday, 18 of October 2016 - 31 October 2016<br>Average 24 hour flow 2104 ( 25% buses) |
| **Vehicle Speeds** | Speed limit: 20mph<br>Date of survey: Tuesday, 18 of October 2016 - 31 October 2016<br>Average 24hr speeds<br><br>85%ile speeds: 21.3 mph (east bound) (downhill)<br>22.1 mph (westbound)<br>Mean speeds: 16.7 mph (east bound) (downhill)<br>16.3 mph (westbound). |

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| **Crossing Traffic** | **SITE A/B** | |
| | **Total Pedestrians/Cyclists Crossing:** | **15028** |
| | Adult pedestrians: | 14529 (96.68%) |
| | Elderly pedestrians: | 6 (0.4%) |
| | Unescorted child pedestrians: | 18 (0.12%) |
| | Escorted child pedestrians: | 400 (2.66%) |
| | Disabled pedestrians/wheelchair users (inc mobility scooters: | 76 (0.51%) |
| | Pedal cyclists (child and adult): | 31 (0.21%) |
| | **Peak Hour Flows**: | **2100** (between 1200hrs&1300hrs) |
| | There is a low proportion or elderly and disabled pedestrians<br>Difficulty in crossing Low<br>School crossing patrol no | |
| | **SITE E** | |
| | **Total Pedestrians/Cyclists Crossing:** | **4129** |
| | Adult pedestrians: | 3907(94.62%) |
| | Elderly pedestrians: | 18 (0.44%) |
| | Unescorted child pedestrians: | 8 (0.19%) |
| | Escorted child pedestrians: | 135 (3.27%) |
| | Disabled pedestrians/wheelchair users users (inc mobility scooters: | 56 (1.36%) |
| | Pedal cyclists (child and adult): | 25 (0.61%) |
| | **Peak Hour Flows**: | **652** (between 1300hrs&1400hrs) |

| | |
|---|---|
| | There is a low proportion or elderly and disabled pedestrians<br>Difficulty in crossing Low<br>School crossing patrol no |
| | **SITE H** — **6406** |
| | **Total Pedestrians/Cyclists Crossing:** |
| | Adult pedestrians: 6138 (95.82%) |
| | Elderly pedestrians: 0 (0.0%) |
| | Unescorted child pedestrians: 4 (0.06%) |
| | Escorted child pedestrians: 224 (3.5%) |
| | Disabled pedestrians/wheelchair/mobility scooter users: 32 (0.5%) |
| | Pedal cyclists (child and adult): 22 (0.34%) |
| | **Peak Hour Flows**: **1016** (between 1300hrs & 1400hrs) |
| | There is a low proportion or elderly and disabled pedestrians<br>Difficulty in crossing Low<br>School crossing patrol no |
| | **SITE R** — **5553** |
| | **Total Pedestrians/Cyclists Crossing:** |
| | Adult pedestrians: 2519 (92.88%) |
| | Elderly pedestrians: 10 (0.37%) |
| | Unescorted child pedestrians: 36 (1.33%) |
| | Escorted child pedestrians: 101 (3.72%) |
| | Disabled pedestrians/wheelchair/mobility scooter users: 62 (2.29%) |
| | Pedal cyclists (child and adult): 21 (0.36%) |
| | **Peak Hour Flows**: **318** (between 1200hrs & 1300hrs) |

<table>
<tr><td></td><td>Location R has the highest percentage of unaccompanied children probably due to the presence of a free school adjacent to city hall. Location R also has the highest percentage of disabled/mobility impaired users, due to the number of mobility scooters recorded crossing at this location.)<br><br>Difficulty in crossing Low<br>School crossing patrol no</td></tr>
<tr><td>Road Accidents (See Figure 2 contained in Appendix B for accident locations/sticks )</td><td>9 in 5 years (1 October 2011 to 30 September 2016, within the area of study<br><br>8 incidents involved pedestrians and resulted in a pedestrian suffering an injury. One incident also involved a cyclist and both the cyclist and the pedestrian were injured.<br><br>Generally the accidents are occurring at relatively low speeds, during daylight hours when there are high pedestrian movements and result in slight injuries. In several cases the pedestrian stepped into the path of a vehicle/cycle. Serious injuries occurred in two cases, one to a cyclist and one to an elderly pedestrian.<br><br>Only one incident involved a child.<br><br>On accident (31 March 2016) involved a bus striking a VIP at Stephen’s Plain. This was during construction works for the scheme when the junction was operating under temporary traffic management.<br><br>Accident Severity<br><br>
<table>
<tr><th></th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>Total</th></tr>
<tr><td>Serious</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>2</td></tr>
<tr><td>Slight</td><td>1</td><td>1</td><td>1</td><td>1</td><td>2</td><td>1</td><td>7</td></tr>
<tr><td>Total</td><td>1</td><td>2</td><td>1</td><td>1</td><td>3</td><td>1</td><td>9</td></tr>
</table>
<br>Further accident details can be found in Appendix B</td></tr>
</table>

| | |
|---|---|
| **Other Issues** | Comments from site observations<br><br>In addition to the survey on 18th October a site visit was undertaken between 1500 – 1600 on Monday 14 November. During this period the majority of pedestrians including those with children, push chairs and mobility scooters were observed to cross at their exact desire line. Sometimes this coincided with a crossing point, other times it did not. Pedestrians did not generally cross parallel from one footway to another, but followed their desire line across the carriageway.<br><br>Crossing speeds were relaxed, and delays to crossing were negligible, with the majority of pedestrians barely adjusting their speed before crossing, and most merely taking the opportunity to glance in both directions before leaving the footway.<br><br>Comparison of assessed crossing points<br><br>At location A/B the majority of pedestrians cross at A, rather than B (where the tactile paviours mark a crossing point. This was observed to generally be due to pedestrians not wishing to deviate from their desire line or due to volume of pedestrians already at this location.<br><br>Location A/B is the location requiring the most observation of other traffic movements before crossing as vehicles (generally buses) could be turning in from either the north or southern arms of the junction.<br><br>The tactile paviours at locations E and H are well located. More people crossed at both of these locations than the two unmarked locations between them. However, the site observations suggested that provision of the tactile paviours was not a factor in choosing where to cross for the very great majority of pedestrians.<br><br>The zebra at location R also seems well located, carrying the highest percentage of unaccompanied children and also mobility scooter users. |

| | |
|---|---|
| | Visually Impaired Pedestrians<br><br>A video survey was chosen specifically so that the data could be analysed to provide meaningful data on the accessibility of crossing for all users. Only one visually impaired pedestrian could be conclusively identified during the assessment period. This is an adult male less than 65 years of age, walking beside another pedestrian, but independently, using a cane. They cross at location H. They are difficult to identify, so it is possible that there were other visually impaired pedestrians that we have not identified.<br><br>Noise<br><br>During the site observations it was noted that buses are waiting at the bus stops on Rampant Horse Street for several minutes without switching off their engines. Due to the very low traffic flows this noise is quite intrusive and may mask other vehicle noises (particularly cyclists) from visually impaired pedestrians.<br><br>Tactile provision at uncontrolled crossing points<br><br>The footways are wide and the tactile paving does not extend to the back of the footway (as is correct with uncontrolled crossings). In discussion with the NNAB the designer provided tactile threads of granite block paving to enable people to be guided around the new edge of carriageway, however, street furniture has been placed in conflict with these setts, making it difficult for them to be used as intended.<br><br>Comparison of St Stephens Street and Rampant Horse Street<br><br>Data was also collected from St Stephens Street to enable a comparison between pedestrian/vehicle flows at the signalised crossing near surrey street and those on Rampant Horse Street. |

Pedestrian volumes

**SITE St Stephens Crossing**

| | |
|---|---|
| **Total Pedestrians/Cyclists Crossing:** | **6613** |
| Adult pedestrians: | 6397 (96.73%) |
| Elderly pedestrians: | 30 (0.45%) |
| Unescorted child pedestrians: | 39 (0.59%) |
| Escorted child pedestrians: | 97 (1.47%) |
| Disabled pedestrians/wheelchair users (inc mobility scooters: | 56 (0.85%) |
| Pedal cyclists (child and adult): | 10 (0.15%) |
| **Peak Hour Flows**: | **<960>** (between 1300hrs-1400hrs) |

Traffic Speeds Northbound Mean 13.3mph 85% 16.8mph Southbound 13.3mph and 85%ile of 16.6mph

Traffic Volumes: 3212 combined average 24hr flow inc 502 buses

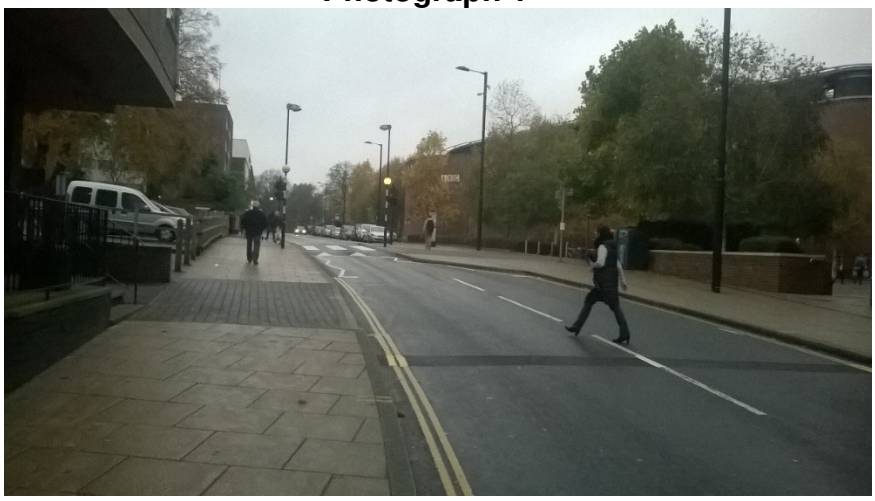
This data shows that the sites are comparable in terms of pedestrian movements, and vehicle speeds but there are more vehicle movements on St Stephens St than on Rampant Horse Street, although still far lower than when St Stephens St was open to all traffic.

There are more disabled persons using uncontrolled crossing points on Rampant Horse Street than using the signalised crossing on St Stephens Street. 0.87% to 0.6%

Elderly pedestrians are also equally likely to use an uncontrolled crossing 0.44% at E than a signal controlled crossing 0.45% at st Stephens.

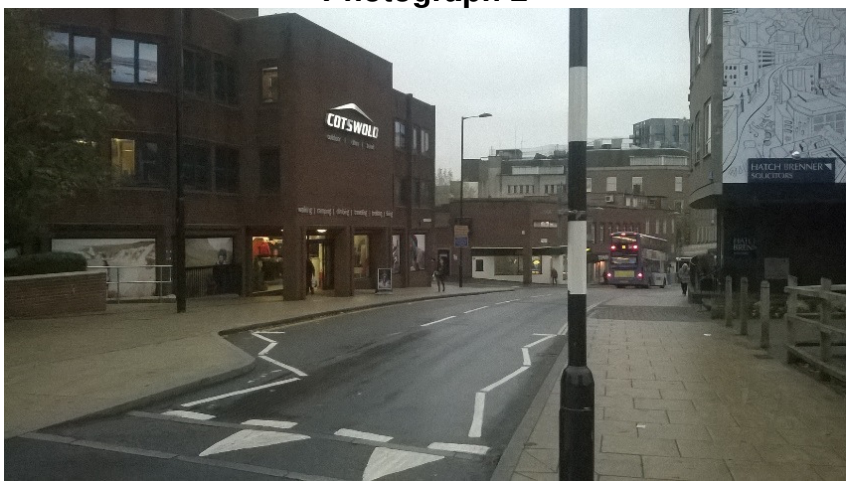
| | |
|---|---|
| | Analysis of the video footage from St Stephens Street, shows that not all pedestrians crossing here wait for the crossing to be activated before crossing. This introduces an element of risk, as drivers have conflicting information to process (a green signal and a pedestrian in the road). This type of crossing is best used on movement corridors where vehicle flows are high, resulting in pedestrians needing to wait for their green signal. Video footage shows that there is a risk of conflict between pedestrians on the crossing and vehicles turning left from Surrey Street. This is not substantiated in the accident data, which shows no reported accidents at the crossing point in the last 5 years. |

**Photograph 1 –**



**Looking west to Location R. Note pedestrian crossing diagonally in location P**

**Photograph 2**




**Looking east from Location R**

**Photograph 3**

**Looking east from location N: note pedestrians crossing on their desire lines.**

**Photograph 4**


**Looking east from location G. Note the block paved raised table**

**Photograph 5**


**Looking west from location F: note the pedestrianised side roads to north and south**

**Photograph 6**

**Pedestrians preparing to cross at location B. Note raised table surfaced in asphalt with chippings.**

## 4.0 Preliminary Consultations

- Roundtable

The findings of the assessment were presented to the inter-divisional round table meeting on Monday 23 January 2017 to gain the views of other disciplines within the department.

## 5.0 PROPOSALS

### 5.1 Consideration of Options

5.1.1 Option 1 - Do Nothing

- In view of the relatively low difficulty/delay in crossing experienced by most pedestrians a do nothing option can be considered. Traffic Speeds and volumes are very low and below the level where controlled crossing facilities would normally be considered. There are already three marked uncontrolled crossing points at or near key desire lines and a zebra crossing at the western end of the site. There is no on street parking affecting inter-visibility and a good overall accident record. The only identified pedestrian with sight difficulties was observed to cross without difficulties at an uncontrolled crossing.

5.1.2 Option 2 – Provide a controlled crossing on Rampant Horse Street

- The main pedestrian desire lines are B,E,H and R. Crossing point R is on the edge of the more pedestrian dominated area and is already a zebra crossing at a narrowed section of carriageway. The other 3 main desire lines are implied 'shared space' areas on raised tables. At the present time, the vast majority of pedestrians are able to cross unhindered at this location due to pedestrian crossing numbers (over 30,000/day at key desire lines) vastly outnumbering traffic (2,100 vehs/day).
- Providing a controlled crossing within the shared space areas is problematic. With strong pedestrian dominance a zebra crossing would give overwhelming priority to pedestrians over traffic and is likely to case unacceptable delay to buses and may adversely affect operation on the St Stephens Plain junction.
- A signalised crossing within the shared space areas is potentially unsafe. Due to high pedestrian dominance very few pedestrians would wait for a green man signal. Hence, pedestrians would be crossing on a vehicular green light when drivers, quite reasonably would believe they have priority and drive forward accordingly, increasing the risk of conflict with pedestrians. Evidence of this

potential conflict has been captured in the video survey of nearby Surrey St/St Stephens St signalised junction.

- In view of the above concerns, a further controlled crossing facility is not recommended for Rampant horse Street.

5.1.3 Option 3 – Modify Road Layout/Operation to better assist VIP's

- The layout of Rampant Horse Street is working extremely well for the majority of pedestrians. There are however some improvements that could be made (in consultation with the RNIB and NNAB) to raise awareness of the locations of crossing points. This could include

- Bus engine switch off. Removing background noise sources would assist those reliant on their hearing.

- 'Think' signing for cyclists. Cyclists are much quieter than cars, this makes their approach more difficult for those reliant on hearing to detect. Think pedestrian signs or 'think 'share the space' signs and a campaign targeted at reminding cyclists that pedestrians may not hear them would be of benefit to all.

- Improvement to tactile indicators. The current indicators do provide a warning of the change between footway and carriageway surface. However, due to the presence of street furniture on the footway side of the setts, they cannot be easily used as a guide to follow from one crossing point to another. Extending the width or providing a different feature located elsewhere in the footway could be of benefit. Taking forward this option must involve close collaboration with NNAB to ensure an effective approach which is supported by VIP's.
- Rampant Horse Street is relatively wide at 7.0 to 7.5m, reflecting the historic movement corridor function of the route when it carried considerably more traffic. A carriageway width of 6.0m would be more in keeping with the current 'shared space' arrangement, would narrow the crossing width for all users and may encourage a further decrease in the already low traffic through speeds.

However, this option is likely to be expensive and disruptive at the present time. It may be preferable to explore whether any changes to carriageway width/alignment can be incorporated in to future enhancement or maintenance works within the area.

5.1.4 Option 4 – Additional signal controlled crossing on Theatre Street.

- Provision of another controlled crossing on Rampant Horse Street has been discounted (see 5.1.2) due to safety and traffic capacity concerns. This does not, however, address the concerns of the NNAB who strongly believe that safety and access have been compromised for VIP's.
- The character of the through route between St Stephens Plain and Chapelfield Roundabout changes to the west of Rampant Horse Street. This is reflected by its usage with general traffic permitted to access car parks and the theatre. With greater motor traffic use, pedestrians do not expect or achieve the same level of dominance and consequently it is considered appropriate to provide controlled crossing facilities.
- Two controlled crossings in the form of zebras are currently provided on Theatre Street. It is therefore proposed to explore whether providing a new signalised crossing is feasible on Theatre Street through carrying out a formal crossing assessment. If feasible this will provide a crossing facility which VIP's are confident in using in this area of the city centre. It is acknowledged that this location does involve a diversion for visually impaired pedestrians. Hence the assessment should prioritise options for a signalised crossing to the east of Theatre Street.

**5.2 Summary**

5.2.1 In view of the extremely low flows and speeds, the high pedestrian numbers and the absence of observed delays in crossing it is considered that the current arrangement of uncontrolled crossings is the most appropriate for the situation.

5.2.2 It is acknowledged that the current arrangement is not supported by NNAB and further work needs to be carried out to improve VIP confidence and access in this part of the city centre.

5.2.3 Four possible areas of improvement for VIP's have been identified and are listed in order of priority.

- Bus engine switch off.
- 'Think' signing for cyclists.
- Improvements to tactile indicators.
- Narrowing of Rampant Horse Street from 7.3m to 6.0m.

In addition, it is recommended that a further pedestrian crossing assessment is carried out further west on Theatre Street during spring 2017. This should be specifically targeted to identify possible new signalised crossing locations to assist VIP's.

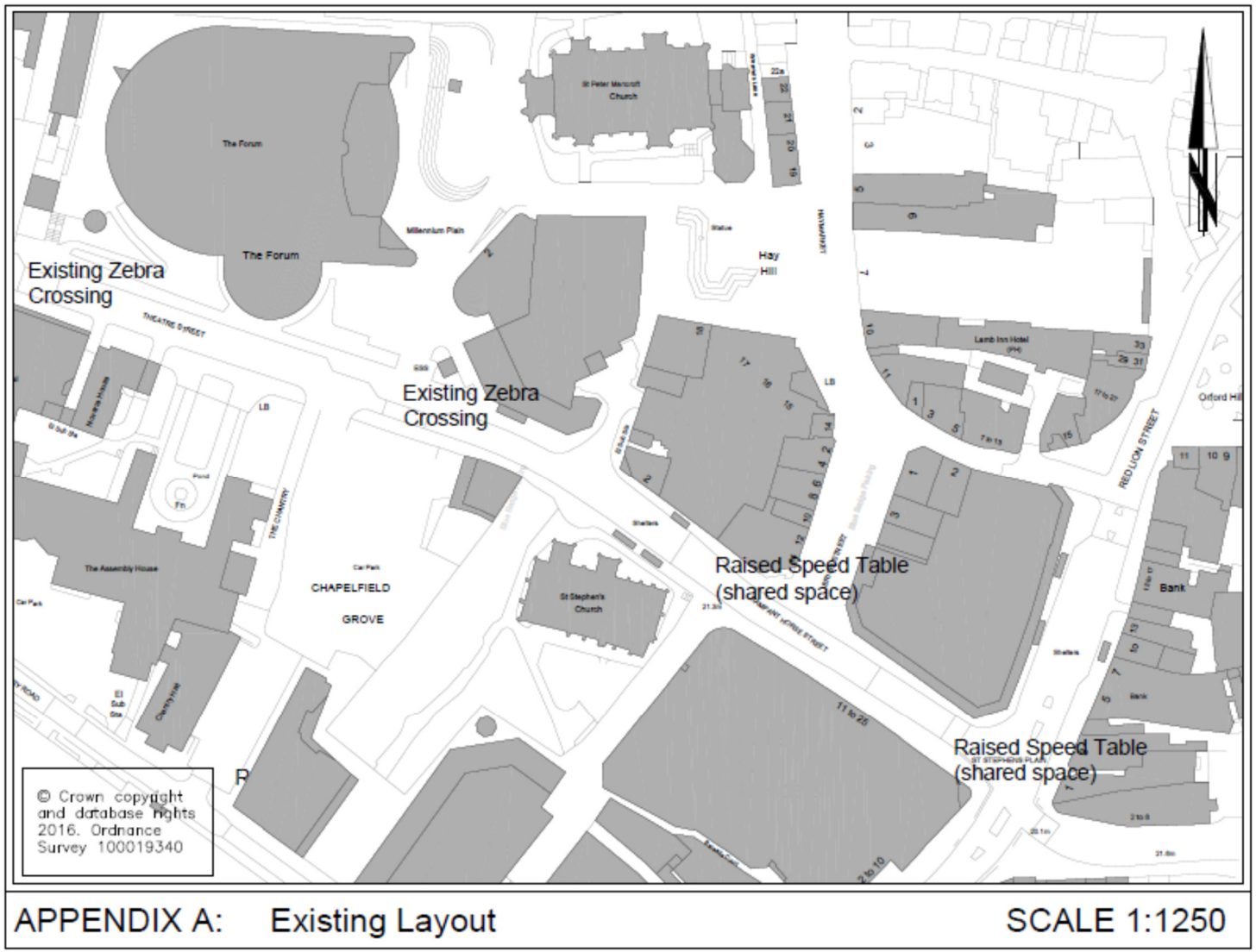
## 6.0 Cost Estimate

The following estimate contains no allowance for statutory undertakers' costs, however in view of the nature of the proposals it is considered unlikely that any such works will be necessary. or state that estimates are being sought and will be included in the finalised version of this report

6.1 Option 3 (not including Rampant Horse Street narrowing)

| | £ |
|---|---|
| Tactile indicators | £10K |
| Think Signing | £500 |
| Engine Switch Off<br>TRO, signage, consultation | £5K |
| **Total** | £15.5K |

APPENDIX A: EXISTING LAYOUT



APPENDIX B: TRAFFIC SURVEY AND ACCIDENT DATA

| | Combined | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PEDESTRIANS | | | | | | | | CYCLISTS | | | | | |
| | CHILD UNACC | CHILD ACC | ADULT > 16 < 65 | ADULT > 65 | DISABLED | WHEEL CHAIR | MOBILITY SCOOTER | PUSH CHAIR | CHILD < 16 | ADULT > 16 < 65 | ADULT > 65 | PED TOTAL | CYCLE TOTAL | Combined TOTAL |
| A | 11 | 279 | 8352 | 6 | 35 | 9 | 14 | 225 | 1 | 14 | 0 | 8683 | 15 | 8698 |
| Percentage | 0.13% | 3.21% | 96.02% | 0.07% | 0.40% | 0.10% | 0.16% | 2.59% | 0.01% | 0.16% | 0.00% | 99.83% | 0.17% | |
| B | 7 | 121 | 6176 | 0 | 9 | 2 | 7 | 73 | 0 | 16 | 0 | 6313 | 16 | 6329 |
| Percentage | 0.11% | 1.91% | 97.58% | 0.00% | 0.14% | 0.03% | 0.11% | 1.15% | 0.00% | 0.25% | 0.00% | 99.75% | 0.25% | |
| **TOTAL A+B** | **18** | **400** | **14529** | **6** | **44** | **11** | **21** | **298** | **1** | **30** | **0** | **14997** | **31** | **15028** |
| Percentage | 0.12% | 2.66% | 96.68% | 0.04% | 0.29% | 0.07% | 0.14% | 1.98% | 0.01% | 0.20% | 0.00% | 99.79% | 0.21% | |
| H | 4 | 224 | 6138 | 0 | 18 | 8 | 6 | 179 | 3 | 19 | 0 | 6384 | 22 | 6406 |
| Percentage | 0.06% | 3.50% | 95.82% | 0.00% | 0.28% | 0.12% | 0.09% | 2.79% | 0.05% | 0.30% | 0.00% | 99.66% | 0.34% | |
| E | 8 | 135 | 3907 | 18 | 36 | 9 | 11 | 116 | 1 | 24 | 0 | 4104 | 25 | 4129 |
| Percentage | 0.19% | 3.27% | 94.62% | 0.44% | 0.87% | 0.22% | 0.27% | 2.81% | 0.02% | 0.58% | 0.00% | 99.39% | 0.61% | |
| R | 36 | 101 | 2519 | 10 | 31 | 3 | 28 | 98 | 0 | 15 | 0 | 2697 | 15 | 2712 |
| Percentage | 1.33% | 3.72% | 92.88% | 0.37% | 1.14% | 0.11% | 1.03% | 3.61% | 0.00% | 0.55% | 0.00% | 99.45% | 0.55% | |
| G | 0 | 62 | 3071 | 2 | 10 | 7 | 0 | 59 | 0 | 4 | 0 | 3145 | 4 | |
| F | 1 | 59 | 2641 | 5 | 22 | 2 | 2 | 47 | 0 | 17 | 0 | 2728 | 17 | |
| **TOTAL G+H** | **1** | **121** | **5712** | **7** | **32** | **9** | **2** | **106** | **0** | **21** | **0** | **5873** | **21** | **5894** |
| Percentage | 0.02% | 2.05% | 96.91% | 0.12% | 0.54% | 0.15% | 0.03% | 1.80% | 0.00% | 0.36% | 0.00% | 99.64% | 0.36% | |
| St. Stephens | 39 | 97 | 6397 | 30 | 40 | 13 | 3 | 64 | 0 | 10 | 0 | 6603 | 10 | 6613 |
| Percentage | 0.59% | 1.47% | 96.73% | 0.45% | 0.60% | 0.20% | 0.05% | 0.97% | 0.00% | 0.15% | 0.00% | 99.85% | 0.15% | |

## NORTHBOUND TRAFFIC

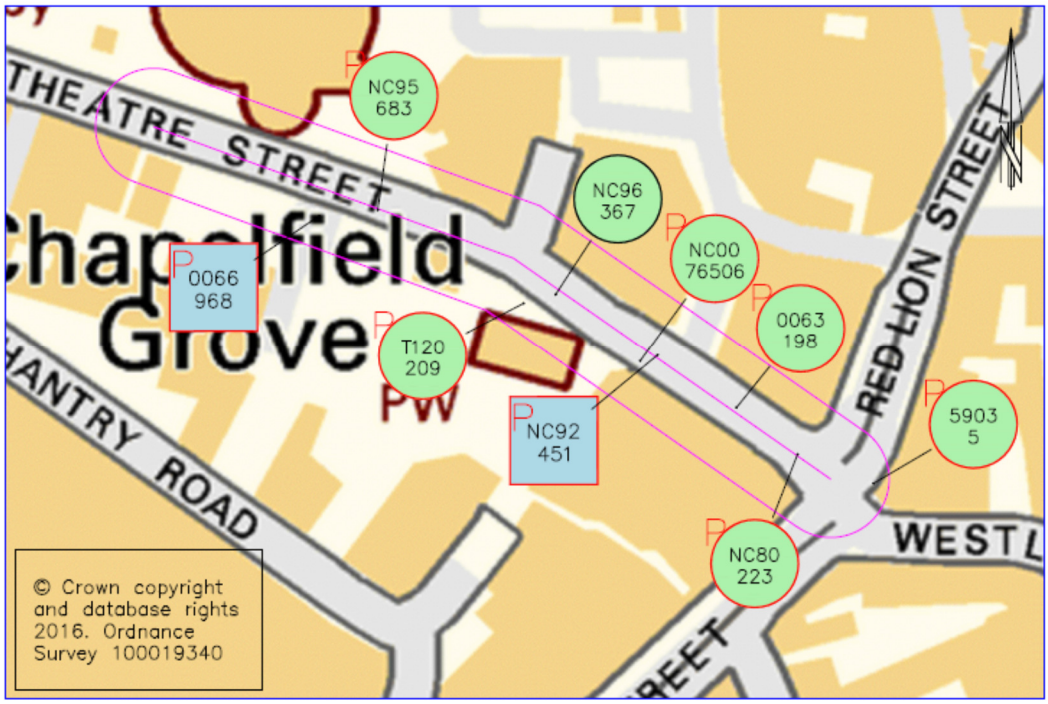
**Virtual Day (7)**

| Time | Total | Cls 1 | Cls 2 | Cls 3 | Cls 4 | Cls 5 | Cls 6 | Cls 7 | Cls 8 | Cls 9 | Cls 10 | Cls 11 | Cls 12 | Vbin 5 10 | Vbin 10 15 | Vbin 15 20 | Vbin 20 25 | Vbin 25 30 | Vbin 30 35 | Vbin 35 40 | Vbin 40 45 | Vbin 45 50 | Vbin 50 55 | Vbin 55 60 | Vbin 60 65 | Vbin 65 70 | Vbin 70 75 | Vbin 75 80 | Mean | Vpp 85 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 | 29 | 2 | 24 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 8 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20.8 | 25.1 |
| 0100 | 27 | 1 | 22 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 13 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21.3 | 25.5 |
| 0200 | 31 | 1 | 26 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 15 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22.4 | 26.4 |
| 0300 | 31 | 0 | 27 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 15 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23.2 | 26.4 |
| 0400 | 16 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23.3 | 26.2 |
| 0500 | 11 | 2 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.4 | 24.2 |
| 0600 | 16 | 1 | 7 | 2 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17.5 | 23.9 |
| 0700 | 29 | 5 | 11 | 1 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 12 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.9 | 20.1 |
| 0800 | 55 | 15 | 18 | 2 | 0 | 18 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 25 | 21 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.2 | 19 |
| 0900 | 55 | 12 | 21 | 2 | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 23 | 20 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 18.6 |
| 1000 | 55 | 9 | 20 | 3 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 24 | 20 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.5 | 17.9 |
| 1100 | 58 | 9 | 25 | 2 | 0 | 22 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 28 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.2 | 17.4 |
| 1200 | 53 | 9 | 23 | 2 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 28 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.5 | 16.3 |
| 1300 | 61 | 13 | 25 | 3 | 0 | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 37 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 15.9 |
| 1400 | 59 | 10 | 24 | 3 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 31 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.4 | 16.8 |
| 1500 | 57 | 14 | 23 | 2 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 27 | 16 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.3 | 16.8 |
| 1600 | 71 | 21 | 28 | 2 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 36 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 17.2 |
| 1700 | 79 | 30 | 27 | 3 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 36 | 28 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.2 | 17.9 |
| 1800 | 61 | 14 | 28 | 3 | 0 | 14 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 20 | 26 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.9 | 20.1 |
| 1900 | 50 | 11 | 27 | 4 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 13 | 20 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17.2 | 21.7 |
| 2000 | 41 | 9 | 22 | 3 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 17 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17.5 | 22.6 |
| 2100 | 43 | 5 | 28 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 18 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.2 | 22.8 |
| 2200 | 37 | 3 | 24 | 3 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 15 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 23.7 |
| 2300 | 41 | 2 | 29 | 4 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 14 | 17 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20.6 | 24.8 |
| **07-19** | **694** | **160** | **275** | **27** | **1** | **215** | **10** | **3** | **0** | **1** | **0** | **0** | **0** | **88** | **327** | **233** | **41** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **14.3** | **17.9** |
| **06-22** | **845** | **187** | **358** | **38** | **1** | **243** | **12** | **4** | **0** | **1** | **0** | **0** | **0** | **98** | **362** | **294** | **78** | **12** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **14.9** | **18.8** |
| **06-00** | **923** | **192** | **412** | **45** | **1** | **253** | **13** | **4** | **0** | **1** | **0** | **0** | **0** | **100** | **371** | **322** | **107** | **21** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **15.3** | **19.7** |
| **00-00** | **1067** | **198** | **532** | **60** | **1** | **256** | **14** | **4** | **0** | **1** | **0** | **0** | **0** | **104** | **377** | **354** | **173** | **54** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **16.2** | **21.7** |

## SOUTHBOUND TRAFFIC

**Virtual Day (7)**

| Time | Total | Cls 1 | Cls 2 | Cls 3 | Cls 4 | Cls 5 | Cls 6 | Cls 7 | Cls 8 | Cls 9 | Cls 10 | Cls 11 | Cls 12 | Vbin 5 10 | Vbin 10 15 | Vbin 15 20 | Vbin 20 25 | Vbin 25 30 | Vbin 30 35 | Vbin 35 40 | Vbin 40 45 | Vbin 45 50 | Vbin 50 55 | Vbin 55 60 | Vbin 60 65 | Vbin 65 70 | Vbin 70 75 | Vbin 75 80 | Mean | Vpp 85 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0000 | 26 | 1 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 14 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21.3 | 24.4 |
| 0100 | 16 | 0 | 14 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21.5 | 25.1 |
| 0200 | 23 | 0 | 19 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 10 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22.3 | 25.9 |
| 0300 | 26 | 1 | 21 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 12 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22.9 | 28 |
| 0400 | 11 | 2 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22.9 | 27.5 |
| 0500 | 8 | 1 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20.4 | - |
| 0600 | 16 | 6 | 8 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.1 | 21.9 |
| 0700 | 27 | 7 | 11 | 1 | 0 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 13 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17.2 | 21.3 |
| 0800 | 49 | 22 | 15 | 2 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 14 | 27 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.4 | 19.7 |
| 0900 | 49 | 15 | 18 | 1 | 0 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 19 | 22 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.2 | 18.6 |
| 1000 | 49 | 9 | 19 | 3 | 0 | 17 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 22 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.5 | 17.9 |
| 1100 | 56 | 12 | 23 | 2 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 30 | 18 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.9 | 17 |
| 1200 | 48 | 10 | 18 | 2 | 0 | 17 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 29 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.5 | 16.6 |
| 1300 | 57 | 11 | 25 | 1 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 36 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.4 | 16.3 |
| 1400 | 56 | 15 | 20 | 2 | 0 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 33 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13.7 | 16.8 |
| 1500 | 59 | 16 | 22 | 2 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 31 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.2 | 17.2 |
| 1600 | 61 | 18 | 25 | 2 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 25 | 27 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.2 | 18.6 |
| 1700 | 62 | 21 | 24 | 2 | 0 | 13 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 24 | 30 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15.4 | 18.6 |
| 1800 | 59 | 15 | 28 | 2 | 0 | 10 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 16 | 33 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16.7 | 19.9 |
| 1900 | 52 | 14 | 27 | 2 | 0 | 6 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 31 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17.3 | 20.4 |
| 2000 | 38 | 9 | 21 | 2 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 21 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.5 | 22.1 |
| 2100 | 34 | 7 | 19 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 18 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.9 | 22.4 |
| 2200 | 35 | 6 | 23 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 17 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18.7 | 23 |
| 2300 | 27 | 2 | 19 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 10 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20.6 | 24.4 |
| **07-19** | **630** | **170** | **249** | **22** | **1** | **168** | **13** | **4** | **0** | **1** | **0** | **0** | **0** | **49** | **287** | **250** | **42** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **14.9** | **18.3** |
| **06-22** | **769** | **206** | **325** | **29** | **1** | **183** | **18** | **5** | **0** | **1** | **0** | **0** | **0** | **51** | **310** | **328** | **73** | **6** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **15.4** | **19** |
| **06-00** | **832** | **214** | **366** | **35** | **1** | **188** | **20** | **5** | **0** | **1** | **0** | **0** | **0** | **51** | **318** | **354** | **96** | **11** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **15.7** | **19.5** |
| **00-00** | **942** | **219** | **456** | **47** | **1** | **190** | **21** | **5** | **0** | **1** | **0** | **0** | **0** | **52** | **322** | **382** | **148** | **31** | **5** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **16.5** | **20.8** |




| Reference Number | T120 209 | NC96 367 | NC95 683 | NC92 451 | NC80 223 | NC00 76506 | 5903 5 | 0066 968 | 0063 198 |
|---|---|---|---|---|---|---|---|---|---|
| Date / Day | Sa 08 | Th 17 | Th 26 | Sa 18 | Mo 12 | Th 05 | Th 31 | Mo 20 | Tu 25 |
| Month | Dec | Dec | Nov | Jul | May | Dec | Mar | Aug | Oct |
| Year | 2012 | 2015 | 2015 | 2015 | 2014 | 2013 | 2016 | 2012 | 2011 |
| Time | 1512 | 1008 | 1230 | 1644 | 1215 | 1235 | 1605 | 0905 | 1810 |
| Severity | Sl | Sl | Sl | Se | Sl | Sl | Sl | Se | Sl |
| Dark / Lit | | | | | | | | | |
| Weather Conditions | | | | | | | | | |
| Road Surface | | | | | | | | | |
| Special Conditions | | | | | | | | | |
| Carriageway Hazards | | | | | | | | | |
| Vehicle Manoeuvres | | | | | | | | | |
| Vehicle 1 5 e | | | | | | | | | |
| Vehicle 2 6 t | | | | | | | | | |
| Vehicle 3 7 c | | | | | | | | | |
| Vehicle 4 8 | | | | | | | | | |
| Casualty /age | | | | | | | | | |
| Failed to Give–Way | | | | | | | | | |
| Signal Ignored | | | | | | | | | |
| Loss of Control | | | | | | | | | |
| Hit Object IN C'way | | | | | | | | | |
| Hit Object OFF C'way | | | | | | | | | |
| Vehicle Left C'way | | | | | | | | | |
| Breath Test | | | | | | | | | |
| Contributory Factors 1/2 | C1 ++ 802 C1 ++ 808 C1 * 803 | V1 ++ 408 | C1 ++ 802 | V1 ++ 203 V1 ++ 405 C1 ++ 802 V1 * 307 V1 * 602 | C1 ++ 802 C1 * 806 C1 * 804 | C1 ++ 802 | C1 ++ 802 | V1 ++ 405 C1 ++ 802 | V1 ++ 403 V1 ++ 405 C1 ++ 802 |
| 3/4 | | | | | | | | | |
| * possible, ** very likely 5/6 | | | | | | | | | |
| School No./Ref. | | | | | | | | | |
| User fields: 1 | 88 | | | | | | | 96 | 139 |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |