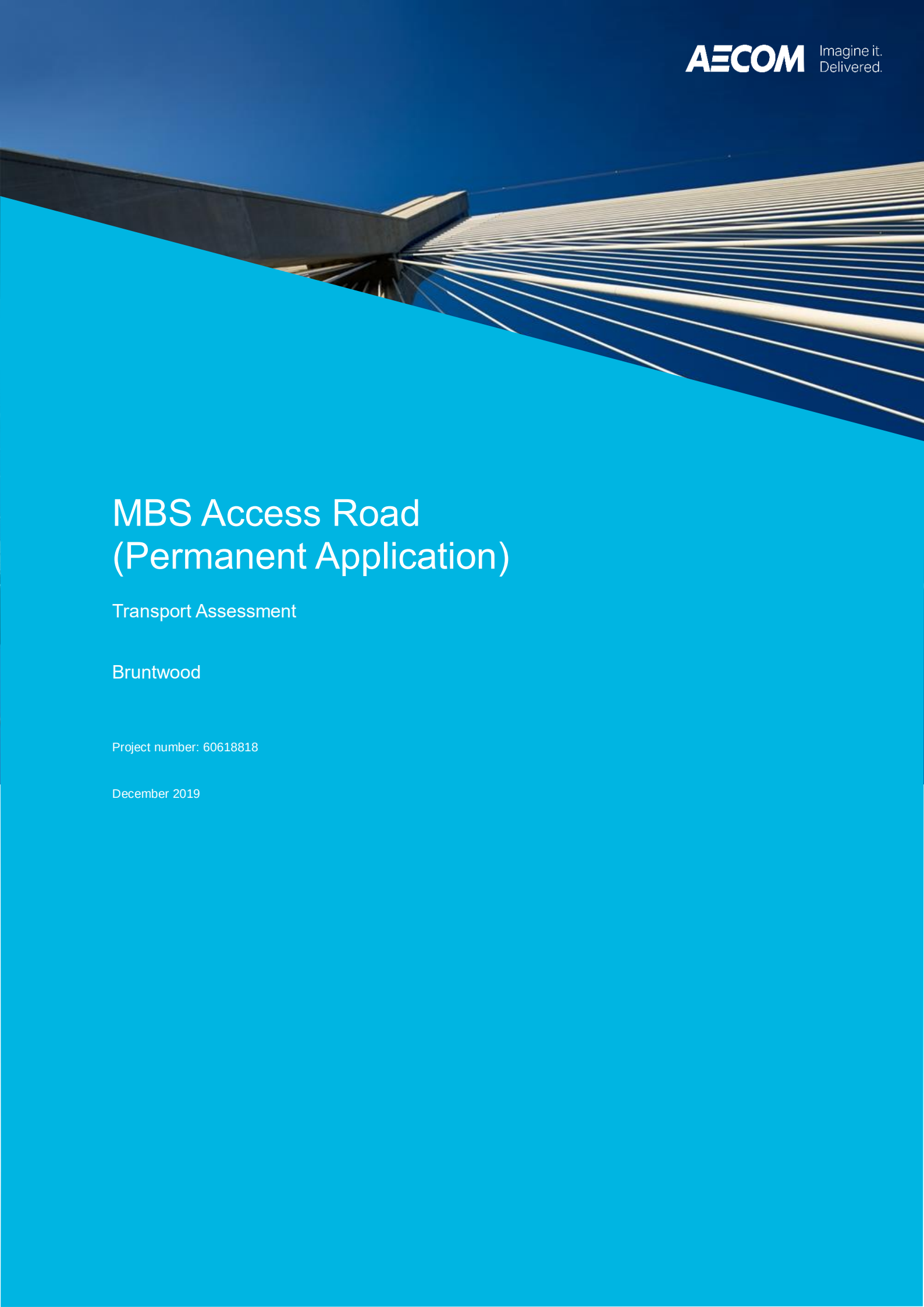


The background of the cover is a photograph of a cable-stayed bridge, viewed from a low angle looking up at the bridge deck and the numerous stay cables fanning out from a central pylon. The sky is a clear, deep blue. A large, solid cyan shape covers the bottom half of the image, providing a background for the text.

MBS Access Road (Permanent Application)

Transport Assessment

Bruntwood

Project number: 60618818

December 2019

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1. Introduction

1.1 Overview

This Transport Assessment (TA) has been prepared by AECOM on behalf of Bruntwood to support a Section 73 (S73) application to amend the existing temporary permission (110906/FO/2015/C1) for the existing Alliance Manchester Business School (AMBS) multi-storey car park (MSCP) access road and enable the permanent retention of the access road. This report provides information on the traffic and transport planning aspects of the development proposals and forms supplementary information to assist in the determination of the application.

1.2 Background

The planning history of the site has been summarised in the bullet points following:

- In 2005 a planning application (ref: 075125/FO/2005/C2) was approved for a six-storey MSCP, providing a total of 954 car parking spaces, and associated highway works;
- In 2013 permission was granted for a 19-storey hotel (Manchester Business School (MBS) Hotel) and associated facilities located on the existing surface car park bounded by Higher Cambridge Street / Booth Street West (ref: 101614/FO/2013/C1);
- In 2014 a planning application for the refurbishment and reconfiguration of the existing MBS buildings and University Precinct on Booth Street West and associated public realm improvements was granted (ref: 106594/FO/2014/C1);
- The construction of the MBS Hotel (2013 application) and the MBS Campus refurbishment (2014 application) required the use of Higher Chatham Street for construction traffic. As such, in 2015 an application (ref: 110906/FO/2015/C1) for the construction of a temporary access from Higher Cambridge Street to minimise any conflict with construction traffic from Higher Chatham Street was submitted and granted. The temporary access road proposed within the 2015 application was to *“remove the conflict between construction vehicles and general car park traffic by providing a dedicated route and enabling Higher Chatham Street to be gated and managed as a construction access only”*; and
- In 2018 planning permission was granted for the widening of the temporary access road (ref:120516/FO/2018) to facilitate permanent access to the MSCP.

1.3 Methodology and Scoping Discussions

This TA has been produced in accordance with current guidance, Department for Transport (DfT) “Transport Evidence Bases in Plan Making and Decision Taking” (2014), which superseded “Guidance on Transport Assessment” (2007). While the 2014 guidance places a focus on agreeing a scope of works with the Local Highway Authority, the 2007 guidance nonetheless remains instructive and therefore will inform the structure of the TA.

In line with current DfT guidance, a scoping email dated 4th December 2019, was issued to Manchester City Council (MCC) Highways. A copy of the agreed scoping elements for this assessment is included in **Appendix A**.

1.4 Report Structure

The remainder of the report is structured as follows:

- Chapter 2 – outlines the relevant transport policies which influence the site at a National, Regional and Local level;
- Chapter 3 – describes the existing conditions, including site location, local highway network and access arrangements;
- Chapter 4 – assesses the accessibility of the site via sustainable modes of transport, including public transport, walking and cycling;
- Chapter 5 – describes the development proposals;

- Chapter 6 – reviews highway safety in the vicinity of the access road through analysis of the recent collision history;
- Chapter 7 – provides a summary of the highways modelling assessments undertaken to consider the forecast traffic influence of the proposed development; and
- Chapter 8 – summarises and concludes the report.

2. Transport Policy

2.1 Introduction

This chapter identifies and summarises key national, regional and local policy documents which are relevant to the development proposals. In summary, the primary policies have been sourced from available National Planning Guidance, Regional Strategies, Local Transport Plans, and Manchester City Council guidance.

Understanding of the policy construct is imperative to delivering high quality development proposals. The context of both the site and development proposals have been considered in relation to both available planning policies and guidelines. This chapter of the report reviews these, providing an overall spatial and planning context for the development proposal at National, Regional and Local levels.

2.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF, 2019) has been designed for local planning authorities and decision makers, both in drawing up plans and as a material consideration in determining applications.

Essentially, the NPPF identifies a presumption in favour of sustainable development. This is not intended to replace the development plan as the starting point for decision-making, but it does imply that in accordance with the development plan, proposals should be approved without delay.

The NPPF states that the purpose of the planning system is to contribute to the achievement of sustainable development. To achieve this, the planning system must pursue an economic objective, a social objective and an environmental objective. It calls on the planning system to *“help create the conditions in which businesses can invest, expand and adapt”*, and that *“significant weight should be placed on the need to support economic growth and productivity.”*

All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- Accommodate the efficient delivery of goods and supplies;
- Prioritise pedestrian and cycle movements, and have access to high quality public transport facilities;
- Ensure safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establish home zones;
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- Consider the needs of people with disabilities by all modes of transport.

Planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities. If setting local parking standards for residential and non-residential development, local planning authorities should consider:

- The accessibility of the development;
- The type, mix and use of development;
- The availability of and opportunities for public transport;
- Local car ownership levels; and
- An overall need to reduce the use of high-emission vehicles.

2.3 Regional Planning Policy Guidance

Greater Manchester Spatial Framework (GMSF)

Greater Manchester's Plan for Homes, Jobs, and the Environment (the spatial framework) has been compiled by Greater Manchester Combined Authority, which comprises the Mayor of Greater Manchester and the leaders of Greater Manchester's ten local councils. The plan is currently in the consultation phase with current timescales suggesting that further public consultation is planned for the summer of 2020, with adoption of the plan scheduled for the end of 2021.

The plan focuses on making the most of Greater Manchester's brownfield sites, prioritising redevelopment of town centres and other sustainable locations. It also aims to help to address the housing crisis with a minimum target of 50,000 additional affordable homes – 30,000 of which will be social housing.

It focuses on the environment ensuring there is an overall reduction in proposed green belt release of more than 50% reducing the loss of green belt within sites and proposing additions to the green belt.

This plan:

- Sets out how Greater Manchester should develop up until 2037;
- Identifies the amount of new development that will come forward across the 10 districts, in terms of housing, offices, and industry and warehousing, and the main areas in which this will be focused;
- Supports the delivery of key infrastructure, such as transport and utilities;
- Protects the important environmental assets across the city region;
- Allocates sites for employment and housing outside of the existing urban area; and
- Defines a new green belt boundary for Greater Manchester.

The Greater Manchester Strategy: Our Place Our People

The new Greater Manchester Strategy (2018) sets a collective ambition to make Greater Manchester one of the best places in the world. It is a strategy for everyone in Greater Manchester – residents, the voluntary, community and social enterprise sector, businesses, and civic leaders. This third Greater Manchester Strategy builds on the substantial progress made since it was first published in 2009 and the most recent refresh in 2013.

Previous strategies have delivered a strong drive for economic growth. This strategy builds on that experience and increases focus on ensuring that the people of Greater Manchester can all benefit from economic growth and the opportunities it brings throughout their lives. It has been updated to ensure that the course being followed is the right one, based around the key elements of living well in Greater Manchester. The strategy considers a series of key priority areas including children starting school ready to learn, young people equipped for life; good jobs with opportunities for people to progress and develop; a thriving and productive economy in all parts of Greater Manchester; world-class connectivity that keeps Greater Manchester moving; safe, decent and affordable housing; a green city-region and a high quality culture and leisure for all; safer and stronger communities; healthy lives, with quality care available for those that need it; and an age-friendly Greater Manchester. Of specific relevance to this TA is connectivity where there is a key focus on improving journey time reliability on roads and reducing the environmental impact of road transport.

Greater Manchester Fourth Local Transport Plan (GM Transport Strategy 2040)

The Fourth Greater Manchester Local Transport Plan, known as the GM Transport Strategy 2040, published in February 2017 sets out the long-term vision for the development of the transport network within Greater Manchester to 2040, as well as identifying a 5-year Delivery Plan, which sets out short-term delivery priorities. The plan provides a strategy for the management, maintenance, development and monitoring of the area's transport system, and is developed by the ten Town and Metropolitan Borough Councils, and Transport for Greater Manchester (TfGM), with the input of local stakeholders.

The overall vision of the Strategy is to deliver “*world class connections that support long-term, sustainable economic growth and access to opportunity for all*”. This vision is supported by four key goals, to deliver a transport network that:

- Supports sustainable economic growth;
- Protects the environment;
- Develops an innovative city-region; and
- Improves the quality of life for all.

The key policies of the plan are the provision of safe, integrated, efficient and economic transport to and within the area. The policies contained within the plan build upon the transport direction set out in the previous Local Transport plans LTP2 and LTP3. The core objectives for the GM Transport Strategy 2040 are as follows:

- To deliver a fully integrated transport network which supports the Greater Manchester economy to improve the life chances of residents and businesses;
- To ensure that carbon emissions from transport are reduced in line with UK Government targets in order to minimise the impact of climate change;
- To ensure that the transport system facilitates active, healthy lifestyles and a reduction in the number of casualties, and that other adverse health impacts are minimised;
- To ensure that the design and maintenance of the transport network and provision of services supports sustainable neighbourhoods and public spaces and provides equality of transport services; and
- To maximise value for money in the provision and maintenance of transport infrastructure and services.

The 2040 Transport Strategy is not so much about individual modes of transport. Instead it focuses on creating an integrated, sustainable, and well-co-ordinated transport system that supports a wide range of different travel needs. Seven core principles have been developed, each of which will be applied across the transport network:

- **Integrated** – allow customers to move seamlessly between modes and services;
- **Inclusive** – provide accessible and affordable transport;
- **Healthy** – promote walking and cycling for local trips;
- **Environmentally responsible** – deliver lower emissions, better quality environment;
- **Reliable** – give customers confidence in journey times;
- **Safe and secure** – reduce road accidents and deaths; and
- **Well maintained and resilient** – able to withstand unexpected events and weather conditions.

The ambition for 2040 is to deliver a transport system which makes it much easier for residents, business and visitors in Greater Manchester to travel to a wide range of different destinations and opportunities, and where sustainable transport is a viable and attractive alternative to the car.

2.4 Local Policy

Manchester Core Strategy 2012-2027

Manchester City Council's Core Strategy was produced in July 2012 and outlines the council's vision for the following 15 years and details the planning policies which will be applied to deliver the vision.

Policy T1 relates to Sustainable Transport. This policy advises that the Council will support proposals that deliver a sustainable, high quality, integrated transport system to encourage modal shift away from car travel to public transport, cycling and walking, to support the needs of residents and businesses and to prepare for carbon free modes of transport.

Policy T2 seeks to actively manage the pattern of development to ensure that new development is located to ensure good access to the City's main economic drivers and to ensure good national and international connections. In addition, this policy seeks to ensure that new economic development is easily accessible by walking, cycling and public transport. The proposed scheme supports Policies T1 and T2. The development will:

- Provide a scheme that is designed to be Disability Discrimination Act (DDA) compliant, and fully accessible to disabled people and people with mobility impairments;
- Be designed to take account of the needs of road users according to a hierarchy consisting of, in order of priority:
 - Pedestrians and disabled people;
 - Cyclists, public transport;
 - Commercial access;
 - General off-peak traffic; and
 - General peak time traffic.

3. Existing Conditions

3.1 Introduction

This chapter describes the location of the development and the local highway network including those routes and junctions of relevance to the site. The current traffic behaviour resulting from the inclusion of the Higher Cambridge Street bus lane is also considered in detail within this chapter.

3.2 Site Location

The access road provides a connection between the AMBS MSCP and the wider highway network, notably Higher Cambridge Street. The AMBS MSCP is situated directly to the south of the site. The location of the access road is illustrated in the following figure.

Figure 3.1 Access Road Location Plan



3.3 Local Highway Network

The following section provides a description of the wider highway network:

Higher Cambridge Street is a two-way road which runs in a north-west to south-east direction and is subject to a 20mph speed limit in proximity to the site. A bus lane is provided along the northbound carriageway which is in effect from 7am to 7pm Monday to Saturday; use of this lane is restricted to buses, taxis and cyclists during these times. The bus lane runs from Burlington Street in the south to the north of the junction with the MSCP access road. Parking is prohibited along the length of Higher Cambridge Street via the provision of double yellow lines on both sides of the carriageway. Wide footways (2m or wider) and street lighting are provided along both sides of the carriageway. Higher Cambridge Street forms a priority junction with the MSCP access road and a signalised junction with Booth Street West to the North. Signalised pedestrian crossing facilities and advanced stop lines (ASL) for cyclists are provided at all arms of this junction.

Higher Cambridge Street connects with the A57(M) Mancunian Way gyratory to the north. The A57(M) Mancunian Way forms part of the Manchester and Salford Inner Relief Route (MSIRR), connecting the north and south of the city and provides strategic access to the city centre.

Booth Street West is a two-way road which runs in a north-east to south-west direction, it is subject to a 30-mph speed limit and provides a link between Higher Cambridge Street and Oxford Road. This section of Booth Street West is a two-lane carriageway in both directions and provides access to Higher Chatham Street.

Higher Chatham Street is a north-south route which comprises a pedestrianised section to the north of the MBS access road. Service access is facilitated from Booth Street West via collapsible bollards. It provides access to the AMBS MSCP to the south and provides a pedestrian connection to Bridgeford Street.

Oxford Road is located to the east of the proposed development. This road is accessed from the development site via Booth Street West and is a key strategic bus corridor between Manchester City Centre and the south of Manchester. Due to its high frequency of services the route is often referred to as the 'busiest bus route in Europe'. Oxford Road also provides access to the University of Manchester (UoM) and Manchester Metropolitan University (MMU).

Princess Road is located to the west of the site. It forms part of the A5103 and provides access to the A57 Mancunian Way to the north, and the M60, M56 and the wider strategic network to the south.

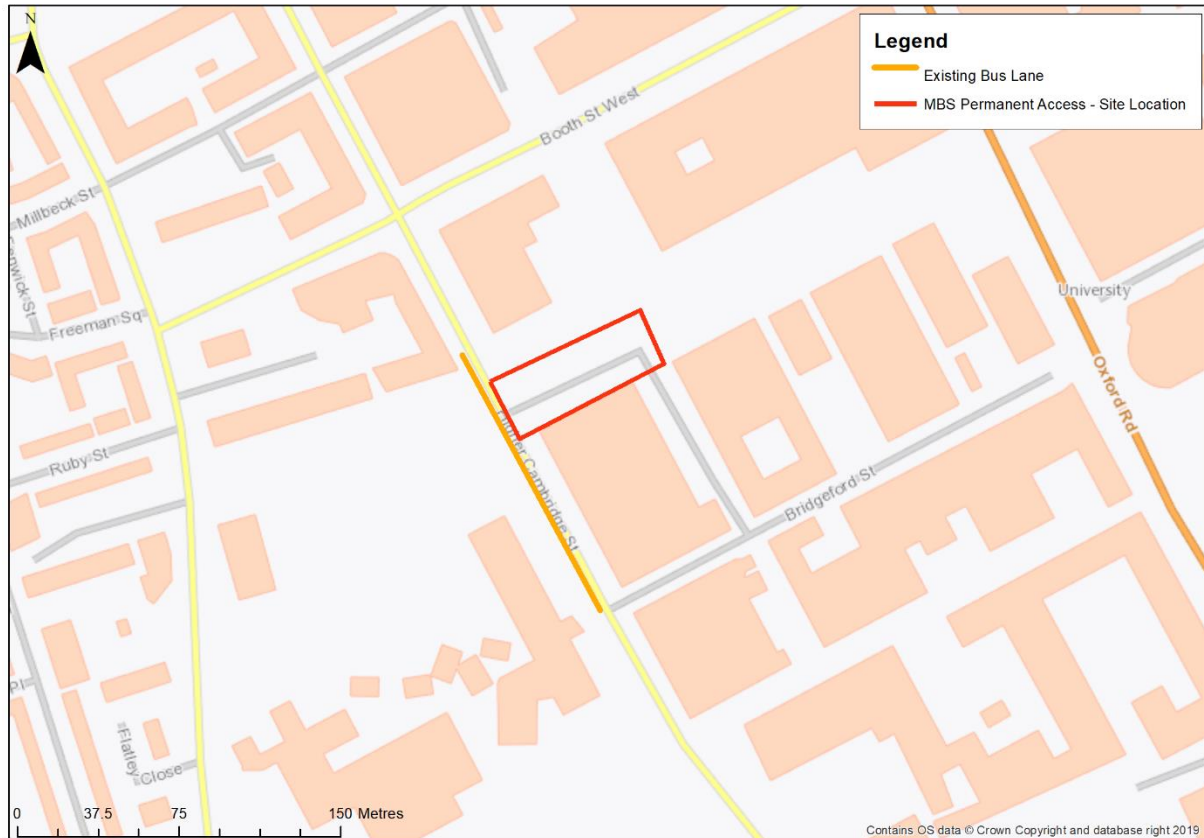
The site is also surrounded by a small network of lower priority distributor links that provide access to the University Buildings, residential units and office developments in the surrounding area. The neighbouring Hulme residential zones are adjacent to the development. Meanwhile, pedestrian footways in this area are well lit and provided to a good standard. On-road cycle routes link the local network with the off-road University public realm.

3.4 Bus Lane Behaviour

Observations and Site Visits

The MCC Highways Officer and TfGM Urban Traffic Control (UTC) team have expressed concern about the interaction of general vehicles and buses within the adjacent bus lane along Higher Cambridge Street. It was agreed that vehicle behaviours be observed in relation to the bus lane location on Higher Cambridge Street at the access road junction. Two visual surveys were conducted by AECOM on a Tuesday and Wednesday during the AM peak period in May 2018 to support the application to widen the temporary access road. Given the time that has lapsed since the previous on-site observations took place in 2018, traffic survey video footage and a site assessment were also conducted in late-November and early-December 2019 respectively.

The existing bus lane runs in a south-north direction and enables buses to travel northbound from Bridgeford Street to just beyond the MSCP access road on Higher Cambridge Street. This is illustrated within **Figure 3.1**.

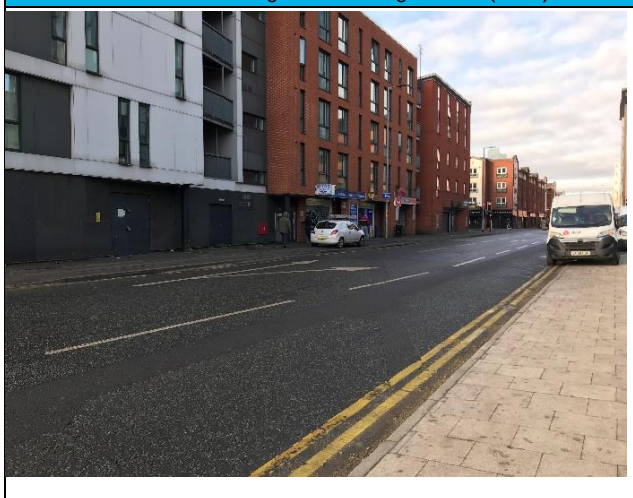
Figure 3.1. Bus Lane Location

During the first 2018 AM observational period a total of six vehicles were observed using the northbound bus lane to manoeuvre around vehicles turning at the MBS access junction, and a total of four were observed during the 2018 PM observational period. No conflicts with buses, cyclists or other vehicles using the bus lane were observed during the 2018 peak periods.

A site visit was undertaken on 03/12/2019 during the Interpeak period (11:30-13:30). It was observed that no vehicles were utilising the bus lane at any point. There was minimal queuing observed and weather conditions were clear and sunny.

A photograph illustrating the bus lane is presented in **Photograph 3.1**.

Photograph 3.1 - Bus Lane (northbound) looking towards Booth Street West from Higher Cambridge Street (2019)



In addition to the site visits, traffic survey video surveillance was also analysed for the AM and PM peak periods from Thursday 21st November. During the AM observational period (08:00-09:00), 10 unauthorised vehicles were observed to cross the end of the bus lane (approximately the final 5-10m northbound) to manoeuvre into the straight ahead/left-turn lane. This section of the bus lane forms a dashed white line, signifying the beginning and end of the lanes, as well as points where it is acceptable for vehicles to cross into it. These vehicles are therefore not considered to be contravening the bus lane restrictions. However, 18 unauthorised vehicles used the bus lane during this time period. Sixteen of these vehicles were avoiding queuing at the MSCP access road with two avoiding queuing back from the Higher Cambridge Street / Booth Street signal junction.

During the PM observation period (16:00-17:00), the same behaviours appeared to prevail with vehicles again observed to cross the dashed white line at the end of the bus lane. Additionally, four vehicles were observed to contravene the bus lane prior to this point to avoid queuing from the right turn lane at the Higher Cambridge Street / Booth Street West signalised junction.

No conflicts with buses, cyclists or other vehicles using the bus lane were observed during either the AM or PM peak periods.

As a result of the observations made during site visits and video surveys, it is considered that the following mitigation measures could be implemented to mitigate against potential conflict incidents within the bus lane as follows:

- Enforcement of the prohibition of general traffic using the bus lane (e.g. implementation of cameras);
- Coloured surfacing to enhance the appearance of the bus lane;
- Shortening of the bus lane to end prior to the bell mouth of the access road; and
- Review of the necessity of the bus lane.

4. Sustainable Access

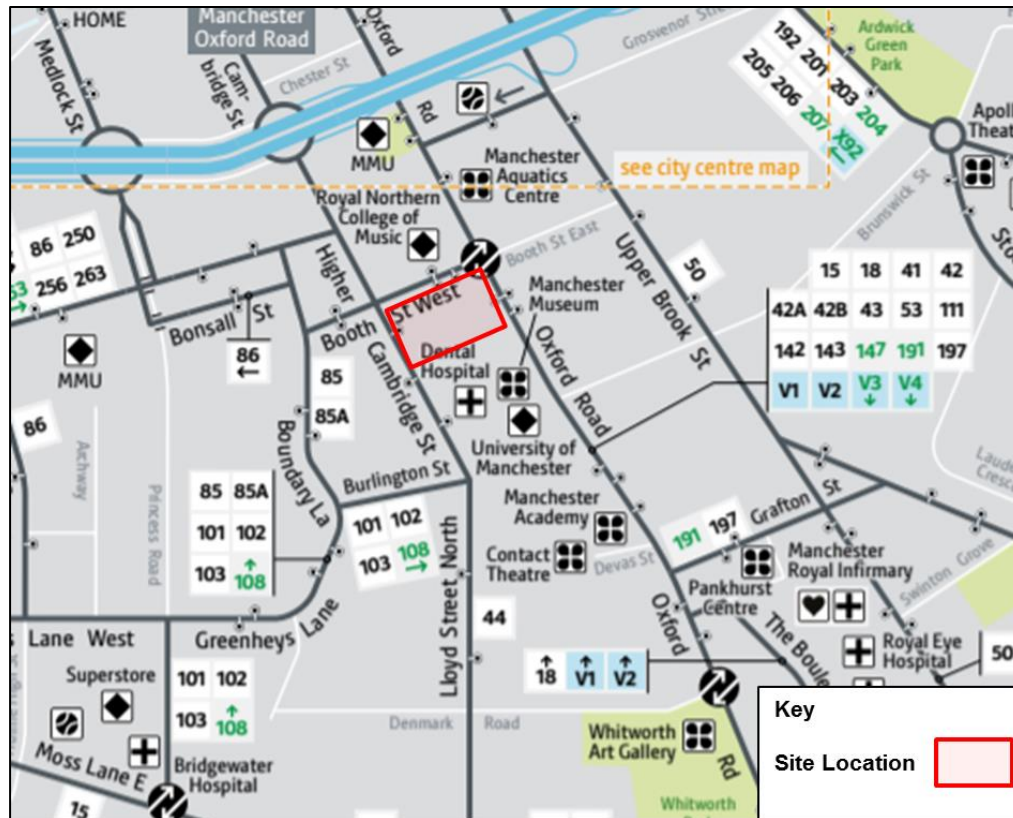
4.1 Introduction

Current Government guidance places significant emphasis on the need for sustainable transport modes for all new developments. This forms part of a long-term strategy to reduce reliance on private vehicular trips and increase the number of persons travelling by sustainable modes. This chapter considers access via sustainable modes of transport, including bus, rail, Metrolink, cycling and walking.

4.2 Bus

The site benefits from access to a range of excellent bus services being close to a number of key bus routes located between Manchester City Centre and south Manchester. Bus stops are located on Oxford Road, Higher Cambridge Street and Booth Street West. **Figure 4.1** illustrates the location of bus stops and services within close proximity to the site.

Figure 4.1 Local Bus services in the vicinity of the MBS Permanent Access Road



(Source: TGM Journey Planning Documents 2019)

Booth Street West/Higher Cambridge Street

The closest bus stops to the access road are located on Booth Street West and Higher Cambridge Street. A total of eight services use these stops as identified within the table following. The bus stops are also illustrated in **Photographs 4.1** to **4.4**.

Photograph 4.1 Booth Street West (eastbound) Bus Stop**Photograph 4.2 Booth Street West (westbound) Bus Stop****Photograph 4.3 Higher Cambridge Street (northbound) Bus Stop****Photograph 4.4 Higher Cambridge Street (southbound) Bus Stop**

The following table presents the availability of bus services to/from Booth Street West and Higher Cambridge Street stops in the vicinity of the site, including service number, route / destination, frequency and journey time.

Table 4.1 Bus Services to/from Booth Street West and Higher Cambridge Street Stops

Service Number	Route/Destination	Frequency	Journey Time
Booth Street West			
85/86	Manchester - Hulme – Whalley Range – Chorlton	Every 10 mins	33 mins
53	Manchester – Rusholme – Gorton – Harpurhey – Cheetham Hill	Every 30 mins	1 hr 6 mins
250	Manchester – Old Trafford – Trafford Centre	Every 15 mins	32 mins
253	Manchester – Old Trafford – Stretford – Urmston – Flixton – Partington	Every 30 mins	1 hr
263	Manchester – Trafford Bar – Sale – Broadheath - Altrincham	Every 12 mins	47 mins

Higher Cambridge Street			
44	Manchester – Fallowfield – Burnage – Heaton Mersey – Stockport	Every 60 mins	56 mins
101	Manchester – Hulme – Northenden – Baguely – Wythenshawe	Every 10 mins	53 mins
102 / 103	Wythenshawe Hospital – Wythenshawe – Manchester – (Manchester Airport)	Every 18 mins	1 hr and 15 mins

Oxford Road Corridor

The Oxford Road Corridor is one of the busiest bus routes in Europe. Services are so frequent that they operate to and from the city centre every few minutes. The bus journey from the development to Piccadilly Gardens – the main bus interchange in the city centre – takes a total of 10 minutes. The bus services available along the Oxford Road Corridor are identified within the table following.

Table 4.2 Bus Services to/from Oxford Road Stops

Service Number	Route/Destination	Frequency	Journey Time
Wilmslow Road/Oxford Road			
41	Manchester – West Didsbury – Northenden – Sale – Altrincham	5 per hour	1hr 10 mins
42/142	Manchester Piccadilly – East Didsbury – Parrs Wood – University	Every 10 mins	30 mins
43	Manchester – West Didsbury – Wythenshawe – Manchester Airport	Every 30 mins	1 hr 4 mins
41/43/143	Manchester Piccadilly Gardens – Rusholme – Fallowfield – West Didsbury	Every 10 mins	27 mins
53	Cheetham Hill – Harpurhey – Gorton – Rusholme – Old Trafford – Pendleton	Every 30 mins	1hr 27 mins
111	Manchester – Withington – Southern Cemetery	Every 10 mins	27 mins
15	Manchester – Stretford – Urmston – Davyhulme – Flixton	Every 20 mins	59 mins
V1/V2	MRI – Manchester – Tyldesley – Leigh	Every 10 mins	1 hour
147	Piccadilly Rail Station – Oxford Rd Circular	Every 10 mins	40 mins
18	Langley – Middleton – Manchester – MRI	Every 10 mins	1hr 26 mins
197	Stockport – Green End – Longsight – Manchester	Every 20 mins	40 mins

The photographs following illustrate those bus stops along Oxford Road closest to Booth Street West including both the south and northbound bus stops.

Photograph 4.5 Oxford Road (southbound) Bus Stop, north of junction with Booth Street West**Photograph 4.6** Oxford Road (northbound) Bus Stop, north of junction with Booth Street West

Cross-City Bus Route Improvements

Since 2016 Manchester's bus routes have benefited from the rollout of a £122m Bus Priority Package designed to enhance public transport connections along three of Greater Manchester's busiest strategic routes. Highway, bus priority and congestion management measures were introduced, along with significant improvements for pedestrians and cyclists. The package included enhancements to the Oxford Road/Wilmslow Road, providing much more reliable bus journey times and quicker cross city journeys. A combination of cycle lane improvements and increased footpath widths have been implemented along the length of Oxford Road, providing a series of enhancements to these routes.

Figure 4.2 illustrates the new layout of the Oxford Road Corridor in the vicinity of the development. Oxford Road is only accessible to buses, bicycles, hackney carriages and emergency vehicles between 06:00 – 21:00 daily. This means that, with the exception of buses, taxis and permit holders, vehicles must continue straight across Oxford Road when travelling along Booth Street West and East respectively.

Figure 4.2 Oxford Road Corridor (Source: TfGM)



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The improvements have also directly affected the Booth Street West/Higher Cambridge Street junction. Pedestrian facilities have been implemented on all arms of the junction as illustrated in **Photographs 4.7 and 4.8**, and an extra lane has been introduced on both Higher Cambridge Street (South) and Booth Street West in order to facilitate right turn movements.

Photograph 4.7 Higher Cambridge Street Pedestrian Facilities**Photograph 4.8 Booth Street West Pedestrian Facilities**

4.3 Rail

The closest railway station to the development is Oxford Road railway station which is located approximately 1.1km from the site. Frequent bus services are available to and from Oxford Road station, a journey of approximately 3 minutes. The frequency and journey time of rail service routes available from this station are summarised in detail **Table 4.3**.

Table 4.3 Services from Oxford Road Railway Station

Destination	Frequency	Journey Time
Liverpool	5 trains per hour	1hr
Warrington	4 trains per hour	30 mins
Chester	1 train per hour	1 hr
Southport	1 train per hour	1hr 10 mins
Wigan	1 train per hour	35 mins
Bolton	4 trains per hour	20 mins
Manchester Piccadilly	8 trains per hour	5 mins
Salford Crescent	3 trains per hour	10 mins
Preston	4 trains per hour	55 mins
Blackpool	1 train per hour	1hr 15 mins
Stockport	2 trains per hour	20 mins
Manchester Airport	4 trains per hour	25 mins
Sheffield	1 train per hour	1 hr

Manchester Piccadilly station also provides national onward railway services to/from the site. There is a total of eight train services per hour connecting Oxford Road station with Manchester Piccadilly. In addition, there are bus services available from the Oxford Road bus stop every 10 minutes, which provide a service to Manchester Piccadilly, taking approximately 10 minutes. Destinations available via national rail services, frequencies, and journey times from Manchester Piccadilly station are presented within **Table 4.4**.

Table 4.4 Services from Manchester Piccadilly Railway Station

Destination	Frequency	Journey Time
Birmingham	2 trains per hour	1 hr 30 mins
Bristol	2 trains per hour	3 hrs
London	2 trains per hour	2hrs 10 mins
Newcastle	3 trains per hour	2 hrs 40 mins

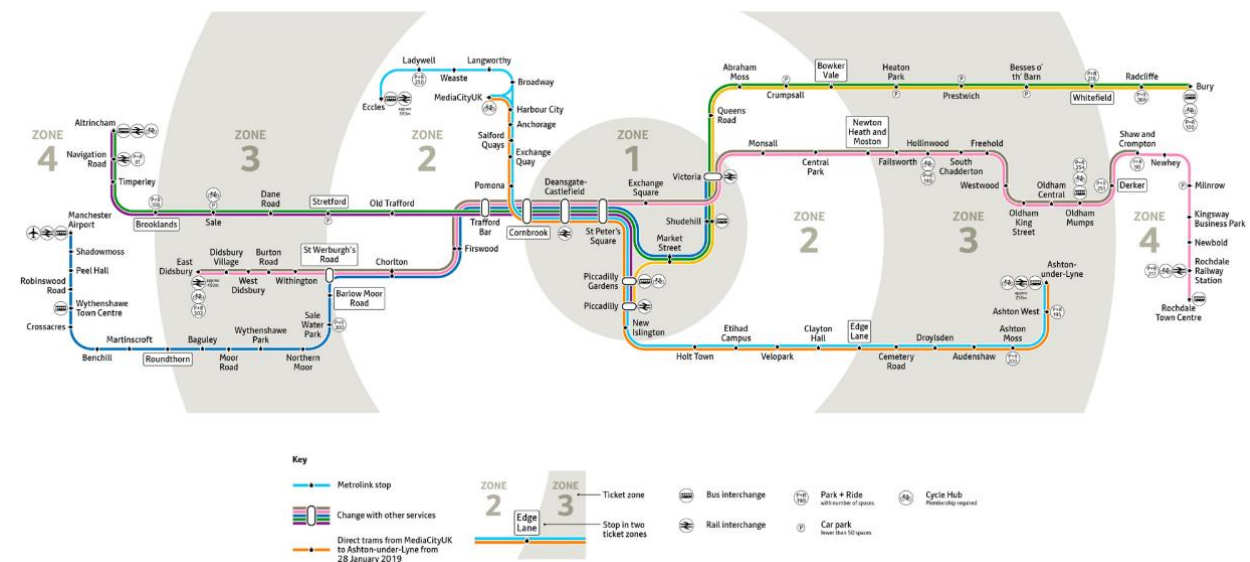
4.4 Metrolink

The Metrolink stop closest to the site is St Peter's Square, which is located approximately 1.5 km to the north. Bus services are available to/from the Oxford Road bus stops, providing services to/from St Peter's Square, which take approximately 10 minutes. The Metrolink tram network provides onward services to Altrincham, Bury, Rochdale, Eccles, MediaCity UK, East Didsbury, Shaw and Crompton, Manchester Piccadilly railway station and Manchester Airport. An up to date copy of the Metrolink services route map is presented in the figure following.

There are ambitious plans to expand the Metrolink network. The most recent expansion included the second city crossing (2CC) which comprised the inclusion of a second line through Manchester City Centre which was opened in 2017. The Transport & Works Act Order for the 3.4-mile (5.5 km) Trafford Park Line was granted in October 2016. Enabling works began in January 2017. Work is still currently on-going on this route, which will provide an extension to the Trafford Centre comprising a total of six new tram stops. It is predicted to open in April 2020.

Further extensions to Buckley Wells, Middleton, and Salford have all been identified as potential future network improvements.

Figure 4.3 Metrolink Service Route Map (TfGM) (2019)



Metrolink service frequencies and journey times are summarised in greater detail within **Table 4.5**.

Table 4.5 Metrolink Service Frequency

Tram Line	Tram Frequency				
	Mon - Thurs	Friday	Saturday	Sunday Peak	Journey Times
Altrincham – Bury	07:15 – 19:30 Every 12 mins	07:15 – 19:30 Every 12 mins	09:30 – 18:00 Every 12 mins	-	58 mins
Altrincham – Piccadilly	06:00 – 23:30 Every 12 mins	06:00 – 00:30 Every 12 mins	06:00 – 00:30 Every 12 mins	07:00 – 22:30 Every 12 mins	32 mins
Ashton-under-Lyne – Eccles	06:00 – 23:30 Every 12 mins	06:00 – 00:30 Every 12 mins	06:00 – 00:30 Every 12 mins	07:00 – 22:30 Every 12 mins	60 mins
Ashton-under-Lyne – MediaCityUK	07:15 – 19:30 Every 12 mins	07:15 – 19:30 Every 12 mins	09:30 – 18:00 Every 12 mins	-	51 mins
Bury – Piccadilly	06:00 – 23:30 Every 12 mins	06:00 – 00:30 Every 12 mins	06:00 – 00:30 Every 12 mins	07:00 – 22:30 Every 12 mins	33 mins
East Didsbury – Rochdale Town Centre	06:00 – 23:30 Every 12 mins	06:00 – 00:30 Every 12 mins	06:00 – 00:30 Every 12 mins	07:00 – 22:30 Every 12 mins	78 mins
East Didsbury – Shaw and Crompton	07:15 – 19:30 Every 12 mins	07:15 – 19:30 Every 12 mins	09:30 – 18:00 Every 12 mins	-	62 mins
Manchester Airport - Victoria	06:00 – 23:30 Every 12 mins	06:00 – 00:30 Every 12 mins	06:00 – 00:30 Every 12 mins	07:00 – 22:30 Every 12 mins	56 mins

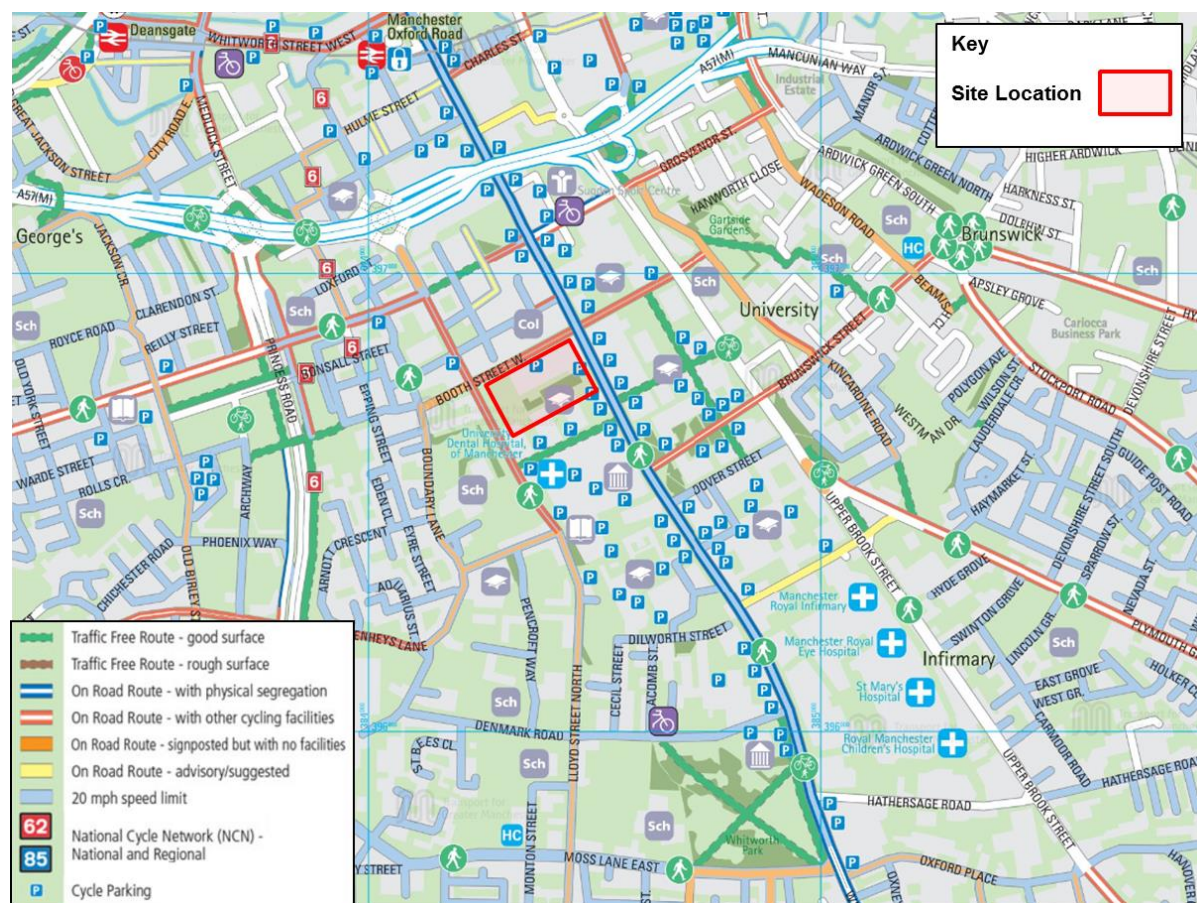
4.5 Cycling

Cycling is seen as a serious part of both national and local transport policy. An improved perception of cycling as a real alternative mode of transport to the car and a growth in cycling as a leisure activity has increased the demand for cycling. An acceptable cycle distance is considered to be up to 5km.

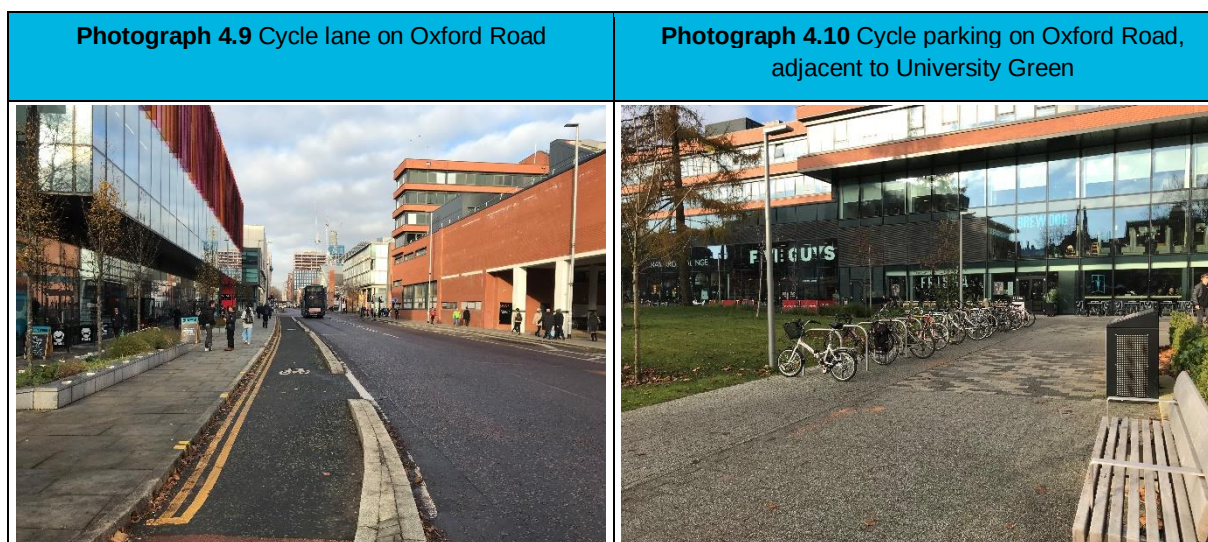
One of the 12 core principles of England's NPPF states that planning should: “*actively manage patterns of growth to make the fullest possible use of public transport, walking and **cycling**, and focus significant development in locations which are or can be made sustainable.*” (NPPF Section 17)

As illustrated in **Figure 4.4**, National Cycle Network Route 6 (NCN 6) runs north-south to the west of the developments. NCN 6 is a major route on the National Cycle Network running from London up to the Lake District. On a local scale the route connects Fallowfield, Whalley Range, Manchester City Centre and Bury. A number of on road and traffic free local routes are also identified in the vicinity of the site. This includes a physically segregated on road cycleway between the UoM and the city centre, which forms part of the Oxford Road Corridor.

Figure 4.4 Cycle Routes (TfGM)



Photographs 4.9 and 4.10 illustrate the existing cycle facilities in the area, these include the Cross-City bus improvement works as well as upgraded cycle facilities along Oxford Road.

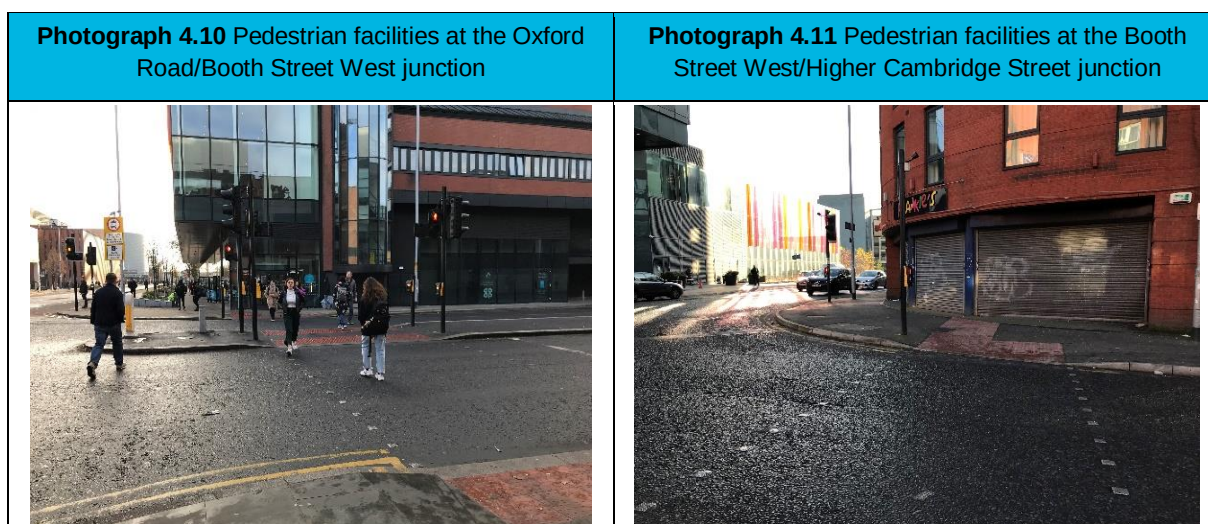


4.6 Accessibility on Foot

The February 2019 NPPF states that, *'Transport issues should be considered from the earliest stages of plan-making and development proposals, so that opportunities to promote walking, cycling and public transport use are identified and pursued'*.

The development is extremely accessible on foot as a result of its proximity to Manchester City Centre and surrounding neighbourhood areas. Good quality pedestrian footways are provided in the vicinity of the site with wide footways on Booth Street West, Higher Cambridge Street and Oxford Road. Signalised pedestrian crossings are provided at all major junctions in the vicinity of the site, as well as at regular intervals along Oxford Road. As the site is on the northern edge of the UoM Campus, it benefits from being in close proximity to large pedestrianised areas, enabling traffic free routing to and from the south. Suitable walking conditions are facilitated by the typically flat topography in the area.

Photographs 4.10 and 4.11 illustrate the improved pedestrian facilities which were developed as part of the Cross-City proposals.



4.7 Summary

This chapter has provided a review of the sustainable travel options available within the vicinity of the development. The MSCP access road is ideally situated to benefit from good connectivity to sustainable modes of transport. All staff, guests and users have the opportunity to access all forms of transport across a far-reaching area utilising a combination of regular and reliable services.

5. Proposed Development

5.1 Introduction

This chapter describes the detail of the development proposals.

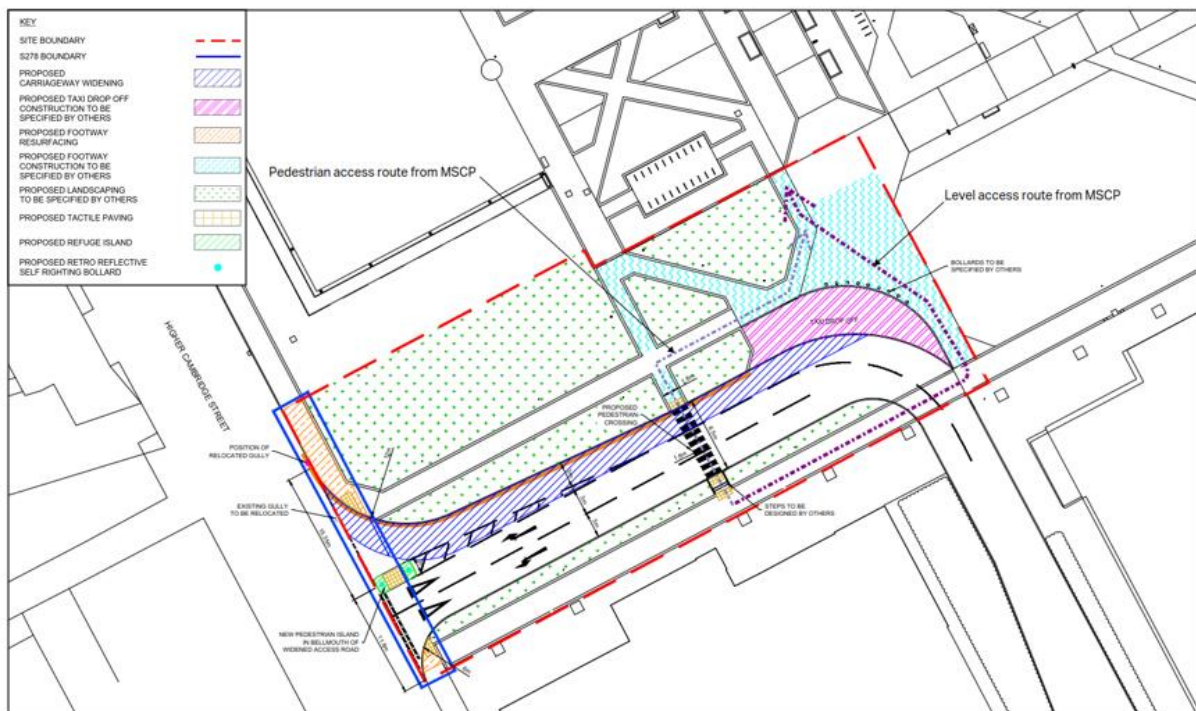
5.2 Development Proposals

The planning application seeks approval for the permanent retention of the existing temporary MSCP access road. The access road will provide a two-lane egress onto Higher Cambridge Street and a single lane entrance into the MSCP. All lanes are proposed to be maintained at 3 metres, enabling the access road to accommodate the required number of vehicles as agreed in the previous applications. It is also proposed that the bus stops on Higher Cambridge Street be retained in their existing locations; these locations were agreed with TfGM in association with the temporary planning application (Application no. 110906/FO/2015/C1).

The pedestrian refuge island at the junction with Higher Cambridge Street will be retained to enable non-motorised users (NMUs) to use the junction safely. The pedestrian refuge island is shown on drawing 60507568-C-AR-0000-001 associated with the approved widening application; as shown in **Appendix B**. The existing zebra crossing facility provided between the MSCP and the MBS hotel (Crowne Plaza Manchester Oxford Road) will also be retained.

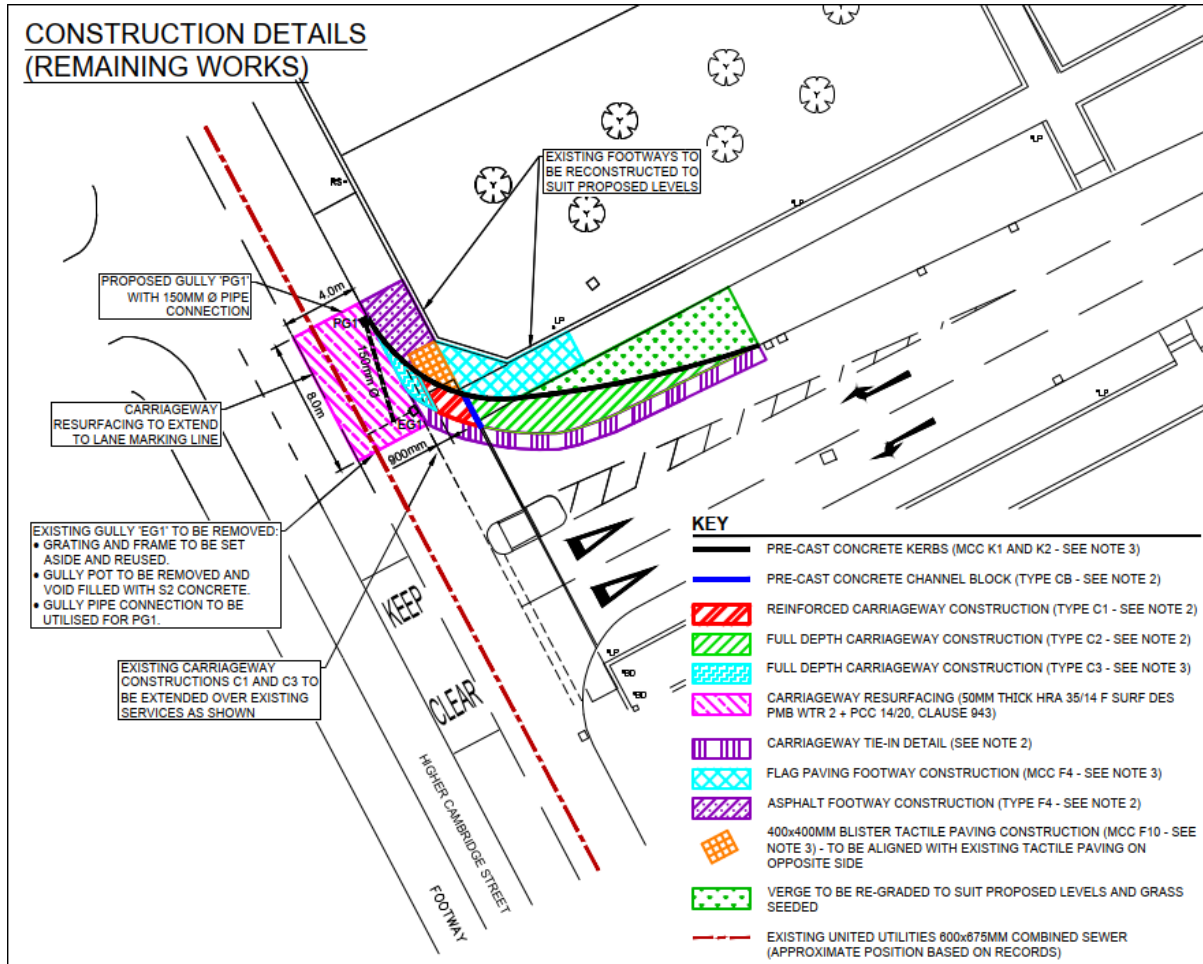
Access to the wider AMBS campus for wheelchair users will connect from the Higher Cambridge Street / Access Road junction along both sides of the access road, tying in with existing Disability Discrimination Act (DDA) compliant ramp facilities nearby as existing. A taxi drop-off bay will also be retained for users of the MBS Hotel, and wider site. The access road is illustrated within **Figure 5.1**.

Figure 5.1: Original Access Road Development



Following the grant of planning permission 120516/FO/2018, all works shown on drawing 60507568-C-AR-0000-001 (and **Figure 5.1**) have already been completed on site with the exception of the works shown on drawing 60618818-ACM-XX-XX-DR-HW-0001_S3_P02. These remaining works are intended to be implemented under a Section 278 Agreement once planning approval has been granted for the permanent retention of the access road. The full drawing is included in **Appendix B**.

Figure 5.2: Proposed Access Arrangements



6. Highway Safety

6.1 Introduction

This chapter considers collision data within the study area, in the immediate vicinity of the proposed development. A road collision is classified as an incident involving one or more vehicles that took place on the public highway and resulted in personal injury. In summary road collisions include the following:

- Collisions which commence on the highway, but which involve casualties off the highway;
- Collisions involving the boarding and alighting of buses or coaches and accidents in which passengers are injured aboard the bus, whether or not another vehicle or pedestrian is involved; and
- Collisions with pedal cyclists or horse riders, where they injure themselves or another road user. Only accidents occurring on the public highway are included. The public highway usually includes the adjacent footway.

Collision data for the study area has been obtained from the Greater Manchester reported road accident database for the most recently available 5-year period (July 2014 – June 2019). The Greater Manchester reported road accident database uses data collected by the Greater Manchester Police and contains information about road traffic accidents that involved personal injury and took place on the public highway.

In accordance with planning guidance, data from the most recent 5-year period (July 2014 to June 2019) has been reviewed for the local highway network. The study area, as shown within **Figure 6.1**, includes six collisions. Collisions outside of the study area have been excluded as they are considered unrepresentative. The frequency and severity of collisions within the study area were analysed, along with a commentary on the likely impact of the proposed scheme in qualitative terms in the following sections.

6.2 Study Area Collisions

Table 6.1 summarises the total number of reported collisions within the study area between July 2014 and June 2019. The information was sourced from the Greater Manchester reported road accident database.

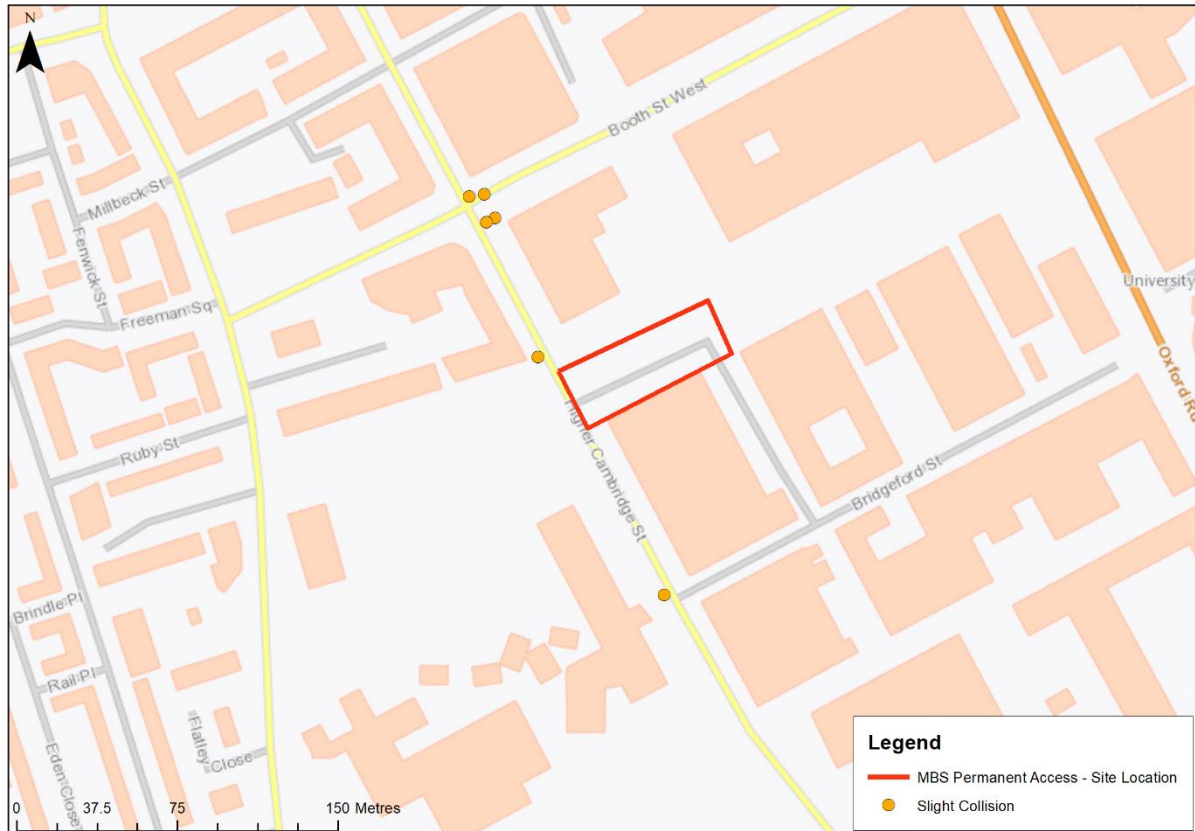
Table 6.1: Summary of Collision Data

Year	Severity			Total
	Slight	Serious	Fatal	
July – Dec 2014	2	0	0	2
2015	2	0	0	2
2016	0	0	0	0
2017	0	0	0	0
2018	1	0	0	1
Jan – June 2019	1	0	0	1
Total	6	0	0	6

Table 6.1 identifies that there has been a total of six collisions across the selected study period. All six accidents were classified as slight in severity of injury. The collision data shows that there were no fatal road collisions reported in the study area during the most recent five-year period.

6.3 Collision Locations

Figure 6.1 illustrates the location of all collisions that occurred within the study area during the most recent five-year period.

Figure 6.1: Collision Locations Within the Vicinity of the Site

Source: Greater Manchester reported road accident database (<https://www.gmtu.gov.uk/gmaccidents/default.aspx>)

One collision occurred in the vicinity of the access road; however, this was recorded as slight. The majority of the six recorded collisions occurred at the Higher Cambridge Street / Booth Street West signalised junction.

6.4 Summary of Collision History

Following a review of the data it appears that the collision numbers have decreased over the study period with four of the six accidents reported occurring in 2014 and 2015. The temporary access road was approved in 2015 and there has been no detrimental impact on accidents in the vicinity of the development since this time. The existing collision history does not therefore lead to any significant concerns or demonstrate any discernible trends which could call for further enquiry or require any additional mitigation measures.

7. Highways Assessments

7.1 Introduction

This chapter provides a summary of the transport modelling assessment that has been undertaken to appraise the forecast traffic impact of the proposed development. The temporary access road was approved in 2015 and as such is already in place. It is therefore been agreed with MCC to assess a baseline year of 2019, plus a five-year future year (2024) scenario. This will provide a robust assessment of the future impact of the development.

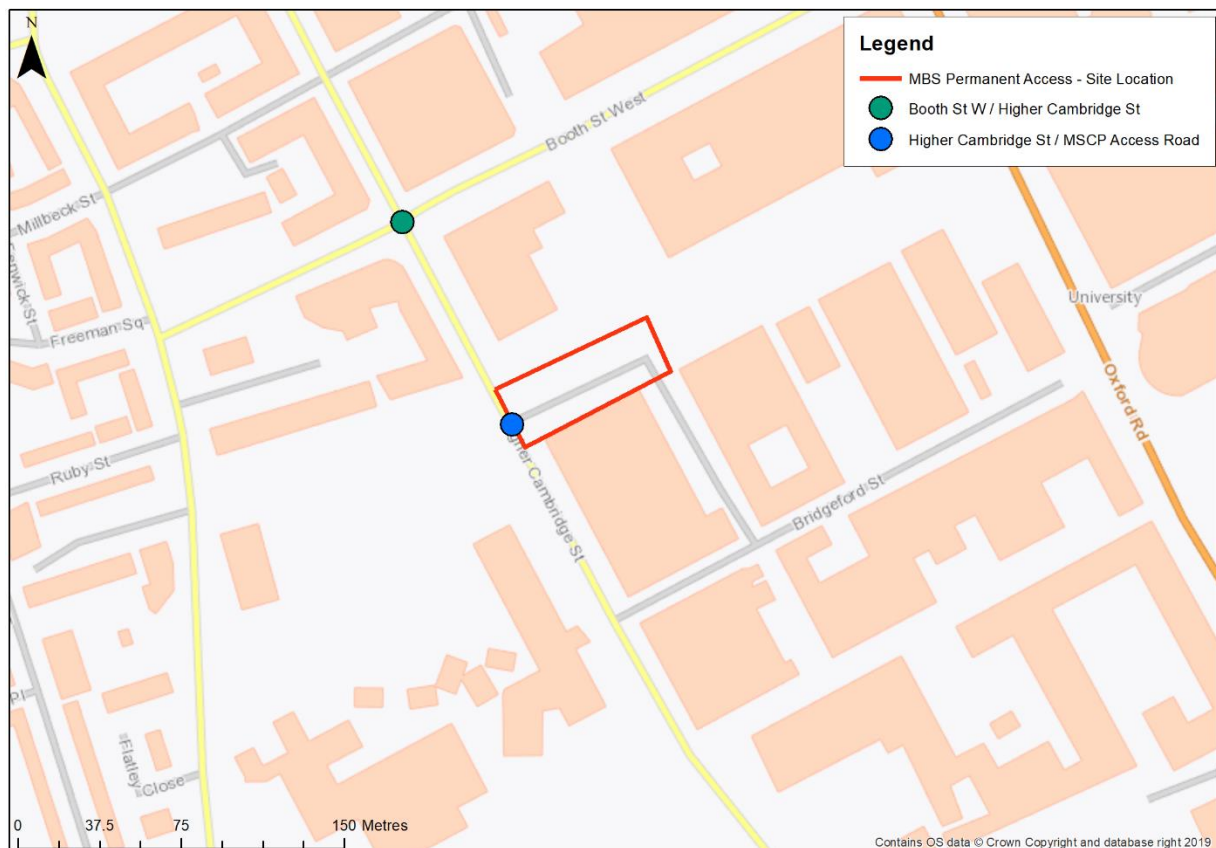
7.2 Study Network

The junctions to be assessed have been agreed with MCC and TfGM and include:

- Higher Cambridge Street / Access Road; and
- Higher Cambridge Street / Booth Street West.

The location of these junctions is shown within **Figure 7.1**.

Figure 7.1 Study Network



7.3 Baseline Traffic Flows

In order to identify the baseline traffic flows on the local highways network, AECOM commissioned a traffic survey to be undertaken in November outside of school holiday periods. The counts were carried out on Thursday 21st November, between 07:00 to 10:00 and 16:00 to 19:00.

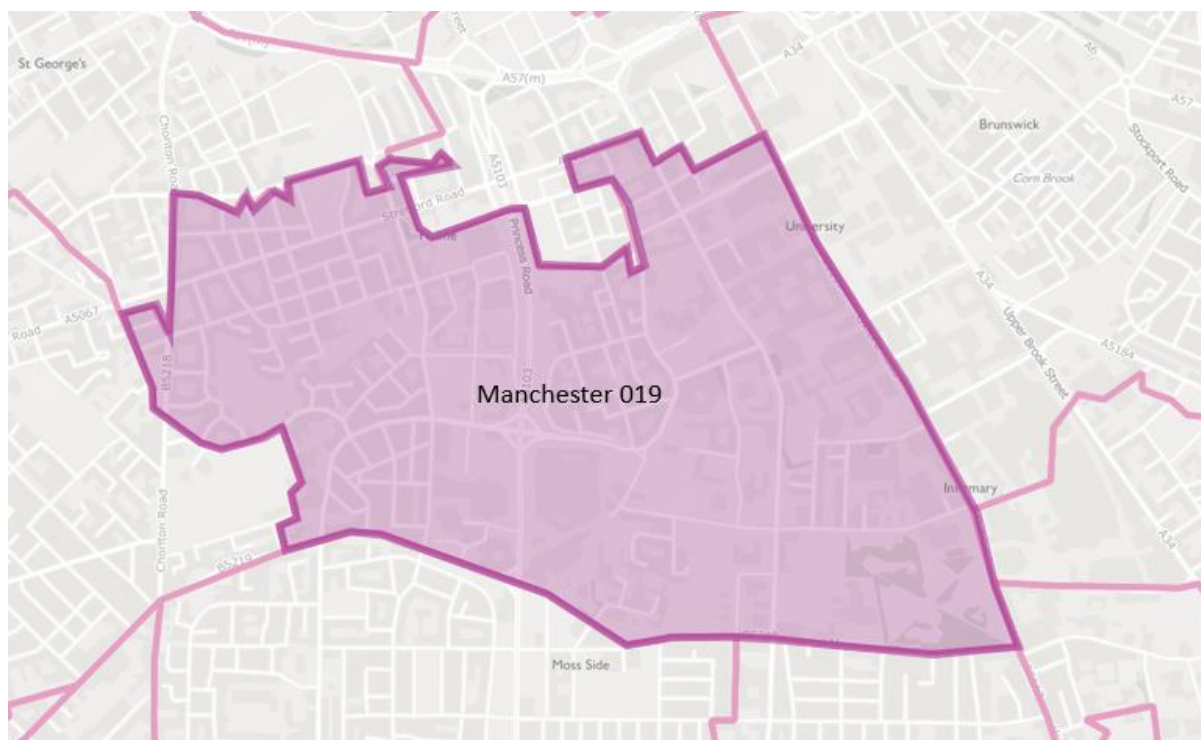
The baseline traffic data identified the weekday AM and PM peak hours to be 08:00 to 09:00 and 16:00 to 17:00 respectively. These counts have been used as the base traffic flow conditions for the capacity assessments; the raw data is included within **Appendix C**.

7.4 Future Year Traffic Growth

The assessment will be undertaken for a year of opening and a single future year assessment. It is proposed that this will be the baseline year (2019) plus five years afterwards (2024).

TEMPRO rates were used to factor the baseline traffic flows in order to estimate the traffic flows for the future year of 2024. The future year traffic growth has been estimated by calculating an average growth rate for the study area, based on local TEMPRO growth rates for All Urban Roads within the 'Manchester 019' middle layer super output area (MSOA) as highlighted within **Figure 7.2**.

Figure 7.2 TEMPRO MSOA Manchester 019 (Source: www.mappinggm.org.uk)



The TEMPRO factors agreed with MCC and TfGM are presented in **Table 7.1**.

Table 7.1 Future Year TEMPRO Growth Factors

Forecast Growth Period	TEMPRO Growth Factor (Peak Period)	
	AM	PM
2019 - 2024	1.078	1.073

The resultant baseline traffic flows for the 2019 and 2024 assessment years are presented within **Appendix D** at the end of this report.

7.5 Committed Development

AECOM has contacted MCC and has concluded that there are no committed developments that would have a significant impact on the junctions within the study area.

7.6 Assessment Scenarios

It has been agreed with MCC that junction assessments should be undertaken for a baseline year of 2019 and a single future year of 2024. The following scenarios have been modelled:

- Revert to Original MSCP Access via Higher Chatham Street; and
- Retain Temporary Access off Higher Cambridge Street.

7.7 Change in Traffic Flows at Booth Street West / Higher Cambridge Street

In order to place the impact of the access road in context a summary of the change in traffic flows at the Booth Street West / Higher Cambridge Street junction has been provided within **Table 7.2**. The full traffic flow diagrams are provided within **Appendix D**.

Table 7.2: Impact of Retaining the Access Road Compared with Reverting to Previous Arrangement

Scenario	AM			PM		
	Proposed	Reverted	Difference	Proposed	Reverted	Difference
2019	2,030	2,113	-83	2,090	2,217	-127
2024	2,188	2,277	-89	2,245	2,381	-136

The analysis provided in **Table 7.2** identifies that the retention of the temporary access road reduces the volume of traffic travelling through the Booth Street West / Higher Cambridge Street junction in all assessment scenarios when compared with the previous access arrangement via Higher Chatham Street.

7.8 Junction Capacity Analysis

As agreed with MCC and TfGM, the signalised junctions of Booth Street West / Higher Cambridge Street have been assessed using LinSig V.3, the UK industry standard software for the assessment and design of traffic signal junctions, to provide confidence that the junction will operate within capacity.

Junction capacity results are expressed in respect of Degree of Saturation (DoS), Mean Maximum Queue (MMQ) and Practical Reserve Capacity (PRC). If a DoS value of 100% is reported that would mean that the flow is equal to maximum saturation flow on the stream in which it was reported. However, a DoS of 90% generally indicates that an approach is operating at the limit of practical capacity. The MMQ value provides an estimate of the average queue length on an approach across the entire period assessed. PRC is a commonly used measure of the available spare capacity at a signalised junction and is related to the DoS. A positive PRC indicates that a junction has spare capacity and may be able to accommodate more traffic.

Original Car Park Access Arrangement

The LinSig model generated to assess the junctions incorporates the original MSCP access road as a give-way junction as agreed with MCC.

The LinSig model outputs for the 2019 scenarios are presented in **Table 7.3**. The full LinSig output is included in **Appendix E**.

Table 7.3 Modelling Outputs (2019 Scenario)

Approach	AM			PM		
	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)
Booth Street WB (Left)	81.9%	7	70.7	74.0%	11	38.3
Booth Street WB (Right Ahead)	103.3%	22	172.7	93.1%	12	63.7
Higher Cambridge Street NB (Right Ahead Left)	112.1%	45	252.7	94.4%	13	100.4
Booth Street EB (Ahead Right Left)	112.9%	38	300.2	50.7%	7	29.8
Higher Cambridge Street SB (Left Ahead Right)	61.5%	10	27.6	95.9%	17	92.6
Booth Street W Right Ahead	41.3%	0	1.7	28.4%	0	1.3
MSCP Egress (Left Right)	3.6%	0	4.2	40.2%	1	5.2
Booth St W (Ahead Left)	5.5%	0	1.3	3.7%	0	1.0
Booth St W (Ahead)	29.3%	0	1.3	34.6%	0	1.4
Cycle Time (s) / PRC (%) / Total Delay (pcuHR)	90 / -25.5 / 105.01			90 / -6.6 / 41.41		

Table 7.3 highlights that by reverting the original car parking arrangements the junction is predicted to be working at capacity in the evening peak hour and will be over saturated in the morning peak period. The highest modelled DoS of 112.9% with a corresponding queue of 38 PCUs will occur along the Booth Street (EB) approach arm during the AM peak hour.

The LinSig model outputs for the 2024 scenarios are presented in **Table 7.4**. The full LinSig output is included in **Appendix E**.

Table 7.4 Modelling Outputs (2024 Scenario)

Approach	AM			PM		
	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)
Booth Street WB (Left)	94.6%	11	114.3	79.5%	12	42.0
Booth Street WB (Right Ahead)	116.1%	43	339.2	106.7%	32	182.1
Higher Cambridge Street NB (Right Ahead Left)	126.4%	81	429.6	101.5%	21	152.4
Booth Street EB (Ahead Right Left)	130.8%	68	523.1	54.6%	8	30.7
Higher Cambridge Street SB (Left Ahead Right)	64.8%	11	27.7	103.3%	26	158.9
Booth Street W Right Ahead	40.5%	0	1.6	30.0%	0	1.3
MSCP Egress (Left Right)	4.0%	0	5.1	48.0%	1	6.8
Booth St W (Ahead Left)	5.7%	0	1.3	3.0%	0	1.0
Booth St W (Ahead)	31.8%	0	1.3	38.1%	0	1.4
Cycle Time (s) / PRC (%) / Total Delay (pcuHR)	90 / -45.3 / 195.79			90 / -18.5 / 80.34		

Table 7.4 shows that by reverting to the original car parking arrangements the junction is predicted to be working over capacity in both morning and evening peak periods. The highest modelled DoS of 130.8% with a corresponding queue of 68 PCUs will occur along Booth Street (EB) approach arm during the AM peak hour.

Current Car Park Access Arrangement

The LinSig model generated to assess the junctions incorporates the MSCP access road as a give-way junction as agreed with MCC.

The LinSig model outputs for the 2019 scenarios are presented in **Table 7.5**. The full LinSig output is included in **Appendix E**.

Table 7.5 Modelling Outputs (2019 Scenario)

Approach	AM			PM		
	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)
Booth Street WB (Left)	63.4%	7	41.9	52.5%	6	37.3
Booth Street WB (Right Ahead)	62.3%	8	40.1	77.7%	11	45.2
Higher Cambridge Street NB (Right Ahead Left)	73.6%	9	40.7	79.7%	12	43.9
Booth Street EB (Ahead Right Left)	73.9%	10	44.5	65.4%	9	39.8
Higher Cambridge Street SB (Left Ahead Right)	76.5%	12	40.2	70.3%	10	38.1
MSCP Egress (Right Left)	3.2%	0	2.2	24.5%	0	2.2
Higher Cambridge Street South (Ahead Right)	51.6%	1	3.1	26.0%	0	1.4
Cycle Time (s) / PRC (%) / Total Delay (pcuHR)	90 / 17.6 / 23.96			90 / 12.9 / 24.43		

It can be seen from **Table 7.5** that the junction currently operates with reserve capacity in both AM and PM peak periods. The highest reported DoS of 79.7% is forecast along the Higher Cambridge Street northbound approach arm with a corresponding queue of 12 PCUs during the PM peak hour. In the 2019 original car park arrangement scenario the highest modelled DoS of 112.1% is predicted to occur along the same approach arm with a maximum queue of 45 PCUs. The MSCP egress road itself is forecast to operate well within capacity in both the AM and PM peaks.

In addition, the proposed arrangement is forecast to operate better than the 2019 original car park arrangement scenario, where the highest modelled DoS was 112.9% with a corresponding queue of 38 PCUs occurring along the Booth Street (EB) approach arm during the AM peak hour.

As this indicates the junction operates within capacity, and reflects an improvement compared with the original car park access arrangement, no mitigation is proposed at the junction considering the 2019 baseline traffic.

The LinSig model outputs for the 2024 scenarios are presented in **Table 7.6**. The full LinSig output is included in **Appendix E**.

Table 7.6 Modelling Outputs (2024 Scenario)

Approach	AM			PM		
	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)	Dos (%)	MMQ	Av. Delay per PCU (s/pcu)
Booth Street Westbound (Left)	68.1%	8	43.9	56.4%	6	38.4
Booth Street Westbound (Right Ahead)	69.7%	9	43.0	85.7%	13	53.7
Higher Cambridge Street Northbound (Right Ahead Left)	82.6%	11	54.1	88.5%	15	54.2
Booth Street Eastbound (Ahead Right Left)	79.5%	11	48.4	70.3%	10	41.8
Higher Cambridge Street Southbound (Left Ahead Right)	82.9%	14	45.1	75.6%	12	40.8
MSCP Egress (Right Left)	3.4%	0	2.2	26.7%	0	2.3
Higher Cambridge Street South (Ahead Right)	56.5%	1	3.5	28.1%	0	1.5
Cycle Time (s) / PRC (%) / Total Delay (pcuHR)	90 / 8.6 / 29.56			90 / 1.7 / 29.91		

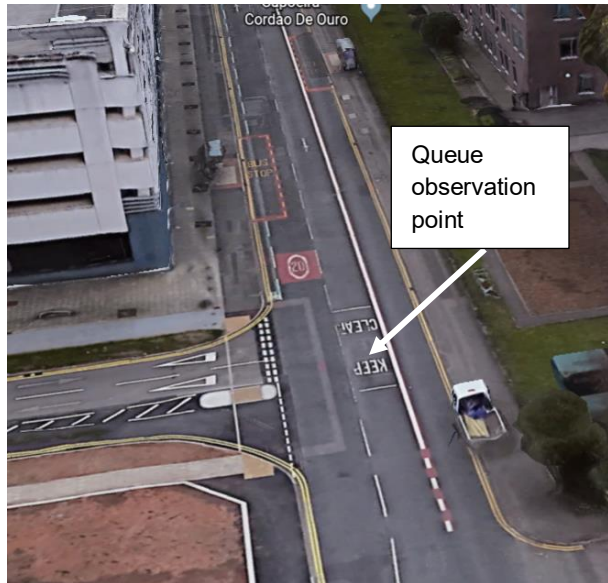
It can be seen from **Table 7.6** that the junction is predicted to operate within capacity in both AM and PM peak hours. The maximum modelled DoS is forecast along the Higher Cambridge Street Northbound approach arm, reaching 88.5%, with a corresponding queue of 15 PCUs during the evening peak period. The maximum increase in MMQ forecast in the AM and PM scenarios on any arm of the junction is two and three vehicles respectively. In comparison, in the 2024 original car park arrangement scenario the highest modelled DoS of 126.4% is predicted to occur along the same approach arm with a maximum queue of 81 PCUs.

In addition, the proposed arrangement is again forecast to operate better than the original car park arrangement where the highest modelled DoS of 130.8%, with a corresponding queue of 68 PCUs, was forecast to occur along the Booth Street (EB) approach arm during the 2024 AM peak hour.

As the junction is predicted to be working within capacity, and reflects an improvement compared with the original car park access arrangement, no mitigation is considered necessary as a result of the 2024 future year assessment.

7.9 Queue Length Surveys and Bus Lane Interaction

In addition to the on-site observations, the queue length data obtained from the surveys undertaken on Thursday 21st November 2019 have been examined in order to gain an understanding of the traffic behaviour at the surveyed junctions. **Figure 7.3** shows the lane classification used in the analysis for clarity.

Figure 7.3 Queue Observation Point

Source: Google Earth

The video surveys have been reviewed in both AM and PM peak hours to understand the impact of right turning traffic into the site access road and to identify the interaction between queuing traffic and the existing bus lane. The video footage identified the following:

- A maximum queue of 13 was observed during the morning peak period due to right turning vehicle unable to turn into the site access road, however the queues were generally observed to dissipate quickly, with only a five-minute period (08:15-08:20) where the lack of gaps available for turning vehicles led to high levels of queuing. This is reflected in the much lower average peak queue of six vehicles across the peak hour;
- The video survey highlighted that 16 unauthorised vehicles crossed into the bus lane during the AM peak in order to avoid queuing at the MSCP access junction;
- Two unauthorised vehicles drove down the bus lane in the morning peak hour to avoid queues building up from the Higher Cambridge Street / Booth Street West junction;
- During the PM peak hour four unauthorised vehicles were observed to cut into the bus lane prior to the white dashed line at the end of the bus lane. This was observed to be undertaken to avoid queuing at the Higher Cambridge Street / Booth Street West junction rather than queueing at the MSCP access junction; and
- No conflicts with buses, cyclists or other vehicles using the bus lane were observed during either the AM or PM peak periods.

In summary, it was observed that a number of vehicles are entering the bus lane to manoeuvre around vehicles queuing at the MSCP access junction in the AM peak; however, none of these occurred at a time when an authorised vehicle was using the bus lane. The access junction queues were generally observed to dissipate quickly and so it is considered that the vehicles entering the bus lane reflect impatient driving behaviour. However, consideration could be given to the implementation of the mitigation measures identified within Section 3.4 to reduce the impact on the bus lane.

8. Summary and Conclusion

AECOM has prepared this Transport Assessment on behalf of Bruntwood in support of a Section 73 application to amend the temporary approval of the access road and enable the permanent retention of the existing Alliance Manchester Business School multi-storey car park access road.

Site Location: The access road provides a connection between the AMBS MSCP and the wider highway network, notably Higher Cambridge Street. The AMBS multi-storey car park is situated directly to the south of the site.

Policy Context: It has been demonstrated that the proposed development follows the relevant National, Regional and Local transport policies and aligns with the priorities set out within the NPPF.

Sustainable Access: Sustainable travel in the vicinity of the MSCP access road is ideally situated to benefit from good connectivity to sustainable modes of transport. All users have the opportunity to access all forms of transport across a far-reaching area utilising a combination of regular and reliable services.

Road Safety: A review of the recent collision history in the vicinity of the study area has not raised any significant concerns in the context of the proposed development.

Highways Assessment: The proposed development represents the retention of a temporary access road and so would not lead to any increase in traffic on the highway network. Detailed junction assessments have, however, been undertaken for the Booth Street West/Higher Cambridge Street and Higher Cambridge Street/MSCP Access Road junctions.

The highways assessments demonstrate that the existing junction is forecast to operate with spare capacity in the 2019 and 2024 scenarios. The development would also represent improved operation of the Higher Cambridge Street/Booth Street West signalised junction compared with reverting to the original access road location off Higher Chatham Street. It is therefore considered that the forecast traffic can be accommodated within the existing junction and no mitigation measures are required.

Conclusion: The impact of the proposed development falls below the key test set out in National Planning Policy Framework (NPPF) Para 109 which states that “*development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe*”.

Having regard to the information and analysis presented in this report it can be concluded that, in transport and highways terms, the application should be acceptable and there are no overriding issues that should prevent the granting of planning permission.

Appendix A - Scoping Discussions

Aylmer-Shanks, Caroline

From: Muniza Usmani <m.usmani@manchester.gov.uk>
Sent: 11 December 2019 15:39
To: Friel, Amy; Aylmer-Shanks, Caroline
Subject: Re: MBS Permanent Access - Scoping Query

Hi Amy and Caroline

TfGM are OK with TEMPRO factors.

Thanks

Kind regards

Muniza Usmani

Engineer
Highways Service, Growth and Neighbourhoods Directorate
Bridgewater House
Whitworth Street
Manchester
M1 6LT

(PLEASE NOTE: Usual working days are Tuesday, Wednesday and Friday)

Tel 0161 234 1680 / Internal: 801 1680

Email: m.usmani@manchester.gov.uk

Web: <http://www.manchester.gov.uk>

POSTAL ADDRESS: Manchester City Council, PO Box 532, Town Hall, Manchester, M60 2LA

On Wed, 11 Dec 2019 at 12:00, Friel, Amy <Amy.Friel@aeacom.com> wrote:

Morning,

Thank you Muniza 😊

Kind regards,

Amy

Amy Friel, MSc., BSc.(Hons), PDGE, MTPS
Consultant, Development Planning, Transportation
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PLEASE NOTE MY UPCOMING LEAVE: 13/12/2019 – 10/02/2020 inclusive.

From: Muniza Usmani <m.usmani@manchester.gov.uk>
Sent: 11 December 2019 09:53
To: Friel, Amy <Amy.Friel@aecom.com>
Subject: Re: MBS Permanent Access - Scoping Query

Hi Amy

We need to get feedback from TfGM on the Temprow factors and the best contact for the committed developments is probably the Planner - sorry! I have emailed the TEMPROW details to TfGM for comment.

Thanks

Kind regards

Muniza Usmani

Engineer

Highways Service, Growth and Neighbourhoods Directorate

Bridgewater House

Whitworth Street

Manchester

M1 6LT

(PLEASE NOTE: Usual working days are Tuesday, Wednesday and Friday)

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Web: <http://www.manchester.gov.uk>

POSTAL ADDRESS: Manchester City Council, PO Box 532, Town Hall, Manchester, M60 2LA

On Mon, 9 Dec 2019 at 14:52, Friel, Amy <Amy.Friel@aecom.com> wrote:

Hi Muniza,

Just two very quick additional questions on MBS:

1. Could you please confirm that you are happy with the assessment of 2019 base and 2024 future year traffic (based on TEMPRO factors - AM: 1.078 and PM 1.073); and
2. Are you aware of any committed developments that we should consider?

Thank you,

Amy

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PLEASE NOTE MY UPCOMING LEAVE: 13/12/2019 – 10/02/2020 inclusive.

From: Muniza Usmani <m.usmani@manchester.gov.uk>
Sent: 06 December 2019 11:20
To: Friel, Amy <Amy.Friel@aeacom.com>
Cc: Aylmer-Shanks, Caroline <Caroline.AylmerShanks@aeacom.com>; Zoefftig, Catherine <catherine.zoefftig@aeacom.com>
Subject: Re: MBS Permanent Access - Scoping Query

Hi Amy

That looks fine to me.

When you look at the existing conditions I think you previously mentioned that you would also consider any observed issues with the bus lane etc.

Thanks

Kind regards

Muniza Usmani

Engineer

Highways Service, Growth and Neighbourhoods Directorate

Bridgewater House

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Manchester

M1 6LT

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POSTAL ADDRESS: Manchester City Council, PO Box 532, Town Hall, Manchester, M60 2LA

On Wed, 4 Dec 2019 at 12:00, Friel, Amy <Amy.Friel@aecom.com> wrote:

Good morning Muniza,

I hope you're well.

Further to our previous correspondence, AECOM has been appointed by Bruntwood to provide transport and highways related advice in relation to a planning application for the permanent retention of the existing Alliance Manchester Business School (AMBS) multi-storey car park (MSCP) access road off Higher Cambridge Street (120516/FO/2018). AECOM has been commissioned by Bruntwood to prepare a Transport Assessment (TA) to support the planning application and I would be grateful if you could review the proposed scope and confirm if this is acceptable.

The following bullet points set out the key chapters and their respective elements that we intend to include within the TA:

- Introduction: The introduction to the TA will provide the background to the proposal in the form of a description of previous planning applications. A summary of scoping discussions will also be presented;
- Policy Context: A policy chapter will be presented discussing the development proposals in the context of National, Regional and Local Policy;
- Baseline Conditions: A description will be provided of the site location and the surrounding local highway network;
- Sustainable Access: A chapter will be included which discusses access to the proposed development by alternatives to the private car. Including access by Bus, Rail, Metrolink, Cycle, and on Foot;
- Development Proposals: A description of the proposed development will be provided including the design of the permanent access road. Its key features including lane widths, pedestrian facilities, and DDA access as appropriate. Copies of the most recent layout plans will be presented within this chapter;

- Highway Safety: A chapter will be presented which considers a review of collision data in the immediate vicinity of the proposals and over the most recent 5-year period available, with data obtained from the Greater Manchester Transportation Unit (GMTU) reported road accident database;
- Highways Assessments: LINSIG modelling analysis will be undertaken to appraise the operation of the Higher Cambridge Street / Access Road and Higher Cambridge Street / Booth Street west junctions. Both the AM and the PM peak periods will be modelled and the results presented; and
- Summary and Conclusions: The final chapter of the report will summarise the findings and present a conclusion to the report.

Highways Assessment

The highways assessment will consider the following elements:

- Once the traffic count data is received, the AM and PM peak hours will be derived by analysing this information, and the data presented in the models will align with the busiest AM and PM peak periods identified;
- A baseline year of 2019 and if required, a future year of 2024 will be modelled; and
- Our assessments will consider the on-site observations of both the lane interaction with the bus lane and queue length information derived from the surveys.

As mentioned, I would be grateful if you could confirm the acceptability of the scope and approach set out above.

It is understood that the permanent application will be submitted before Christmas, so if you could review this at your earliest it would be much appreciated. Of course, if you have any queries or wish to discuss this scope, please do not hesitate to contact me directly.

Kind regards,

Amy

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PLEASE NOTE MY UPCOMING LEAVE: 13/12/2019 – 10/02/2020 inclusive.

From: Muniza Usmani <m.usmani@manchester.gov.uk>
Sent: 08 November 2019 10:40
To: Friel, Amy <Amy.Friel@aeacom.com>
Subject: Re: MBS Permanent Access - Survey Query

Hi Amy

That's fine- I dont think Saturday is required as its a staff car park mainly.

Thanks

Kind regards

Muniza Usmani

Engineer

Highways Service, Growth and Neighbourhoods Directorate

Bridgewater House

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(PLEASE NOTE: Usual working days are Tuesday, Wednesday and Friday)

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Web: <http://www.manchester.gov.uk>

POSTAL ADDRESS: Manchester City Council, PO Box 532, Town Hall, Manchester, M60 2LA

On Fri, 8 Nov 2019 at 10:36, Friel, Amy <Amy.Friel@aecom.com> wrote:

Morning Muniza,

It was - previously we had agreed to survey:

1. The MSCP priority access junction from Higher Cambridge Street; and
2. Booth Street West / Higher Cambridge Street signalised junction.

Before we do commission a survey company, could you just confirm that a survey of the AM (07:00-09:00) & PM peaks (16:00-19:00) is sufficient or would a Saturday Peak (11:00-13:00) also be required?

Thanks again,

Amy

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aecom.com

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From: Muniza Usmani <m.usmani@manchester.gov.uk>
Sent: 08 November 2019 09:00
To: Friel, Amy <Amy.Friel@aeacom.com>
Cc: Aylmer-Shanks, Caroline <Caroline.AylmerShanks@aeacom.com>
Subject: Re: MBS Permanent Access - Survey Query

Hi Amy

I am working from home today - back in Tuesday now. The scope looks fine - but to save me having to dig around too much can you confirm that was the extent of modelling previously agreed? It sounds right.

Thanks

Kind regards

Muniza Usmani

Engineer

Highways Service, Growth and Neighbourhoods Directorate

Bridgewater House

Whitworth Street

Manchester

M1 6LT

(PLEASE NOTE: Usual working days are Tuesday, Wednesday and Friday)

Tel 0161 234 1680 / Internal: 801 1680

Email: m.usmani@manchester.gov.uk

Web: <http://www.manchester.gov.uk>

POSTAL ADDRESS: Manchester City Council, PO Box 532, Town Hall, Manchester, M60 2LA

On Thu, 7 Nov 2019 at 15:05, Friel, Amy <Amy.Friel@aecom.com> wrote:

Hi Muniza,

Tried to give you a call earlier regarding the MBS Permanent Access application but didn't manage to get through to you so thought I'd drop you an email outlining our query in advance of calling again.

As you will have seen, we have received confirmation from Richard Dolphin that the best way forward for will be the urgent commencement of surveys to minimise the impact of local roadworks on the results.

Previously we discussed that junction capacity assessments will be required and would be undertaken at the following junctions:

1. The MSCP priority access junction from Higher Cambridge Street; and
2. Booth Street West / Higher Cambridge Street signalised junction.

The analysis will be undertaken with due regard to the existing bus lane on Higher Cambridge Street, right-turning movements, and the operation of the MSCP junction. Additionally, a Transport Assessment will be prepared to support the application which will present an assessment of the adjacent highway network and report on its findings.

Could you please confirm if you are happy for us to proceed with the assessments at these locations? Following your confirmation, we will commission urgent surveys for the analysis.

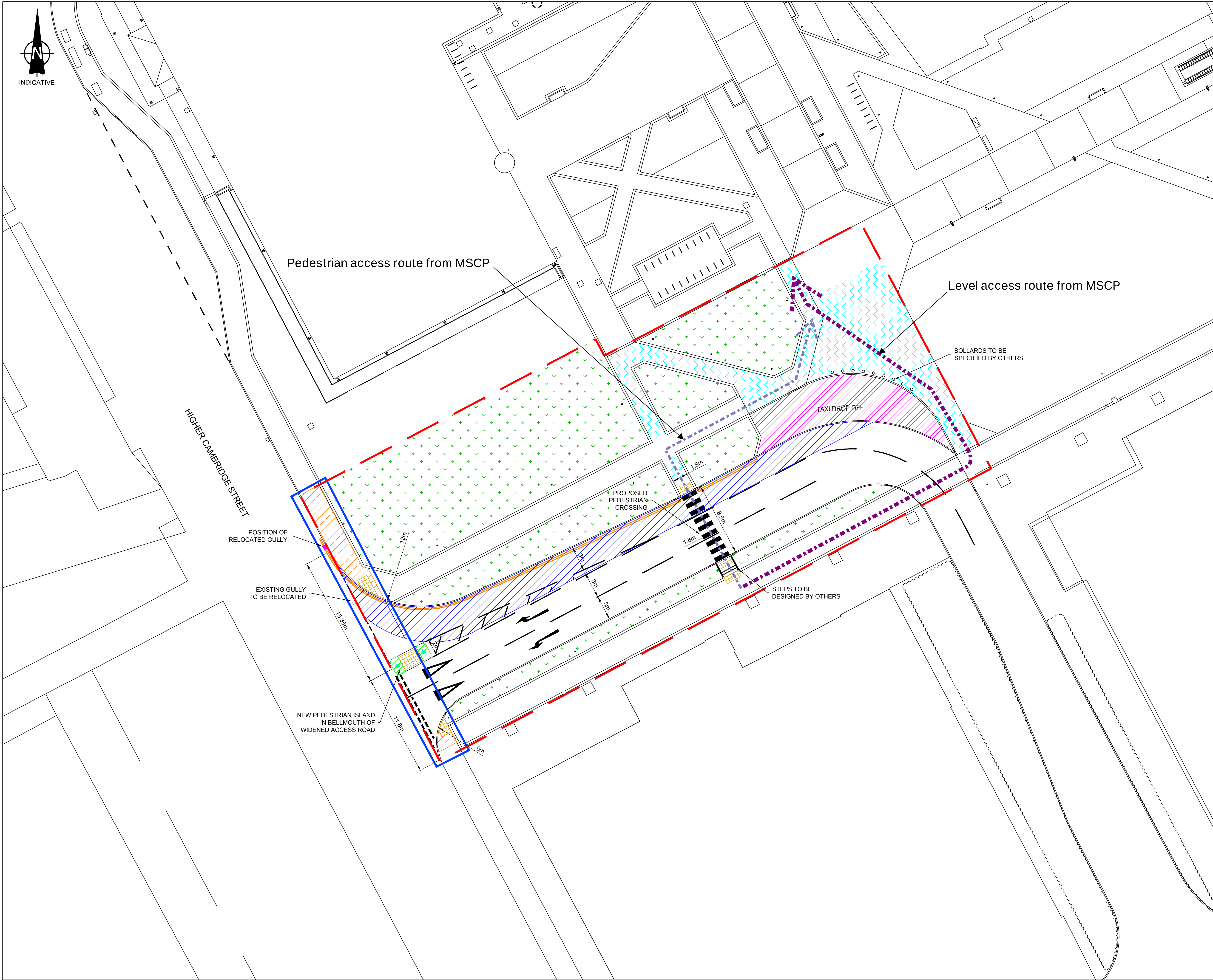
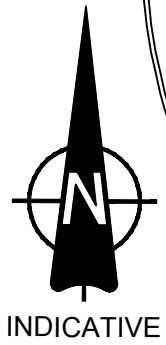
Please don't hesitate to give me a call should you need any further clarification.

Thank you in advance,

Amy

Amy Friel, MSc., BSc.(Hons), PDGE, MTPS
Consultant, Development Planning, Transportation
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Appendix B - Plans



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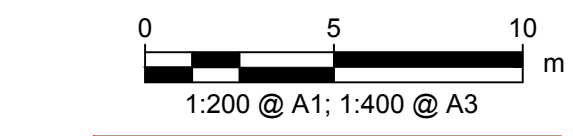
PROJECT
**MANCHESTER
BUSINESS SCHOOL
ACCESS ROAD**
CLIENT
BRUNTWOOD

CONSULTANT
AECOM
One New York Street
Manchester, M1 4HD
+44 (0)161.601.1700 tel
+44 (0) 161.601.1799 fax
www.aecom.com

- NOTES**
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF OVERSEEING ORGANISATION.
 2. ALL DIMENSIONS TO BE CHECKED BEFORE COMMENCEMENT OF WORK ON SITE.
 3. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.
 4. DRAWING BASED ON TOPOGRAPHICAL SURVEY RECEIVED FROM SURVEY SYSTEMS LTD. DRAWING NO: SSL:14561J:200:1:1:TOPO.
 5. SITE LAYOUT BASED ON BDP DRAWING: 02(9-) L101_B.

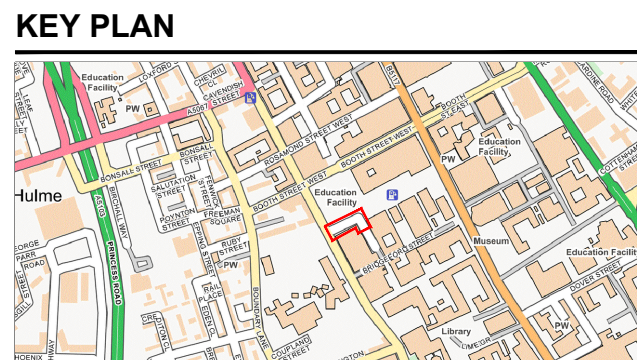
KEY

SITE BOUNDARY	---
S278 BOUNDARY	---
PROPOSED CARRIAGEWAY WIDENING	Blue hatched
PROPOSED TAXI DROP OFF CONSTRUCTION TO BE SPECIFIED BY OTHERS	Pink hatched
PROPOSED FOOTWAY RESURFACING	Orange hatched
PROPOSED FOOTWAY CONSTRUCTION TO BE SPECIFIED BY OTHERS	Cyan hatched
PROPOSED LANDSCAPING TO BE SPECIFIED BY OTHERS	Green dotted
PROPOSED TACTILE PAVING	Yellow grid
PROPOSED REFUGE ISLAND	Green diagonal
PROPOSED RETRO REFLECTIVE SELF RIGHTING BOLLARD	Blue dot



ISSUED FOR COMMENT

ISSUE/REVISION		
B	23/08/2018	FOLLOWING MCC COMMENTS
A	10/07/2018	LAYOUT UPDATED
-	26/06/2018	FIRST ISSUE
I/R	DATE	DESCRIPTION



Contains Ordnance Survey data © Crown copyright and database right
2018 Ordnance Survey 0100031673

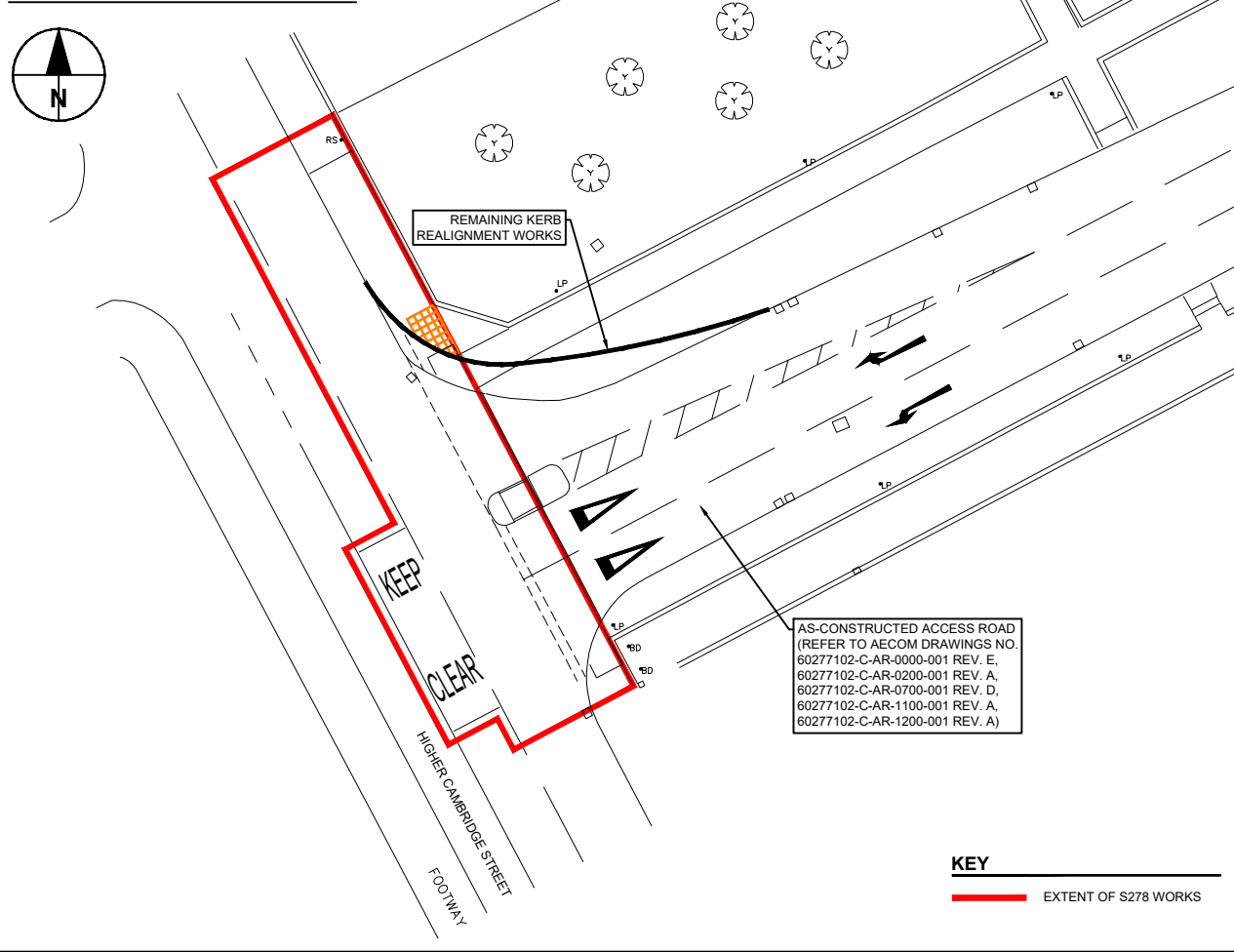
PROJECT NUMBER
60277102

SHEET TITLE
GENERAL ARRANGEMENT

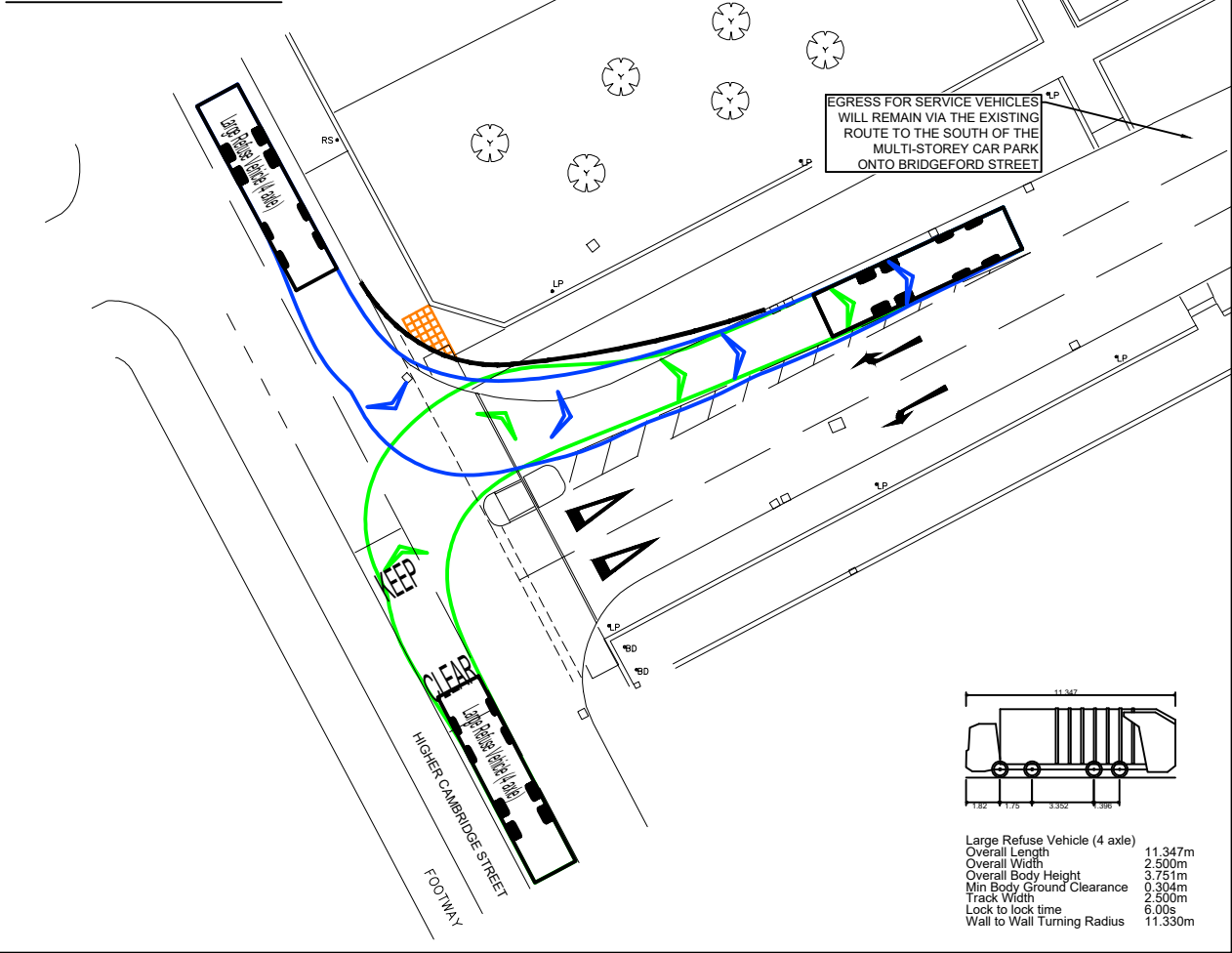
SHEET NUMBER
60277102-C-AR-0000-001

ISO A1 594mm x 841mm
Approved: J.R.
Checked: J.R.
Designer: D.I.
Project Management Initials:
Filename: \\EU.AECOM\NET\COM\PROJECTS\PROJECTS\DEVELOPMENT - MBS HOTEL\PERMANENT ACCESS APPLICATION 201803 EXECUTION\CAD\02 SHEETS\60618818-ACM-XX-XX-DR-HW-0001_S3_P02.DWG
Last saved by: DIMITRIE IVANOV
Last Printed: 2020-02-12

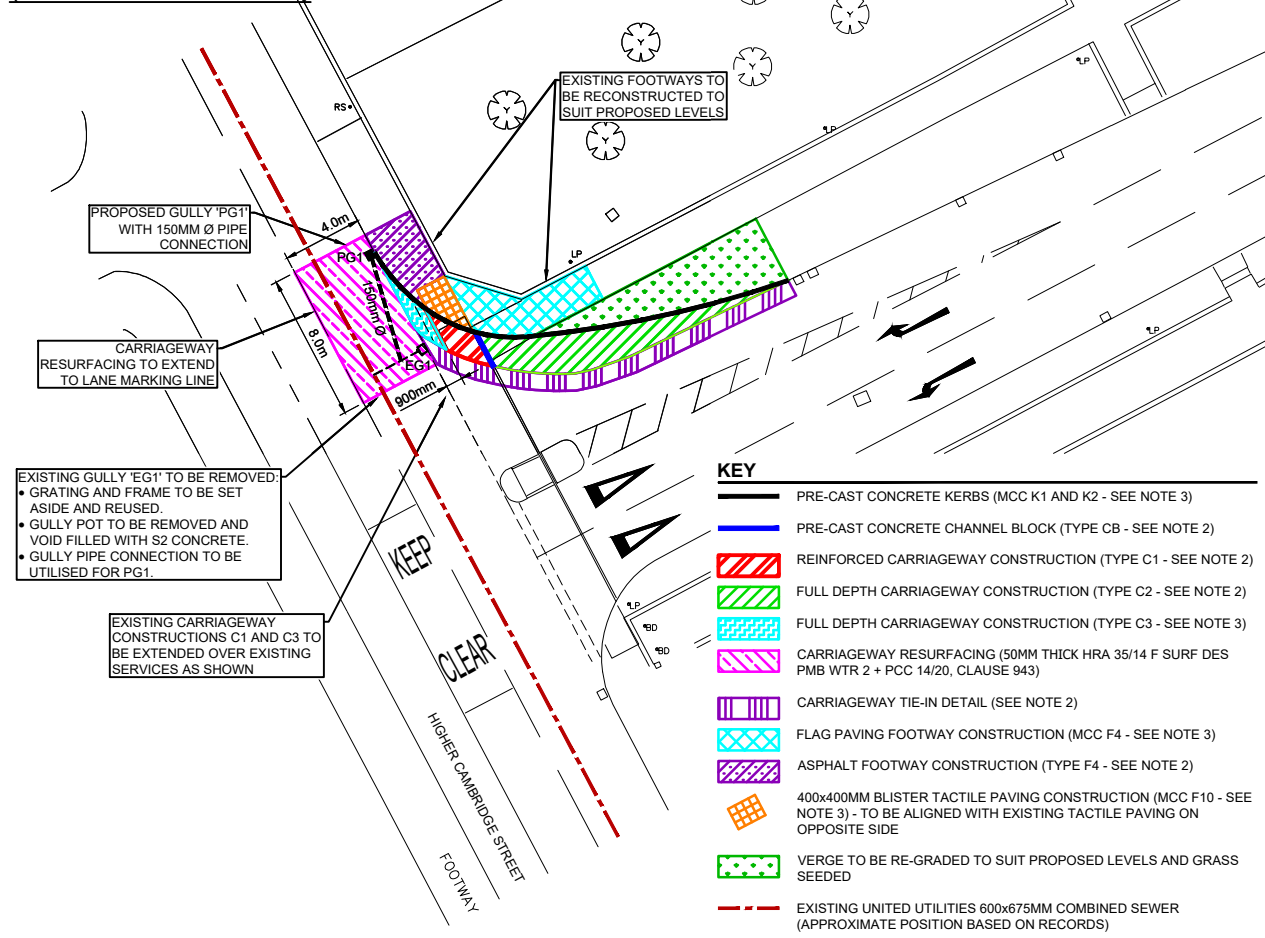
EXTENT OF S278 WORKS



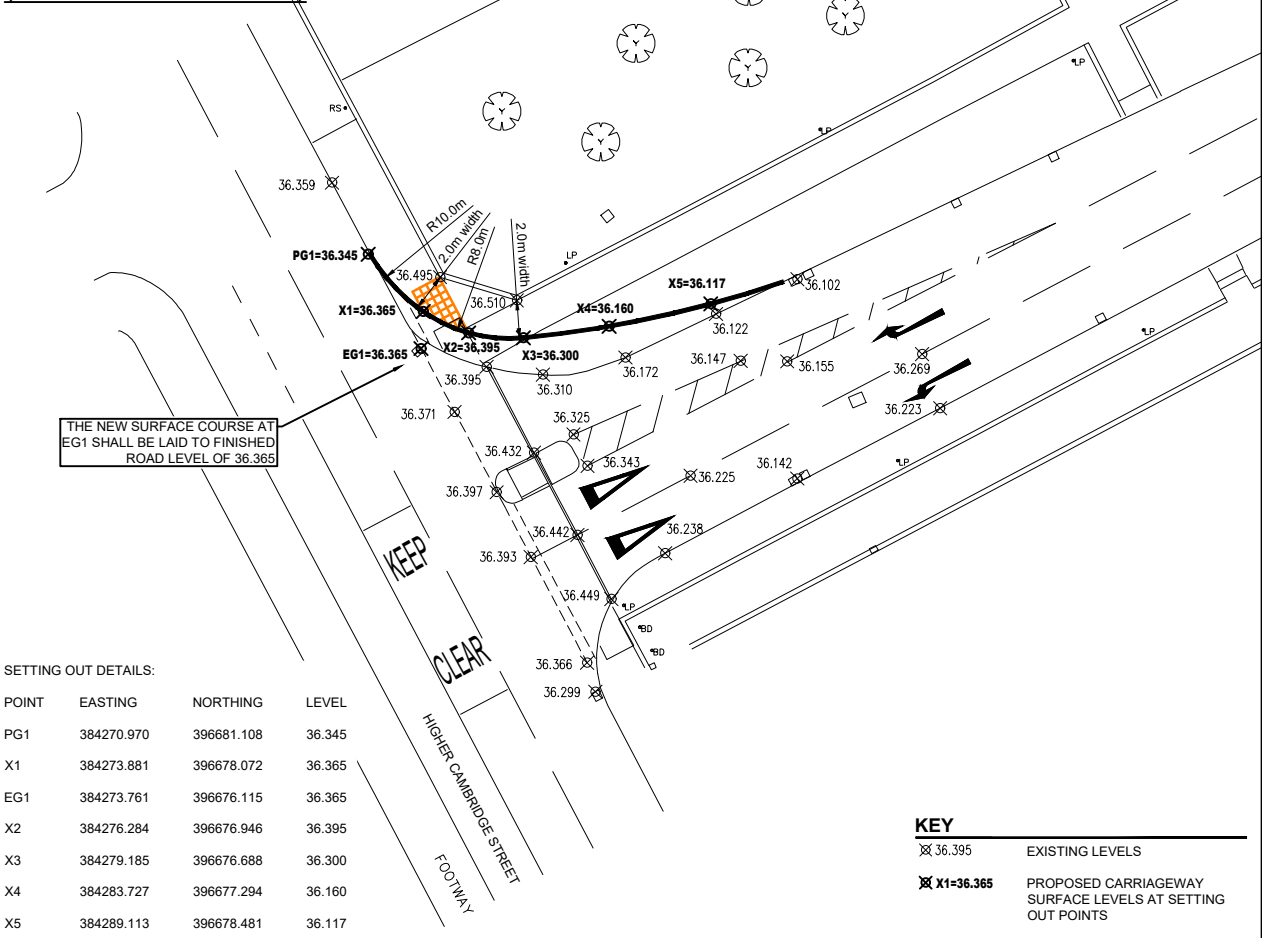
VEHICLE TRACKING



CONSTRUCTION DETAILS (REMAINING WORKS)



SETTING OUT DETAILS (REMAINING WORKS)



PROJECT

MANCHESTER
BUSINESS SCHOOL
ACCESS ROAD

CLIENT

BRUNTWOOD

CONSULTANT

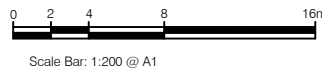
AECOM
Merchants Court
2-12 Lord Street
Liverpool, L2 1TS
www.aecom.com

NOTES

1. THE SPECIFICATION FOR THE WORKS SHALL BE THE 'SPECIFICATION FOR HIGHWAY WORKS' (SHW) PUBLISHED AS VOLUME 1 OF THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SHW AND ALL OTHER CONTRACT DRAWINGS AND STANDARD CONSTRUCTION DETAILS.
2. FOR STANDARD CONSTRUCTION TYPES REFER TO AECOM DRAWING NO. 60277102-C-AR-4000-001 REV. D.
3. FOR STANDARD CONSTRUCTION DETAILS REFER TO MANCHESTER CITY COUNCIL DRAWINGS NO: F4 - SMALL UNIT FOOTWAY CONSTRUCTION F10 - UNCONTROLLED PEDESTRIAN CROSSING K1 - NEW KERB WITH 125MM UPSTAND K2 - DROP KERB D12 - GULLY DETAIL
4. THIS DRAWING IS BASED ON 'AS-BUILT' TOPOGRAPHICAL SURVEY BY SURVEY SYSTEMS LTD - DRAWING NO. SSL:14561V:200:1:1.
5. THE CONTRACTOR SHALL CONFIRM THE EXACT POSITION OF UNDERGROUND SERVICES PRIOR TO COMMENCING EXCAVATIONS AT ANY LOCATION. THE CONTRACTOR SHALL PLAN, MANAGE AND UNDERTAKE ANY WORKS IN THE VICINITY OF UNDERGROUND SERVICES IN ACCORDANCE WITH HSE47 'AVOIDING DANGER FROM UNDERGROUND SERVICES'.
6. THE AFFECTED EXISTING DOUBLE YELLOW LINES SHALL BE REALIGNED TO SUIT THE REALIGNED KERB LINE.
7. ALL EXISTING ROAD MARKINGS WITHIN THE S278 BOUNDARY SHALL BE REFRESHED.

ISSUE/REVISION

NO	DATE	DESCRIPTION
P02	10/02/20	REFERENCES TO MCC STANDARD DETAILS
P01	06/02/20	FIRST ISSUE
I/R	DATE	DESCRIPTION



PROJECT NUMBER

60618818

SHEET TITLE

SECTION 278 WORKS
PROPOSED KERB REALIGNMENT

SHEET NUMBER

60618818-ACM-XX-XX-DR-HW-0001_S3

Appendix C - Traffic Survey Data

SITE: 1

DAY: Thursday

LOCATION: Booth St West / Higher Cambridge St

DATE: 21/11/2019

Note:

Lanes are numbered outwards from the nearside kerb in the direction of travel.

Lane 1 will always be nearest the footway. Queues measured in vehicle numbers.

TIME	ARM A Higher Cambridge St	ARM B Booth St West		ARM C Higher Cambridge St		ARM D Booth St West		
	LANE 1	LANE 1	LANE 2	LANE 1	LANE 2	LANE 1	LANE 2	LANE 3
07:00	12	3	0	2	2	4	5	1
07:05	5	5	0	1	2	3	6	3
07:10	7	2	1	5	2	3	1	2
07:15	7	7	2	1	1	3	9	2
07:20	12	9	2	2	0	5	5	5
07:25	7	4	1	8	1	5	6	1
07:30	7	6	1	10	1	5	7	3
07:35	10	6	2	6	2	6	10	3
07:40	5	4	3	6	3	6	11	2
07:45	13	8	1	2	2	5	9	5
07:50	8	8	1	7	3	9	11	6
07:55	11	6	2	9	1	5	8	2
08:00	9	7	2	6	2	1	6	1
08:05	12	10	1	5	2	9	13	6
08:10	23	8	3	7	8	11	11	2
08:15	24	12	2	9	18	10	10	4
08:20	24	12	4	7	10	15	5	3
08:25	18	15	3	6	12	7	7	4
08:30	2	3	3	8	2	8	6	3
08:35	13	5	2	8	6	4	8	1
08:40	10	7	2	16	5	4	7	2
08:45	17	12	0	9	3	4	9	2
08:50	22	12	0	3	3	5	9	4
08:55	12	8	2	16	3	11	6	2
09:00	26	8	1	16	6	6	5	2
09:05	13	6	1	8	2	6	4	3
09:10	9	11	2	5	2	8	5	3
09:15	12	7	3	11	4	8	5	2
09:20	8	11	2	6	2	7	9	2
09:25	14	7	2	11	3	6	4	2
09:30	22	4	3	16	9	7	4	6
09:35	22	3	3	7	8	7	4	3
09:40	26	7	2	13	4	7	4	6
09:45	26	8	4	16	7	7	5	4
09:50	26	7	4	16	6	6	6	3
09:55	20	6	1	13	7	4	7	5
MAX	26	15	4	16	18	15	13	6
MIN	2	2	0	1	0	1	1	1

TIME	ARM A	ARM B		ARM C		ARM D		
	Higher Cambridge St LANE 1	Booth St West LANE 1	LANE 2	Higher Cambridge St LANE 1	LANE 2	Booth St West LANE 1	LANE 2	LANE 3
16:00	22	14	1	18	10	2	8	1
16:05	20	7	1	12	7	6	7	5
16:10	12	13	2	18	5	7	11	6
16:15	10	7	1	18	8	6	10	7
16:20	7	8	1	18	11	6	7	3
16:25	12	7	0	5	6	5	7	3
16:30	11	5	1	10	4	5	10	7
16:35	15	7	0	18	8	2	9	5
16:40	24	7	0	18	12	7	11	5
16:45	24	4	1	18	8	4	6	2
16:50	13	8	2	18	5	4	12	3
16:55	9	6	0	18	4	6	9	5
17:00	13	11	1	18	5	5	6	5
17:05	16	8	2	15	6	5	11	3
17:10	17	8	1	12	11	4	7	3
17:15	12	12	1	14	11	6	7	5
17:20	17	7	0	5	8	6	7	3
17:25	9	5	0	12	4	3	5	2
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18:25	24	4	1	18	3	3	6	2
18:30	26	6	2	18	2	5	4	3
18:35	26	5	0	18	3	3	4	1
18:40	26	4	1	10	2	4	5	2
18:45	20	4	2	18	3	3	5	2
18:50	25	5	0	13	3	5	3	1
18:55	15	6	0	6	6	4	4	2
MAX	26	14	3	18	12	8	12	7
MIN	7	4	0	5	2	1	3	1

SITE: 1

DAY: Thursday

LOCATION: Booth St West / Higher Cambridge St

DATE: 21/11/2019

Note:

Lanes are numbered outwards from the nearside kerb in the direction of travel.

Lane 1 will always be nearest the footway. Queues measured in vehicle numbers.

TIME	ARM A Higher Cambridge St	ARM B Booth St West		ARM C Higher Cambridge St		ARM D Booth St West		
	LANE 1	LANE 1	LANE 2	LANE 1	LANE 2	LANE 1	LANE 2	LANE 3
07:00	12	3	0	2	2	4	5	1
07:05	5	5	0	1	2	3	6	3
07:10	7	2	1	5	2	3	1	2
07:15	7	7	2	1	1	3	9	2
07:20	12	9	2	2	0	5	5	5
07:25	7	4	1	8	1	5	6	1
07:30	7	6	1	10	1	5	7	3
07:35	10	6	2	6	2	6	10	3
07:40	5	4	3	6	3	6	11	2
07:45	13	8	1	2	2	5	9	5
07:50	8	8	1	7	3	9	11	6
07:55	11	6	2	9	1	5	8	2
08:00	9	7	2	6	2	1	6	1
08:05	12	10	1	5	2	9	13	6
08:10	23	8	3	7	8	11	11	2
08:15	24	12	2	9	18	10	10	4
08:20	24	12	4	7	10	15	5	3
08:25	18	15	3	6	12	7	7	4
08:30	2	3	3	8	2	8	6	3
08:35	13	5	2	8	6	4	8	1
08:40	10	7	2	16	5	4	7	2
08:45	17	12	0	9	3	4	9	2
08:50	22	12	0	3	3	5	9	4
08:55	12	8	2	16	3	11	6	2
09:00	26	8	1	16	6	6	5	2
09:05	13	6	1	8	2	6	4	3
09:10	9	11	2	5	2	8	5	3
09:15	12	7	3	11	4	8	5	2
09:20	8	11	2	6	2	7	9	2
09:25	14	7	2	11	3	6	4	2
09:30	22	4	3	16	9	7	4	6
09:35	22	3	3	7	8	7	4	3
09:40	26	7	2	13	4	7	4	6
09:45	26	8	4	16	7	7	5	4
09:50	26	7	4	16	6	6	6	3
09:55	20	6	1	13	7	4	7	5
MAX	26	15	4	16	18	15	13	6
MIN	2	2	0	1	0	1	1	1

TIME	ARM A	ARM B		ARM C		ARM D		
	Higher Cambridge St LANE 1	Booth St West LANE 1	LANE 2	Higher Cambridge St LANE 1	LANE 2	Booth St West LANE 1	LANE 2	LANE 3
16:00	22	14	1	18	10	2	8	1
16:05	20	7	1	12	7	6	7	5
16:10	12	13	2	18	5	7	11	6
16:15	10	7	1	18	8	6	10	7
16:20	7	8	1	18	11	6	7	3
16:25	12	7	0	5	6	5	7	3
16:30	11	5	1	10	4	5	10	7
16:35	15	7	0	18	8	2	9	5
16:40	24	7	0	18	12	7	11	5
16:45	24	4	1	18	8	4	6	2
16:50	13	8	2	18	5	4	12	3
16:55	9	6	0	18	4	6	9	5
17:00	13	11	1	18	5	5	6	5
17:05	16	8	2	15	6	5	11	3
17:10	17	8	1	12	11	4	7	3
17:15	12	12	1	14	11	6	7	5
17:20	17	7	0	5	8	6	7	3
17:25	9	5	0	12	4	3	5	2
17:30	9	7	0	11	6	6	9	6
17:35	16	6	1	7	6	8	5	1
17:40	20	5	1	12	7	7	8	4
17:45	20	12	1	6	8	6	11	6
17:50	18	6	1	11	6	4	7	6
17:55	14	8	3	17	4	6	7	6
18:00	18	6	1	18	3	6	7	2
18:05	18	5	1	12	5	4	5	3
18:10	26	9	0	11	4	6	4	3
18:15	23	10	1	12	4	1	4	3
18:20	26	8	1	8	5	2	3	3
18:25	24	4	1	18	3	3	6	2
18:30	26	6	2	18	2	5	4	3
18:35	26	5	0	18	3	3	4	1
18:40	26	4	1	10	2	4	5	2
18:45	20	4	2	18	3	3	5	2
18:50	25	5	0	13	3	5	3	1
18:55	15	6	0	6	6	4	4	2
MAX	26	14	3	18	12	8	12	7
MIN	7	4	0	5	2	1	3	1

SITE: 2

DAY: Thursday

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Access Rd

DATE: 21/11/2019

Note:

 Lanes are numbered outwards from the nearside kerb in the direction of travel.
 Lane 1 will always be nearest the footway. Queues measured in vehicle numbers.

TIME	ARM A Higher Cambridge St
	LANE 1
07:00	0
07:05	0
07:10	0
07:15	0
07:20	0
07:25	0
07:30	0
07:35	0
07:40	0
07:45	0
07:50	0
07:55	0
08:00	0
08:05	0
08:10	2
08:15	4
08:20	7
08:25	0
08:30	0
08:35	0
08:40	0
08:45	0
08:50	0
08:55	2
09:00	3
09:05	0
09:10	0
09:15	0
09:20	0
09:25	0
09:30	0
09:35	4
09:40	0
09:45	0
09:50	4
09:55	0

MAX	7
MIN	0

ARM B Higher Cambridge St	
LANE 1	LANE 2
0	1
0	0
0	6
0	3
0	0
0	0
0	5
0	0
0	1
0	3
0	7
0	3
0	2
0	12
0	15
0	4
0	4
0	9
0	5
0	3
0	2
0	6
0	8
0	1
0	2
0	5
0	6
0	11
0	12
0	13
0	4
0	7
0	7
0	5

0	15
0	0

ARM C Car Park Access Rd	
LANE 1	LANE 2
0	0
0	0
1	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
1	0
1	1
0	1
1	0
1	1
1	0
0	0
0	1
1	1
0	0
1	1
0	1
1	1
1	1
1	1
1	1

1	1
0	0

TIME	ARM A
	Higher Cambridge St LANE 1
16:00	0
16:05	0
16:10	2
16:15	0
16:20	0
16:25	0
16:30	0
16:35	1
16:40	4
16:45	0
16:50	5
16:55	0
17:00	0
17:05	0
17:10	0
17:15	0
17:20	0
17:25	0
17:30	0
17:35	0
17:40	0
17:45	1
17:50	0
17:55	2
18:00	0
18:05	0
18:10	0
18:15	0
18:20	0
18:25	0
18:30	2
18:35	0
18:40	0
18:45	0
18:50	0
18:55	0

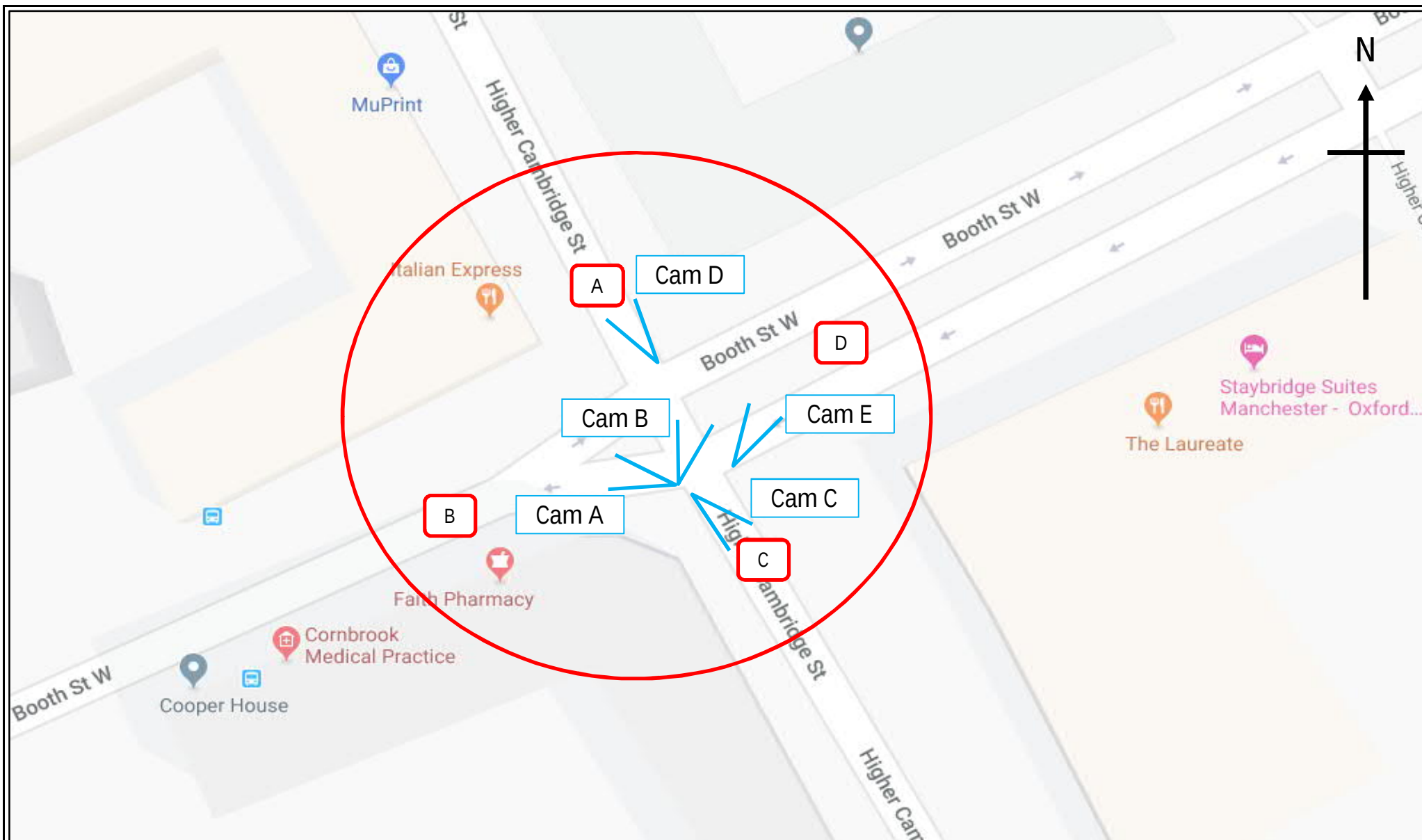
MAX	5
MIN	0

ARM B	
Higher Cambridge St	
LANE 1	LANE 2
0	17
0	2
0	7
0	6
0	8
0	0
0	0
0	17
0	14
0	12
0	8
0	2
0	13
0	10
0	1
0	1
0	0
0	1
0	1
0	4
0	1
0	4
0	0
0	4
0	6
0	2
0	0
0	0
0	1
0	10
0	10
0	16
0	0
0	4
0	10
0	2

0	17
0	0

ARM C	
Car Park Access Rd	
LANE 1	LANE 2
3	5
2	4
4	4
2	3
3	4
2	2
3	2
2	4
1	3
2	5
1	4
2	3
5	7
2	10
3	6
2	4
1	4
1	1
1	2
1	5
2	2
2	3
1	3
3	3
1	1
1	2
1	2
3	2
1	2
1	2
0	3
1	3
2	3
1	5
2	5
1	2

5	10
0	1



	Site / Location:	Site 1, Booth St West / Higher Cambridge St	Project No:	10709	Drawing No:	10709-01	Drawn By:	MN
	Survey Date:	Thursday 21st November 2019	Project Name:	BOOTH STREET				
	Survey Times:	07:00 to 10:00 & 16:00 to 19:00	Drawing Title:	Site Layout and Observed Movements				



SITE: 1

DATE: 21/11/2019 SITE: 1

DATE: 21/11/2019

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

A to D								A to C								A to B								A to A									
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	24	4	0	0	0	0	0	28	38	9	3	0	2	0	2	54	07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	20	6	1	1	0	0	0	28	49	4	0	0	3	0	1	57	07:15	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
07:30	17	3	0	0	0	0	0	20	57	4	0	0	2	1	4	68	07:30	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
07:45	25	4	1	0	0	0	1	31	48	5	3	0	1	2	1	60	07:45	2	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0
08:00	22	3	2	0	0	0	0	27	72	6	0	0	2	0	1	81	08:00	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
08:15	25	0	1	0	0	0	1	27	77	5	2	0	5	0	2	91	08:15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:30	15	2	0	1	0	0	2	20	63	8	0	0	0	1	2	74	08:30	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
08:45	29	3	2	0	0	0	0	34	68	7	0	0	3	0	3	81	08:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
09:00	29	1	2	0	0	0	0	32	68	2	1	0	2	1	2	76	09:00	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
09:15	26	5	0	0	0	0	1	32	54	9	1	0	3	1	1	69	09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	35	3	1	0	0	0	1	40	78	10	0	0	1	0	1	90	09:30	3	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0
09:45	39	5	5	1	0	0	0	50	63	7	2	0	3	0	4	79	09:45	3	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0
P/TOT	306	39	15	3	0	0	6	369	735	76	12	0	27	6	24	880	P/TOT	18	1	4	0	2	0	0	25	0	0	0	0	0	0	0	0

A to D									A to C									A to B									A to A								
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT		
16:00	28	2	1	0	0	0	0	31	67	6	0	0	5	1	5	84	16:00	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	
16:15	24	2	0	0	0	0	0	26	54	3	0	0	1	0	2	60	16:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	
16:30	16	2	0	0	0	1	0	19	57	2	1	0	3	0	5	68	16:30	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	
16:45	34	2	2	0	0	0	0	38	51	4	0	1	2	1	3	62	16:45	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	
H/TOT	102	8	3	0	0	1	0	114	229	15	1	1	11	2	15	274	H/TOT	11	0	0	0	0	0	1	1	13	0	0	0	0	0	0	0	0	0
17:00	19	1	0	0	0	1	1	22	71	1	0	0	3	1	9	85	17:00	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
17:15	30	1	0	0	0	0	0	31	56	3	0	0	2	1	9	71	17:15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	
17:30	23	6	0	0	0	0	0	29	61	4	0	0	1	1	4	71	17:30	7	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	
17:45	37	0	2	0	0	1	0	40	58	3	0	0	3	1	4	69	17:45	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	
18:00	26	2	0	0	0	0	0	28	74	3	0	0	2	0	3	82	18:00	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	
18:15	33	0	0	0	0	0	1	34	82	0	0	1	2	1	2	88	18:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
18:30	39	0	0	0	0	1	0	40	74	1	0	0	1	1	5	82	18:30	2	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	
18:45	37	0	0	0	0	0	0	37	60	5	2	0	4	0	7	78	18:45	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
P/TOT	346	18	5	0	0	4	2	375	765	35	3	2	29	8	58	900	P/TOT	35	0	0	0	1	1	1	1	38	0	0	0	0	0	0	0	0	0



SITE: 1

DATE: 21/11/2019 SITE: 1

DATE: 21/11/2019

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

TIME	B to A							TOT	B to D							TOT	TIME	B to C							TOT	B to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	0	0	0	0	0	0	1	1	27	4	0	0	4	1	2	38	07:00	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
07:15	4	1	0	0	0	0	1	6	38	2	1	0	9	0	1	51	07:15	9	0	0	0	0	0	4	13	0	0	0	0	0	0	0	0
07:30	3	0	0	0	0	0	0	3	33	2	0	0	8	0	2	45	07:30	6	1	0	0	0	0	1	8	0	0	0	0	0	0	0	0
07:45	2	0	0	0	0	0	0	2	56	5	1	0	7	0	4	73	07:45	8	0	0	0	1	0	2	11	0	0	0	0	0	0	0	0
08:00	3	0	0	0	0	0	0	3	53	3	1	0	11	0	3	71	08:00	13	2	0	0	0	0	4	19	0	0	0	0	0	0	0	0
08:15	5	2	0	0	0	0	0	7	59	4	1	1	8	0	6	79	08:15	16	0	0	0	0	0	4	20	0	0	0	0	0	0	0	0
08:30	3	0	1	0	0	0	1	5	45	5	1	0	7	0	4	62	08:30	13	0	1	0	0	0	6	20	0	0	0	0	0	0	0	0
08:45	2	0	0	0	0	0	0	2	50	5	1	1	11	0	5	73	08:45	8	0	0	0	0	0	4	12	0	0	0	0	0	0	0	0
09:00	1	1	0	0	0	0	0	2	49	7	0	0	9	0	3	68	09:00	11	0	0	0	0	0	4	15	0	0	0	0	0	0	0	0
09:15	3	0	1	0	0	0	0	4	40	2	0	0	10	0	3	55	09:15	13	0	0	0	0	0	1	14	0	0	0	0	0	0	0	0
09:30	2	1	0	0	0	0	0	3	31	5	0	0	7	2	1	46	09:30	12	0	0	0	0	0	1	13	0	0	0	0	0	0	0	0
09:45	7	0	0	0	0	0	0	7	42	1	0	0	11	0	7	61	09:45	10	1	0	0	0	0	1	12	0	0	0	0	0	0	0	0
P/TOT	35	5	2	0	0	0	3	45	523	45	6	2	102	3	41	722	P/TOT	122	4	1	0	1	0	32	160	0	0	0	0	0	0	0	0

TIME	B to A							TOT	B to D							TOT	TIME	B to C							TOT	B to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	8	0	0	0	0	0	0	8	57	2	1	1	19	0	2	82	16:00	6	1	0	0	0	0	0	7	0	0	0	0	0	0	0	0
16:15	6	0	0	0	0	0	1	7	49	4	0	0	6	1	1	61	16:15	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
16:30	2	0	0	0	0	0	1	3	56	8	0	1	7	2	3	77	16:30	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
16:45	2	0	0	0	0	0	0	2	44	3	1	0	7	0	2	57	16:45	6	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0
H/TOT	18	0	0	0	0	0	2	20	206	17	2	2	39	3	8	277	H/TOT	17	1	0	0	0	0	1	19	0	0	0	0	0	0	0	0
17:00	5	0	0	0	0	0	0	5	48	6	0	0	8	0	1	63	17:00	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
17:15	5	0	0	0	0	0	0	5	53	3	1	0	6	0	0	63	17:15	3	0	0	0	0	0	2	5	0	0	0	0	0	0	0	0
17:30	2	0	0	0	0	0	0	2	54	3	1	0	5	3	1	67	17:30	3	1	0	0	0	0	2	6	0	0	0	0	0	0	0	0
17:45	3	0	0	0	0	0	0	3	66	2	0	0	9	0	5	82	17:45	13	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0
18:00	2	0	0	0	0	0	0	2	47	3	0	0	8	0	2	60	18:00	3	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0
18:15	2	0	0	0	0	0	0	2	41	1	0	0	4	1	2	49	18:15	5	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0
18:30	4	0	0	0	0	0	0	4	27	0	0	0	6	0	1	34	18:30	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
18:45	3	0	0	0	0	0	0	3	30	1	2	0	7	0	1	41	18:45	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
P/TOT	44	0	0	0	0	0	2	46	572	36	6	2	92	7	21	736	P/TOT	61	3	0	0	0	0	6	70	0	0	0	0	0	0	0	0



SITE: 1

DATE: 21/11/2019 SITE: 1

DATE: 21/11/2019

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

	C to B									C to A										C to D										C to C								
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT					
07:00	0	0	0	0	0	0	0	0	30	2	1	0	3	0	2	38	07:00	9	6	2	1	0	0	0	18	0	0	0	0	0	0	0	0	0				
07:15	0	0	0	0	0	0	1	1	48	5	3	0	1	0	5	62	07:15	5	0	2	1	2	0	0	9	0	0	0	0	0	0	0	0	0				
07:30	3	0	0	0	0	0	0	3	67	3	0	1	2	0	4	77	07:30	11	1	0	0	0	0	1	13	0	0	0	0	0	0	0	0	0				
07:45	4	0	0	0	0	0	1	5	66	6	2	0	4	1	1	80	07:45	15	4	1	0	0	0	0	20	0	0	0	0	0	0	0	0	0				
08:00	1	0	0	0	1	0	0	2	59	3	1	0	1	0	3	67	08:00	27	2	1	0	0	0	0	30	0	0	0	0	0	0	0	0	0				
08:15	13	0	0	0	0	0	0	13	71	3	1	0	6	0	7	88	08:15	37	6	0	0	0	0	0	43	0	0	0	0	0	0	0	0	0				
08:30	4	0	0	1	0	0	0	5	83	2	0	0	3	0	7	95	08:30	14	5	1	0	3	0	0	23	0	0	0	0	0	0	0	0	0				
08:45	5	1	0	0	0	0	2	8	49	1	2	0	3	0	16	71	08:45	18	4	0	0	0	1	0	23	0	0	0	0	0	0	0	0	0				
09:00	4	0	0	0	0	0	1	5	75	1	0	0	2	1	2	81	09:00	13	6	0	0	0	0	2	21	0	0	0	0	0	0	0	0	0				
09:15	2	0	0	0	0	0	0	2	78	6	0	0	1	0	4	89	09:15	13	5	3	0	0	0	2	23	0	0	0	0	0	0	0	0	0				
09:30	3	1	1	0	0	0	0	5	66	4	0	0	5	1	2	78	09:30	20	6	0	0	0	0	2	28	0	0	0	0	0	0	0	0	0				
09:45	12	1	0	0	0	0	0	13	70	4	2	1	1	0	2	80	09:45	22	5	1	0	1	0	3	32	0	0	0	0	0	0	0	0	0				
P/TOT	51	3	1	1	1	0	5	62	762	40	12	2	32	3	55	906	P/TOT	204	50	11	1	6	1	10	283	0	0	0	0	0	0	0	0	0				

C to B									C to A									C to D									C to C								
TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	TIME	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT		
16:00	11	2	0	0	0	0	0	13	80	4	0	0	2	0	1	87	16:00	31	2	0	0	0	0	0	33	0	0	0	0	0	0	0	0		
16:15	15	0	1	0	0	0	2	18	67	6	1	1	3	0	4	82	16:15	38	1	0	0	0	0	1	40	0	0	0	0	0	0	0	0		
16:30	11	0	0	0	0	0	2	13	79	3	0	0	2	0	3	87	16:30	33	0	0	0	0	0	2	35	0	0	0	0	0	0	0	0		
16:45	12	0	0	0	0	0	3	15	72	6	0	0	2	0	3	83	16:45	27	2	0	0	0	0	0	29	0	0	0	0	0	0	0	0		
H/TOT	49	2	1	0	0	0	7	59	298	19	1	1	9	0	11	339	H/TOT	129	5	0	0	0	2	1	137	0	0	0	0	0	0	0	0		
17:00	15	2	0	0	0	0	5	22	69	0	1	0	2	0	2	74	17:00	31	0	0	0	1	0	1	33	0	0	0	0	0	0	0	0		
17:15	2	0	0	0	0	0	4	6	78	4	0	0	0	2	2	86	17:15	27	3	0	0	0	0	0	30	0	0	0	0	0	0	0	0		
17:30	10	1	0	0	0	0	5	16	66	3	0	0	3	0	5	77	17:30	23	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0		
17:45	11	0	0	0	0	0	1	12	78	1	1	0	2	0	2	84	17:45	32	1	1	0	0	1	0	35	0	0	0	0	0	0	0	0		
18:00	6	0	0	0	0	0	2	8	81	2	0	0	1	0	3	87	18:00	26	1	0	0	0	0	0	27	0	0	0	0	0	0	0	0		
18:15	7	1	0	0	0	0	2	10	77	4	1	0	3	0	2	87	18:15	20	0	0	0	1	0	1	22	0	0	0	0	0	0	0	0		
18:30	9	0	0	0	0	0	4	13	99	2	1	0	1	0	2	105	18:30	22	1	0	0	0	1	0	24	0	0	0	0	0	0	0	0		
18:45	3	0	0	0	0	0	2	5	96	2	2	0	2	0	1	103	18:45	23	1	0	1	0	0	0	25	0	0	0	0	0	0	0	0		
P/TOT	112	6	1	0	0	0	32	151	942	37	7	1	23	2	30	1042	P/TOT	333	12	1	1	2	4	3	356	0	0	0	0	0	0	0	0		



SITE: 1

DATE: 21/11/2019 SITE: 1

DATE: 21/11/2019

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

LOCATION: Booth St West / Higher Cambridge St

DAY: Thursday

TIME	D to C							TOT	D to B							TOT	TIME	D to A							TOT	D to D							TOT	
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
07:00	23	4	3	0	0	0	1	31	32	1	0	0	7	0	1	41	07:00	15	0	0	0	0	0	2	17	0	0	0	0	0	0	0	0	0
07:15	27	6	1	0	2	0	0	36	47	4	2	0	4	0	0	57	07:15	12	4	1	0	0	0	0	17	0	0	0	0	0	0	0	0	0
07:30	30	3	2	1	0	1	1	38	46	5	2	0	8	0	2	63	07:30	11	2	1	0	0	0	1	15	0	0	0	0	0	0	0	0	0
07:45	51	2	2	0	1	1	1	58	59	2	1	0	7	1	1	71	07:45	13	0	2	0	0	0	0	15	0	0	0	0	0	0	0	0	0
08:00	60	4	2	0	1	0	0	67	61	7	0	0	9	0	0	77	08:00	16	1	1	0	1	2	0	21	0	0	0	0	0	0	0	0	0
08:15	70	8	0	0	0	0	0	78	43	4	2	0	8	0	3	60	08:15	15	3	3	2	0	0	0	23	0	0	0	0	0	0	0	0	0
08:30	46	5	0	0	0	0	2	53	42	8	1	0	11	0	4	66	08:30	16	2	0	0	0	1	0	19	0	0	0	0	0	0	0	0	0
08:45	53	3	1	0	0	1	0	58	54	4	0	0	6	0	2	66	08:45	19	2	0	1	0	0	0	22	0	0	0	0	0	0	0	0	0
09:00	48	7	2	1	1	0	0	59	43	6	2	0	6	1	3	61	09:00	22	3	0	1	0	0	0	26	1	0	0	0	0	0	0	1	1
09:15	57	4	0	0	0	0	0	61	43	3	1	0	10	0	1	58	09:15	23	3	0	0	0	2	1	29	0	0	0	0	0	0	0	0	0
09:30	59	6	2	0	0	1	0	68	35	3	1	0	8	1	2	50	09:30	22	3	0	2	0	1	0	28	0	0	0	0	0	0	0	0	0
09:45	38	6	1	0	0	0	0	45	35	4	1	0	8	0	2	50	09:45	32	3	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0
P/TOT	562	58	16	2	5	4	5	652	540	51	13	0	92	3	21	720	P/TOT	216	26	8	6	1	6	4	267	1	0	0	0	0	0	0	0	1

TIME	D to C							TOT	D to B							TOT	TIME	D to A							TOT	D to D							TOT	
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL			CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		
16:00	55	1	1	0	1	0	1	59	75	6	1	0	7	3	4	96	16:00	18	3	1	0	0	0	1	23	0	0	0	0	0	0	0	0	
16:15	54	2	0	0	1	0	1	58	69	3	1	0	7	0	4	84	16:15	30	4	0	1	0	0	2	37	0	0	0	0	0	0	0	0	
16:30	44	5	1	0	0	1	1	52	84	2	1	1	6	0	3	97	16:30	44	2	0	0	0	0	1	47	0	0	0	0	0	0	0	0	
16:45	54	1	1	0	0	0	1	57	72	4	0	0	7	1	3	87	16:45	36	0	0	0	1	1	1	39	0	0	0	0	0	0	0	0	
H/TOT	207	9	3	0	2	1	4	226	300	15	3	1	27	4	14	364	H/TOT	128	9	1	1	1	1	5	146	0	0	0	0	0	0	0	0	
17:00	45	2	1	0	0	0	0	48	73	4	0	0	7	0	3	87	17:00	32	0	1	0	0	0	1	34	0	0	0	0	0	0	0	0	
17:15	51	3	0	0	0	0	2	56	64	5	1	0	8	0	2	80	17:15	24	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	
17:30	59	0	0	0	1	0	1	61	71	3	1	2	7	0	5	89	17:30	38	1	0	1	1	0	0	41	0	0	0	0	0	0	0	0	
17:45	50	0	0	0	4	1	1	56	56	5	0	0	6	0	5	72	17:45	37	0	0	0	0	0	0	37	0	0	0	0	0	0	0	0	
18:00	51	2	0	0	0	0	1	54	52	1	0	0	5	0	5	63	18:00	35	2	0	0	1	0	0	38	0	0	0	0	0	0	0	0	
18:15	31	1	0	1	0	0	1	34	45	1	1	0	7	0	2	56	18:15	20	1	0	0	0	0	2	23	0	0	0	0	0	0	0	0	
18:30	37	2	0	0	0	0	1	40	39	2	1	0	7	0	3	52	18:30	25	1	0	0	1	1	2	30	0	0	0	0	0	0	0	0	
18:45	25	0	0	0	1	0	1	27	44	1	0	0	7	0	1	53	18:45	29	0	0	0	0	0	1	30	0	0	0	0	0	0	0	0	
P/TOT	556	19	4	1	8	2	12	602	744	37	7	3	81	4	40	916	P/TOT	368	14	2	2	4	2	11	403	0	0	0	0	0	0	0	0	0



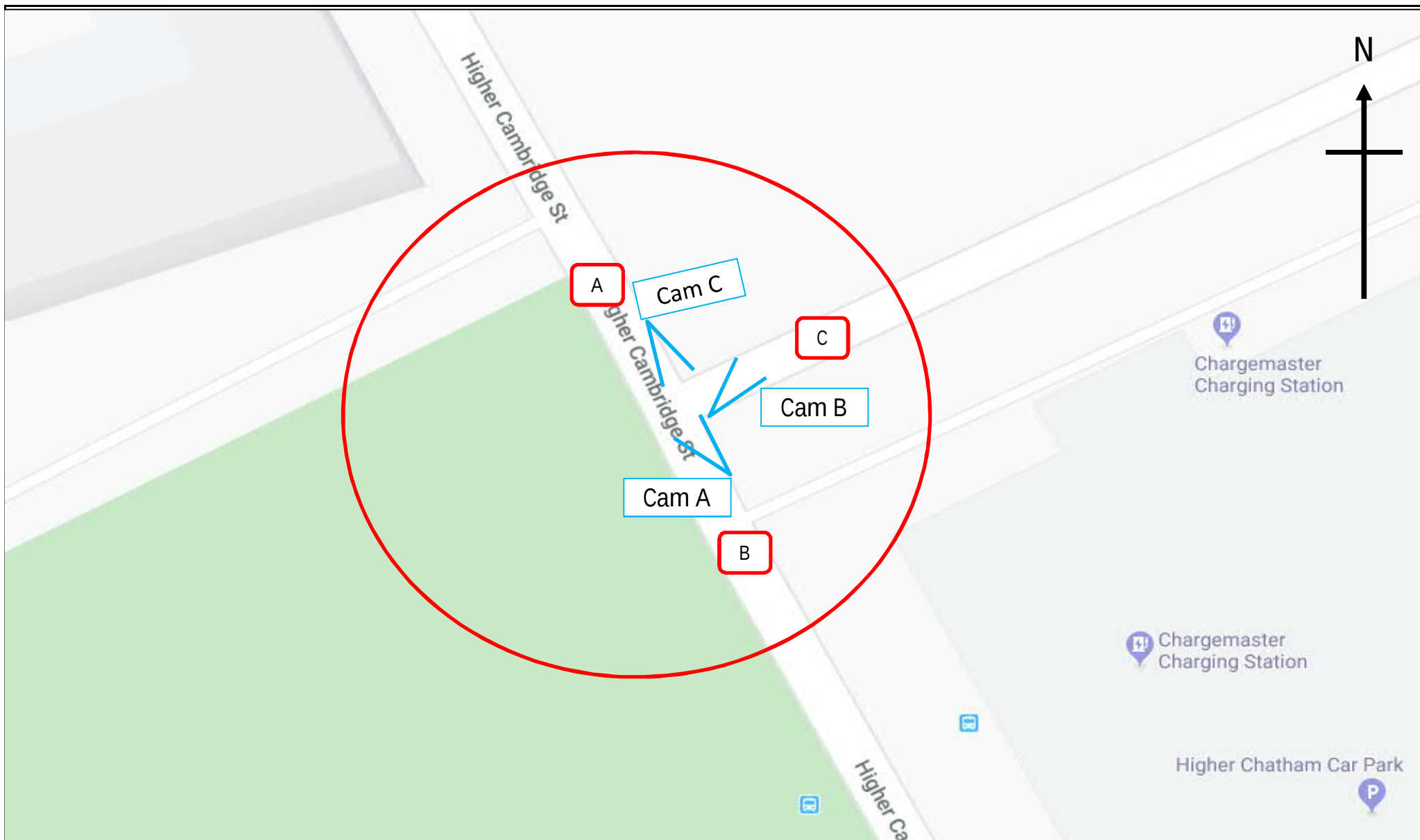
SITE: 1

DATE: 21/11/2019

LOCATION: Booth St West / Higher Cambridge St

TIME	JUNCTION TOTAL							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	201	30	9	1	16	1	11	269
07:15	260	33	11	1	21	0	13	339
07:30	286	24	5	2	20	2	16	355
07:45	349	28	14	0	21	5	12	429
08:00	387	31	8	0	28	2	11	467
08:15	433	35	10	3	27	0	23	531
08:30	345	37	5	2	24	2	28	443
08:45	355	30	7	2	23	2	32	451
09:00	368	34	7	2	20	3	17	451
09:15	352	37	6	0	24	3	14	436
09:30	366	42	6	2	21	6	10	453
09:45	373	37	13	2	24	0	19	468
P/TOT	4075	398	101	17	269	26	206	5092

TIME	JUNCTION TOTAL							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	437	29	5	1	34	4	15	525
16:15	411	25	3	2	18	1	18	478
16:30	435	24	3	2	18	6	19	507
16:45	411	22	4	1	19	4	17	478
H/TOT	1694	100	15	6	89	15	69	1988
17:00	416	16	3	0	21	2	23	481
17:15	395	22	2	0	16	3	21	459
17:30	417	22	2	3	18	4	23	489
17:45	445	12	4	0	24	4	18	507
18:00	408	16	0	0	17	0	17	458
18:15	364	10	2	2	17	2	15	412
18:30	382	9	2	0	17	4	18	432
18:45	357	10	6	1	21	0	14	409
P/TOT	4878	217	36	12	240	34	218	5635



	Site / Location:	Site 2, Higher Cambridge St / Booth St West Multi-Storey Car Park Sccess Rd	Project No:	10709	Drawing No:	10709-02	Drawn By:	MN
	Survey Date:	Thursday 21st November 2019	Project Name:	BOOTH STREET				
	Survey Times:	07:00 to 10:00 & 16:00 to 19:00	Drawing Title:	Site Layout and Observed Movements				



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT

SITE: 2

DATE: 21/11/2019

SITE: 2

DATE: 21/11/2019

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Sccess Rd

DAY: Thursday

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Scc DAY: Thursday

TIME	A to C							TOT	A to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	11	3	0	0	0	0	0	14	53	9	6	0	2	0	1	71
07:15	25	2	0	0	0	0	5	32	60	7	1	0	5	0	1	74
07:30	26	1	2	0	0	0	2	31	65	8	0	1	2	2	4	82
07:45	31	0	2	0	0	0	1	34	75	7	3	0	3	3	3	94
08:00	35	3	0	0	0	0	2	40	108	9	2	0	3	0	3	125
08:15	43	2	0	0	0	0	5	50	125	11	2	0	4	0	1	143
08:30	47	6	0	0	0	0	7	60	69	7	0	0	1	0	3	80
08:45	42	2	0	0	0	0	1	45	91	8	2	0	3	2	6	112
09:00	43	3	1	0	0	0	3	50	78	6	2	1	3	1	2	93
09:15	55	6	0	0	0	0	1	62	72	7	1	0	2	1	1	84
09:30	64	2	1	0	0	0	2	69	80	14	1	0	2	1	2	100
09:45	38	1	0	0	0	0	0	39	76	13	3	0	3	0	4	99
P/TOT	460	31	6	0	0	0	29	526	952	106	23	2	33	10	31	1157

TIME	A to A							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0
08:15	1	0	0	0	0	0	0	1
08:30	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0
09:15	1	0	0	0	0	0	0	1
09:30	1	0	0	0	0	0	0	1
09:45	0	0	0	0	0	0	0	0
P/TOT	3	0	0	0	0	0	0	3

TIME	A to C							TOT	A to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	6	1	0	0	0	0	0	7	123	7	1	0	6	1	7	145
16:15	7	0	0	0	0	0	0	7	102	5	0	0	2	0	3	112
16:30	9	1	0	0	0	0	0	10	97	5	2	0	3	1	6	114
16:45	12	0	0	0	0	0	0	12	102	4	1	1	2	1	5	116
17:00	5	0	0	0	0	1	0	6	116	4	1	0	3	0	9	133
17:15	2	1	0	0	0	0	0	3	110	5	0	0	2	1	12	130
17:30	5	0	0	0	0	0	0	5	114	6	0	0	2	1	8	131
17:45	7	1	0	0	0	0	0	8	114	2	0	0	7	2	5	130
18:00	8	1	0	0	0	0	0	9	123	3	0	0	2	0	5	133
18:15	5	0	0	0	0	0	0	5	110	3	0	2	2	1	3	121
18:30	7	0	0	0	0	0	0	7	105	3	0	0	1	1	6	116
18:45	3	0	0	0	0	0	0	3	93	5	2	0	5	0	7	112
P/TOT	76	5	0	0	0	1	0	82	1309	52	7	3	37	9	76	1493

TIME	A to A							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0
P/TOT	0	0	0	0	0	0	0	0



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT

SITE: 2

DATE: 21/11/2019

SITE: 2

DATE: 21/11/2019

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Sccess Rd

DAY: Thursday

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Scc DAY: Thursday

TIME	B to A							TOT	B to C							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	39	7	3	1	4	0	1	55	7	2	1	0	0	0	0	10
07:15	50	5	5	0	2	0	6	68	12	0	1	0	0	0	0	13
07:30	82	4	0	1	2	0	5	94	15	0	0	0	0	0	0	15
07:45	85	10	3	0	4	1	1	104	24	1	1	0	0	0	0	26
08:00	89	6	2	0	4	0	3	104	31	0	0	0	0	0	0	31
08:15	117	6	1	0	4	0	7	135	23	1	0	0	0	0	0	24
08:30	101	10	1	1	6	0	7	126	47	1	0	0	0	0	1	49
08:45	73	5	2	0	3	1	19	103	35	1	0	0	0	0	1	37
09:00	81	4	1	0	2	1	5	94	23	0	0	0	0	0	2	25
09:15	93	10	2	0	2	0	5	112	39	0	0	0	0	0	0	39
09:30	80	12	1	0	4	1	5	103	29	1	0	0	0	0	0	30
09:45	101	9	3	1	2	0	4	120	25	1	0	0	0	0	3	29
P/TOT	991	88	24	4	39	4	68	1218	310	8	3	0	0	0	7	328

TIME	B to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0
08:15	1	0	0	0	0	0	0	1
08:30	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0
P/TOT	1	0	0	0	0	0	0	1

TIME	B to A							TOT	B to C							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	80	5	0	0	1	0	2	88	7	0	0	0	0	0	1	8
16:15	85	7	2	1	3	0	6	104	4	1	0	0	0	0	0	5
16:30	115	3	0	0	2	2	5	127	3	0	0	0	0	0	0	3
16:45	79	6	0	0	2	0	4	91	5	0	1	0	0	0	0	6
17:00	72	3	1	0	3	1	8	88	1	0	0	0	0	0	0	1
17:15	77	5	0	0	0	1	5	88	2	0	0	0	0	0	1	3
17:30	76	4	0	0	4	1	6	91	5	0	0	0	0	0	0	5
17:45	94	1	2	0	2	0	2	101	2	0	0	0	0	0	0	2
18:00	95	4	0	0	0	0	4	103	7	0	0	0	0	0	1	8
18:15	88	4	1	0	5	0	4	102	5	0	0	0	0	0	0	5
18:30	104	4	1	0	0	1	5	115	5	0	0	0	0	0	0	5
18:45	99	3	2	1	2		1	108	5	0	0	0	0	0	1	6
P/TOT	1064	49	9	2	24	6	52	1206	51	1	1	0	0	0	4	57

TIME	B to B							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	1	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0
18:15	1	0	0	0	0	0	0	1
18:30	0	0	0	0	0	0	0	0
18:45	1	0	0	0	0	0	0	1
P/TOT	3	0	0	0	0	0	0	3



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT

SITE: 2

DATE: 21/11/2019

SITE: 2

DATE: 21/11/2019

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Sccess Rd

DAY: Thursday

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Scc DAY: Thursday

TIME	C to B							TOT	C to A							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:00	7	1	0	0	0	0	0	8	2	1	0	0	0	0	0	3
08:15	5	0	0	0	0	0	0	5	1	0	0	0	0	0	0	1
08:30	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1
08:45	1	1	0	0	0	0	0	2	3	0	0	0	0	0	0	3
09:00	1	0	0	0	0	0	0	1	5	2	0	0	0	0	0	7
09:15	3	0	0	0	0	0	0	3	5	0	0	0	0	0	0	5
09:30	7	0	0	0	0	0	0	7	5	1	0	0	0	0	0	6
09:45	7	0	0	0	0	0	0	7	5	0	0	0	0	0	0	5
P/TOT	31	3	0	0	0	0	0	34	28	5	0	0	0	0	1	34

TIME	C to C							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0
P/TOT	0	0	0	0	0	0	0	0

TIME	C to B							TOT	C to A							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL		CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	45	2	0	0	0	0	0	47	39	1	0	0	0	0	0	40
16:15	40	0	0	0	0	0	0	40	29	0	0	0	0	0	1	30
16:30	32	0	0	0	0	0	0	32	23	0	0	0	0	0	1	24
16:45	30	0	0	0	0	0	1	31	26	1	0	0	0	0	2	29
17:00	42	1	0	0	0	1	1	45	40	0	0	0	0	0	1	41
17:15	26	0	0	0	0	0	0	26	25	1	0	0	0	0	0	26
17:30	17	0	0	0	0	0	1	18	21	0	0	0	0	0	3	24
17:45	20	0	0	0	0	0	1	21	24	1	0	0	0	0	0	25
18:00	8	0	0	0	0	0	0	8	16	0	0	0	0	0	1	17
18:15	18	0	0	0	0	0	1	19	17	0	0	0	0	0	1	18
18:30	14	0	0	0	0	0	1	15	21	0	0	0	0	0	1	22
18:45	12	0	0	0	0	0	0	12	23	0	0	0	0	0	2	25
P/TOT	304	3	0	0	0	1	6	314	304	4	0	0	0	0	13	321

TIME	C to C							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0
17:45	1	0	0	0	0	0	0	1
18:00	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0
P/TOT	1	0	0	0	0	0	0	1



10709 / BOOTH STREET
NOVEMBER 2019
CLASSIFIED TURNING COUNT

SITE: 2

DATE: 21/11/2019

LOCATION: Higher Cambridge St / Booth St West Multi-Storey Car Park Access Rd

DAY: Thursday

TIME	JUNCTION TOTAL							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
07:00	110	22	10	1	6	0	2	151
07:15	147	14	7	0	7	0	12	187
07:30	189	13	2	2	4	2	11	223
07:45	215	18	9	0	7	4	6	259
08:00	272	20	4	0	7	0	8	311
08:15	316	20	3	0	8	0	13	360
08:30	265	25	1	1	7	0	18	317
08:45	245	17	4	0	6	3	27	302
09:00	231	15	4	1	5	2	12	270
09:15	268	23	3	0	4	1	7	306
09:30	266	30	3	0	6	2	9	316
09:45	252	24	6	1	5	0	11	299
P/TOT	2776	241	56	6	72	14	136	3301

TIME	JUNCTION TOTAL							TOT
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	
16:00	300	16	1	0	7	1	10	335
16:15	267	13	2	1	5	0	10	298
16:30	279	9	2	0	5	3	12	310
16:45	255	11	2	1	4	1	12	286
17:00	276	8	2	0	6	3	19	314
17:15	242	12	0	0	2	2	18	276
17:30	238	10	0	0	6	2	18	274
17:45	262	5	2	0	9	2	8	288
18:00	257	8	0	0	2	0	11	278
18:15	244	7	1	2	7	1	9	271
18:30	256	7	1	0	1	2	13	280
18:45	236	8	4	1	7	0	11	267
P/TOT	3112	114	17	5	61	17	151	3477

Appendix D - Traffic Flow Diagram

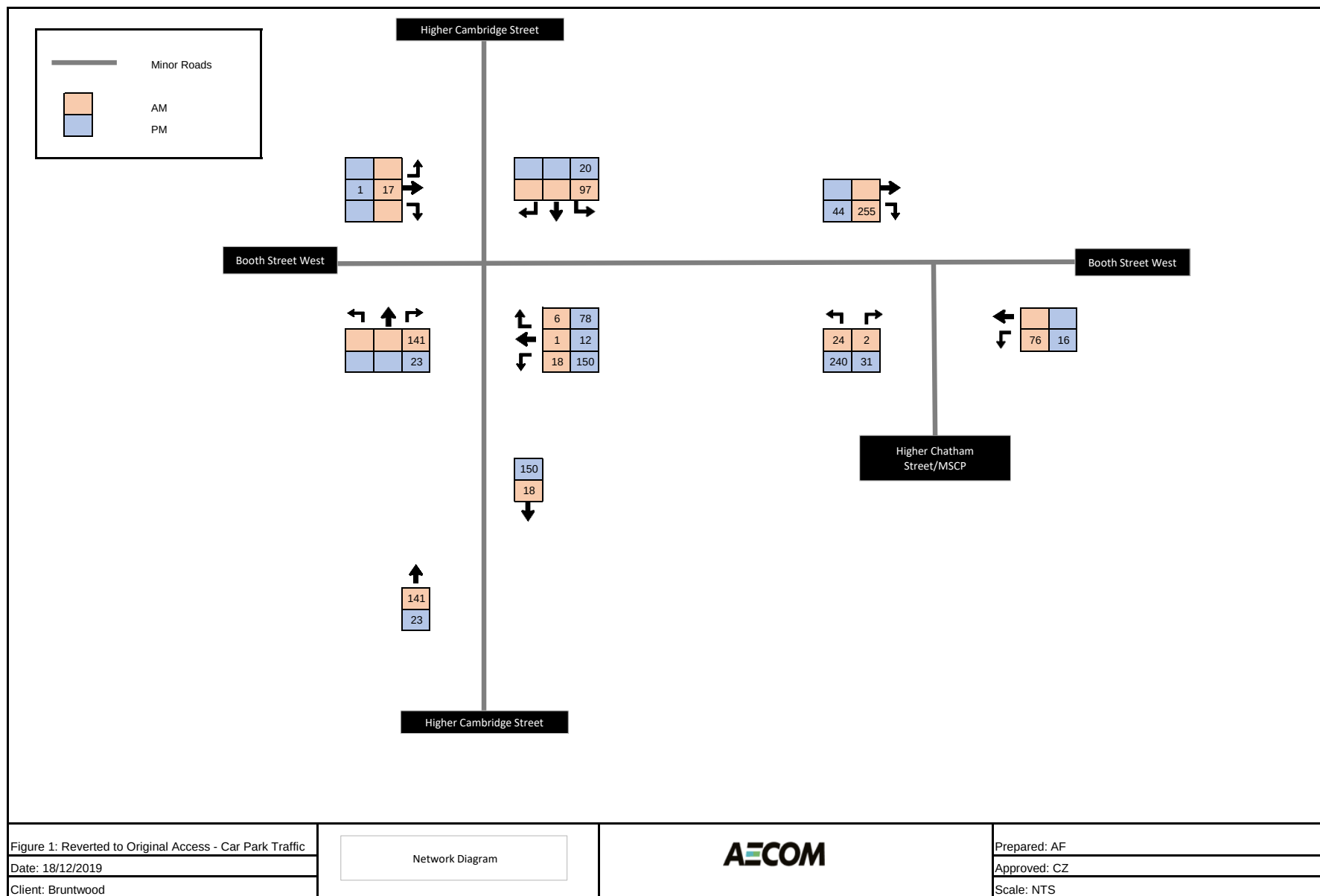
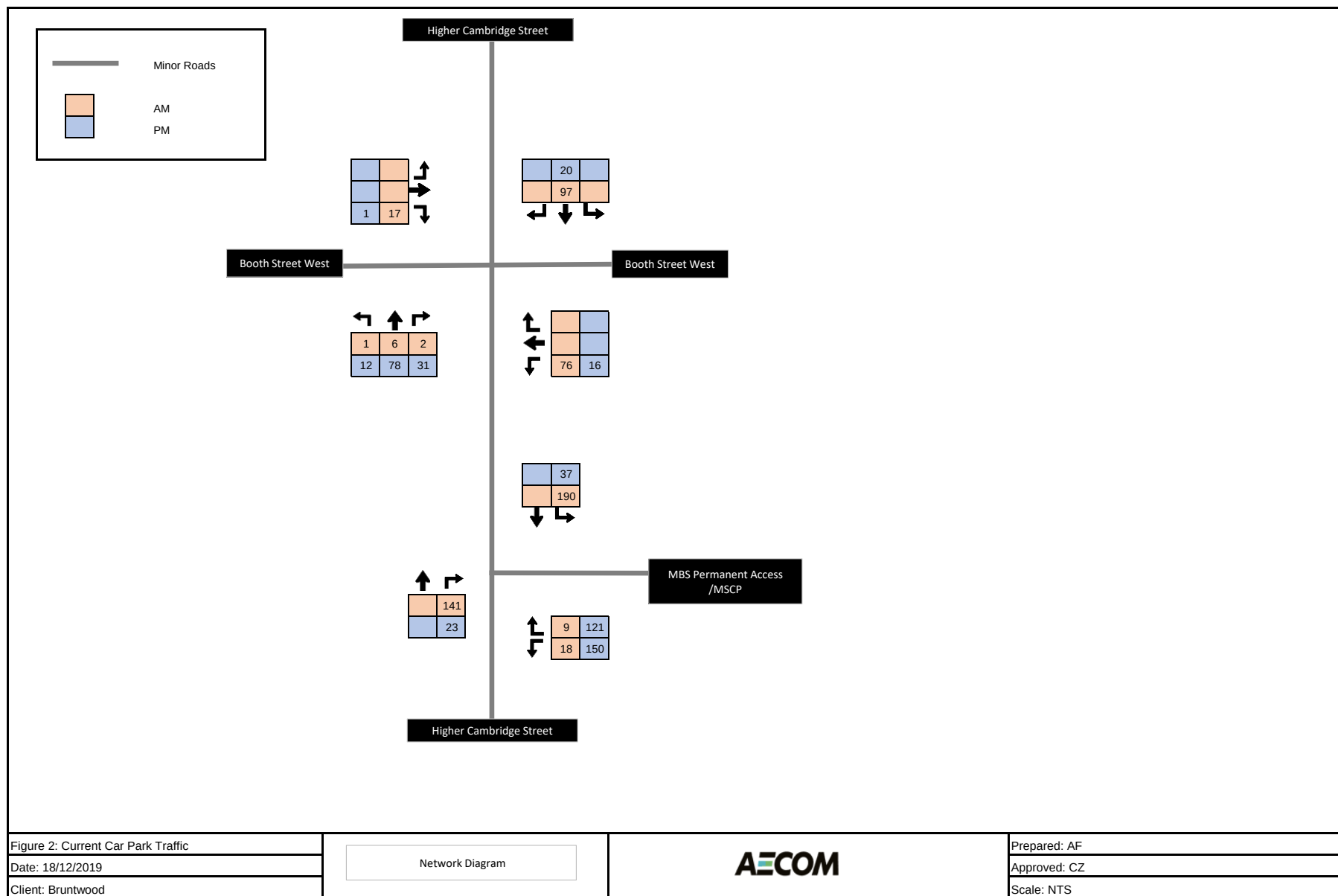


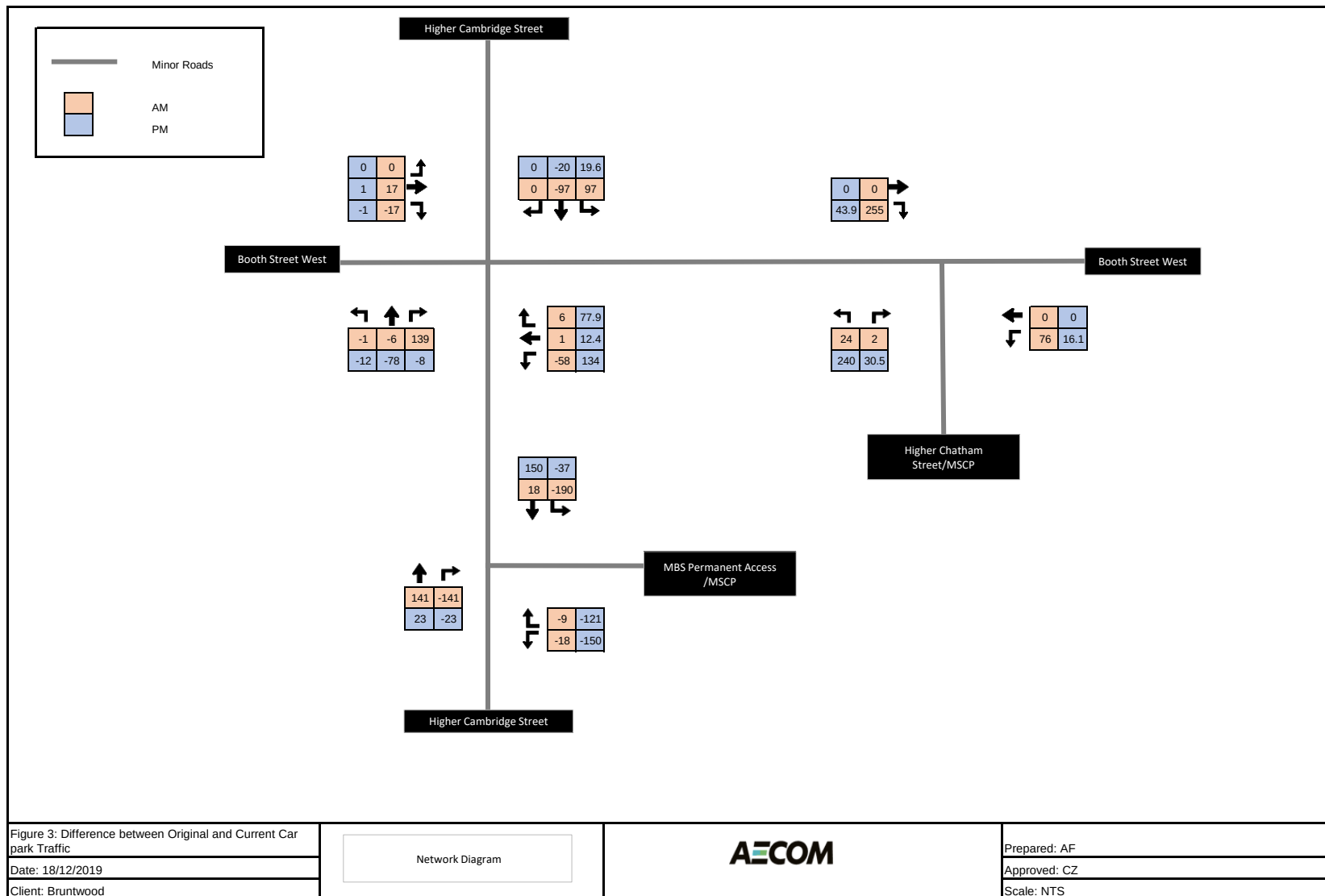
Figure 1: Reverted to Original Access - Car Park Traffic
 Date: 18/12/2019
 Client: Bruntwood

Network Diagram



Prepared: AF
 Approved: CZ
 Scale: NTS





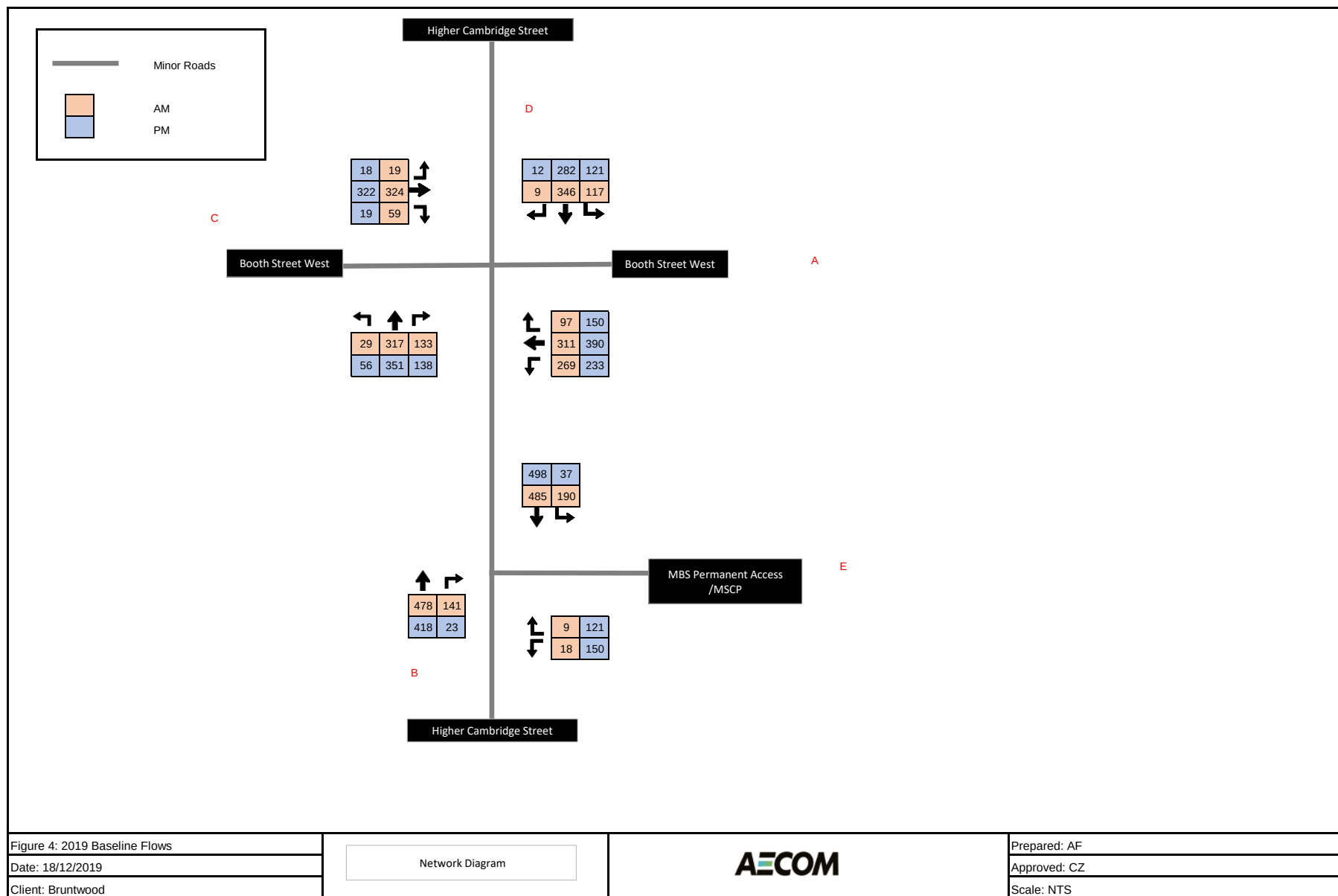


Figure 4: 2019 Baseline Flows
Date: 18/12/2019
Client: Bruntwood

Network Diagram



Prepared: AF
Approved: CZ
Scale: NTS

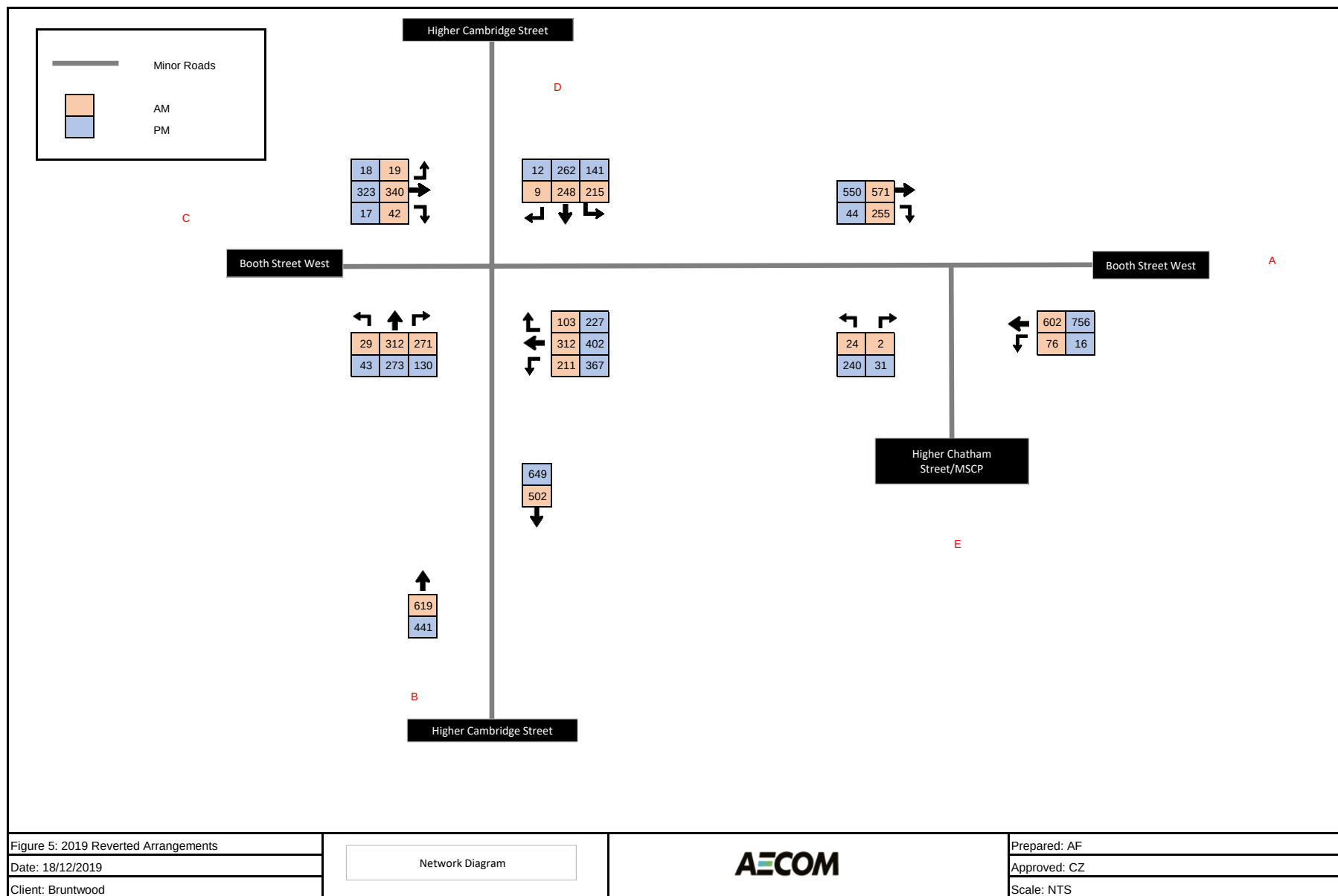


Figure 5: 2019 Reverted Arrangements

Date: 18/12/2019

Client: Bruntwood

Network Diagram

AECOM

Prepared: AF

Approved: CZ

Scale: NTS

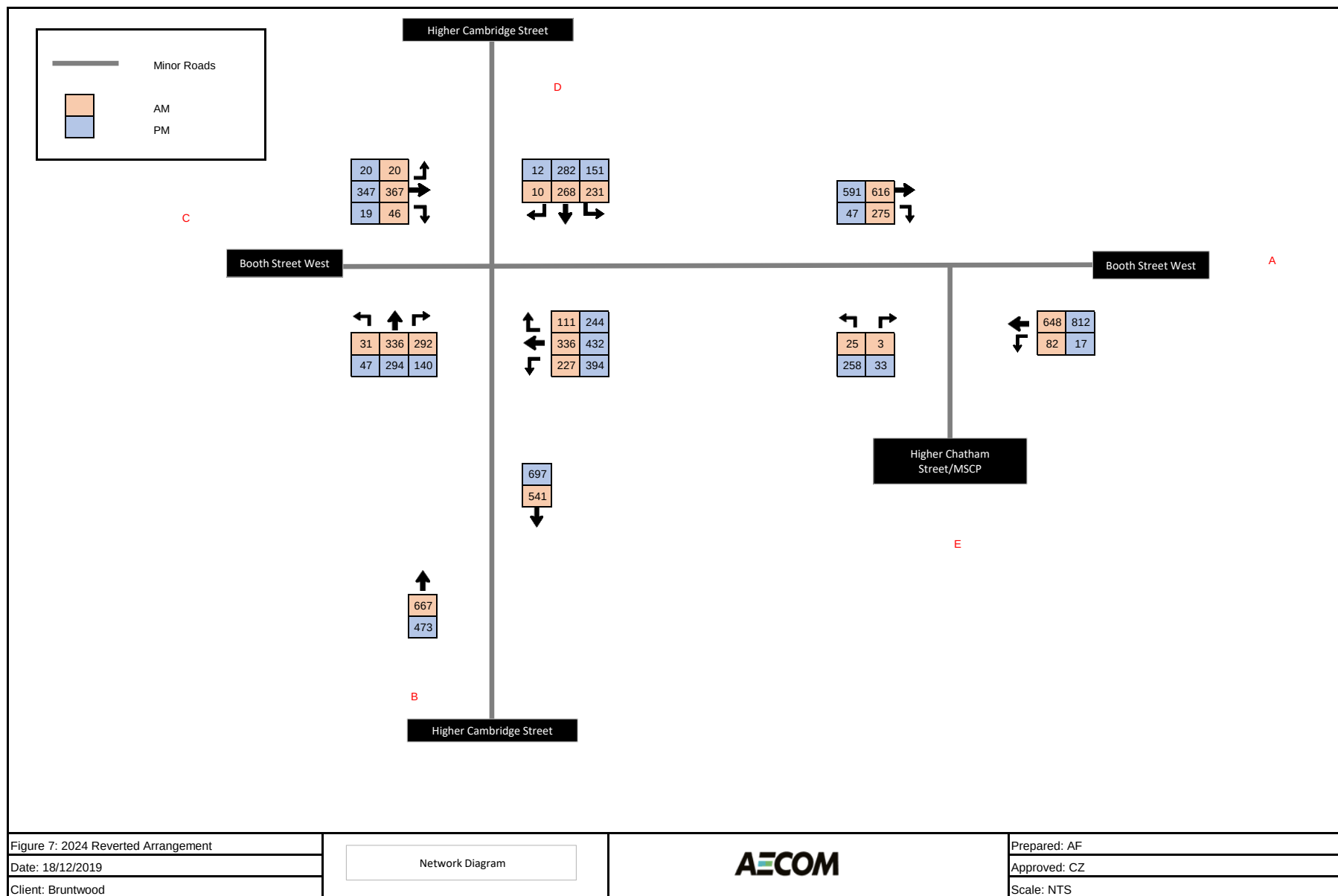


Figure 7: 2024 Reverted Arrangement

Date: 18/12/2019

Client: Bruntwood

Network Diagram



Prepared: AF

Approved: CZ

Scale: NTS

Appendix E - Model Outputs

User and Project Details

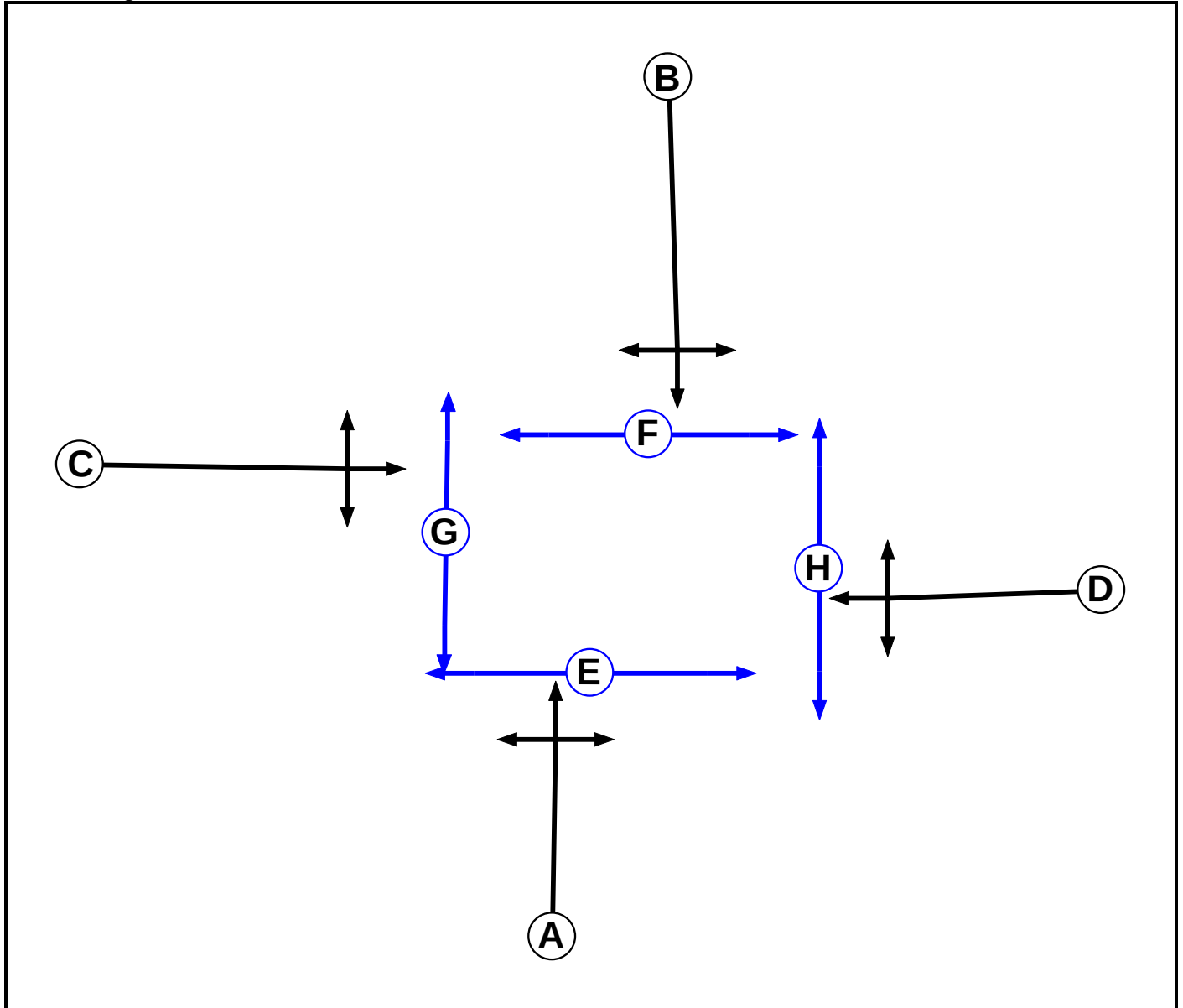
Project:	
Title:	
Location:	
File name:	HCS_Booth St_Access Jnt_v0.2.lsg3x
Author:	
Company:	
Address:	
Notes:	

Lane Input Data

Junction: Booth St West/Higher Cambridge												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Booth Street Westbound)	U	D	2	3	60.0	Geom	-	3.57	0.00	Y	Arm 6 Left	11.00
1/2 (Booth Street Westbound)	U	D	2	3	21.7	Geom	-	3.07	0.00	N	Arm 8 Ahead	Inf
1/3 (Booth Street Westbound)	O	D	2	3	19.8	Geom	-	3.06	0.00	N	Arm 7 Right	12.00
2/1 (Higher Cambridge Street Northbound)	U	A	2	3	12.2	Geom	-	4.18	0.00	Y	Arm 7 Ahead Arm 8 Left	Inf 9.50
2/2 (Higher Cambridge Street Northbound)	O	A	2	3	7.0	Geom	-	3.00	0.00	N	Arm 5 Right	12.00
3/1 (Booth Street Eastbound)	U	C	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Ahead Arm 7 Left	Inf 10.00
3/2 (Booth Street Eastbound)	O	C	2	3	4.9	Geom	-	3.00	0.00	N	Arm 6 Right	10.00
4/1 (Higher Cambridge Street Southbound)	O	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 8 Right	9.00 Inf 11.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	13.9	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (MSCP Egress)	O		2	3	8.9	Geom	-	3.07	0.00	Y	Arm 12 Left	8.00
9/2 (MSCP Egress)	O		2	3	60.0	Geom	-	3.00	0.00	N	Arm 2 Right	8.00
10/1 (MSCP Access)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (Higher	O		2	3	60.0	Geom	-	3.00	0.00	Y	Arm 2 Ahead	Inf

Cambridge Street South)											Arm 10 Right	5.00
12/1 (Higher Cambridge Street South Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Phase Diagram



Phase Input Data

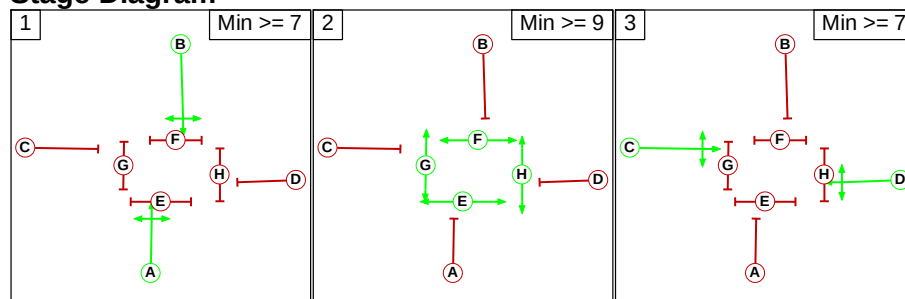
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		6	6
G	Pedestrian		10	10
H	Pedestrian		11	11

Phase Intergreens Matrix

Terminating Phase	Starting Phase								
		A	B	C	D	E	F	G	H
	A		-	7	7	6	9	10	11
	B	-		7	7	9	5	11	10
	C	7	7		-	11	9	5	9
	D	7	7	-		9	11	9	5
	E	10	10	10	10		-	-	-
	F	9	9	9	9	-		-	-
	G	7	7	7	7	-	-		-
	H	8	8	8	8	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	E F G H
3	C D

Stage Diagram

Give-Way Lane Input Data

Junction: Booth St West/Higher Cambridge											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/3 (Booth Street Westbound)	7/1 (Right)	1439	0	3/1	1.09	All	2.00	-	0.50	2	2.00
				3/2	1.09	None					
2/2 (Higher Cambridge Street Northbound)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00
3/2 (Booth Street Eastbound)	6/1 (Right)	1439	0	1/2	1.09	All	2.00	-	0.50	2	2.00
				1/1	1.09	All					
4/1 (Higher Cambridge Street Southbound)	8/1 (Right)	1439	0	2/2	1.09	None	2.00	2.00	0.50	2	2.00
9/1 (MSCP Egress)	12/1 (Left)	715	0	6/1	0.22	All	-	-	-	-	-
9/2 (MSCP Egress)	2/1 (Right)	600	0	6/1	0.22	To 10/1 (Left)	-	-	-	-	-
				11/1	0.19	All					
11/1 (Higher Cambridge Street South)	10/1 (Right)	850	0	6/1	0.35	All	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 AM Peak '	08:00	09:00	01:00	
2: '2019 PM Peak '	17:00	18:00	01:00	
3: '2024 AM Peak'	08:00	09:00	01:00	
4: '2024 PM Peak '	17:00	18:00	01:00	

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	76.5%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	76.5%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	21	-	269	1735	424	63.4%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	21	-	408	2062:1832	655	62.3%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	27	-	487	2006:1827	662	73.6%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	21	-	402	2048:1787	544	73.9%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	27	-	471	1978	615	76.5%
5/1		U	N/A	N/A	-		-	-	-	575	Inf	Inf	0.0%
6/1	Left Ahead	U	N/A	N/A	-		-	-	-	673	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	439	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	350	Inf	Inf	0.0%
9/2+9/1	MSCP Egress Right Left	O	N/A	N/A	-		-	-	-	27	1731:1619	850	3.2%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	331	Inf	Inf	0.0%
11/1	Higher Cambridge Street South Ahead Right	O	N/A	N/A	-		-	-	-	619	1793	1201	51.6%
12/1	Higher Cambridge Street South Exit	U	N/A	N/A	-		-	-	-	501	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%

TA Linsig Report

AT Linsig Report													
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	435	9	50	16.3	6.6	1.1	24.0	-	-	-	-
Booth St West/Higher Cambridge	-	-	435	9	50	16.3	6.6	1.1	24.0	-	-	-	-
1/1	269	269	-	-	-	2.3	0.9	-	3.1	41.9	6.0	0.9	6.8
1/2+1/3	408	408	94	0	3	3.4	0.8	0.4	4.5	40.1	6.9	0.8	7.7
2/1+2/2	487	487	87	0	47	3.6	1.4	0.5	5.5	40.7	7.7	1.4	9.0
3/1+3/2	402	402	59	0	0	3.4	1.4	0.2	5.0	44.5	8.3	1.4	9.7
4/1	471	471	0	9	0	3.7	1.6	0.0	5.3	40.2	10.6	1.6	12.2
5/1	575	575	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	673	673	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	439	439	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	350	350	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	27	27	54	0	0	0.0	0.0	-	0.0	2.2	0.0	0.0	0.0
10/1	331	331	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	619	619	141	0	0	0.0	0.5	-	0.5	3.1	0.0	0.5	0.5
12/1	501	501	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1		PRC for Signalled Lanes (%):			17.6	Total Delay for Signalled Lanes (pcuHr):			23.41	Cycle Time (s):		90	
		PRC Over All Lanes (%):			17.6	Total Delay Over All Lanes(pcuHr):			23.96				

Scenario 2: '2019 PM Peak ' (FG2: '2019 PM Peak ', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	79.7%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	79.7%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	22	-	233	1735	443	52.5%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	22	-	540	2062:1832	695	77.7%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	26	-	538	1990:1827	675	79.7%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	22	-	358	2049:1787	548	65.4%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	26	-	414	1962	589	70.3%
5/1		U	N/A	N/A	-		-	-	-	579	Inf	Inf	0.0%
6/1	Left Ahead	U	N/A	N/A	-		-	-	-	532	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	515	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	457	Inf	Inf	0.0%
9/2+9/1	MSCP Egress Right Left	O	N/A	N/A	-		-	-	-	271	1731:1619	1106	24.5%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	59	Inf	Inf	0.0%
11/1	Higher Cambridge Street South Ahead Right	O	N/A	N/A	-		-	-	-	440	1885	1692	26.0%
12/1	Higher Cambridge Street South Exit	U	N/A	N/A	-		-	-	-	646	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%

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Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	806	12	63	16.9	6.6	0.9	24.4	-	-	-	-
Booth St West/Higher Cambridge	-	-	806	12	63	16.9	6.6	0.9	24.4	-	-	-	-
1/1	233	233	-	-	-	1.9	0.6	-	2.4	37.3	5.0	0.6	5.5
1/2+1/3	540	540	112	0	38	4.7	1.7	0.4	6.8	45.2	8.9	1.7	10.6
2/1+2/2	538	538	111	0	25	4.2	1.9	0.5	6.6	43.9	9.7	1.9	11.6
3/1+3/2	358	358	18	0	0	3.0	0.9	0.1	4.0	39.8	7.6	0.9	8.5
4/1	414	414	0	12	0	3.2	1.2	0.0	4.4	38.1	9.1	1.2	10.3
5/1	579	579	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	532	532	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	515	515	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	457	457	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	271	271	542	0	0	0.0	0.2	-	0.2	2.2	0.0	0.2	0.2
10/1	59	59	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	440	440	23	0	0	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
12/1	646	646	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): 12.9 Total Delay for Signalled Lanes (pcuHr): 24.09 Cycle Time (s): 90 PRC Over All Lanes (%): 12.9 Total Delay Over All Lanes(pcuHr): 24.43													

Scenario 3: '2024 AM Peak' (FG3: '2024 AM Peak', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	82.9%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	82.9%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	21	-	289	1735	424	68.1%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	21	-	440	2062:1832	632	69.7%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	27	-	525	2006:1827	635	82.6%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	21	-	433	2048:1787	544	79.5%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	27	-	510	1978	615	82.9%
5/1		U	N/A	N/A	-		-	-	-	622	Inf	Inf	0.0%
6/1	Left Ahead	U	N/A	N/A	-		-	-	-	726	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	472	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
9/2+9/1	MSCP Egress Right Left	O	N/A	N/A	-		-	-	-	29	1731:1619	847	3.4%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	356	Inf	Inf	0.0%
11/1	Higher Cambridge Street South Ahead Right	O	N/A	N/A	-		-	-	-	667	1792	1180	56.5%
12/1	Higher Cambridge Street South Exit	U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%

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Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	405	10	95	19.0	9.3	1.2	29.6	-	-	-	-
Booth St West/Higher Cambridge	-	-	405	10	95	19.0	9.3	1.2	29.6	-	-	-	-
1/1	289	289	-	-	-	2.5	1.1	-	3.5	43.9	6.5	1.1	7.6
1/2+1/3	440	440	71	0	34	3.7	1.1	0.4	5.3	43.0	7.5	1.1	8.7
2/1+2/2	525	499	60	0	60	5.0	2.3	0.6	7.9	54.1	8.7	2.3	11.0
3/1+3/2	433	433	64	0	0	3.7	1.9	0.2	5.8	48.4	9.1	1.9	11.0
4/1	510	510	0	10	0	4.1	2.3	0.0	6.4	45.1	11.8	2.3	14.1
5/1	596	596	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	726	726	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	472	472	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	377	377	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	29	29	58	0	0	0.0	0.0	-	0.0	2.2	0.0	0.0	0.0
10/1	356	356	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	667	667	152	0	0	0.0	0.6	-	0.6	3.5	0.0	0.6	0.6
12/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): 8.6 Total Delay for Signalled Lanes (pcuHr): 28.89 Cycle Time (s): 90													
PRC Over All Lanes (%): 8.6 Total Delay Over All Lanes(pcuHr): 29.56													

Scenario 4: '2024 PM Peak ' (FG4: '2024 PM Peak ', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	88.5%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	88.5%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	22	-	250	1735	443	56.4%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	22	-	580	2062:1832	677	85.7%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	26	-	578	1990:1827	653	88.5%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	22	-	385	2048:1787	548	70.3%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	26	-	445	1962	589	75.6%
5/1		U	N/A	N/A	-		-	-	-	621	Inf	Inf	0.0%
6/1	Left Ahead	U	N/A	N/A	-		-	-	-	573	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	490	Inf	Inf	0.0%
9/2+9/1	MSCP Egress Right Left	O	N/A	N/A	-		-	-	-	291	1731:1619	1090	26.7%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	64	Inf	Inf	0.0%
11/1	Higher Cambridge Street South Ahead Right	O	N/A	N/A	-		-	-	-	473	1885	1682	28.1%
12/1	Higher Cambridge Street South Exit	U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%

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Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	808	12	115	18.8	10.1	1.0	29.9	-	-	-	-
Booth St West/Higher Cambridge	-	-	808	12	115	18.8	10.1	1.0	29.9	-	-	-	-
1/1	250	250	-	-	-	2.0	0.6	-	2.7	38.4	5.4	0.6	6.1
1/2+1/3	580	569	93	0	57	5.4	2.8	0.4	8.7	53.7	9.8	2.8	12.6
2/1+2/2	578	578	88	0	58	4.6	3.5	0.5	8.7	54.2	11.0	3.5	14.5
3/1+3/2	385	385	20	0	0	3.2	1.2	0.1	4.5	41.8	8.4	1.2	9.6
4/1	445	445	0	12	0	3.5	1.5	0.0	5.0	40.8	10.0	1.5	11.5
5/1	621	621	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	573	573	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	543	543	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	490	490	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	291	291	582	0	0	0.0	0.2	-	0.2	2.3	0.0	0.2	0.2
10/1	64	64	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	473	473	25	0	0	0.0	0.2	-	0.2	1.5	0.0	0.2	0.2
12/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): 1.7 Total Delay for Signalled Lanes (pcuHr): 29.53 Cycle Time (s): 90													
PRC Over All Lanes (%): 1.7 Total Delay Over All Lanes(pcuHr): 29.91													

User and Project Details

Project:	
Title:	
Location:	
File name:	HCS_Booth St_Access Jnt Reverted_v0.1.lsg3x
Author:	
Company:	
Address:	
Notes:	

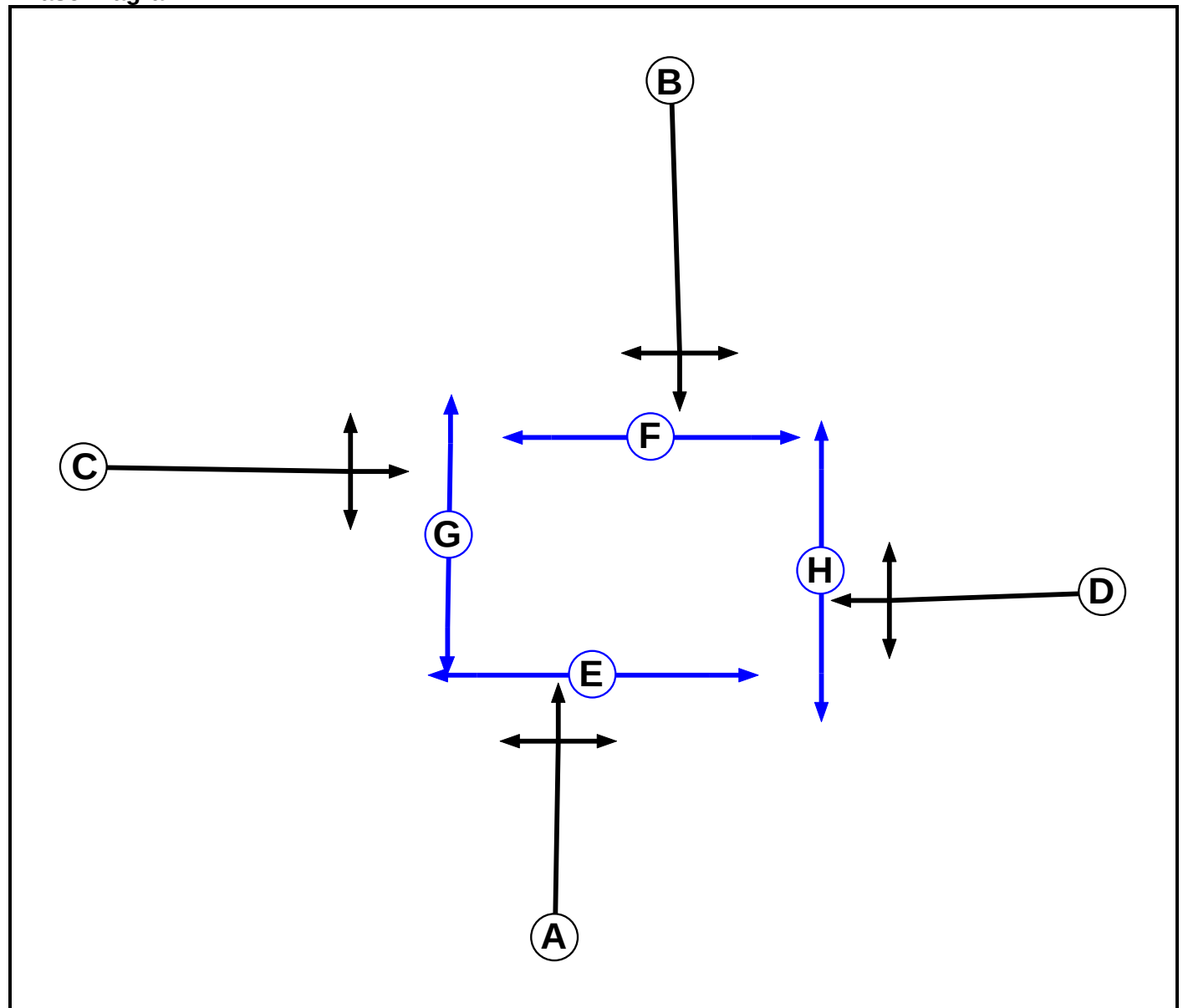
Lane Input Data

Junction: Booth St West/Higher Cambridge												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Booth Street Westbound)	U	D	2	3	8.7	Geom	-	3.57	0.00	Y	Arm 6 Left	11.00
1/2 (Booth Street Westbound)	U	D	2	3	8.7	Geom	-	3.07	0.00	N	Arm 8 Ahead	Inf
1/3 (Booth Street Westbound)	O	D	2	3	7.0	Geom	-	3.06	0.00	N	Arm 7 Right	12.00
2/1 (Higher Cambridge Street Northbound)	U	A	2	3	60.0	Geom	-	4.18	0.00	Y	Arm 7 Ahead Arm 8 Left	Inf 9.50
2/2 (Higher Cambridge Street Northbound)	O	A	2	3	7.0	Geom	-	3.00	0.00	N	Arm 5 Right	12.00
3/1 (Booth Street Eastbound)	U	C	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Ahead Arm 7 Left	Inf 10.00
3/2 (Booth Street Eastbound)	O	C	2	3	4.9	Geom	-	3.00	0.00	N	Arm 6 Right	10.00
4/1 (Higher Cambridge Street Southbound)	O	B	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 5 Left Arm 6 Ahead Arm 8 Right	9.00 Inf 11.00
5/1 (Booth Street W)	U		2	3	60.0	Geom	-	3.25	0.00	Y	Arm 12 Ahead	Inf
5/2 (Booth Street W)	O		2	3	5.0	Geom	-	2.20	0.00	N	Arm 10 Right	8.00
6/1	U		2	3	13.9	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (MSCP Egress)	O		2	3	60.0	Geom	-	2.30	0.00	Y	Arm 1 Left	12.00
9/2 (MSCP Egress)	O		2	3	3.1	Geom	-	2.30	0.00	N	Arm 12 Right	15.00

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10/1 (MSCP Access)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (Booth St W)	U		2	3	60.0	Geom	-	4.15	0.00	Y	Arm 1 Ahead	Inf
11/2 (Booth St W)	U		2	3	60.0	Geom	-	4.15	0.00	Y	Arm 10 Left	4.00
12/1 (Booth St W Eastbound)	U		2	3	60.0	Geom	-	4.15	0.00	Y	Arm 1 Ahead	Inf
12/2 (Booth St W Eastbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/2 (Booth St W Eastbound)	U		2	3	60.0	Inf	-	-	-	-	-	-

Phase Diagram



Phase Input Data

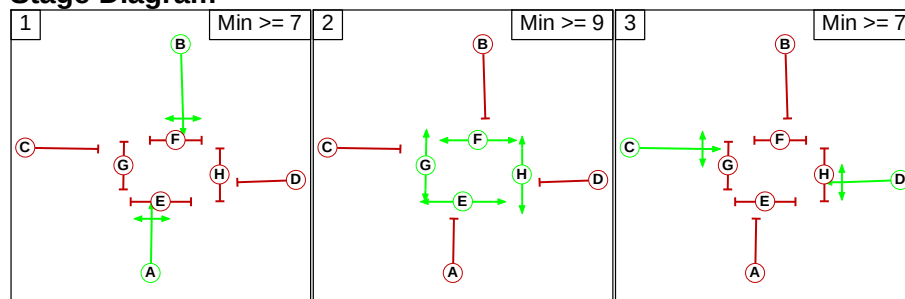
Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		6	6
G	Pedestrian		10	10
H	Pedestrian		11	11

Phase Intergreens Matrix

Terminating Phase	Starting Phase								
		A	B	C	D	E	F	G	H
	A		-	7	7	6	9	10	11
	B	-		7	7	9	5	11	10
	C	7	7		-	11	9	5	9
	D	7	7	-		9	11	9	5
	E	10	10	10	10		-	-	-
	F	9	9	9	9	-		-	-
	G	7	7	7	7	-	-		-
	H	8	8	8	8	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	E F G H
3	C D

Stage Diagram

Give-Way Lane Input Data

Junction: Booth St West/Higher Cambridge											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/3 (Booth Street Westbound)	7/1 (Right)	1439	0	3/1	1.09	All	2.00	-	0.50	2	2.00
				3/2	1.09	None					
2/2 (Higher Cambridge Street Northbound)	5/1 (Right)	1439	0	4/1	1.09	To 5/1 (Left) To 6/1 (Ahead)	2.00	-	0.50	2	2.00
3/2 (Booth Street Eastbound)	6/1 (Right)	1439	0	1/2	1.09	All	2.00	-	0.50	2	2.00
				1/1	1.09	All					
4/1 (Higher Cambridge Street Southbound)	8/1 (Right)	1439	0	2/2	1.09	None	2.00	2.00	0.50	2	2.00
5/2 (Booth Street W)	10/1 (Right)	1439	0	11/1	1.09	All	-	-	-	-	-
				11/2	1.09	All					
9/1 (MSCP Egress)	1/1 (Left)	1439	0	11/1	1.09	All	-	-	-	-	-
				11/2	1.09	All					
	1/2 (Left)	1439	0	11/1	1.09	All					
				11/2	1.09	All					
9/2 (MSCP Egress)	12/1 (Right)	1439	0	11/1	1.09	All	-	-	-	-	-
				11/2	1.09	All					
				5/1	1.09	All					
				5/2	1.09	All					

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2019 AM Peak '	08:00	09:00	01:00	
2: '2019 PM Peak '	17:00	18:00	01:00	
3: '2024 AM Peak'	08:00	09:00	01:00	
4: '2024 PM Peak '	17:00	18:00	01:00	

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	112.9%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	112.9%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	13	-	221	1735	270	81.9%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	13	-	406	2062:1832	393	103.3%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	35	-	619	2006:1827	552	112.1%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	13	-	402	2049:1787	356	112.9%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	35	-	471	1915	766	61.5%
5/1+5/2	Booth Street W Right Ahead	U+O	N/A	N/A	-		-	-	-	831	1940:1663	1846	41.3%
6/1		U	N/A	N/A	-		-	-	-	511	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	438	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	339	Inf	Inf	0.0%
9/1+9/2	MSCP Egress Left Right	O	N/A	N/A	-		-	-	-	27	1640:1805	756	3.6%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	331	Inf	Inf	0.0%
11/1	Booth St W Ahead Left	U	N/A	N/A	-		-	-	-	84	1516	1516	5.5%
11/2	Booth St W Ahead	U	N/A	N/A	-		-	-	-	594	2030	2030	29.3%
12/1	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	290	Inf	Inf	0.0%
12/2	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	288	Inf	Inf	0.0%

TA Linsig Report

Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%

TA Linsig Report

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	485	9	168	22.3	81.6	1.1	105.0	-	-	-	-
Booth St West/Higher Cambridge	-	-	485	9	168	22.3	81.6	1.1	105.0	-	-	-	-
1/1	221	221	-	-	-	2.3	2.1	-	4.3	70.7	5.3	2.1	7.4
1/2+1/3	406	381	0	0	80	5.3	13.9	0.3	19.5	172.7	7.7	13.9	21.5
2/1+2/2	619	589	187	0	59	5.3	37.5	0.7	43.4	252.7	7.6	37.5	45.1
3/1+3/2	402	356	8	0	29	6.6	26.8	0.1	33.5	300.2	11.4	26.8	38.2
4/1	471	471	0	9	0	2.8	0.8	0.0	3.6	27.6	9.3	0.8	10.1
5/1+5/2	762	762	238	0	0	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
6/1	506	506	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	339	339	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1+9/2	27	27	52	0	0	0.0	0.0	-	0.0	4.2	0.0	0.0	0.1
10/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	84	84	-	-	-	0.0	0.0	-	0.0	1.3	0.0	0.0	0.0
11/2	594	594	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
12/1	264	264	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): -25.5 Total Delay for Signalled Lanes (pcuHr): 104.39 Cycle Time (s): 90 PRC Over All Lanes (%): -25.5 Total Delay Over All Lanes(pcuHr): 105.01													

Scenario 2: '2019 PM Peak ' (FG2: '2019 PM Peak ', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	95.9%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	95.9%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	29	-	428	1735	578	74.0%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	29	-	568	2062:1832	610	93.1%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	19	-	441	1990:1827	467	94.4%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	29	-	358	2049:1787	706	50.7%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	19	-	415	1947	433	95.9%
5/1+5/2	Booth Street W Right Ahead	U+O	N/A	N/A	-		-	-	-	592	1940:1663	1916	28.4%
6/1		U	N/A	N/A	-		-	-	-	707	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	539	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	372	Inf	Inf	0.0%
9/1+9/2	MSCP Egress Left Right	O	N/A	N/A	-		-	-	-	271	1640:1805	675	40.2%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	60	Inf	Inf	0.0%
11/1	Booth St W Ahead Left	U	N/A	N/A	-		-	-	-	69	1868	1868	3.7%
11/2	Booth St W Ahead	U	N/A	N/A	-		-	-	-	703	2030	2030	34.6%
12/1	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	291	Inf	Inf	0.0%

TA Linsig Report

12/2	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	288	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%

TA Linsig Report

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	789	11	107	19.8	20.6	1.0	41.4	-	-	-	-
Booth St West/Higher Cambridge	-	-	789	11	107	19.8	20.6	1.0	41.4	-	-	-	-
1/1	428	428	-	-	-	3.2	1.4	-	4.6	38.3	9.4	1.4	10.8
1/2+1/3	568	568	213	0	38	4.2	5.3	0.5	10.0	63.7	6.2	5.3	11.5
2/1+2/2	441	393	11	0	69	6.0	5.8	0.4	12.3	100.4	7.4	5.8	13.2
3/1+3/2	358	358	17	0	0	2.4	0.5	0.1	3.0	29.8	6.8	0.5	7.3
4/1	415	415	0	11	1	4.0	6.7	0.0	10.7	92.6	10.1	6.7	16.8
5/1+5/2	544	544	35	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/1	707	707	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	539	539	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	372	372	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1+9/2	271	271	512	0	0	0.1	0.3	-	0.4	5.2	0.2	0.3	0.6
10/1	51	51	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	69	69	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
11/2	703	703	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
12/1	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	269	269	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): -6.6 Total Delay for Signalled Lanes (pcuHr): 40.53 Cycle Time (s): 90 PRC Over All Lanes (%): -6.6 Total Delay Over All Lanes(pcuHr): 41.41													

Scenario 3: '2024 AM Peak' (FG3: '2024 AM Peak', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	130.8%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	130.8%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	12	-	237	1735	251	94.6%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	12	-	437	2062:1832	376	116.1%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	36	-	667	2006:1827	528	126.4%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	12	-	433	2049:1787	331	130.8%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	36	-	510	1915	787	64.8%
5/1+5/2	Booth Street W Right Ahead	U+O	N/A	N/A	-		-	-	-	896	1940:1663	1846	40.5%
6/1		U	N/A	N/A	-		-	-	-	551	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	472	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	365	Inf	Inf	0.0%
9/1+9/2	MSCP Egress Left Right	O	N/A	N/A	-		-	-	-	29	1640:1805	717	4.0%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	357	Inf	Inf	0.0%
11/1	Booth St W Ahead Left	U	N/A	N/A	-		-	-	-	84	1486	1486	5.7%
11/2	Booth St W Ahead	U	N/A	N/A	-		-	-	-	646	2030	2030	31.8%
12/1	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%

TA Linsig Report

12/2	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%

TA Linsig Report

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	470	10	176	29.6	165.1	1.1	195.8	-	-	-	-
Booth St West/Higher Cambridge	-	-	470	10	176	29.6	165.1	1.1	195.8	-	-	-	-
1/1	237	237	-	-	-	2.5	5.0	-	7.5	114.3	5.9	5.0	10.9
1/2+1/3	437	376	0	0	80	7.4	33.5	0.3	41.2	339.2	9.7	33.5	43.3
2/1+2/2	667	605	175	0	60	6.9	72.0	0.7	79.6	429.6	9.0	72.0	81.0
3/1+3/2	433	331	0	0	35	9.8	53.0	0.1	62.9	523.1	15.0	53.0	67.9
4/1	510	510	0	10	0	3.0	0.9	0.0	3.9	27.7	10.2	0.9	11.1
5/1+5/2	748	748	239	0	0	0.0	0.3	-	0.3	1.6	0.0	0.3	0.3
6/1	540	540	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	434	434	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	337	337	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1+9/2	29	29	56	0	0	0.0	0.0	-	0.0	5.1	0.1	0.0	0.1
10/1	321	321	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	84	84	-	-	-	0.0	0.0	-	0.0	1.3	0.0	0.0	0.0
11/2	646	646	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
12/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	254	254	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): -45.3 Total Delay for Signalled Lanes (pcuHr): 195.15 Cycle Time (s): 90 PRC Over All Lanes (%): -45.3 Total Delay Over All Lanes(pcuHr): 195.79													

Scenario 4: '2024 PM Peak ' (FG4: '2024 PM Peak ', Plan 1: 'Network Control Plan 1')

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	N/A	-	-		-	-	-	-	-	-	106.7%
Booth St West/Higher Cambridge	-	-	N/A	-	-		-	-	-	-	-	-	106.7%
1/1	Booth Street Westbound Left	U	N/A	N/A	D		1	29	-	460	1735	578	79.5%
1/2+1/3	Booth Street Westbound Right Ahead	U+O	N/A	N/A	D		1	29	-	609	2062:1832	571	106.7%
2/1+2/2	Higher Cambridge Street Northbound Right Ahead Left	U+O	N/A	N/A	A		1	19	-	474	1990:1827	467	101.5%
3/1+3/2	Booth Street Eastbound Ahead Right Left	U+O	N/A	N/A	C		1	29	-	385	2048:1787	706	54.6%
4/1	Higher Cambridge Street Southbound Left Ahead Right	O	N/A	N/A	B		1	19	-	447	1947	433	103.3%
5/1+5/2	Booth Street W Right Ahead	U+O	N/A	N/A	-		-	-	-	637	1940:1663	1916	30.0%
6/1		U	N/A	N/A	-		-	-	-	761	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	579	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	398	Inf	Inf	0.0%
9/1+9/2	MSCP Egress Left Right	O	N/A	N/A	-		-	-	-	290	1640:1805	604	48.0%
10/1	MSCP Access	U	N/A	N/A	-		-	-	-	64	Inf	Inf	0.0%
11/1	Booth St W Ahead Left	U	N/A	N/A	-		-	-	-	55	1819	1819	3.0%
11/2	Booth St W Ahead	U	N/A	N/A	-		-	-	-	774	2030	2030	38.1%
12/1	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	313	Inf	Inf	0.0%

TA Linsig Report

12/2	Booth St W Eastbound	U	N/A	N/A	-		-	-	-	310	Inf	Inf	0.0%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	E		1	16	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	F		1	13	-	0	-	0	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	G		1	13	-	0	-	0	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	H		1	13	-	0	-	0	0.0%

TA Linsig Report

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	-	-	798	10	138	23.2	56.1	1.1	80.3	-	-	-	-
Booth St West/Higher Cambridge	-	-	798	10	138	23.2	56.1	1.1	80.3	-	-	-	-
1/1	460	460	-	-	-	3.5	1.9	-	5.4	42.0	10.4	1.9	12.2
1/2+1/3	609	592	195	0	57	5.2	25.1	0.5	30.8	182.1	7.0	25.1	32.1
2/1+2/2	474	416	0	0	80	6.8	12.8	0.4	20.1	152.4	8.3	12.8	21.1
3/1+3/2	385	385	19	0	0	2.6	0.6	0.1	3.3	30.7	7.4	0.6	8.0
4/1	447	433	0	10	1	5.0	14.7	0.0	19.7	158.9	11.5	14.7	26.3
5/1+5/2	574	574	36	0	0	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
6/1	752	752	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	562	562	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	398	398	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1+9/2	290	290	548	0	0	0.1	0.5	-	0.5	6.8	0.3	0.5	0.8
10/1	53	53	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	55	55	-	-	-	0.0	0.0	-	0.0	1.0	0.0	0.0	0.0
11/2	774	774	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
12/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	284	284	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P3	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P4	0	0	-	-	-	-	-	-	-	-	-	-	-
C1 PRC for Signalled Lanes (%): -18.5 Total Delay for Signalled Lanes (pcuHr): 79.25 Cycle Time (s): 90 PRC Over All Lanes (%): -18.5 Total Delay Over All Lanes(pcuHr): 80.34													

