St. Michaels Propco Ltd

ST MICHAEL'S, JACKSON'S ROW

Transport Statement

70101665-TS001
DECEMBER 2022

CONFIDENTIAL

St. Michaels Propco Ltd

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Transport Statement

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EXECUTIVE SUMMARY

St. Michaels Propco Ltd (hereinafter referred to as 'the Applicant') is seeking to construct a major development proposal known as St Michael's, Jackson's Row, Manchester, UK.

The planning application for the development was originally registered in January 2017. Following feedback, the decision was taken to revise the scheme. Revised plans and documents were submitted in November 2017 and the development was granted planning permission on 20 June 2018 (reference: 114664/FO/2016). In order to establish the highways impact of the granted planning application, four junctions on the existing local highway network were assessed to ascertain whether they could accommodate the predicted traffic generated by the development. Those assessments confirmed that the impact of generated traffic on the local highway network was negligible.

The development was subsequently amended under Section 73[1] on 26 June 2020 (reference: 125549/JO/2019) and under Section 96a[2] on 1 December 2020 (reference: 125549/JO/2019). Following discharge of the relevant pre-commencement conditions, works to implement the development were undertaken in April 2021 and completed on the 12th of that month. The works comprised the demolition of the kitchen of the Sir Ralph Abercromby and making good the remaining external walls. These works represented Phase 1 of the development. The lawful implementation of the consent was confirmed in a Lawful Development Certificate issued by Manchester City Council on 21 May 2021. Changes to the development were then sought by way of a Section 73 application in September 2021.

Two subsequent non-material amendments consents (133317/NMC/2002 and 134638/NMC/2022) were approved respectively on the 23rd of May 2022 and 4th November 2022. At present, consents 131612/JO/2021, 133317/NMC/2022 and 134638/NMC/2022 represent the approved consent.

Further changes are now sought by way of a Section 73 application to account for the removal of the initially approved synagogue development from the scheme and subsequent amendments to the mix of accommodation.

This Transport Statement has been updated to reflect the expected generated trips for each use of the Proposed Development (residential, hotel, office and retail) and is submitted in support of the Section 73 application.

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[1] Section 73 of the Town and Country Planning Act 1990 (as amended)

[2] Section 96(a) of the Town and Country Planning Act 1990 (as amended)

The Proposed Development comprises a mixed residential/commercial development in the heart of Manchester city centre. The mix of accommodation is proposed to consist of:

- 30,751 sqm offices;
- 13,357 sqm hotel facilities;
- 213 residential apartments; and
- 1,798 sqm Retail, cafes/restaurants and drinking establishment with expand food provision.

The Transport Statement has been prepared in accordance with national and local policy. Section 4 of the National Planning Policy Framework (NPPF) (Promoting Sustainable Transport) is well met with the associated existing public transport infrastructure being further complied with through the usage of bicycle parking facilities within the Proposed Development. Furthermore, the agreement and completion of a travel plan for the site brings it in line with National Planning Practice Guidance (NPPG).

The Proposed Development is also compliant with the Manchester City Council Core Strategy, promoting the usage of sustainable transport, accessibility, and integration, through similar methods adopted for use by the NPPF and NPPG, above.

The site has been found to be highly accessible via sustainable modes of transport. An excellent range of bus, Metrolink and train services are available within close proximity to the site. Furthermore, the surrounding pedestrian and cycling infrastructure is extensive and covers a wide range of surrounding areas. All of these facilities will encourage the use of non-car modes of travel to the site.

A review of five years' worth of accident data in the vicinity of the site does not suggest a pre-existing highway safety problem that would be exacerbated by the Proposed Development. The data shows a low number of accidents over the five-year period considered. It is therefore envisaged that there is no significant road safety issue in the vicinity of the Proposed Development.

Manchester City Council highway officers initially provided a response following the original planning application, which was registered in January 2017, and a subsequent set of comments were prepared by Manchester City Council and the Highways Forecasting and Analytical Services (HFAS) to support the initial granted application.

In order to provide a robust and consistent approach which aligns with these comments, the Proposed Development quantum has been compared with the development mix associated with the consented application.

Consequently, to support the Proposed Development as described in this report, a trip generation and distribution exercise has been undertaken which demonstrates that the overall development vehicle trips are congruent to the vehicle flows associated with the consented application and would, therefore, not have a noticeable or detrimental impact on the operation of the junctions considered.

All four junctions are predicted to operate well within capacity in both peak hours in all scenarios tested.

In conclusion, therefore, it is considered that this Transport Statement demonstrates that the highway impact associated with the Proposed Development is negligible and therefore, in accordance with local and national policy, there are no traffic and transportation reasons envisaged why the Proposed Development should not be granted planning approval.

1 INTRODUCTION

1.1 BACKGROUND

1.1.1 St. Michaels UK Propco Limited (hereinafter referred to as 'the Applicant') is seeking to construct a major development proposal known as St Michael's, Jackson's Row, Manchester, UK.

1.1.2 The planning application for the development was originally registered in January 2017, revised in November 2017 and granted planning permission on 20 June 2018. It was subsequently amended under Section 73[3] on 26 June 2020 and under Section 96a[4] on 1 December 2020. Works to implement the development were undertaken in April 2021 and completed on the 12th of that month. Changes to the development were then sought by way of a Section 73 application in September 2021.

1.1.3 Two subsequent non-material amendments consents (133317/NMC/2002 and 134638/NMC/2022) were approved respectively on the 23rd of May 2022 and 4th November 2022. At present, consents 131612/JO/2021, 133317/NMC/2022 and 134638/NMC/2022 represent the approved consent.

1.1.4 Further changes to the consented development are now sought by way of a Section 73 application to account for the removal of the approved synagogue from the scheme and subsequent amendments to the mix of accommodation.

1.1.5 This Transport Statement has been updated to reflect the expected generated trips for each use of the Proposed Development (residential, hotel, office and retail) and is submitted in support of the Section 73 application. Updated trip generation calculations are presented within Chapter 6 and 7.

1.1.6 The Proposed Development site currently contains the Manchester Reform Synagogue, the Sir Ralph Abercromby public house and the former Bootle Street Police Station. The Proposed Development is bounded by Jackson's Row to the north, Southmill Street to the east and Bootle Street to the south. The Proposed Development includes hotel facilities, residential units, office space and retail facilities.

1.1.7 The development proposals are summarised below:

- 30,751 sqm offices;
- 13,357 sqm hotel facilities;
- 213 residential apartments; and
- 1,798 sqm Retail, cafes/restaurants and drinking establishment with expand food provision.

1.1.8 The proposed site layout is attached in **Appendix A.**

1.2 DOCUMENT PURPOSE

1.2.1 The purpose of this Transport Statement is to inform Highways Officers at Manchester City Council of the associated traffic and transportation matters associated with the Proposed Development.

1.2.2 This Transport Statement has been prepared in support of the development proposals in line with local and national policy guidance as described in Chapter 5.

[3] Section 73 of the Town and Country Planning Act 1990 (as amended)

[4] Section 96(a) of the Town and Country Planning Act 1990 (as amended)

1.3 SCOPE OF THE TRANSPORT STATEMENT

1.3.1 A preliminary scoping meeting with highway officers was held on 5th November 2015. Manchester City Council highway officers were then asked to provide a response in January 2017 following the original planning application submission. A subsequent set of comments were prepared by Manchester City Council and TfGM Highways Forecasting and Analytical Services (HFAS).

1.3.2 A copy of the Manchester City Council and HFAS response can be found in **Appendix B**. Manchester City Council/TfGM (HFAS) comments have been used as a guide to prepare this Transport Statement.

1.3.3 Notwithstanding the above, further email correspondence and discussions were conducted with Manchester City Council highway and TfGM (HFAS) officers to determine details regarding the Approved Development. Copies of the emails can be found in **Appendix B**.

1.4 STRUCTURE OF THE REPORT

1.4.1 Following this introduction, **Section 2** of the report provides a description of the site location, the highway network in the vicinity of the site and a summary assessment of accident data within close vicinity of the site.

1.4.2 **Section 3** of the report provides details regarding the development proposals, whilst **Section 4** considers the accessibility of the site by sustainable modes of travel.

1.4.3 **Section 5** provides details of the relevant transport planning policy and how the development proposals, the parking space requirements and the proposed parking access arrangements accord with this.

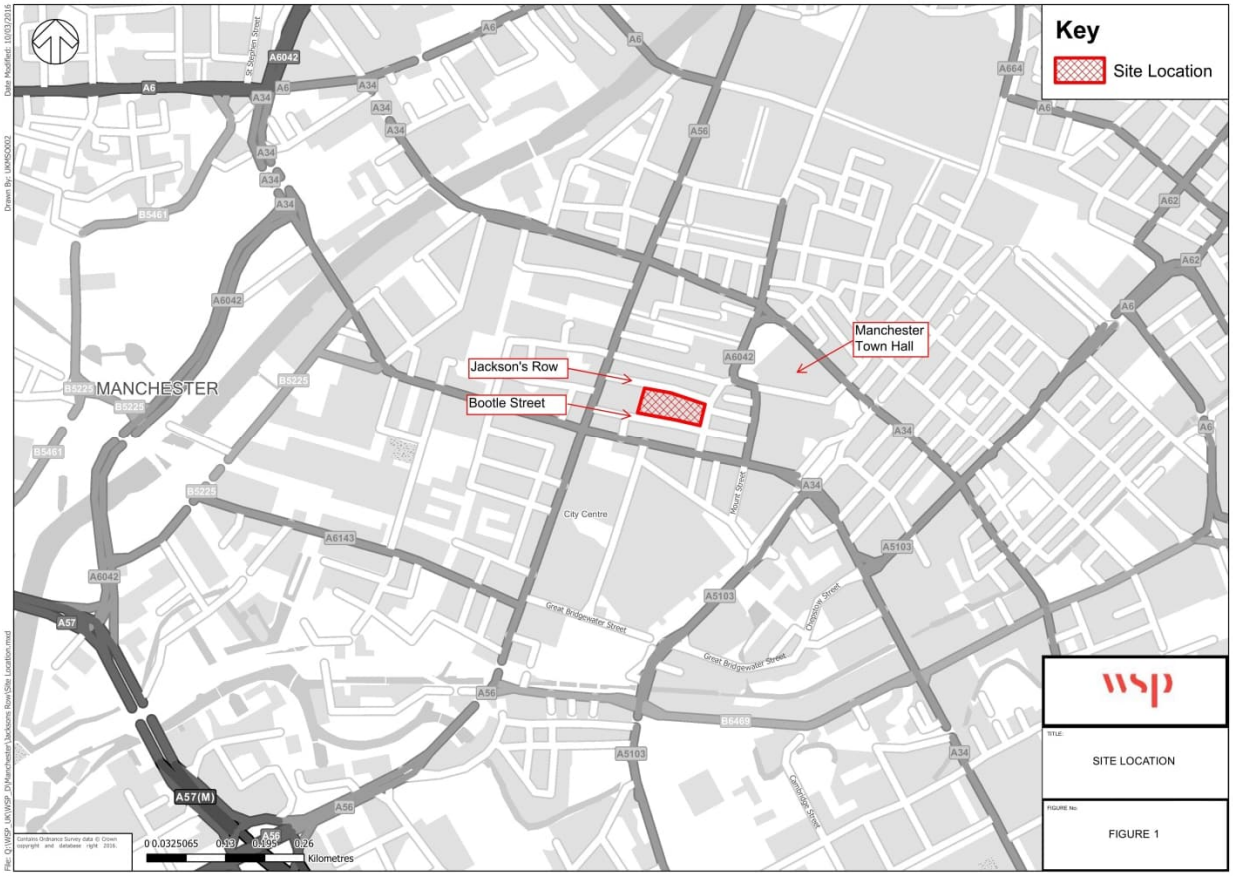
1.4.4 **Section 6** considers traffic generated by the Proposed Development to inform the traffic analysis for the site. **Section 7** summarises the traffic analysis for the site and **Section 8** contains a summary of the report and conclusions.

2 EXISTING SITE DESCRIPTION

2.1 OVERVIEW OF EXISTING SITE AND SURROUNDINGS

2.1.1 The site on which the development is proposed is located in the central district of Manchester city centre, approximately 190m southwest of Albert Square. **Figure 1** below illustrates the site at a local level in relation to the local highway network.

Figure 1 – Site Location



2.1.2 The site is bound to the north by Jackson's Row, to the east by Southmill Street, to the south by Bootle Street and to the west by the Onward Buildings, a mixed-use development containing units on Bootle Street, Deansgate and Jackson's Row.

2.1.3 There are a number of key facilities located within an easy walking distance of the site including many residential, retail, leisure and further business/employment uses within the city centre.

2.1.4 With regard to public transport facilities, St. Peter's Square Metrolink station is located within a 400m walk of the site and provides frequent, easy access to a number of destinations across the Greater Manchester conurbation as well as providing links to strategic rail destinations such as Piccadilly, Victoria and Deansgate rail stations.

2.1.5 Salford Central and Oxford Road rail stations are also located within the city centre and, together with the rail stations mentioned above, form a comprehensive set of railway facilities located within walking distance of the Proposed Development.

2.1.6 Existing bus stops within close proximity of the site can be found at Albert Square, on Deansgate, Quay Street and John Dalton Street.

2.1.7 The site is also accessible by road and is conveniently located to the east of the A56 Deansgate which provides direct access to the north and south of the city centre. An assessment of traffic conditions and data has demonstrated that the weekday peak hours occur between 8am-9am and 5pm-6pm.

2.1.8 The Manchester inner ring road provides good access from developments within the city centre to the Strategic Highway Network, including Junction 12 of the M60 located approximately 9km to the west, Junction 19 located 8km to the north, the M61 located 9km to the northwest of the site and the M6 situated approximately 26km to the west.

2.1.9 This Strategic Highway Network allows access to a large number of different towns within Greater Manchester. Salford is located approximately 4km to the west of the site, Stockport is 11km to the south, Oldham and Rochdale are situated approximately 13km and 19km to the northeast respectively, Bury is located approximately 13km to the north and Bolton is located approximately 18km to the northwest of the Proposed Development site.

2.1.10 All these locations can be accessed via direct public transport links in close vicinity of the Proposed Development or using a multi-modal journey.

2.2 SURROUNDING HIGHWAY NETWORK

Bootle Street

2.2.1 Bootle Street extends in an east-west direction along the southern edge of the Proposed Development from a priority-controlled junction with Deansgate west of the site to a priority-controlled junction with Mount Street east of the site.

2.2.2 Bootle Street is a two-way road 270m in length with an existing carriageway width of approximately 4.2m within close vicinity of the Proposed Development. Signage is provided upon entering Bootle Street from Deansgate which indicates that vehicles are entering the 20mph City Centre zone.

2.2.3 Bootle Street is currently partially lit with continuous footways present on both sides of the carriageway which vary between 0.5m and 2.5m in width. The road is currently subject to a 20mph speed limit adjacent to the location of the proposed site access and parking restrictions are in place along the full length of Bootle Street between Deansgate and Southmill Street.

Jackson's Row

2.2.4 Jackson's Row extends on an east-west axis from Deansgate in the west to Southmill Street in the east along the northern boundary of the Proposed Development. Jackson's Row is approximately 180m in length, with a carriageway width of approximately 4.2m within close vicinity of the Proposed Development.

2.2.5 Jackson's Row forms simple priority-controlled junctions with Deansgate and Southmill Street. Jackson's Row is currently two-way between Southmill Street and the access to the old police station and one way (westbound only) from the old police station access to Deansgate. No entry signage is provided at the Jackson's Row junction with Deansgate to indicate that vehicles are not permitted to enter Jackson's Row.

2.2.6 Partially lit, continuous footways are present along both sides of the carriageway and vary between 2m and 4m in width. The road is currently contained within the 20mph City Centre Zone.

Southmill Street

2.2.7 Southmill Street extends on a north-south axis from Windmill Street in the south to Albert Square north of the site and is approximately 220m in length. It is currently two-way in close vicinity of the site between Peter Street and Albert Square, with lit footways present on both sides of the carriageway which vary between 2.5m and 3m in width.

2.2.8 Signage is provided upon entering Southmill Street from Peter Street indicating that vehicles are entering the 20mph City Centre Zone.

Syers Court

2.2.9 Syers Court is approximately 18m in length and extends on a north-south axis from a priority-controlled junction with Bootle Street. It is located within the Proposed Development between the old police station building and the Sir Ralph Abercromby public house.

2.2.10 It is currently two-way with no footways existing on either side of the carriageway. The road is currently contained within the 20mph City Centre Zone.

2.2.11 It should be noted that the street currently extends in a northerly direction off Bootle Street between The Sir Ralph Abercromby and Bootle Street Police Station. However, a Highway Adoption Plan, contained in **Appendix A**, previously obtained from Manchester City Council during the application for the Approved Development demonstrates that this street is not adopted highway.

Marron Place

2.2.12 Marron Place is approximately 37m in length and 3.5m wide with footpaths on both sides varying in width from 0.5 – 1m. It extends on a north-south axis from a priority-controlled junction with Bootle Street to a priority-controlled junction with Peter Street. It is located approximately 50m west of Southmill Street.

2.2.13 It is currently two-way with no footways existing on either side of the carriageway. The road is currently contained within the 20mph City Centre Zone.

Survey Assessment

2.2.14 Traffic surveys were conducted on 6th and 7th November 2017 at the Deansgate/Bootle Street, Deansgate/Jackson's Row, Southmill Street/Bootle Street and Southmill Street/Jackson's Row junctions to inform the traffic impact assessment discussed in Chapters 6 and 7.

2.2.15 Pedestrian surveys were conducted at the same time to determine the number of pedestrian movements on Jackson's Row and Bootle Street in the AM (8am – 9am) and PM (5pm – 6pm) peaks. The pedestrian survey showed that two-way pedestrian flows on Bootle Street and Jackson's Row were found to be 48 and 54 in the AM peak and 56 and 74 in the PM peak respectively.

2.2.16 Since the beginning of the Covid epidemic in the UK, traffic and pedestrian levels have seen a drop. Consequently, the traffic and pedestrian surveys described above are considered a robust assessment of current conditions.

2.3 HIGHWAY SAFETY ASSESSMENT SUMMARY

2.3.1 Accident data within the study area has been obtained from road safety data published by the Department for Transport which was recorded using the STATS19 accident reporting form. The data covers the five-year period available (2012 to 2016). The extent of the area from which accident data was taken and the locations of the accidents can be seen in **Figure 2**.

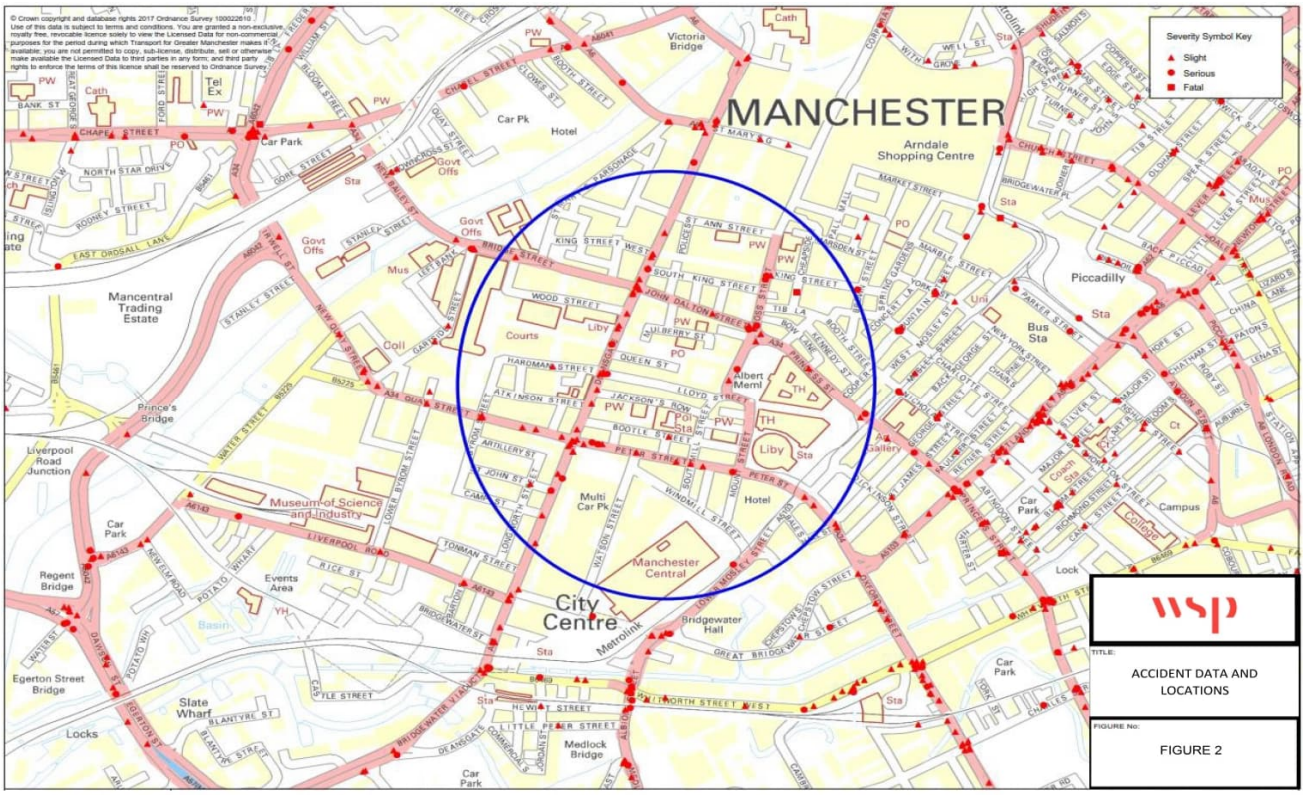
2.3.2 Since 2017, the areas surrounding the development site, namely Bootle Street, Jackson's Row, Southmill Street, Albert Square and Cross Street, have undergone large scale roadworks in conjunction with preparation works for the Second City Crossing tram link that extends from St Peter's Square to Exchange Square north along Cross Street and the regeneration of Albert Square. As such, the accident data used is considered robust for the purposes of the Section 73 application and the areas surrounding the Proposed Development are considered as safe as when initially assessed. With the future proposed expansion and regeneration of Albert Square, which will include the potential closure of the A6042, vehicle levels in the immediate area are expected to continue to decrease.

2.3.3 Furthermore, since the beginning of the Covid epidemic in the UK, vehicle and pedestrian numbers have dropped considerably and are envisaged to have reduced the number of accidents in close proximity to the site. Consequently, in order to perform a robust assessment of highway safety in the area, the pre-Covid accident data has been used.

2.3.4 The Institution of Highways and Transportation publication 'Transport in the Urban Environment' (1997), 'Section 7.4 – Recording of Collisions', provides the following definitions regarding the classification of PIAs:

- **Slight Injury** – Injuries of a minor nature, such as sprains, bruises, or cuts not judged to be severe, or slight shock requiring only roadside attention (medical treatment is not a prerequisite for an injury to be defined as slight);
- **Serious Injury** – Injuries for which a person is detailed in hospital, as an in-patient, or any of the following injuries, whether or not a person is detained in hospital; fractures, concussion, internal injuries, severe cuts and lacerations, severe general shock requiring medical treatment and injuries which result in death 30 days after the Collision. The serious category, therefore, covers a very broad range of injuries (it is estimated that up to 50% of people with reported serious injuries are not detained in hospital); and
- **Fatal Injuries** – Injuries which cause death either immediately or any time up to 30 days after the Collision.

Figure 2 – Accident Data Area and Locations



2.3.5 The accident data collected was approximately within a 400metre radius of the site and is summarised in **Table 1**.

Table 1 – Accident Data

Location	Fatal	Serious	Slight
A34 / Albert Square / Cross Street		1	
Albert Square			1
Bootle Street			1
Bridge Street			3
Cross Street / King Street		3	1
Deansgate		1	13
Deansgate / Bridge Street / John Dalton Street			5
Deansgate / Camp Street			5
Deansgate / Jackson's Row			1
Deansgate / Lloyd Street / Hardman Street			1
Deansgate / Peter Street		2	10
Deansgate / South King Street		1	4
Deansgate / St John Street		1	2
Essex Street	1		
Hardman Street			3
John Dalton Street		1	3
King Street West		1	
Lloyd Street		1	
Lower Mosley Street		1	
Oxford Street			5
Peter Street		2	8
Princess Street A34		1	5
Quay Street A34			5
St Peter's Square			3
TOTAL	**1**	**16**	**79**

2.3.6 As can be seen in **Table 1**, there have been a total of 96 casualties (in 78 accidents) within 400m of the site over a five-year period; of these accidents 79 were slight and only 1 was serious. 96 accidents over five years equates to 19.2 accidents per year across the locations shown.

2.3.7 19.2 accidents per year are not considered to represent an unusual rate of occurrence given the nature of the local highway network, in particular the heavily trafficked (both vehicular and pedestrian) nature of Deansgate on which the majority of accidents take place.

2.3.8 The fatal accident recorded on Essex Street occurred at 4.30am on Saturday 15th March 2014. Essex Street is a one-way street with a 20mph speed limit. The accident involved one car and the casualty was a pedestrian. No mitigating causes were identified within the data provided for the accident.

2.3.9 The serious accidents within 200m of the site have been described further in paragraphs **2.3.8** to **2.3.11**. The accidents occurred on Jackson's Row have been described in paragraph **2.3.12**.

2.3.10 Three serious accidents were recorded within 200m of the site in 2012. The first was on Sunday 22nd April at 2.36am and occurred at the junction of Peter Street and Mount Street. The second occurred on Wednesday 24th October at 8.50am. This accident took place on Albert Square which is a 20mph one-way street. The third took place on Monday 24th December at 9.40pm on Peter Street, to the east of its junction with Deansgate.

2.3.11 There were no serious accidents recorded within 200m of the site in 2013. However, there were two recorded in 2014. The first was on Sunday 11th May at 2.10am on Deansgate, to the north of St John Street. The second accident was recorded on Thursday 16th October at 1.40pm and took place at the junction between Deansgate and The Avenue. Both accidents occurred in 30mph zones on single carriageway stretches.

2.3.12 There was one accident recorded within 200m of the site in 2015. This occurred at the junction of Deansgate and Lloyd Street on Saturday 15th August at 2am.

2.3.13 There was one accident recorded within 200m of the site in 2016. This occurred at 11 Peter Street on Friday 23rd of June at 2.31am.

2.3.14 There was only one accident recorded on Jackson's Row over the period of five years (from 1st January 2012 to 31st December 2016). And was catalogued as slight. This occurred the 21st of March 2015 at Deansgate junction when a vehicle was hit from the rear by a second vehicle that drove off without exchanging details.

2.4 ACCIDENT SUMMARY

2.4.1 Given the high proportion of slight accidents within the area assessed over the five-year period, it is considered that there is no significant road safety issue in the vicinity of the Proposed Development.

2.4.2 It is also envisaged that, following the implementation of the Proposed Development and the S278 works supporting it, as well as the amendment of Jackson's Row and Bootle Street to fully one way, highway conditions will be improved for both pedestrians and vehicles.

2.4.3 In summary, no significant correlations have been identified to suggest that highway condition, layout or design were significant contributory factors in any of the collisions within the study area, including the fatality identified on Essex Street. Furthermore, the frequency and severity of the accidents are not considered to be unusual. Accidents, particularly involving pedestrians, are not predicted to increase due to the Proposed Development. Consequently, no mitigation has been identified.

3 PROPOSED DEVELOPMENT

3.1 INTRODUCTION

3.1.1 The development site is approximately 5,600 sqm in area and located within the central district of Manchester city centre within close proximity of Deansgate to the west, Cross Street to the east and the A34 (Quay Street/Peter Street) to the south of the site.

3.1.2 The mixed-use development proposals are bounded by Jackson's Row, Bootle Street and Southmill Street. The existing site currently incorporates the former Bootle Street Police Station, Manchester Reform Synagogue and The Sir Ralph Abercromby public house. The ground floor plan can be found in **Appendix A** of this report.

3.1.3 The development proposals are summarised below:

- 30,751 sqm offices;
- 13,357 sqm hotel facilities;
- 213 residential apartments; and
- 1,798 sqm Retail, cafes/restaurants and drinking establishment with expand food provision.

3.1.4 It should also be noted that The Sir Ralph Abercromby public house is to be retained as part of the Proposed Development.

3.1.5 Given the site's city centre location it is envisaged that there is the potential for a high percentage of journeys to the site to be by modes other than private car. There are 44 parking spaces to be provided on site (total), including 5 disabled spaces, 19 electric chargers, 494 cycle spaces and 8 motorcycle spaces.

3.1.6 Based on the location and type of the Proposed Development summarised above, it is assumed that the majority of retail and leisure trips undertaken by future employees will also be made within Manchester City Centre. It is also likely that given the location of the site a large percentage of future residents will work in Manchester City Centre.

3.1.7 The proximity of the site to various modes of sustainable transport, as discussed in Section 4, makes journeys to Manchester City Centre more likely to be undertaken by sustainable modes.

3.2 PROPOSED HIGHWAY SUMMARY

3.2.1 Jackson's Row currently permits two-way movements to the east of the site, which then becomes one way towards Deansgate. Jackson's Row is proposed to be converted to one-way for its entirety from Southmill Street to Deansgate. Bootle Street currently permits two-way traffic movements. It is proposed, following previous discussions with Manchester City Council highway officers, that Bootle Street is amended to a one-way order from Deansgate to Southmill Street.

3.2.2 Furthermore, Southmill Street will be retained in its current configuration with the section between Albert Square and the junction between Southmill Street and Jackson's Row one way towards the Proposed Development site. It has been proposed by Manchester City Council that Albert Square be closed to vehicles upon renovation of the square and Town Hall.

3.2.3 Current plans state that the Town Hall renovation will be completed by 2024. However, these plans will not have detrimental impact on the movements to and from the Proposed Development site and the future eventual closure of Albert Square has been factored into future highways provision around the site.

3.2.4 **Figure 3** and **Figure 4** below demonstrate what amendments to vehicular movements are proposed around the Proposed Development site.

Figure 3 – Existing Traffic Restrictions surrounding the Proposed Development

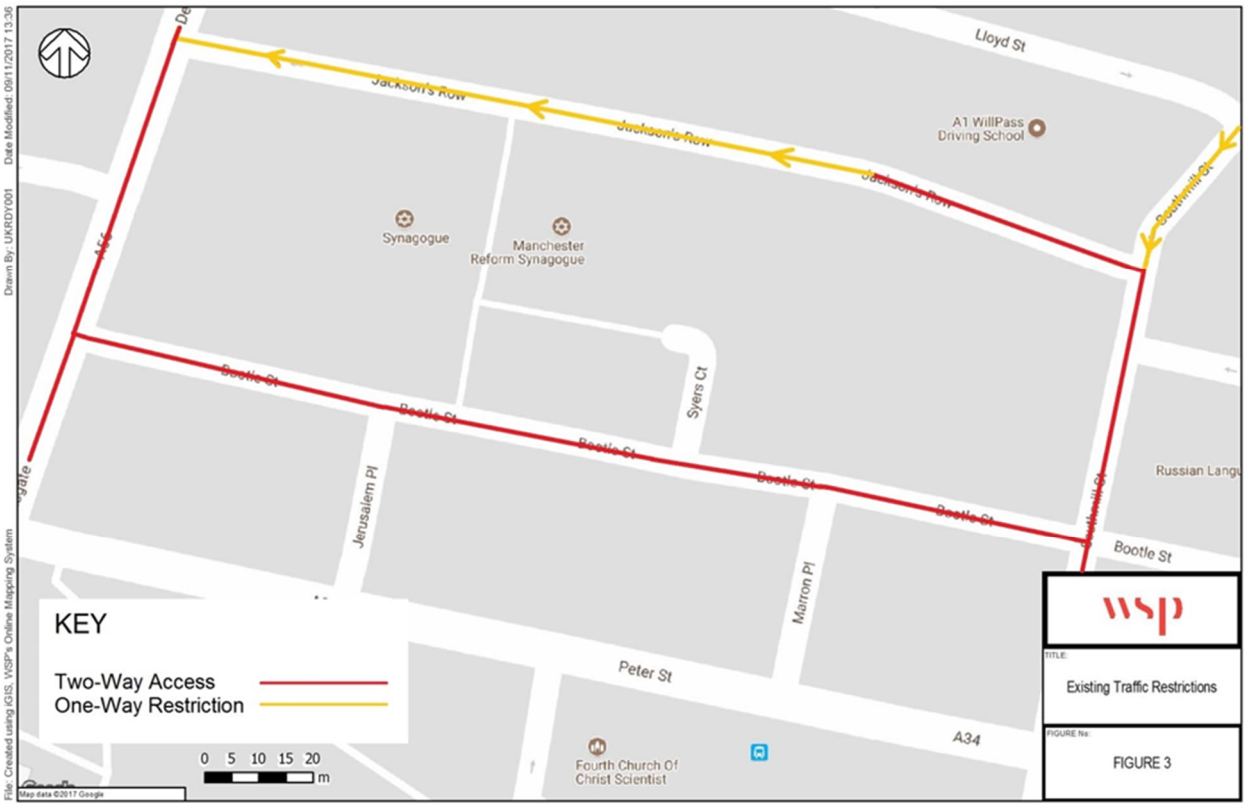
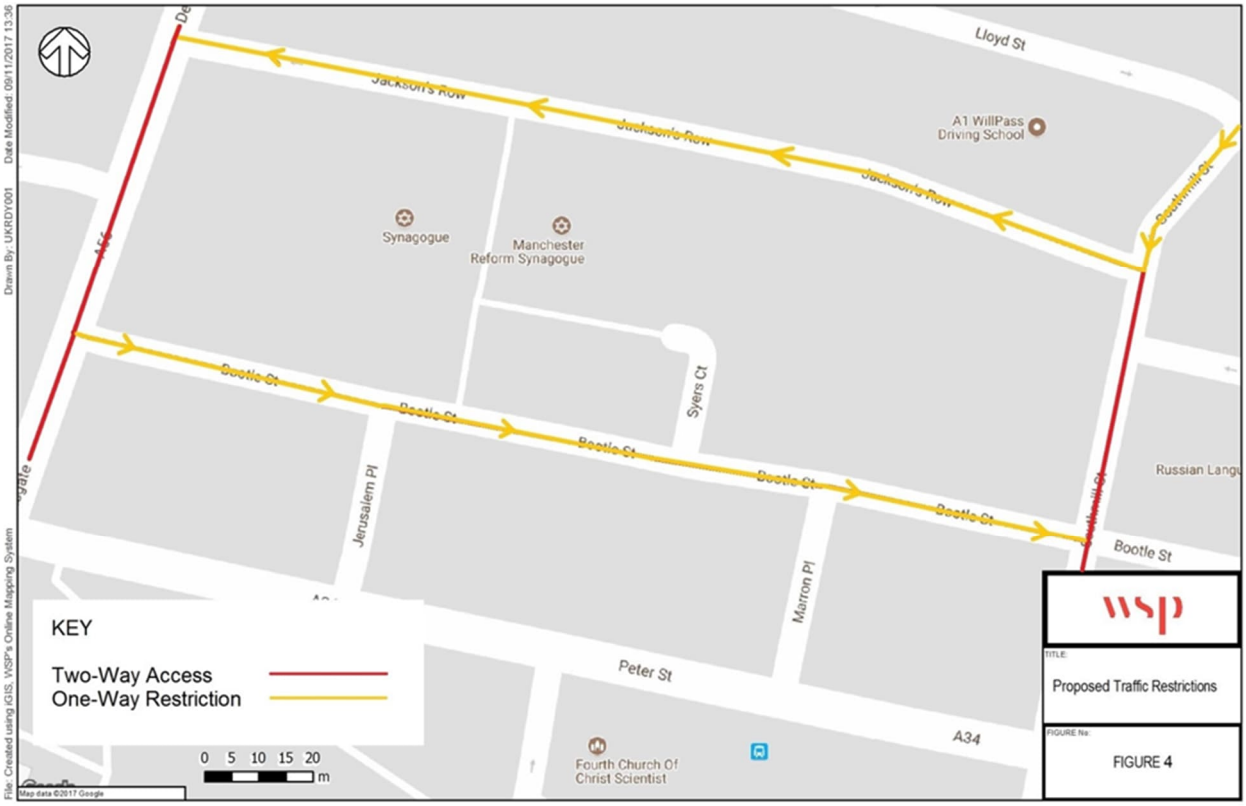


Figure 4 – Proposed Traffic Restrictions surrounding the Proposed Development



3.3 PARKING

3.3.1 The Manchester Core Strategy 2012 to 2027 outlines parking standards for Manchester City Centre. Standards for car parking are maximums and may be subject to a further reduction when consideration is given to accessibility of the particular site. However, the Core Strategy states that the maximum standards for car parking do not apply to the City Centre as each development in the City Centre is considered on a case by case basis.

3.3.2 There are 44 parking spaces to be provided on site (total), including 5 disabled spaces, 19 electric chargers, 494 cycle spaces and 8 motorcycle spaces. The 494 cycle storage spaces are to be located in the basement. It is also envisaged that there is a need to accommodate valet parking facilities to support the hotel operator. Further discussions will be required with Manchester City Council highway officers and the hotel operator to determine how the valet operation should be managed.

3.3.3 This number of parking spaces is envisaged to be acceptable due to the sustainable transport options that are available – as outlined in Chapter 4. Since the submission of the 2017 planning application, a number of bus services have increased in frequency in vicinity to the site, and the Second City Crossing for trams has been completed, allowing a higher frequency and variety of services to operate from the nearby St Peter's Square stop.

3.3.4 As demonstrated in the original application, the Proposed Development building line has been set back from the existing building line. Consequently, greater width within the carriageway is proposed on Bootle Street to accommodate vehicles on Bootle Street to pass parked vehicles, subject to further discussions with Manchester City Council highway officers.

3.4 SERVICING, DELIVERIES AND WASTE COLLECTION

3.4.1 It is not anticipated that a large volume of service vehicle movements will be experienced, particularly in the morning and evening peak hours. The office, retail and apartment uses are not envisaged to generate significant numbers of regular, planned service vehicle movements. Furthermore, it should be noted that the service bay has been designed to cater for service vehicle arrivals.

3.4.2 Servicing for the Proposed Development is a key transport issue given the location of the Proposed Development within the city centre and the configuration of the existing highway network adjacent to it. AutoTrack assessments have been undertaken to demonstrate that the service bay can be accessed by a service vehicle and can be found in **Appendix C**.

3.4.3 Refuse collection is proposed from a layby located on Bootle Street for refuse vehicles used by contractors in Manchester city centre. It is proposed that servicing / refuse collection, for a refuse vehicle up to a length of approximately 11m, will take place outside of peak hours and not during hotel / event peak periods to reduce congestion on the highway network.

3.4.4 AutoTrack assessment of the refuse vehicle is shown in **Appendix C**. This demonstrates the layby is accessible for a refuse vehicle up to a length of approximately 11m.

3.4.5 It is also proposed that a Management Plan for the layby, including the implementation of Traffic Regulation Orders to support the proposals will be prepared subject to further discussions with Manchester City Council highway officers. It should be noted that the layby has been designed to be on adopted highway land and will, therefore, allow Manchester Parking to enforce any parking restrictions on the layby.

3.4.6 It is noted that the site is located within the city centre controlled parking zone which restricts on-street parking to Pay & Display bays between 8am and 8pm. It is the Applicant's intention that the drop-off point is to be enforced by double yellow lines, subject to further discussions with Manchester City Council highway officers to enable Manchester Parking to enforce the parking restrictions proposed

above at and adjacent to the drop-off point. It can be confirmed that dropped kerbs and tactile paving will also be incorporated into the design of the drop-off point.

3.4.7 All new vehicular accesses will incorporate dropped kerbs and tactile paving. It is envisaged that the works required to provide new vehicle accesses and footway improvements will be undertaken via a S278 agreement (for amendments to the existing adopted highway) and will be funded by the Applicant.

3.4.8 A servicing strategy has been developed which ensures the majority of servicing will take place via dedicated off street bays within the Proposed Development and refuse collection will take place in a layby off Bootle Street. It is understood that a servicing management strategy will be required, subject to further discussions with Manchester City Council highway officers, to describe how use of the service facilities associated with the Proposed Development will be coordinated to cater for the different uses and units within the Proposed Development.

3.4.9 Furthermore, it should also be noted that it is also proposed that a detailed Construction Management Plan will be prepared prior to any construction works beginning.

3.5 PEDESTRIAN ACCESS AND PUBLIC REALM

3.5.1 Pedestrian access to the Proposed Development will be focussed around Jackson's Row, along the eastern edge of the site on Southmill Street, along the eastern half of Bootle Street (away from the main vehicle/service area for the Proposed Development) and in an area of public realm located within the centre of the Proposed Development stretching between Jackson's Row and Bootle Street.

3.5.2 Footways along Jackson's Row, Southmill Street and along the eastern section of Bootle Street between the Abercromby pub and Southmill Street have been retained at their existing width or widened to allow good pedestrian access to and around the Proposed Development. Pedestrians will gain access to the hotel, offices and residential units from Jackson's Row.

3.5.3 To improve the pedestrian environment surrounding and within the site, the public realm strategy is proposed to provide a safe and attractive environment for pedestrians and promote access to the site on foot. An important objective of the public realm strategy is to provide sufficient links to the surrounding pedestrian and cycle networks.

3.5.4 All public realm designs and materials are to be agreed with Manchester City Council's Capital Programmes and Property team and are subject to further discussions with Manchester City Council officers during S278 agreement negotiations.

3.5.5 It is understood that the Proposed Development does overhang the adopted highway. Consequently, an oversailing licence will be required for the Proposed Development.

3.5.6 It should also be noted that it is also proposed that a detailed Event Management Plan will be prepared subject to further discussions with Manchester City Council officers.

3.6 FRAMEWORK TRAVEL PLAN

3.6.1 A Framework Travel Plan has been prepared to accompany this Section 73 application. The document considers accessibility by sustainable modes of travel; hard and soft measures that can be implemented to encourage sustainable modes of travel; a management plan for taking the travel plan forward; and indicative targets. The document that has been produced was prepared in support of the 2017 planning application for the Approved Development.

4 SUSTAINABLE ACCESSIBILITY

4.1 INTRODUCTION

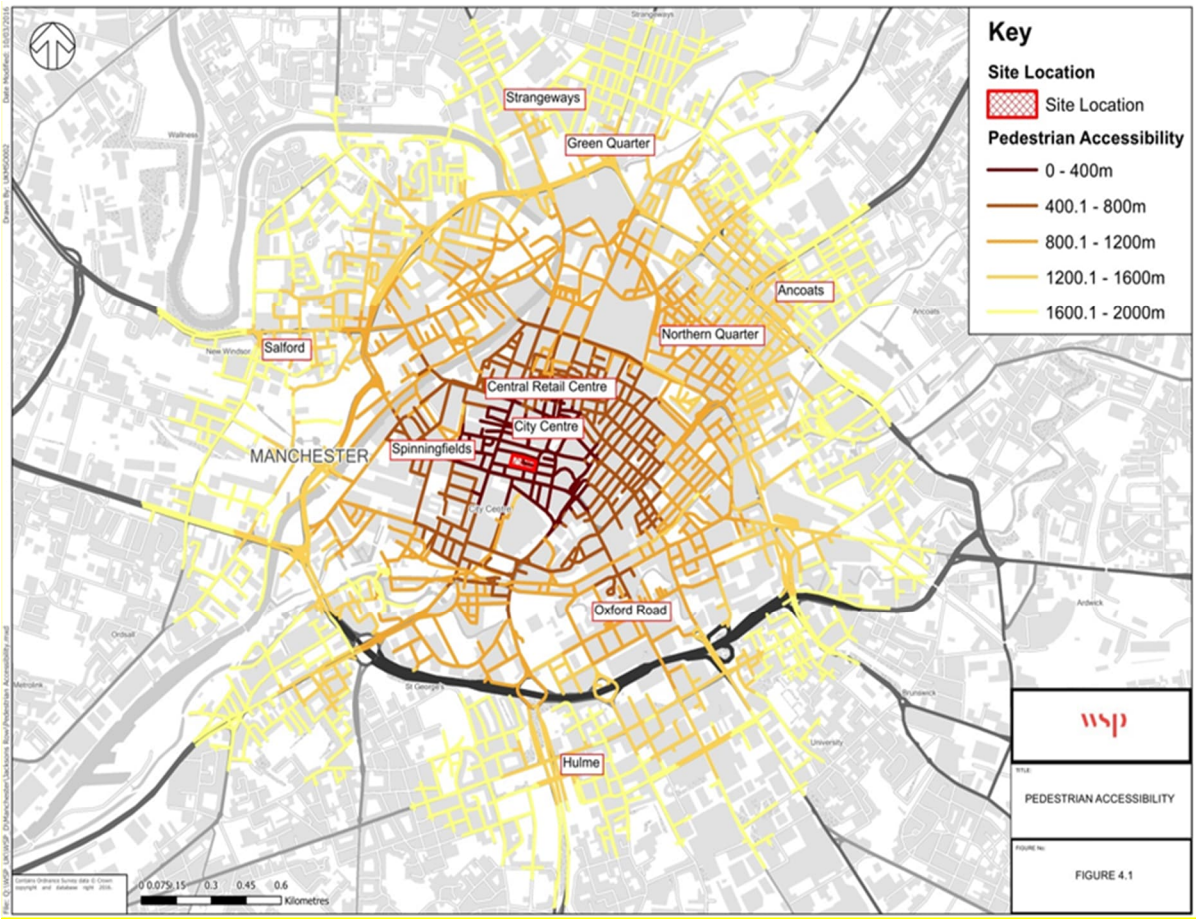
4.1.1 This section of the Transport Statement examines the accessibility of the site by sustainable modes of transport and reviews how the location of the Proposed Development will promote sustainable modes of travel and ultimately reduce the attractiveness of, and reliance on, the private car for travel by residents, employees and visitors to the site, both now and in the future.

4.2 PEDESTRIAN ACCESSIBILITY

4.2.1 The Institution for Highways & Transportation (IHT) publication 'Guidelines for Providing for Journeys on Foot' outlines that the preferred maximum walking distance for commuting from an origin point by persons without a mobility impairment is 2000m.

4.2.2 With an average walking speed of 1.4m/s, 2000m constitutes a 24-minute walk. The pedestrian accessibility isochrones shown in **Figure 5** illustrates key areas surrounding the site which are within a 2000m/ 24-minute walk. The figure can be found in **Appendix B**.

Figure 5 – Pedestrian Accessibility Location



4.2.3 The key areas within 2000m of the site as shown in **Figure 5** are listed below:

Spinningfields;
Oxford Road;

Hulme;
Salford;
Northern Quarter;
Ancoats;
Green Quarter; and
Strangeways.

4.2.4 It is likely that a number of these households may be occupied by future employees of the site, of which many may consider walking as a viable option for travel to work given the proximity of the site to their home.

4.2.5 Analysis of 2011 travel to work Census data has been undertaken for MSOA (Middle Super Output Area) 054 which encompasses the Proposed Development. As can be seen in **Table 2**, 6,173 employees walk to MSOA 054 (their place of employment).

Table 2 - Walking to Work

Area	Walk	% OF JTW
MSOA 054	6,173	12%
Manchester (Local Authority)	31,665	10%

4.2.6 6,173 employees walking to work equates to 12% of all journeys to work by different modes of transport to MSOA 054. This equates to a higher percentage than that for the wider Manchester area where 10% of all journeys to employment in Manchester were found to be undertaken by walking.

4.2.7 As such it can be assumed that a higher percentage of people will walk to the Proposed Development for work compared to those travelling to work across Manchester.

4.2.8 Moreover, the public realm strategy to improve the pedestrian environment surrounding and within the site as part of the Proposed Development, as described in the accompanying TS, will provide a safe and attractive environment for pedestrians and promote access to the site on foot.

4.2.9 Pedestrian links to employment, retail and leisure areas as well as major public transport hubs are excellent with pedestrian desire lines catered for and numerous crossing facilities. Dropped kerbs and tactile paving are provided at crossing points to aid and facilitate the movement of pedestrians, especially for the less mobile and those with pushchairs.

4.3 CYCLING ACCESSIBILITY

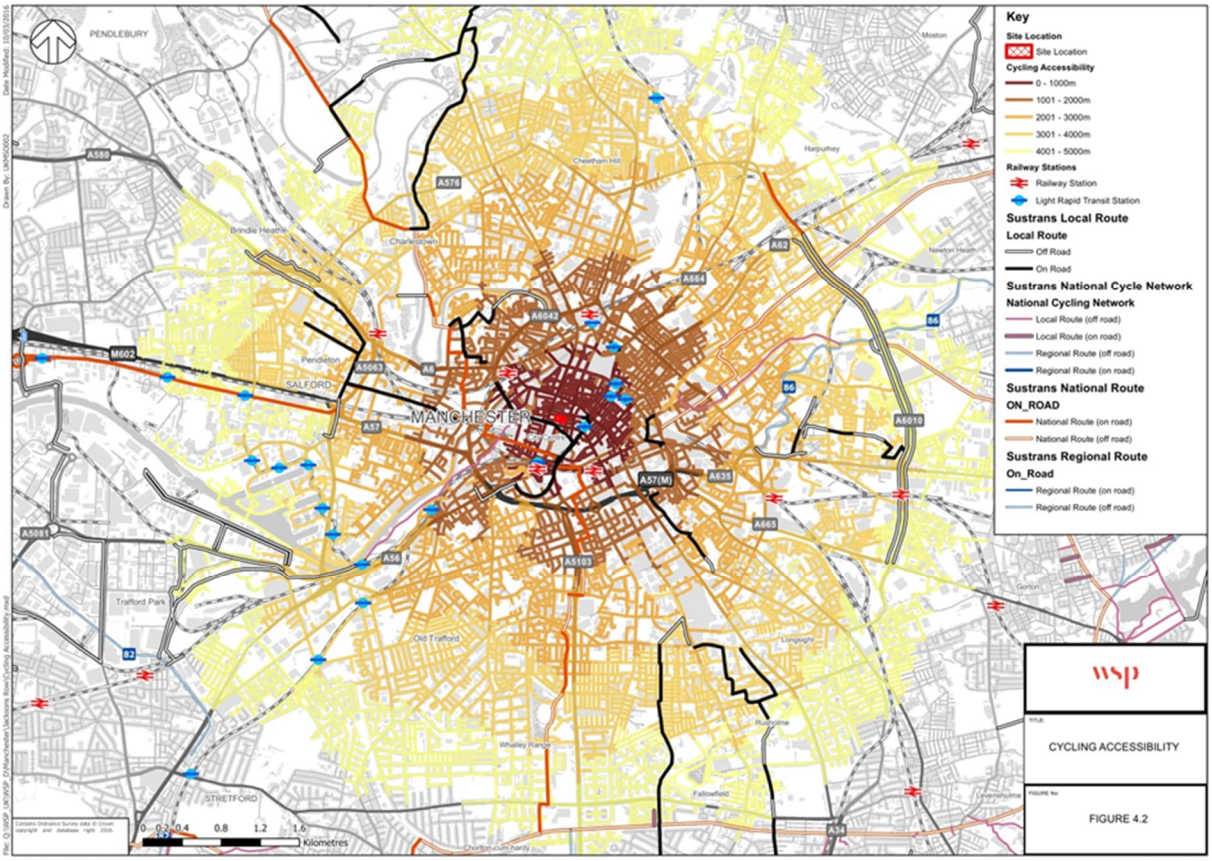
4.3.1 An acceptable cycling distance is considered to be up to 5km, with PPG13 stating that:

"Cycling also has potential to substitute for short car trips, particularly those less than 5km and to form part of a longer journey by public transport."

4.3.2 Whilst the PPG13 has been superseded by the NPPF, the identified acceptable 5km cycling distance is still considered applicable in the absence of any updated document which provides an alternative figure.

4.3.3 With an average cycling speed of 3.5m/s, 5000m constitutes a 24-minute cycle. The cycle isochrones shown in **Figure 6** illustrate the area surrounding the site which is within a 5000m/ 24-minute cycle.

Figure 6 – Cycling Accessibility



4.3.4 A wide range of areas are accessible within a 5000m cycle of the site as listed below:

- Broughton Park;
- Cheetham Hill;
- Miles Platting;
- Harpurhey;
- Ardwick;
- Longsight;
- Rusholme;
- Fallowfield;
- Moss Side;
- Whalley Range;
- Old Trafford:
- Firswood;
- Salford Quays;
- Gorse Hill;
- Weaste;
- Brindle Heath;
- Irlam o' th' Height; and
- Charlestown.

4.3.5 It is again likely that a number of these households may be occupied by future employees of the site, of which many may consider cycling as a viable option for travel to work given the proximity of the site to their home.

4.3.6 Analysis of 2011 travel to work Census data has been undertaken for MSOA (Middle Super Output Area) 054 which encompasses the proposed site. As can be seen in **Table 3** 1262 employees cycle to MSOA 054 (their place of employment).

Table 3 - Cycling to Work

Area	CYCLE	% OF JTW
MSOA 054	1,262	3%
Manchester (Local Authority)	9,699	3%

4.3.7 1,262 employees cycling to work equates to 3% of all journeys to work by different modes of transport to MSOA 054. The wider Manchester area (which encompasses MSOA 054) has 3% of all journeys to employment in Manchester undertaken by cycling; as such MSOA 054 has an equal percentage of employees cycling to work as the wider Manchester area.

4.3.8 As such it can be assumed that an equal percentage of people will cycle to the Proposed Development for work compared with those travelling to work across Manchester.

4.3.9 **Figure 6** also demonstrates the proximity of national, regional and local cycle routes to the site. The proximity of these routes greatly increases the cycling accessibility of the site. The site is accessible via a network of advisory cycle routes including recommended on-road routes and favourable routes on quieter roads that are still reasonably direct. The nearest off-road cycle route can be found at Albert Square approximately 250m from the centre of the Proposed Development. Manchester cycle hubs, where people can park their bike safely and securely, can also be found at City Tower adjacent to Piccadilly Gardens and at Oxford Road Rail Station.

4.3.10 Furthermore, there are 494 cycle spaces proposed at site adding to the viability of cycling as a realistic alternative to private car use for users of the site.

4.4 PUBLIC TRANSPORT ACCESSIBILITY: BUS

4.4.1 Access to frequent public transport services within an acceptable walking distance from the site encourages and promotes public transport use.

4.4.2 The site is well placed to encourage travel by bus. Guidance published by the IHT 'Planning for Public Transport in Developments' (1999) recommends that the maximum walking distance to a bus stop should be 400 metres, equating to an approximate five-minute walk.

4.4.3 A number of bus stops are located within 400m of the site on A56 Deansgate, John Dalton Street and A6042 Albert Square as indicated in **Figure 7**. The services which can be accessed from these stops to key destinations can be seen in **Tables 4, 5 and 6**.

4.4.4 Included within the services identified, it should be noted that the Metroshuttle is a free city centre service which connects Shudehill Interchange with Victoria Station, Deansgate, Castlefield, Deansgate Station and Oxford Road Station. The service runs every ten minutes on Monday - Saturday between 7am and 7pm and between 10am and 6pm on Sundays.

Figure 7 – Public Transport Accessibility

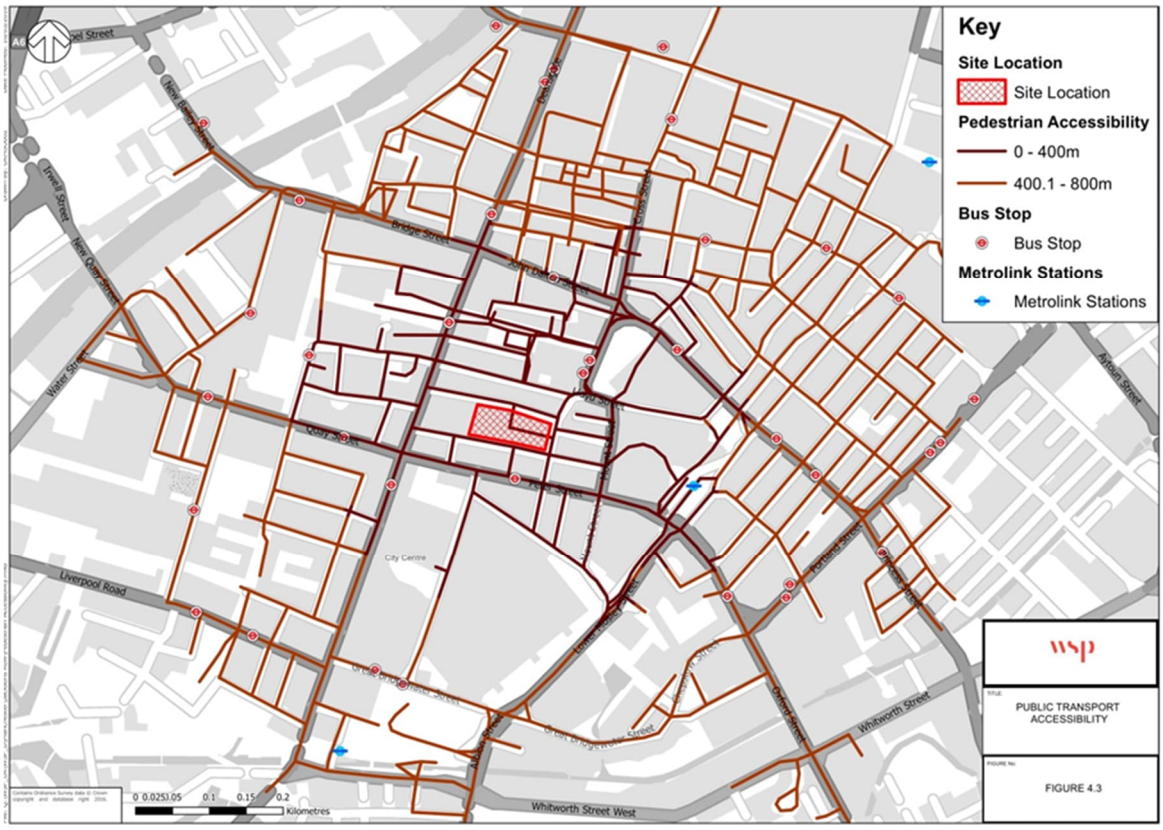


Table 4 - Bus Services Accessible on A56 Deansgate

Service	Route	Frequency MON - FRI	Frequency SAT	Frequency SUN
X43	Nelson - Burnley – Prestwich - Manchester	4 per hour	4 per hour	2 per hour
Metroshuttle 1	Piccadilly Station – Central Library – John Rylands Library – Victoria Station – Printworks - Piccadilly Station	6 per hour (7am – 7pm)	6 per hour (8.30am – 6.30pm)	6 per hour (9.30am – 6pm)
Metroshuttle 2	Piccadilly Station – Stephenson Square – Castlefield – Spinningfields – John Rylands Library – Victoria Station – Piccadilly Station	6 per hour (6.30am – 6.30pm)	6 per hour (8.30am – 6.30pm)	6 per hour (9.30am – 6pm)

Service	Route	Frequency MON - FRI	Frequency SAT	Frequency SUN
Metroshuttle 3	Piccadilly Station – Shudehill – Victoria Station – Deansgate – Whitworth Street – Piccadilly Station	6 per hour (6.30am – 6.30pm)	6 per hour (8.30am – 6.30pm)	6 per hour (9.30am – 6pm)
197	Albert Square – Manchester Royal Infirmary – Levenshulme – Heaton Mersey - Stockport	3 per hour (6.15am – 10.00pm)	3 per hour (7.15am – 10.00pm)	1 per hour (9.00am – 9.45pm)

Table 5 - Bus Services Accessible on John Dalton Street

Service	Route	Frequency Mon – Fri	Frequency Sat	Frequency Sun
36	Bolton - Swinton - Irlams o' th' Height - Pendleton - Manchester	6 per hour (5.20am – 11.15pm)	6 per hour (5.20am – 11.15pm)	3 per hour (6.15am – 11.15pm)
37	Bolton – Farnworth – Manchester	6 per hour (5.30am – 11.15pm)	6 per hour (5.40am – 11.15pm)	3 per hour (8.00am – 11.15pm)
38	Greenheys – Walkden - Irlam o' th' Heights - Manchester	6 per hour (5.30am – 11.15pm)	6 per hour (7.00am – 11.15pm)	2 per hour (9.50am – 11.00pm)
X41	Blackburn - Manchester	2 per hour (6.45am – 11.20pm)	2 per hour (8.10am – 11.30pm)	1 per hour (9.45am – 6.45pm)
34	Lowton – Leigh – Astley – Boothstown – Swinton – Pendleton - Manchester	2 per hour (4.30am – 6.20pm)	2 per hour (6.50am – 6.00pm)	1 per hour (7.40am – 6.15pm)
V1	Manchester Royal Infirmary – Manchester – Tyldesley - Leigh	4 per hour (5.00am – 11.30pm)	4 per hour (6.50am – 11.30pm)	2 per hour (7.50am – 11.30pm)
V2	Manchester Royal Infirmary – Manchester – Tyldesley - Atherton	4 per hour (6.00am – 11.45pm)	4 per hour (7.00am – 11.45pm)	2 per hour (8.55am – 11.45pm)

Service	Route	Frequency Mon – Fri	Frequency Sat	Frequency Sun
X43	Burnley – Rawtenstall – Prestwich - Manchester	4 per hour	4 per hour	2 per hour
50	East Didsbury – Manchester – Salford Quays	6 per hour (4.30am – 12am)	4 per hour (6am – 12am)	4 per hour (7.30am – 11.30pm)
197	Albert Square – Manchester Royal Infirmary – Levenshulme – Heaton Mersey - Stockport	3 per hour (6.15am – 10.00pm)	3 per hour (7.15am – 10.00pm)	1 per hour (9.00am – 9.45pm)
3	Piccadilly – Spinningfields Circular	6 per hour (7.20am – 7.20pm)	6 per hour (8.25am – 8.35pm)	6 per hour (9.40am – 6.00pm)

Table 6 - Bus Services Accessible on A34 Quay Street/ Peter Street

Service	Route	Frequency Mon – Fri	Frequency Sat	Frequency Sun
197	Albert Square – Manchester Royal Infirmary – Levenshulme – Heaton Mersey - Stockport	3 per hour (6.15am – 10.00pm)	3 per hour (7.15am – 10.00pm)	1 per hour (9.00am – 9.45pm)
191	Hazel Grove - Stockport – Levenshulme – Longsight – Manchester	4 in total (6.20am – 7.40am)	-	-
Metroshuttle 1	Piccadilly Station – Central Library – John Rylands Library – Victoria Station – Printworks - Piccadilly Station	6 per hour (7am – 7pm)	6 per hour (8.30am – 6.30pm)	6 per hour (9.30am – 6pm)
Metroshuttle 2	Piccadilly Station – Stephenson Square – Castlefield – Spinningfields – John Rylands Library – Victoria Station – Piccadilly Station	6 per hour (6.30am – 6.30pm)	6 per hour (8.30am – 6.30pm)	6 per hour (9.30am – 6pm)

4.4.5 From the above tables it can be seen that a wide range of bus services are available within 400m walking distance of the site.

4.4.6 Piccadilly Gardens bus station is located approximately 920m to the northeast of the Proposed Development and provides access to a large number of bus services operating throughout the day. In a city centre it is reasonable to suggest that people would walk further than 400m to bus services, due to the frequencies and level of destinations available from the bus station.

4.4.7 There are up to 77 bus services with the majority of services operating at frequencies of at least two per hour from Piccadilly Gardens bus station. These services provide sustainable access to a number of destinations across the region including Bolton, Leigh, Flixton, Rochdale, Worsley, Wigan, Sale, Stockport, Oldham, East Didsbury, Middleton, Bury, Chorlton, Ashton-Under-Lyne and Manchester Airport.

4.4.8 Furthermore, the Bus Priority works package has improved bus facilities and services in Manchester City Centre having been completed in 2016.

4.5 PUBLIC TRANSPORT ACCESSIBILITY: METROLINK

4.5.1 The site is accessible via the Metrolink network with the nearest stop to the site located at St. Peter's Square, approximately 340m walking distance from the centre of the site.

4.5.2 St. Peter's Square tram stop benefits from a cumulative tram frequency of one tram every four minutes. The services which can be accessed from the St. Peter's Square stop can be seen in **Table 7**.

Table 7 - St. Peter's Square Metrolink Services

Service	Weekday	Sat	Sun	Bank Holidays
Altrincham – Bury	Every 12 minutes (07:00 – 20:00)	Every 12 minutes (09:00 – 18:30)	N/A	N/A
Altrincham – Piccadilly	Every 12 minutes (05.59 – 23:23) until 00:30 fridays	Every 12 minutes (05.59 – 23:23) until 00:30 fridays	Every 12 minutes (06.59 – 23:23) until 00:30 fridays	Every 12 minutes (06.59 – 23:23) until 00:30 fridays
Bury - Piccadilly	Every 12 minutes (06:00 – 00:00)	Every 12 minutes (06:00 – 00:00)	Every 12 minutes (07:00 – 00:00)	Every 12 minutes (07:00 – 00:00)
Ashton-under-Lyne to Eccles	Every 12 minutes (05:54 – 22:54)	Every 12 minutes (05:54 – 22:54)	Every 12 minutes (06:54 – 22:30)	Every 12 minutes (06:54 – 22:30)
Trafford Centre - Cornbrook	Every 12 minutes (05:59 – 00:23)	Every 12 minutes (05:59 – 00:23)	Every 12 minutes (06:59 – 00:11)	Every 12 minutes (06:59 – 00:11)
Rochdale Town Centre – East Didsbury	Every 12 minutes (05:55 – 22:43)	Every 12 minutes (05:55 – 22:43)	Every 12 minutes (06:55 – 22:43)	Every 12 minutes (06:55 – 22:43)

Service	Weekday	Sat	Sun	Bank Holidays
Shaw and Crompton – East Didsbury	Every 12 minutes (05:59 – 22.59)	Every 12 minutes (05:59 – 22.59)	Every 12 minutes (06:59 – 22.59)	Every 12 minutes (06:59 – 22.59)

4.5.3 Due to the existing connectivity from the Metrolink network, including the enhanced access options delivered through the Second City Crossing (2CC) proposals, the site is considered highly accessible by light rail to a large area of Greater Manchester.

4.5.4 PUBLIC TRANSPORT ACCESSIBILITY: TRAIN

4.5.5 The IHT's 'Planning for Public Transport in Developments' which states that 800m is recognised as an acceptable distance for people to walk to and from a rail station as part of a regular commute.

4.5.6 The centre of the Proposed Development is located within 800m acceptable walking distance of both Deansgate and Oxford Road railway stations.

4.5.7 The main services which operate from these stations can be seen in **Table 8** and **Table 9** below.

Table 8 - Rail Services Available from Deansgate Railway Station

Destination	Frequency
Manchester Airport	4 per hour
Blackpool North	2 per hour
Southport	2 per hour
Buxton	Three PM services
Barrow-in-Furness	Two AM service, Three PM services
Stoke-on-Trent	One per day

Table 9 - Rail Services Available from Manchester Oxford Road Railway Station

Destination	Frequency
Liverpool South Parkway	2 per hour

Destination	Frequency
Manchester Airport	3 per hour
Buxton	Three PM services
Blackpool North	2 per hour
Southport	1 per hour
Llandudno	1 per hour
Hazel Grove	1 per hour
Scarborough	1 per hour
Edinburgh Waverley	1 every two hours
Glasgow Central	1 every two hours
Norwich	1 per hour

4.5.8 Furthermore, Salford Central, Victoria and Piccadilly rail stations are accessible from the site, albeit at slightly further walking distances than 800m.

4.5.9 A selection of the services which operate from these respective stations can be seen in the tables **10, 11 and 12** below.

Table 10 - Train Services Accessible from Salford Central Railway Station

Destination	Frequency
Stalybridge	2 per hour
Bolton	4 per hour
Wigan Wallgate	4 per hour
Blackpool North	1 per hour
Southport	1 per hour
Clitheroe	1 per hour
Stalybridge	2 per hour
Blackburn	2 per hour

Table 11 - Rail Services Available from Manchester Victoria Railway Station

Destination	Frequency
Leeds	3 per hour
Wigan Wallgate	4 per hour
Liverpool Lime Street	3 per hour
Huddersfield	1 per hour
Blackburn	2 per hour
Stalybridge	2 per hour
Kirkby	1 per hour
Blackpool North	1 per hour
Southport	1 per hour

Table 12 - Rail Services Available from Manchester Piccadilly Railway Station

Destination	Frequency
Stoke-on-Trent	5 per hour
Crewe	4 per hour
London Euston	3 per hour
Nottingham	1 per hour
Middlesbrough	1 per hour
Bournemouth	1 per hour
Cardiff Central	1 per hour
Hull	1 per hour
Holyhead	1 AM and 3 PM services
Barrow-in-Furness	1 AM and 3 PM services
Cleethorpes	1 per hour
Hadfield	2 per hour
Glasgow	1 every 2 hours

Destination	Frequency
Bristol Temple Meads	1 per hour
Sheffield	3 per hour
Milford Haven	1 per hour
Newcastle	4 AM and 4 PM services
Chester	2 per hour
Edinburgh	1 every 2 hours
Scarborough	1 per hour
Exeter	1 every 2 hours
Llandudno	1 AM and 5 PM services
Buxton	1 per hour
Blackpool North	2 per hour
Glossop	2 per hour
Norwich	1 per hour
Alderley Edge	2 per hour
Liverpool South Parkway	2 per hour
Marple	2 per hour
Paignton	1 AM and 1 PM service
Southport	1 per hour
Manchester Airport	9 per hour
York	3 per hour
Hazel Grove	1 per hour
Preston	3 per hour
Birmingham (New Street)	2 per hour
Leeds	4 per hour
Sheffield	3 per hour

4.5.10 From the above tables it can be seen that a wide range of train services to local, regional and national destinations are available within walking distance of the site.

4.5.11 Analysis of 2011 travel to work census data has been undertaken for MSOA (Middle Super Output Area) 054 which encompasses the site. As can be seen in **Table 13**, 23,798 employees use public transport to MSOA 054 (their place of employment).

Table 13 - Public Transport to Work

Area	PUBLIC TRANSPORT	% OF JTW
MSOA 054	23,798	36%
Manchester (Local Authority)	87,343	28%

4.5.12 23,798 employees using public transport to work equates to 36% of all journeys to work by different modes of transport to MSOA 054. The wider Manchester area (which encompasses MSOA 054) has 28% of all journeys to employment in Manchester undertaken by public transport; as such MSOA 054 has a higher percentage of employees taking public transport to work compared to the wider Manchester area. As such it can be assumed that a higher percentage of people will take public transport to the Proposed Development for work compared to those travelling to work across Manchester.

4.6 ENTERPRISE CAR CLUB

4.6.1 Enterprise Car Club operates the Car Club vehicles in Manchester. There are a range of low emission cars and vans available in Manchester City Centre and surrounding areas including Hulme, Chorlton, Didsbury, Wythenshawe and Salford Quays. The nearest car club parking area to the Proposed Development is located on the corner of Deansgate and Queen Street, approximately 200 metres from the site.

4.6.2 Vehicles are booked on the internet or by phone, weeks, months ahead or as little as a minute before a vehicle is needed. Once a booking is completed, members simply walk to a vehicle, unlock it (using a personal smart card and PIN) and drive away. The vehicles give residents, workers and businesses a greener, more convenient and cost-effective alternative to car ownership - whilst reducing congestion. More information on the car club can be found at: www.enterprisecarclub.co.uk

4.7 ACCESSIBILITY SUMMARY

4.7.1 Based upon the above assessment of the existing transport facilities available, the site has been found to be highly accessible via sustainable modes of transport. An excellent range of public transport services (bus, Metrolink and train services) are available within walking distance of the site. Furthermore, surrounding pedestrian and cycling infrastructure is extensive and covers a wide range of surrounding areas. All of these facilities will encourage the use of non-car modes of travel to the site.

4.7.2 From analysis of 2011 travel to work census data it can be assumed that a higher percentage of people will walk and take public transport to work in MSOA 054 than compared to across Manchester as a whole. An equal percentage of people can be assumed to travel to work by cycling in MSOA 054 as seen across Manchester. The public realm and cycle parking proposals associated with the site are also envisaged to improve facilities for pedestrians and cyclists. Accordingly, it is considered that the site represents a highly accessible location suitable for a mixed-use presence.

5 POLICY REVIEW

5.1 INTRODUCTION

5.1.1 The following section sets out key national and local transport planning policies, and how the proposals relate to them.

5.2 NATIONAL POLICY

National Planning Policy Framework

5.2.1 The NPPF was published on the 20th July 2021. Section 9 of the NPPF (2021) is entitled Promoting Sustainable Transport and outlines the important role that transport policies have to play in facilitating sustainable development. The updated section states that when assessing a specific application for development it should be ensured that:

- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- Safe and suitable access to the site can be achieved for all users;
- The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code 46 ; and
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

5.2.2 Within this context, applications for development should:

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

National Planning Practice Guidance (NPPG)

5.2.3 The Government produced the National Planning Practice Guidance (NPPG) to supplement the NPPF. Within the NPPG, there is a specific section clarifying the over-arching principles on Travel Plans, Transport Assessments and Transport Statements. There are also sections advising further on each of the three documents.

5.2.4 The guidance on Transport Assessments and Statements re-iterates the circumstances in which either document would usually be required. It is clear that a development of the size and nature of this development within a city centre location requires a Transport Statement. It also clarifies the process for establishing a scope for the statements, and what the document should contain. The guidance on Travel Plans reinforces the requirement for a Travel Plan, the scope of the document,

and need for monitoring to continue the strategy into the future. The NPPG has been considered in the production of this Transport Statement and the accompanying Framework Travel Plan.

5.3 REGIONAL POLICY

The Draft Greater Manchester Spatial Framework – Places for Everyone

5.3.1 The Draft Greater Manchester Spatial Framework, which is currently under consultation up to the 3rd October 2021, outlines the spatial pattern of development across Greater Manchester up to 2036.

5.3.2 Places for Everyone, published by the GMCA on behalf of the nine districts, is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth, as well as how to improve accessibility to them.

5.3.3 The plan is a joint development plan which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. Importantly, it will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

5.3.4 The plan is the result of a process that began as the Greater Manchester Spatial Framework (GMSF) in 2014 and has been informed by the feedback received from residents, businesses and the development industry to previous consultations on that Plan. Greater Manchester have now produced what we consider to be our final plan, the one we want to submit to the Secretary of State.

5.3.5 The plan:

- sets out how the nine boroughs should develop up until 2037;
- identifies the amount of new development that will come forward across the 9 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

5.3.6 Chapter 9, entitled 'Connected Places', details the ways in which transport will be integrated into the development of Manchester, and how it combines with other transport related strategies such as the Greater Manchester Transport Strategy 2040 and the five-year development plan 2021-2026.

5.3.7 The document also details the reasoning for the policies, particularly in regard to non-motorised transport, stating *"Central to the overall approach must be the delivery of a major increase in the proportion of trips undertaken by walking, cycling and public transport"* and that *"Walking and cycling need to become the natural choice for shorter trips, and public transport for longer journeys"*.

Greater Manchester Transport Strategy 2040

5.3.8 The recently published Greater Manchester Transport Strategy 2040 outlines the growth strategies for the Greater Manchester region to 2040, including multi-modal transport options and the growth of non-motorised transport, particularly for commuting to the City Centre. The four key elements to the stated vision of *"world class connections that support long-term, sustainable economic growth and access to opportunity to all"* include:

- Supporting sustainable economic growth;
- Protecting our environment;
- Improving quality of life for all; and
- Developing an innovative city-region.

5.3.9 The strategy aims to focus on creating an *"integrated, sustainable, and well-co-ordinated transport system which supports a wide range of travel needs"*, allowing the transport system to be more customer focused and responsive to changing travel needs. This is to be completed through seven core principles:

- Well maintained and resilient – bringing the transport network into a good state of repair, and ensuring it can withstand high demand, unexpected events, and severe weather;
- Integrated – enabling customers seamless integration between transport modes on a high quality, high capacity network connecting new development areas;
- Inclusive – to develop a fully inclusive and affordable transport system;
- Healthy – a transport system that supports healthy and active lifestyles;
- Environmentally Responsible – transport emissions reduced to near zero, and new transport schemes delivering environmental improvements where possible;
- Reliable – to deliver a reliable service that gives confidence to passengers; and
- Safe and secure – to reduce deaths on roads and ensure poor perceptions of personal security are no longer a significant barrier to walking, cycling and using public transport.

5.3.10 The strategy makes note of an increased investment toward public transport, with medium and long term heavy and light rail strategies to connect both areas of Greater Manchester and cities across the north, particularly Leeds and Liverpool via east-west connectivity, increased frequency and development of the Metrolink network, and integration across transport modes of ticketing and door-to-door transport.

- Walking and cycling links are also stated to be vital to the strategy, with investment in walking route networks to local and regional centres, segregated from the road network to allow direct entry to public transport interchanges, as well as improved cycle parking and cycling facilities at key destinations with greater on-street wayfinding.

5.3.11 As stated, the location of the site with respect to the high level of accessibility to sustainable modes of transport, as outlined in Chapter 4 will encourage users of the Proposed Development to travel by such modes. Measures to further support this are included in the development proposals.

Greater Manchester's Fourth Local Transport Plan (LTP4) Delivery Plan 1: 2016/17 – 2021/22, Transport for Greater Manchester (Feb 2017)

5.3.12 The Greater Manchester Local Transport Plan comprises two documents; *The Greater Manchester Transport Strategy 2040*, which gives a long-term strategic view of how the transport system will need to evolve, and a five-year Delivery Plan, which gives more specific detail of what objectives are planned in the short term.

5.3.13 The aim of both documents is to establish a *'fully integrated, high-capacity transport system for Greater Manchester, with travelling customers at its heart.'* In order to achieve this, the LTP 4 for Greater Manchester has an ultimate goal that all interventions will come together to offer flexible and customer-focused travel choices.

5.3.14 The LTP4 states:

> *"The anticipated growth to 2035 requires us to look carefully at the overall transport network across Greater Manchester to ensure that wherever people live and work-whether in existing neighbourhoods and locations or new ones emerging by 2035 – the opportunities are there to encourage as many people to make effective choices involving walking and cycling, and moving by bus, tram and train."*

5.3.15 It is anticipated that the decision to deliver additional transport infrastructure will be determined by the form and scale of growth proposed, as well as the availability of funding. In addition to the planning decisions taken by individual authorities and the ability of developers to deliver planned developments, the phasing of development could also be impacted by future infrastructure delivery and funding.

5.3.16 For this reason, some development will be able to happen in the short or medium term, whilst the delivery of other growth areas will need to be delayed until later in the plan period to enable transport and other essential infrastructure to be put in place to support it. We will seek, proactively, to put in place funding packages to support delivery of the Proposed Development, working with both Government and private developers to:

> "*Deliver a package of measures to support improved access to key employment, education and training locations across the wider city region, focused on improving walking, cycling and public transport connectivity and smarter choices activities."*

5.3.17 In order to support the ongoing travel planning documents and processes set up by both public and private developers and their travel plan coordinators, TfGM and its partners will look to focus on evolving travel planning tools over the coming years to improve accessibility to 'real time' information for all travellers.

5.3.18 A single portal for travel information is planned to provide multi-modal travel information to help travellers to make informed decisions on their journeys, where:

> *"Future developments could include adding data on roadworks, incidents/events, and a 'predictive' function to warn customers of the potential impacts on their journey of, for example, adverse weather. Expansion of CCTV and other sensor coverage will allow better real-time monitoring of our transport networks and feedback issues to customers."*

5.3.19 By allowing travelling customers to make excellent travel choices it is hoped that it will allow them to:

> *"move seamlessly between services and modes of transport on a single, high quality, easy-to-use network; maximising choice and supporting low-car lifestyles, made possible by integrated land use and transport planning."*

Greater Manchester Local Transport Plan 3 (2011/12 – 2015/16)

5.3.20 Greater Manchester published its third Local Transport Plan (LTP) in April 2011, setting out the plans and spending priorities of TfGM, the 10 Greater Manchester Councils and other key partners in the short, medium and longer term.

5.3.21 The main aims of the LTP are to:

- Ensure that the transport network supports the Greater Manchester economy to improve the life chances of residents and the success of business;
- Ensure that carbon emissions from transport are reduced in line with UK Government targets in order to minimise the impact of climate change;
- 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;
- 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 opportunities; and
- Maximise value for money in the provision and maintenance of transport infrastructure and services.

5.3.22 In terms of parking, the LTP seeks "to deliver a balanced approach to car parking that provides sufficient capacity to support economic growth whilst simultaneously restricting demand in order to encourage the greater use of sustainable transport".

5.3.23 As stated, the location of the site with respect to the high level of accessibility to sustainable modes of transport, as outlined in Chapter 3 will encourage users of the Proposed Development to travel by such modes. Measures to further support this are included in the development proposals summarised in Chapter 3, alongside details of the parking strategy, and the FTP document.

Manchester Residential Quality Guidance

5.3.24 Manchester City Council is in the process of developing its own design and quality standard for new housing; the Draft Manchester Residential Quality Guidance document was recently consulted. While not adopted, the content of the document is considered appropriate, in particular with respect to parking provision in the absence of specific guidance in the Core Strategy. It is interim guidance within the context of the Core Strategy.

5.3.25 The document states that "residential design should always make a positive contribution to Manchester's streets and spaces to make a safe and inviting place for everyone". It is suggested that Manchester City Council will require demonstration that the proposals:

- "*Have an understanding of how the design responds to street hierarchy;*
- *Have considered how the ground floor design contributes to creating a safe and active street;*
- *Create a range of opportunities for natural surveillance and observation; and*
- *Have facilitated safe and enjoyable public realm."*

5.3.26 The document also states that "Manchester's residential areas should be well connected, easily walkable and cycle friendly". It is necessary to demonstrate how the proposals:

- "*Facilitate and encourage walking and cycling;*
- *Create clear, safe and obvious connections to the public transport network;*
- *Define a clear street hierarchy; and*
- *Support opportunities to improve wayfinding and orientation*."

5.3.27 With respect to car parking, it is stated that "there is a need to balance the provision of sufficient parking with the need to encourage different, more sustainable modes of transport and working towards reducing the dependence on the car", and "providing sufficient car parking in an appropriate manner is important in ensuring that cars do not dominate the street".

5.3.28 Regarding cycle parking it is suggested that "residential development needs to play its part [in encouraging cycling], ensuring the correct facilities are in place to make cycling convenient, safe and practical".

5.3.29 Recommended car parking standards are provided in accordance with the 'comply or justify' approach of the document, with City Centre developments *"required to provide a minimum 30 - 40% parking provision for developments within 800m walk of a public transport node (bus corridor, tram stop or train stop)"*. However, reduced on-site provision is noted to be justified on the basis of:

- Secure cycle parking in excess of 50% provision relative to apartment numbers;
- Identification of sufficient off-site capacity, within 5 minutes' walk of the Proposed Development, to accommodate designated spaces associated with the Proposed Development; and/or
- Provision of designated on-street parking.

5.3.30 As stated, the location of the site with respect to the high level of accessibility to sustainable modes of transport, as outlined in Chapter 4 will encourage users of the Proposed Development to travel by

such modes. Measures to further support this are included in the development proposals summarised in Chapter 3, alongside details of the parking strategy, and FTP document.

5.4 LOCAL POLICY

Manchester City Council: Manchester Core Strategy 2012 to 2027

5.4.1 The Manchester City Council Core Strategy Development Plan Document, adopted in July 2012 has a strategic transport objective to 'improve the physical connectivity of the City, through sustainable transport networks, to enhance its functioning and competitiveness and provide access to jobs, education, services, retail, leisure and recreation'.

5.4.2 It contains three specific 'Transport' policies, comprising:

- Policy T1 – Sustainable Transport;
- Policy T2 – Accessible areas of opportunity and need; and
- Policy T3 – Strategic Integration.

5.4.3 Policy T1 focuses on sustainable transport and access for all, specifically delivering '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'.

5.4.4 It is considered that the location of the site with respect to the high level of accessibility to sustainable modes of transport, as outlined in Chapter 4 will encourage users of the Proposed Development to travel by such modes. Measures to further support the use of sustainable modes of transport by residents and their visitors are included in the development proposals summarised in Chapter 4 and the FTP document.

5.4.5 Policy T2 states that Manchester City Council will actively manage the pattern of development to ensure that new development "is easily accessible by walking, cycling and public transport; connecting residents to jobs, centres, health, leisure, open space and educational opportunities. Particular priority will be given to providing all residents access to strategic employment sites".

5.4.6 With regard to parking, Policy T2 states the level of car parking in the City Centre "reflects the highly accessible nature of the location, as well as the realistic requirements of the users of the development". While guidance is provided, Policy T2 states "the car parking standards are maximums and the cycle and disabled car parking standards are minimums. However, the Council will take the circumstances of each proposal into account to establish what level of parking is appropriate".

5.4.7 Furthermore, Policy T2 states that, "maximum standards for car parking do not apply to the City Centre as each development in the City Centre will be considered on a case-by-case basis". Specific, minimum residential cycle parking standards are also not provided. As stated, it is considered that the location of the site would encourage travel by sustainable modes. Details of the parking strategy for the Proposed Development are included in Chapter 6.

5.4.8 Policy T3 relates to the strategic integration of proposed developments within the sustainable transport network. It is not considered that the Proposed Development would prejudice the implementation of any strategic integration projects.

5.4.9 As stated, the location of the site with respect to the high level of accessibility to sustainable modes of transport, as outlined in Chapter 3 will encourage users of the Proposed Development to travel by such modes. Measures to further support this are included in the development proposals summarised in Chapter 3.

6 TRAFFIC GENERATION

6.1 INTRODUCTION

6.1.1 The purpose of this chapter is to inform officers at Manchester City Council of the assumptions and methodology that have been adopted in the preparation of this Transport Statement with regard to the development trip rates generated by the Proposed Development.

6.1.2 The Proposed Development site currently contains the Manchester Reform Synagogue, the Sir Ralph Abercromby public house and the former Bootle Street Police Station. It should be noted that in order to perform a robust traffic impact assessment for the Proposed Development, the vehicle trips generated from the existing development have not been included within this methodology.

6.1.3 Manchester City Council highway officers initially provided a response following the original planning application, which was registered in January 2017, and a subsequent set of comments were prepared by Manchester City Council and the Highways Forecasting and Analytical Services (HFAS) to support the initial granted application.

6.1.4 In order to provide a robust and consistent approach which aligns with these comments, the Proposed Development quantum has been compared with the development mix associated with the application the Manchester City Council /HFAS comments referred to, as shown in Table 14.

6.1.5 Consequently, to support the Proposed Development as described in this report, a trip generation and distribution exercise has been undertaken.

Table 14 – Quantum of Use

Type of Development	Class Use	Quantum	
		Consented Development	Proposed Development
Dwelling Houses (Apartments)	C3	Up to 181 apartments	Up to 213 apartments
Business (Office Space)	E	21,709 sqm	30,751 sqm
Retail / Restaurants and Cafes / Drinking Establishments	E	2,277 sqm	1,798 sqm
Hotel	C1 / E	17,879 sqm	13,357 sqm
Non-residential Institutions (Synagogue)	D1	2,620 sqm	N/A

6.1.6 A preliminary scoping meeting with highway officers was held on 5th November 2015. Manchester City Council highway officers were then asked to provide a response following the planning submission of a proposal designed by MAKE architects. A subsequent set of comments were prepared by Manchester City Council and TfGM HFAS and can be found in **Appendix B**. A copy of the Manchester City Council and HFAS response can be found in **Appendix B**.

6.1.7 Manchester City Council/HFAS comments have been used as a guide to prepare this traffic impact methodology.

6.1.8 Notwithstanding the above, further email discussions were conducted with Manchester City Council highway and HFAS officers to determine details regarding the Approved Development. Copies of these emails can be found in **Appendix B**.

6.1.9 Given the scale and location of the Proposed Development and following the previous scoping comments and a technical response from Manchester City Council, a 'trip rate / TRICS' method has been used to derive the trip rates for each of the development types. It should be noted that the number of apartments should be considered a maximum for the Proposed Development.

6.1.10 The methodology herein has taken full consideration of comments made by highway officers and is, therefore, considered appropriate by WSP to demonstrate the impact of the Proposed Development in transportation terms and provide a Transport Statement suitable to support the Section 73 application.

6.2 TRIP RATES AND TRAFFIC GENERATION

6.2.1 Following comments from HFAS recommending that suitable trip rates are determined from the TRICS database, the following assessment has been prepared.

6.2.2 Pre-Covid person trip rates for the Proposed Development have been extracted using the TRICS database. TfGM recommended an approach (as per the Guidance on Transport Assessment) to obtain person-trip rates in the first instance. These person-trip values have then been split by mode, using Census Journey-to-Work data. The full TRICS outputs for each development type have been included in **Appendix E**.

6.2.3 Following an assessment of Department for Transport (DfT) weekday traffic daily profile information close to the site and observation of existing traffic conditions on the local highway network it has been concluded that the weekday peak hours occur between 8am-9am and 5pm-6pm.

6.2.4 It is acknowledged that the Proposed Development will also generate a number of servicing trips. However, it is proposed these trips are to be managed to occur outside the peak hours as part of a service management strategy and therefore have not been included within this part of the assessment.

6.2.5 Following changes to the quantum of the development, the following trip generation figures have been updated. As stated previously, where applicable, the Approved Development figures and revised Proposed Development figures are shown, reflecting this change. Updated reference figures and calculations are included in **Appendix E**.

6.3 RESIDENTIAL TRIP GENERATION DERIVATION

6.3.1 The first stage of the process to obtain trip rates for the residential element of the Proposed Development was to collect person-trip rates from the TRICS database. The trip rates have been obtained for privately owned apartments in **Table 15**.

Table 15 – Peak Hour Person-Trip Rates (per Dwelling for Private Apartments)

Peak Hour	Arriving Trips	Departing Trips	Total
AM Peak Hour (08:00 – 09:00)	0.071	0.456	0.527
PM Peak Hour (17:00 – 18:00)	0.663	0.262	0.925

6.3.2 The trip rates above have been applied to the proposed number of apartments (213) in order to estimate the total development person trip generation during the peak hour periods of 0800-0900hrs and 1700-1800hrs. A summary of the total person-trip generation derived is provided in **Table 16**.

Table 16 – Peak Hour Person-Trips for Private Apartments

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	13	83	96
PM Peak Hour (17:00 – 18:00)	120	47	167
Proposed Development			
AM Peak Hour (08:00 – 09:00)	15	97	112
PM Peak Hour (17:00 – 18:00)	141	56	197

6.3.3 Census method of travel to work data has been used to determine the percentage of residential trips by car or van from the Manchester 054 ward summarised below in **Table 17** (the full Census output can be found in **Appendix E** and demonstrates the data for '*Location of usual residence and place of work by method of travel to work - MSOA level*').

Table 17 – Method of Travel to Work Mode Percentage (%)

Method of travel to Work	Mode Percentage (%)
Underground, metro, light rail, tram	5.0%
Train	7.9%
Bus, minibus or coach	14.3%
Taxi	0.3%
Motorcycle, scooter or moped	0.2%
Driving a car or van	18.2%
Passenger in a car or van	1.5%
Bicycle	2.6%
On foot	49.5%
Other method of travel to work	0.4%
TOTAL	**100.0%**

6.3.4 Interrogation of the Census Journey-to-Work data demonstrates that 18.2% of residential trips for the Manchester 054 ward are by car or van. Consequently, the car trip generation derived is in **Table 18**.

Table 18 – Peak Hour Driving Car or Van Trips for Private Apartments

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	2	15	17
PM Peak Hour (17:00 – 18:00)	22	9	31
Proposed Development			
AM Peak Hour (08:00 – 09:00)	3	18	21
PM Peak Hour (17:00 – 18:00)	26	10	36

6.4 OFFICE TRIP GENERATION DERIVATION

6.4.1 The following A similar process to the above has been used to calculate trip rates for the office element of the Proposed Development. Person-trip rates have been sourced from the TRICS database. The resulting trip rates are contained in **Table 19** and full details of the supporting calculations are contained within **Appendix E**.

Table 19 – Office Person-Trip Rates (per 100sqm)

Peak Hour	Arriving Trips	Departing Trips	Total
AM Peak Hour (08:00 – 09:00)	1.142	0.042	1.184
PM Peak Hour (17:00 – 18:00)	0.054	1.159	1.213

6.4.2 The vehicle trip rates of **Table 19** have been applied to the proposed office development quantum in order to estimate the total development person trip generation during the peak hour periods of 8am-9am and 5pm – 6pm. A summary of the total person-trip generation derived is provided in **Table 20**.

Table 20 – Office Person-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	248	9	257
PM Peak Hour (17:00 – 18:00)	12	252	264
Proposed Development			
AM Peak Hour (08:00 – 09:00)	351	13	364
PM Peak Hour (17:00 – 18:00)	17	356	373

6.4.3 Census Journey-to-Work data has been used to determine the percentage of work trips by car or van to the Manchester 054 ward summarised below in **Table 21** (the full Census output can be found in **Appendix D** and demonstrates the data for *'Location of usual residence and place of work by method of travel to work - MSOA level'*).

Table 21 – Method of Travel to Work Mode Percentage (%)

Method of travel to Work	Mode Percentage (%)
Underground, metro, light rail, tram	6.0%
Train	15.5%
Bus, minibus or coach	25.4%
Taxi	0.3%
Motorcycle, scooter or moped	0.4%
Driving a car or van	33.9%
Passenger in a car or van	3.8%
Bicycle	2.5%
On foot	12.1%
Other method of travel to work	0.2%
TOTAL	**100.0%**

6.4.4 Based on the Census Journey-to-Work data, the car/van trip generation derived is in **Table 22**.

Table 22 – Office Vehicle-Trip Rates

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	84	3	87
PM Peak Hour (17:00 – 18:00)	4	85	89
Proposed Development			
AM Peak Hour (08:00 – 09:00)	119	4	123
PM Peak Hour (17:00 – 18:00)	6	121	127

6.5 RETAIL TRIP GENERATION DERIVATION

6.5.1 A similar process to the above has been used to calculate trip rates for the bar/restaurant/retail element of the Proposed Development. Person-trip rates have been sourced from the TRICS database. The resulting trip rates are contained in **Table 23** and full details of the supporting calculations are contained within **Appendix D**.

Table 23 – Restaurant/Bar Person-Trip Rates (per 100sqm)

Peak Hour	Arriving Trips	Departing Trips	Total
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	0.675	0.568	1.243

6.5.2 The vehicle trip rates of **Table 23** have been applied to the proposed restaurant/bar/retail development quantum in order to estimate the total development person trip generation during the peak hour periods of 8am-9am and 5pm – 6pm. A summary of the total person-trip generation derived is provided in **Table 24**.

Table 24 – Retail Person-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	15	13	28
Proposed Development			
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	12	10	22

6.5.3 Census Journey-to-Work data has been used to determine the percentage of work trips by car or van to the Manchester 054 ward summarised below in **Table 25** (the full Census output can be found in **Appendix E** and demonstrates the data for 'Location of usual residence and place of work by method of travel to work - MSOA level').

Table 25 – Method of Travel to Work Mode Percentage (%)

Method of travel to Work	Mode Percentage (%)
Underground, metro, light rail, tram	6.0%
Train	15.5%
Bus, minibus or coach	25.4%
Taxi	0.3%

Method of travel to Work	Mode Percentage (%)
Motorcycle, scooter or moped	0.4%
Driving a car or van	33.9%
Passenger in a car or van	3.8%
Bicycle	2.5%
On foot	12.1%
Other method of travel to work	0.2%
TOTAL	**100.0%**

6.5.4 Based on the Census Journey-to-Work data, the car/van trip generation derived is in **Table 26**.

Table 26 – Retail/Bar Person-Trip Rates

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	5	4	9
Proposed Development			
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	4	3	7

6.6 HOTEL TRIP GENERATION DERIVATION

6.6.1 The person trip rates for the hotel development are shown in **Table 27**, below.

Table 27 – Hotel Person-Trip Generation (per 100sqm)

Peak Hour	Arriving Trips	Departing Trips	Total
AM Peak Hour (08:00 – 09:00)	0.356	0.73	1.086
PM Peak Hour (17:00 – 18:00)	0.608	0.508	1.116

6.6.2 The vehicle trip rates of **Table 27** have been applied to the proposed hotel in order to estimate the total development person trip generation during the peak hour periods of 0800-0900hrs and 1700-1800hrs. A summary of the total person-trip generation derived is provided in **Table 28**.

Table 28 – Hotel Person-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	64	131	195
PM Peak Hour (17:00 – 18:00)	109	91	200
Proposed Development			
AM Peak Hour (08:00 – 09:00)	48	98	146
PM Peak Hour (17:00 – 18:00)	81	68	149

6.6.3 Census Journey-to-Work data has been used to determine the percentage of work trips by car or van to the Manchester 054 ward summarised below in **Table 29** (the Census output can be found in **Appendix E** and demonstrates the data for *'Location of usual residence and place of work by method of travel to work - MSOA level'*).

Table 29 – Method of Travel to Work Mode Percentage (%)

Method of travel to Work	Mode Percentage (%)
Underground, metro, light rail, tram	6.0%
Train	15.5%
Bus, minibus or coach	25.4%
Taxi	0.3%
Motorcycle, scooter or moped	0.4%
Driving a car or van	33.9%
Passenger in a car or van	3.8%
Bicycle	2.5%
On foot	12.1%
Other method of travel to work	0.2%
TOTAL	**100.0%**

6.6.4 Based on the Census Journey-to-Work data, the car/van trip generation derived is in **Table 30**.

Table 30 – Hotel Vehicle-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	22	44	66
PM Peak Hour (17:00 – 18:00)	37	31	68
Proposed Development			
AM Peak Hour (08:00 – 09:00)	16	33	49
PM Peak Hour (17:00 – 18:00)	27	23	50

6.7 SYNAGOGUE TRIP GENERATION

6.7.1 The person trip rates for the proposed synagogue are shown in **Table 31** below:

Table 31 – Synagogue Person-Trip Rates

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	10	0	10
PM Peak Hour (17:00 – 18:00)	0	0	0
Proposed Development			
AM Peak Hour (08:00 – 09:00)	0	0	0
PM Peak Hour (17:00 – 18:00)	0	0	0

6.7.2 The vehicle trip rates from **Table 31** have been applied to the proposed synagogue quantum in order to estimate the total development person trip generation during the peak hour periods of 0800-0900hrs and 1700-1800hrs. A summary of the total person-trip generation derived is provided in **Table 32**.

Table 32 – Synagogue Person-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	3	0	3
PM Peak Hour (17:00 – 18:00)	0	0	0
Proposed Development			
AM Peak Hour (08:00 – 09:00)	0	0	0

Peak Hour	Arriving Trips	Departing Trips	Total
PM Peak Hour (17:00 – 18:00)	0	0	0

6.7.3 Census Journey-to-Work data has been used to determine the percentage of work trips by car or van to the Manchester 054 ward summarised below in **Table 33** (the full Census output can be found in **Appendix E** and demonstrates the data for *'Location of usual residence and place of work by method of travel to work - MSOA level'*).

Table 33 – Method of Travel to Work Mode Percentage (%)

Method of travel to Work	Mode Percentage (%)
Underground, metro, light rail, tram	6.0%
Train	15.5%
Bus, minibus or coach	25.4%
Taxi	0.3%
Motorcycle, scooter or moped	0.4%
Driving a car or van	33.9%
Passenger in a car or van	3.8%
Bicycle	2.5%
On foot	12.1%
Other method of travel to work	0.2%
TOTAL	**100.0%**

6.7.4 Based on the Census Journey-to-Work data, the car/van trip generation derived is in **Table 34**.

Table 34 – Synagogue Vehicle-Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Approved Development			
AM Peak Hour (08:00 – 09:00)	1	0	1
PM Peak Hour (17:00 – 18:00)	0	0	0
Proposed Development			
AM Peak Hour (08:00 – 09:00)	0	0	0

Peak Hour	Arriving Trips	Departing Trips	Total
PM Peak Hour (17:00 – 18:00)	0	0	0

6.8 TOTAL DEVELOPMENT TRIPS

6.8.1 The total vehicle trips in the weekday peak hours for the Proposed Development as a whole are shown in **Table 35**.

Table 35 – Vehicle Trip Generation

Peak Hour	Arriving Trips	Departing Trips	Total
Consented Development			
AM Peak Hour (08:00 – 09:00)	109	62	171
PM Peak Hour (17:00 – 18:00)	68	129	197
Proposed Development			
AM Peak Hour (08:00 – 09:00)	138	55	193
PM Peak Hour (17:00 – 18:00)	63	157	220

6.8.2 It should also be noted that traffic to be generated by the Proposed Development is likely to seek parking in the vicinity of the site, not only at the Proposed Development itself but at adjacent car parks (such as the parking facilities at The Great Northern Warehouse). The Proposed Development is within the Controlled Parking Zone and as such only limited numbers of on-street parking are considered likely. It is envisaged that there is likely to be some flexibility regarding the allocation of parking amongst the proposed uses within the basement car park.

6.8.3 Consequently, in order to prepare a robust assessment of the junctions to be assessed, is has been assumed that the allocation of parking will be flexible enough to allow all vehicles generated by the proposals to park within the basement. **Table 31** above contains the trip rates used in the assessment in Chapter 7.

6.8.4 As can be seen, it is evident that there will be an overall increase in flows calculated from the Proposed Development figures when compared to the Consented Development figures. However, the increase in flows is not seen as detrimental to the local area in terms of traffic impact. Furthermore, due to the city centre location of the site and the improved public transport links, it is not expected to generate a significant traffic presence onto the local road network.

6.9 TRIP DISTRIBUTION AND ASSIGNMENT

6.9.1 The forecast vehicle trip generation of the Proposed Development has been distributed onto the local highway network using 2011 Census data, with the place of work of usual residents' local to the site interrogated. This has been undertaken to determine the likely origin / destination of trips in the peak hours and as such the impact of the proposals on the surrounding highway network.

6.9.2 When determining the routes to the Proposed Development it has been necessary to consider the proposed changes to Jackson's Row and Bootle Street. As stated earlier in this report, Jackson's Row is proposed to be converted to one-way for its entirety from Southmill Street to Deansgate. Bootle

Street currently permits two-way traffic movements. It is also proposed that Bootle Street is amended to a one-way order from Deansgate to Southmill Street.

6.9.3 Taking this into consideration, it is predicted that vehicles wishing to access the Proposed Development car park will enter from the Deansgate/Bootle Street junction and exit towards the Southmill Street/Bootle Street junction. Existing traffic movements on Bootle Street have also been redistributed on the local highway network based on the proposed changes on Jackson's Row and Bootle Street. This trip distribution is considered appropriate for the Proposed Development and, as such, has not been updated for the Section 73 application.

6.9.4 The four trip distribution tables included in **Appendix E** consider inbound and outbound traffic associated with the development proposals, with the expected breakdown of trip origin / destinations set out in **Table 36** and **Table 37**.

Table 36 – Method of Travel to the Proposed Development Car Park (%)

Trip Type	From Deansgate (N)	From Deansgate (S)
Residential Trips	55%	45%
Employment Trips	56%	44%

Table 37 – Method of Travel from the Proposed Development Car Park (%)

Trip Type	To Southmill Street (E)	To Southmill Street (W)
Residential Trips	44%	56%
Employment Trips	56%	44%

6.9.5 Based on the trip rates calculated above and the distribution of these trips on Deansgate and Southmill Street it has been deemed necessary to assess the following junctions in the AM and PM peaks:

- Deansgate/Bootle Street three-arm priority junction; and
- Southmill Street/Bootle Street three-arm priority junction.

6.9.6 Furthermore, due to the configuration of the proposed one-way system on Bootle Street it has been considered necessary to assess the two junctions at either end of Jackson's Row, namely:

- Deansgate/Jackson's Row three-arm priority junction; and
- Southmill Street/Jackson's Row three-arm priority junction.

6.9.7 No additional surveys have been undertaken to support the Section 73 application, with the pre-covid data used for the assessment of the Approved Development being viewed as appropriate and valid.

6.9.8 Following the changes to the quantum of the development, it is considered that the overall development vehicle trips associated with the proposed development are congruent to the previously used vehicle flows and would not have a noticeable or detrimental impact on the operation of the junctions considered.

6.9.9 As such, no additional junction modelling has been undertaken for this assessment. A copy of the junction modelling from the consented development is, therefore, considered valid for this assessment and can be found in **Appendix E.**

7 SUMMARY AND CONCLUSIONS

7.1.1 The Transport Statement has been prepared in accordance with national and local policy. Section 4 of the National Planning Policy Framework (NPPF) (Promoting Sustainable Transport) is well met with the associated existing public transport infrastructure being further complied with through the usage of bicycle parking facilities within the Proposed Development. Furthermore, the agreement and completion of a travel plan for the site brings it in line with National Planning Practice Guidance (NPPG).

7.1.2 The Proposed Development is also compliant with the Manchester City Council Core Strategy, promoting the usage of sustainable transport, accessibility, and integration, through similar methods adopted for use by the NPPF and NPPG, above.

7.1.3 The site has been found to be highly accessible via sustainable modes of transport. An excellent range of bus, Metrolink and train services are available within close proximity to the site. Furthermore, the surrounding pedestrian and cycling infrastructure is extensive and covers a wide range of surrounding areas. All of these facilities will encourage the use of non-car modes of travel to the site.

7.1.4 A review of five years' worth of accident data from the original application in the vicinity of the site does not suggest a pre-existing highway safety problem that would be exacerbated by the Proposed Development. The data shows a low number of accidents over the five-year period considered. It is therefore considered that there is no significant road safety issue in the vicinity of the Proposed Development.

7.1.5 Manchester City Council highway officers initially provided a response following the original planning application, which was registered in January 2017, and a subsequent set of comments were prepared by Manchester City Council and the Highways Forecasting and Analytical Services (HFAS) to support the initial granted application.

7.1.6 In order to provide a robust and consistent approach which aligns with these comments, the Proposed Development quantum has been compared with the development mix associated with the consented application.

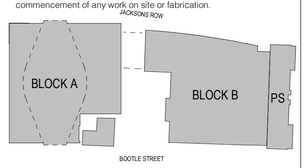
7.1.7 Consequently, to support the Proposed Development as described in this report, a trip generation and distribution exercise has been undertaken which demonstrates that the overall development vehicle trips are congruent to the vehicle flows associated with the consented application and would, therefore, not have a noticeable or detrimental impact on the operation of the junctions considered.

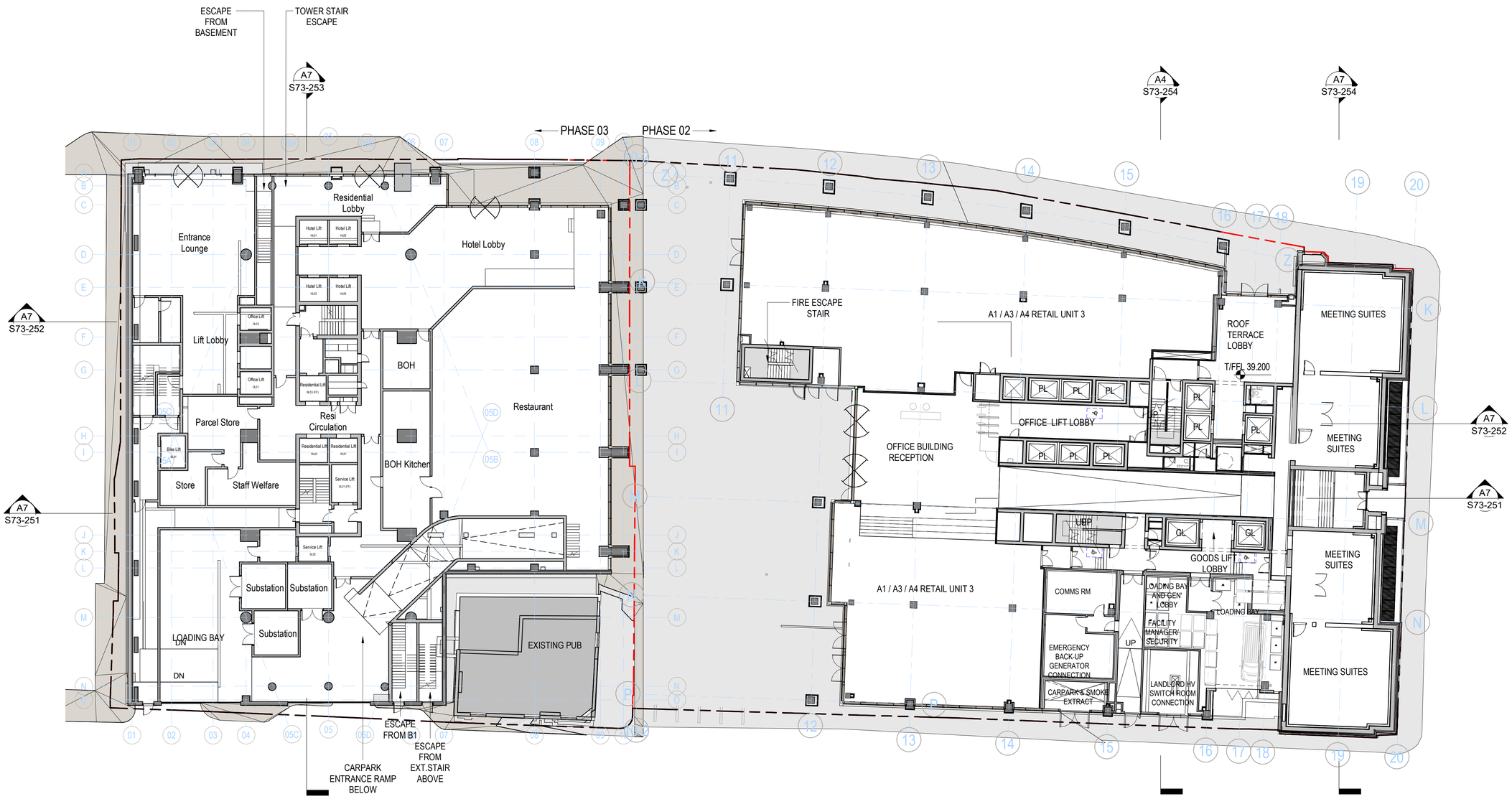
7.1.8 All four junctions are predicted to operate well within capacity in both peak hours in all scenarios tested.

7.1.9 In conclusion, therefore, it is considered that this Transport Statement demonstrates that the highway impact associated with the Proposed Development is negligible and therefore, in accordance with local and national policy, there are no traffic and transportation reasons why the Proposed Development should not be granted planning approval.

APPENDIX A

DO NOT SCALE
Work to annotated dimensions only. Read drawings in conjunction with relevant specification, Structural Engineers' and Services Engineers' drawings. Confirm all dimensions before commencement of any work on site or fabrication.





A7 GROUND LEVEL PLAN

1 : 200

Rev:	Details:	Date:

client:

project:
ST. MICHAEL'S

job number:
0643

status:
PLANNING

title:
GROUND LEVEL GA PLAN

scale: As indicated @ A1

drawn by: Author

drawing number:
S73-103

current revision date: revision:

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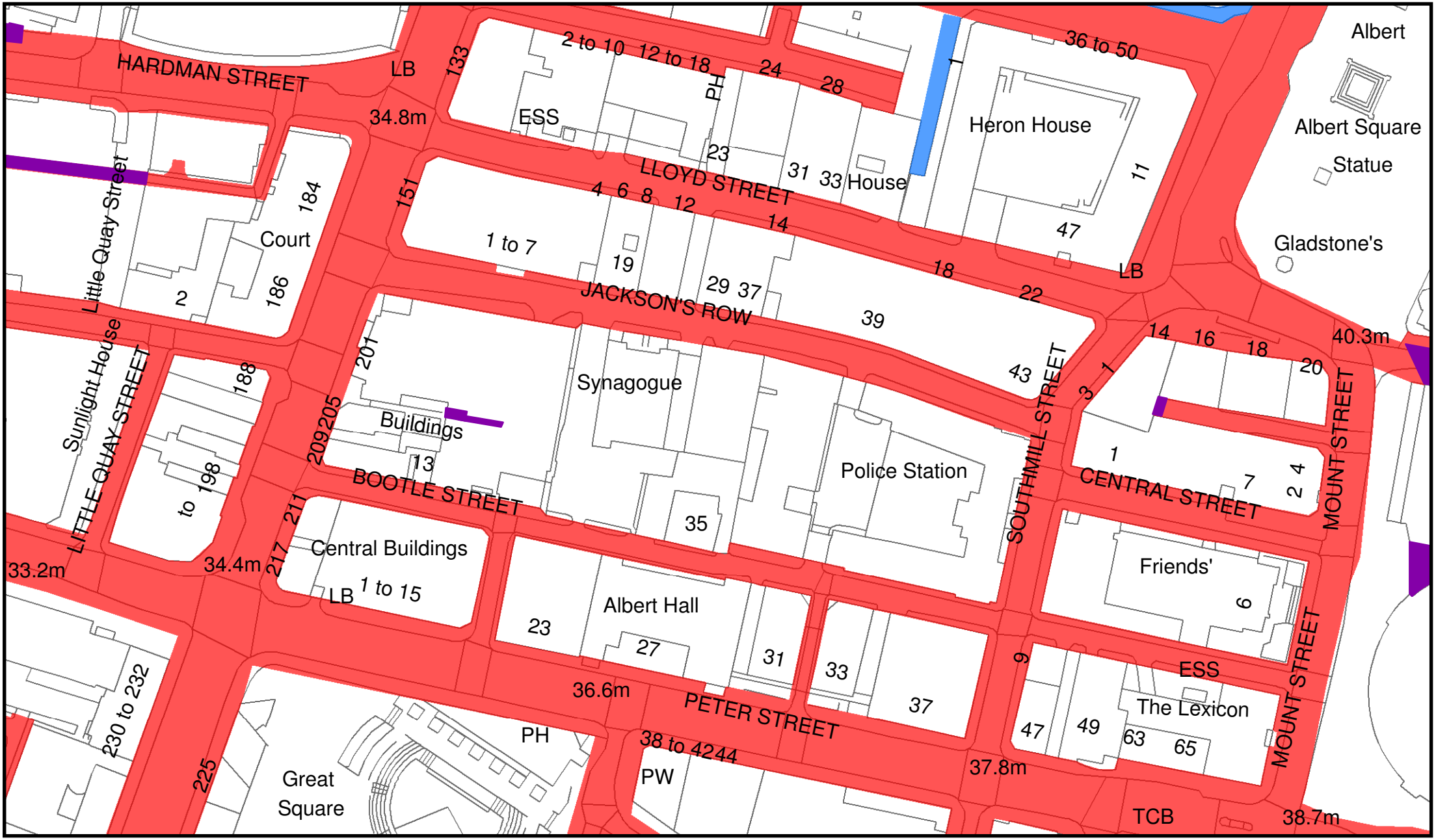

MANCHESTER CITY COUNCIL

Please note that the highways maintained at public expense revealed in your report are an indicative status that has been captured onto our business system and is not the definitive adoption

Highway Status Adopted Unadopted Maintained
Highway Closures Proposed Legal Diversion
Alley Gating Adopted Unadopted Maintained Proposed
Proposd Schemes Rail Road Traffic Orders
Private Developments **Field Footpaths** **Live Rail Schemes**

Scale: 1:1,250

N

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Appendix B

APPENDIX B

MANCHESTER
CITY COUNCIL

Development Management
Citywide Support (Highways)

Telephone:
n.bayliss-
rowe@manchester.gov.uk

Hammerstone Road Depot,
Manchester M18 8EQ

Memorandum

To	David Brettell
From	Neil Bayliss-Rowe
Date	17 February 2017

Subject

Demolition of existing buildings. Development up to 21 and 31 storeys comprising residential (Use Class C3), offices (Use Class B1), hotel (Use Class C1), place of worship (Use Class D1) and leisure/ food and drink uses (Classes A1, A3 A4, A5 and D2). Creation of two new public squares and new public realm, provision of basement car parking, highway alterations, landscaping and associated works.

We have reviewed the above application in relation to highways and our comments are as follows:

114664

CONTEXT:
Planned development is for the demolition of existing buildings. Development up to 21 and 31 storeys comprising residential (Use Class C3), offices (Use Class B1), hotel (Use Class C1), place of worship (Use Class D1) and leisure/ food and drink uses (Classes A1, A3 A4, A5 and D2). Creation of two new public squares and new public realm, provision of basement car parking, highway alterations, landscaping and associated works.

The development includes a hotel, residential units, office space and supporting facilities. The
development also includes proposals for a new synagogue to replace the existing facility.

In summary, the approximate mix of accommodation is proposed to consist of:
- Approx. 18,100 sqm of office space;
- Approx. 17,500 sqm hotel;
- 159 apartments;
- Approx. 4,600 sqm of retail / restaurants / café use; and
- A replacement of the existing synagogue with an approx. 2,200 sqm synagogue facility.

The development site currently contains the Manchester Reform Synagogue, the Sir Ralph

Abercromby public house and Bootle Street Police Station. The proposed site is bounded by
Jacksons Row to the north, Southmill Street to the east and Bootle Street to the south, located within Manchester City Centre.

The site is located within the city centre controlled parking zone and as such on-street parking is restricted to pay and display (P&D) bays between 08:00 and 20:00, with unrestricted on-street parking permitted within the bays outside of these hours.

The proposed site is situated close to excellent public transport links via metrolink, rail and bus services.

TRIP GENERATION AND JUNCTION CAPACITY:

TfGM HFAS (Highway Forecasting and Analytical Services) and UTC (Urban Traffic Control) were consulted in relation to the trip generation and junction capacity assessments and provided the following comments:

- Residential Trip Generation
HFAS would recommend that suitable trip rates are determined from the TRICS database. The TRICS database has been deemed suitable by the authors of the technical note when determining the inbound AM trips and outbound PM trips. There is no reason why the TRICS database should not be used to determine the outbound AM and inbound PM trips.

If the sites searched on TRICS are of similar characteristics, and in particular if the locations are comparable, then that search reveals a best estimate of the likely traffic generation, without any further reduction based on a proposed low level of on-site parking provision.

It should also be noted that traffic likely to be generated by the development is likely to seek parking in the vicinity, not only at the development itself but at adjacent car parks or on-street. This traffic should be acknowledged as being new to the adjacent road network, although it is reasonable to consider this a worst-case scenario.

In terms of trip generation, best practice (as per the Guidance on Transport Assessment, now withdrawn but still a useful reference) is to obtain and to present person-trip rates, in the first instance. These person-trip rates can then be split by mode, using Census Journey-to-Work. TfGM recommends this approach.

We would also advise that Census 2011 data should be extracted for the Manchester 054 ward and not Manchester 055 ward as was done in the technical note. The development lies within the Manchester 054 ward. The car mode share rate in the 054 ward is slightly higher than that recorded for the 055 ward.

- Office Trip Generation
The trip generation element of the office development has been based on the parking quantum available at the site. TRICS has been used to determine daily trip profile for the car / van trips.

HFAS recommend that the TRICS database is used to determine the appropriate trip rates for this part of development. If the sites searched on TRICS are of similar characteristics, and in particular if the locations are comparable, then that search reveals a best estimate of the likely traffic generation, without any further reduction based on a proposed low level of on-site parking provision.

- Hotel Trip Generation
The trip generation exercise is based on the parking quantum as no parking provision is proposed for the hotel use.

HFAS recommend that the TRICS database is used to determine the appropriate trip rates for this part of development. If the sites searched on TRICS are of similar characteristics, and in particular if the locations are comparable, then that search reveals a best estimate of the likely traffic generation, without any further reduction based on a proposed low level of on-site parking provision.

- Conclusions
HFAS recommend that the trip generation exercise is revised to incorporate the changes listed above.

HFAS would also point out that applying the changes suggested above would make the trip generation exercise for the proposed development consistent with the trip generation exercises carried out for other proposed developments already assessed and approved by Manchester City Council in the town centre.

TfGM UTC note that whilst 'traffic generation' is covered within the Transport Statement, there is no "traffic impact" section. This needs to be supplied before UTC can provide comments.

- Road Safety
As part of the scoping study the consultant was asked to provide more accident analysis for any sites with an incidence of accidents where there is a predicted increase in traffic flows resulting from the development. This information hasn't been provided. This is important because there are a number of 'serious' accidents reported. This is required to ensure that suitable mitigation is introduced so as not to increase the number of pedestrian accidents.

- Servicing Strategy
The TS refers to refuse collections, noting that three service vehicle bays will be provided with access from Bootle Street. However, the TS does not consider the drop off/pick up arrangements associated with a Hotel use by taxi/coach/car etc. Details of how this will be managed/catered for should be provided, through an appropriate management plan, to ensure this does not adversely impact upon the surrounding highway network.

Additionally, a robust Construction Traffic Management Plan should be employed as part of the development.

ON-SITE PARKING:
A total of 110 on-site parking spaces are to be provided at the site. 73 parking spaces are to be provided at basement level and incorporate 12 disabled parking bays, for use by residential and office use. A further 37 on-site car park spaces are to be provided at ground floor level and are exclusively for use by the synagogue.

Further information is required regarding the use of the Synagogue car park in terms of peak use. The applicant should also confirm how the residential and office car park spaces will be allocated.

Regarding the dimension of the spaces, these should all accord with MCC's standard minimum requirement. The applicant should confirm that standard parking bay dimensions are a minimum of 2.4m x 4.8m and disabled parking bay dimensions a minimum of 3.6m x

6.0m. This should also include a 6 metre aisle to allow vehicles to safely manoeuvre within the car park.

It is recommended that the applicant introduces fast charging electric vehicle points within the sites basement car park layout.

Further information is required regarding on-site motorcycle parking bay provision.

VEHICULAR / FOOTWAY ACCESS:
Access to the proposed basement car parks and service area is to be taken from Bootle Street. Entry to the shared residential and office basement car park will be provided by a secured ramp access down to the basement car park.

Access to the service and refuse area, and the access to the proposed synagogue car park, are located adjacent to the shared residential and office basement car park ramp access.

The ramp will be approximately 7.8m wide and include an automated car park gate, to be controlled either by ANPR technology or remote button activation by each user. A swept path assessment has been undertaken which demonstrates that the ramp can safely accommodate cars. Further information is required regarding the proposed ramp gradients and stacking capacity off the adopted highway.

Cyclists will be permitted to use the ramp as well as the proposed residential lifts which will allow access to Jackson's Row. Further information is required regarding the use of the ramped access by cyclists in terms of visibility and safety conflicts

The applicant should clarify that all new vehicular accesses incorporate dropped kerbs and tactile paving.

All footways surrounding the site are to be improved as part of the development. The applicant should confirm that a minimum footway width of 2.0m is retained around the perimeter of the site.

All of the works required to provide new vehicle accesses and footway improvements should be undertaken via a S278 agreement (for amendments to the existing adopted highway), and will be funded by the applicant.

ON-STREET PARKING / DROP OFF & PICK UP:
As discussed previously the site is located within the city centre controlled parking zone which restricts on-street parking to P&D bays between 08:00 and 20:00. An existing loading bay is provided on Jackson Row opposite the layby and a recently installed taxi rank is also located on Southmill Street.

A hotel drop off point is to be provided off Jacksons Row which will be for pick up / drop off only. The submitted layby arrangement should be amended to remove the island arrangement and provide a standard kerbside layby as found at other hotel sites throughout the city. This will provide a larger public realm area adjacent to the hotel entrance which will improve pedestrian movements on Jackson's Row. It is recommended that the lay-by is enforced by double yellow lines rather than a loading bay restriction to provide flexibility, which is a similar arrangement provided at other hotels in the city centre. This will require an amendment to the existing TROs to remove the existing no loading at any time kerb blips within the layby. The new layby should also incorporate dropped kerbs and tactile paving.

Further clarification is required regarding the adoption status of the layby; it is recommended that the layby is adopted to enable Manchester Parking to enforce the parking restrictions discussed above. Should the applicant not intend for the layby to be adopted, it is recommended that the applicant provides further details regarding the management of the drop off area to prevent misuse and vehicle stacking on Jackson's Row.

The applicant should also illustrate via a swept path analysis that the largest vehicle type associated with the layby can safely access and exit onto Jackson's Row.

The applicant should clarify if the hotel will undertake valet parking and if so how this operation will be managed.

Jackson's Row permits two way movement to the east of the site, which then becomes one way towards Deansgate. This arrangement was maintained to allow emergency vehicles to exit the old Police Station in both directions. Given the change of use at the site, Jackson's Row should now be converted to one-way for its entirety from Southmill Street to Deansgate. Bootle Street currently permits two way traffic movements and this may require amendment to a one-way order from Deansgate to Southmill Street, subject to servicing levels.

The above TRO amendments / physical works should be carried out via a S278 agreement as discussed previously.

CYCLE PARKING:
A total of 234 cycle spaces are to be provided at the site. 82 cycle storage spaces are to be located in the basement allocated to residential uses. This equates to a residential cycle provision of 52%. It is recommended that the applicant increases the residential cycle provision as near to one per unit as possible.

A further 152 cycle spaces are located at ground floor level which is allocated to office and hotel uses. A shower room, including showers, drying room and locker room are located adjacent to the hotel and office cycle storage allocation.

EVENT MANAGEMENT:
In order to manage events at the mixed use site, the applicant should provider an Event Management Plan for full capacity events. The plan should consider pedestrian numbers and movements, vehicle parking, drop off / pick up, coach parking, event vehicle loading / unloading and vehicular access to new public squares within the site.

The above Event Management Plan should be conditioned as part of any planning approval.

TRAVEL PLAN:
The proposed development includes a framework travel plan for the site as a whole, with appropriate measures to encourage sustainable access and this is supported in-principle. It is recommended that the applicant provides a full travel plan prior to occupation.

PUBLIC REALM / MATERIALS:
It is recommended that all public realm designs and materials are agreed with MCC's Capital Programmes and Property team prior to site works beginning.

All footways surrounding the site are to be improved as part of the development. This includes the use of high quality materials. The proposed materials will require commuted

sums for the maintenance of the footway over a 40 year period. This should be agreed as part of the previously discussed S278 agreement.

OVERSAIL LICENSE:
It is unclear if the development overhangs the adopted highway, if so the applicant will be required to apply for an oversail license.

STRUCTURES:
The proposed development will accommodate a basement car park. As such the applicant will be required to submit structural drawings and calculations for the temporary and permanent support works for checking (for a fee) to MCC Bridges/Structures Section in order to obtain an approval in principal.

SERVICING AND REFUSE COLLECTION:
Given that the site will accommodate a mixed use development, it is recommended that a Servicing Management Strategy / Schedule is conditioned to ensure the proposed loading bay on Bootle Street can accommodate all service vehicles associated with the site.

The applicant has stated that "It is not anticipated that a large volume of service vehicle movements will be experienced, particularly in the morning and evening peak hours. The retail units in particular are of a small scale and are not predicted to generate the significant volume of servicing movements associated with larger retail units". The submitted Transport Statement provides no data regarding the number of likely servicing vehicles generated by the site on an hourly basis. The applicant should provide this information to assist in the assessment of the suitability of the proposed servicing arrangement. As discussed previously Bootle Street currently permits two way traffic movements and this may require amendment to a one-way order from Deansgate to Southmill Street.

In terms of servicing operation, three service vehicle bays are to be provided accessed directly from Bootle Street. Waste collection for the development will take place via the Bootle Street loading bay, with one bay allocated for use by a refuse collection vehicle. Synagogue waste will be collected separately, directly from Bootle Street.

The applicant has provided a swept path assessment of vehicles up to a length of approximately 10.0m accessing / egressing the three service bays. It appears that the vehicles will overrun the kerb and footway in order to access the bays which is not acceptable. The applicant should provide further clarity regarding the above.

The applicant should also clarify that vehicles no greater than 10.m in length will require access into the three bays. It should be noted that Manchester City Centre (MCC) refuse vehicles are circa 11.0m in length. The applicant should also provide evidence that the height clearance for such vehicles can safely be accommodated.

It is recommended that servicing / refuse collection takes place outside of peak hours and during hotel / event peak periods to reduce congestion on the highway network.

CONSTRUCTION:
The applicant should provide detailed Construction Management Plan prior to any construction works beginning. The Construction Management Plan should detail the phasing and quantification / classification of vehicular activity associated with planned construction. This should include commentary on types and frequency of vehicular demands together with evidence (including appropriate swept-path assessment) of satisfactory routeing both within the site and on the adjacent highway. The document should also consider contractor parking and ongoing construction works in the locality. It is

recommended that the above is conditioned and attached to any planning permission that may be granted.

Given the location of the site with regards to other major ongoing construction works in the city centre. It is recommended that the applicant contacts Manchester City Councils Resilience Team to discuss the proposed construction and traffic management programme.

Highways Reference: 05290/FO/2017

Young, Robert

From: m.usmani@manchester.gov.uk
Sent: 11 January 2017 12:02
To: Young, Robert
Subject: Re: FW: St. Michael's Development, Manchester city centre_ TN

Hi Rob

As discussed I have spoken with Richard Dolphin at TfGM UTC and he has advised that a PICADY model of the Deansgate/Jacksons Row junction is required to support the application. This is to understand the expected operation of the junction with the proposed layout change (narrowing?) and any change in flows as a result of the development. There are existing traffic counts available (for a fee) from TfGM, please speak to Richard directly to discuss the modelling and data requirements.

Within the Transport Statement MCC and TfGM will also be looking for a greater level of emphasis on the accident review including any potential mitigation measures and on the audit of pedestrian facilities and any proposed improvements to facilities for pedestrians.

I will let you know as soon as I hear back from HFAS regarding your person trip assessment note - sorry for the delay.

Kind regards

Muniza

Muniza Usmani
Senior Engineer Development Control - Public Realm
The Neighbourhood Service
Growth and Neighbourhoods
Manchester City Council

Tel 0161 234 1680 / Internal: 801 1680
Email: m.usmani@manchester.gov.uk
Web: http://www.manchester.gov.uk

POSTAL ADDRESS: Manchester City Council, Public Realm, The Neighbourhoods Service, PO Box 532, Town Hall, Manchester, M60 2LA

"Young, Robert" <Rob.Young@wspgroup.com>

09/01/2017 16:56

To "m.usmani@manchester.gov.uk" <m.usmani@manchester.gov.uk>
cc "Ricketts, Andrew" <Andrew.Ricketts@WSPGroup.com>
Subject FW: St. Michael's Development, Manchester city centre_ TN

Afternoon Muniza,

Please find attached the Person Trip Assessment Technical Note and proposed plan attached.
I have sent you the original email. Hopefully you'll be able to find the email with the date and time attached.

Kind Regards

Rob Young

Rob Young
Senior Transport Planner

The Victoria, 150-182 The Quays, Salford, Greater Manchester M50 3SP
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If possible, please consider saving paper by not printing your e-mail.

From: Young, Robert
Sent: 21 October 2016 11:54
To: 'm.usmani@manchester.gov.uk'
Subject: St. Michael's Development, Manchester city centre_ TN

Morning Muniza,

Please find attached a copy of our trip generation assessment for St. Michael's, and a plan showing the proposed site.
I have included website links within the document to help the assessor access the data we have used. However, all referenced data is also included in the appendices.

If you require any further information please do not hesitate to get in touch.

Many Thanks

Rob Young

Rob Young
Senior Transport Planner

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[attachment "70010278_StMichaels_TN_PersonTripAssessment.pdf" deleted by Muniza Usmani/Neighbourhood.Services/MCC]

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****

Young, Robert

From: Neil Bayliss-Rowe <n.bayliss-rowe@manchester.gov.uk>
Sent: 25 October 2017 14:29
To: Young, Robert
Subject: Re: St. Michael's proposals

Hi Rob,

In terms of converting Bootle Street to a one way order, MCC Highways do not have any strong preference in regards to retaining / converting the order. This is subject to confirmation that the proposed servicing arrangements on Bootle Street can be carried out safely.

Thanks,

Neil

Neil Bayliss-Rowe
Highways Development Control Manager
Corporate Core - Highways Strategic Team
Manchester City Council

Internal Tel: 801 31171
External Tel: 0161 234 1171
Mobile: 07823354447
Email: n.bayliss-rowe@manchester.gov.uk
Web: http://www.manchester.gov.uk

POSTAL ADDRESS: Manchester City Council, Public Realm, The Neighbourhoods Service, PO Box 532, Town Hall, Manchester, M60 2LA

On 25 October 2017 at 12:02, Young, Robert <Rob.Young@wsp.com> wrote:

Good afternoon Neil,

I trust you are well following your recent leave. I'm writing to give you an update on proposals for the St. Michael's development.

We received a final set of drawings and corresponding quantum from the architects on Monday. My client wishes to submit the planning application on the 11th November.

I have spoken with Richard Dolphin regarding our submission. If possible I'd like to discuss a number of issues regarding the new proposals. I will attempt to call you later in the week.

The most pressing decision I require your input with concerns whether Bootle Street should continue to be two-way or whether Booth Street should be changed to one-way (from Deansgate to Southmill Street).

It was suggested in a previous conversation that you would like to discuss this with colleagues and get back to me.

If you have any decision on this matter please let me know.

Many Thanks

Rob Young

Rob Young ***BEng (Hons), Pg. Dip.***

Senior Transport Planner

DD: 0161 886 2669
Office: 0161 886 2400

WSP, The Victoria,

150-182 The Quays, Manchester,

M50 3SP

wsp.com

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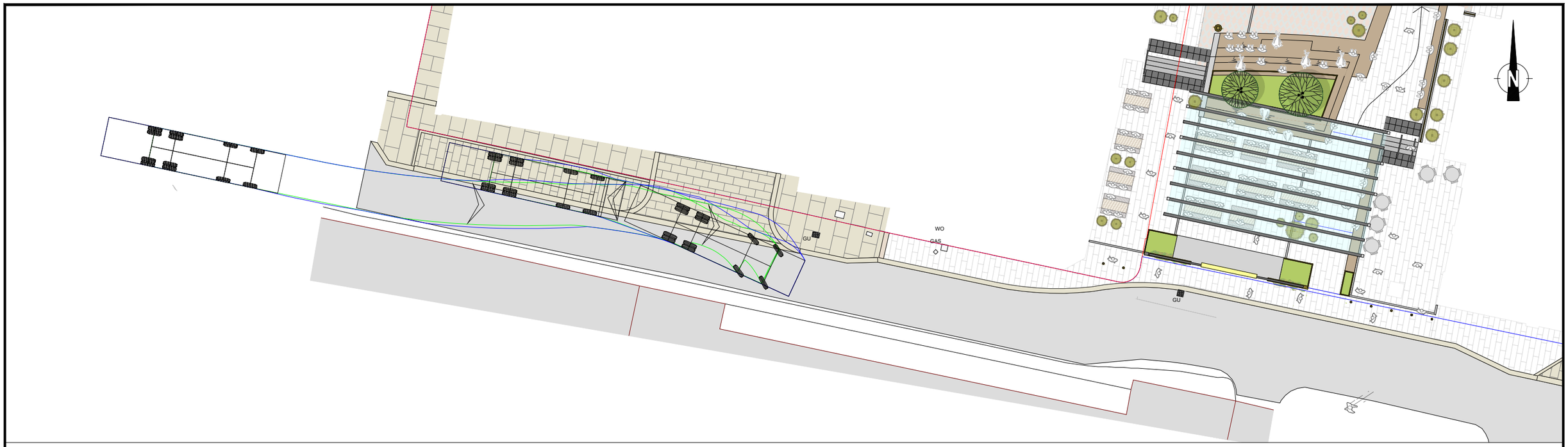
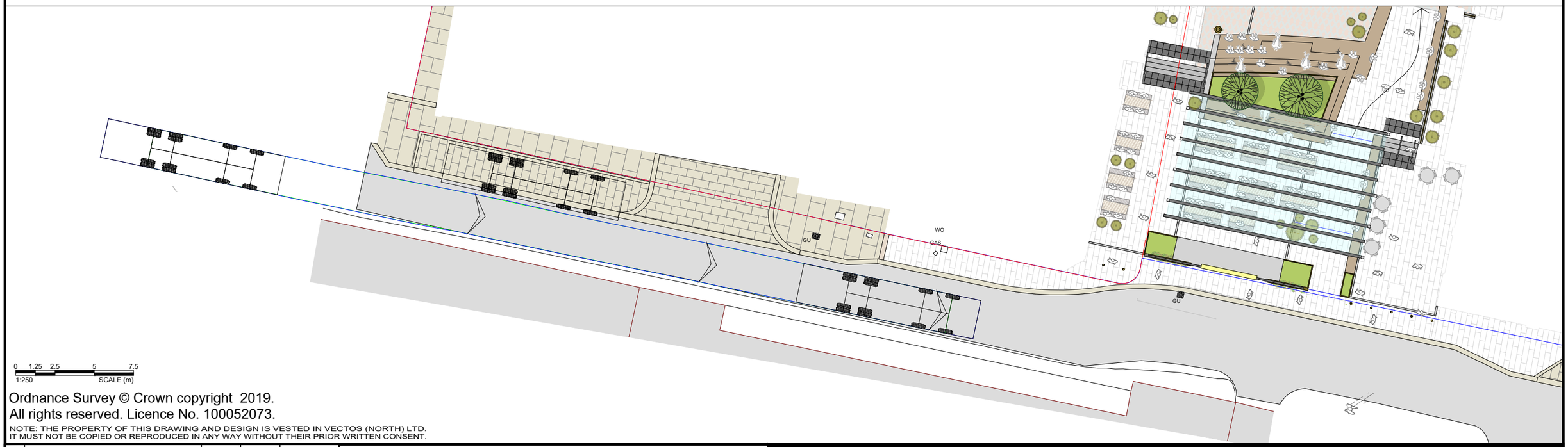
Appendix C

APPENDIX C





0 1.25 2.5 5 7.5
1:250 SCALE (m)

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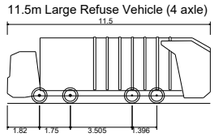
REV.	DETAILS	DRAWN	CHECKED	DATE
A	Amendments made to swept paths	WD	GD	20.12.22

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

11.5m Large Refuse Vehicle (4 axle)



Overall Length	11.500m
Overall Width	2.500m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	6.00s
Wall to Wall Turning Radius	11.330m

St Michael's, Manchester

Domis

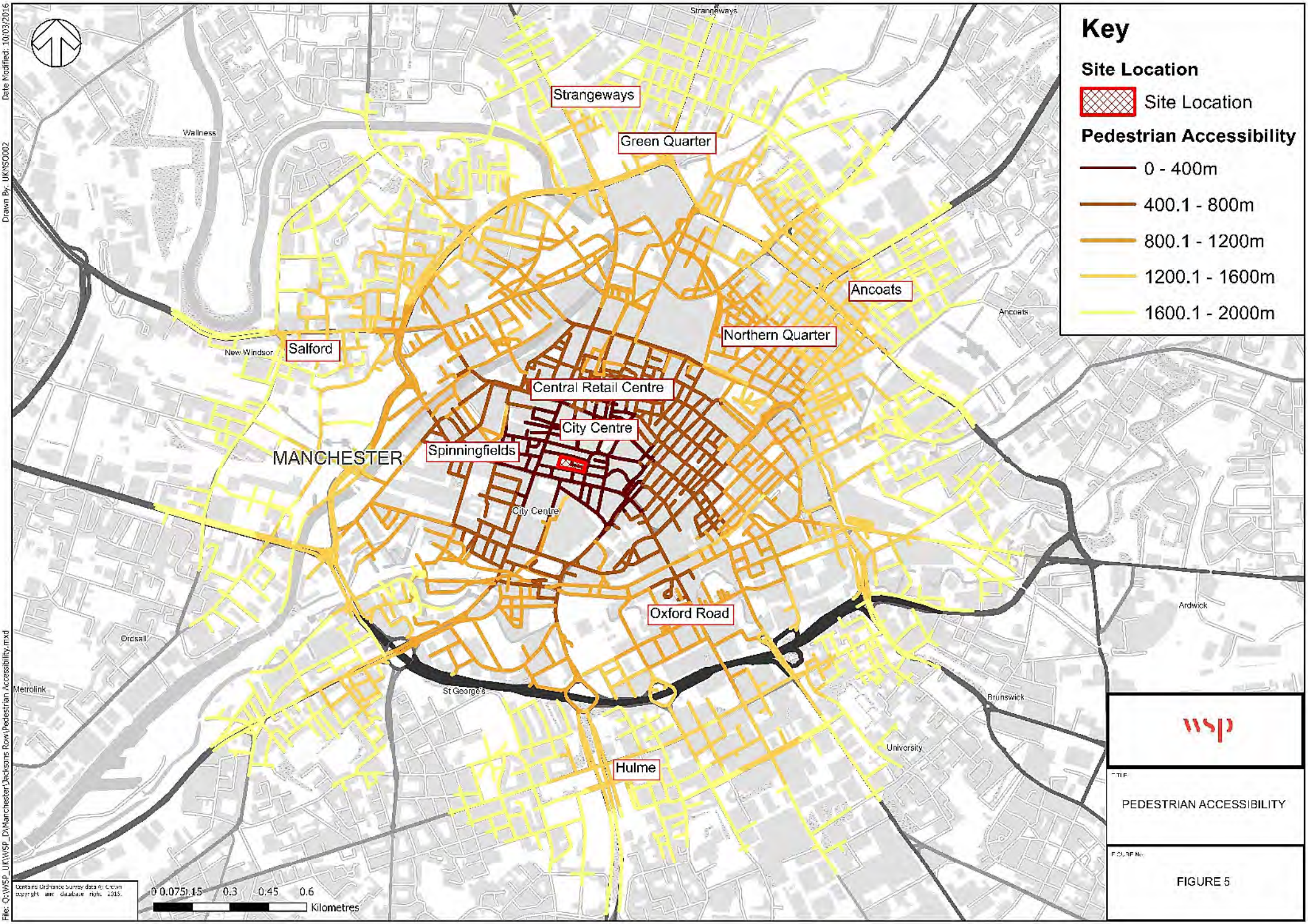
Swept Path Analysis - Refuse Vehicle

vectos.
4th Floor Oxford Place, 61 Oxford Street, Manchester, M1 6EQ
0161 228 1008 e: manchester@vectos.co.uk

DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
WD	GD	15.12.22	1:250 at A3	VN222463-TR102	A

Appendix D

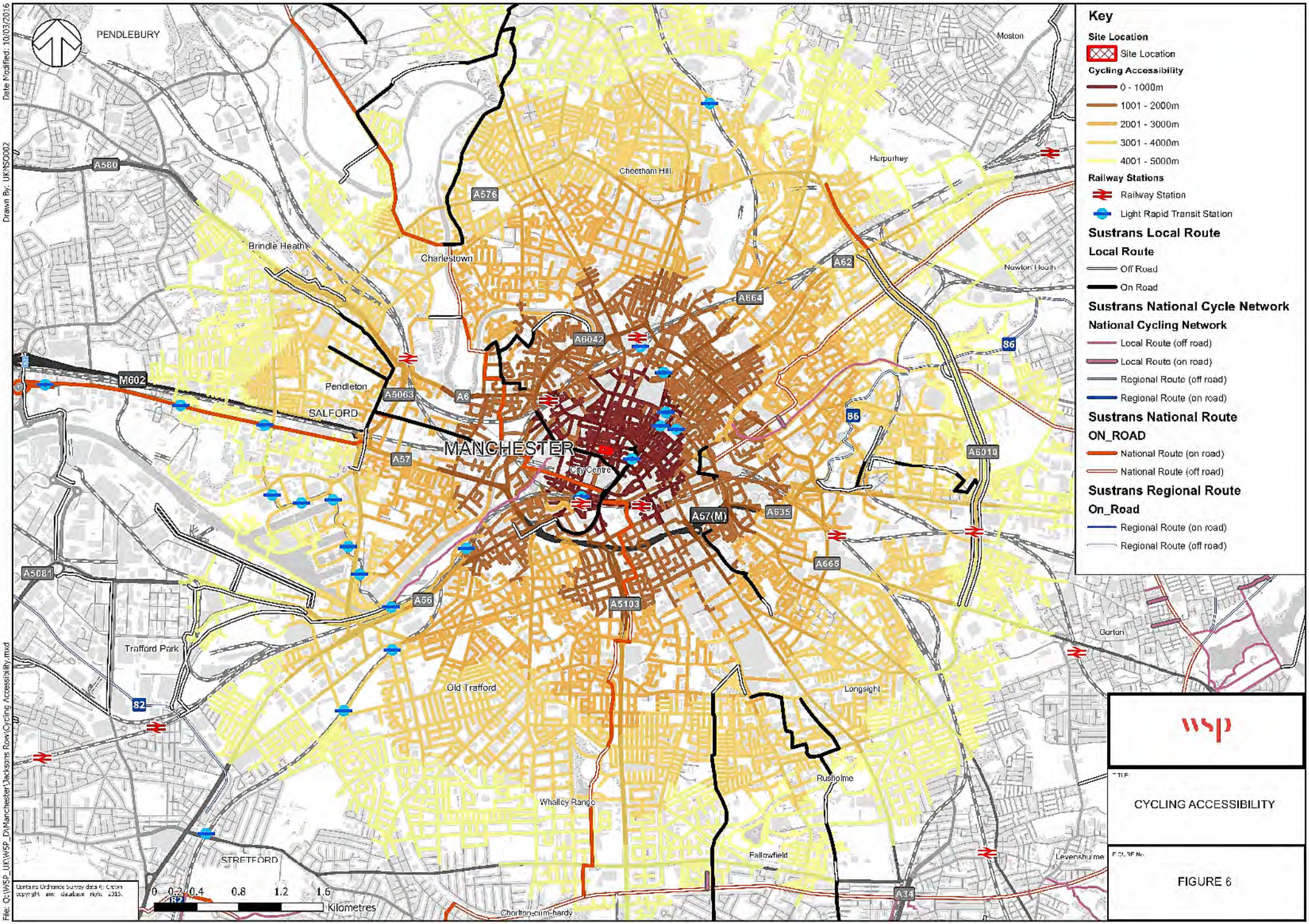
APPENDIX D

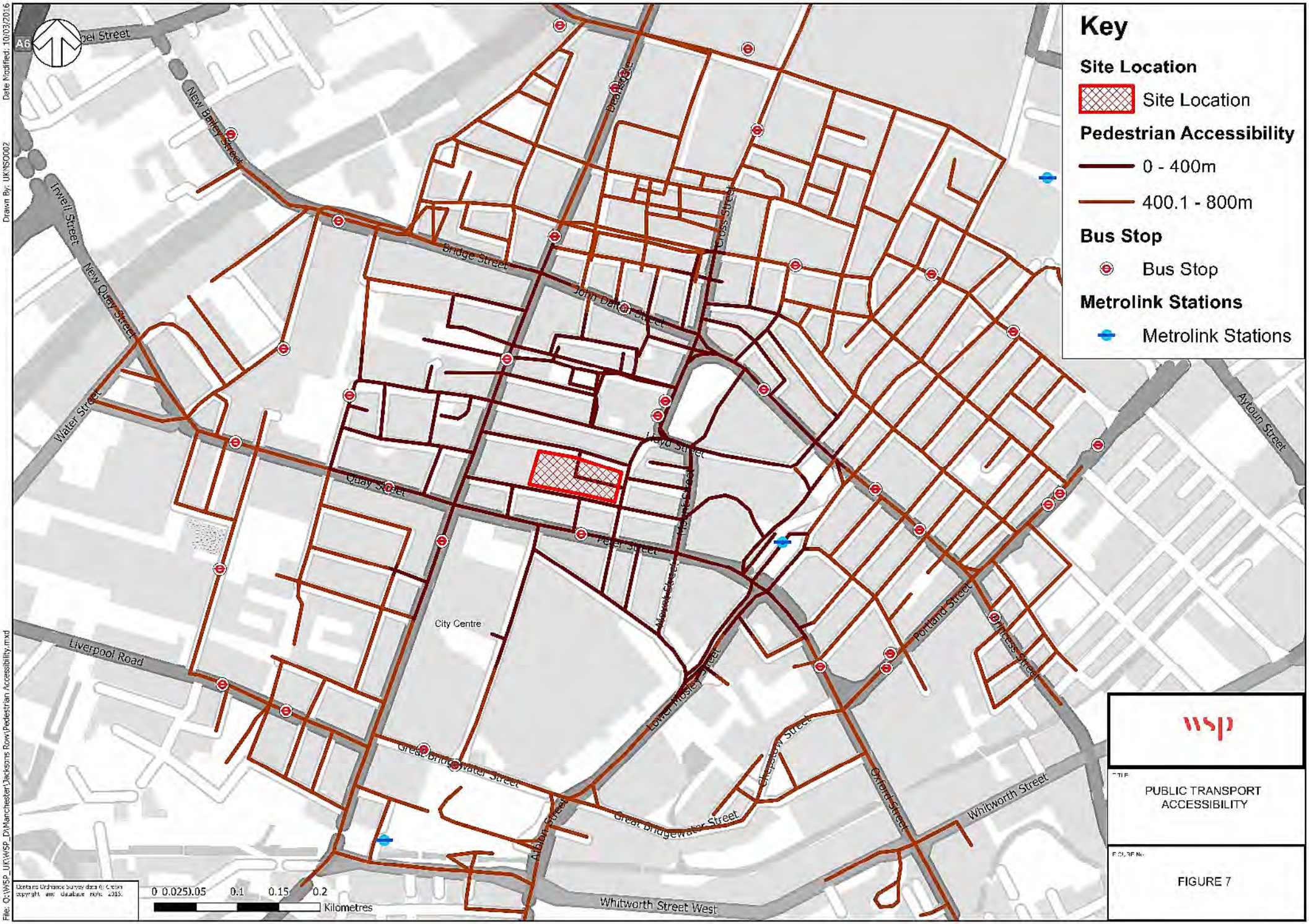


Date Modified: 10/03/2016

Drawn By: UKMSO002

File: Q:\WSP_UK\WSP_D\Manchester\Jacksons Row\Pedestrian Accessibility.mxd


Key
Site Location
Site Location
Cycling Accessibility
0 - 1000m
1001 - 2000m
2001 - 3000m
3001 - 4000m
4001 - 5000m
Railway Stations
Railway Station
Light Rapid Transit Station
Sustrans Local Route
Local Route
Off Road
On Road
Sustrans National Cycle Network
National Cycling Network
Local Route (off road)
Local Route (on road)
Regional Route (off road)
Regional Route (on road)
Sustrans National Route
ON_ROAD
National Route (on road)
National Route (off road)
Sustrans Regional Route
On_Road
Regional Route (on road)
Regional Route (off road)
PENDLEBURY
Moston
Cheetham Hill
Harpurhey
Brindle Heath
Charlestown
Newton Heath
Pendleton
SALFORD
MANCHESTER
City Centre
Trafford Park
Old Trafford
Longsight
Rusholme
Whalley Range
Fallowfield
STRETFORD
Chorlton-cum-hardy
Levenshulme
Gorton
A580
A576
A664
A6042
A62
M602
A5063
A6
A57
A57(M)
A635
A6010
A665
A5081
A56
A5103
A34
86
82
0 0.2 0.4 0.8 1.2 1.6
Kilometres
Contains Ordnance Survey data © Crown copyright and database right. 2015.
wsp
TITLE
CYCLING ACCESSIBILITY
FIGURE 6
Date Modified: 10/03/2016
Drawn By: UKMSO002
File: Q:\WSP_UK\WSP_D\Manchester\Jacksons Row\Cycling Accessibility.mxd


Key
Site Location
Site Location
Pedestrian Accessibility
0 - 400m
400.1 - 800m
Bus Stop
Bus Stop
Metrolink Stations
Metrolink Stations
A6
New Bailey Street
Irwell Street
New Quay Street
Water Street
Bridge Street
John Dalton Street
Deansgate
Cross Street
Lloyd Street
Quay Street
Peel Street
Market Street
City Centre
Liverpool Road
Great Bridgewater Street
Lower Mosley Street
Albion Street
Chepstow Street
Oxford Street
Whitworth Street
Whitworth Street West
Portland Street
Princess Street
Aytoun Street
0 0.025 0.05 0.1 0.15 0.2
Kilometres
Contains Ordnance Survey data © Crown copyright and database right 2015.
wsp
TITLE
PUBLIC TRANSPORT ACCESSIBILITY
FIGURE 7
Date Modified: 10/03/2016
Drawn By: UKMSO002
File: Q:\WSP_UK\WSP_D\Manchester\Jacksons Row\Pedestrian Accessibility.mxd

Appendix E

APPENDIX E

Calculation Reference: AUDIT-100308-170831-0809

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
MULTI-MODAL VEHICLES

Selected regions and areas:

08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	1 days
	NW	NEWPORT	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 3500 to 9850 (units: sqm)
Range Selected by User: 3000 to 9850 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 26/09/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	2 days
Thursday	2 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Built-Up Zone	2
High Street	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

A3	1 days
C1	4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

15,001 to 20,000	1 days
25,001 to 50,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	2 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CF-06-A-04 TRAVELODGE CARDIFF
THE FRIARY

CARDIFF
Town Centre
Built-Up Zone
Total Gross floor area: 3500 sqm
Survey date: MONDAY 16/07/12 Survey Type: MANUAL

2 GM-06-A-08 IBIS GREATER MANCHESTER
PORTLAND STREET

MANCHESTER
Town Centre
Built-Up Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY 26/09/16 Survey Type: MANUAL

3 HI-06-A-04 HOTEL HIGHLAND
ACADEMY STREET

INVERNESS
Town Centre
High Street
Total Gross floor area: 5460 sqm
Survey date: FRIDAY 13/05/11 Survey Type: MANUAL

4 NW-06-A-01 TRAVELODGE NEWPORT
BRIDGE STREET

NEWPORT
Town Centre
High Street
Total Gross floor area: 3750 sqm
Survey date: THURSDAY 14/10/10 Survey Type: MANUAL

5 TV-06-A-04 THISTLE TEES VALLEY
FRY STREET

MIDDLESBROUGH
Town Centre
Commercial Zone
Total Gross floor area: 9850 sqm
Survey date: THURSDAY 03/10/13 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS

MULTI-MODAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	5232	0.138	5	5232	0.183	5	5232	0.321
08:00 - 09:00	5	5232	0.149	5	5232	0.287	5	5232	0.436
09:00 - 10:00	5	5232	0.241	5	5232	0.187	5	5232	0.428
10:00 - 11:00	5	5232	0.180	5	5232	0.164	5	5232	0.344
11:00 - 12:00	5	5232	0.103	5	5232	0.157	5	5232	0.260
12:00 - 13:00	5	5232	0.080	5	5232	0.057	5	5232	0.137
13:00 - 14:00	5	5232	0.141	5	5232	0.092	5	5232	0.233
14:00 - 15:00	5	5232	0.061	5	5232	0.122	5	5232	0.183
15:00 - 16:00	5	5232	0.115	5	5232	0.149	5	5232	0.264
16:00 - 17:00	5	5232	0.126	5	5232	0.107	5	5232	0.233
17:00 - 18:00	5	5232	0.138	5	5232	0.122	5	5232	0.260
18:00 - 19:00	5	5232	0.164	5	5232	0.080	5	5232	0.244
19:00 - 20:00	5	5232	0.107	5	5232	0.092	5	5232	0.199
20:00 - 21:00	5	5232	0.073	5	5232	0.084	5	5232	0.157
21:00 - 22:00	5	5232	0.038	5	5232	0.023	5	5232	0.061
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.854			1.906			3.760

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	3500 - 9850 (units: sqm)
Survey date date range:	01/01/09 - 26/09/16
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-100308-170831-0817

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 4200 to 45000 (units: sqm)
Range Selected by User: 4000 to 70291 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 16/03/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Built-Up Zone	5

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B1	5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

15,001 to 20,000	1 days
25,001 to 50,000	2 days
50,001 to 100,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	2 days
250,001 to 500,000	2 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	1 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BR-02-A-02 PLANNING & ENGINEERING BRISTOL CITY
ST THOMAS STREET

BRISTOL
Town Centre
Built-Up Zone
Total Gross floor area: 5736 sqm
Survey date: FRIDAY 29/11/13 Survey Type: MANUAL

2 CA-02-A-05 OFFICES CAMBRIDGESHIRE
NEW ROAD

PETERBOROUGH
Town Centre
Built-Up Zone
Total Gross floor area: 8793 sqm
Survey date: TUESDAY 16/12/14 Survey Type: MANUAL

3 EB-02-A-06 REGUS OFFICES CITY OF EDINBURGH
ST ANDREW SQUARE

EDINBURGH
Town Centre
Built-Up Zone
Total Gross floor area: 4500 sqm
Survey date: WEDNESDAY 16/03/16 Survey Type: MANUAL

4 EX-02-A-03 HMRC ESSEX
VICTORIA AVENUE

SOUTHEND-ON-SEA
Town Centre
Built-Up Zone
Total Gross floor area: 45000 sqm
Survey date: WEDNESDAY 23/10/13 Survey Type: MANUAL

5 GM-02-A-07 LAW OFFICES GREATER MANCHESTER
MOSELEY STREET

MANCHESTER
Town Centre
Built-Up Zone
Total Gross floor area: 4200 sqm
Survey date: WEDNESDAY 19/10/11 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	13646	0.173	5	13646	0.012	5	13646	0.185
07:30 - 08:00	5	13646	0.208	5	13646	0.016	5	13646	0.224
08:00 - 08:30	5	13646	0.210	5	13646	0.012	5	13646	0.222
08:30 - 09:00	5	13646	0.224	5	13646	0.010	5	13646	0.234
09:00 - 09:30	5	13646	0.198	5	13646	0.019	5	13646	0.217
09:30 - 10:00	5	13646	0.106	5	13646	0.012	5	13646	0.118
10:00 - 10:30	5	13646	0.045	5	13646	0.012	5	13646	0.057
10:30 - 11:00	5	13646	0.037	5	13646	0.013	5	13646	0.050
11:00 - 11:30	5	13646	0.022	5	13646	0.013	5	13646	0.035
11:30 - 12:00	5	13646	0.012	5	13646	0.006	5	13646	0.018
12:00 - 12:30	5	13646	0.010	5	13646	0.009	5	13646	0.019
12:30 - 13:00	5	13646	0.034	5	13646	0.025	5	13646	0.059
13:00 - 13:30	5	13646	0.022	5	13646	0.026	5	13646	0.048
13:30 - 14:00	5	13646	0.018	5	13646	0.006	5	13646	0.024
14:00 - 14:30	5	13646	0.013	5	13646	0.016	5	13646	0.029
14:30 - 15:00	5	13646	0.004	5	13646	0.043	5	13646	0.047
15:00 - 15:30	5	13646	0.013	5	13646	0.101	5	13646	0.114
15:30 - 16:00	5	13646	0.034	5	13646	0.169	5	13646	0.203
16:00 - 16:30	5	13646	0.013	5	13646	0.179	5	13646	0.192
16:30 - 17:00	5	13646	0.016	5	13646	0.183	5	13646	0.199
17:00 - 17:30	5	13646	0.016	5	13646	0.284	5	13646	0.300
17:30 - 18:00	5	13646	0.010	5	13646	0.170	5	13646	0.180
18:00 - 18:30	5	13646	0.003	5	13646	0.057	5	13646	0.060
18:30 - 19:00	5	13646	0.031	5	13646	0.032	5	13646	0.063
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			1.472			1.425			2.897

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	4200 - 45000 (units: sqm)
Survey date date range:	01/01/09 - 16/03/16
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-100308-170831-0844

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days
09	NORTH		
	CB	CUMBRIA	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 20 to 154 (units:)
Range Selected by User: 1 to 154 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 09/11/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Wednesday	1 days
Thursday	2 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

25,001 to 50,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

75,001 to 100,000	2 days
500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	4 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	CB-03-C-01	BLOCK OF FLATS		CUMBRIA
	KING STREET			
	CARLISLE			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:		40	
	Survey date: THURSDAY		12/06/14	Survey Type: MANUAL
2	GM-03-C-02	BLOCK OF FLATS		GREATER MANCHESTER
	WHITWORTH STREET W.			
	MANCHESTER			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:		154	
	Survey date: THURSDAY		13/10/11	Survey Type: MANUAL
3	GM-03-C-03	BLOCK OF FLATS		GREATER MANCHESTER
	FAIRFIELD STREET			
	MANCHESTER			
	Town Centre			
	Built-Up Zone			
	Total Number of dwellings:		20	
	Survey date: FRIDAY		14/10/11	Survey Type: MANUAL
4	HI-03-C-01	FLATS		HIGHLAND
	SHORE STREET			
	INVERNESS			
	Town Centre			
	Residential Zone			
	Total Number of dwellings:		38	
	Survey date: WEDNESDAY		20/05/09	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	63	0.016	4	63	0.044	4	63	0.060
08:00 - 09:00	4	63	0.028	4	63	0.060	4	63	0.088
09:00 - 10:00	4	63	0.020	4	63	0.028	4	63	0.048
10:00 - 11:00	4	63	0.024	4	63	0.032	4	63	0.056
11:00 - 12:00	4	63	0.020	4	63	0.016	4	63	0.036
12:00 - 13:00	4	63	0.024	4	63	0.020	4	63	0.044
13:00 - 14:00	4	63	0.032	4	63	0.044	4	63	0.076
14:00 - 15:00	4	63	0.020	4	63	0.036	4	63	0.056
15:00 - 16:00	4	63	0.040	4	63	0.020	4	63	0.060
16:00 - 17:00	4	63	0.067	4	63	0.044	4	63	0.111
17:00 - 18:00	4	63	0.079	4	63	0.063	4	63	0.142
18:00 - 19:00	4	63	0.063	4	63	0.036	4	63	0.099
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.433			0.443			0.876

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	20 - 154 (units:)
Survey date date range:	01/01/09 - 09/11/16
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-100308-170831-0813

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : T - PLACE OF WORSHIP
MULTI-MODAL VEHICLES

Selected regions and areas:
03 SOUTH WEST
DC DORSET 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Site area
Actual Range:	0.10 to 0.10 (units: hect)
Range Selected by User:	0.09 to 1.00 (units: hect)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 18/09/16

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Wednesday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Town Centre 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
High Street 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
D1 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:
15,001 to 20,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
25,001 to 50,000 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
1.1 to 1.5 1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:
No 1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Present 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 DC-07-T-02 CHURCH DORSET
HIGH WEST STREET

DORCHESTER
Town Centre
High Street
Total Site area: 0.10 hect
Survey date: WEDNESDAY 26/03/14 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/T - PLACE OF WORSHIP
MULTI-MODAL VEHICLES
Calculation factor: 1 hect
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	0.10	10.000	1	0.10	10.000	1	0.10	20.000
08:00 - 09:00	1	0.10	10.000	1	0.10	0.000	1	0.10	10.000
09:00 - 10:00	1	0.10	10.000	1	0.10	20.000	1	0.10	30.000
10:00 - 11:00	1	0.10	30.000	1	0.10	20.000	1	0.10	50.000
11:00 - 12:00	1	0.10	20.000	1	0.10	10.000	1	0.10	30.000
12:00 - 13:00	1	0.10	10.000	1	0.10	10.000	1	0.10	20.000
13:00 - 14:00	1	0.10	10.000	1	0.10	0.000	1	0.10	10.000
14:00 - 15:00	1	0.10	10.000	1	0.10	10.000	1	0.10	20.000
15:00 - 16:00	1	0.10	20.000	1	0.10	50.000	1	0.10	70.000
16:00 - 17:00	1	0.10	0.000	1	0.10	0.000	1	0.10	0.000
17:00 - 18:00	1	0.10	0.000	1	0.10	0.000	1	0.10	0.000
18:00 - 19:00									
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			130.000			130.000			260.000

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	0.10 to 0.10 (units: hect)
Survey date date range:	01/01/09 - 18/09/16
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-100308-171128-1153

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT
MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
06	WEST MIDLANDS		
	WO	WORCESTERSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	1 days
10	WALES		
	SW	SWANSEA	1 days
11	SCOTLAND		
	AG	ANGUS	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 327 to 800 (units: sqm)
Range Selected by User: 175 to 2384 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 20/05/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Thursday	1 days
Friday	2 days
Sunday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	5

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	1
Built-Up Zone	2
High Street	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

A3	1 days
A4	3 days
C1	1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 AG-06-C-01 PUB/RESTAURANT ANGUS
GRAVESEND

ARBROATH
Town Centre
Built-Up Zone
Total Gross floor area: 672 sqm
Survey date: FRIDAY *25/05/12* *Survey Type: MANUAL*

2 BR-06-C-01 WETHERSPOON BRISTOL CITY
THE WATERFRONT
HARBOURSIDE
BRISTOL
Town Centre
Development Zone
Total Gross floor area: 327 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

3 LC-06-C-04 PUB/RESTAURANT LANCASHIRE
ST JAMES STREET

BURNLEY
Town Centre
Built-Up Zone
Total Gross floor area: 600 sqm
Survey date: THURSDAY *29/09/16* *Survey Type: MANUAL*

4 SW-06-C-01 PITCHER & PIANO SWANSEA
WIND STREET

SWANSEA
Town Centre
High Street
Total Gross floor area: 800 sqm
Survey date: TUESDAY *22/10/13* *Survey Type: MANUAL*

5 WO-06-C-02 SLUG & LETTUCE WORCESTERSHIRE
THE CROSS

WORCESTER
Town Centre
High Street
Total Gross floor area: 417 sqm
Survey date: SUNDAY *25/05/14* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT
MULTI-MODAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	600	0.000	1	600	0.000	1	600	0.000
08:00 - 09:00	1	600	0.000	1	600	0.000	1	600	0.000
09:00 - 10:00	1	600	0.000	1	600	0.000	1	600	0.000
10:00 - 11:00	4	504	0.198	4	504	0.198	4	504	0.396
11:00 - 12:00	4	504	0.595	4	504	0.248	4	504	0.843
12:00 - 13:00	5	563	2.805	5	563	0.781	5	563	3.586
13:00 - 14:00	5	563	1.811	5	563	1.563	5	563	3.373
14:00 - 15:00	5	563	1.207	5	563	0.710	5	563	1.917
15:00 - 16:00	5	563	1.740	5	563	1.243	5	563	2.983
16:00 - 17:00	5	563	0.604	5	563	0.888	5	563	1.492
17:00 - 18:00	5	563	0.675	5	563	0.568	5	563	1.243
18:00 - 19:00	5	563	2.308	5	563	2.663	5	563	4.971
19:00 - 20:00	5	563	2.876	5	563	3.374	5	563	6.250
20:00 - 21:00	5	563	2.947	5	563	2.699	5	563	5.646
21:00 - 22:00	5	563	1.705	5	563	2.237	5	563	3.942
22:00 - 23:00	5	563	0.888	5	563	2.131	5	563	3.019
23:00 - 24:00	4	504	1.240	4	504	2.976	4	504	4.216
Total Rates:			21.599			22.278			43.877

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

MODE OF TRANSPORT CENSUS DATA

Employment Trips

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

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population	All usual residents aged 16 and over in employment the week before the census
units	Persons
usual residence	England and Wales (country)
place of work	E02006902 : Manchester 054 (2011 super output area - middle layer)

Method of travel to work	**2011**
All categories: Method of travel to work (2001 spe	50,784
Work mainly at or from home	0
Underground, metro, light rail or tram	3,045
Train	7,857
Bus, minibus or coach	12,876
Taxi	164
Motorcycle, scooter or moped	213
Driving a car or van	17,234
Passenger in a car or van	1,914
Bicycle	1,250
On foot	6,131
Other method of travel to work	100

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particular

Residential Trips

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

ONS Crown Copyright Reserved [from Nomis on 1 September 2017]

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
usual residence	E02006902 : Manchester 054 (2011 super output area - middle layer)

	place of work							
Method of travel to work	**United Kingdom**	**Great Britain**	**England**	**Wales**	**Scotland**	**Northern Ireland**	**England and Wales**	
All categories: Method of travel to work (2001 spe	3,315	3,315	3,310	3	2	0	3,313	
Work mainly at or from home	0	0	0	0	0	0	0	
Underground, metro, light rail or tram	166	166	166	0	0	0	166	5.0%
Train	261	261	260	0	1	0	260	7.9%
Bus, minibus or coach	474	474	474	0	0	0	474	14.3%
Taxi	10	10	10	0	0	0	10	0.3%
Motorcycle, scooter or moped	7	7	7	0	0	0	7	0.2%
Driving a car or van	606	606	603	3	0	0	606	18.2%
Passenger in a car or van	50	50	50	0	0	0	50	1.5%
Bicycle	87	87	87	0	0	0	87	2.6%
On foot	1,641	1,641	1,640	0	1	0	1,640	49.5%
Other method of travel to work	13	13	13	0	0	0	13	0.4%
								100.0%

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particular

TRAFFIC DISTRIBUTION CENSUS DATA

WF01BEW - Location of usual residence and place of work (OA level)

ONS Crown Copyright Reserved [from Nomis on 7 November 2017]

population	All usual residents ages 16 and over in employment the week before the census
units	Persons
date	2011

currently residing in : 2011 census merged local authority district	**place of work E02006902 : Manchester 054**
Allerdale	8
Barrow-in-Furness	1
Blackburn with Darwen	196
Blackpool	37
Bolton	1,725
Burnley	83
Bury	2,771
Carlisle	11
Cheshire East	1,425
Cheshire West and Chest	420
Chorley	272
Copeland	0
Eden	5
Fylde	57
Halton	112
Hyndburn	94
Knowsley	66
Lancaster	38
Liverpool	288
Manchester	15,839
Oldham	2,506
Pendle	71
Preston	132
Ribble Valley	80
Rochdale	2,119
Rossendale	330
Salford	5,366
Sefton	184
South Lakeland	33
South Ribble	134
St. Helens	262
Stockport	3,198
Tameside	3,030
Trafford	4,055
Warrington	711
West Lancashire	194
Wigan	1,156
Wirral	137
Wyre	48

In order to protect against disclosure of personal information, records have been swapped between different geographic area

WF01BEW - Location of usual residence and place of work (OA level)

ONS Crown Copyright Reserved [from Nomis on 7 November 2017]

population	All usual residents ages 16 and over in employment the week before the census
units	Persons
date	2011

currently residing in : 2011 super output area - middle layer	place of work E02006902 : Manchester 054
E02001045 : Manchester 001	218
E02001046 : Manchester 002	266
E02001047 : Manchester 003	270
E02001048 : Manchester 004	217
E02001049 : Manchester 005	274
E02001050 : Manchester 006	284
E02001051 : Manchester 007	282
E02001052 : Manchester 008	318
E02001053 : Manchester 009	258
E02001055 : Manchester 011	251
E02001056 : Manchester 012	192
E02001057 : Manchester 013	579
E02001059 : Manchester 015	307
E02001061 : Manchester 017	197
E02001062 : Manchester 018	195
E02001063 : Manchester 019	412
E02001064 : Manchester 020	193
E02001065 : Manchester 021	204
E02001066 : Manchester 022	344
E02001067 : Manchester 023	178
E02001068 : Manchester 024	170
E02001069 : Manchester 025	344
E02001070 : Manchester 026	326
E02001071 : Manchester 027	245
E02001072 : Manchester 028	279
E02001073 : Manchester 029	383
E02001074 : Manchester 030	298
E02001075 : Manchester 031	228
E02001076 : Manchester 032	418
E02001077 : Manchester 033	233
E02001078 : Manchester 034	221
E02001079 : Manchester 035	213
E02001080 : Manchester 036	362
E02001081 : Manchester 037	209
E02001082 : Manchester 038	270
E02001083 : Manchester 039	387
E02001084 : Manchester 040	262
E02001085 : Manchester 041	124
E02001086 : Manchester 042	185
E02001087 : Manchester 043	379
E02001088 : Manchester 044	102
E02001089 : Manchester 045	207
E02001090 : Manchester 046	136
E02001091 : Manchester 047	130
E02001092 : Manchester 048	87
E02001093 : Manchester 049	96
E02001094 : Manchester 050	55
E02001095 : Manchester 051	70
E02001096 : Manchester 052	73
E02001097 : Manchester 053	75
E02006902 : Manchester 054	816
E02006912 : Manchester 055	738
E02006913 : Manchester 056	460
E02006914 : Manchester 057	374
E02006915 : Manchester 058	351
E02006916 : Manchester 059	487
E02006917 : Manchester 060	607

Residential Traffic (IN)

		Route		Comments
		Deansgate North	Deansgate South	
Origin	**E02006902 : Manchester 054**	A	D	Arriving at development at 1700hrs
Halton	7		7	
Warrington	16	16		
Blackburn with Darwen	6	6		
Cheshire East	24		24	
Cheshire West and Chester	6		6	
Copeland	1	1		
Eden	1	1		
South Lakeland	1	1		
Burnley	5	5		
Chorley	1	1		
Hyndburn	1	1		
Lancaster	1	1		
Pendle	4	4		
Preston	2	2		
Ribble Valley	3	3		
Rossendale	2	2		
South Ribble	2	2		
West Lancashire	2	2		
Bolton	15	15		
Bury	33	33		
Oldham	25	25		
Rochdale	13	13		
Salford	60	60		
Stockport	31		31	
Tameside	25	12	13	Assume 50/50 split
Trafford	62		62	
Wigan	5	5		
Liverpool	4	4		
St. Helens	1	1		
Sefton	2	2		
Wirral	1		1	
Calderdale	3	3		
Kirklees	1	1		
Leeds	4	4		
High Peak	1		1	
Northampton	1	1		
Stoke-on-Trent	1		1	
Shropshire	1	1		
Newcastle-under-Lyme	1		1	
Stafford	1		1	
Wyre Forest	1		1	
Birmingham	1		1	
Hertsmere	1	1		

Watford	1	1		
Camden	1	1		
Waltham Forest	1	1		
Westminster,City of London	3	3		
Windsor and Maidenhead	2	2		
Wycombe	1	1		
Tonbridge and Malling	1	1		
Wiltshire	1	1		
Isle of Anglesey	1	1		
Cardiff	1	1		
Powys	1	1		
E02001045 : Manchester 001	1	1		
E02001047 : Manchester 003	1	1		
E02001048 : Manchester 004	2	2		
E02001049 : Manchester 005	1	1		
E02001050 : Manchester 006	7	7		
E02001051 : Manchester 007	2	2		
E02001052 : Manchester 008	1	1		
E02001053 : Manchester 009	1	1		
E02001055 : Manchester 011	4	4		
E02001057 : Manchester 013	5	5		
E02001059 : Manchester 015	5	5		
E02001061 : Manchester 017	1		1	
E02001062 : Manchester 018	15		15	
E02001063 : Manchester 019	8		8	
E02001064 : Manchester 020	6		6	
E02001066 : Manchester 022	17	8	9	Assume 50/50 split
E02001068 : Manchester 024	1		1	
E02001069 : Manchester 025	1		1	
E02001070 : Manchester 026	6		6	
E02001072 : Manchester 028	3		3	
E02001074 : Manchester 030	6		6	
E02001075 : Manchester 031	1		1	
E02001076 : Manchester 032	1		1	
E02001078 : Manchester 034	3		3	
E02001081 : Manchester 037	1		1	
E02001083 : Manchester 039	1		1	
E02001084 : Manchester 040	2		2	
E02001086 : Manchester 042	1		1	
E02001087 : Manchester 043	2		2	
E02001089 : Manchester 045	4		4	
E02001090 : Manchester 046	2	1	1	Assume 50/50 split
E02001091 : Manchester 047	1		1	
E02001093 : Manchester 049	4		4	
E02001094 : Manchester 050	3		3	
E02001095 : Manchester 051	6		6	
E02001096 : Manchester 052	6		6	
E02001097 : Manchester 053	4	2	2	Assume 50/50 split
E02006902 : Manchester 054	33	16	17	Assume 50/50 split
E02006912 : Manchester 055	18	18		

E02006913 : Manchester 056	9	9		
E02006914 : Manchester 057	3		3	
E02006915 : Manchester 058	2	2		
E02006916 : Manchester 059	3	1	2	Assume 50/50 split
E02006917 : Manchester 060	9	5	4	Assume 50/50 split
Total	606	335	271	606
		55%	45%	100%

Residential Traffic (OUT)

		Southmill Street East	Southmill Street West	Comments
Destination	**E02006902 : Manchester 054**	B	D	Leaving development at 0800hrs
Halton	7		7	
Warrington	16		16	
Blackburn with Darwen	6	6		
Cheshire East	24		24	
Cheshire West and Chester	6		6	
Copeland	1	1		
Eden	1	1		
South Lakeland	1	1		
Burnley	5	5		
Chorley	1	1		
Hyndburn	1		1	
Lancaster	1	1		
Pendle	4	4		
Preston	2	2		
Ribble Valley	3	3		
Rossendale	2	2		
South Ribble	2	2		
West Lancashire	2	1	1	Assume 50/50 split
Bolton	15	8	7	Assume 50/50 split
Bury	33	33		
Oldham	25	25		
Rochdale	13	13		
Salford	60	30	30	Assume 50/50 split
Stockport	31		31	
Tameside	25	12	13	Assume 50/50 split
Trafford	62		62	
Wigan	5	5		Assume 50/50 split
Liverpool	4		4	
St. Helens	1		1	
Sefton	2		2	
Wirral	1		1	
Calderdale	3	3		
Kirklees	1	1		
Leeds	4	4		
High Peak	1		1	
Northampton	1		1	
Stoke-on-Trent	1		1	
Shropshire	1		1	
Newcastle-under-Lyme	1		1	
Stafford	1		1	
Wyre Forest	1		1	
Birmingham	1		1	
Hertsmere	1		1	
Watford	1		1	
Camden	1		1	
Waltham Forest	1		1	
Westminster,City of London	3		3	
Windsor and Maidenhead	2		2	

Wycombe	1		1	
Tonbridge and Malling	1		1	
Wiltshire	1		1	
Isle of Anglesey	1		1	
Cardiff	1		1	
Powys	1		1	
E02001045 : Manchester 001	1	1		
E02001047 : Manchester 003	1	1		
E02001048 : Manchester 004	3	3		
E02001049 : Manchester 005	1	1		
E02001050 : Manchester 006	7	7		
E02001051 : Manchester 007	2	2		
E02001052 : Manchester 008	1	1		
E02001053 : Manchester 009	1	1		
E02001055 : Manchester 011	4	4		
E02001057 : Manchester 013	5	5		
E02001059 : Manchester 015	10	10		
E02001061 : Manchester 017	1		1	
E02001062 : Manchester 018	15		15	
E02001063 : Manchester 019	8		8	
E02001064 : Manchester 020	6		6	
E02001066 : Manchester 022	17		17	
E02001068 : Manchester 024	1		1	
E02001069 : Manchester 025	1		1	
E02001070 : Manchester 026	6		6	
E02001072 : Manchester 028	3	3		
E02001074 : Manchester 030	6		6	
E02001075 : Manchester 031	1		1	
E02001076 : Manchester 032	1		1	
E02001078 : Manchester 034	3		3	
E02001081 : Manchester 037	1		1	
E02001083 : Manchester 039	1		1	
E02001084 : Manchester 040	2		2	
E02001086 : Manchester 042	1		1	
E02001087 : Manchester 043	2		2	
E02001089 : Manchester 045	4		4	
E02001090 : Manchester 046	2		2	
E02001091 : Manchester 047	1		1	
E02001093 : Manchester 049	4	2	2	Assume 50/50 split
E02001094 : Manchester 050	3	2	1	Assume 50/50 split
E02001095 : Manchester 051	6	3	3	Assume 50/50 split
E02001096 : Manchester 052	6	3	3	Assume 50/50 split
E02001097 : Manchester 053	4	2	2	Assume 50/50 split
E02006902 : Manchester 054	33	33		
E02006912 : Manchester 055	18		18	
E02006913 : Manchester 056	9	9		
E02006914 : Manchester 057	3		3	
E02006915 : Manchester 058	2	2		
E02006916 : Manchester 059	3	3		
E02006917 : Manchester 060	9	9		
Total	612	271	341	612
		44%	56%	100%

Employment Traffic (IN)

		Route		Comments
		Deansgate North	Deansgate South	
Origin	**E02006902 : Manchester 054**	A	D	Arriving at development at 1700hrs
Allerdale	8	8		
Barrow-in-Furness	1	1		
Blackburn with Darwen	196	196		
Blackpool	37	37		
Bolton	1,725	1725		
Burnley	83	83		
Bury	2,771	2771		
Carlisle	11	11		
Cheshire East	1,425		1425	
Cheshire West and Chester	420		420	
Chorley	272	272		
Copeland	0	0		
Eden	5	5		
Fylde	57	57		
Halton	112	112		
Hyndburn	94		94	
Knowsley	66		66	
Lancaster	38	38		
Liverpool	288		288	
Pendle	71	71		
Preston	132	132		
Ribble Valley	80	80		
Rochdale	2,119	2119		
Rossendale	330	330		
Salford	5,366	2683	2683	Assume 50/50 split
Sefton	184		184	
South Lakeland	33	33		
South Ribble	134	33		
St. Helens	262		262	
Stockport	3,198	1599	1599	Assume 50/50 split
Tameside	3,030	3030		
Trafford	4,055		4055	
Warrington	711		711	
West Lancashire	194	97	97	Assume 50/50 split
Wigan	1,156	1156		
Wirral	137		137	
Wyre	48	48		
E02001045 : Manchester 001	218	218		
E02001046 : Manchester 002	266	266		
E02001047 : Manchester 003	270	270		
E02001048 : Manchester 004	217	217		
E02001049 : Manchester 005	274	274		

E02001050 : Manchester 006	284	284		
E02001051 : Manchester 007	282	282		
E02001052 : Manchester 008	318	318		
E02001053 : Manchester 009	258	258		
E02001055 : Manchester 011	251	251		
E02001056 : Manchester 012	192	192		
E02001057 : Manchester 013	579	579		
E02001059 : Manchester 015	307	154	153	Assume 50/50 split
E02001061 : Manchester 017	197	99	98	Assume 50/50 split
E02001062 : Manchester 018	195	98	97	Assume 50/50 split
E02001063 : Manchester 019	412		412	
E02001064 : Manchester 020	193	96	97	Assume 50/50 split
E02001065 : Manchester 021	204	102	102	Assume 50/50 split
E02001066 : Manchester 022	344	172	172	Assume 50/50 split
E02001067 : Manchester 023	178	89	89	Assume 50/50 split
E02001068 : Manchester 024	170		170	
E02001069 : Manchester 025	344	172	172	Assume 50/50 split
E02001070 : Manchester 026	326	163	163	Assume 50/50 split
E02001071 : Manchester 027	245	123	122	Assume 50/50 split
E02001072 : Manchester 028	279		279	
E02001073 : Manchester 029	383		383	
E02001074 : Manchester 030	298		298	
E02001075 : Manchester 031	228	114	114	Assume 50/50 split
E02001076 : Manchester 032	418	209	209	Assume 50/50 split
E02001077 : Manchester 033	233	117	116	Assume 50/50 split
E02001078 : Manchester 034	221	110	111	Assume 50/50 split
E02001079 : Manchester 035	213		213	
E02001080 : Manchester 036	362	181	181	Assume 50/50 split
E02001081 : Manchester 037	209		209	
E02001082 : Manchester 038	270	135	135	Assume 50/50 split
E02001083 : Manchester 039	387		387	
E02001084 : Manchester 040	262	131	131	Assume 50/50 split
E02001085 : Manchester 041	124	62	62	Assume 50/50 split
E02001086 : Manchester 042	185		185	
E02001087 : Manchester 043	379		379	
E02001088 : Manchester 044	102		102	
E02001089 : Manchester 045	207	104	103	Assume 50/50 split
E02001090 : Manchester 046	136		136	
E02001091 : Manchester 047	130		130	
E02001092 : Manchester 048	87		87	
E02001093 : Manchester 049	96		96	
E02001094 : Manchester 050	55		55	
E02001095 : Manchester 051	70		70	
E02001096 : Manchester 052	73		73	
E02001097 : Manchester 053	75		75	
E02006902 : Manchester 054	816	408	408	
E02006912 : Manchester 055	738	369	369	
E02006913 : Manchester 056	460	460		Assume 50/50 split
E02006914 : Manchester 057	374	172	172	Assume 50/50 split
E02006915 : Manchester 058	351	351		

E02006916 : Manchester 059	487	244	243	Assume 50/50 split
E02006917 : Manchester 060	607	304	303	
Total	44,688	24,875	19,682	44,557
		56%	44%	100%

Employment Traffic (OUT)

		Southmill Street East	Southmill Street West	Comments
Destination	**E02006902 : Manchester 054**	B	D	Leaving development at 0800hrs
Allerdale	8	8		
Barrow-in-Furness	1	1		
Blackburn with Darwen	196	196		
Blackpool	37	37		
Bolton	1,725	1725		
Burnley	83	83		
Bury	2,771	2771		
Carlisle	11	11		
Cheshire East	1,425		1425	
Cheshire West and Chester	420		420	
Chorley	272	272		
Copeland	0	0		
Eden	5	5		
Fylde	57	57		
Halton	112	112		
Hyndburn	94		94	
Knowsley	66		66	
Lancaster	38	38		
Liverpool	288		288	
Manchester				
Pendle	71	71		
Preston	132	132		
Ribble Valley	80	80		
Rochdale	2,119	2119		
Rossendale	330	330		
Salford	5,366	2683	2683	Assume 50/50 split
Sefton	184		184	
South Lakeland	33	33		
South Ribble	134	33		
St. Helens	262		262	
Stockport	3,198	1599	1599	Assume 50/50 split
Tameside	3,030	3030		
Trafford	4,055		4055	
Warrington	711		711	
West Lancashire	194	97	97	Assume 50/50 split
Wigan	1,156	1156		
Wirral	137		137	
Wyre	48	48		
E02001045 : Manchester 001	218	218		
E02001046 : Manchester 002	266	266		
E02001047 : Manchester 003	270	270		
E02001048 : Manchester 004	217	217		
E02001049 : Manchester 005	274	274		

E02001050 : Manchester 006	284	284		
E02001051 : Manchester 007	282	282		
E02001052 : Manchester 008	318	318		
E02001053 : Manchester 009	258	258		
E02001055 : Manchester 011	251	251		
E02001056 : Manchester 012	192	192		
E02001057 : Manchester 013	579	579		
E02001059 : Manchester 015	307	154	153	Assume 50/50 split
E02001061 : Manchester 017	197	99	98	Assume 50/50 split
E02001062 : Manchester 018	195	98	97	Assume 50/50 split
E02001063 : Manchester 019	412		412	
E02001064 : Manchester 020	193	96	97	Assume 50/50 split
E02001065 : Manchester 021	204	102	102	Assume 50/50 split
E02001066 : Manchester 022	344	172	172	Assume 50/50 split
E02001067 : Manchester 023	178	89	89	Assume 50/50 split
E02001068 : Manchester 024	170		170	
E02001069 : Manchester 025	344	172	172	Assume 50/50 split
E02001070 : Manchester 026	326	163	163	Assume 50/50 split
E02001071 : Manchester 027	245	123	122	Assume 50/50 split
E02001072 : Manchester 028	279		279	
E02001073 : Manchester 029	383		383	
E02001074 : Manchester 030	298		298	
E02001075 : Manchester 031	228	114	114	Assume 50/50 split
E02001076 : Manchester 032	418	209	209	Assume 50/50 split
E02001077 : Manchester 033	233	117	116	Assume 50/50 split
E02001078 : Manchester 034	221	110	111	Assume 50/50 split
E02001079 : Manchester 035	213		213	
E02001080 : Manchester 036	362	181	181	Assume 50/50 split
E02001081 : Manchester 037	209		209	
E02001082 : Manchester 038	270	135	135	Assume 50/50 split
E02001083 : Manchester 039	387		387	
E02001084 : Manchester 040	262	131	131	Assume 50/50 split
E02001085 : Manchester 041	124	62	62	Assume 50/50 split
E02001086 : Manchester 042	185		185	
E02001087 : Manchester 043	379		379	
E02001088 : Manchester 044	102		102	
E02001089 : Manchester 045	207	104	103	Assume 50/50 split
E02001090 : Manchester 046	136		136	
E02001091 : Manchester 047	130		130	
E02001092 : Manchester 048	87		87	
E02001093 : Manchester 049	96		96	
E02001094 : Manchester 050	55		55	
E02001095 : Manchester 051	70		70	
E02001096 : Manchester 052	73		73	
E02001097 : Manchester 053	75		75	
E02006902 : Manchester 054	816	408	408	
E02006912 : Manchester 055	738	369	369	
E02006913 : Manchester 056	460	460		Assume 50/50 split
E02006914 : Manchester 057	374	172	172	Assume 50/50 split
E02006915 : Manchester 058	351	351		

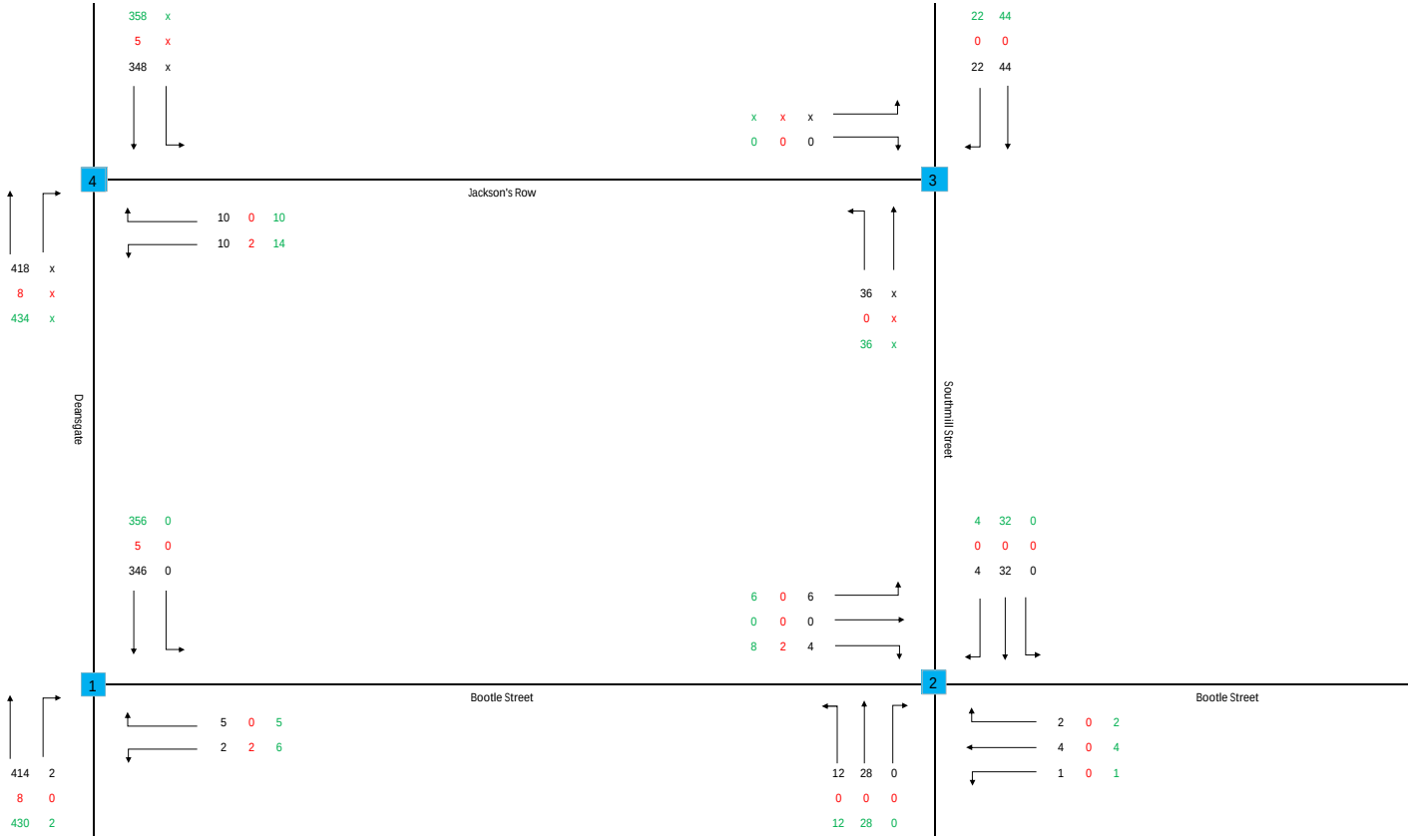
E02006916 : Manchester 059	487	244	243	Assume 50/50 split
E02006917 : Manchester 060	607	304	303	
Total	44,688	24,875	19,682	44,557
		56%	44%	100%

TRIP ANALYSIS

All Trips							Vehicle Trips		
Trip Rates				**Trips**					
				Office					
Quantum =	16310								
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak	1.142	0.042	1.184	186	7	193	61	2	64
PM Peak	0.054	1.159	1.213	9	189	198	3	62	65
Trip Rates				Hotel					
Quantum =	19672								
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak	0.356	0.73	1.086	70	144	214	23	47	71
PM Peak	0.608	0.508	1.116	120	100	220	39	33	72
Trip Rates				Apartments					
Quantum =	189								
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak	0.071	0.456	0.527	13	86	100	2	16	18
PM Peak	0.663	0.262	0.925	125	50	175	23	9	32
Trip Rates				Restaurant + Bars					
Quantum =	3228								
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak	0	0	0	0	0	0	0	0	0
PM Peak	0.675	0.568	1.243	133	112	245	44	37	81
Trip Rates				Synagogue					
Quantum =	2458								
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak	10	0	10	2	0	2	1	0	1
PM Peak	0	0	0	0	0	0	0	0	0
Trip Rates				**TOTAL**					
Average									
Peak	Average Trip Rates			Trip Generation			Trip Generation		
	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS	ARRIVALS	DEPARTURES	TOTALS
AM Peak				272	237	509	88	65	153
PM Peak				254	338	592	109	141	170

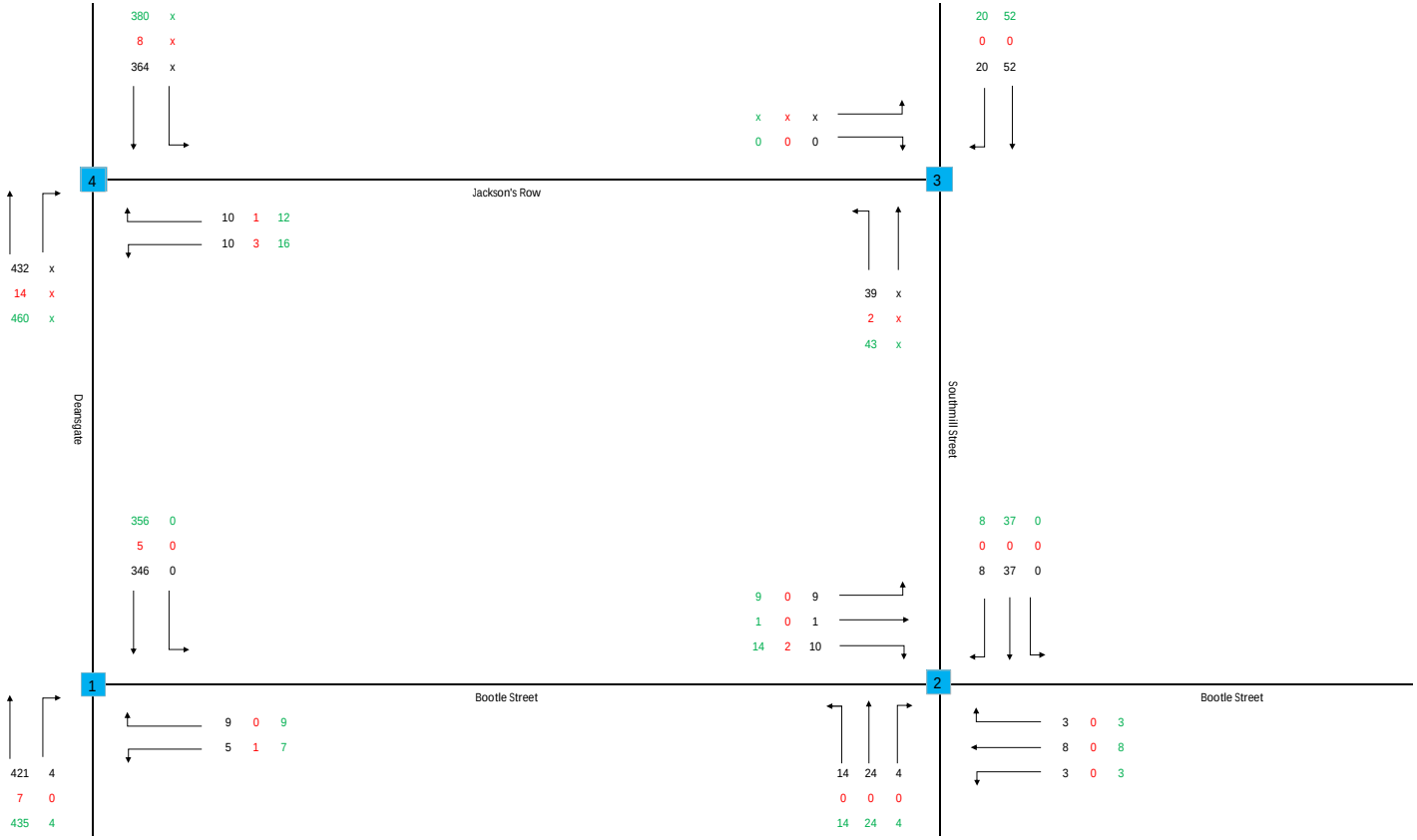
Project: 70010278 - St. Michael's Development
Scenario: Figure 1 - AM Observed Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



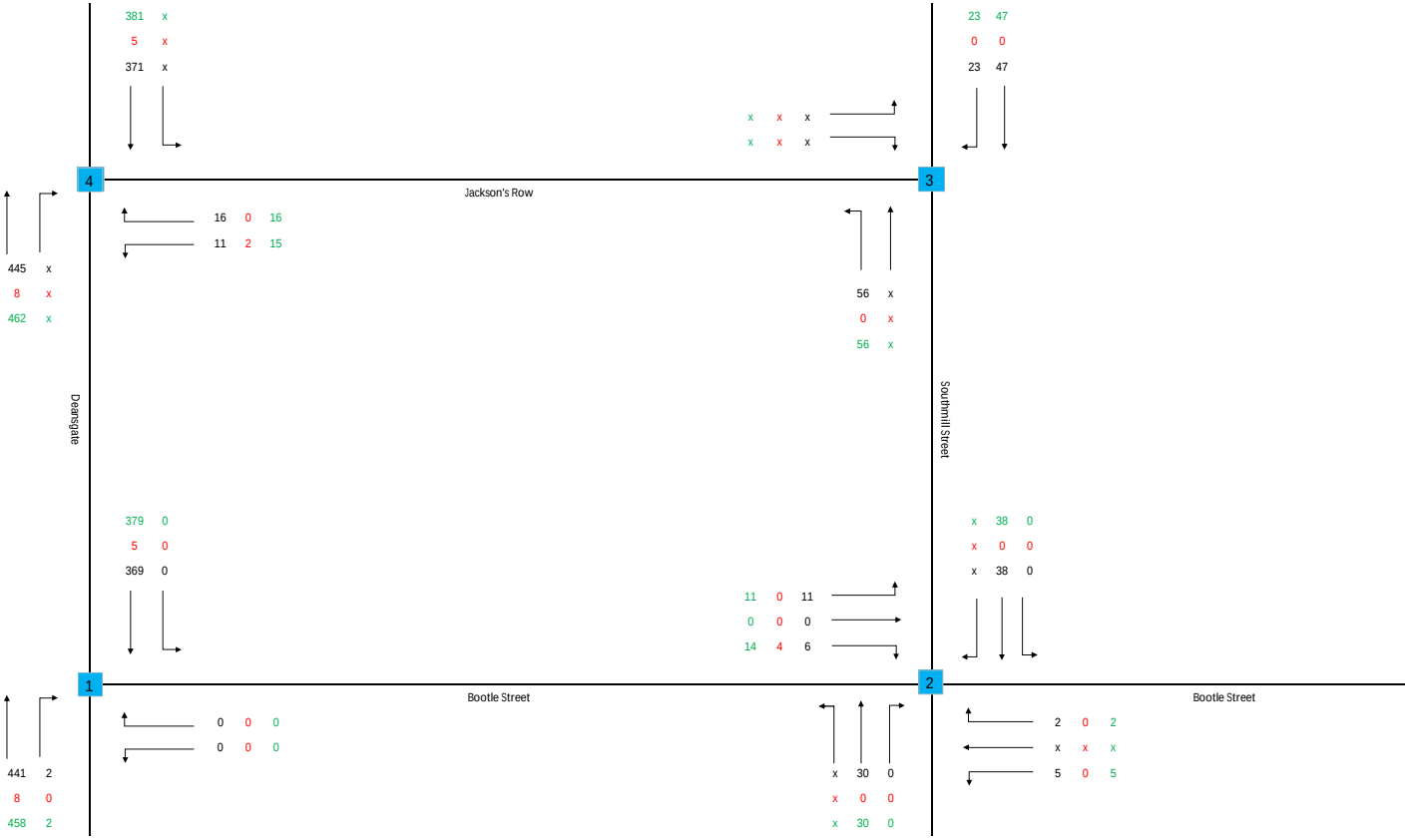
Project: 70010278 - St. Michael's Development
Scenario: Figure 2 - PM Observed Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



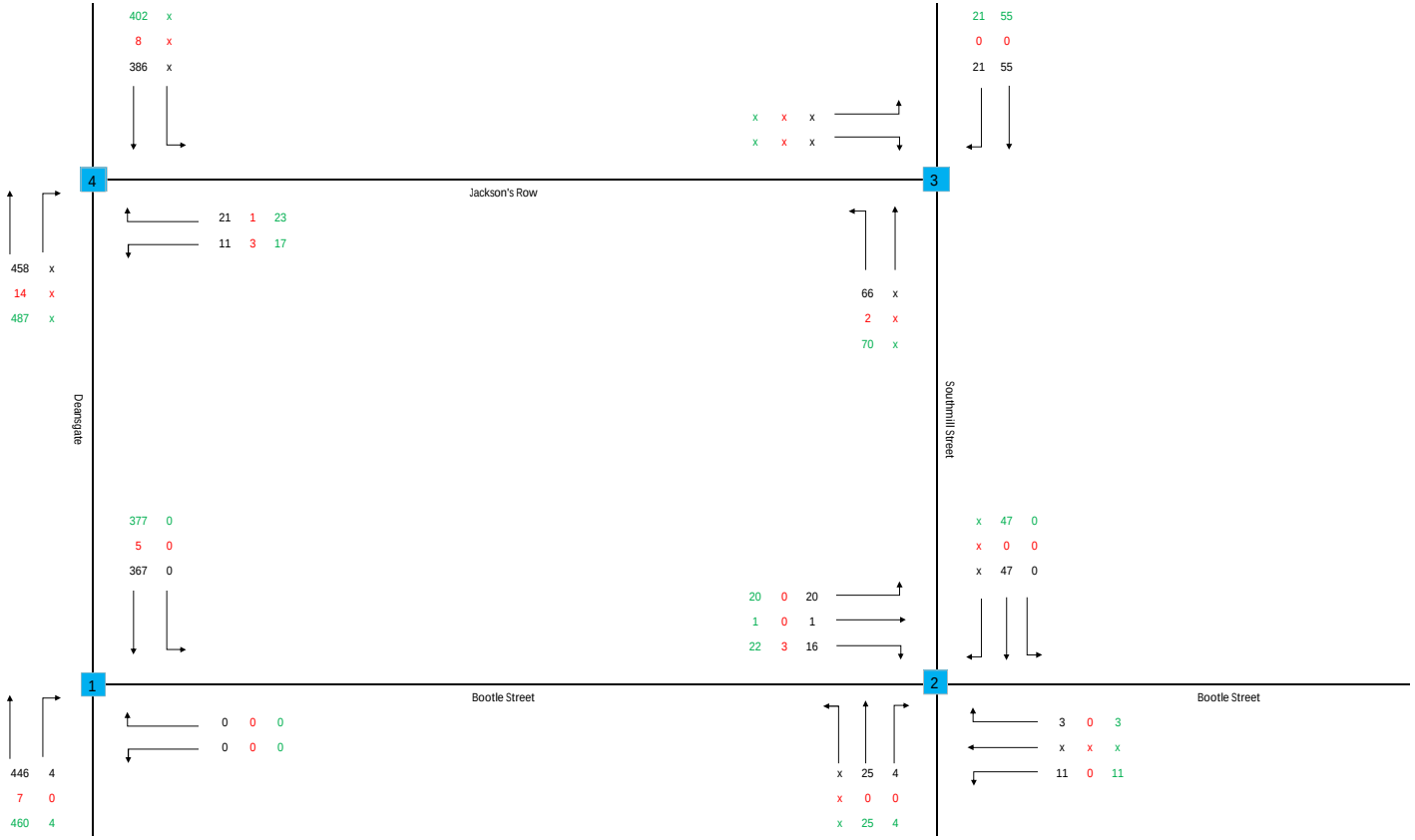
Project: 70010278 - St. Michael's Development
Scenario: Figure 3 - AM 2021 Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



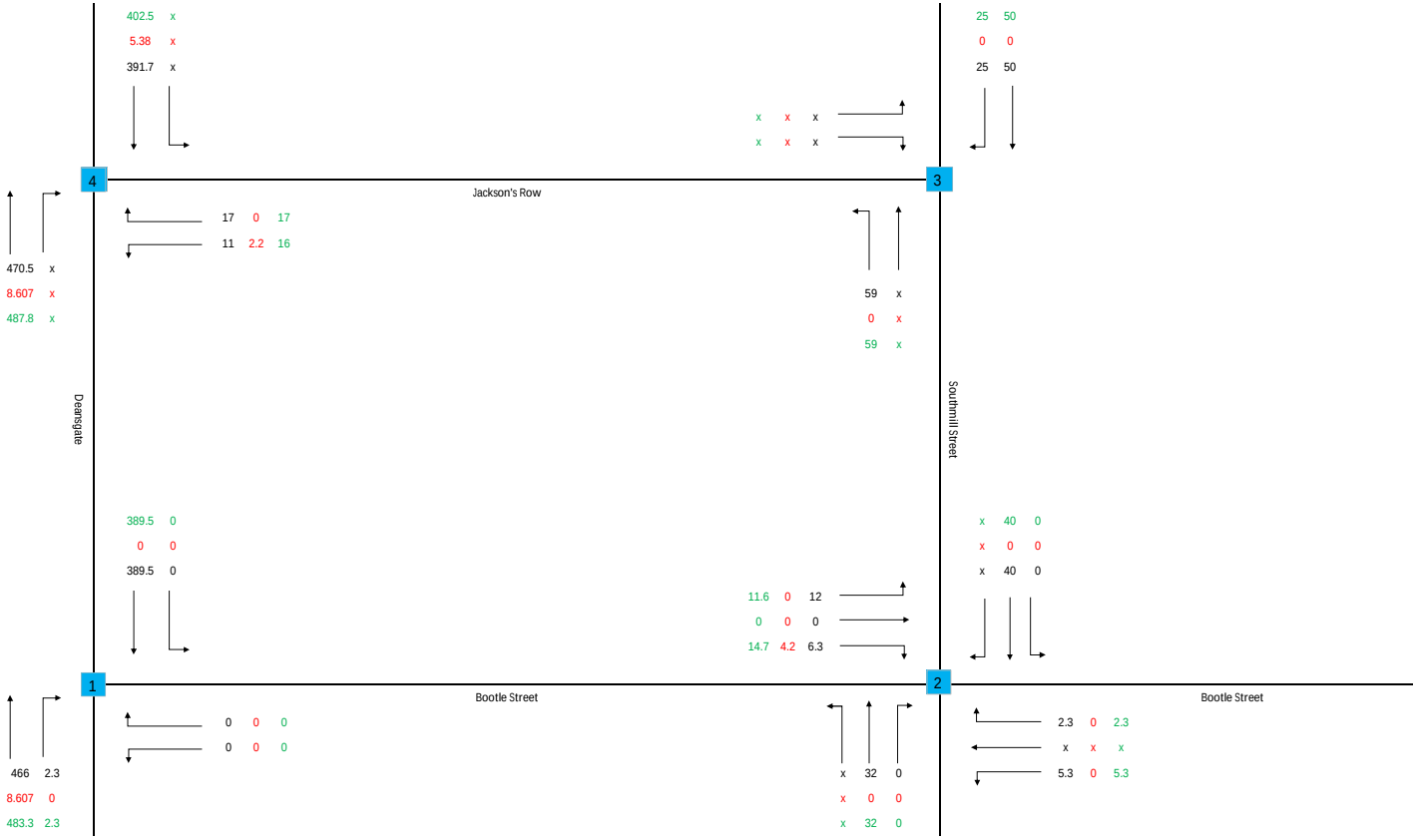
Project: 70010278 - St. Michael's Development
Scenario: Figure 4 - PM 2021 Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



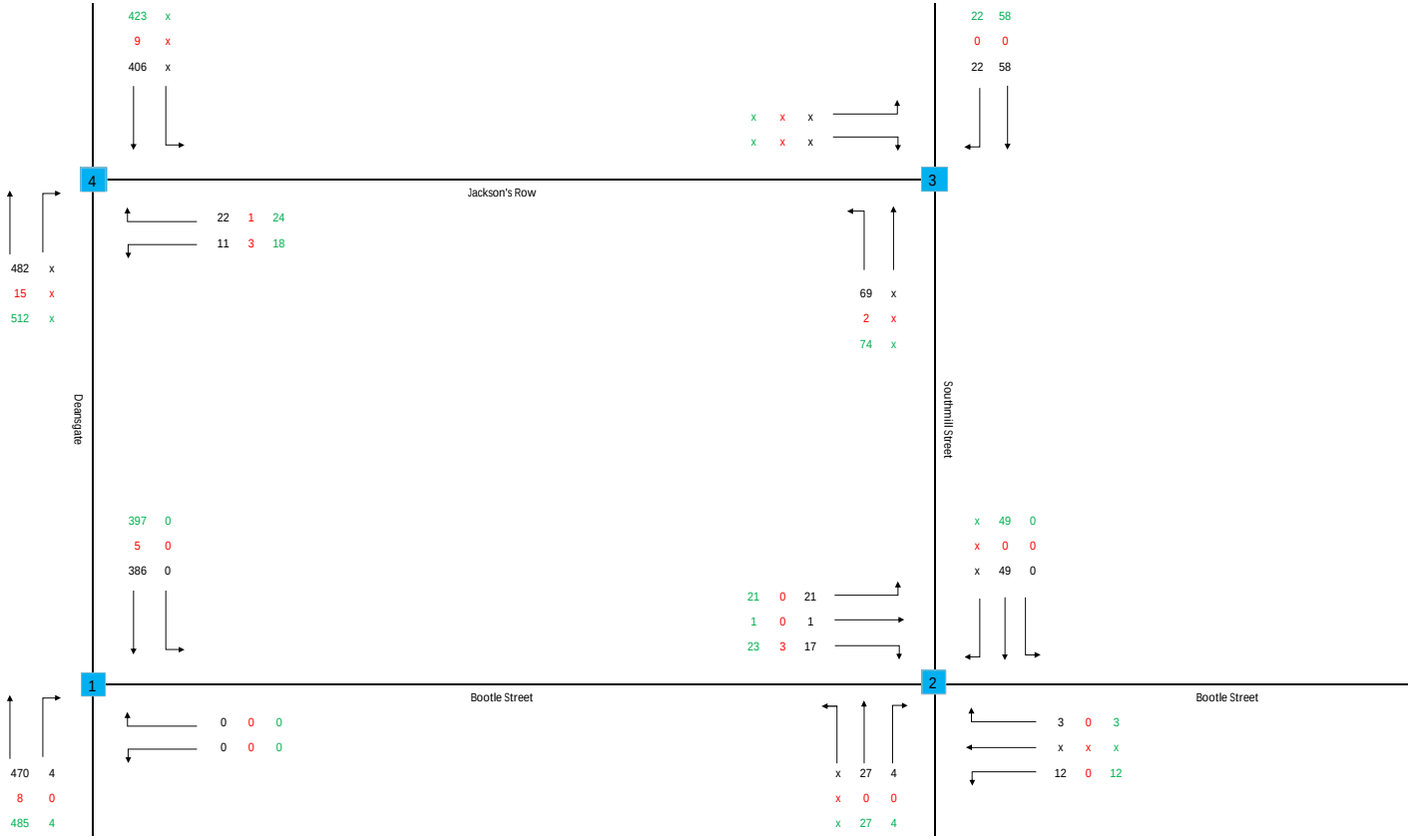
Project: 70010278 - St. Michael's Development
Scenario: Figure 5 - AM 2026 Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



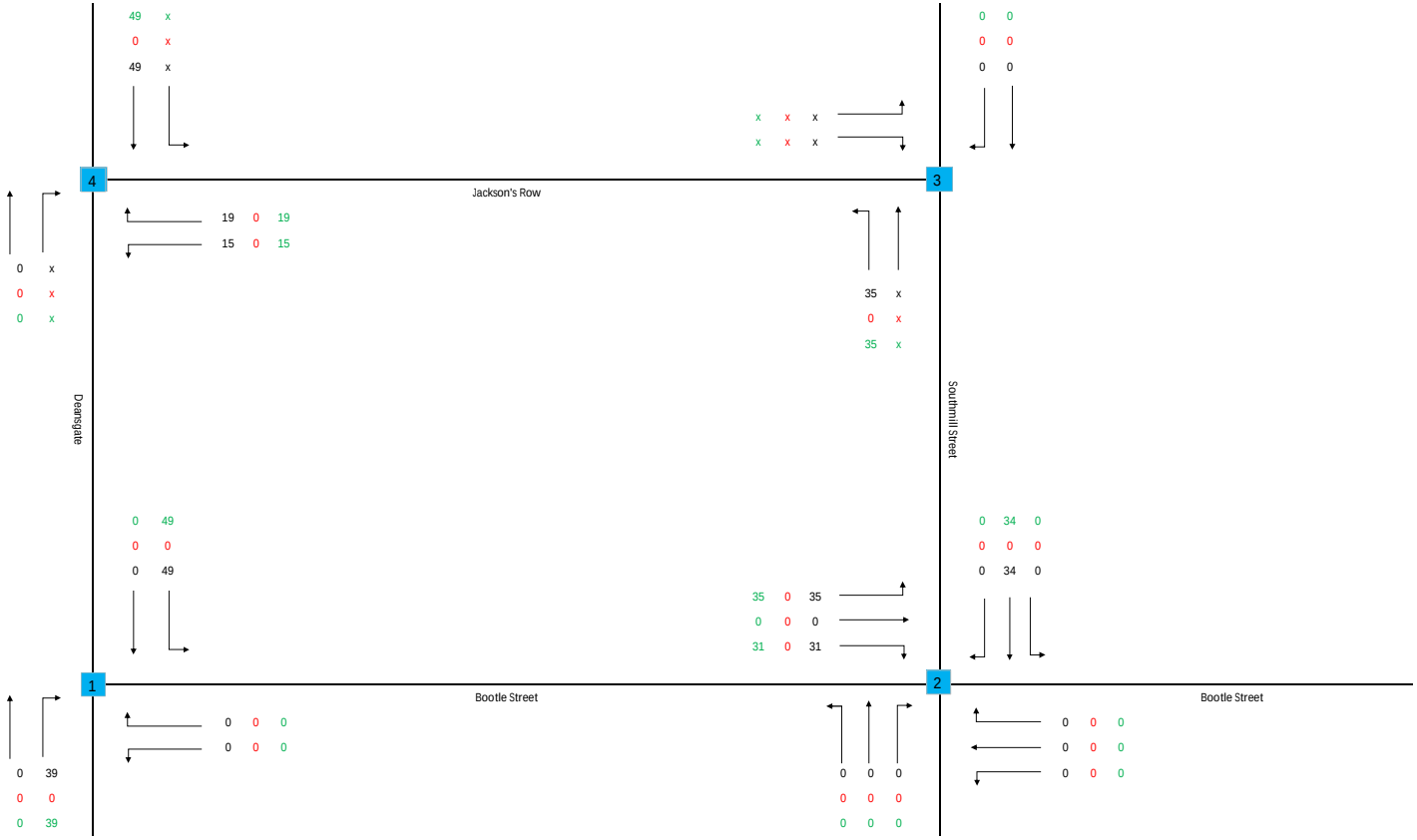
Project: 70010278 - St. Michael's Development
Scenario: Figure 6 - PM 2026 Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



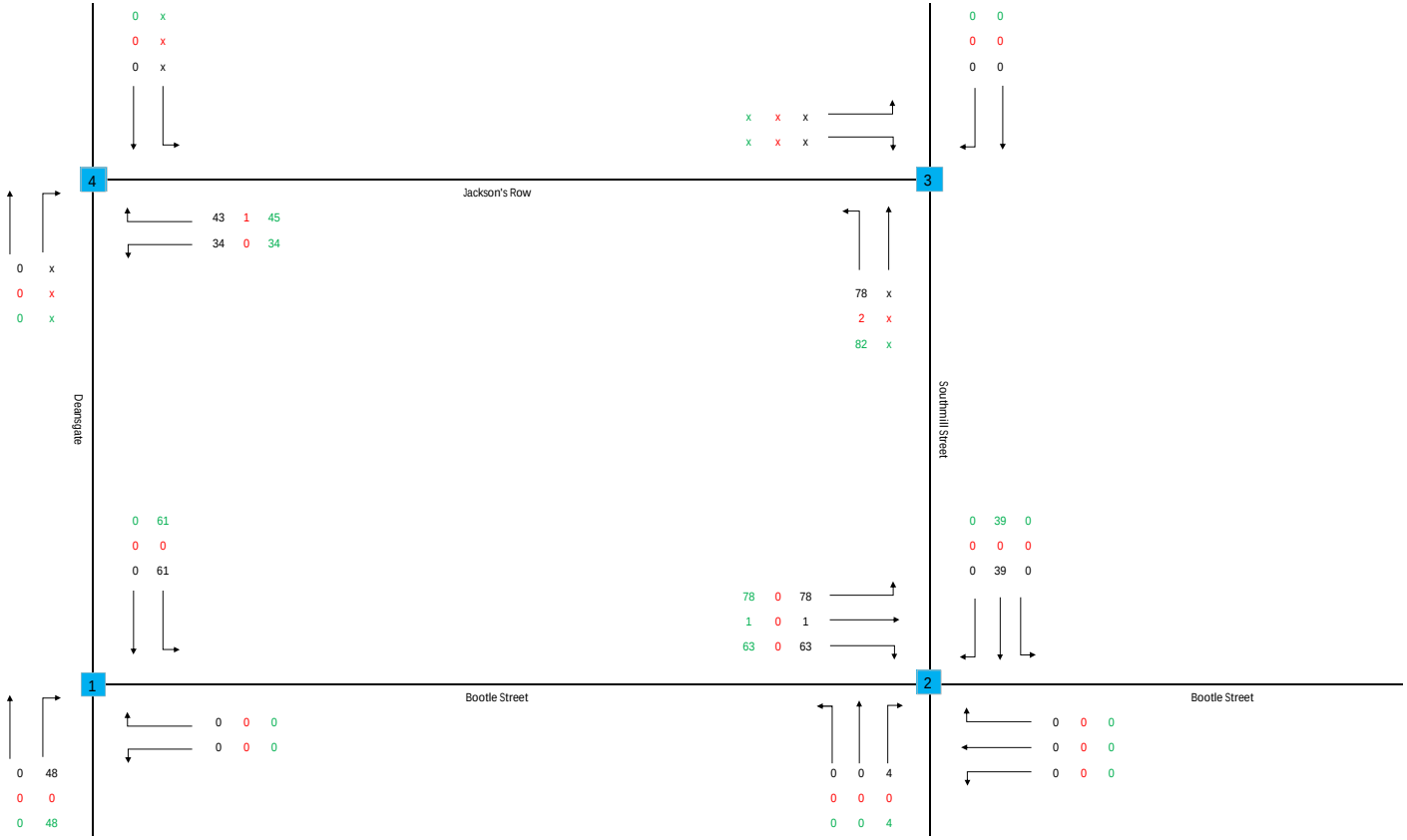
Project: 70010278 - St. Michael's Development
Scenario: Figure 7 - AM Development Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



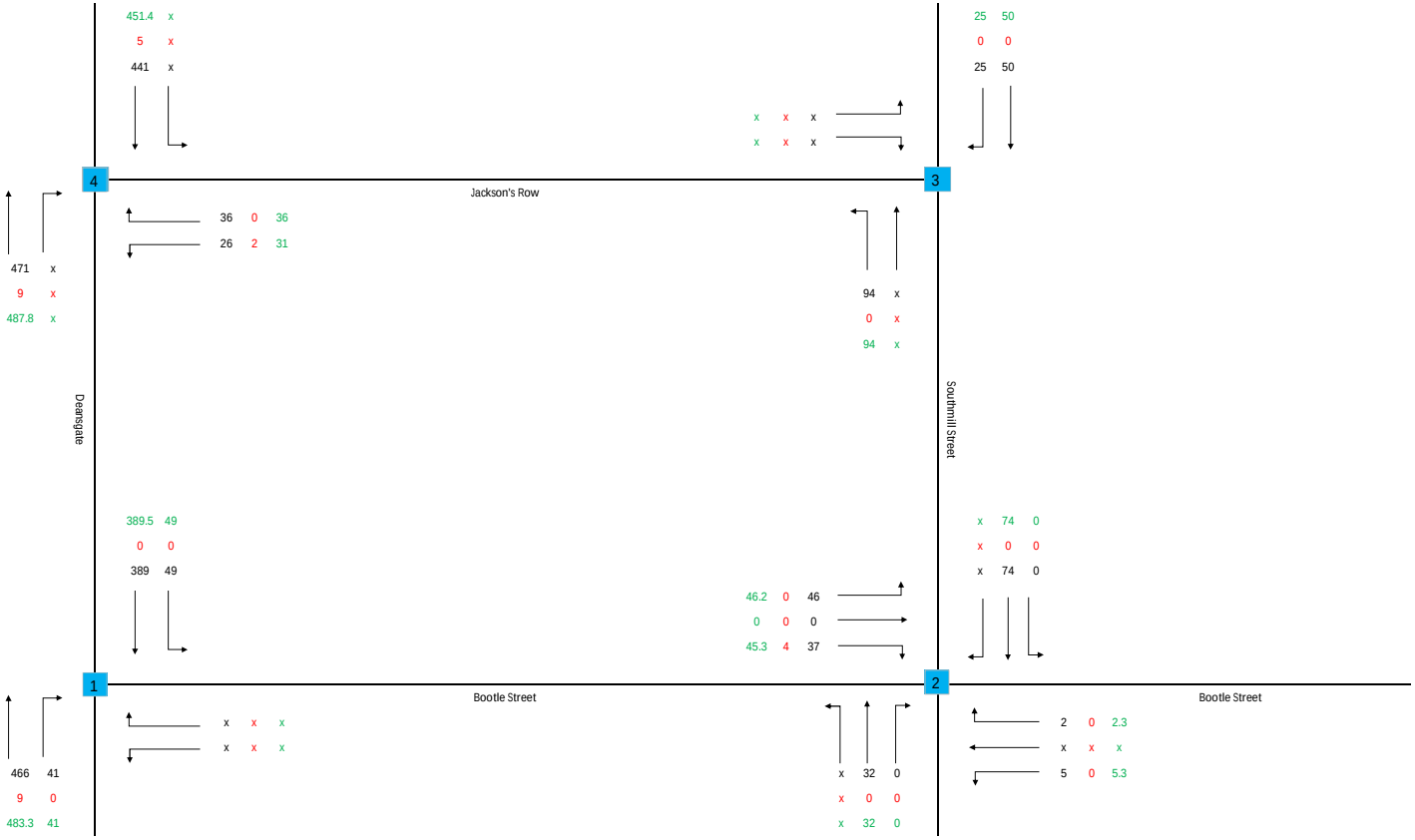
Project: 70010278 - St. Michael's Development
Scenario: Figure 8 - PM Development Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



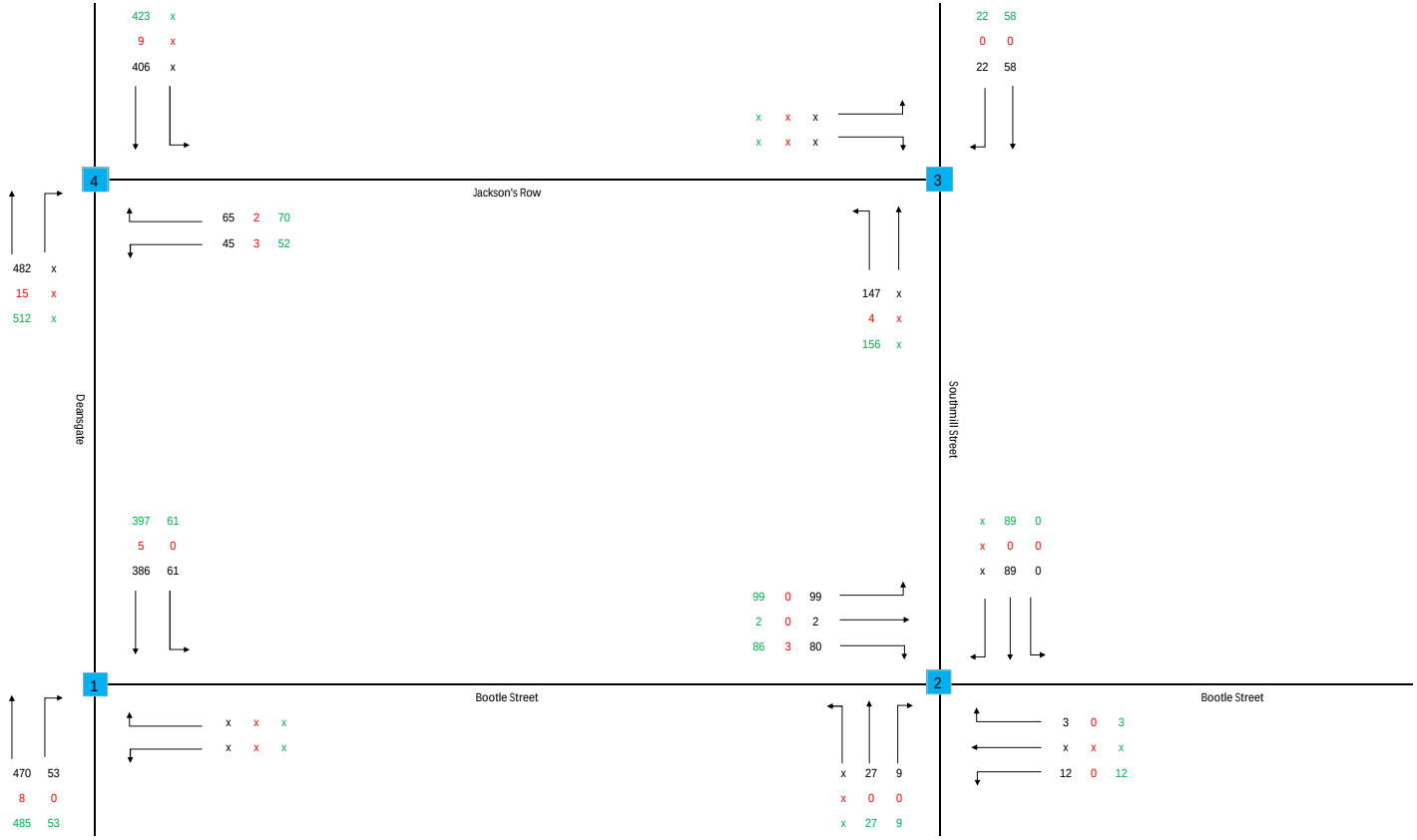
Project: 70010278 - St. Michael's Development
Scenario: Figure 9 - AM 2026 + Development Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



Project: 70010278 - St. Michael's Development
Scenario: Figure 10 - PM 2026 + Development Flows

Notes: All flows are in vehicles
Light Vehicles (cars & LGVs) in black
Heavy Vehicles (HGVs & buses) in red
PCUs in green



Appendix F

APPENDIX F

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Jct1_DeansgateN_BootleSt_DeansgateS.arc8
Path: M:\70010278 - Jackson Row Manchester\D Design and Analysis\Development\PICADY\Junctions 8 v2
Report generation date: 29/11/2017 09:21:14

Summary of junction performance

	2021AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 1 without dev			
Stream B-AC	0.00	0.00	0.00	A
Stream C-AB	0.00	6.10	0.00	A
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D5 - 1 without dev, 2021AM " model duration: 07:45 - 09:15
"D6 - 2 without dev, 2026AM" model duration: 07:45 - 09:15
"D7 - 3 with dev, 2026AM" model duration: 07:45 - 09:15
"D8 - 4 without dev, 2021PM" model duration: 16:45 - 18:15
"D9 - 5 without dev, 2026PM" model duration: 16:45 - 18:15
"D10 - 6 with dev, 2026PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.6.541 at 29/11/2017 09:21:11

File summary

Title	1
Location	
Site Number	
Date	10/11/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKRDY001
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - 1 without dev, 2021AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors

(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
1 without dev, 2021AM	1 without dev	2021AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.10	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major
B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C-AB	0.00	6.10	0.00	A	1.84	2.76	0.27	5.95	0.00	0.27	5.95
C-A	-	-	-	-	420.26	630.40	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	347.78	521.67	-	-	-	-	-

(Default Analysis Set) - 2 without dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2 without dev, 2026AM	2 without dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.12	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major
B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.00	6.12	0.00	A	1.84	2.76	0.27	5.98	0.00	0.27	5.98
C-A	-	-	-	-	443.20	664.81	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	356.95	535.43	-	-	-	-	-

(Default Analysis Set) - 3 with dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
3 with dev, 2026AM	3 with dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.48	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major

B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.08	6.48	0.09	A	39.57	59.36	6.42	6.49	0.07	6.42	6.49
C-A	-	-	-	-	441.26	661.89	-	-	-	-	-
A-B	-	-	-	-	44.96	67.44	-	-	-	-	-
A-C	-	-	-	-	356.95	535.43	-	-	-	-	-

(Default Analysis Set) - 4 without dev, 2021PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
4 without dev, 2021PM	4 without dev	2021PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.10	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major
B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.01	6.10	0.01	A	3.69	5.53	0.55	5.97	0.01	0.55	5.97
C-A	-	-	-	-	422.09	633.13	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	345.94	518.91	-	-	-	-	-

(Default Analysis Set) - 5 without dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
5 without dev, 2026PM	5 without dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.15	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major
B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.01	6.15	0.01	A	3.69	5.53	0.55	6.01	0.01	0.55	6.01
C-A	-	-	-	-	445.03	667.54	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	364.29	546.44	-	-	-	-	-

(Default Analysis Set) - 6 with dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
6 with dev, 2026PM	6 with dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.63	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Deansgate (N)		Major
B	B	Bootle Street		Minor
C	C	Deansgate (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.70		0.00		2.20	200.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.34										21	16

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	459.760	0.074	0.187	0.118	0.267
1	B-C	592.116	0.080	0.202	-	-
1	C-B	689.785	0.236	0.236	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-AB	0.11	6.63	0.12	A	51.96	77.93	8.68	6.69	0.10	8.68	6.69
C-A	-	-	-	-	441.72	662.58	-	-	-	-	-
A-B	-	-	-	-	55.97	83.96	-	-	-	-	-
A-C	-	-	-	-	364.29	546.44	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: Jct2_BootleStW_SouthmillStN_BootleStE_SouthmillSt.arc8
Path: M:\70010278 - Jackson Row Manchester\D Design and Analysis\Development\PICADY\Junctions 8 v2
Report generation date: 29/11/2017 09:24:48

Summary of junction performance

	2021AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - no dev			
Stream B-ACD	0.01	6.96	0.01	A
Stream A-BCD	0.00	0.00	0.00	A
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-
Stream D-ABC	0.06	7.81	0.06	A
Stream C-ABD	0.00	0.00	0.00	A
Stream C-D	-	-	-	-
Stream C-A	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - no dev, 2021AM " model duration: 07:45 - 09:15
"D2 - no dev, 2021PM" model duration: 16:45 - 18:15
"D3 - no dev, 2026AM" model duration: 07:45 - 09:15
"D4 - no dev, 2026PM" model duration: 16:45 - 18:15
"D5 - with dev, 2026AM" model duration: 07:45 - 09:15
"D6 - with dev, 2026PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.6.541 at 29/11/2017 09:24:43

File summary

Title	2
Location	Mcr
Site Number	
Date	10/11/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKRDY001
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - no dev, 2021AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
no dev, 2021AM	no dev	2021AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		7.63	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-ACD	0.01	6.96	0.01	A	6.42	9.64	1.10	6.87	0.01	1.10	6.87
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	34.87	52.30	-	-	-	-	-
D-ABC	0.06	7.81	0.06	A	22.94	34.41	4.39	7.65	0.05	4.39	7.65
C-ABD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-
C-A	-	-	-	-	27.53	41.29	-	-	-	-	-

(Default Analysis Set) - no dev, 2021PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
no dev, 2021PM	no dev	2021PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		7.69	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-ACD	0.03	6.96	0.03	A	12.85	19.27	2.20	6.85	0.02	2.20	6.85
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	43.13	64.69	-	-	-	-	-
D-ABC	0.10	8.13	0.11	A	39.46	59.19	7.79	7.90	0.09	7.79	7.90
C-ABD	0.01	5.68	0.01	A	3.81	5.72	0.57	5.98	0.01	0.57	5.98
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-
C-A	-	-	-	-	22.80	34.20	-	-	-	-	-

(Default Analysis Set) - no dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario	Time Period	Description	Traffic Profile	Model Start	Model Finish	Model Time Period	Time Segment	Results For Central	Single Time	Locked	Run	Use	Relationship

	Name	Name		Type	Time (HH:mm)	Time (HH:mm)	Length (min)	Length (min)	Hour Only	Segment Only		Automatically	Relationship	
no dev, 2026AM	no dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		7.67	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

	Max	Max	Max	Max	Average	Total	Total Queueing	Average	Rate Of	Inclusive Total	Inclusive Average

Stream	RFC	Delay (s)	Queue (PCU)	LOS	Demand (PCU/hr)	Junction Arrivals (PCU)	Delay (PCU-min)	Queueing Delay (s)	Queueing Delay (PCU-min/min)	Queueing Delay (PCU-min)	Queueing Delay (s)
B-ACD	0.01	6.97	0.01	A	6.42	9.64	1.10	6.88	0.01	1.10	6.88
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	36.70	55.06	-	-	-	-	-
D-ABC	0.06	7.85	0.06	A	24.78	37.16	4.76	7.68	0.05	4.76	7.69
C-ABD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-
C-A	-	-	-	-	29.36	44.05	-	-	-	-	-

(Default Analysis Set) - no dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
no dev, 2026PM	no dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		7.73	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

	Minor	Lane	Lane	Lane Width	Width at	Width at	Width at	Width at	Width at	Estimate	Flare	Visibility To	Visibility To

Arm	Arm Type	Width (m)	Width (Left) (m)	(Right) (m)	give-way (m)	5m (m)	10m (m)	15m (m)	20m (m)	Flare Length	Length (PCU)	Left (m)	Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-ACD	0.03	6.95	0.03	A	13.76	20.65	2.35	6.84	0.03	2.35	6.84
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	44.96	67.44	-	-	-	-	-
D-ABC	0.10	8.18	0.11	A	41.29	61.94	8.20	7.94	0.09	8.20	7.94
C-ABD	0.01	5.68	0.01	A	3.82	5.73	0.57	5.98	0.01	0.57	5.98
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-
C-A	-	-	-	-	24.62	36.94	-	-	-	-	-

(Default Analysis Set) - with dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
with dev, 2026AM	with dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		9.02	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-ACD	0.02	7.15	0.02	A	6.42	9.64	1.13	7.03	0.01	1.13	7.03
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	67.90	101.86	-	-	-	-	-
D-ABC	0.20	9.16	0.25	A	83.50	125.25	18.16	8.70	0.20	18.16	8.70
C-ABD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-

C-A	-	-	-	-	29.36	44.05	-	-	-	-	-

(Default Analysis Set) - with dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
with dev, 2026PM	with dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
2	(untitled)	Crossroads	Two-way	A,B,C,D		11.82	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Southmill Street (N)		Major
B	B	Bootle St (E)		Minor
C	C	Southmill Street (S)		Major
D	D	Bootle Street (W)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
A	6.33		0.00		2.20	70.00	✓	1.00
C	6.33		0.00		2.20	102.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										16	14
D	One lane	2.20										17	13

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
2	A-D	614.501	-	-	-	-	-	-	0.235	0.335	0.235	-	-	-
2	B-A	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	-	0.204	0.204	0.102
2	B-C	582.071	0.088	0.222	-	-	-	-	-	-	-	-	-	-
2	B-D, nearside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	B-D, offside lane	450.491	0.081	0.204	0.204	-	-	-	0.129	0.292	0.129	-	-	-
2	C-B	633.033	0.242	0.242	0.345	-	-	-	-	-	-	-	-	-
2	D-A	581.492	-	-	-	-	-	-	0.222	-	0.088	-	-	-
2	D-B, nearside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-B, offside lane	450.278	0.129	0.129	0.292	-	-	-	0.204	0.204	0.081	-	-	-
2	D-C	450.278	-	0.129	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-ACD	0.03	7.21	0.03	A	13.76	20.65	2.43	7.05	0.03	2.43	7.05
A-BCD	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	81.67	122.50	-	-	-	-	-
D-ABC	0.42	12.49	0.71	B	171.59	257.39	47.67	11.11	0.53	47.68	11.11
C-ABD	0.02	5.82	0.02	A	8.61	12.91	1.37	6.38	0.02	1.37	6.38
C-D	-	-	-	-	0.00	0.00	-	-	-	-	-
C-A	-	-	-	-	24.43	36.64	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: Jct3_SouthmillSt_Jackson's Row.arc8
Path: M:\70010278 - Jackson Row Manchester\D Design and Analysis\Development\PICADY\Junctions 8 v2
Report generation date: 29/11/2017 09:26:31

Summary of junction performance

	2021AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - 1 without dev			
Stream B-AC	0.17	7.75	0.14	A
Stream C-AB	0.00	0.00	0.00	A
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D5 - 1 without dev, 2021AM " model duration: 07:45 - 09:15
"D6 - 2 without dev, 2026AM" model duration: 07:45 - 09:15
"D7 - 3 with dev, 2026AM" model duration: 07:45 - 09:15
"D8 - 4 without dev, 2021PM" model duration: 16:45 - 18:15
"D9 - 5 without dev, 2026PM" model duration: 16:45 - 18:15
"D10 - 6 with dev, 2026PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.6.541 at 29/11/2017 09:26:28

File summary

Title	3
Location	
Site Number	
Date	10/11/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKRDY001
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - 1 without dev, 2021AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors

(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
1 without dev, 2021AM	1 without dev	2021AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.75	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major
B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.14	7.75	0.17	A	64.23	96.35	12.03	7.49	0.13	12.03	7.49

C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	51.39	77.08	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

(Default Analysis Set) - 2 without dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2 without dev, 2026AM	2 without dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.85	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major
B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.15	7.85	0.18	A	68.82	103.23	13.04	7.58	0.14	13.04	7.58
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	54.14	81.21	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

(Default Analysis Set) - 3 with dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
3 with dev, 2026AM	3 with dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.89	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major

B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.15	7.89	0.18	A	68.82	103.23	13.09	7.61	0.15	13.09	7.61
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	86.26	129.38	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

(Default Analysis Set) - 4 without dev, 2021PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
4 without dev, 2021PM	4 without dev	2021PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.76	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major
B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.15	7.76	0.18	A	69.74	104.61	13.05	7.49	0.15	13.06	7.49
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	64.23	96.35	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

(Default Analysis Set) - 5 without dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
5 without dev, 2026PM	5 without dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.84	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major
B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.16	7.84	0.19	A	73.41	110.11	13.85	7.55	0.15	13.85	7.55
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	67.90	101.86	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

(Default Analysis Set) - 6 with dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
6 with dev, 2026PM	6 with dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.92	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Jackson's Row		Major
B	B	Southmill Street (N)		Minor
C	C	Southmill Street (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	6.15		0.00		2.20	200.00	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	2.20										97	21

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	477.602	0.086	0.218	0.137	0.312
1	B-C	586.125	0.089	0.226	-	-
1	C-B	689.785	0.266	0.266	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.16	7.92	0.19	A	73.41	110.11	13.97	7.61	0.16	13.97	7.61
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	143.15	214.72	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	0.00	0.00	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: Jct4_DeansgateN_JacksonRow_DeansgateS.arc8
Path: M:\70010278 - Jackson Row Manchester\D Design and Analysis\Development\PICADY\Junctions 8 v2
Report generation date: 29/11/2017 09:27:57

Summary of junction performance

	2021AM			
	Queue (PCU)	Delay (s)	RFC	LOS
	A1 - without dev			
Stream B-AC	0.08	8.72	0.08	A
Stream C-AB	0.00	0.00	0.00	A
Stream C-A	-	-	-	-
Stream A-B	-	-	-	-
Stream A-C	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D5 - without dev, 2021AM " model duration: 07:45 - 09:15
"D6 - without dev, 2021PM" model duration: 16:45 - 18:15
"D7 - without dev, 2026AM" model duration: 07:45 - 09:15
"D8 - without dev, 2026PM" model duration: 16:45 - 18:15
"D9 - with dev, 2026AM" model duration: 07:45 - 09:15
"D10 - with dev, 2026PM" model duration: 16:45 - 18:15

Run using Junctions 8.0.6.541 at 29/11/2017 09:27:54

File summary

Title	4
Location	Mcr
Site Number	
Date	10/11/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKRDY001
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - without dev, 2021AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors

(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
without dev, 2021AM	without dev	2021AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		8.72	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major
B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.08	8.72	0.08	A	28.45	42.67	5.84	8.21	0.06	5.84	8.21

C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	423.94	635.91	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	349.61	524.42	-	-	-	-	-

(Default Analysis Set) - without dev, 2021PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
without dev, 2021PM	without dev	2021PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		9.33	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major
B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.10	9.33	0.11	A	36.70	55.06	7.98	8.70	0.09	7.98	8.70
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	446.88	670.32	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	368.88	553.32	-	-	-	-	-

(Default Analysis Set) - without dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
without dev, 2026AM	without dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		8.91	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major

B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.08	8.91	0.09	A	30.28	45.42	6.33	8.36	0.07	6.33	8.36
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	447.80	671.70	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	369.80	554.70	-	-	-	-	-

(Default Analysis Set) - without dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
without dev, 2026PM	without dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		9.53	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major
B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.11	9.53	0.12	A	38.54	57.81	8.52	8.85	0.09	8.52	8.85
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	469.82	704.73	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	388.15	582.23	-	-	-	-	-

(Default Analysis Set) - with dev, 2026AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
with dev, 2026AM	with dev	2026AM		ONE HOUR	07:45	09:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		10.20	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major
B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.17	10.20	0.21	B	61.48	92.22	14.33	9.32	0.16	14.33	9.33
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	447.80	671.70	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	413.85	620.77	-	-	-	-	-

(Default Analysis Set) - with dev, 2026PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
with dev, 2026PM	with dev	2026PM		ONE HOUR	16:45	18:15	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		12.45	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	Alvingham Road (W)		Major
B	B	EasternAccess		Minor
C	C	Alvingham Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	11.70		0.00		2.20	100.00	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	One lane	3.10										25	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	501.976	0.069	0.174	0.109	0.248
1	B-C	644.807	0.074	0.188	-	-
1	C-B	631.874	0.184	0.184	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Results

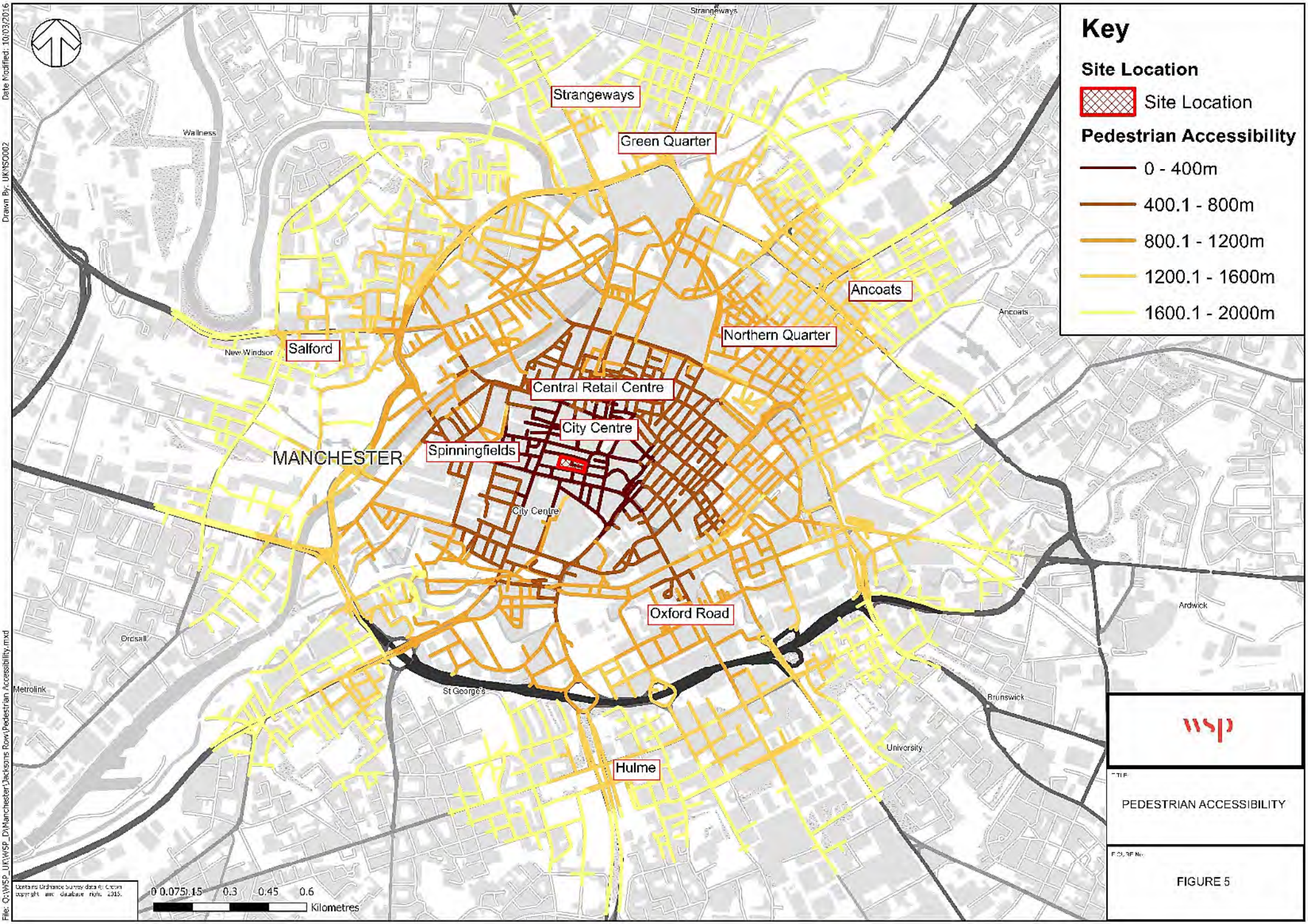
Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.32	12.45	0.46	B	111.95	167.92	30.53	10.91	0.34	30.53	10.91
C-AB	0.00	0.00	0.00	A	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-A	-	-	-	-	469.82	704.73	-	-	-	-	-
A-B	-	-	-	-	0.00	0.00	-	-	-	-	-
A-C	-	-	-	-	388.15	582.23	-	-	-	-	-

The Victoria
150-182 The Quays
Salford
M50 3SP

wsp.com

APPENDIX B



Date Modified: 10/03/2016

Drawn By: UKMSO002

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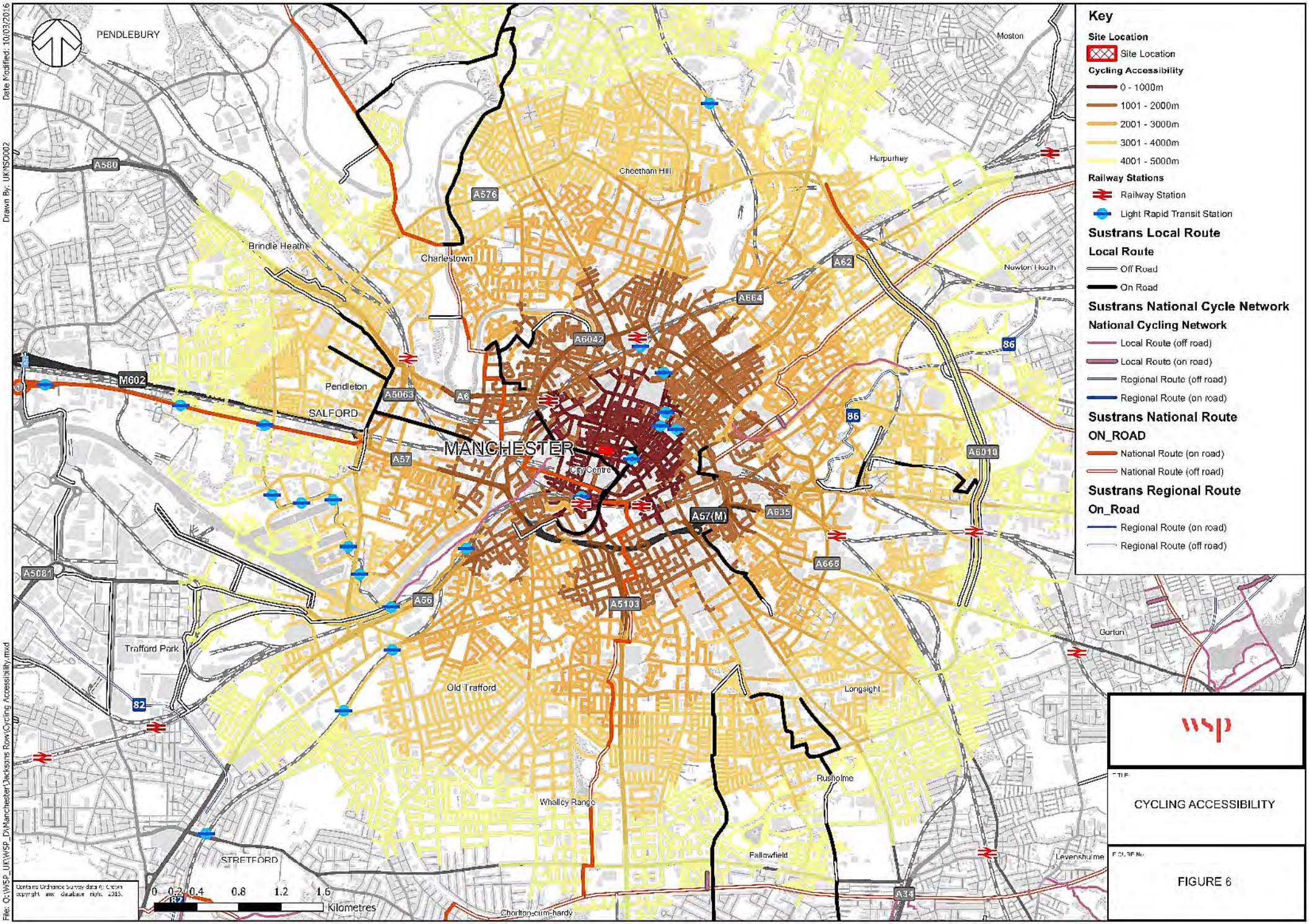
Key
Site Location
Site Location
Cycling Accessibility
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1001 - 2000m
2001 - 3000m
3001 - 4000m
4001 - 5000m
Railway Stations
Railway Station
Light Rapid Transit Station
Sustrans Local Route
Local Route
Off Road
On Road
Sustrans National Cycle Network
National Cycling Network
Local Route (off road)
Local Route (on road)
Regional Route (off road)
Regional Route (on road)
Sustrans National Route
ON_ROAD
National Route (on road)
National Route (off road)
Sustrans Regional Route
On_Road
Regional Route (on road)
Regional Route (off road)
PENDLEBURY
Moston
Cheetham Hill
Harpurhey
Brindle Heath
Charlestown
Newton Heath
Pendleton
SALFORD
MANCHESTER
City Centre
Trafford Park
Old Trafford
Longsight
Rusholme
Whalley Range
Fallowfield
STRETFORD
Chorlton-cum-hardy
Levenshulme
Gorton
A580
A576
A664
A6042
A62
M602
A5063
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A6010
A665
A5081
A56
A5103
A34
86
82
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Kilometres
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wsp
TITLE
CYCLING ACCESSIBILITY
FIGURE 6
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Drawn By: UKMSO002
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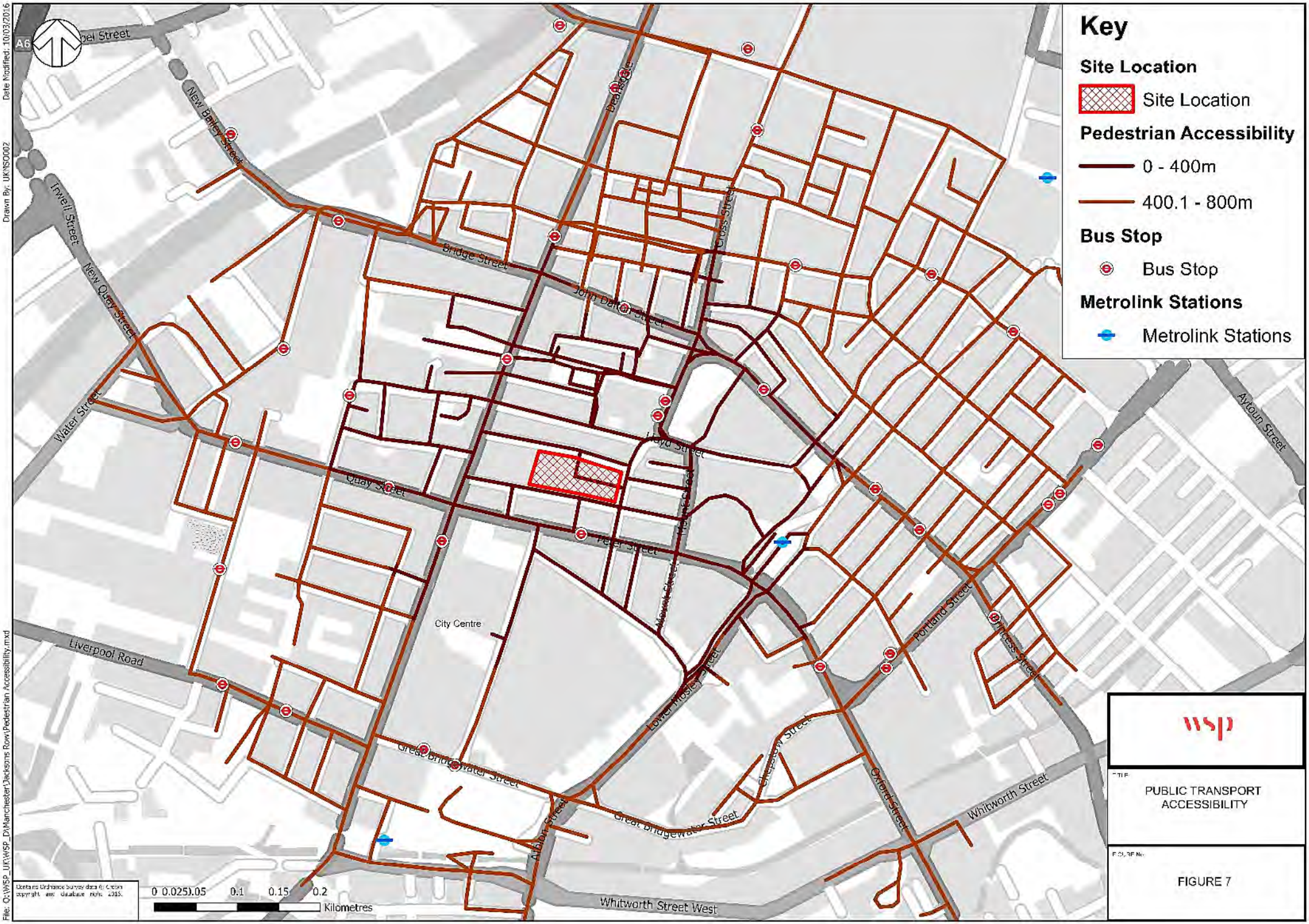
Key
Site Location
Site Location
Pedestrian Accessibility
0 - 400m
400.1 - 800m
Bus Stop
Bus Stop
Metrolink Stations
Metrolink Stations
A6
New Bailey Street
Irwell Street
New Quay Street
Water Street
Bridge Street
John Dalton Street
Deansgate
Cross Street
Lloyd Street
Quay Street
Peel Street
Market Street
City Centre
Liverpool Road
Great Bridgewater Street
Lower Mosley Street
Albion Street
Chepstow Street
Oxford Street
Whitworth Street
Whitworth Street West
Portland Street
Princess Street
Aytoun Street
0 0.025 0.05 0.1 0.15 0.2
Kilometres
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wsp
TITLE
PUBLIC TRANSPORT ACCESSIBILITY
FIGURE 7
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8 First Street,
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M15 4GU

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APPENDIX B

APPENDIX C

APPENDIX D

APPENDIX E

APPENDIX F

8 First Street
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