



Project: Proposed Residential Redevelopment
Burnage Cricket Club, Mauldeth Road, Burnage, Manchester

Client: Views (Holdings) Ltd

Document: Transport Assessment



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Jactin House
24 Hood Street
Ancoats
Manchester
M4 6WX

T: 0161 327 1931

www.cbtransport.co.uk

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Contents

1	Introduction	1
	General	1
	Discussions with Manchester City Council / Report Requirements	1
	Scope of Report	1
2	Planning Policy and Guidance	2
	National Planning Policy Framework	2
	Local Planning Policy	2
	Planning Practice Guidance	4
3	Existing Conditions and Study Area	5
	Site Description	5
	Highway Study Area and Observed Traffic Flows & Speeds	5
	Highway Network	6
	Highway Conditions	6
	Personal Injury Accident Record	6
4	Accessibility by the Sustainable Modes	8
	Pedestrian & Cycle Infrastructure	8
	Accessibility for Pedestrians	9
	Accessibility for Cyclists	10
	Accessibility by Public Transport	11
5	Development Proposals	12
	Development Proposals	12
	Site Access	12
	Internal Site Layout	14
	Pedestrian and Cycle Provision	14
	Parking Provision	15
	Road Safety Audit: Site Access (\$278) / Internal Layout (\$38)	16
6	Traffic Generation and Assignment	17
	General	17
	Traffic Generation	17
	Traffic Distribution and Assignment	18
7	Operational Assessments	19
	General	19
	Committed Development	19
	Traffic Growth	19
	Assessment Traffic Flows	19
	Operational Assessments: Proposed Site Access / Mauldeth Road / Avonlea Drive	19
	Wider Traffic Impact	20
	Summary	20
8	Summary, Conclusions and Recommendations	21
	Summary and Conclusions	21
	Recommendations	22



Figures

Figure 1.1: Site Location

Figure 3.1: Traffic Flows

Figure 4.1: Local Linkages

Figure 4.2: Walking Catchment and Site Accessibility

Figure 4.3: 5km Cycle Catchment

Figure 5.1: Visibility Splays at Proposed Mauldeth Road Access

Figure 5.2: Visibility Splays at Proposed Mauldeth Road Direct Private Driveways

Figure 5.3: Swept Path Analysis: Refuse Vehicle Serving Scheme

Figure 5.4: Swept Path Analysis: Fire Appliance Accessing Scheme

Appendices

Appendix A: Speed Survey Results

Appendix B: Proposed Site Layout

Appendix C: Road Safety Audit

Appendix D: TRICS Outputs

Appendix E: Census Areas

Appendix F: Junctions 9 Outputs: Site Access

1 Introduction

General

- 1.1 CBO Transport Ltd [CBO] has been commissioned by Views (Holdings) Ltd to undertake an assessment of the transport matters associated with a proposed residential redevelopment at the former Burnage Cricket Club, Mauldeth Road, Burnage, Manchester.
- 1.2 This Transport Assessment represents a culmination of this work and is submitted with the planning application for the scheme. A Travel Plan Framework has also been prepared and submitted with the application.
- 1.3 The former Burnage Cricket Club, referred to from here on in as "the site", is located in the northern area of Burnage and is bound by residential properties to the north and east, Mauldeth Road to the south and commercial premises and the A34 Kingsway to the west, The location of the site is shown in **Figure 1.1**.
- 1.4 The site as existing is vacant, with no public access. However, the site was formerly used by Burnage Cricket Club and is formed of grass land aside from areas of hard standing to the east and west.
- 1.5 The proposals would see the site redeveloped for a residential use comprising a total of 66 dwellings across the site. These dwellings would include a mix of houses and apartments.
- 1.6 The site is located in the Manchester City area and Manchester City Council is both the local planning authority and highway authority for the local roads in the vicinity of the site.

Discussions with Manchester City Council / Report Requirements

- 1.7 CBO has held pre-application discussions with Manchester City Council [MCC] highways regarding speed survey requirements (during which it was agreed that a speed survey should be undertaken using a hand held radar).
- 1.8 In addition, Views (Holdings) Ltd and Asteer Planning Consultants have held pre-application discussions with MCC which resulted in MCC highways providing written pre-application advice in July 2024. Where necessary and appropriate, this report takes account of this pre-application advice, which is where appropriate specifically referred to in sections of the report.

Scope of Report

- 1.9 In light of the above, the purpose of this report is to provide MCC with the necessary information to review the proposals and consider their transport implications. In order to provide this information, this report has been produced in 8 sections including this introduction.
- 1.10 Section 2 reviews relevant national and local plan policy, as well as planning policy guidance.
- 1.11 Section 3 reviews existing conditions and provides details of the local area from a highway perspective, whilst Section 4 considers the accessibility of the site by the sustainable modes and linkage to the surrounding area.
- 1.12 Section 5 provides details of the development proposals, whilst Section 6 considers the traffic generations associated with the scheme.
- 1.13 Section 7 then sets out details of the traffic flows used to undertake operational assessments of the proposed site access, together with the findings of these assessments. It also provides high level commentary on wider traffic impact.
- 1.14 The conclusions and recommendations of the report are included in Section 8.

2 Planning Policy and Guidance

National Planning Policy Framework

- 2.1 National planning policy in relation to transport matters is set out in the revised National Planning Policy Framework [NPPF] December 2024.
- 2.2 With regard to transport, the policies are contained within paragraphs 109 to 118 at Section 9 and all relate to the promotion of sustainable transport. In considering development proposals, paragraph 115 states that:
- "In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*
- a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*
 - b) safe and suitable access to the site can be achieved for all users;*
 - c) 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; and*
 - d) 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 through a vision-led approach"*
- 2.3 Paragraph 116 then goes on to state that:
- "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios".*

Local Planning Policy

- 2.4 The "Manchester's Local Development Framework Core Strategy Development Plan Document" was adopted on the 11th July 2012. Objective 5 of this document relates to transport and, at paragraph 11.1, states:
- "SO5. 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".*
- 2.5 Under this objective, Policy T 1 relates to "Sustainable Transport" as follows:
- "To deliver a sustainable, high quality, integrated transport system to encourage modal shift away from car travel to public transport, cycling and walking, to support the needs of residents and businesses and to prepare for carbon free modes of transport, the Council will support proposals that: -*
- Improve choice by developing alternatives to the car.*
 - Promote regeneration and economic vitality by relieving traffic congestion and improving access to jobs and services, particularly for those most in need and for those without a car.*
 - Improve access to transport services and facilities in order to enable disabled people and people with mobility impairments to participate fully in public life.*
 - Improve pedestrian routes and the pedestrian environment.*
 - Improve and develop further Manchester's cycle network (for example the Manchester Cycleway and the Trans Pennine Trail).*
 - Contribute to improvements to the extent and reliability of the public transport network through safe and attractive waiting and interchange facilities, better priority, improved services and information provision.*
 - Improve and develop appropriate road, rail and water freight transport routes and associated intermodal freight transport facilities in order to assist in the sustainable and efficient movement of goods.*

- Facilitate modes of transport that reduce carbon emissions e.g by incorporating charging points for electric vehicles, subject to their appropriate design and location.
- Would reduce the negative impacts of road traffic, for example, congestion, air pollution and road accident casualties.

2.6 The last bullet of Policy T 1 has been replaced by "Policy JP-C1: An Integrated Network" of the "Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 To 2039" (adopted on 21 March 2024) which refers at point 5 to MCC supporting a range of measures, including:

"Ensuring that development and transport investment fully considers the needs of all people and those modes which make most efficient and sustainable use of limited road space, by following the hierarchy set out below (highest priority first):

- a. Pedestrians (and people using mobility aids);*
- b. Cyclists, powered two-wheelers, and public transport users;*
- c. People doing business or providing services (such as taxis/private hire, deliveries or waste collection)*
- d. People in personal motorised vehicles."*

2.7 Policy T 2 MCC's Local Plan then relates to "Accessible areas of opportunity and need" as follows:

"The Council will actively manage the pattern of development to ensure that new development: -

- *Is located to ensure good access to the City's main economic drivers, including the Regional Centre, the Oxford Road Universities and Hospitals and the Airport and to ensure good national and international connections.*
- *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 including:-*
 - *Links between North Manchester residents and key employment locations, including the City Centre, Central Park, Salford Quays and Chadderton Industrial Estate and Trafford Park.*
 - *Links within East Manchester to employment locations, Central Park and Eastlands in particular.*
 - *Links within Central Area between residents and employment, the Corridor in particular and east/west connectivity for residents in Central Area to employment areas in Trafford and East Manchester.*
 - *Maintaining strong links between residential areas in the South and the Regional Centre and improving connectivity with the Airport.*
- *Ensuring good links between Wythenshawe residents and the Airport and further employment opportunities in Stockport, Trafford and the Regional Centre.*
- *Within the City Centre, provides a level of car parking which reflects the highly accessible nature of the location, as well as the realistic requirements of the users of the development. Elsewhere, all new development should provide appropriate car parking facilities, taking account of the guidance in appendix B, which reflects policy in the Regional Strategy (RS). In all parts of the City proposals should have regard to the need for disabled and cycle parking, in line with appendix B. If the RS is revoked the Council will continue to use these standards when applying this policy. Standards are set for two different area types:*
 - *District Centres*
 - *Areas not within the City Centre or District Centres*
- *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.*
- *Includes proportionate Traffic Impact Assessments and Travel Plans for all major applications and for any proposals where there are likely to be access or transport issues."*

Planning Practice Guidance

- 2.8 Planning Practice Guidance was published on the 6th March 2014 in relation to "Travel plans, transport assessments and statements in decision-taking".
- 2.9 In considering the over-arching principles that should be taken into account in preparing a Transport Assessment, this guidance suggests they should be:
- "proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;
 - established at the earliest practicable possible stage of a development proposal;
 - be tailored to particular local;
 - be brought forward through collaborative ongoing working between the Local Planning Authority/ Transport Authority, transport operators, Rail Network Operators, Highways Agency where there may be implications for the strategic road network and other relevant bodies."
- 2.10 This report accords with this guidance.

3 Existing Conditions and Study Area

Site Description

- 3.1 The site is located in the northern area of Burnage and is bound by residential properties to the north and east, Mauldeth Road to the south and commercial premises and the A34 Kingsway to the west.
- 3.2 The site as existing is vacant, with no public access. However, as set out in the introduction, the site was formerly used by Burnage Cricket Club and is formed of grass land aside from areas of hard standing to the east and west.
- 3.3 The location of the site is shown in **Figure 1.1**.
- 3.4 There are two existing accesses to the site, one from Mauldeth Road on the southern site boundary and one from the A34 Kingsway on the western site boundary. The Mauldeth Road access is a circa 3.2 metre wide access located at the south-eastern corner of the site which joins Mauldeth Road via kerbed radii and includes gates at the rear of the Mauldeth Road footway. The A34 Kingsway access is a circa 5 metre wide left in / left out only access located approximately 20 metres south of the northern boundary which joins the A34 Kingsway via a dropped crossing arrangement.

Highway Study Area and Observed Traffic Flows & Speeds

Traffic Flows

- 3.5 In the written pre-application advice provided in July 2024, MCC highways stated that “*due to the quantum of units associated with the proposed development it is likely that it will reach the 30 vehicles p/hr threshold therefore junction assessments / surveys will be required in the TA*”.
- 3.6 The work presented later in Section 6 shows this 30 vehicles p/hr threshold would only be reached at the proposed site access / it's effective junction with Avonlea Drive. As a result, it is considered that the appropriate study area in terms of considering traffic impact can be limited to this location.
- 3.7 In order, therefore, to ascertain existing traffic flows past the site, and given the proximity of any site access to Avonlea Drive, fully classified turning counts were undertaken by an independent survey company at the Mauldeth Road / Avonlea Drive junction on Wednesday 28th June 2023 between the hours 7:00 and 10:00 and 16:00 and 19:00.
- 3.8 Based on these surveys, the weekday morning peak was seen to occur during the hour 8:30 to 9:30, with the weekday evening peak being seen to occur during the hour 16:45 – 17:45. The observed weekday morning and evening peak hour traffic flows for these periods are shown in **Figure 3.1**.

Traffic speeds

- 3.9 As set out in the Introduction and agreed with MCC highways, a speed survey has been undertaken by an independent survey company on the length of Mauldeth Road approaching the site using a hand-held radar. This speed survey was undertaken on Wednesday 20th July 2024. The results of this survey are included at **Appendix A**.
- 3.10 In considering the results of this survey, the Design Manual for Roads & Bridges [DMRB] now requires that 85th percentile dry weather speeds be used to determine visibility provision and, where they are measured on a wet day, that the recorded speeds be increased by 4kph (2.5mph) to derive this dry weather value. Given that the speed surveys were recorded in dry conditions, no adjustments are required.
- 3.11 Based on the above, the results of the July 2024 speed survey are summarised in Table 3.1 below.

Table 3.1: Mauldeth Road Speed Survey Results

	Average	85 th Percentile
Eastbound	22mph	25mph
Westbound	25mph	28mph

- 3.12 As can be seen from the above table, the 85th percentile speed is between 22mph and 25mph in both directions. Consequently and based on the standards set out in Manual for Streets, and allowing for a robust design speed of 30mph, a visibility splay of 2.4 x 43 metres is required at any access from Mauldeth Road.

Highway Network

Mauldeth Road

- 3.13 Mauldeth Road past the southern site frontage is a single carriageway road with a varying width of between circa 6 and 10 metres. It broadly travels in an east – west direction, linking with Burnage Lane to the east and the A34 Kingsway and beyond to the west. The route is lit and subject to a 30mph speed limit between Burnage Lane and the A34 Kingsway.
- 3.14 Approximately 45 metres west of the eastern site boundary, Mauldeth Road is joined on the southern side by Avonlea Drive via a simple priority junction. Avonlea Drive is a circa 100 metre long cul-de-sac serving 18 residential dwellings. It is also used by vehicles parking in the area to the east of the commercial premises located on the southern side of Mauldeth Road and to the west of Avonlea Drive.
- 3.15 The give way line of Avonlea Drive is pulled forward of the southern Mauldeth Road kerbline via a hatched area. To the west of the junction, this hatched area forms the start of a section of marked on-street parking that runs approximately 75 metres west to Broadhill Road and includes a physical build out approximately 30 metres west of Avonlea Drive, which also forms a westbound bus stop. To the east, this hatching tapers back to the Mauldeth Road kerbline over a distance of approximately 30 metres. There is a short section of double yellow line, at any time waiting restriction located on the western radius of the Mauldeth Road / Avonlea Drive junction.
- 3.16 On the northern, site side of Mauldeth Road, there is a bus stop located immediately to the west of the existing site access. West of this bus stop, the northern side of Mauldeth Road is protected by a double yellow line, at any time waiting restriction right through to the A34 Kingsway / Mauldeth Road junction.
- 3.17 Approximately 100 metres west of the Mauldeth Road / Avonlea Drive junction, the south side of Mauldeth Road is joined by Broadhill Road via a simple priority junction.

A34 Kingsway / Mauldeth Road junction

- 3.18 Immediately to the west of the Mauldeth Road / Broadhill Road junction and approximately 70 metres west of the site, Mauldeth Road joins the A34 Kingsway via a large, traffic signal controlled crossroads arrangement.
- 3.19 The Mauldeth Road approach to this junction from the site side flares from a single lane approach to provide dedicated left, ahead and right turn lanes. The western Mauldeth Road approach to this junction is a single lane approach, whilst both of the A34 Kingsway approaches include two through lanes and dedicated right turn lanes.

Highway Conditions

- 3.20 The traffic survey undertaken at the Mauldeth Road / Avonlea Drive junction showed that the junction is operating with ample spare capacity, with no prolonged queuing or delay being observed. The survey also showed that any queuing from the A34 Kingsway / Mauldeth Road junction never extended to the proposed site at any point during the survey period.
- 3.21 With regard to on-street parking, observations on site showed that the parking area on Mauldeth Road to the south of the site is well used and that the double yellow line waiting restrictions outside the site are obeyed. They also showed that there is a notable level of on-street parking taking place on Mauldeth Road to the east of the site and in close proximity to existing junctions. This is assumed to be associated with residents of (and visitors to) the frontage properties on Mauldeth Road.

Personal Injury Accident Record

- 3.22 As referred to by MCC highways in their pre-application advice and based on personal injury accident data that is freely available on the internet for the five year period 2018 to 2022, consideration has been given to the local highway network in the immediate vicinity of the site.

Site frontage and Mauldeth Road / Avonlea Drive junction

- 3.23 This data shows there have been no personal injury accidents recorded during the identified five year period on the length of Mauldeth Road that runs along the site frontage or at the Mauldeth Road / Avonlea Drive junction.

Mauldeth Road east of site

- 3.24 East of the site, the data shows there have been two personal injury accidents recorded on Mauldeth Road between the site and Burnage Lane during the identified five year period. These accidents, which were both slight injury accidents, occurred on the section between Brookthorpe Avenue and Hembury Drive in July 2019 and March 2022. These accidents did not involve a pedestrian or cyclist.

Mauldeth Road west of site

- 3.25 West of the site, the data shows there has been one personal injury accident recorded on Mauldeth Road between the site and the A34 Kingsway junction during the identified five year period. This accident, which was a slight injury accident, occurred at the Mauldeth Road / Broadhill Road junction in July 2019. The accident did not involve a pedestrian or a cyclist.

A34 Kingsway / Mauldeth Road junction

- 3.26 There have been 8 personal injury accidents recorded at the A34 Kingsway / Mauldeth Road junction during the identified period. One of these one was a serious injury accident, with the remaining 7 being slight injury accidents.
- 3.27 The serious injury accident occurred in March 2021 and did not involve a pedestrian or cyclist.
- 3.28 With regard to the 7 slight injury accidents, one of these occurred in September 2019 and involved a cyclist. Of the remaining 6 slight injury accidents, 1 occurred in 2018, 3 occurred in 2019, 1 occurred in 2020 and 1 occurred in 2021. None of these accidents involved a pedestrian or a cyclist.

Summary

- 3.29 There are no notable accident issues on Mauldeth Road along the site frontage, between the A34 Kingsway and Burnage Lane or at the Mauldeth Road / Avonlea Drive junction which traffic from the proposed development would exacerbate. Whilst there have been a number of personal injury accidents recorded at the A34 Kingsway / Mauldeth Road junction, it is also suggested that the minimal increases in traffic at this location associated with the development (as referred to later in this report) considered against the existing levels of traffic passing through this junction would not materially exacerbate existing conditions.

4 Accessibility by the Sustainable Modes

Pedestrian & Cycle Infrastructure

- 4.1 As shown in the local linkages plan at **Figure 4.1**, the proposed site has good accessibility for pedestrians and cyclists.

Existing pedestrian infrastructure

- 4.2 Mauldeth Road includes good quality and width footways to both sides. Related to these footways, the MCC highways pre-application advice comments that *"it would be beneficial to understand the width of the footway along Mauldeth Road in order to understand whether the site may be able to improve pedestrian mobility by dedicating land in order to achieve 2.0m wide footways."*
- 4.3 In this regard and on the north side as it passes the proposed site frontage, the Mauldeth Road footway measures approximately 1.85 metres in width along the majority of its length, although there is a section towards the eastern site boundary where it widens to 2.4 metres. It is therefore proposed that this footway would be widened where necessary to provide a minimum 2 metre width along the site frontage.
- 4.4 Travelling away from the proposed site and as shown in **Figure 4.1**, the northern Mauldeth Road footway to the east of the site includes dropped crossings on the radii of its junctions with northern minor streets, whilst the A34 Kingsway / Mauldeth Road and Burnage Lane / Mauldeth Road traffic signal junctions include controlled pedestrian crossings on all arms.
- 4.5 From these points, pedestrians can join the wider pedestrian network to access the services and facilities referred to later in this section.

Existing cycle infrastructure

- 4.6 Although there are no dedicated cycle facilities on Mauldeth Road past the site, the route is considered conducive to cycle use, whilst the A34 Kingsway / Mauldeth Road traffic signal controlled junction includes advanced cycle stoplines on all approaches. Mauldeth Road west of the A34 Kingsway is also subject to a 20mph speed limit, as are other routes in the local area.

Proposed pedestrian / cycle infrastructure

- 4.7 As set out above, it is proposed that the northern Mauldeth Road footway would be widened where necessary to provide a minimum 2 metre width along the site frontage.
- 4.8 In addition and set out later in Section 5, the footways within the site would link to the existing provision on Mauldeth Road to the south, whilst there would be a pedestrian / cycle link to the site from the A34 Kingsway to the west. Dropped crossings with tactile paving would also be provided at the site access off Mauldeth Road.
- 4.9 In addition, the streets within the scheme would be conducive to cycle use.
- 4.10 With these provisions in place, residents of the development travelling on foot and by bicycle could access the pedestrian and cycle routes surrounding the site and shown in **Figure 4.1**.

Levenshulme and Burnage Low traffic Neighbourhood Scheme

- 4.11 The closest the Levenshulme and Burnage Low Traffic Neighbourhood Scheme extends towards the proposed site is to Grangethorpe Drive and Errwood Road to the north of the site. The Grangethorpe Drive section is now implemented, whilst the Errwood Road section includes proposals for traffic calming measures and improved pedestrian / cycle provision.
- 4.12 These schemes are too remote to materially change pedestrian and cycle accessibility for future residents of this site, or for them to be materially impacted by traffic arising from the proposed development of this site.

Summary

- 4.13 Based on the above and with the proposed linkages in place, the pedestrian and cycle infrastructure in the vicinity of the site is considered to be of a good quality, providing a suitable and safe pedestrian and cyclist environment. This pedestrian and cycle infrastructure also provides access to the services, facilities and public transport network discussed below that are within walking and cycling distance of the site.

Accessibility for Pedestrians

- 4.14 It is commonly accepted that walking has the greatest potential to replace short car trips, particularly those under two kilometres, whilst the Institution of Highways and Transportation "Guidelines for Providing for Journeys on Foot" states that "Walking accounts for over a quarter of all journeys and four fifths of journeys less than one mile".
- 4.15 The "Guidelines for Providing for Journeys on Foot" also includes a table which suggests that 800 metres is an acceptable maximum walking distance in a town centre and that 1.2km is an acceptable maximum walking distance elsewhere. It also suggests a distance of 2km is an acceptable maximum for commuter and education journeys, although statutory guidance indicates that just over 3km is an acceptable walk distance for primary school pupils, with secondary school pupils being expected to walk up to 5km.
- 4.16 In the context of the above, **Figure 4.2** shows the 800m, 1.2km and 2km walking catchments for the site. The areas, services and facilities within these catchments, which are based on walking route distances from the Mauldeth Road and A34 Kingsway site frontages and not distances as the crow flies, are discussed below.

Local Schools

- 4.17 As shown in **Figures 4.1 and 4.2**, Mauldeth Road Primary School and Ladybarn Primary School are located 400 metres and 700 metres respectively from the site to the west of the A34 Kingsway. Green End Primary School and St Bernards RC Primary School are also located 600 metres to the southeast of the site. All four of these schools are therefore within the 800 metre walking catchment for the site.
- 4.18 At around a 1km and 1.2km walk respectively, **Figures 4.1 and 4.2** show Acacias Community Primary School and Cringle Brook Primary School are within the 1.2km walking catchment for the site.
- 4.19 In addition, **Figure 4.2** shows there are five other primary schools within the 2.0km catchment, including St Cuthbert's Primary School (1.4km), St Paul's Primary School (1.5km), St Mary's RC Primary School (1.6km), Birchfields Primary School (1.6km) and Alma Park Primary School (1.8km).
- 4.20 All eleven of the primary schools referred to above are therefore within the 2km distance deemed acceptable by the IHT guidelines and well within the 3km statutory walk distance.
- 4.21 With regard to high schools and as shown in **Figures 4.1 and 4.2**, Levenshulme High School is 1km from the site and therefore well within the 2km distance deemed acceptable by the IHT guidelines and well within the 5km statutory walk distance. In addition and at 2.3km from the site, The Barlow RC High School is also around the 2km catchment and well within the 5km statutory walk distance. At 3km from the site, Parrs Wood High School is also within the statutory walk distance.
- 4.22 In addition to the above and as shown in **Figures 4.1 and 4.2**, Burnage Academy for Boys is 750 metres from the site, whilst Withington Girls School is around a 1.7km walk away. Manchester Grammar School is also around 2km from the site.
- 4.23 In the context of the above, it is suggested that the site is well placed to allow future pupils to walk to and from school.

Local Shops and Post Offices

- 4.24 As shown in **Figures 4.1 and 4.2**, the 800 metre catchment for the site takes in convenience stores and local shops in three locations, namely on Mauldeth Road opposite the site and around the A34 Kingsway to the west, on Burnage Lane to the east around its junction with Mauldeth Road and to the south on the A34 Kingsway around its junction with Green End Road.
- 4.25 As well as a convenience store, the shops opposite the site and around the A34 Kingsway / Mauldeth Road junction include a number of takeaways, a hair studio and a locksmith.
- 4.26 As well as two convenience stores, the shops on Burnage Road around its junction with Mauldeth Road include a pharmacy, butchers, a gift store, numerous hairdressers / barbers, a betting shop and a number of takeaways.
- 4.27 As well as a supermarket, two convenience stores and a Post Office, the shops to the south on the A34 Kingsway include numerous hairdressers / barbers and takeaways.
- 4.28 In addition and as also shown in **Figures 4.1 and 4.2**, there is another Post Office located approximately 850 metres to the northeast of the site off Burnage Lane.

- 4.29 These facilities therefore provide key services and shopping facilities within an acceptable walk distance of the site.

District Centre

- 4.30 As shown in **Figure 4.2**, the 2km catchment for the site takes in the edge of Levenshulme District Centre to the northeast.

- 4.31 This district centre, which is considered to be within walking distance of the site, include numerous retail, leisure and employment destinations.

Doctors / Health Facilities

- 4.32 As shown in **Figures 4.1 and 4.2**, Burnage Medical Centre is 600 metres from the site and within the 800 metre catchment. There is therefore considered to be access to health facilities within walking distance of the site.

The Christie Hospital

- 4.33 As shown in **Figure 4.2**, the Christie Hospital is situated to the west of the site and within the 2km catchment. There is therefore considered to be access to employment opportunities at the Hospital within walking distance of the site.

Local Employment Area

- 4.34 As shown in **Figure 4.2**, a local employment area taking in Discovery Park, Crossley Park and McVities is situated to the east of the site and within the 2km catchment. There is therefore considered to be access to local employment opportunities within walking distance of the site.

Ladybarn Park

- 4.35 As shown in **Figures 4.1 and 4.2**, Ladybarn Park is situated around 250 metres to the west of the site and offers future residents access to a recreational facility within easy walking distance.

Bus Stops and Railway Station

- 4.36 As shown in **Figures 4.1 and 4.2**, the closest bus stops are situated immediately outside the site on Mauldeth Road. There are also bus stops located approximately 160 metres (southbound) and 220 metres (northbound) to the west of the site on the A34 Kingsway.

- 4.37 In addition to these bus stops and as also shown in **Figures 4.1 and 4.2**, Mauldeth Road railway station is situated approximately 250 metres from the site.

- 4.38 As set out later in this section, these bus stops and the railway station are considered accessible from the proposed site on foot.

Summary

- 4.39 The above demonstrates that the site is well placed in terms of pedestrian connectivity and that walking represents a very realistic alternative to the car for future residents undertaking educational and 'top up' shopping trips, some recreational trips and potentially employment trips. Furthermore, the site is well placed for future residents to access local facilities and clusters of shops and to connect to the local bus and rail networks.

Accessibility for Cyclists

- 4.40 Considering the accessibility of the site by bicycle, it is commonly accepted that cycling also has the potential to substitute for short car trips, particularly those under five kilometres, and to form part of a longer journey by public transport. In this context, **Figure 4.3** shows the 5km cycling catchment for the site.

- 4.41 As can be seen from **Figure 4.3**, the south side of Manchester is within the 5km distance, as are places such as Reddish, Heaton Norris, Heaton Mersey, Cheadle, Didsbury, Whalley Range and Longsight. The 5km catchment also extends almost to the southern edge of Manchester City Centre and the northern edge of Stockport Town Centre, whilst just a further 1km or 2km would take in these centres in their entirety. Although outside the 5km catchment, these 6km or 7km catchments would be accessible to some future residents, particularly given the growing popularity of e-bikes.

- 4.42 In addition, Mauldeth Road and Levenshulme railway stations are within a 250 metre and 2km cycle ride respectively from the site.
- 4.43 The site is therefore ideally placed for future residents to travel by bicycle for educational, employment, retail and leisure trips. It also offers the opportunity for future residents to cycle to join the local rail network.

Accessibility by Public Transport

Bus

- 4.44 As set out above and shown in **Figures 4.1 and 4.2**, the closest bus stops are situated immediately outside the site on Mauldeth Road. There are also bus stops located approximately 160 metres (southbound) and 220 metres (northbound) to the west of the site on the A34 Kingsway. These stops are within the 400 metre distance referred to in guidance.
- 4.45 Based on the above, Table 4.1 below shows the buses serving the site.

Table 4.1: Local Bus Services (Monday to Saturday and Sunday)

No.	Route	AM Peak	Off Peak	PM Peak	Saturday	Sunday
Mauldeth Road						
25	The Trafford Centre – Lostock – Stretford – Chorlton – Fallowfield - Burnage - Green End - Stockport	Every 30mins	Every 30mins	Every 30mins	Every 30mins	Every 30mins
A34 Kingsway						
50 / 51	East Didsbury – Kingsway – Upper Brook Street - Manchester – Salford Crescent Train Station - MediaCityUK	Every 5 to 12mins	Every 12mins	Every 12mins	Every 12mins	Every 15mins

- 4.46 As can be seen from the above, the local buses provide regular services between the site and a number of local destinations across Greater Manchester. These services therefore offer the opportunity for future residents to travel by bus, with regular services to local employment, retail and leisure destinations.

Rail

- 4.47 In addition to the bus access, Mauldeth Road railway station is situated approximately 250 metres from the site and within the 800 metre distance referred to in guidance. This station is on the Manchester to Crewe via Manchester Airport Line, calling at stations in between including East Didsbury, Gately, Heald Green, Wilmslow, Alderley Edge, Holmes Chapel and Sandbach. There are hourly services between Mauldeth Road and the stations beyond Manchester Airport and two services an hour between Manchester and Manchester Airport and the stations in between.
- 4.48 In addition to the above, Levenshulme station is within a 2km cycle ride of the site and therefore considered accessible. This station provides regular services into Manchester City Centre and Stockport. From these stations, regular services are provided across the north-west.
- 4.49 Via these stations, the proposed site is considered to be connected to the local rail network, which offers an excellent opportunity for travel by rail for employment, retail and leisure purposes.

5 Development Proposals

Development Proposals

- 5.1 The proposals would see the site redeveloped for a residential use comprising a total of 66 dwellings across the site. These dwellings would include:
- 13 No. 1 bed apartments;
 - 7 No. 3 bed houses; and
 - 46 No. 4 bed houses
- 5.2 The proposed site layout for the scheme is reproduced at **Appendix B**.

Site Access

- 5.3 As shown on the proposed site layout at **Appendix B**, access to 64 of the proposed 66 dwellings on the site would be provided via a new simple priority junction arrangement off Mauldeth Road. The remaining 2 dwellings would be served by direct private driveways off Mauldeth Road.
- 5.4 The main access would include a 5.5 metre wide carriageway, 6 metre radii and 1.8 metre wide footways to both sides. The direct private driveways would be traditional dropped crossing arrangements.
- 5.5 All other existing accesses to the site would be closed as part of the development.

Junction spacing

- 5.6 As shown on the proposed site layout at **Appendix B**, the proposed Mauldeth Road access would be located approximately 43 metres to the west of the eastern site boundary and approximately 3 metres to the east of Avonlea Drive. As a result, the proposed access would effectively create a crossroads junction with Avonlea Drive.
- 5.7 In determining the appropriateness of the proposed site access, due cognisance has been given to the Avonlea Drive junction opposite the site.
- 5.8 Research carried out and presented in Manual for Streets 2 (dated September 2010) indicates that:
- "The need for and provision of junctions on new highways, and additional junctions on existing routes, should be assessed in the round, considering a wide range of factors such as the need for access at particular locations, the impact on the size of development blocks, the potential interaction between adjacent junctions and the consequent effect on user delay and road safety".*
- 5.9 Considered against the above, Mauldeth Road past the site serves a local function with vehicles leaving and joining the route via a number of access junctions and individual private access driveways. It also includes a priority controlled crossroads arrangement at the Mauldeth Road / Glendale Avenue / St Margaret's Avenue junction and a left / right staggered crossroads arrangement at the Mauldeth Road / Hembury Avenue / Kenwood Avenue junction where the side arms are separated by circa 16 metres. The emergence of vehicles from accesses in close proximity to one another is not therefore unusual in this location.
- 5.10 It is also the case that, despite the number of access junctions and individual private access driveways located along the circa 480 metre length of Mauldeth Road between the A34 Kingsway and Burnage Lane, information that is freely available on the internet shows there have been just three personal injury access recorded along this length over a 5 year period.
- 5.11 In terms of development blocks and generations, it is considered that the 18 dwellings served off Avonlea Drive, in combination with the 64 dwellings served of the proposed access (including 13 apartments), are not sizeable 'development blocks'. The observed traffic flows shown in Figure 3.1 also show that Avonlea Drive does not generate high levels of traffic movement, whilst the proposed development would not generate significant traffic movements.

- 5.12 In addition to the above, the low levels of traffic movement at the Mauldeth Road junctions with Avonlea Drive and the proposed site access means that neither would be subject to delay, as is currently the case at the Avonlea Drive junction. It is also the case that the very low right turn movement into Avonlea Drive from Mauldeth Road (no more than 10 vehicles per hour during the peak hours as shown in Figure 3.1), coupled with the low right turn movement into the site from Mauldeth Road (calculated to be no more than 6 vehicles per hour), mean that vehicles undertaking these manoeuvres would rarely interact.
- 5.13 For the reasons set out above in paragraphs 5.8 to 5.12, it is suggested that an access in the proposed location would have no detrimental impact on existing highway safety or operation.

Visibility provision

- 5.14 With regard to visibility provision at the proposed site access and the two direct private driveways, the requirements set out in Manual for Streets [MfS] are appropriate for roads with an 85th percentile speed of up to 37mph. As a result and as set out in Section 3, and based on the 30mph design speed, MfS requires a 'y' distance of 43 metres. With regard to the 'x' distance and as set out in MfS, a 2.4 metre provision should be adopted.
- 5.15 Taking account of the above, **Figure 5.1** shows 2.4 x 43 metres visibility splays at the proposed site access, whilst **Figure 5.2** shows 2.4 x 43 metre visibility splays from the direct private driveways off Mauldeth Road.
- 5.16 With regard to the proposed site access visibility splay and looking to the west, Figure 5.1 shows the 2.4 x 43 metre provision is achievable to the kerbline. It would also be protected by the existing double yellow line, at any time waiting restrictions on Mauldeth Road. To the east, Figure 5.1 again shows the 2.4 x 43 metre provision is achievable to the kerbline. To achieve this, the visibility splay would pass through the bus stop and along the section of Mauldeth Road carriageway fronting the development properties with direct private driveways. As a result and whilst this splay is not protected by waiting restrictions, these splays would be protected by virtue of the fact that people should not park in a bus stop or across direct private driveways.
- 5.17 With regard to the bus stop, the shelter is a cantilever shelter that cantilevers from the rear of the footway. It would not, therefore, obstruct the visibility splays. In addition and as set out in Section 4, this bus stop is only used to access buses running every 30 minutes, whilst this arrangement is the same as that further east along Mauldeth Road at the Mauldeth Road / Hembury Avenue junction where there is no recorded personal injury accident record.
- 5.18 In terms of the direct private driveways, Figure 5.2 again shows that 2.4 x 43 metre splays are achievable in both directions from each driveway. Looking to the west, these splays would also be protected by the bus stop and the existing double yellow line, at any time waiting restrictions on Mauldeth Road. To the east, the splays would not be protected by waiting restrictions. However, they would cross an existing private driveway and extend through the Mauldeth Road / Brookthorpe Avenue. They would also be subject to the same conditions as the existing private driveways in this area, where there is no recorded personal injury accident record despite vehicles parking in the visibility splays for the driveways.
- 5.19 Based on the above, it is considered that appropriate visibility provision is achievable at the site.

Traffic regulation orders

- 5.20 The MCC highways pre-application advice requests *"that a review of TROs surrounding the site is undertaken with a view to covering whether any additional restrictions are required. Highways requests that No Waiting restrictions are in place covering the visibility splay extents of the site access"*.
- 5.21 As set out above, the majority of the site frontage and all of the site access visibility splays are covered by existing waiting restrictions, the bus stop and the proposed direct private driveways, as are the splays to the west from the private driveways. The only splays not covered by waiting restrictions are those to the east from the direct private driveways but, for the reasons set out above, this is considered acceptable.
- 5.22 In light of the above, it is considered that no additional waiting restrictions are required.

Parking obstruction issues

- 5.23 The MCC highways pre-application advice notes *"that there are existing parking/obstruction issues along Mauldeth Road. Due to taxi dropping off/pick-up, Deliveroo/just eat food delivery, there has been a number of complaints in regard to on-pavement parking along the southern side of Mauldeth. Therefore, mitigation strategies will need to be in-place to discourage on-pavement parking and protect the proposed site access and driveway parking spaces facing Mauldeth Road."*
- 5.24 MCC identify that these obstruction issues occur on the south side of Mauldeth Road. They will not, therefore, impact on the proposed site access. In addition and as previously identified, double yellow line, at any time waiting restrictions are provided on the north side of Mauldeth Road between the proposed site access and the A34 Kingsway. As a result, 'on-pavement' parking in this location would be a traffic offence and could be enforced.
- 5.25 In light of the above, it is considered that no mitigation strategies are required.

Summary

- 5.26 Based on the above, the proposed site access and direct private driveway arrangements from Mauldeth Road are considered acceptable and appropriate from a design, safety and operational perspective. The junction form of the proposed site access is also considered to be in keeping with the surrounding highway network. Furthermore, it is considered that no additional waiting restrictions or mitigation measures associated with parking obstruction are required.

Internal Site Layout

General

- 5.27 Within the site and as shown on the proposed site layout at **Appendix B**, the site access would continue northwest on a straight alignment for a distance of approximately 60 metres, where it would effectively form a 'T' junction arrangement. At this point, the layout would include a circular area. However, this junction would still operate as a 'T' junction arrangement.
- 5.28 At this junction, the access road would travel northeast on a straight alignment for a distance of approximately 41 metres. Travelling southwest from the junction, the access road would travel on a straight alignment for a distance of approximately 35 metres, where a turning head area would be provided. Private drive accesses would be provided from the southern and western stubs of this turning head area.
- 5.29 The 60 metre length of access road from Mauldeth Road, together with the access roads running northeast and southwest from this access within the site, would be 5.5 metres in width and include 1.8 metre wide footways to both sides. The one exception would be the 'stub' of the turning head area that serves the private drive to the west, which would measure 4.5 metres in width with 1.8 metre footways to both sides.

Swept path analysis

- 5.30 Swept path analysis has been undertaken for a 11.5m long refuse vehicle, the parameters for which have been agreed with MCC for another scheme. **Figure 5.3** shows this vehicle can negotiate the streets within the scheme and manoeuvre within the turning head area.
- 5.31 Swept path analysis has also been undertaken for a fire appliance. **Figure 5.4** shows this vehicle can negotiate the streets within the scheme and manoeuvre within the turning head area / the western provide drive access.

Pedestrian and Cycle Provision

Pedestrian provision

- 5.32 As set out above, the site access would include 1.8 metre wide footways to both sides and link the site to the surrounding pedestrian network off Mauldeth Road. These footways would continue throughout the site on both sides of the highway network referred to above. Dropped crossings with tactile paving would also be provided at the site access on Mauldeth Road.
- 5.33 It is also proposed that the northern Mauldeth Road footway will be widened where necessary to provide a minimum 2 metre width along the site frontage.

- 5.34 In addition to the above and as shown on the proposed site layout at **Appendix B**, there would be a pedestrian / cycle link to the site from the A34 Kingsway to the west.
- 5.35 With these provisions in place, residents of the development travelling on foot could access the local pedestrian network.

Cycle provision

- 5.36 With regard to cycle provision, the internal site layout is considered to be conducive to cycle use.

Parking Provision

Car parking

- 5.37 MCC have no specific standards for car parking requirements at residential schemes. However, the MCC highways pre-application advice states that *"a provision of 100% car parking spaces will be made for the proposed residential dwellings. This is acceptable but the provision for apartments will need to be justified within the TA."*
- 5.38 With regard to the apartments, it is proposed that 7 spaces would be provided for the 13 apartments, a provision of 0.54 spaces per dwelling (i.e. a 54% provision).
- 5.39 In this regard, the 2021 census data provides information relating to car and van availability at households, with dataset RM001 of the census provides data relating to "Accommodation type by car or van availability by number of usual residents aged 17 years or over". This data allows car or van availability to be split between 'whole houses and bungalows' and 'flats, maisonettes, apartments, caravans or other mobile or temporary structures'. This data is also available for each Super Output Areas (SOAs).
- 5.40 Based on the above and for the SOA within which the site sits, namely Manchester 034 and 041, Table 5.2 below sets out car and van availability for flats from the 2021 census.

Table 5.2: 2021 Census Car & Van Availability Data for Flats

No.	Number	Percentage
Total: All households	1,234	
No cars or vans in household	633	51.3%
1 car or van in household	512	41.5%
2 cars or vans in household	68	5.5%
3 or more cars or vans in household	21	1.7%
Total vehicles	711	
Vehicles per dwelling	0.58	

- 5.41 The information set out above shows that the residents of 51% of flats in the SOAs do not have access to a car or van and that the vehicle availability is just 0.58 vehicles per dwelling (i.e. a 58% demand). Based on the above, and given that not all of the dwellings referred to in Table 5.2 will be one bedroom dwellings, it is considered that the proposed provision of 7 spaces for the 13 apartments (i.e. a 54% provision) at the site would provide sufficient car parking to accommodate demand at the apartments.
- 5.42 Based on the above and the location of the site, the scheme is considered to provide a sufficient level of car parking.

Cycle parking

- 5.43 In terms of cycle parking, the MCC highways pre-application advice states that:
"secure and sheltered cycle parking provision should be made, within the curtilage of the site, at a provision of one-per-unit."
A provision of 100% cycle parking will be made available for each dwellinghouse. This is acceptable but 100% provision for apartments will need to be made."
- 5.44 With regard to the houses, each dwelling would include in the garden a standalone covered and secure bike store to accommodate 2 bikes. This is considered appropriate.

- 5.45 In terms of the apartments, secure and covered cycle stores are proposed which would provide parking for up to 13 bicycles, i.e. 1 space per dwelling. This is also considered appropriate.

Road Safety Audit: Site Access (S278) / Internal Layout (S38)

- 5.46 The MCC highways pre-application advice indicated that a Stage 1 Road Safety Audit is required for the proposed access (a Section 278 audit) and the internal site layout (a Section 38 audit). The pre-application indicated that, *"as a minimum, it is expected to include the following:*
- *5 years of accident history*
 - *Audit of key pedestrian routes (crossing points, footway widths, condition etc.)*
 - *Audit of key cycling routes (ASLs, cycle lanes etc.)*
 - *Highway layout including, but not limited to (visibility assessments, speed limits, TROs, traffic calming etc.)"*
- 5.47 The pre-application advice then referred to a copy of the report (with Designer's Response) being made available to the Statutory Approvals Team upon request.
- 5.48 A road safety audit was therefore undertaken in November 2024, with the auditor being provided with the above bulleted commentary and a brief providing information regarding the development, access, bus stops, traffic flows and speeds and vehicles swept paths. A copy of this road safety audit, which has been annotated with CBO's responses, is included at **Appendix C**.
- 5.49 The road safety audit at **Appendix C** did not raise any significant road safety problems. There is, therefore, no requirement to amend any aspect of the scheme or prepare a Designers Response.

6 Traffic Generation and Assignment

General

- 6.1 As set out previously, the proposals would see the site developed for a residential use comprising 'open market' dwellings made up of a mix of houses and apartments. The traffic generation and, where appropriate, traffic assignment associated with each of these elements is set out in this section of the report.

Traffic Generation

- 6.2 For other applications in Manchester City, it has in the past been agreed with MCC highways that proposed development traffic generation be calculated using a person-trips approach, with people trip rates derived from the TRICS database and the appropriate modal share percentages then being applied from local Census data. This approach has therefore been adopted again for this report.
- 6.3 Adopting this approach, people trip rates have been derived from the TRICS database under the sub land uses of 'Houses Privately Owned' and 'Flats Privately Owned'. To achieve an accurate representation of the proposals, sites from London and Ireland have been removed, whilst the sites chosen have been limited to those with a comparable average number of bedrooms per dwelling whilst at the same time returning a reasonable sample size.
- 6.4 Based on this methodology, Table 6.1 below sets out the people trip rates for the proposed scheme, together with the resultant people trips based on a 53 house and 13 apartment scheme. Full TRICS Outputs are included at **Appendix D**.
- 6.5 It should be noted that the trip rates in Table 6.1 relate to the typical 8:00 – 9:00 and 17:00 – 18:00 weekday morning and evening peak hours and not the 8:30 – 9:30 morning peak hour and 16:45 – 17:45 evening peak hour derived through the traffic surveys. However, these trip rates are higher than those that would be derived for the observed peak hours and are therefore considered robust.

Table 6.1: Proposed Development People Trip Rates / People Trips

(Trip rates are per dwelling)		Weekday Morning Peak			Weekday Evening Peak		
		Arrivals	Departures	Total	Arrivals	Departures	Total
Houses	Trip Rate	0.319	0.887	1.206	0.556	0.399	0.955
	People trips	17	47	64	29	21	50
Apartments	Trip Rate	0.160	0.547	0.707	0.566	0.189	0.755
	People trips	2	7	9	7	3	10
Total People trips		19	54	73	36	24	60

- 6.6 In order to determine the modal share percentages to be applied to the above people trips, local Census Journey to Work data has been utilised for the Super Output Areas (SOAs) around the site, namely Manchester 034 and 041. A plan showing the area covered by these SOAs is included at **Appendix E**, whilst the resultant modal split is shown in Table 6.2 below.

Table 6.2: Modal Split for Local Area from Local Census Data

Mode	Percentage
Train / tram	4.1%
Bus	23.2%
Car driver, motorcycle, taxi	52.7%
Passenger in a car or van	5.8%
Bicycle	4.1%
Walk	10.1%
Total	100.00%

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level) merged data for SOA's Manchester 034 & 041

- 6.7 Based on these mode splits and the people trips shown in Table 6.1, Table 6.3 below shows the resultant trips by each mode. The trips by car driver, motorcycle and taxi (as highlighted yellow in Table 6.3) have been taken as the traffic generation for the development.

Table 6.3: Proposed Development Trips by Mode

	Weekday Morning Peak			Weekday Evening Peak		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Train / tram	1	2	3	1	1	2
Bus	4	13	17	8	6	14
Car driver, motorcycle, taxi	10	28	38	19	13	32
Passenger in a car or van	1	3	4	2	1	3
Bicycle	1	2	3	1	1	2
Walk	2	5	7	4	2	6
Total	19	54	73	36	24	60

Traffic Distribution and Assignment

- 6.8 In order to distribute the above traffic movements and assign them to the local highway network, Journey to Work data from the 2011 census for the middle super output areas around the site (Manchester 034 and 041) has again been utilised, together with the observed turning proportions at the Mauldeth Road / Avonlea Drive junction.
- 6.9 The 2011 census information provides details of the destination of journeys taking place and the numbers of people making those journeys via different modes. For the purpose of this exercise, only the number of car drivers was taken into account.
- 6.10 Having determined the destination of car driver based journeys, these journeys have then been manually assigned to the local network based on the following broad destinations:
1. East from the site along Mauldeth Road; and
 2. West from the site along Mauldeth Road.
- 6.11 Based on this methodology, 72% of development traffic would be assigned to the west of the site, with the remaining 28% being assigned to the east. This is comparable to the observed turning proportions at Avonlea Drive, which were 70% west / 30% east arrivals during the weekday morning peak, 67% west / 33% east departures during the weekday morning peak, 71% west / 29% east arrivals during the weekday evening peak and 50% west / 50% east departures during the weekday evening.
- 6.12 Taking account of the above, it is considered that the use of a 70% west / 30% east split is appropriate for distributing development traffic.
- 6.13 Adopting the above assignment, the weekday morning and evening peak traffic flows at the site access associated with the proposed houses and apartments are shown diagrammatically in **Figure 3.1**.

7 Operational Assessments

General

- 7.1 As set out previously in Section 3 and given the traffic generations associated with the proposed development as identified in Section 6, and giving due cognisance to the 30 vehicles p/hr threshold referred to by MCC highways in their pre-application advice, it is considered that the appropriate study area in terms of undertaking operational assessments can be limited to the proposed site access / it's effective junction with Avonlea Drive.
- 7.2 Details of the traffic flows used to undertake these assessments, together with the resultant model findings, are therefore set out in this section. With regard to the model used to carry out these operational assessments, the Junctions 9 program has been utilised as appropriate.

Committed Development

- 7.3 No committed developments were identified in the MCC highways pre-application advice. It is therefore assumed that there are no committed developments in the local area that would affect traffic flows past the proposed site.

Traffic Growth

- 7.4 Given that we are not aware of any committed developments and in order to allow a level of robustness, traffic growth factors have been applied to the observed traffic flows past the site on Mauldeth Road referred to in Section 3. As a result and where traffic growth factors are applied, it is typical to allow for a future year five years after the date of the application, in this instance 2029.
- 7.5 Adopting this approach and using the 'Core' scenario and 'Core' dataset in TEMPRO 8.1, the geographical parameter of 'Manchester 041' and the 'all' roads parameter, Table 7.1 below details the growth factors to be applied to the 2023 observed traffic flows set out in Section 3 to derive a set of 2029 background traffic flows.

Table 7.1: TEMPRO Adjusted Growth Factors for 'Manchester 041'

	Weekday Morning Peak	Weekday Evening Peak
2023 – 2029	1.0840	1.0848

- 7.6 Applying the above factors to the 2023 observed traffic flows, **Figure 3.1** shows the growthed background traffic flows at the site access.

Assessment Traffic Flows

- 7.7 In light of the above, growthed background plus proposed development traffic flows are shown in **Figure 3.1**.

Operational Assessments: Proposed Site Access / Mauldeth Road / Avonlea Drive

- 7.8 Based on the growthed background plus proposed development traffic flows identified above, Junctions 9 assessments have been carried out for the proposed site access / Mauldeth Road / Avonlea Drive junction. Table 7.2 below shows the results of these operational assessments, whilst the full Junction 9 outputs are included at **Appendix F** for information.

Table 7.2: Proposed Site Access / Mauldeth Road / Avonlea Drive Junction: Junctions 9 Results

	Weekday Morning Peak		Weekday Evening Peak	
	RFC	Q	RFC	Q
Site Access: Left & right	0.073	0	0.037	0
Mauldeth Rd: Right turn to site	0.007	0	0.015	0
Avonlea Drive: Left & Right	0.014	0	0.030	0
Mauldeth Rd: Right turn to Avonlea Drive	0.017	0	0.027	0

RFC: Ratio of Flow to Capacity. Q: Queue length in Vehs

- 7.9 As can be seen from the above table the Junctions 9 modelling indicates that the maximum RFC value at the site access / Mauldeth Road / Avonlea Drive junction would be 0.073 during the weekday morning peak and 0.037 during the weekday evening peak. These levels of RFC are significantly below the traditional 0.850 design capacity. There would also be no queuing during either peak.
- 7.10 Based on these results it is suggested that there would be no operational issues associated with the proposed site layout and that the access arrangements proposed would be more than sufficient to safely serve the proposed development.

Wider Traffic Impact

- 7.11 Away from the site access, **Figure 3.1** shows that the proposed development would increase traffic flows through the A34 Kingsway / Mauldeth Road junction by 27 vehicles during the weekday morning peak and by 22 vehicles during the weekday evening peak. These increases, which are below the 30 vehicle threshold at which traffic assessments are typically required, equate to around one additional vehicle every two minutes during the morning peak and around one additional vehicle every three minutes during the evening peak.
- 7.12 In the context of the total number of vehicles that will be passing through this junction during the weekday peaks, these increases in traffic could likely be accounted for through daily variation.
- 7.13 To the east, **Figure 3.1** shows that the proposed development would increase traffic flows along Mauldeth Road by 11 vehicles during the weekday morning peak and by 10 vehicles during the weekday evening peak. These increases, which are significantly below the 30 vehicle threshold at which traffic assessments are typically required, equate to around one additional vehicle every six minutes during both the morning and evening peaks. Again, these minimal increases in traffic could likely be accounted for through daily variation.
- 7.14 In light of the above, it is considered that the proposed development would have no notable impact on the wider highway network and that no operational assessments or mitigation is required at off-site locations.

Summary

- 7.15 Based on the findings presented in this section of the report, it is concluded that there would be no operational issues associated with the proposed site layout and that the access arrangements proposed would be more than sufficient to safely serve the proposed development.
- 7.16 With regard to the wider highway network, it is concluded that increases in traffic as a result of the proposals would be below the 30 vehicle threshold (referred to by MCC highways in the pre-application advice) at which traffic assessments are typically required, could likely be accounted for through daily variation and would have no notable impact on the operation of the wider highway network.
- 7.17 In light of the above, no highway mitigation is required in association with the proposed development.

8 Summary, Conclusions and Recommendations

Summary and Conclusions

8.1 Based on the findings of this report it is concluded that:

Accessibility by the Sustainable Modes

- Pedestrian and cycle infrastructure in the vicinity of the site is considered to be of a good quality, providing a suitable and safe pedestrian and cyclist environment. This pedestrian and cycle infrastructure also provides access to services, facilities and the public transport network that are within walking and cycling distance of the site;
- To enhance this provision, it is proposed that the northern Mauldeth Road footway would be widened where necessary to provide a minimum 2 metre width along the site frontage. In addition, the footways within the site would link to the existing provision on Mauldeth Road to the south, whilst there would be a pedestrian / cycle link to the site from the A34 Kingsway to the west. Dropped crossings with tactile paving would also be provided at the site access off Mauldeth Road.
- The site is well placed in terms of pedestrian connectivity, with walking representing a very realistic alternative to the car for future residents undertaking educational and 'top up' shopping trips, some recreational trips and potentially employment trips. Furthermore, the site is well placed for future residents to access local facilities and clusters of shops and to connect to the local bus and rail networks;
- The site is ideally placed for residents to travel by bicycle for educational, employment, retail and leisure trips. The south side of Manchester is within the 5km distance, as are places such as Reddish, Heaton Norris, Heaton Mersey, Cheadle, Didsbury, Whalley Range and Longsight. The 5km catchment also extends almost to the southern edge of Manchester City Centre and the northern edge of Stockport Town Centre, whilst just a further 1km or 2km would take in these centres in their entirety. Although outside the 5km catchment, these 6km or 7km catchments would be accessible to some future residents, particularly given the growing popularity of e-bikes. Future residents would also be able to cycle to Mauldeth Road and Levenshulme railway stations to join the local rail network;
- With regard to accessibility by public transport, the site is well placed for future residents to travel by bus and rail for educational, employment, retail and leisure purposes.

Site Access and on site Pedestrian, Cycle & Parking Provision

- The proposed access arrangement off Mauldeth Road is considered acceptable and appropriate from a design and safety perspective, whilst the junction form is also considered to be in keeping with the surrounding highway network. Furthermore, assessments show there would be no operational issues associated with the proposed site layout and that the access arrangements proposed would be more than sufficient to adequately serve the proposed development;
- It is considered that no additional waiting restrictions or mitigation measures associated with parking obstruction are required on Mauldeth Road;
- The internal highway arrangement is appropriate to suitably serve the proposed development;
- The proposed car parking provision within the site provides what is considered a sufficient level of provision for the proposed development;
- In terms of cycle parking, each house would include in the garden a standalone covered and secure bike store to accommodate 2 bikes, whilst the apartments would include secure and covered cycle stores providing one space per apartment. These provisions are considered appropriate;

Traffic Impact

- There are no notable accident issues on Mauldeth Road along the site frontage, between the A34 Kingsway and Burnage Lane or at the Mauldeth Road / Avonlea Drive junction which traffic from the proposed development would exacerbate. Whilst there have been a number of personal injury accidents recorded at the A34 Kingsway / Mauldeth Road junction, it is also suggested that the minimal increases in traffic at this location associated with the development considered against the existing levels of traffic passing through this junction would not materially exacerbate existing conditions;
- Increases in traffic on the surrounding highway network as a result of the proposals would be below the 30 vehicle threshold (referred to by MCC highways in the pre-application advice) at which traffic assessments are typically required, could be accounted for through daily variation and would have no notable impact on the operation of the wider highway network;
- In light of the above, no highway mitigation is required in association with the proposed development.

Recommendations

- 8.2 In light of the above it is the recommendation of CBO Transport that there are no traffic or transportation grounds on which to refuse the application for the proposed residential redevelopment.



Figures

Figure 1.1: Site Location

Figure 3.1: Traffic Flows

Figure 4.1: Local Linkages

Figure 4.2: Walking Catchment and Site Accessibility

Figure 4.3: 5km Cycle Catchment

Figure 5.1: Visibility Splays at Proposed Mauldeth Road Access

Figure 5.2: Visibility Splays at Proposed Mauldeth Road Direct Private Driveways

Figure 5.3: Swept Path Analysis: Refuse Vehicle Serving Scheme

Figure 5.4: Swept Path Analysis: Fire Appliance Accessing Scheme

Figure 1.1 Site Location

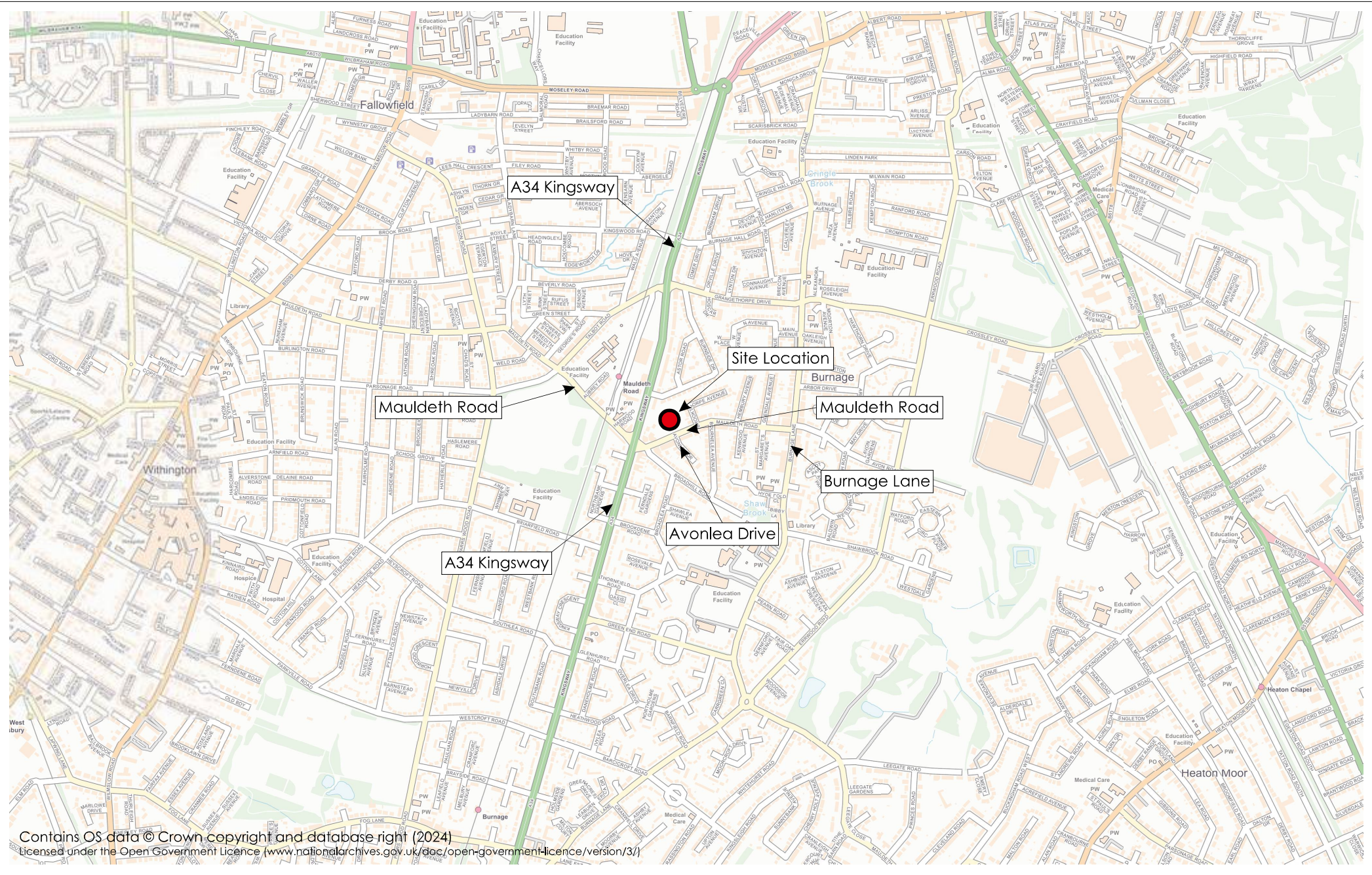
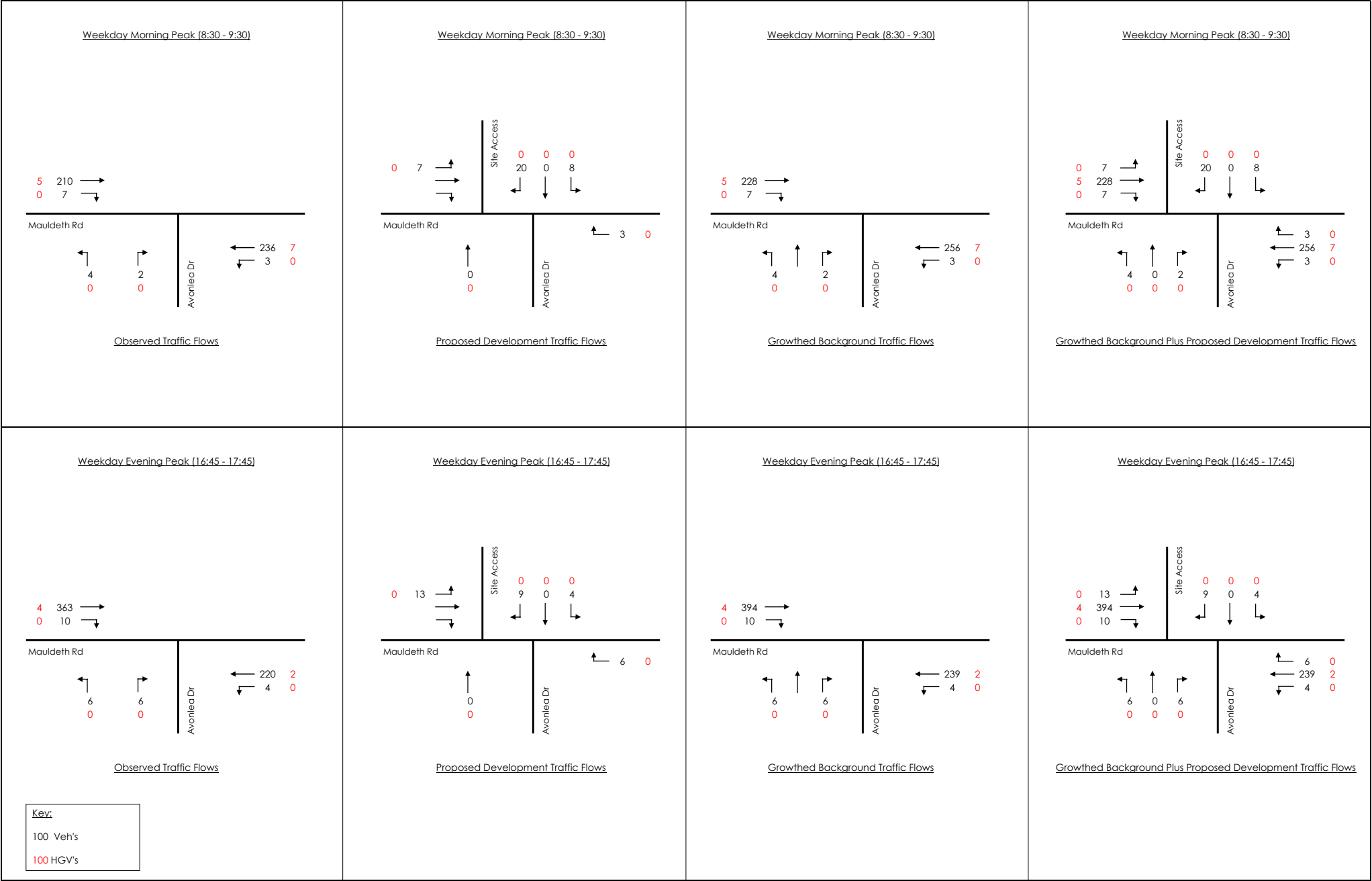


Figure 3.1 Traffic Flows



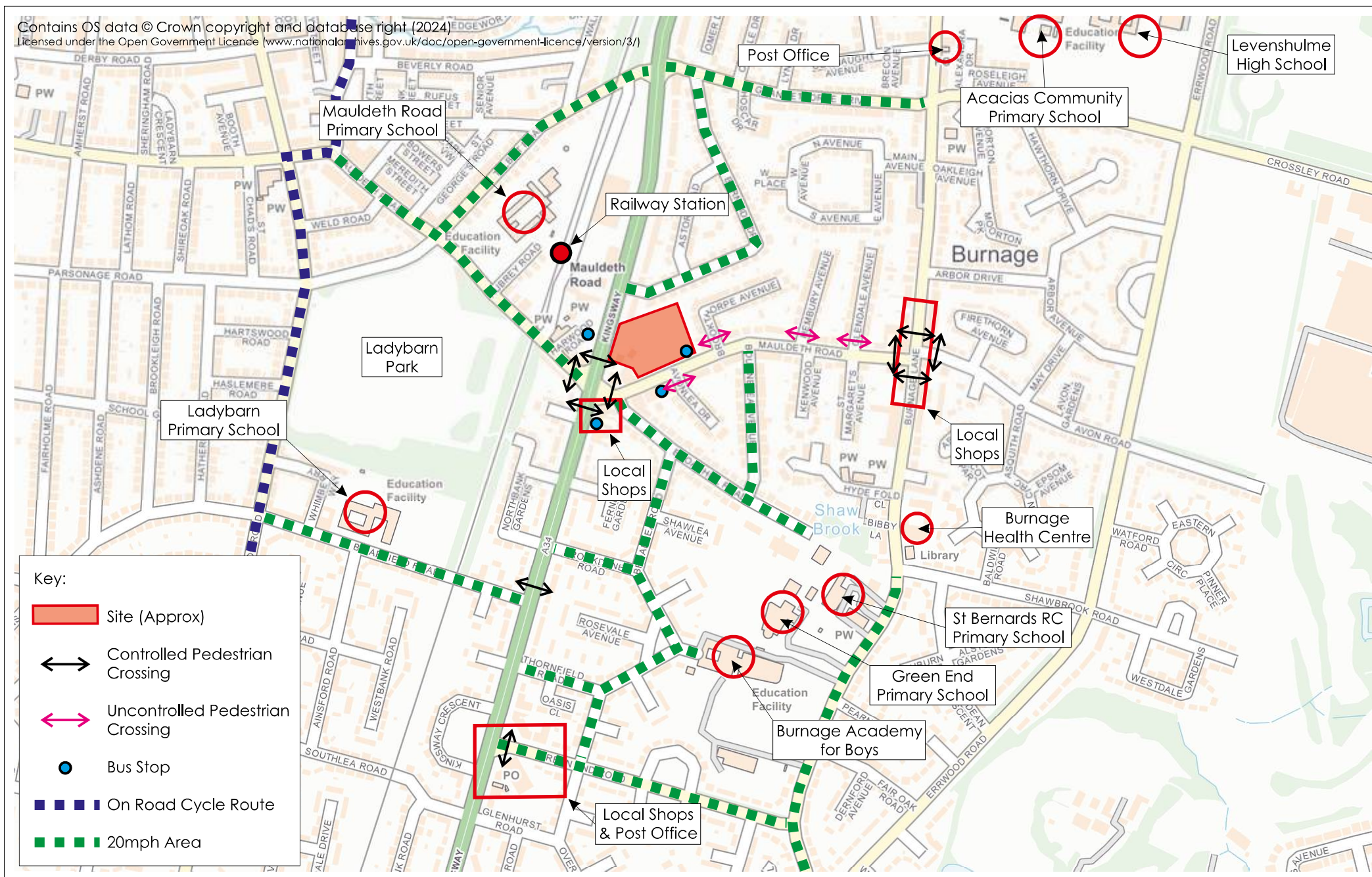


Figure 4.2 Walking Catchment and Site Accessibility

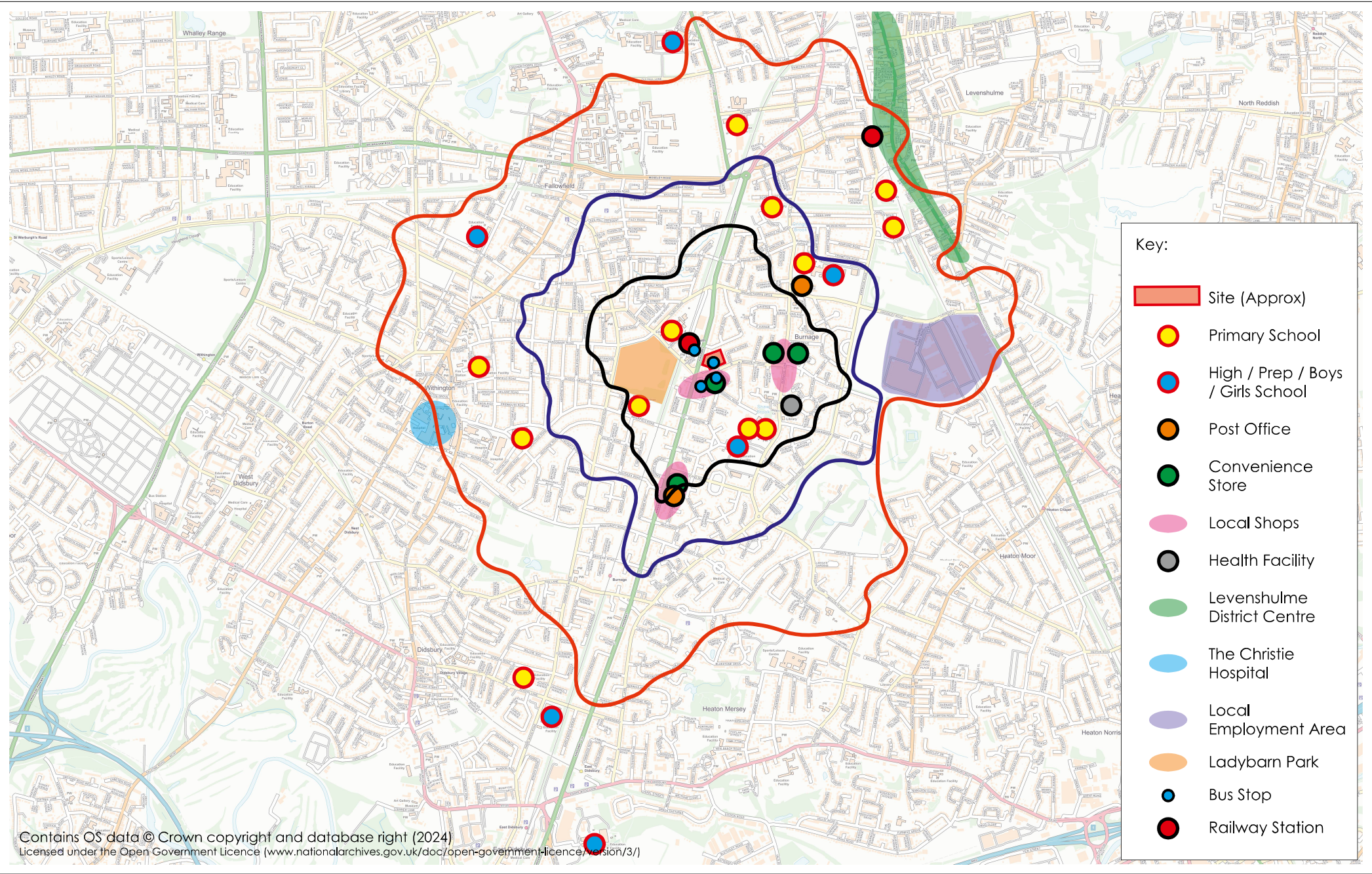


Figure 4.3 5km Cycle Catchment

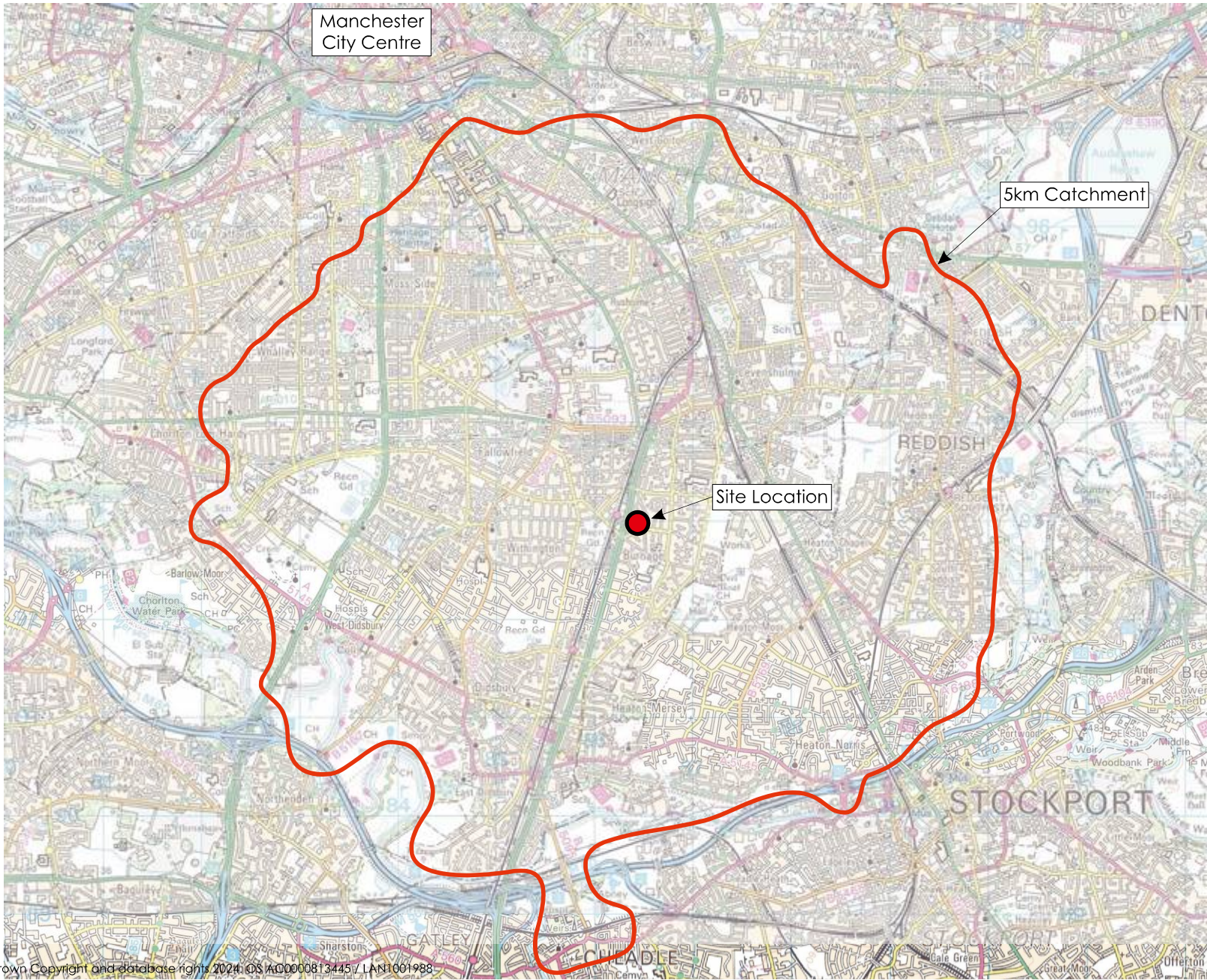


Figure 5.1 Visibility Splays at Proposed Mauldeth Road Access
(1:500 @ A3)

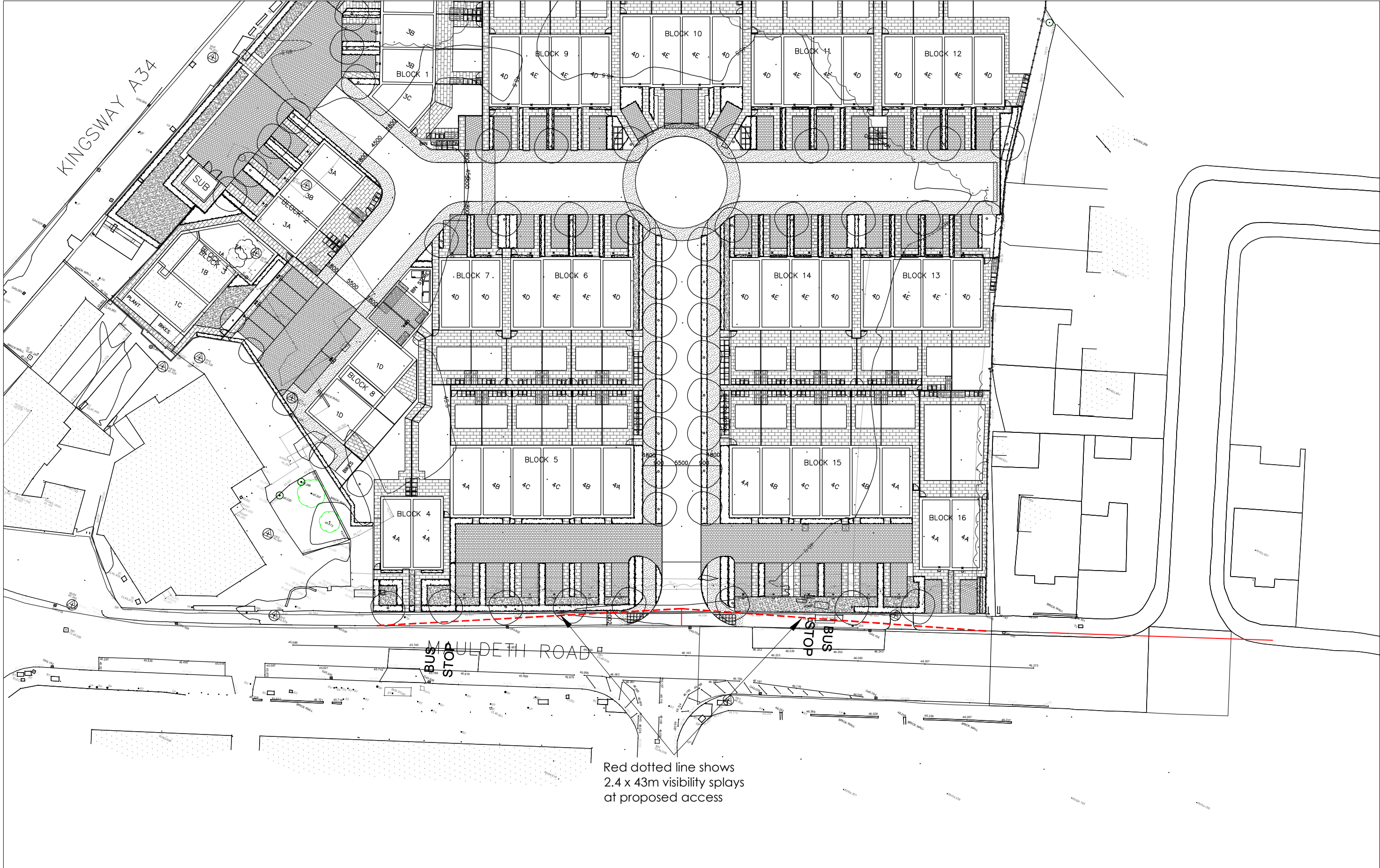


Figure 5.2 Visibility Splays at Proposed Mauldeth Road Direct Private Driveways
(1:500 @ A3)

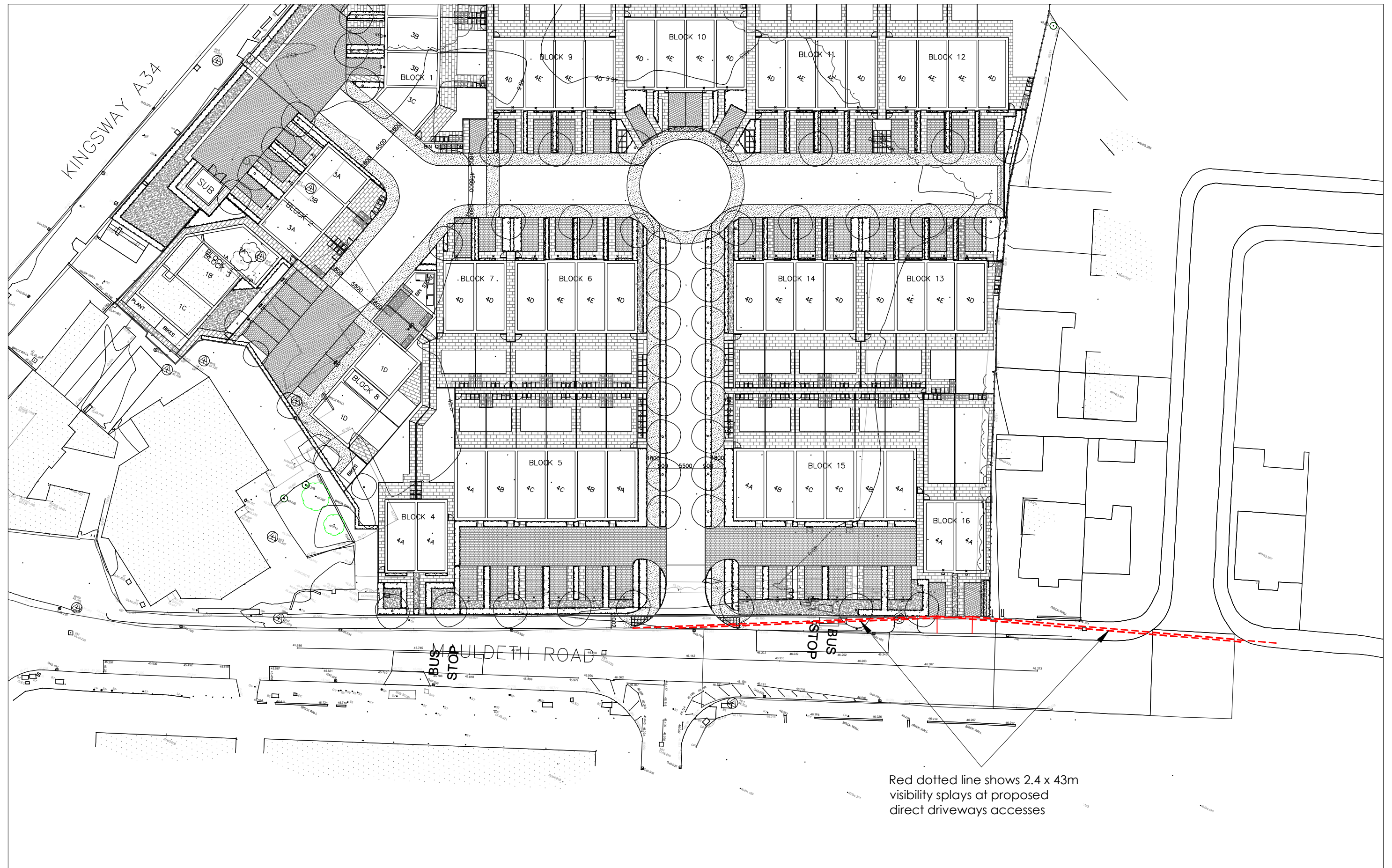


Figure 5.3 Swept Path Analysis: Refuse Vehicle Serving Scheme
(1:500 @ A3)

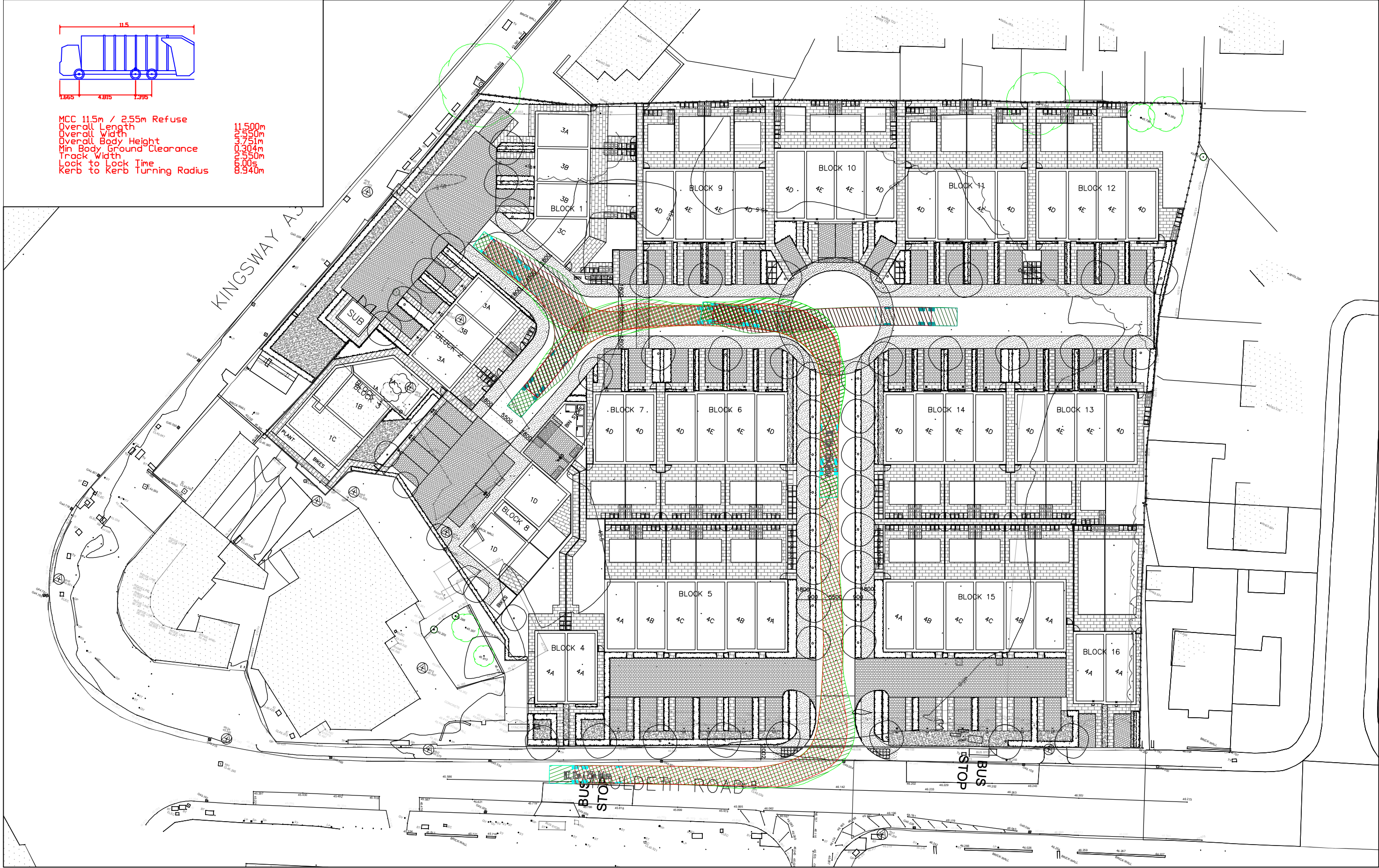
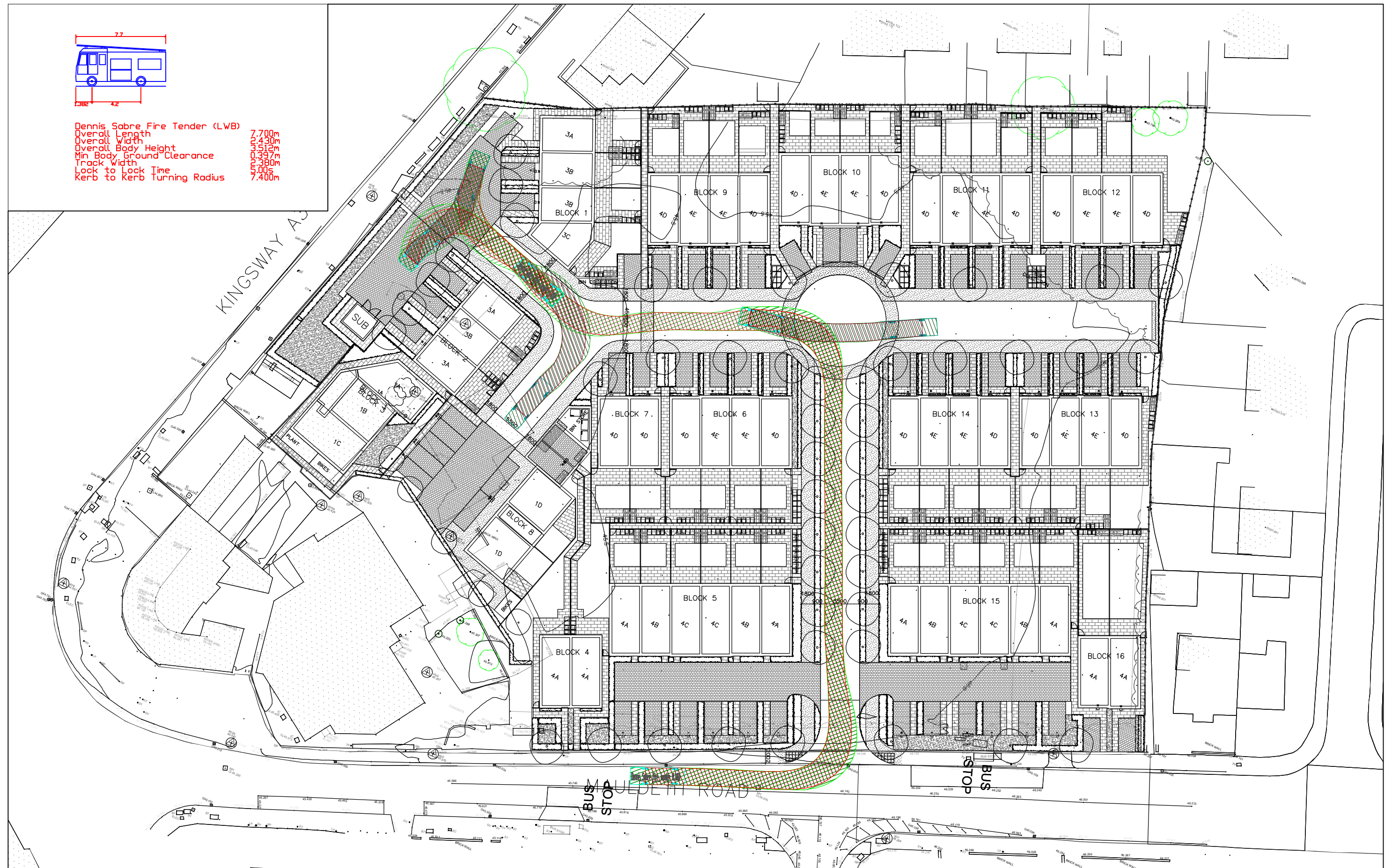


Figure 5.4 Swept Path Analysis: Fire Appliance Accessing Scheme
(1:500 @ A3)





Appendix A: Speed Survey Results

Mauldeth Road, Burnage, Manchester- Speed Survey (Wednesday 10th July 2024)

Weather Conditions - Fine, Cloudy & Breezy/Road Surface - Dry

Westbound

27	23	19	24	17	22	20	26	19	23
23	26	23	21	28	38	24	32	28	25
27	23	27	17	24	27	22	26	22	28
20	25	22	26	18	25	35	23	27	22
24	27	25	21	25	28	23	30	22	28
28	24	33	23	29	18	27	22	25	39
24	29	21	27	23	30	23	26	18	24
27	23	25	22	31	25	21	29	24	23
21	28	23	26	29	22	29	25	27	23
28	24	28	22	26	29	23	27	25	27
21	25	21	24	27	25	28	19	23	21
24	21	19	24	22	27	25	28	20	23
21	26	24	27	32	22	36	26	31	28
25	22	27	21	24	27	23	21	27	24
25	30	24	26	36	24	26	18	21	29
22	26	37	21	27	22	33	27	26	20
25	31	24	27	21	29	26	21	19	26
33	20	28	25	22	16	23	26	29	22
23	26	21	28	25	22	27	23	22	28
26	22	28	24	21	26	30	27	25	23

Max - 39

Min - 16

85% - 28

Ave - 25

Sp. Limit - 30

27- Cars/LGV's

27 - HGV's/PSV's

Mauldeth Road, Burnage, Manchester- Speed Survey (Wednesday 10th July 2024)

Weather Conditions - Fine, Cloudy & Breezy/Road Surface - Dry

Eastbound

28	25	21	25	16	21	25	20	22	26
24	22	17	21	26	18	21	26	18	22
22	17	22	16	21	18	27	16	23	20
17	21	24	19	30	20	22	32	17	21
24	22	34	22	17	21	27	22	21	15
21	25	22	19	15	23	19	26	22	24
25	19	27	17	22	20	25	21	26	20
19	27	21	23	26	15	21	24	21	24
25	22	25	20	23	19	25	16	22	17
20	23	16	32	20	22	15	25	18	20
18	21	24	17	24	21	25	17	20	25
22	24	21	24	22	18	30	21	17	21
19	23	15	19	24	15	21	16	23	17
15	17	20	25	19	29	17	31	16	22
25	21	27	22	15	19	25	21	23	26
20	24	17	28	25	24	20	26	18	23
22	19	25	21	15	21	27	25	22	20
25	22	30	23	20	18	24	20	28	23
19	24	20	16	33	24	15	25	23	21
22	29	24	20	25	18	27	25	19	24

Max - 34

Min - 15

85% - 25

Ave - 22

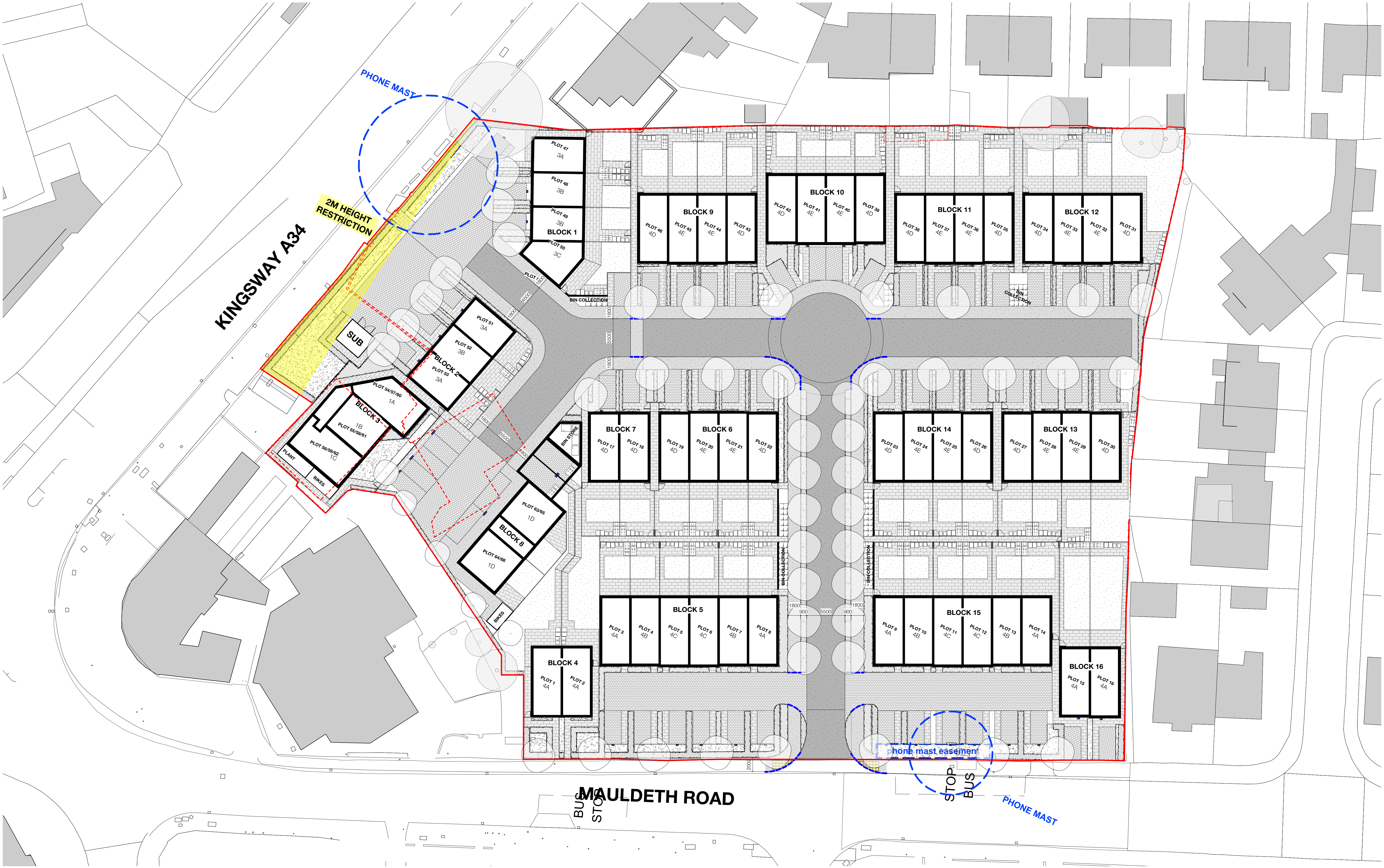
Sp. Limit - 30

28 - Cars/LGV's

18 - HGV's/PSV's



Appendix B: Proposed Site Layout



PROPOSED SITE PLAN
1:250@A1

0 5 10 15 20 25 M

N

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IMPORTANT NOTES:

E	13/01/25	AMENDED PATHS AND BIN AND BIKE LOCATIONS
D	23/12/24	GENERAL AMENITIES
C	06/12/24	GENERAL AMENDMENTS
B	11/11/24	ADDED AREA SCHEDULE
A	05/11/24	EXTENDED ADOPTED ROAD
REVISION	DATE	DESCRIPTION

CLIENT: VIEWS	
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT	
ADDRESS: BURNAGE CRICKET CLUB, M19 1AX	
DRAWING TITLE: PROPOSED SITE PLAN	
SCALE: 1:250@A1	DATE: AUGUST 2024
DRAWING NO: A815_P_100E	

OLLIER SMURTHWAITE ARCHITECTS

40 King Street, Manchester, M2 6BA
T: 0161 883 0839
F: 0161 883 0839
E: mail@olliersmurthwaite.com



Appendix C: Road Safety Audit

Mauldeth Road
Burnage
S278 & S38

Road Safety Audit
Stage 1 Report



Contents

- 1.0 Project details
- 2.0 Introduction
- 3.0 Items raised at previous road safety audits
- 4.0 Items raised at this stage 1 road safety audit
- 5.0 Audit team statement
- 6.0 List of documents presented for road safety audit
- 7.0 Scheme plan

1.0 Project details

Report title:	Mauldeth Road – Burnage – S278 & S38 Road Safety Audit - Stage 1 Report
Date:	27 th November 2024
Document reference and revision:	MRB/CBO/1/0
Prepared by:	Network Road Safety Limited
On behalf of:	CBO Transport Ltd

2.0 Introduction

Site location:

Mauldeth Road, Burnage, Manchester.

Scheme purpose:

The proposed works are the highway elements to a scheme to develop land adjacent to Mauldeth Road, Burnage. The proposals comprise construction of a priority junction on Mauldeth Road. The works are to provide access to a proposed residential housing development.

The RSA was instructed by Steve Bowers, CBO Transport Ltd.

The RSA team membership consisted:

D Ramsden DipASM CertAI FIHIE FARRM
Network Road Safety Limited
HE Certificate of Competency

Sarah Hancock
Network Road Safety Ltd

The site was visited on 21st November 2024, during which the weather was dry. The road surface was dry. Traffic conditions were considered light and free flowing.

The terms of reference of this report are as described within GG119. The road safety audit team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

No departures from standard have been brought to the attention of the road safety audit team regarding the scheme as presented.

3.0 Items raised at previous road safety audits

No previous road safety audits have been carried out on the scheme as presented.

4.0 Items raised at this stage 1 road safety audit

No significant road safety problems were identified during this stage 1 road safety audit

5.0 Audit team statement

We certify that this road safety audit has been carried out in accordance with GG 119	
Road Safety Audit Team Leader	
Name:	David Ramsden
Signed:	
Position:	Director
Organisation:	Network Road Safety Limited
Date:	26 th November 2024
Road Safety Audit Team Member(s)	
Name:	Sarah Hancock
Signed:	
Position:	Consultant Road Safety Engineer
Organisation:	Network Road Safety Limited
Date:	27 th November 2024

6.0 List of documents presented for road safety audit

CBO-0827-002	Stage 1 Road Safety Audit Brief
A815_P_100B	Proposed Site Plan

7.0 Scheme plan





Appendix D: TRICS Outputs

Calculation Reference: AUDIT-751701-241112-1121

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	1 days
03	SOUTH WEST	
	SM SOMERSET	1 days
05	EAST MIDLANDS	
	LE LEICESTERSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS	
	WK WARWICKSHIRE	1 days

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

CBO Transport Ltd Fountain Street Manchester

Licence No: 751701

Primary 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: No of Dwellings
Actual Range: 36 to 85 (units:)
Range Selected by User: 30 to 90 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: Selected: 3.5 to 4.50 Actual: 1.60 to 4.50

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 27/03/24

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	1 days
Tuesday	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	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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	2

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	3
Village	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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	3 days - Selected
Servicing vehicles Excluded	2 days - Selected

Secondary Filtering selection:**Use Class:**

C3	5 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	3 days
10,001 to 15,000	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
50,001 to 75,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	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	1 days
1.1 to 1.5	4 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	HC-03-A-17 CANADA WAY LIPHOOK	HOUSES & FLATS		HAMPSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 36 Survey date: THURSDAY 12/11/15 Survey Type: MANUAL			
2	LE-03-A-02 MELBOURNE ROAD IBSTOCK	DETACHED & OTHERS		LEICESTERSHIRE
	Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 85 Survey date: THURSDAY 28/06/18 Survey Type: MANUAL			
3	NT-03-A-08 WIGHAY ROAD HUCKNALL	DETACHED HOUSES		NOTTINGHAMSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 36 Survey date: MONDAY 18/10/21 Survey Type: MANUAL			
4	SM-03-A-02 HYDE LANE NEAR TAUNTON CREECH SAINT MICHAEL	MIXED HOUSES		SOMERSET
	Neighbourhood Centre (PPS6 Local Centre) Village Total No of Dwellings: 42 Survey date: TUESDAY 25/09/18 Survey Type: MANUAL			
5	WK-03-A-04 DALEHOUSE LANE KENILWORTH	DETACHED HOUSES		WARWICKSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 49 Survey date: FRIDAY 27/09/19 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/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL VEHICLES
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.71

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	5	50	0.073	5	50	0.315	5	50	0.388
08:00 - 09:00	5	50	0.181	5	50	0.395	5	50	0.576
09:00 - 10:00	5	50	0.133	5	50	0.210	5	50	0.343
10:00 - 11:00	5	50	0.125	5	50	0.157	5	50	0.282
11:00 - 12:00	5	50	0.153	5	50	0.141	5	50	0.294
12:00 - 13:00	5	50	0.153	5	50	0.185	5	50	0.338
13:00 - 14:00	5	50	0.177	5	50	0.173	5	50	0.350
14:00 - 15:00	5	50	0.214	5	50	0.165	5	50	0.379
15:00 - 16:00	5	50	0.282	5	50	0.173	5	50	0.455
16:00 - 17:00	5	50	0.290	5	50	0.198	5	50	0.488
17:00 - 18:00	5	50	0.343	5	50	0.226	5	50	0.569
18:00 - 19:00	5	50	0.270	5	50	0.165	5	50	0.435
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.394			2.503			4.897

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.*

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Parameter summary

Trip rate parameter range selected:	36 - 85 (units:)
Survey date date range:	01/01/10 - 27/03/24
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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL OGVS
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	5	50	0.004	5	50	0.000	5	50	0.004
08:00 - 09:00	5	50	0.008	5	50	0.004	5	50	0.012
09:00 - 10:00	5	50	0.000	5	50	0.004	5	50	0.004
10:00 - 11:00	5	50	0.004	5	50	0.004	5	50	0.008
11:00 - 12:00	5	50	0.004	5	50	0.000	5	50	0.004
12:00 - 13:00	5	50	0.012	5	50	0.012	5	50	0.024
13:00 - 14:00	5	50	0.004	5	50	0.008	5	50	0.012
14:00 - 15:00	5	50	0.000	5	50	0.000	5	50	0.000
15:00 - 16:00	5	50	0.000	5	50	0.000	5	50	0.000
16:00 - 17:00	5	50	0.000	5	50	0.000	5	50	0.000
17:00 - 18:00	5	50	0.000	5	50	0.004	5	50	0.004
18:00 - 19:00	5	50	0.004	5	50	0.004	5	50	0.008
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.040			0.040			0.080

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.*

CBO Transport Ltd Fountain Street Manchester

Licence No: 751701

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

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	5	50	0.004	5	50	0.008	5	50	0.012
08:00 - 09:00	5	50	0.024	5	50	0.004	5	50	0.028
09:00 - 10:00	5	50	0.004	5	50	0.008	5	50	0.012
10:00 - 11:00	5	50	0.004	5	50	0.004	5	50	0.008
11:00 - 12:00	5	50	0.000	5	50	0.000	5	50	0.000
12:00 - 13:00	5	50	0.008	5	50	0.000	5	50	0.008
13:00 - 14:00	5	50	0.004	5	50	0.000	5	50	0.004
14:00 - 15:00	5	50	0.004	5	50	0.000	5	50	0.004
15:00 - 16:00	5	50	0.000	5	50	0.028	5	50	0.028
16:00 - 17:00	5	50	0.004	5	50	0.004	5	50	0.008
17:00 - 18:00	5	50	0.016	5	50	0.028	5	50	0.044
18:00 - 19:00	5	50	0.012	5	50	0.008	5	50	0.020
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.084			0.092			0.176

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.

CBO Transport Ltd Fountain Street Manchester

Licence No: 751701

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLE OCCUPANTS

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	5	50	0.085	5	50	0.363	5	50	0.448
08:00 - 09:00	5	50	0.222	5	50	0.613	5	50	0.835
09:00 - 10:00	5	50	0.153	5	50	0.262	5	50	0.415
10:00 - 11:00	5	50	0.141	5	50	0.181	5	50	0.322
11:00 - 12:00	5	50	0.185	5	50	0.169	5	50	0.354
12:00 - 13:00	5	50	0.206	5	50	0.246	5	50	0.452
13:00 - 14:00	5	50	0.202	5	50	0.206	5	50	0.408
14:00 - 15:00	5	50	0.274	5	50	0.206	5	50	0.480
15:00 - 16:00	5	50	0.407	5	50	0.222	5	50	0.629
16:00 - 17:00	5	50	0.403	5	50	0.250	5	50	0.653
17:00 - 18:00	5	50	0.440	5	50	0.298	5	50	0.738
18:00 - 19:00	5	50	0.343	5	50	0.230	5	50	0.573
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.061			3.246			6.307

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.

CBO Transport Ltd Fountain Street Manchester

Licence No: 751701

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

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	5	50	0.032	5	50	0.065	5	50	0.097
08:00 - 09:00	5	50	0.073	5	50	0.242	5	50	0.315
09:00 - 10:00	5	50	0.105	5	50	0.056	5	50	0.161
10:00 - 11:00	5	50	0.020	5	50	0.056	5	50	0.076
11:00 - 12:00	5	50	0.040	5	50	0.036	5	50	0.076
12:00 - 13:00	5	50	0.028	5	50	0.040	5	50	0.068
13:00 - 14:00	5	50	0.016	5	50	0.024	5	50	0.040
14:00 - 15:00	5	50	0.032	5	50	0.040	5	50	0.072
15:00 - 16:00	5	50	0.250	5	50	0.109	5	50	0.359
16:00 - 17:00	5	50	0.052	5	50	0.044	5	50	0.096
17:00 - 18:00	5	50	0.077	5	50	0.056	5	50	0.133
18:00 - 19:00	5	50	0.036	5	50	0.052	5	50	0.088
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.761			0.820			1.581

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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL PUBLIC TRANSPORT USERS
 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	5	50	0.000	5	50	0.065	5	50	0.065
08:00 - 09:00	5	50	0.000	5	50	0.028	5	50	0.028
09:00 - 10:00	5	50	0.008	5	50	0.012	5	50	0.020
10:00 - 11:00	5	50	0.004	5	50	0.004	5	50	0.008
11:00 - 12:00	5	50	0.004	5	50	0.008	5	50	0.012
12:00 - 13:00	5	50	0.000	5	50	0.004	5	50	0.004
13:00 - 14:00	5	50	0.008	5	50	0.000	5	50	0.008
14:00 - 15:00	5	50	0.000	5	50	0.000	5	50	0.000
15:00 - 16:00	5	50	0.052	5	50	0.020	5	50	0.072
16:00 - 17:00	5	50	0.036	5	50	0.000	5	50	0.036
17:00 - 18:00	5	50	0.024	5	50	0.016	5	50	0.040
18:00 - 19:00	5	50	0.032	5	50	0.000	5	50	0.032
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.168			0.157			0.325

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.71

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	5	50	0.121	5	50	0.500	5	50	0.621
08:00 - 09:00	5	50	0.319	5	50	0.887	5	50	1.206
09:00 - 10:00	5	50	0.270	5	50	0.339	5	50	0.609
10:00 - 11:00	5	50	0.169	5	50	0.246	5	50	0.415
11:00 - 12:00	5	50	0.230	5	50	0.214	5	50	0.444
12:00 - 13:00	5	50	0.242	5	50	0.290	5	50	0.532
13:00 - 14:00	5	50	0.230	5	50	0.230	5	50	0.460
14:00 - 15:00	5	50	0.310	5	50	0.246	5	50	0.556
15:00 - 16:00	5	50	0.710	5	50	0.379	5	50	1.089
16:00 - 17:00	5	50	0.496	5	50	0.298	5	50	0.794
17:00 - 18:00	5	50	0.556	5	50	0.399	5	50	0.955
18:00 - 19:00	5	50	0.423	5	50	0.290	5	50	0.713
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.076			4.318			8.394

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.

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
 MULTI-MODAL LGVS
 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	5	50	0.016	5	50	0.020	5	50	0.036
08:00 - 09:00	5	50	0.028	5	50	0.012	5	50	0.040
09:00 - 10:00	5	50	0.012	5	50	0.020	5	50	0.032
10:00 - 11:00	5	50	0.012	5	50	0.008	5	50	0.020
11:00 - 12:00	5	50	0.028	5	50	0.028	5	50	0.056
12:00 - 13:00	5	50	0.016	5	50	0.036	5	50	0.052
13:00 - 14:00	5	50	0.012	5	50	0.004	5	50	0.016
14:00 - 15:00	5	50	0.020	5	50	0.012	5	50	0.032
15:00 - 16:00	5	50	0.020	5	50	0.020	5	50	0.040
16:00 - 17:00	5	50	0.032	5	50	0.040	5	50	0.072
17:00 - 18:00	5	50	0.032	5	50	0.020	5	50	0.052
18:00 - 19:00	5	50	0.008	5	50	0.016	5	50	0.024
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.236			0.236			0.472

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.*

Calculation Reference: AUDIT-751701-241112-1109

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	1 days
	HF HERTFORDSHIRE	2 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days

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

Primary 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: No of Dwellings
Actual Range: 12 to 30 (units:)
Range Selected by User: 6 to 30 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: Selected: 1.00 to 1.75 Actual: 1.00 to 2.40

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 16/06/23

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 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 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:

Suburban Area (PPS6 Out of Centre) 3
Edge of Town 2

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 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.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included 5 days - Selected
Servicing vehicles Excluded 2 days - Selected

Secondary Filtering selection:

Use Class:

C3 5 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days
20,001 to 25,000	3 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
75,001 to 100,000	1 days
125,001 to 250,000	3 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	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:

Yes	2 days
No	3 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
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	HC-03-C-02 WORTING ROAD BASINGSTOKE	FLATS		HAMPSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 16 Survey date: THURSDAY 21/10/10 Survey Type: MANUAL			
2	HF-03-C-06 FERNDOWN ROAD WATFORD SOUTH OXHEY	BLOCKS OF FLATS		HERTFORDSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 26 Survey date: THURSDAY 08/06/23 Survey Type: MANUAL			
3	HF-03-C-08 HAYLING ROAD WATFORD SOUTH OXHEY	BLOCKS OF FLATS		HERTFORDSHIRE
	Edge of Town Residential Zone Total No of Dwellings: 22 Survey date: TUESDAY 06/06/23 Survey Type: MANUAL			
4	SF-03-C-03 TOLLGATE LANE BURY ST EDMUNDS	BLOCKS OF FLATS		SUFFOLK
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 30 Survey date: WEDNESDAY 03/12/14 Survey Type: MANUAL			
5	SH-03-C-02 ABBAY FOREGATE SHREWSBURY	BLOCK OF FLATS		SHROPSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings: 12 Survey date: FRIDAY 16/06/23 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 TOTAL VEHICLES
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.61

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	5	21	0.047	5	21	0.226	5	21	0.273
08:00 - 09:00	5	21	0.085	5	21	0.217	5	21	0.302
09:00 - 10:00	5	21	0.132	5	21	0.198	5	21	0.330
10:00 - 11:00	5	21	0.151	5	21	0.179	5	21	0.330
11:00 - 12:00	5	21	0.113	5	21	0.198	5	21	0.311
12:00 - 13:00	5	21	0.236	5	21	0.160	5	21	0.396
13:00 - 14:00	5	21	0.198	5	21	0.170	5	21	0.368
14:00 - 15:00	5	21	0.170	5	21	0.151	5	21	0.321
15:00 - 16:00	5	21	0.217	5	21	0.142	5	21	0.359
16:00 - 17:00	5	21	0.123	5	21	0.198	5	21	0.321
17:00 - 18:00	5	21	0.340	5	21	0.142	5	21	0.482
18:00 - 19:00	5	21	0.132	5	21	0.085	5	21	0.217
19:00 - 20:00	1	16	0.250	1	16	0.188	1	16	0.438
20:00 - 21:00	1	16	0.063	1	16	0.000	1	16	0.062
21:00 - 22:00	1	16	0.250	1	16	0.125	1	16	0.375
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.506			2.379			4.885

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.

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Parameter summary

Trip rate parameter range selected:

12 - 30 (units:)

Survey date date range:

01/01/10 - 16/06/23

Number of weekdays (Monday-Friday):

5

Number of Saturdays:

0

Number of Sundays:

0

Surveys automatically removed from selection:

2

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.

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL OGVS
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	5	21	0.000	5	21	0.009	5	21	0.009
08:00 - 09:00	5	21	0.000	5	21	0.000	5	21	0.000
09:00 - 10:00	5	21	0.000	5	21	0.000	5	21	0.000
10:00 - 11:00	5	21	0.000	5	21	0.000	5	21	0.000
11:00 - 12:00	5	21	0.000	5	21	0.000	5	21	0.000
12:00 - 13:00	5	21	0.009	5	21	0.009	5	21	0.018
13:00 - 14:00	5	21	0.000	5	21	0.000	5	21	0.000
14:00 - 15:00	5	21	0.009	5	21	0.009	5	21	0.018
15:00 - 16:00	5	21	0.000	5	21	0.000	5	21	0.000
16:00 - 17:00	5	21	0.000	5	21	0.000	5	21	0.000
17:00 - 18:00	5	21	0.000	5	21	0.000	5	21	0.000
18:00 - 19:00	5	21	0.000	5	21	0.000	5	21	0.000
19:00 - 20:00	1	16	0.000	1	16	0.000	1	16	0.000
20:00 - 21:00	1	16	0.000	1	16	0.000	1	16	0.000
21:00 - 22:00	1	16	0.000	1	16	0.000	1	16	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.018			0.027			0.045

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
 MULTI-MODAL CYCLISTS
 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	5	21	0.009	5	21	0.000	5	21	0.009
08:00 - 09:00	5	21	0.000	5	21	0.009	5	21	0.009
09:00 - 10:00	5	21	0.000	5	21	0.009	5	21	0.009
10:00 - 11:00	5	21	0.000	5	21	0.000	5	21	0.000
11:00 - 12:00	5	21	0.009	5	21	0.000	5	21	0.009
12:00 - 13:00	5	21	0.000	5	21	0.000	5	21	0.000
13:00 - 14:00	5	21	0.000	5	21	0.009	5	21	0.009
14:00 - 15:00	5	21	0.000	5	21	0.000	5	21	0.000
15:00 - 16:00	5	21	0.000	5	21	0.000	5	21	0.000
16:00 - 17:00	5	21	0.000	5	21	0.000	5	21	0.000
17:00 - 18:00	5	21	0.000	5	21	0.000	5	21	0.000
18:00 - 19:00	5	21	0.009	5	21	0.000	5	21	0.009
19:00 - 20:00	1	16	0.000	1	16	0.000	1	16	0.000
20:00 - 21:00	1	16	0.000	1	16	0.000	1	16	0.000
21:00 - 22:00	1	16	0.000	1	16	0.000	1	16	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.027			0.027			0.054

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
 MULTI-MODAL VEHICLE OCCUPANTS
 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	5	21	0.047	5	21	0.330	5	21	0.377
08:00 - 09:00	5	21	0.104	5	21	0.292	5	21	0.396
09:00 - 10:00	5	21	0.151	5	21	0.264	5	21	0.415
10:00 - 11:00	5	21	0.189	5	21	0.236	5	21	0.425
11:00 - 12:00	5	21	0.160	5	21	0.236	5	21	0.396
12:00 - 13:00	5	21	0.274	5	21	0.179	5	21	0.453
13:00 - 14:00	5	21	0.245	5	21	0.189	5	21	0.434
14:00 - 15:00	5	21	0.217	5	21	0.198	5	21	0.415
15:00 - 16:00	5	21	0.292	5	21	0.160	5	21	0.452
16:00 - 17:00	5	21	0.151	5	21	0.236	5	21	0.387
17:00 - 18:00	5	21	0.453	5	21	0.170	5	21	0.623
18:00 - 19:00	5	21	0.179	5	21	0.094	5	21	0.273
19:00 - 20:00	1	16	0.313	1	16	0.375	1	16	0.687
20:00 - 21:00	1	16	0.063	1	16	0.000	1	16	0.062
21:00 - 22:00	1	16	0.500	1	16	0.188	1	16	0.688
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.336			3.147			6.483

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
 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	5	21	0.000	5	21	0.019	5	21	0.019
08:00 - 09:00	5	21	0.057	5	21	0.132	5	21	0.189
09:00 - 10:00	5	21	0.019	5	21	0.075	5	21	0.094
10:00 - 11:00	5	21	0.038	5	21	0.066	5	21	0.104
11:00 - 12:00	5	21	0.019	5	21	0.009	5	21	0.028
12:00 - 13:00	5	21	0.038	5	21	0.028	5	21	0.066
13:00 - 14:00	5	21	0.019	5	21	0.009	5	21	0.028
14:00 - 15:00	5	21	0.028	5	21	0.009	5	21	0.037
15:00 - 16:00	5	21	0.057	5	21	0.019	5	21	0.076
16:00 - 17:00	5	21	0.038	5	21	0.047	5	21	0.085
17:00 - 18:00	5	21	0.038	5	21	0.019	5	21	0.057
18:00 - 19:00	5	21	0.009	5	21	0.009	5	21	0.018
19:00 - 20:00	1	16	0.000	1	16	0.000	1	16	0.000
20:00 - 21:00	1	16	0.000	1	16	0.000	1	16	0.000
21:00 - 22:00	1	16	0.000	1	16	0.000	1	16	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.360			0.441			0.801

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
 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	5	21	0.000	5	21	0.038	5	21	0.038
08:00 - 09:00	5	21	0.000	5	21	0.113	5	21	0.113
09:00 - 10:00	5	21	0.000	5	21	0.019	5	21	0.019
10:00 - 11:00	5	21	0.009	5	21	0.009	5	21	0.018
11:00 - 12:00	5	21	0.000	5	21	0.019	5	21	0.019
12:00 - 13:00	5	21	0.009	5	21	0.019	5	21	0.028
13:00 - 14:00	5	21	0.000	5	21	0.028	5	21	0.028
14:00 - 15:00	5	21	0.028	5	21	0.019	5	21	0.047
15:00 - 16:00	5	21	0.019	5	21	0.028	5	21	0.047
16:00 - 17:00	5	21	0.066	5	21	0.000	5	21	0.066
17:00 - 18:00	5	21	0.075	5	21	0.000	5	21	0.075
18:00 - 19:00	5	21	0.047	5	21	0.000	5	21	0.047
19:00 - 20:00	1	16	0.000	1	16	0.000	1	16	0.000
20:00 - 21:00	1	16	0.000	1	16	0.000	1	16	0.000
21:00 - 22:00	1	16	0.000	1	16	0.000	1	16	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.253			0.292			0.545

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.61

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	5	21	0.057	5	21	0.387	5	21	0.444
08:00 - 09:00	5	21	0.160	5	21	0.547	5	21	0.707
09:00 - 10:00	5	21	0.170	5	21	0.368	5	21	0.538
10:00 - 11:00	5	21	0.236	5	21	0.311	5	21	0.547
11:00 - 12:00	5	21	0.189	5	21	0.264	5	21	0.453
12:00 - 13:00	5	21	0.321	5	21	0.226	5	21	0.547
13:00 - 14:00	5	21	0.264	5	21	0.236	5	21	0.500
14:00 - 15:00	5	21	0.274	5	21	0.226	5	21	0.500
15:00 - 16:00	5	21	0.368	5	21	0.208	5	21	0.576
16:00 - 17:00	5	21	0.255	5	21	0.283	5	21	0.538
17:00 - 18:00	5	21	0.566	5	21	0.189	5	21	0.755
18:00 - 19:00	5	21	0.245	5	21	0.104	5	21	0.349
19:00 - 20:00	1	16	0.313	1	16	0.375	1	16	0.687
20:00 - 21:00	1	16	0.063	1	16	0.000	1	16	0.062
21:00 - 22:00	1	16	0.500	1	16	0.188	1	16	0.688
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.979			3.912			7.891

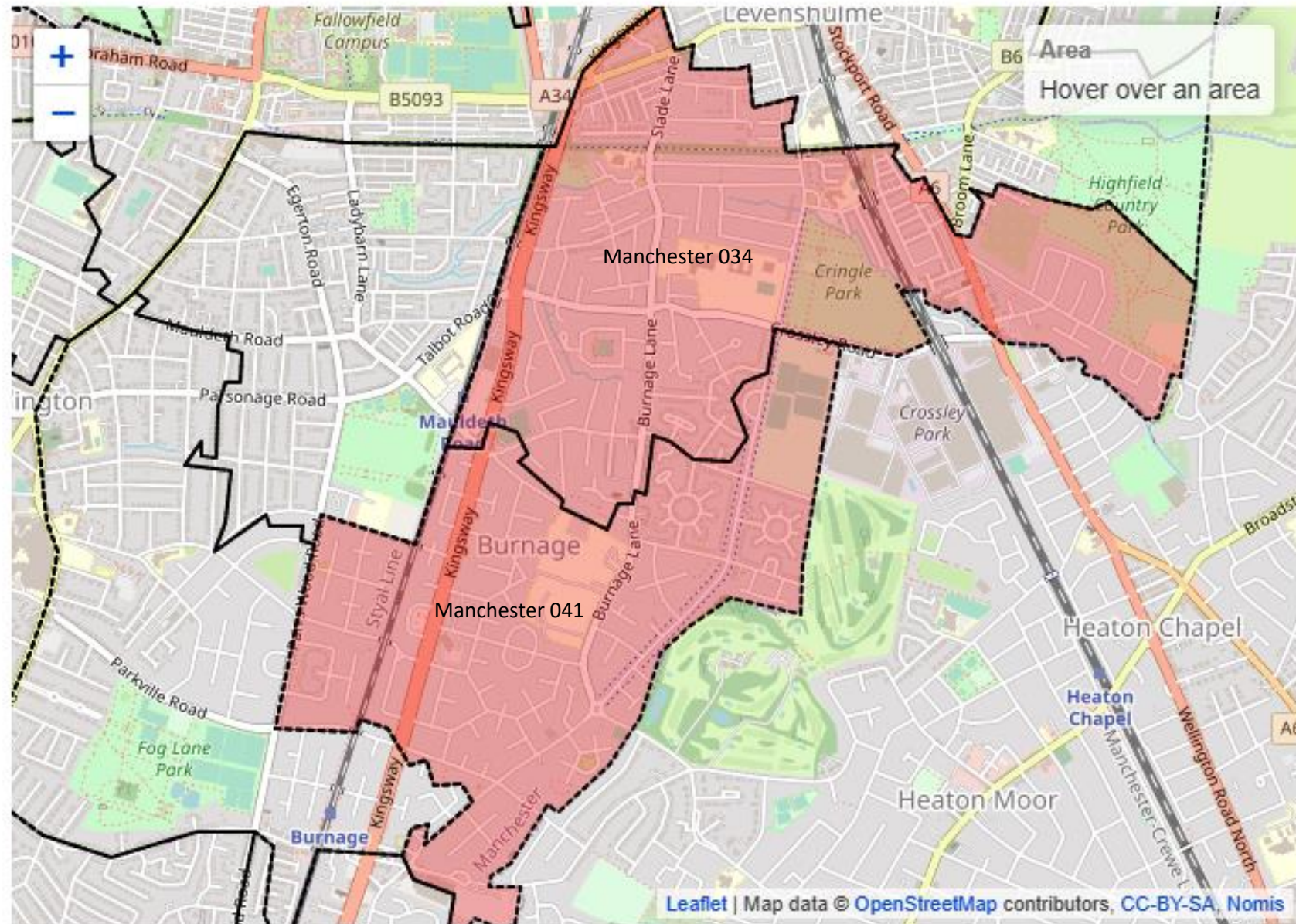
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are 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.*



Appendix E: Census Areas

Selection of areas





Appendix F: Junctions 9 Outputs: Site Access

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.5.2.1013 © Copyright TRL Limited, 2019
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Filename: Mauldeth Rd_Avon_Site Access.j9

Path:

Report generation date: 22/11/2024 09:03:21

»Proposed Access - Growthed Background Plus Dev, AM

»Proposed Access - Growthed Background Plus Dev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Proposed Access - Growthed Background Plus Dev									
Stream B-ACD	D1	0.0	7.61	0.01	A	D2	0.0	8.47	0.03	A
Stream A-BCD		0.0	5.18	0.01	A		0.0	5.46	0.02	A
Stream D-ABC		0.1	9.21	0.07	A		0.0	9.71	0.04	A
Stream C-ABD		0.0	5.32	0.02	A		0.0	4.72	0.03	A

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

File summary

File Description

Title	Mauldeth Rd / Avonlea Dr / Site Access
Location	
Site number	
Date	22/11/2024
Version	
Status	
Identifier	
Client	
Jobnumber	CBO-0827
Enumerator	
Description	

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	Veh	Veh	perHour	s	-Min	perMin
---	-----	-----	-----	---------	---	------	--------

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Growthed Background Plus Dev	AM	ONE HOUR	08:15	09:45	15
D2	Growthed Background Plus Dev	PM	ONE HOUR	16:30	18:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Proposed Access	100.000

Proposed Access - Growthed Background Plus Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.69	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Mauldeth Rd (E)		Major
B	Avonlea Drive		Minor
C	Mauldeth Rd (W)		Major
D	Proposed Site Access		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	7.25			60.0	✓	0.00
C	7.25			60.0	✓	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)	Visibility to left (m)	Visibility to right (m)
B	One lane	2.75	23	17
D	One lane	2.75	18	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/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
A-D	609	-	-	-	-	-	-	0.223	0.319	0.223	-	-	-
B-A	481	0.083	0.209	0.209	-	-	-	0.132	0.299	-	0.209	0.209	0.105
B-C	619	0.090	0.227	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	481	0.083	0.209	0.209	-	-	-	0.132	0.299	0.132	-	-	-
B-D, offside lane	481	0.083	0.209	0.209	-	-	-	0.132	0.299	0.132	-	-	-
C-B	609	0.223	0.223	0.319	-	-	-	-	-	-	-	-	-
D-A	619	-	-	-	-	-	-	0.227	-	0.090	-	-	-
D-B, nearside lane	480	0.131	0.131	0.298	-	-	-	0.209	0.209	0.083	-	-	-
D-B, offside lane	480	0.131	0.131	0.298	-	-	-	0.209	0.209	0.083	-	-	-
D-C	480	-	0.131	0.298	0.104	0.209	0.209	0.209	0.209	0.083	-	-	-

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.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Growthed Background Plus Dev	AM	ONE HOUR	08:15	09:45	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	262	100.000
B		✓	6	100.000
C		✓	242	100.000
D		✓	28	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
	A	B	C	D	
From	A	0	3	256	3
	B	2	0	4	0
	C	228	7	0	7
	D	8	0	20	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		A	B	C	D
	A	0	0	3	0
	B	0	0	0	0
	C	2	0	0	0
	D	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
08:15-08:30	A	197	203
	B	5	5
	C	182	186
	D	21	21
08:30-08:45	A	236	242
	B	5	5
	C	218	222
	D	25	25
08:45-09:00	A	288	297
	B	7	7
	C	266	271
	D	31	31
09:00-09:15	A	288	297
	B	7	7
	C	266	271
	D	31	31
09:15-09:30	A	236	242
	B	5	5
	C	218	222
	D	25	25
09:30-09:45	A	197	203
	B	5	5
	C	182	186
	D	21	21

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.01	7.61	0.0	A
A-BCD	0.01	5.18	0.0	A
A-B				
A-C				
D-ABC	0.07	9.21	0.1	A
C-ABD	0.02	5.32	0.0	A

C-D				
C-A				

Main Results for each time segment

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	5	507	0.009	4	0.0	7.164	A
A-BCD	3	699	0.004	3	0.0	5.176	A
A-B	2			2			
A-C	192			192			
D-ABC	21	451	0.047	21	0.0	8.375	A
C-ABD	7	684	0.010	7	0.0	5.320	A
C-D	5			5			
C-A	170			170			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	5	495	0.011	5	0.0	7.345	A
A-BCD	4	717	0.006	4	0.0	5.045	A
A-B	3			3			
A-C	229			229			
D-ABC	25	438	0.057	25	0.1	8.710	A
C-ABD	9	699	0.013	9	0.0	5.212	A
C-D	6			6			
C-A	202			202			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	7	479	0.014	7	0.0	7.612	A
A-BCD	5	743	0.007	5	0.0	4.874	A
A-B	3			3			
A-C	280			280			
D-ABC	31	421	0.073	31	0.1	9.214	A
C-ABD	12	721	0.017	12	0.0	5.071	A
C-D	8			8			
C-A	247			247			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	7	479	0.014	7	0.0	7.612	A
A-BCD	5	743	0.007	5	0.0	4.878	A
A-B	3			3			
A-C	280			280			
D-ABC	31	421	0.073	31	0.1	9.215	A
C-ABD	12	721	0.017	12	0.0	5.076	A

C-D	8			8			
C-A	247			247			

09:15 - 09:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	5	495	0.011	5	0.0	7.345	A
A-BCD	4	717	0.006	4	0.0	5.055	A
A-B	3			3			
A-C	229			229			
D-ABC	25	438	0.057	25	0.1	8.717	A
C-ABD	9	699	0.013	9	0.0	5.218	A
C-D	6			6			
C-A	202			202			

09:30 - 09:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	5	507	0.009	5	0.0	7.168	A
A-BCD	3	699	0.004	3	0.0	5.180	A
A-B	2			2			
A-C	192			192			
D-ABC	21	451	0.047	21	0.0	8.386	A
C-ABD	7	684	0.010	7	0.0	5.323	A
C-D	5			5			
C-A	170			170			

Proposed Access - Growthed Background Plus Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Growthed Background Plus Dev	PM	ONE HOUR	16:30	18:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	249	100.000
B		✓	12	100.000
C		✓	417	100.000
D		✓	13	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		A	B	C	D
From	A	0	4	239	6
	B	6	0	6	0
	C	394	10	0	13
	D	4	0	9	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A	B	C	D
From	A	0	0	1	0
	B	0	0	0	0
	C	1	0	0	0
	D	0	0	0	0

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (Veh/hr)	Demand in PCU (PCU/hr)
16:30-16:45	A	187	189
	B	9	9
	C	314	317
	D	10	10
16:45-17:00	A	224	226
	B	11	11
	C	375	378
	D	12	12
17:00-17:15	A	274	277
	B	13	13
	C	459	463
	D	14	14
17:15-17:30	A	274	277
	B	13	13

	C	459	463
	D	14	14
17:30-17:45	A	224	226
	B	11	11
	C	375	378
	D	12	12
17:45-18:00	A	187	189
	B	9	9
	C	314	317
	D	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.03	8.47	0.0	A
A-BCD	0.02	5.46	0.0	A
A-B				
A-C				
D-ABC	0.04	9.71	0.0	A
C-ABD	0.03	4.72	0.0	A
C-D				
C-A				

Main Results for each time segment

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	9	472	0.019	9	0.0	7.779	A
A-BCD	6	665	0.009	6	0.0	5.463	A
A-B	3			3			
A-C	178			178			
D-ABC	10	427	0.023	10	0.0	8.632	A
C-ABD	12	775	0.016	12	0.0	4.719	A
C-D	10			10			
C-A	292			292			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	11	458	0.024	11	0.0	8.054	A
A-BCD	8	678	0.012	8	0.0	5.373	A
A-B	4			4			
A-C	212			212			
D-ABC	12	409	0.029	12	0.0	9.055	A
C-ABD	16	809	0.020	16	0.0	4.539	A
C-D	11			11			

C-A	347			347			
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17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	13	438	0.030	13	0.0	8.471	A
A-BCD	11	696	0.015	11	0.0	5.250	A
A-B	4			4			
A-C	259			259			
D-ABC	14	385	0.037	14	0.0	9.708	A
C-ABD	23	857	0.027	23	0.0	4.314	A
C-D	14			14			
C-A	422			422			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	13	438	0.030	13	0.0	8.471	A
A-BCD	11	696	0.015	11	0.0	5.254	A
A-B	4			4			
A-C	259			259			
D-ABC	14	385	0.037	14	0.0	9.710	A
C-ABD	23	857	0.027	23	0.0	4.316	A
C-D	14			14			
C-A	422			422			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	11	458	0.024	11	0.0	8.057	A
A-BCD	8	678	0.012	8	0.0	5.378	A
A-B	4			4			
A-C	212			212			
D-ABC	12	409	0.029	12	0.0	9.059	A
C-ABD	16	809	0.020	17	0.0	4.544	A
C-D	11			11			
C-A	347			347			

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	9	472	0.019	9	0.0	7.783	A
A-BCD	6	665	0.009	6	0.0	5.465	A
A-B	3			3			
A-C	178			178			
D-ABC	10	427	0.023	10	0.0	8.639	A
C-ABD	12	775	0.016	13	0.0	4.721	A
C-D	10			10			
C-A	292			292			