

Proposed Residential Development Land off Greenvale, Bamford (Within JPA17 Allocation)

784-B068938

Transport Assessment

Revision 02

April 2025

Wain Homes Ltd



TETRA TECH

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1.0 Introduction

1.1 Background

- 1.1.1 Tetra Tech (TT) has been appointed by Wain Homes (North West) Ltd to provide transport planning advice in relation to a proposed residential development, on land off Greenvale, Bamford, Rochdale.
- 1.1.2 **Plan 1** shows the site location in a wider geographical context, whilst **Plan 2** shows the site location in a local geographical context, along with the local highway network.
- 1.1.3 The proposals are for 43 dwellings, with the proposed site access taken from Greenvale (Application Site). The application for the 43 dwellings is a detailed/full application. The proposed site layout is attached in **Appendix A**. Of the 43 dwellings proposed, 7 are affordable homes.
- 1.1.4 The proposals form part of 'JPA17 - Bamford and Norden' (Allocation Site) which is an allocated site within Places for Everyone Joint Development Plan (2022 to 2039) document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan, which was adopted on 21st March 2024. The full JPA17 allocation is for around 450 homes and enhanced sports pitches.
- 1.1.5 Rochdale Metropolitan Borough Council (RMBC) act as both the Local Planning Authority (LPA) and the Local Highway Authority (LHA).
- 1.1.6 Transport for Greater Manchester (TfGM) is the local government body responsible for co-ordinating transport services throughout the Greater Manchester (GM).
- 1.1.7 The purpose of this Transport Assessment (TA) is to appraise the LHA of the anticipated transport and highway impacts of the proposals on the local transport and highway network, resulting from the proposed 43 dwellings.
- 1.1.8 Additionally, a Framework Travel Plan (FTP) has been prepared and is submitted as part of the planning application.

1.2 Pre-Application Scoping

- 1.2.1 The transport work to support this planning application has been scoped with LPA, the LHA and TfGM.
- 1.2.2 An initial scoping package was submitted by TT to RMBC and TfGM on 21.11.2024, see **Appendix B**. The initial scoping package sought to scope the contents of a Transport Statement, which would typically be provided for a 43-dwelling proposal.
- 1.2.3 A Transport pre-app meeting was then held on 27.11.2024, between the applicant, the planning consultant on behalf of the applicant, TT, TfGM, the LHA and the LPA. Following the meeting, TfGM scoping comments were provided to TT on 02.12.2024 (albeit they are erroneously dated 01.11.2024), see **Appendix C**.
- 1.2.4 At the pre-application meeting and within the TfGM comments, it has been requested that a Transport Assessment (TA), which considers the full allocation, is provided for the 43-dwelling

scheme. Given the TfGM request, the assessment of the full allocation (450 dwellings) is being carried out as part of this application. However, the full allocation assessment is only carried out to provide a cumulative assessment and derive suitable mitigation measures, which can then be costed proportionately for the 43-dwelling scheme. Given this, the determination of the planning application should be based on the impacts of the proposed 43 dwellings.

- 1.2.5 In terms of the cumulative assessment, TT and TfGM have been in on-going liaison between December 2024 and March 2025. This includes the TT submission of a Technical Note to identify the study area and TfGM's confirmation of the study area, which was provided to TT by RMBC on 25th March 2025. On receipt of the confirmation of the study area, traffic surveys have been booked in to be carried out in week commencing 7th April 2025.
- 1.2.6 Given the above, at the time of writing this TA (Rev 02), the Traffic Impact Assessment (TIA) has not been completed. On receipt of the traffic survey data for the study area, the TIA will be carried out and TA (Rev 03) will be submitted, during the determination period.
- 1.2.7 In view of the above, this TA (Rev 02) provides a more than adequate assessment of the proposed 43 dwellings and the updated TA (Rev 03) will provide the TIA for the full allocation (450 dwellings).

1.3 Report Structure

- 1.3.1 Following this introduction, the TA is structured as follows:
- **Section 2** outlines the national and local planning policies that are relevant to the proposed development.
 - **Section 3** set out the proposals in the context of the PfE Allocation JPA17.
 - **Section 4** describes the existing conditions of the site, including the local highway network and presents the local road safety record.
 - **Section 5** presents the developments proposals, including the proposed access and parking provision.
 - **Section 6** sets out the multimodal trip generation of the proposals in the Vision Led planning system; and
 - **Section 7** assesses the existing sustainable transport provisions relevant to the site.
 - **Section 8** describes the approach to the Traffic Impact Assessment, which will follow in an updated TA (Rev 03).
 - **Section 9** summarises and concludes this TA.

2.0 National and Local Planning Policy Context

2.1 Preamble

2.1.1 This section reviews the relevant transport planning policy and guidance documents in the context of the proposed development. This TA has been produced with due regard of the following documents:

- National Planning Policy Framework (2024);
- Rochdale: Adopted Core Strategy (2016);
- Places for Everyone – Joint Development Plan (2024); and
- Greater Manchester Transport Strategy 2040 (2021).

2.2 National Planning Policy Framework (2024)

2.2.1 The Ministry of Housing, Communities and Local Government published the revised National Planning Policy Framework (NPPF) in December 2024.

2.2.2 At the heart of the NPPF is a presumption in favour of sustainable development. In this context, it is fundamental that for new developments sustainable transport is promoted. Section 9 sets out policies for promoting sustainable transport.

2.2.3 Paragraph 109 of the NPPF states:

“Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

a) making transport considerations an important part of early engagement with local communities;

b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;

c) understanding and addressing the potential impacts of development on transport networks;

d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;

e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and

f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains

2.2.4 Paragraph 110 of the NPPF states:

“The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”

2.2.5 Paragraphs 115 and 116 of the NPPF sets out a key test for the acceptability of planning applications in relation to transport and highways.

2.2.6 Paragraph 115 of the NPPF states:

“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 Code⁴⁸; 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.”

2.2.7 Paragraph 116 of the NPPF states:

“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.”

2.3 Places for Everyone – Joint Development Plan (2024)

2.3.1 Places for Everyone (PfE) is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the Greater Manchester Combined Authority (GMCA) on behalf of the nine districts and was adopted in March 2024.

2.3.2 The transport requirements for new development are set out in Policy JP-C8, which states:

“We will require new development to be located and designed to enable and encourage walking, cycling and public transport use, to reduce the negative effects of car dependency, and help deliver high quality, attractive, liveable and sustainable environments. We will do this by:

Connectivity and Permeability

- 1. Prioritising safe and convenient access to the site and buildings for all users in accordance with the user hierarchy in Policy JP-C1 'An Integrated Network', including;*

- *Prioritising new and enhanced walking, cycling and public transport routes and stops, through and around the site. These routes should:*
 - *be direct, safe and convenient;*
 - *connect to nearby facilities, employment areas, public transport stops; and*
 - *improve the coverage, quality and integration of the wider walking and cycling infrastructure and public transport provision;*
 - *Ensuring that the layout, design and landscaping of development prioritises the provision of safe, secure and attractive access to local services and facilities for pedestrians, cyclists and people with a disability; and*
 - *Ensuring that new development is connected visually and physically; within the site and to the surrounding built environment;*
2. *Ensure appropriate connectivity to the existing highway network.*

Design

3. *Reducing the need to travel by ensuring that community facilities, services and amenities are provided within the site or within walking distance of new development;*
4. *Incorporating highway design at a human scale using street-based prescriptions such as those within Manual for Streets and/or any locally adopted design guidance, to ensure that highways do not dominate the development;*

Public Transport

5. *Ensuring (through funding improvements where appropriate) that the nearest public transport stops (both within and adjacent to the development site) are attractive to users in terms of seating, shelters, information and easy step-free access;*
6. *Subsidising new or amended public transport services where the development would otherwise have inadequate public transport access;*

Parking Infrastructure

7. *Making adequate car parking provision, including for disabled drivers and passengers;*
8. *Ensuring that car parking provision is well integrated and unobtrusive, so it supports the street scene; and where appropriate parking provision is flexible and can be adapted over time to reflect demand;*
9. *Incorporating enough secure and covered cycle parking to meet long-term demand from occupiers and visitors in a convenient location that helps to maximise its use, and for workplaces, where appropriate providing:*
- i. Showers, changing facilities and lockers for cyclists and walkers.*
 - ii. Pool or hire bikes for use by occupiers.*
 - iii. Information in advance about facilities to visitors;*
10. *Promoting alternatives to car ownership, such as the use of ULEV car clubs rather than the provision of private car parking spaces;*

11. *Promoting the increased provision of ULEV charging infrastructure including meeting any standards set by local plans.*
12. *Providing for overnight parking and rest areas, with appropriate facilities, for heavy goods vehicle drivers, where the development is likely to generate demand, and it is appropriate to the location.*

Access and Servicing

13. *Providing designated pick-up/drop-off points for taxis and other demand responsive transport services where appropriate, taking into account the potential increase in demand if car ownership falls;*
14. *Making appropriate provision for deliveries and servicing (including requiring Delivery and Servicing Plans for appropriate developments), in a way that:*
 - *meets road safety requirements,*
 - *reduces transport emissions and other environmental impacts,*
 - *reduces traffic congestion, the number of vehicle movements and the need for repeat deliveries.*

Construction Management

15. *Ensuring Construction Management Plans are produced for developments, where appropriate, to mitigate construction logistics and environmental impacts including air quality and noise on the surrounding area and encourage sustainable deliveries.*

Transport Assessments

16. *Planning applications will be accompanied by a Transport Assessment / Transport Statement and Travel Plan where appropriate, in order to assess impacts and determine the most appropriate mitigation on the SRN and local transport network. Where a Transport Assessment is required, this should start with a vision of what the development/allocation is seeking to achieve and then test a set of scenarios to determine the optimum design and transport infrastructure to realise this vision. Consultation should be undertaken, at pre-application stage, with the relevant local highway authorities to agree which committed developments / allocations and which potential transport interventions should be considered, with reference to Appendix D, as appropriate.*
17. *Planning applications which are required to be accompanied by a Transport Assessment will need to consider air quality impacts on Holcroft Moss, within the Manchester Mosses Special Area of Conservation (SAC). Any proposals that would result in increased traffic flows on the M62 past Holcroft Moss of more than 100 vehicles per day or 20 Heavy Goods Vehicles (HGVs) per day must devise a scheme-specific range of measures to reduce reliance on cars, reduce trip generation and promote ultra-low emission vehicles and provide a contribution towards restoration measures in accordance with the Holcroft Moss Habitat Mitigation Plan”*

2.3.3 The proposed 43 dwellings form part of the PfE allocation JPA17: Bamford / Norden. The wider allocation is for around 450 homes.

2.4 Rochdale Metropolitan Borough Council: Adopted Core Strategy (2016)

2.4.1 The RMBCs Core Strategy was adopted in October 2016 and is the lead document of the Council's Local Plan.

2.4.2 Policy T2 relates to improving accessibility and states:

We will improve accessibility by locating development where good access to public transport is available or can be provided, backed by measures to reduce the need for travel and effective provision for cyclists, pedestrians and people with impaired mobility. Development will be appropriately located to minimise the need to travel by car and the number and length of car trips made to access local amenities.

2.4.3 Policy C6 aims to improve health and wellbeing of the residents of the borough. In relation to transport, this will be achieved through:

- “1. Ensuring good provision of and access to a range of food shops within or adjacent to town centres, local centres and particularly those located in or able to serve deprived areas;*
- 2. Seeking to provide better access to jobs in areas with high levels of deprivation and poor health;*
- 3. Seeking high quality design of buildings, streets and spaces to create neighbourhoods that are safe to use, easy to move through, adaptable and sustainable;*
- 4. Identifying and implementing measures to reduce traffic movements and congestion to reduce air and noise pollution;*
- 5. Encouraging development that promotes active living by making places more accessible by walking, cycling and public transport; and*
- 6. Supporting the provision of health facilities and services in accessible locations that meet current and future need.”*

2.4.4 Policy DM1 relates to general development requirements within the Borough. In relation to transport, all development proposals will be expected to demonstrate that they:

- “1. Mitigate against any impacts due to noise, air, dust, light and odour pollution, traffic generation or inadequate access, where such mitigation is identified as being necessary; and*
- 2. Provide satisfactory vehicular access with adequate parking, manoeuvring, and servicing arrangements taking into account of the proposed use and location.”*

2.5 Greater Manchester Transport Strategy 2040 (2021)

2.5.1 The Greater Manchester Transport Strategy 2040 was published in February 2017 and updated in January 2021.

2.5.2 The document sets out the ‘right mix vision’:

“For 50% of trips to be made by sustainable modes, with no net increase in motor vehicle traffic, by 2040.”

2.5.3 The document describes how:

“Transport is crucial in supporting Greater Manchester’s ambitious plans, including those set out in the Greater Manchester Strategy (GMS) with its vision ‘to make Greater Manchester one of the best places in the world to grow up, get on and grow old’.”

2.5.4 Policy 4 of the Strategy states:

“We will work with developers to ensure that new developments are accessible by sustainable modes, and to reduce transport emissions and impacts on the highway network.”

2.5.5 Policy 4 also outlines how:

“Transport for Greater Manchester (TfGM) and LPAs will continue to work with developers to better integrate transport and new developments in accordance with the principles of:

- *Reducing the need to travel;*
- *Reducing the need to travel by car, and the distance travelled;*
- *Maximising accessibility by sustainable modes;*
- *Making the best use of existing infrastructure, particularly through increasing the density of development close to public transport nodes;*
- *Maximising opportunities to provide additional public transport; and*
- *Designing to encourage active travel.”*

2.6 Compliance with Policy

2.6.1 Subsequent sections of this report will describe the proposed development and the surrounding existing facilities, such as local services, pedestrian routes, cycle routes and existing public transport provisions. This will demonstrate that the proposed development complies with the guidelines and policies detailed above.

3.0 Context of the Proposals within JPA17

3.1 Overview

3.1.1 The proposals in the context of the wider allocation are shown on **Plan 2**.

3.2 Allocation Provision

3.2.1 In addition to the allocated 450 dwellings, JPA17 also includes provision which relates to transport, including the following:

- retaining and enhancing the existing recreational facilities as part of an integrated green and blue infrastructure network on the site.
- incorporating existing public rights of way along with new routes for active travel into a high quality integrated green infrastructure network that links to existing public rights of way in the countryside to the west and northwest of the site.
- making provision for new and improved sustainable transport and highways infrastructure having regard to the indicative transport interventions set out in Appendix D in accordance with policy JP-C8., i.e.,
 - Norden Road – new pedestrian crossing.
 - Bus stop upgrades at the Norden Road / War Office Road junction.
 - Active travel improvements including Furbarn Road improvements and North-South Greenway corridor through the site.

3.2.2 The wider allocation will have a main point of (vehicular) access taken from Norden Road.

3.3 Approach to Assessment and Mitigation

3.3.1 This TA which has been prepared for the 43-dwelling proposal, it takes account of the wider allocation, notwithstanding that the 43-dwelling proposals comprise a small portion (9.56%) of the 450 dwellings, which are allocated within JPA17.

3.3.2 The 43-dwelling proposals have been designed to integrate with the wider JPA17 masterplan and hence will not prejudice the remaining allocation coming forward.

3.3.3 This TA has been prepared to broadly align with the GM Transport Strategy ‘Right Mix Vision’, see Section 2.

3.3.4 This TA includes the proposed off-site sustainable transport measures for the full JPA17 allocation (450 dwelling), in accordance with PFE Appendix D. The applicant is willing to contribute to the proportionate costs associated with the delivery of those measures (see Section 7.2 for details).

3.3.5 A further revision to this TA will be provided, including the traffic impacts of the full allocation. Should that assessment result in a need for highway mitigation measures, again the applicant is willing to contribute to the proportionate costs associated with the delivery of those measures.

4.0 Existing Conditions

4.1 Existing Site

- 4.1.1 The proposed site is located approximately 500m (straight-line distance) northwest of Bamford village centre. **Plan 2** shows the approximate extent of the application site in red, whilst the wider JPA17 allocation extent is shown in blue.
- 4.1.2 The site has an approximate area of 2.7ha and is currently undeveloped land.
- 4.1.3 The proposed site is bounded by residential dwellings to the north and by the wider JPA17 allocation to the east, south and west.

4.2 Local Highway Network

- 4.2.1 As shown on **Plan 2**, the key roads which will be utilised to access the site are Greenvale, Bramley Road, Norford Way, Clay Lane and the Norden Road / Bagslate Moor Road corridor. The characteristics of each of those roads are set out below.

Greenvale

- 4.2.2 Greenvale is a residential street which extends in an east to west direction, to the north of the application site. It extends over c.370m between Norford Way in the east and Clay Lane, in the northwest.
- 4.2.3 It is a c.5.5m wide, two-way single carriageway road which is subject to a 30mph speed limit.
- 4.2.4 It features street-lit footways, c.2m wide along both sides of the road. Driveway crossings of the footway are provided throughout its extent.

Bramley Road

- 4.2.5 Bramley Road is a residential street which extends in a north to south direction, between Clay Lane in the north and Greenvale in the south.
- 4.2.6 It is a c.5 to 5.5m wide, two-way single carriageway road which is subject to a 30mph speed limit.
- 4.2.7 It features street-lit footways, c.2m wide along both sides of the road. Driveway crossings of the footway are provided throughout its extent.

Norford Way

- 4.2.8 Norford Way is a residential street which extends in a general south-east to north-west direction, between Norden Road in the south-east and to its termination c. 50m north of its junction with Greenvale.
- 4.2.9 It is a c.5.5 to 6m wide, two-way single carriageway road which is subject to a 30mph speed limit.
- 4.2.10 It features street-lit footways, c.2m wide along both sides of the road. Driveway crossings of the footway are provided throughout its extent.

Clay Lane

- 4.2.11 Clay Lane is local connector street, with some frontage residential development. It extends generally in an east to west direction, between Bagslate Moor Road in the east and Furbarn Road in the west.
- 4.2.12 It is a c.5 to 6m wide, two-way single carriageway road which is subject to a 30mph speed limit.
- 4.2.13 It features street-lit footways, c.2m wide along both sides of the road. Driveway crossings of the footway are provided throughout the sections with residential frontages.

Bagslate Moor Road/ Norden Road Corridor

- 4.2.14 Bagslate Moor Road/ Norden Road extends generally in a north to south direction, from the A680 in the north, to Bury and Rochdale Old Road in the south.
- 4.2.15 It is a typically 6-7m wide, two-way single carriageway road and is subject to a 30mph speed limit.
- 4.2.16 It features street-lit footways, c.2m wide along both sides of the road. Driveway crossings of the footway are provided throughout its extent.
- 4.2.17 Signalised pedestrian crossings are located at the Norden Road/ Bury and Rochdale Old Road junction and at the Bamford shopping precinct, while pedestrian islands are located at the Bagslate Moor Road/ A680 junction.
- 4.2.18 It is also a bus route and features bus stops.

4.3 Surveyed Traffic Flows – November 2024

- 4.3.1 To inform this TS, two 7-day Automated Traffic Count (ATC) have been carried out on Greenvale, on either side of the proposed site access, between 04/11/24 and 11/11/24. The ATC raw data is shown in **Appendix D**. The eastern ATC was located to the east of Bramley Road, to obtain the westbound approach speeds and the western ATC was located to the west of Linnell Road to obtain the eastbound approach speeds.
- 4.3.2 The ATCs recorded traffic volumes and speeds, including 85th percentile speeds.
- 4.3.3 The 2024 recorded AM and PM peak hour traffic volumes along Greenvale are set out in **Table 4.1**.

Table 4.1 – Greenvale 2024 Survey Results: Weekday Average Peak Hour Traffic Volumes

Direction of Travel	Eastern ATC		Western ATC	
	08:00-09:00	17:00-18:00	08:00-09:00	16:00-18:00
Westbound	30	62	9	14
Eastbound	62	36	11	9
Two-way	92	98	20	23

- 4.3.4 **Table 4.1** demonstrates that Greenvale is lightly trafficked, with just 1.5 trips per minute in the AM peak and 2 trips per minute in the PM peak (two-way).
- 4.3.5 **Table 4.2** summarises the average and 85th percentile speeds recorded on Greenvale.

Table 3.2 – Greenvale 2024 Survey Results: Vehicle Speeds (mph)

Speed Type	Eastbound Speeds (Western ATC)	Westbound speeds (Eastern ATC)
Average	16.7	18.3
85 th Percentile	22.1	23.1

4.3.6 As can be seen the observed speeds on Greenvale are well below the speed limit of the road (30mph).

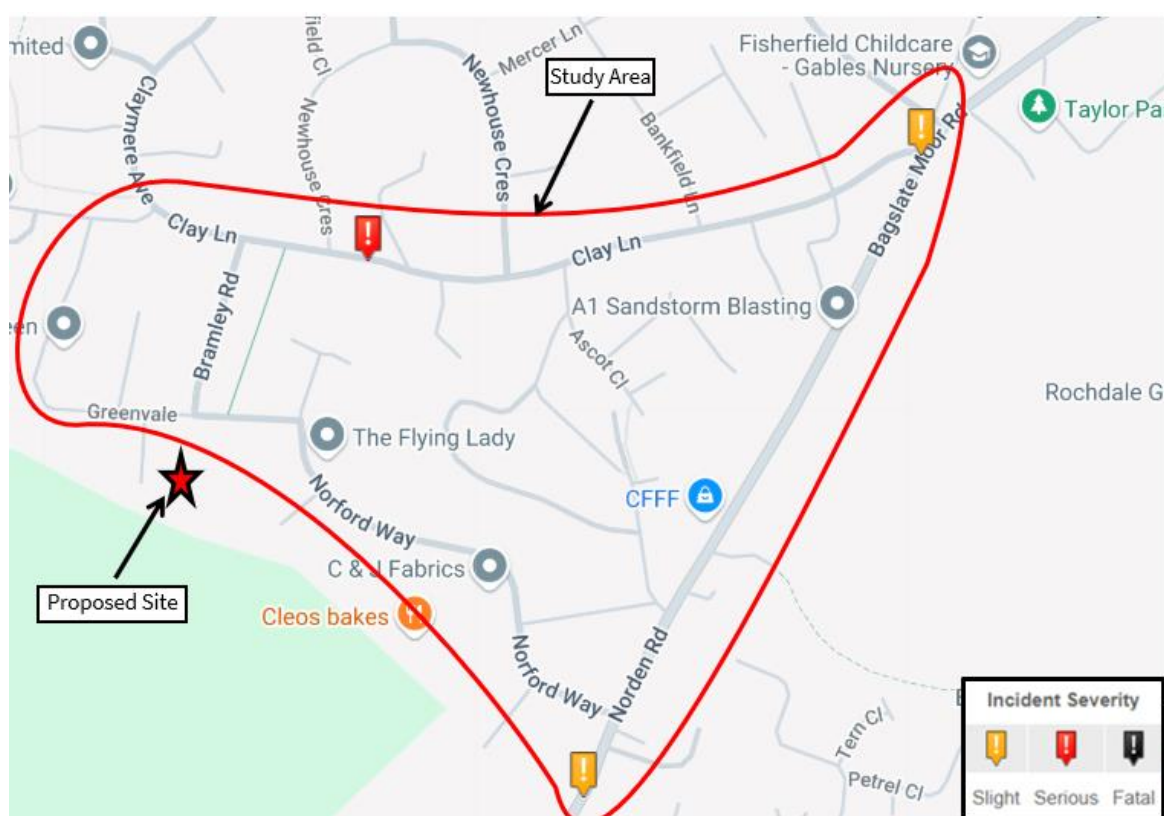
4.3.7 The recorded 85th percentile approach speeds inform the visibility splays at the proposed site access (see **Section 5.3**).

4.4 Personal Injury Accident Review

4.4.1 Personal Injury Accident (PIA) data was obtained from the web resource CrashMap (www.crashmap.co.uk) for the most up to date 5-year period, namely 2019 to 2023.

4.4.2 The locations and severity of PIAs in the vicinity of the proposed site are shown in **Image 4.1**.

Image 4.1 – Review of CrashMap PIA Data Source: Crashmap.co.uk



4.4.3 **Image 4.1** shows that during the seven-year period reviewed, there were three recorded PIAs within the study area. All PIAs recorded along Bagslate Moor Road/ Norden Road were classified as 'slight'. Only 1 'serious' was recorded along Clay Lane and no 'Fatal' incidents.

4.4.4 A summary of the PIA data obtained from CrashMap is summarised in **Table 4.1**.

Table 4.1 – Summary of PIA Data from CrashMap

Severity	2019	2020	2021	2022	2023	Total
Slight	0	1	1	0	0	2
Serious	0	0	0	0	1	1
Fatal	0	0	0	0	0	0
Total	0	1	1	0	1	3

- 4.4.5 **Image 4.1** and **Table 4.1** show there are no obvious clusters of PIAs which might suggest an existing road safety problem.
- 4.4.6 The incident recorded as ‘Serious’ was recorded on 18/07/2023 and involved one vehicle and one pedestrian.
- 4.4.7 Overall, the road network near the proposals has a very good safety record. It is concluded there are no existing road safety problems which could be exacerbated by the proposed development.

5.0 Proposed Development

5.1 Development Proposals

- 5.1.1 The proposals are for 43 dwellings adjacent to the existing residential area of Bamford. The site layout for the proposed development is shown in **Appendix A**. The application for the 43 dwellings will be in full.
- 5.1.2 The proposals comprise:
- 7 x 2-bedroom dwellings (affordable)
 - 12 x 3-bedroom dwellings
 - 8 x 4-bedroom dwellings
 - 16 x 5-bedroom dwellings.

5.2 On-Site Layout

- 5.2.1 The proposed layout on site has been designed in accordance with the principles set out in Manual for Streets.
- 5.2.2 The layout has been designed to allow future connections to the wider JPA17 allocations to be made.
- 5.2.3 Swept path analysis has been carried out with a large refuse vehicle (11.2m) at the proposed on-site turning heads, see Drawing TR-O-003 (**Appendix E**). The swept path analysis shows that a large refuse vehicle can turn on-site without overrunning the kerb.
- 5.2.4 The forward SSDs have been assessed on the two bends on the internal road layout, see drawings TR-O-003-01 and TR-O-003-02 (**Appendix E**). The SSDs of 25m and 19m will assist in self-enforcing low speeds on site.

5.3 Access Arrangements

Vehicular Access

- 5.3.1 Access is proposed via a simple priority junction onto Greenvale. The proposed site access is shown in Drawing DR-O-001, in **Appendix F**.
- 5.3.2 The design features a site access road with a 5.5m wide carriageway, with 6m kerb radii tying into Greenvale.
- 5.3.3 To inform the assessment of visibility splays to be provided at the site junction, the recorded 85th percentile approach speeds on Greenvale (set out in **Section 3.3**) have been applied to the Stopping Sight Distance (SSD) formula set out in MfS, as follows:
- For the eastbound approach speed of 22.5mph, MfS suggests a visibility splay of 2.4 x 26.3m, looking to the left.
 - For the westbound approach speed of 23.1mph, MfS suggests a visibility splay of 2.4 x 27.4m, looking to the right.

- 5.3.4 Drawing DR-O-001 shows that these visibility splays are achieved at the proposed site access junction.
- 5.3.5 Drawing DR-O-001 also shows the achievable visibility splays within the extents of the adopted highway, which are 2.4 x 43m and 2.4 x 57m to the left and right, respectively.
- 5.3.6 Swept path analysis has been carried out at the site access junction, using a large refuse vehicle, see Drawing TR-O-002 (**Appendix G**). The swept path analysis shows that a large refuse vehicle can manoeuvre through the junction without conflicting with footways.
- 5.3.7 The swept path analysis also shows that the large refuse vehicle will have to cross into the opposing lane when manoeuvring in/ out of the site access. This would only occur a nominal number of times a week, typically outside the peak hours. This is typical for residential streets and is recognised within Manual for Streets.
- 5.3.8 The site access drawing was provided to the LHA and TfGM as part of the pre-application submission (**Appendix B**) and no adverse comments on the access and tracking were provided in the TfGM pre-application response (**Appendix C**).
- 5.3.9 Within the February 2025 trip generation and distribution scoping submission to TfGM, the proposed site access was scoped in, for junction capacity testing. However, at that a larger development quantum was being considered.
- 5.3.10 The peak traffic generation of the 43 dwellings proposed is 20 (AM) and 18 (PM) two-way trip (see **Table 8.1**) and surveyed traffic volumes on Greenvale in the vicinity of the site access are just 20 (AM) and 23 (PM) two-way (see **Table 4.1**, Western ATC). Given this, level of vehicular trip making, it is clear that the site access junction will operate well within its capacity and consequently, a modelling assessment of this junction is not justified.

Pedestrian Access

- 5.3.11 The main access onto Greenvale will include a 2m wide footway on both sides, which will tie into the existing footway. This access suitably provides for pedestrians at the proposed development.
- 5.3.12 The proposed site layout (**Appendix A**) also shows a pedestrian route within application boundary towards the PRoW which extends north to south, to the east of the application boundary. The LHA may choose to deliver the onward connection to the PRoW, which is outside of the boundary and the onward connection will be provided as the wider JPA17 allocation is brought forward. For the avoidance of doubt, the proposals are not reliant on this connection to the PRoW being made, as suitable pedestrian routes are provided through the site, to Greenvale where the existing footway network can be reached.

5.4 Parking Provision

- 5.4.1 The parking schedule for the proposals is shown on the site layout plan (**Appendix A**). The proposed parking provision is summarised in **Table 6.1**, alongside the RMBC minimum parking standards, as set out in Appendix 5 of the adopted Core Strategy.

Table 6.1 –Proposed Car Parking and the RMBC Car Parking Standards

Beds	No. Dwellings	External Spaces per dwelling	Garage provision	Total Spaces per Dwelling	Parking Standards
2	7	2		2	2 per dwelling
3	12	2		2	2 per dwelling
4	8	2	single garage	3	2 per dwelling
5	10	2	single garage	3	2 per dwelling
5	6	2	double garage	4	2 per dwelling
Total	43	86	30	116	86

- 5.4.2 **Table 6.1** demonstrates that the proposals will provide parking in accordance with the RMBC minimum parking standards.
- 5.4.3 The RMBC parking standards, as set out in Appendix 5 of the adopted Core Strategy, do not require any specific cycle parking. Nonetheless, **Table 6.1** demonstrates that 24 of the proposed dwellings will have garages. The single garages will be 6x3m and the double garages will be 6x6m. These garages can be used for cycle parking.

6.0 Multi-Modal Trip Generation Assessment

6.1 Preamble

- 6.1.1 To forecast the proposed developments traffic volumes, assessments of trip generation have been carried out, which are set out below.

6.2 TRICS Multi-Modal Trip Generation

- 6.2.1 To provide a starting point for understanding the multi-modal trip generation during the peak hours and across the day, the National Trip Database, known as TRICS has been interrogated.
- 6.2.2 When selecting donor sites within TRICS, sites with similar characteristics to the proposals have been chosen. The full TRICS output is attached in **Appendix H** and the AM peak hour, PM peak hour and daily two-way trip rates are provided in **Table 6.1**, along with the modal split.

Table 6.1: TRICS Multi-Modal Trip Rates and Mode Share %

Method of Travel	Multi-Modal Trip Rate (Two-way)			Mode Share (%)		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Pedestrians	0.085	0.050	0.592	9.1%	6.6%	8.3%
Cyclists	0.011	0.010	0.085	1.2%	1.3%	1.2%
Public Transport User	0.023	0.017	0.215	2.5%	2.3%	3.0%
Vehicle Driver	0.521	0.469	4.436	56.1%	62.1%	61.9%
Vehicle Passengers	0.289	0.208	1.838	31.1%	27.5%	25.6%
Total People	0.929	0.755	7.168	100%	100%	100%

*No. of Vehicles **calculated from vehicle occupant rate minus vehicle rate

- 6.2.3 **Table 6.1** shows that based on TRICS typical trip rates for sites of similar characteristics, the car driver mode share is between 56 & 62% and car passengers make up 25-31%. Whilst pedestrians make up around 7-9%, cyclists around 1% and public transport users around 2-3%.
- 6.2.4 Interestingly, a significant portion of the car drivers will be carrying out a sustainable trip, as a proportion of the car drivers will have car passengers and are therefore classified as car sharers, and a proportion of the car drivers will be using zero emission or ultra-low emission vehicles, all of which are classified as sustainable methods of travel in accordance with the NPPF.
- 6.2.5 Nonetheless, it is noted that a TRICS suggest that based on typical trip rates, the proposals will fall short of the GM Vision of 50% of trips being made by car driver.
- 6.2.6 The TRICS typical trip rates for sites of similar characteristics, as set out in **Table 6.1**, have been applied to the proposals (43 dwellings) and the JPA17 Allocation (450 dwellings) and the resultant TRICS typical multi-modal trip generation is set out in **Table 6.2**.

Table 6.2: Multi-modal TRICS Typical Trip Generation

Method of Travel	Proposed Development (43 dwellings)			Full JPA17 Allocation (450 dwellings)		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Pedestrians	4	2	25	38	23	266
Cyclists	0	0	4	5	5	38
Public Transport User	1	1	9	10	8	97
Vehicle Driver	22	20	191	234	211	1996
Vehicle Passengers	12	9	79	130	94	827
Total People	40	32	308	418	340	3226

6.2.7 In terms of non-car trips, **Table 6.2** demonstrates that TRICS predicts that the

- proposed development will generate 25 pedestrian trips, 4 cycle trips and 9 public transport trips across the day.
- JPA17 allocation as a whole (including the proposed 43 dwellings) will generate 266 pedestrian trips, 38 cycle trips, 97 public transport trips across the day.

6.3 Vision Led Multi-Modal Trip Generation

- 6.3.1 To better align with the GM Vision of 50% of all trips being made by car, the TRICS typical trip rates have been adjusted to provide vision-led trip rates.
- 6.3.2 It should also be noted that at para. 115 the NPPF states that: ‘*sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location*’.
- 6.3.3 In adjusting the trip rates, the sites accessibility credentials should be considered. It is considered that the TRICS rate for pedestrians of c. 7-9% is reasonable, based on the sites location on the edge of existing conurbation, however the allocation will the upgrading of the nearby bus stops and provide a contribution to funding bus services, if necessary. This along with TfGM promoting cycling and bus travel through their own on-going initiatives, the mode splits for cycle (1%) and bus (2-3%) are not considered to align with the Vision.
- 6.3.4 Additionally, it should be noted that the overall allocation will generate significant new bus patronage, which is likely to allow some bus operators to enhance their services in this locality on a commercial basis. These likely enhanced bus services will assist in increasing bus mode share.
- 6.3.5 The trip rates adjustments therefore increase the mode share by bus and cycle. The car driver and car passenger trip rates have been proportionally reduced to account for the increase in bus users and cyclist. The TRICS typical and the Vision Led mode shares are presented in **Table 6.3**.

Table 6.3 – TRICS Typical Mode Share and Vision Led Mode Share

Method of Travel	TRICS Typical Mode Share			Vision Led Mode Share		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Pedestrians	9.1%	6.6%	8.3%	9.1%	6.6%	8.3%
Cyclists	1.2%	1.3%	1.2%	3.0%	3.0%	3.0%
Public Transport User	2.5%	2.3%	3.0%	10.0%	10.0%	10.0%
Vehicle Driver	56.1%	62.1%	61.9%	50.1%	55.7%	55.7%
Vehicle Passengers	31.1%	27.5%	25.6%	27.8%	24.7%	23.1%
Total People	100%	100%	100%	100%	100%	100%

6.3.6 **Table 6.3** shows that under the Vision Led scenario, the vehicle driver mode share is reduced to 50-56%, the public transport increases to 10% and the cyclists are increased to 3%.

6.3.7 The Vision Led mode shares have been applied to the TRICS “Total People” trip rate, to provide multi-modal Vision Led trip rates, as shown in **Table 6.4**. The Vision Led rates have then been applied to the proposals (43 dwellings) and the JPA17 Allocation (450 dwellings) and the resultant Vision Led multimodal trip generation is shown in **Table 6.5**.

Table 6.4 – Vision Led Multimodal Mode Share and Vision Led Trip Rates

Method of Travel	Vision Led Mode Share			Vision Led Trip Rates		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Pedestrians	9.1%	6.6%	8.3%	0.085	0.050	0.592
Cyclists	3.0%	3.0%	3.0%	0.028	0.023	0.215
Public Transport User	10.0%	10.0%	10.0%	0.093	0.076	0.717
Vehicle Driver	50.1%	55.7%	55.7%	0.465	0.420	3.991
Vehicle Passengers	27.8%	24.7%	23.1%	0.258	0.186	1.653
Total People	100%	100%	100%	0.929	0.755	7.168

Table 6.5 – Multimodal Vision-Led Trip Generation

Method of Travel	Proposed Development (43 dwellings)			Full JPA17 Allocation (450 dwellings)		
	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily
Pedestrians	4	2	25	38	23	266
Cyclists	1	1	9	13	10	97
Public Transport User	4	3	31	42	34	323
Vehicle Driver	20	18	172	209	189	1796
Vehicle Passengers	11	8	71	116	84	744
Total People	40	32	308	418	340	3226

6.3.8 In terms of non-car trips, **Table 6.5** demonstrates that the Vision Led assessment predicts that the

- proposed development will generate 25 pedestrian trips, 9 cycle trips and 31 public transport trips across the day.
- JPA17 allocation as a whole (including the proposed 43 dwellings) will generate 266 pedestrian trips, 97 cycle trips, 323 public transport trips across the day.

6.3.9 To achieve the vision, the overall JPA17 allocation site will:

- include greenways across the allocation site,
- provide a signalised pedestrian crossing point on Norden Road.
- upgrade the existing bus stops on Norden Road / War Office Road.
- provide a suitable contribution to public transport (per dwelling) to be agreed with TfGM, if justified.

6.3.10 It should also be noted that the overall proposals for the allocation will increase bus patronage significantly, resulting in some bus service improvements on a commercial basis.

7.0 Accessibility via Sustainable Travel Modes

7.1 Preamble

- 7.1.1 This section provides an assessment of the accessibility of the site by sustainable travel modes.
- 7.1.2 As requested by the TfGM pre-app comments, the existing site has been reviewed against the Greater Manchester Accessibility Level (GMAL). The GMAL postcode data has been reviewed, and the nearby locations score the following Accessibility Levels in GMAL in the existing situation (scores range from Level 1, lowest accessibility to Level 8, highest accessibility):
- Linnell Drive, directly opposite the site to the north (most representative score for the proposed 43 dwellings): **Level 3**
 - The Springs, northeastern corner of the site: **Level 3**
 - Bamford Mews: **Level 4**
- 7.1.3 The TfGM pre-application comments describe how Norford Way is on TfGM's bee network map as a preferred route for active travel, and TfGM also state that it is expected that the nearby section of Bury Road will become a route that would connect the bee network to both Bury and Rochdale town centres. The proposals connect to Norford Way via Greenvale, which is a street lit, quiet street with footways to both sides of the carriageway, therefore providing suitable access to TfGM's bee network.

7.2 Sustainable Transport Improvements – For JPA17

- 7.2.1 The off-site sustainable transport improvement identified within PfE for JPA17 include:
- a signalised pedestrian crossing point on Norden Road.
 - Upgrading of the existing bus stops on Norden Road / War Office Road.
- 7.2.2 Preliminary layout drawings of the off-site sustainable transport improvements have been prepared and are attached as **Appendix I**.
- 7.2.3 The signalised crossing point is shown in 784-B068938-TTE-00-XX-DR-O-003 P01 (**Appendix I**). At this stage, the drawing is indicative, with the finalised location to be determined as the wider JPA17 site is brought forward.
- 7.2.4 The Norden Road bus stop improvements are shown in 784-B068938-TTE-00-XX-DR-O-004 P01 (**Appendix I**). Given the geometrical constraints, the upgrades are limited to the provision of a small shelter (as space on the footway is restricted) and a replacement pole and flag. The kerbs have not been raised as the geometry means a bus cannot pull in parallel to the stop.
- 7.2.5 The War Office Road bus stop improvements are shown in 784-B068938-TTE-00-XX-DR-O-005 P01 (**Appendix I**). This includes new kerbs installed, with the horizontal alignment of the footway and drainage adjusted accordingly. Bus cage markings would also be provided on the southbound carriageway as the existing marking in the adjacent layby do not appear to serve any practical purpose.

- 7.2.6 The preliminary layout drawings provide a layout for costing, such that the applicant can provide proportionate funding (9.56%) towards these improvements within a Section 106 Agreement.
- 7.2.7 With the above improvements in place, the GMAL score for the site location including the proposed development is expected to improve.

7.3 Accessibility on Foot

- 7.3.1 The Chartered Institution of Highways and Transportation's (CIHT) document 'Guidelines for Providing for Journeys on Foot' states, in paragraph 1.12, that:

"...walking accounts for over a quarter of all journeys and four fifths of journeys of less than one mile."

- 7.3.2 Whilst superseded by the NPPF, 'Planning Policy Guidance 13 (PPG13) – Transport' sets out useful guidance related to walking catchments, which is still widely accepted. Paragraph 74 states:

"...walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometres."

- 7.3.3 In respect to this guidance, **Plan 3** has been prepared which shows the local amenities and facilities which are accessible within a 1km and 2km walk from the centre of the site using existing footways and Public Right of Way (PRoW).
- 7.3.4 **Plan 3** shows that within the 1km walking catchment there is Bamford Precinct which includes a dentist, a convenience store, an ATM, a restaurant, a hairdresser, a dry cleaner and a take-away. Additionally, within the 1km catchment there are 5 sports facilities (football, cricket, tennis, bowling and martial arts), a public house with a restaurant, Bamford Academy primary school and a Scouts Hut.
- 7.3.5 In addition to the facilities within the 1km catchment, there are the following further facilities within the 2km walk catchment; six restaurants, five places of worship, three convenience stores. Three primary schools, two sports clubs, two post offices, a butcher, a café and a nursery.
- 7.3.6 To the edge of the 2km catchment, there are further facilities and amenities which are also be accessible on foot to those who choose to walk beyond 2km.
- 7.3.7 In terms of infrastructure, the local highway network has good quality footway provision, mainly around 1.5 to 2m wide and the roads are street lit and overlooked.
- 7.3.8 As set out in Section 7.2, the JPA17 allocation will bring forward a signalised crossing point on Norden Road, which will encourage travel on foot and enhance highway safety.

7.4 Accessibility by Cycle

- 7.4.1 A distance of 5km is widely recognised as being a reasonable cycle distance. **Plan 4** shows a 5km cycling catchment from the centre of the site. Within the 5km catchment the vast majority of Rochdale can be accessed, as well as the town of Heywood. Those destinations include leisure, retail, employment and other facilities which can be accessed by cycle.

- 7.4.2 In recent years, there has been a significant uptake in electric bikes (i.e. e-bikes). An e-bike features a pedal-assist motor which can propel the cyclist at 15.5mph, while the batteries are capable of c.100km on a single charge. Assuming a reasonable commute time of 25mins, a cyclist on an e-bike could travel a distance of 10km.
- 7.4.3 **Plan 4** also shows a 10km e-bike catchment from the centre of the site. Within the 10km catchment Bury, the town of Middleton, as well as the northern sector of Oldham can be accessed. Those destinations include leisure, retail, employment and other facilities which can be accessed by e-bike.
- 7.4.4 The cycle network map for Rochdale is shown in **Appendix J**. This shows that in the vicinity of the site, a traffic free route is provided on Furbank Lane and Edenfield Road features some sections with cycle lane.
- 7.4.5 Furthermore, Bury and Rochdale Old Road in the south features cycle lanes to both sides of the road heading towards Rochdale town centre.

7.5 Accessibility by Bus

- 7.5.1 The location of the nearest bus stops to the site are shown on **Plan 2**.
- 7.5.2 The bus stops located closest to the proposed site are situated on Norden Road (SB stop) / Bagslate Moor Road (NB stop), near Springbank Lane, approximately a 700m walk from the centre of the proposals, which is acceptable to a high frequency bus stop.
- 7.5.3 The walk distance to these bus stops via the PRoW network could be 550m from the centre of the site, should a PRoW connection on the eastern side of the site be provided by the LHA. That said, the proposals are not reliant on this link being provided.
- 7.5.4 Once the wider JPA17 allocation comes forward, the nearest bus stops will be the Norden Road bus stops near Belgium Street and those bus stops will be a c.450m walk from the centre of the site.
- 7.5.5 A bus stop is also provided on Clay Lane, approximately 850m walk from the centre of the site.
- 7.5.6 The bus services available in the vicinity of the site are outlined in **Table 7.1**.

Table 7.1 – Bus Services Accessible from the Proposed Development

Service	Route	One Way Frequency per Hour					
		AM Peak	Inter Peak	PM Peak	After 7pm	Sat	Sun
Services from Norden Road / Bagslate Road							
17	Norden - Rochdale - Middleton - Blackley - Manchester	3 services operating at 05:56, 06:16 and 06:35				0	
433	Bury-Fern Grove-Fairfield General Hospital-Norden	1	1	1	0.5*	1	0.5*
442	Norden-Bagslate-Bamford-Broadhalgh-Rochdale	1-2	1	1	1	1	1
467	Bury-Jericho-Bamford-Caldershaw-Sotland-Rochdale	2	2	2	2	2	1
468	Bury- Fairfield General Hospital-Bamford- Rochdale	2	2	2	1	2	1
832	Oldham Mumps - Higginshaw - Heyside - Shaw - Norden	1 service during the AM and PM peak hour from running from Blue Coat School to Norden during the weekday					
887	Buersil Head - Bamford - Spotland - Catley Lane Head	1 service during the AM and PM peak hour from running from Bramhall High School to Webb Lane during the weekday					
967	Rochdale - Caldershaw - Bamford - Jericho - Bury - Fishpool	1 service during the AM and PM peak hour from running from Bury CE High School to Rochdale Lane during the weekday					
968	Rochdale - Bamford - Fairfield General Hospital - Bury	1 service during the AM and PM peak hour from running from St Gabriel's RC High School to Rochdale Lane during the weekday					
998	Rochdale – Bamford – Rawtenstall - Waterfoot	1 service during the AM and PM peak hour from running from Bacup Grammar School to Rochdale Lane during the weekday					
Services from Clay Lane							
461	Rochdale- Spotland- Bagslate-Shawfield circular	1	1	1	0	1	0

*0.5 equates to one service every 2 hours.

7.5.7 **Table 7.1** shows that between Monday and Saturday, there are typically 6 one-way buses an hour (12 two-way) available during the peak period within a 650m walk of the site. The bus services provide access to Norden, Rochdale, Middleton, Bury, Fairfield General Hospital, Spotland and various other destinations.

- 7.5.8 On Sundays, there is typically 3 to 4 bus services an hour in each direction, providing a convenient link between Norden, Rochdale, Bury, Fairfield General Hospital, Spotland and various other destinations.
- 7.5.9 Bus Services 832, 887, 967 998 and 968 are School bus services running 1 service during the day to the various schools and colleges.
- 7.5.10 The bus stops within a short walk distance from the site provide access to a good range of bus services, with hourly frequencies to number of key local destinations.
- 7.5.11 As set out in **Section 7.2**, the JPA17 allocation will deliver upgrades to the bus stops at Norden Road / War Office Road and the applicant is willing to proportionally contribute towards those bus stop upgrades.
- 7.5.12 Furthermore, to assist in achieving the GM Vision, the applicant is willing to contribute a towards public transport funding, if justified.

7.6 Promoting Smarter Choices via Travel Plans

- 7.6.1 To further encourage travel at the proposed development by non-car modes, a Travel Plan Framework (TPF) has been prepared as an accompanying document to the planning application. The TPF has been prepared in accordance with current guidance. The objective of the TPF is to encourage residents to travel by public transport, on foot and by bicycle, and reduce single-occupancy car trips.
- 7.6.2 The effectiveness of a Travel Plan, in increasing the use of non-car modes for journeys to/ from work is intrinsically linked to the accessibility of a given site by means other than by private car.
- 7.6.3 The proposed site has been demonstrated to benefit from good non-car accessibility and it should, therefore, be expected that the adoption of a Travel Plan would be effective.

7.7 Summary

- 7.7.1 The proposed development is well located for access on foot. The roads within the vicinity of the site have good quality footway provision and a wide number of facilities and amenities are accessible on foot, including local shopping destinations, eateries, schools and leisure facilities.
- 7.7.2 A wide number of employment destinations can be reach by cycle, including Heywood and areas in the west of Rochdale. The e-bike catchment also includes the whole of Rochdale, Bury town centre and Middleton.
- 7.7.3 The nearest bus stops are about 700m walk from the centre of the proposals, via the existing highway network. The walk distance will be reduced to circa 450m, following the implementation of the wider JPA17 proposals.
- 7.7.4 The bus services on Norden Road provide a high frequency service of 12 buses an hour (two-way), to a wide variety of destinations. This existing high frequency bus provision will assist in promoting sustainable travel at the site.
- 7.7.5 In conclusion, the proposals are accessible via sustainable travel means and is therefore compliant with national and local policies on sustainable transport provisions.

7.7.6 Nonetheless, the proposals will provide:

- an east to west pedestrian link through the site, which will allow future tie into the wider allocation greenways.
- provide a suitable contribution to public transport (per dwelling) to be agreed with TfGM, if justified.

7.7.7 The wider JPA17 allocation will deliver:

- greenways across the allocation site,
- a signalised pedestrian crossing point on Norden Road.
- Upgrades to the existing bus stops on Norden Road / War Office Road.
- provide a suitable contribution to public transport (per dwelling) to be agreed with TfGM, if justified.

7.7.8 Furthermore, the wider allocation will increase bus patronage significantly, resulting in some bus service improvements on a commercial basis.

7.7.9 The applicant is willing to proportionately contributed towards the signalised pedestrian cross and the bus stop upgrades.

7.7.10 These measures will assist the site in achieving the Transport Vision, which is to work towards the GM Transport Strategy 2040 'Right Mix Vision'.

8.0 Traffic Impact

8.1 Introduction

- 8.1.1 It is clear that the proposed 43 dwellings will not have a significant impact on the local highway network, given that they are forecast to generate just 20 and 18 trips in the AM and PM peak hours respectively (See **Table 6.5**).
- 8.1.2 The proposed development is estimated to generate less than one trip every minute during either peak hour. From the site entrance, the development trips will dissipate across the network thus diluting the impacts of the development trips.
- 8.1.3 With reference to paragraph 115 of the NPPF, the results summarised in this section demonstrate that the residual cumulative traffic impacts of the development will not be significant, and certainly will not be severe.
- 8.1.4 Notwithstanding the above, as part of the pre-application scoping, TfGM and the LHA have requested that the traffic impacts of the full JPA17 allocation are tested.
- 8.1.5 TT have been scoping the details of the full JPA17 allocation assessment with TfGM, and confirmation of the study area was received on 24th March 2025. Given this, the traffic impact assessment of the JPA17 allocation will follow in an updated TA (Rev 03).
- 8.1.6 This section sets out the approach to assessment for the full JPA17 allocation.

8.2 Approach to Assessment of JPA17

Vision Led Vehicle Trip Generation

- 8.2.1 The NPPF requires a Vision Led assessment. The Vision Led AM and PM peak hour vehicle trip rates are set out in **Table 8.1**, along with the traffic generation associated with the proposed 43 dwellings, the remaining 407 dwellings within JPA17 and then the combined JPA17 total (450 dwellings).

Table 8.1: Vision Led Vehicle Trip and Traffic Generation – Peak Hours

	AM peak hour			PM peak hour		
	Arrive	Depart	Total	Arrive	Depart	Total
Trip Rates						
Vision Led	0.12	0.35	0.47	0.30	0.12	0.42
Traffic Generation						
Proposals: 43 dwellings	5	15	20	13	5	18
Remainder of JPA17: 407 dwellings	48	141	189	123	48	171
JPA17 total: 450 dwellings	53	156	209	136	53	189

Initial Trip Distribution

- 8.2.2 The approach to trip distribution has been agreed with TfGM.
- 8.2.3 A census-based gravity model has been prepared to derive an initial distribution, for establishing the study area. The details of the distribution will be submitted through an updated TA (rev 03).

Study Area

- 8.2.4 Based on the census-based gravity model, the following study area for offsite Junction Capacity Assessments has been agreed with TfGM:
1. A680/ Bagslate Moor Road
 2. Bagslate Moor Road/ Moorland Avenue
 3. Bagslate Moor Road/ Clay Lane
 4. Norden Road/ Norford Way
 5. Norden Road/ War Office Road
 6. Bury & Rochdale Old Road/ Norden Road
 7. War Office Road/ Bury & Rochdale Old Road
 8. Greenvale/ Bramley Road
 9. Bury & Rochdale Old Road/ Queen's Park Road

Traffic Counts

- 8.2.5 Upon receipt of confirmation of the study area on 24th March 2025, TT have commissioned traffic count surveys at each of the remaining 9 junctions in the study area.

Trip Distribution Validation

- 8.2.6 The initial trip distribution (census-based gravity model) will be validated against the traffic count surveys, once that data is received.

Derivation of Traffic Flows

- 8.2.7 The surveyed traffic volumes will be reviewed to establish the network peak hours in the AM and PM peak periods.
- 8.2.8 TEMPro growth will be applied to the 2025 Surveyed Traffic volumes to derive 2030 Growthed Traffic Volumes.
- 8.2.9 Committed development traffic will be added to the 2030 growthed flows, to derive 2030 Without Development Traffic Volumes. Where the committed development is allocated, manual adjustments will be made to the TEMPro Growth factors using the 'alternative assumptions' tool, to remove double counting.
- 8.2.10 The JPA17 peak hour traffic generation (**Table 8.1**) will be applied to the validated trip distribution, to provide JPA17 network traffic assignment in the AM and PM peak hours.
- 8.2.11 The JPA17 network traffic assignment will be added to the 2030 Without JPA17 Allocation traffic volumes to derive the 2030 With JPA17 Allocation Traffic Volumes.

Junction Modelling

- 8.2.12 The 2030 'Without' and 'With' JPA17 Allocation traffic volumes will be tested in ARCADY (roundabout junctions), PICADY (priority T junctions and crossroad junctions) and LinSig (signalised junctions).
- 8.2.13 The traffic volume derivation and junction modelling assessments will be provided within an updated TA (Rev 03), which will be submitted during the determination period.

9.0 Summary and Conclusions

9.1 Summary

- 9.1.1 Tetra Tech (TT) has been appointed by Wain Homes (Northwest) Ltd to provide transport planning advice in relation to a proposed residential development, on land off Greenvale, Bamford, Rochdale.
- 9.1.2 The proposals (are for 43 dwellings, with the proposed site access taken from Greenvale (Application Site). Of the 43 dwellings proposed, 7 are affordable homes.
- 9.1.3 The proposals form part of 'JPA17 - Bamford and Norden' (Allocation Site) which is an allocated site within the adopted Places for Everyone Joint Development Plan (2022 to 2039), The full JPA17 allocation is for around 450 homes.
- 9.1.4 The transport planning work has been scoped with the Local Highway Authority (LHA) and Transport for Greater Manchester (TfGM).
- 9.1.5 The existing conditions of the local highway network have been reviewed, along with the personal injury accident data. The residential roads in the vicinity of the site are of adequate width and quality, are subject to 30mph speed limits and are street lit.
- 9.1.6 The personal injury accident review has found that road network near the proposals has a very good safety record. It is concluded there are no existing road safety problems which could be exacerbated by the proposed development.
- 9.1.7 The on-site layout has been designed using the principles set out in Manual for Streets.
- 9.1.8 The on-site turning heads have been tracked with a large refuse vehicle, demonstrating that this vehicle can adequately turn within the site.
- 9.1.9 The proposed bends on the internal road layout, will assist in self-enforcing low vehicle speeds.
- 9.1.10 The proposed site access is taken from Greenvale, via a simple priority junction. The visibility splays achieved are more than adequate, based on the recorded 85th percentile approach speeds.
- 9.1.11 The site access has been tracked with a large refuse vehicle, demonstrating that this vehicle can adequately access the site.
- 9.1.12 Pedestrian access to the site is via the main site access on Greenvale and that pedestrian access is suitable for the proposals.
- 9.1.13 There is however the potential for a further pedestrian connection to be made to the east of the site, to the existing Public Right of Way, which exists within the wider JPA17 allocation. The site layout plan shows how the applicant will provide the pedestrian infrastructure for this potential connection within their red line boundary. The LHA may choose to deliver the onward connection to the PRow, which is outside of the boundary and the onward connection will be provided as the wider JPA17 allocation is brought forward. For the avoidance of doubt, the proposals are not reliant on this connection to the PRow being made, as suitable pedestrian routes are provided through the site, to Greenvale where the existing footway network can be reached.

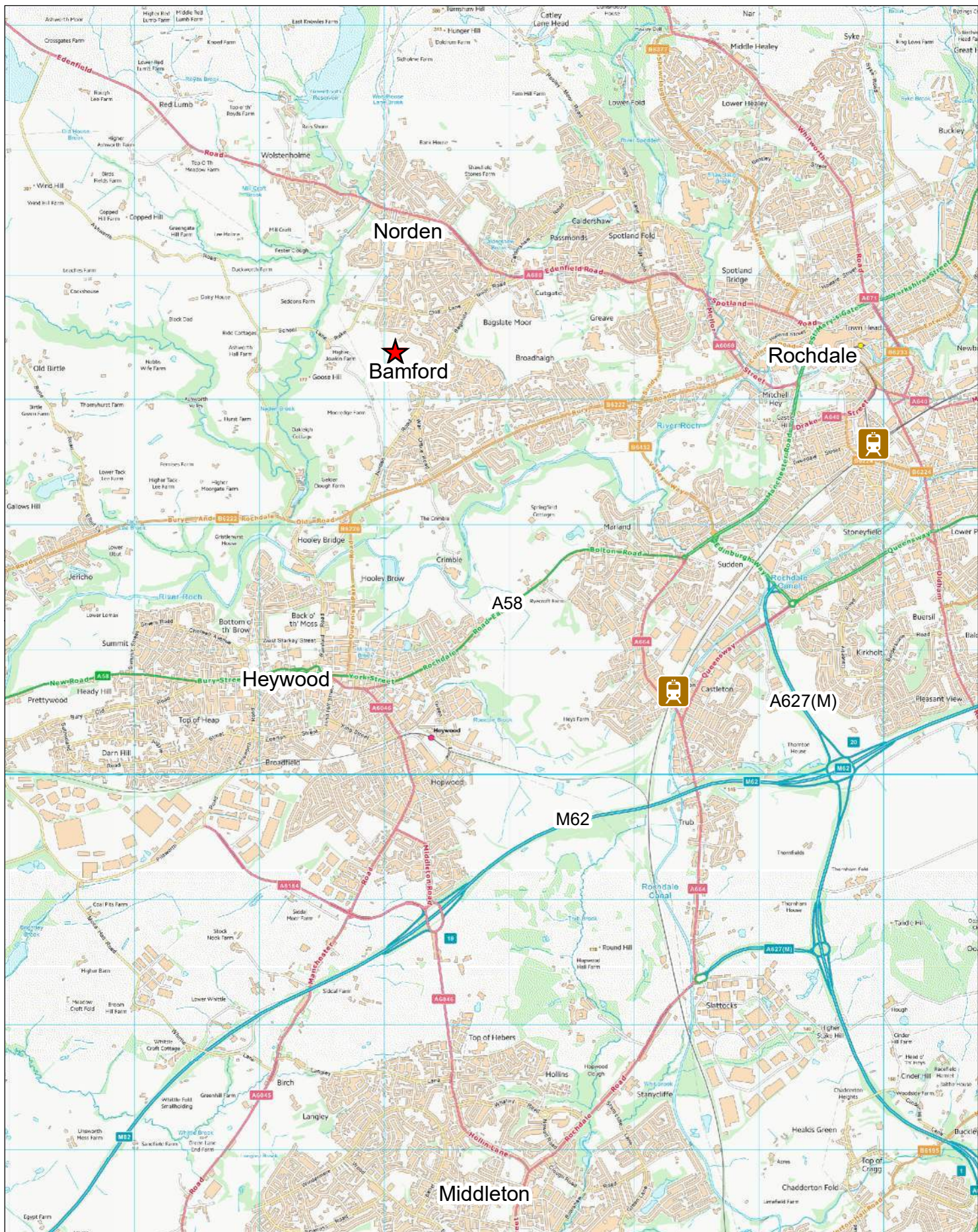
- 9.1.14 The proposed parking provides a higher level of parking than the RMBC minimum parking standards to minimise on-street parking. As those are minimum parking standards, providing a higher level of parking accords with the standards. A number of dwellings will have garages, which will also provide space for cycle parking.
- 9.1.15 Both a typical and a 'Vision Led' multimodal trip generation assessment has been carried out, for both the proposals, and the wider JPA17 allocation. The typical trip rates suggest around 56 – 62% of trips will be made by car drivers. The Vision Led trip rates give a figure of 50-56%. The mode shift identified within the Vision Led is for cyclists and public transport users.
- 9.1.16 In the Vision Led trip generation assessment, the proposals are forecast to generate:
- 25 pedestrian trips a day.
 - 9 cycle trips a day.
 - 31 public transport trips a day.
- 9.1.17 In the Vision Led trip generation assessment, the full JPA17 allocation is forecast to generate:
- 266 pedestrian trips a day.
 - 97 cycle trips a day.
 - 323 public transport trips a day.
- 9.1.18 To achieve the vision, the JPA17 allocation site will:
- include greenways across the allocation site,
 - provide a signalised pedestrian crossing point on Norden Road.
 - upgrade the existing bus stops on Norden Road / War Office Road.
 - provide a suitable contribution to public transport (per dwelling) to be agreed with TfGM, if justified.
- 9.1.19 Furthermore, the wider allocation will increase bus patronage significantly, resulting in some bus service improvements on a commercial basis.
- 9.1.20 The applicant for this 43-dwelling scheme will proportionately (9.56%) contribute towards those improvements.
- 9.1.21 The proposed development is well located for access on foot. The roads within the vicinity of the site have good footway provision and a wide number of facilities and amenities are accessible on foot, including local shopping destinations, eateries, schools and leisure facilities.
- 9.1.22 A wide number of employment destinations can be reach by cycle, including Heywood and areas in the west of Rochdale. The e-bike catchment also includes the whole of Rochdale, Bury town centre and Middleton.
- 9.1.23 The nearest bus stops are 700m walk from the centre of the proposals, via the existing highway network. The walk distance will be reduced to 450m, following the implementation of the wider JPA17 proposals.

- 9.1.24 The bus services on Norden Road provide a high frequency service of 12 buses an hour (two-way), to a wide variety of destinations. This existing bus provision will assist in promoting sustainable travel at the site.
- 9.1.25 Given the above, the proposals are accessible via sustainable travel means and is therefore compliant with national and local policies on sustainable transport provisions.
- 9.1.26 The sustainable transport measures to be provided by the proposals and the JPA17 allocation will assist the site in achieving the Transport Vision for the proposals, which is to work towards the GM 2040 Transport Strategy 'Right Mix Vision'.
- 9.1.27 In terms of traffic impact, in the Vision Led scenario, the proposals are expected to generate just 20 and 18 vehicle trips in the AM and PM peak hours respectively. This level of traffic generation clearly will not have any significant impacts on the local highway network.
- 9.1.28 At the request of TfGM, the full JPA17 allocation traffic impacts will be assessed and provided in an updated TA (Rev 03).

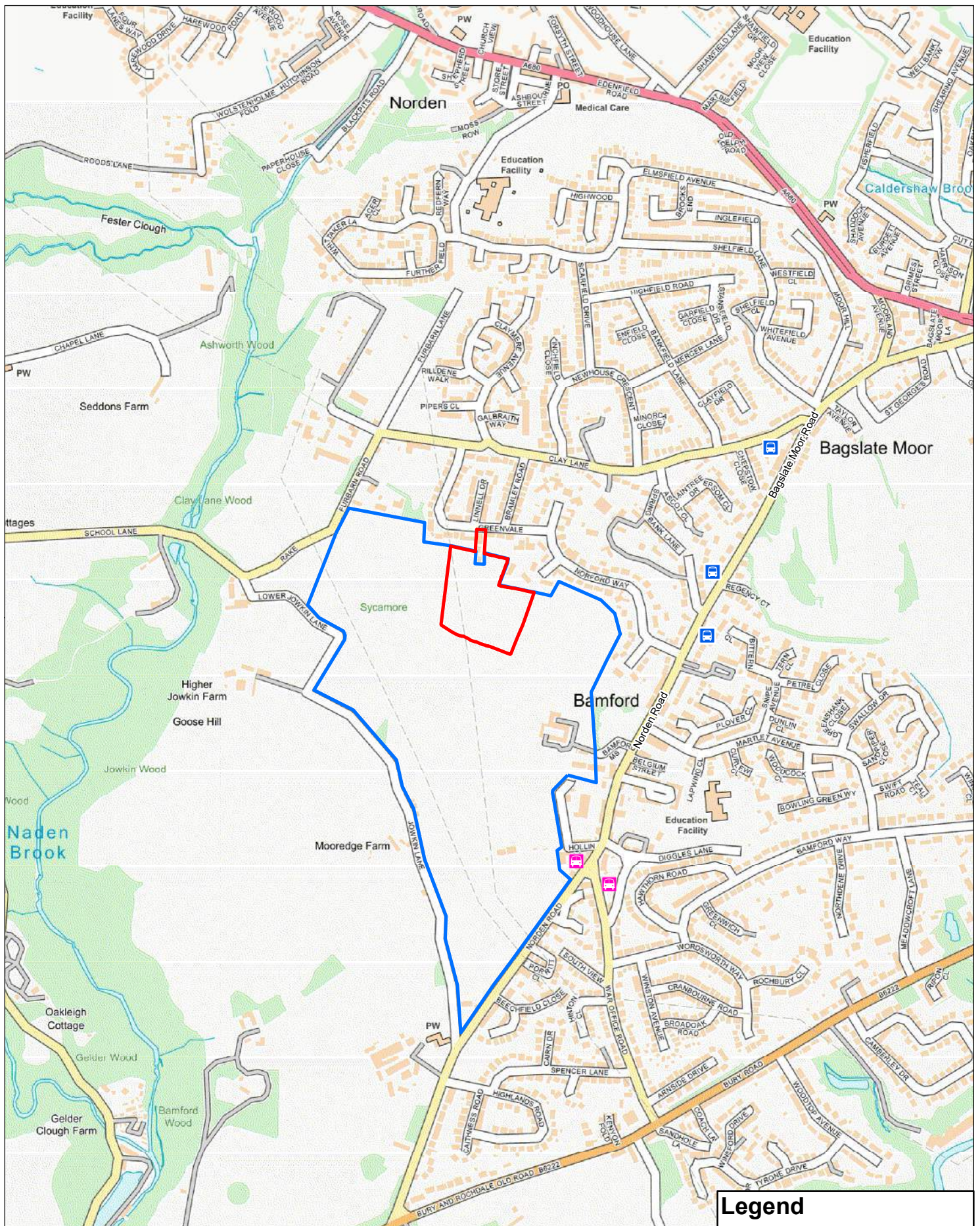
9.2 Conclusions

- 9.2.1 In conclusion, the proposed development will:
- Have a safe and suitable site access.
 - Be accessible via sustainable travel modes.
 - Not have any material impacts on the local highway network.
- 9.2.2 The applicant will provide proportionate funding for the wider allocation mitigation measures.
- 9.2.3 Given the above, there are no transport or highways reasons as to why the proposed development should not be approved.

Plans



© Tetra Tech Limited  TETRA TECH	Plan 1: Site Location Proposal: Proposed Residential Development Location: Greenvale, Bamford, Rochdale TT Job No.: 784-B068938	 Legend  Site Location  Train Stations
0 500 1,000 1,500 2,000 Meters Scale: 1:40,000 @A4		27 March 2025 NGR: 386,861 E / 411,236 N © Crown Copyright All rights reserved. Licence number: 100019980



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TETRA TECH

Plan 2: Local Highway Network
 Proposal: Proposed Residential Development
 Location: Greenvale, Bamford, Rochdale
 TT Job No.: 784-B068938



Legend

-  Existing Bus Stops to be upgraded
-  Approx Site Boundary
-  Approx Allocation Boundary
-  Bus Stop

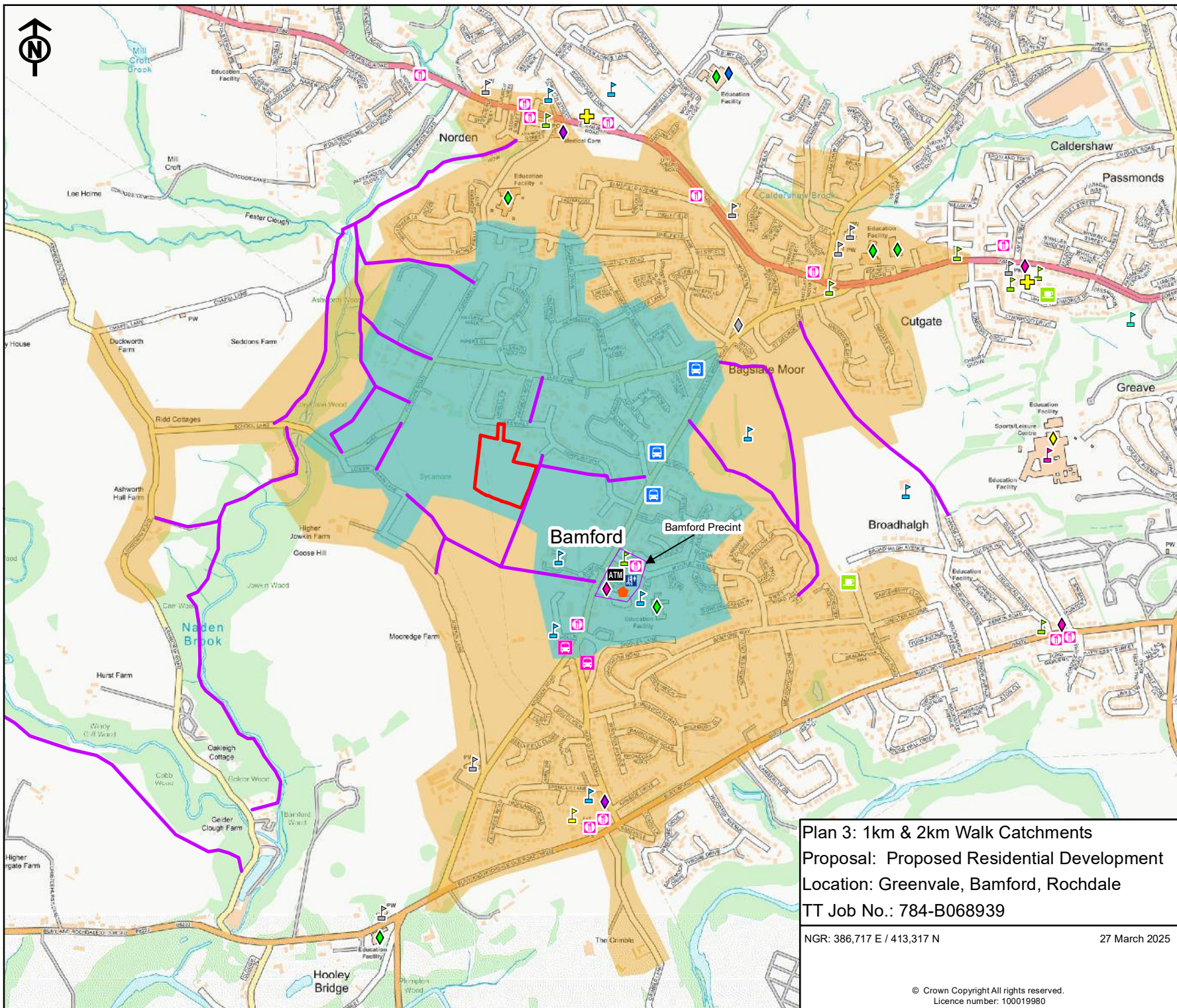
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0 125 250 375 500 Meters

Scale: 1:10,000 @A4

27 March 2025

NGR: 386,052 E / 413,393 N



Legend

- ◆ Dry Cleaner
- Hairdresser
- PRow
- + Pharmacy
- Bus Stop
- Existing bus stops to be upgraded
- Restaurants
- ATM ATM
- Cafe
- ◆ Library
- ◆ Nursery
- ◆ Post Office
- ◆ Dentist
- ◆ Secondary School
- ◆ Primary School
- Place of Worship
- Parks
- Leisure Facilities
- Convenience Store
- Sports Club
- Butchers
- 1km Walk Catchment
- 2km Walk Catchment

Plan 3: 1km & 2km Walk Catchments

Proposal: Proposed Residential Development

Location: Greenvale, Bamford, Rochdale

TT Job No.: 784-B068939

NGR: 386,717 E / 413,317 N

27 March 2025



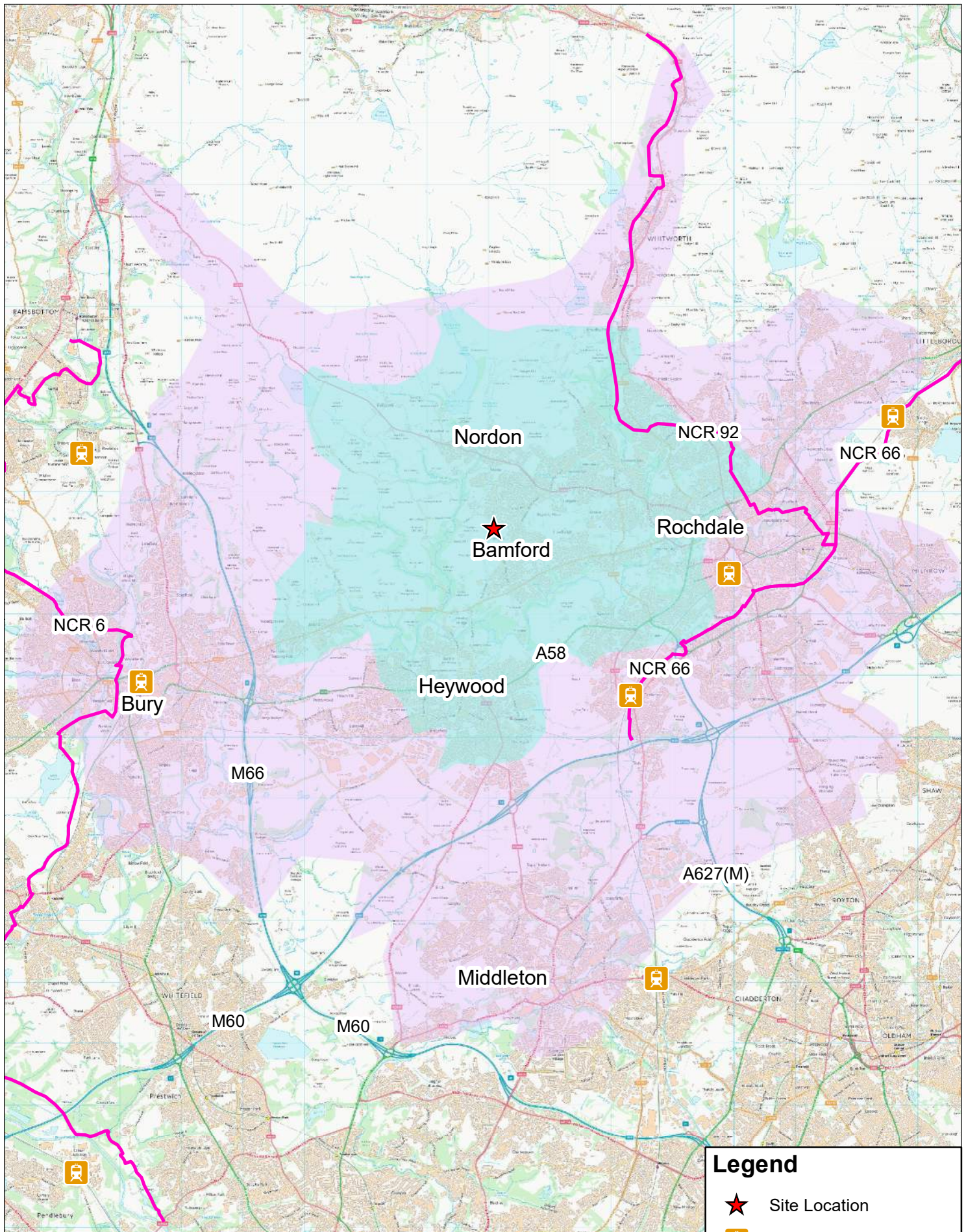
TETRA TECH

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Scale @ A4 1:15,000

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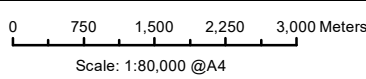


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Plan 4: 5km & 10km Cycle Catchments
Proposal: Proposed Residential Development
Location: Greenvale, Bamford, Rochdale
TT Job No.: 784-B068938



27 March 2025
NGR: 385,910 E / 411,906 N

Legend

-  Site Location
-  Train Stations
-  National Cycle Route
-  5km Cycle Catchment
-  10km eBike Catchment

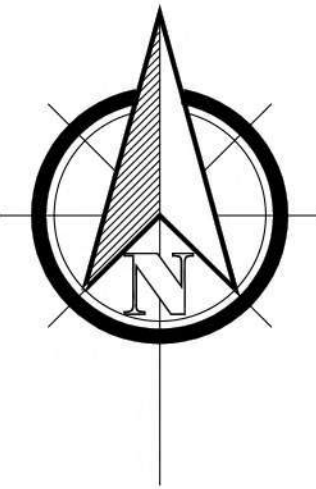
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Appendices

Appendix A: Proposed Site Layout

GREENVALE, BAMFORD

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KEY

- Application Boundary
- Denotes 1.8m high feathered edge timber fence (refer to detail FD-004)
- Denotes 1.8m high brick wall (detail tbc)
- Indicative planting
- Denotes timber gate
- Denotes shared drives
- Denotes raised tables
- Denotes affordable housing units
- Existing trees to be retained



D	19/03/2025	ELC	Blocks updated to issue 02. Minor amendments following production of planning pack.
C	04/03/2025	ELC	Overhead cable swing lines updated. Plots along swing line adjusted accordingly. Indicative frontage links, SU25 & pump station noted.
B	04/03/2025	ELC	Plot 2 changed to HSG. Plot 23 & 24 changed to STA & PEA respectively.
A	04/03/2025	ELC	Sub-station moved & access road adjusted to accommodate. Plot 41 swapped to HSG. Plot 6 swapped to PEA. Plots 9-12 revised. 23-25 noted.
Rev.	Date	By	Description

Client:

Wain
HOMES

mck associates limited
architecture | building surveying | urban design

burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk

Project:

GREENVALE

BAMFORD

ROCHDALE

Drawing Title:

COLOURED SITE LAYOUT

Drawn:

ELC

Checked:

PGM

Scale:

1:500

Date:

19/02/2025

Job No:

23-025

Drawing No:

401C

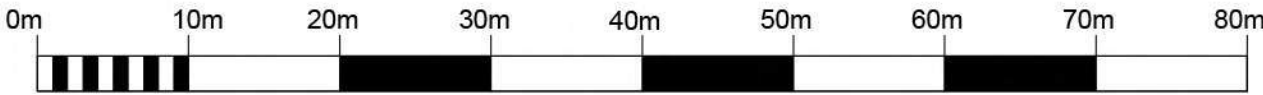
Rev:

D

Wain
HOMES

GREENVALE, BAMFORD, ROCHDALE

Code	House Type	Bed & Type	Storey	Parking	Unit No.	Build Sq/Ft	Total Build Sq/Ft	Mix %
Affordable								
BE	Beckfold	2B-3P Mews / Semi	2	2PS	7	771	5397	16%
Sub-Total					7	771	5397	16%
Open Market								
PAR	Parkland	3B-4P Semi	2	2PS	5	1012	5060	12%
MEA	Meadowdale	3B-4P Detached	2	2PS	7	1093	7651	16%
HIG	Hillstone	4B-7P Detached	2	2PS + SIG	8	1396	11168	19%
PEA	Peakridge	5B-8P Detached	2	2PS + SIG	6	1679	10074	14%
STA	Standish	5B-8P Detached	2	2PS + SIG	4	1907	7628	9%
CAP	Capstone	5B-8P Detached	2	2PS + SDG	6	2240	13440	14%
Sub-Total					36	9327	55021	84%
TOTAL					43	10098	60418	100%
Gross Site Area		6.66 Acres						
Nett Site Area		4.23 Acres						
Net Density		10 Units / Acre						
Sqft / Net Developable Acre		14283 SqFt / Acre						



1 : 500

Drawn: Burnaby Villa: 23/03/2025 24/03/2025 Wain Homes: Greenvale, Bamford, Rochdale: 23/03/2025 24/03/2025 48 Watling Street Road, Fulwood, Preston, PR2 8BP. Tel: 01772 774510. Fax: 01772 774511. Email: mck@mckassociates.co.uk

Appendix B: Transport Initial Scoping Package – 21.11.2024

Small Parcel of Development within JPA17 Bamford and Norden

Attachments to Scoping Email – 21.11.2024

Issued to Rochdale & TFGM

Contents

Attachment 1 - Site Location Plan

Attachment 2 - Draft Accessibility Plan

Attachment 3 - Site Access Preliminary Layout 784-B068938-00-XX-DR-O-001 P02

Attachment 4 – Speed Survey Raw Data

Attachment 5 – Visibility Calculations

Attachment 6 - Site Access Tracking 784-B068938-00-XX-TR-O-001 P01

Attachment 7 – Multi-Modal Trip Generation Table

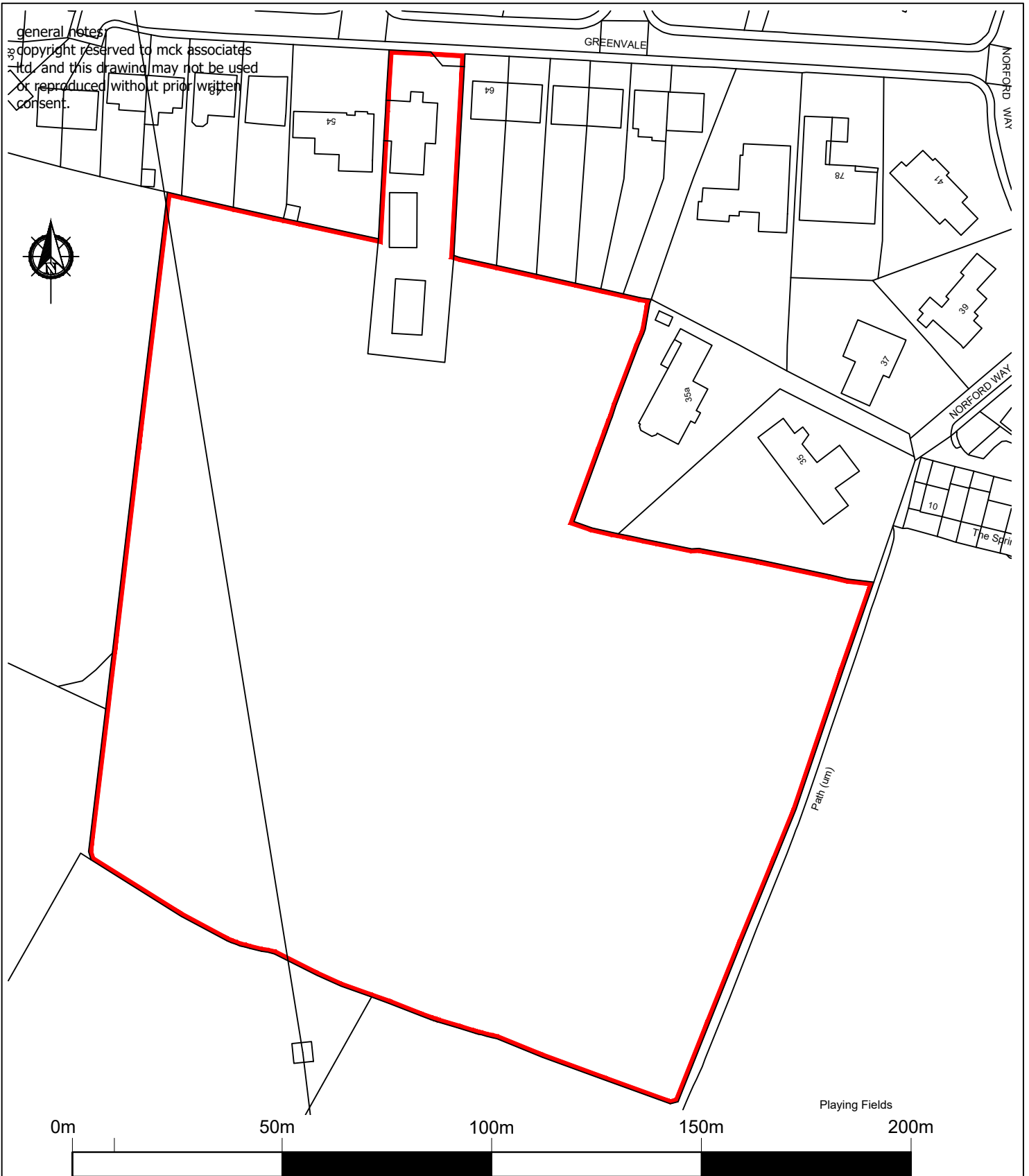
Attachment 8 - TRICS Private Houses - Midlands & North England - exc Covid & Bungalows

Attachment 9 - Appendix D of PfE for JPA17

Attachment 10 - Schematic Figure showing Norden Rd - War Office Rd modifications to traffic circulation and local junction improvements

Attachment 1 - Site Location Plan

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PLANNING

Client:

Project:
 GREENVALE, BAMFORD, ROCHDALE

Drawing Title:
 SITE LOCATION PLAN

Drawn:
 W.L

Checked:

Scale:
 1:1250 @A4

Date:
 JULY 2023



associates limited

architecture ■ building surveying ■ urban design

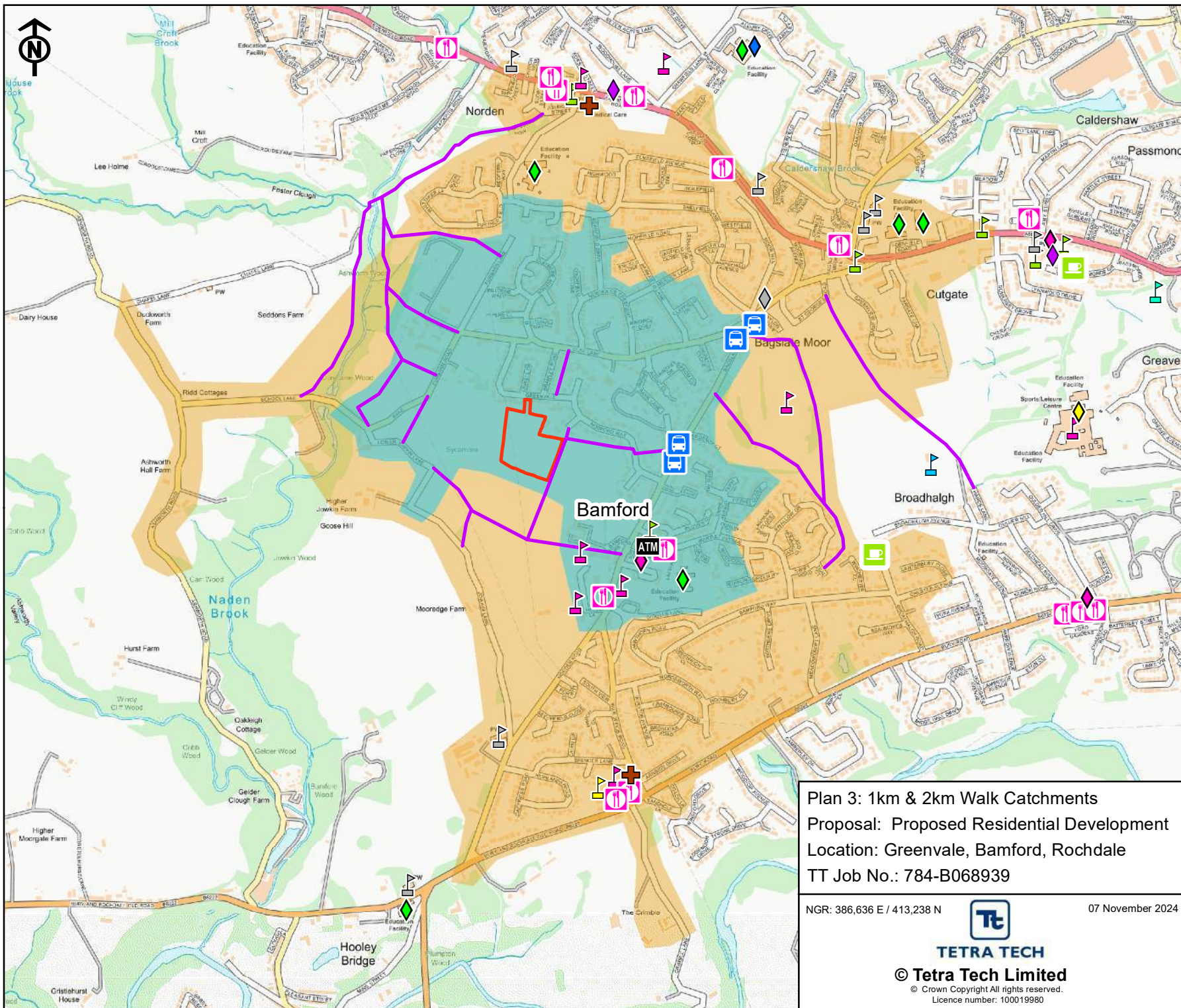
burnaby villa ■ 48 watling street road ■ fulwood ■ preston ■ pr2 8bp
 tel: 01772 774510 fax: 01772 774511 email mck@mckassociates.co.uk

Job No:
 23-025

Drawing No:
 SL01

Rev:

Attachment 2 - Draft Accessibility Plan



Legend

- Approx Site Boundary
- PRoW
- Post Office
- Bus Stop
- Restaurants
- ATM
- Cafe
- Library
- Nursery
- Pharmacy
- Dentist
- Secondary School
- Primary School
- Place of Worship
- Parks
- Leisure Facilities
- Convenience Store
- Rugby Club
- Butchers
- 1km Walk Catchment
- 2km Walk Catchment

Plan 3: 1km & 2km Walk Catchments
Proposal: Proposed Residential Development
Location: Greenvale, Bamford, Rochdale
TT Job No.: 784-B068939

NGR: 386,636 E / 413,238 N

07 November 2024



TETRA TECH

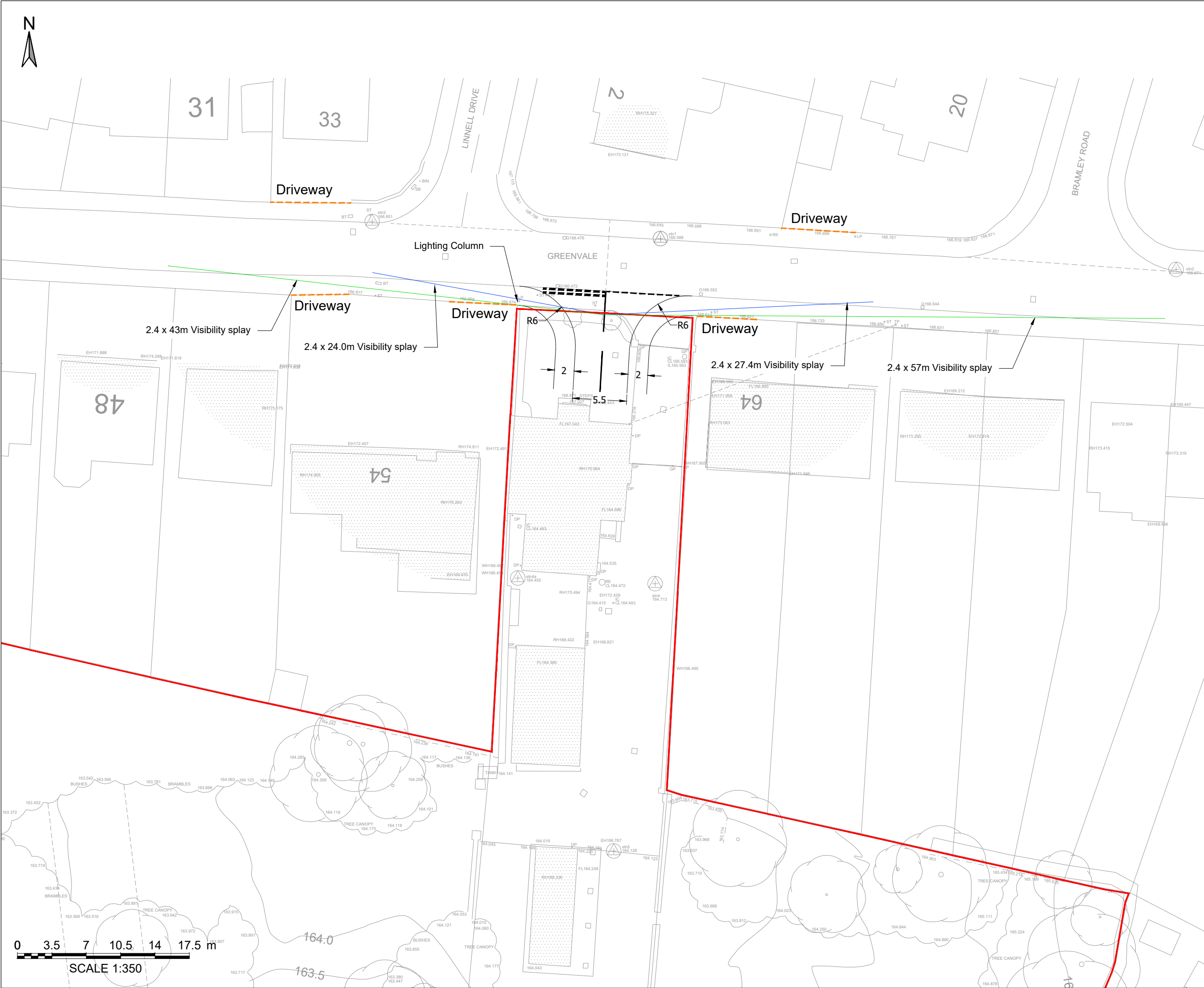
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0 190 380 570 Meters

Scale @ A4 1:15,000

Attachment 3 - Site Access Preliminary Layout
784-B068938-00-XX-DR-O-001 P02



- Notes:**
- This drawing is based on a Topographical Survey and OS mapping drawing provided by Wain Homes. Tetra Tech does not take responsibility for any discrepancies.
 - All measurements are in metres unless stated otherwise
 - Visibility splays drawn to nearside side edge in line with MfS paragraph 10.5.3
 - November 2024 Recorded 85th Percentile Speeds
Eastern ATC: Westbound Speed = 23.1mph
Western ATC: Eastbound speed = 21.1mph
 - MfS suggested visibility splays based on recorded speeds:
Looking to the right = 2.4m x 27.4m
Looking to the left = 2.4m x 24.0m

- Key:**
- Red line site boundary provided by client
 - Visibility Splays based on recorded speeds
 - Achievable visibility splay
 - Driveway entrances

PRELIMINARY ISSUE

P02	UPDATED VISIBILITY SPLAYS	20.11.2024	JH	MT	MT
P01	PRELIMINARY FIRST ISSUE	07.08.2024	AB	MT	MT
Rev.	Description	Date	By	MT	App

Document Control

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Project Name
**Proposed Residential Development:
Land off Greenvale**

Sheet Title
**Proposed Site Access: Visibility Splay
Assessment**

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @	Suitability
784-B068938	JH	Nov '24	MT	Nov '24	MT	Nov '24	A3 As Shown	S0
Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision		
B068938	- TTE	- 00 - XX	- DR - O -	001	P02			

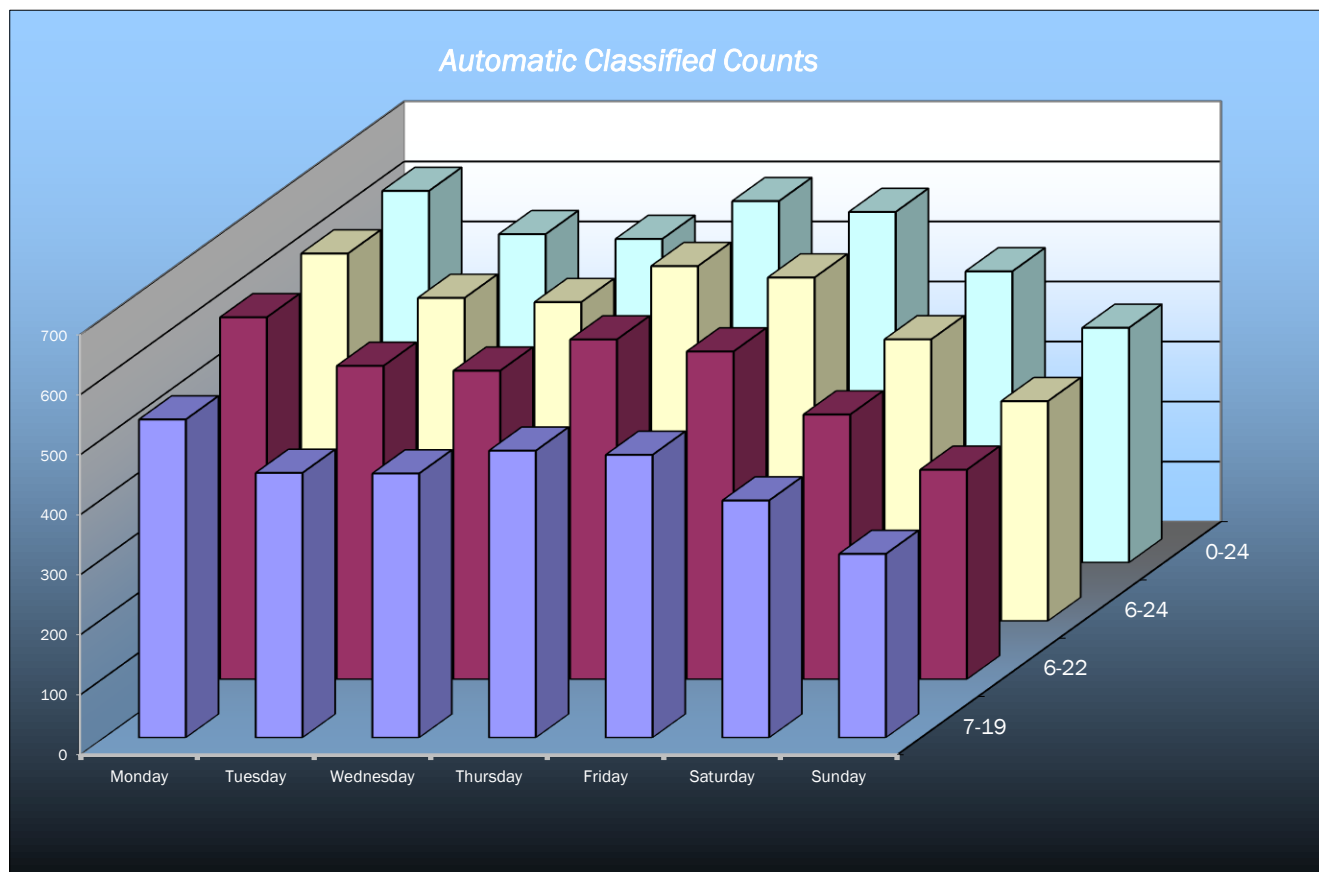
Attachment 4 – Speed Survey Raw Data

Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : WESTBOUND

VEHICLE FLOWS									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	3	3	3	1	6	6	6	3	4
2	0	1	0	1	2	5	9	1	3
3	0	1	2	3	1	1	2	1	1
4	1	1	0	1	1	2	5	1	2
5	1	1	0	0	1	1	2	1	1
6	2	2	3	5	1	1	1	3	2
7	2	7	7	5	5	1	1	5	4
8	15	17	15	16	26	6	5	18	14
9	32	33	24	32	31	8	7	30	24
10	21	19	22	28	22	17	8	22	20
11	24	26	29	23	28	43	19	26	27
12	31	31	30	28	30	45	46	30	34
13	38	40	31	48	34	40	37	38	38
14	34	30	40	34	44	41	41	36	38
15	35	30	39	39	44	49	28	37	38
16	137	49	52	55	63	44	36	71	62
17	60	65	45	57	59	37	31	57	51
18	68	56	62	72	50	36	22	62	52
19	35	45	51	46	40	29	26	43	39
20	34	31	19	35	27	16	13	29	25
21	22	28	26	29	27	16	20	26	24
22	15	15	22	19	16	13	9	17	16
23	6	8	9	21	15	15	12	12	12
24	3	8	8	4	11	13	5	7	7
7-19	530	441	440	478	471	395	306	472	437
6-22	603	522	514	566	546	441	349	550	506
6-24	612	538	531	591	572	469	366	569	526
0-24	619	547	539	602	584	485	391	578	538



Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : WESTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	18.8	18.8	25.5	22.2	17.2	17.2
2	-	15.5	-	15.5	20.5	21.5	24.4
3	-	25.5	20.5	26.3	25.5	25.5	20.5
4	25.5	15.5	-	15.5	15.5	20.5	19.5
5	15.5	25.5	-	-	15.5	15.5	20.5
6	15.5	15.5	18.8	21.5	15.5	25.5	25.5
7	20.5	16.9	18.4	17.5	17.5	15.5	15.5
8	19.0	21.8	17.5	21.1	20.1	18.8	15.5
9	17.1	16.6	16.2	17.4	17.8	18.9	15.5
10	17.4	16.9	16.4	16.6	16.4	17.9	18.0
11	18.4	16.3	19.4	18.0	17.9	17.8	18.7
12	18.3	16.8	17.6	16.2	16.8	16.8	18.1
13	16.8	17.5	16.5	16.3	16.7	16.3	18.7
14	17.9	16.5	16.3	17.0	16.4	18.4	17.7
15	16.6	17.2	18.1	15.2	17.8	16.7	17.6
16	16.4	15.3	16.7	16.6	17.1	18.7	18.3
17	17.0	17.0	17.3	18.1	17.4	16.3	17.3
18	18.4	18.5	17.7	18.0	17.8	18.0	19.0
19	17.8	17.7	19.4	17.7	18.3	18.5	17.0
20	18.4	17.4	17.6	18.3	19.6	16.8	19.3
21	18.2	18.3	18.1	18.9	18.0	18.0	18.5
22	16.8	18.2	18.2	17.5	18.0	19.2	15.5
23	18.8	19.3	21.1	19.2	16.2	20.5	16.3
24	22.2	20.5	18.0	18.0	18.9	18.6	19.5
10-12	18.4	16.5	18.5	17.1	17.4	17.3	18.4
14-16	16.5	16.2	17.4	15.9	17.5	17.7	18.0
0-24	18.1	18.1	18.0	18.3	18.1	18.6	18.5

85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	24.6	24.6	-	27.3	21.2	21.2
2	-	-	-	-	27.6	27.0	35.3
3	-	-	27.6	37.6	-	-	27.6
4	-	-	-	-	-	27.6	25.0
5	-	-	-	-	-	-	27.6
6	15.5	15.5	24.6	27.0	-	-	-
7	27.6	25.9	23.2	22.0	22.0	-	-
8	26.7	27.6	21.6	26.2	25.2	24.0	15.5
9	21.5	21.8	22.5	22.1	22.0	27.5	15.5
10	22.5	22.6	20.7	21.5	20.7	23.5	22.6
11	23.9	19.0	26.1	23.1	22.8	22.4	24.5
12	24.5	21.1	25.1	18.8	22.5	21.4	22.5
13	21.0	23.1	21.9	20.4	20.8	21.0	23.8
14	22.2	24.1	21.0	22.5	20.0	23.0	21.9
15	20.7	21.0	22.5	20.6	23.3	22.0	21.8
16	20.2	19.1	20.9	20.3	20.8	23.4	22.8
17	21.0	21.3	21.7	23.5	21.7	20.6	22.8
18	23.6	24.3	22.3	22.7	22.6	22.4	25.3
19	22.7	22.4	24.4	22.3	23.6	23.7	21.7
20	23.1	21.5	21.8	23.2	24.6	22.9	24.4
21	22.8	23.3	23.1	25.4	23.0	22.5	23.2
22	23.2	22.7	22.8	22.4	22.5	27.2	20.5
23	24.0	24.4	26.3	24.8	20.7	27.2	19.2
24	27.9	25.8	22.6	23.0	25.1	23.4	25.0
10-12	24.2	20.0	25.6	20.9	22.7	21.9	23.5
14-16	20.4	20.0	21.7	20.4	22.0	22.7	22.3
0-24	22.5	22.6	23.2	23.5	22.9	23.7	23.2

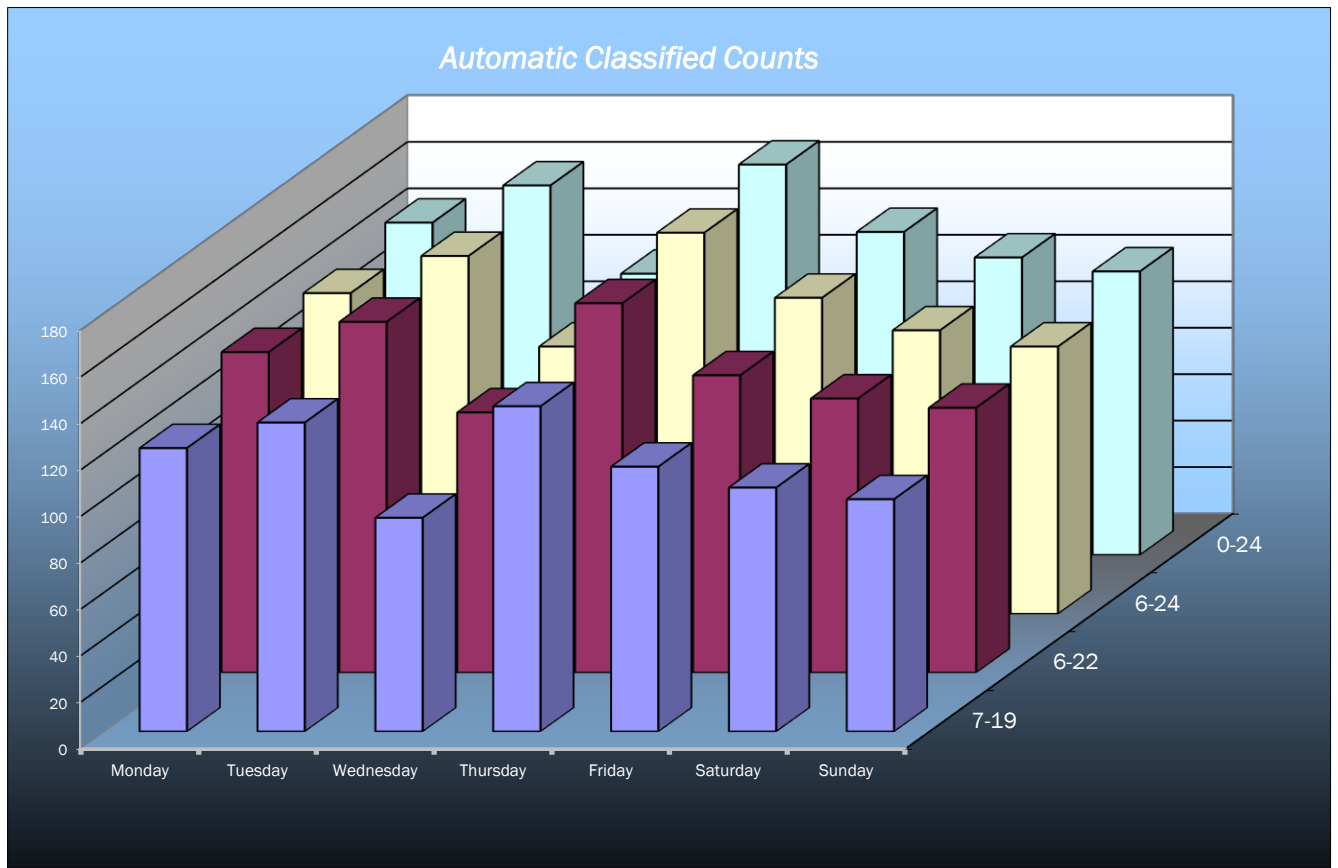
7 DAY AVERAGE SPEED	18.3
7 DAY AVERAGE 85th PERCENTILE	23.1
5 DAY OFF PEAK AVERAGE SPEED	17.1
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	21.8

Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : EASTBOUND

EASTBOUND									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	1	2	1	0	0	4	2	1	1
2	0	0	0	0	1	1	2	0	1
3	0	0	0	0	0	0	1	0	0
4	0	0	1	0	0	0	1	0	0
5	1	2	0	0	1	1	1	1	1
6	3	1	4	4	1	0	0	3	2
7	7	8	8	6	3	0	0	6	5
8	10	16	9	14	10	2	0	12	9
9	10	9	13	11	11	8	7	11	10
10	10	8	8	12	10	11	6	10	9
11	10	9	8	11	11	16	7	10	10
12	7	14	7	11	7	9	15	9	10
13	9	12	7	7	11	15	10	9	10
14	12	9	4	14	6	6	9	9	9
15	13	4	10	6	13	11	8	9	9
16	10	7	10	14	7	9	6	10	9
17	10	18	2	15	9	6	14	11	11
18	9	8	8	9	9	8	8	9	8
19	12	19	6	16	10	4	10	13	11
20	6	6	8	5	6	6	5	6	6
21	2	3	1	6	3	3	3	3	3
22	1	1	3	2	2	4	6	2	3
23	0	1	2	5	3	2	1	2	2
24	0	2	1	0	5	2	0	2	1
7-19	122	133	92	140	114	105	100	120	115
6-22	138	151	112	159	128	118	114	138	131
6-24	138	154	115	164	136	122	115	141	135
0-24	143	159	121	168	139	128	122	146	140



Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : EASTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	15.5	15.5	-	-	18.0	15.5
2	-	-	-	-	15.5	15.5	15.5
3	-	-	-	-	-	-	15.5
4	-	-	15.5	-	-	-	15.5
5	15.5	15.5	-	-	15.5	5.5	15.5
6	15.5	15.5	13.0	15.5	15.5	-	-
7	16.9	16.8	20.5	15.5	18.8	-	-
8	19.5	19.3	19.9	19.1	18.5	20.5	-
9	16.5	16.6	16.3	16.4	14.6	19.3	19.8
10	14.5	15.5	15.5	15.5	16.5	21.9	20.5
11	15.5	14.4	11.8	14.6	15.5	14.9	14.1
12	16.9	14.8	16.9	18.2	14.1	16.6	18.2
13	14.4	17.2	14.1	16.9	12.8	15.5	15.5
14	16.3	14.4	15.5	16.9	18.8	17.2	16.6
15	17.0	15.5	17.5	15.5	16.3	14.6	16.8
16	15.5	12.6	16.5	15.5	14.1	15.5	15.5
17	16.5	16.1	15.5	16.8	17.7	18.8	16.2
18	18.8	15.5	18.0	19.9	15.5	15.5	18.0
19	18.0	19.2	18.8	16.1	18.5	20.5	18.5
20	17.2	15.5	16.8	19.5	17.2	18.8	21.5
21	25.5	15.5	25.5	17.2	18.8	15.5	15.5
22	15.5	25.5	15.5	20.5	20.5	18.0	13.8
23	-	15.5	20.5	17.5	12.2	15.5	5.5
24	-	15.5	25.5	-	15.5	20.5	-
10-12	16.2	14.6	14.3	16.4	14.8	15.7	16.1
14-16	16.3	14.1	17.0	15.5	15.2	15.0	16.1
0-24	16.9	16.3	17.4	17.1	16.3	16.9	16.2

85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	-	15.5	-	-	-	23.0	15.5
2	-	-	-	-	-	-	15.5
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	29.6	-	-	-	-	-
6	15.5	-	18.0	15.5	-	-	-
7	20.7	20.3	25.8	21.8	24.6	-	-
8	24.7	25.4	27.2	25.4	25.2	27.6	-
9	22.2	19.9	21.2	19.4	20.0	24.4	25.1
10	20.2	15.5	15.5	15.5	19.7	26.9	26.0
11	20.2	17.7	16.9	20.0	20.0	19.3	17.9
12	20.7	20.9	23.8	22.9	17.9	22.6	22.7
13	20.4	21.1	17.9	20.7	17.4	20.8	20.2
14	21.5	17.7	23.7	20.6	24.0	24.7	19.9
15	22.6	15.5	23.8	21.8	21.2	20.0	20.3
16	20.2	17.5	19.7	19.4	17.9	15.5	15.5
17	22.2	20.2	15.5	20.4	24.4	24.0	18.9
18	23.8	15.5	22.6	25.2	15.5	20.8	22.6
19	22.5	24.1	24.0	20.6	23.3	26.3	23.3
20	21.2	21.8	23.2	25.0	21.2	24.0	27.0
21	25.5	15.5	-	21.2	24.6	15.5	15.5
22	-	-	15.5	27.6	27.6	23.0	17.9
23	-	-	27.6	22.0	17.9	15.5	-
24	-	15.5	-	-	22.6	27.6	-
10-12	20.5	19.3	20.4	21.4	18.9	21.0	20.3
14-16	21.4	16.5	21.7	20.6	19.5	17.7	17.9
0-24	21.5	19.4	21.3	21.4	21.4	22.3	20.2

7 DAY AVERAGE SPEED	16.7
7 DAY AVERAGE 85th PERCENTILE	21.1
5 DAY OFF PEAK AVERAGE SPEED	15.4
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	20.0

Attachment 5 – Visibility Calculations

Calculation of suggested visibility splay Y-distances and

Image 1: SSD formula

$$SSD = vt + \frac{v^2}{2(d + 0.1a)}$$

Diagram illustrating the SSD formula with labels:

- speed (m/s)** points to v in vt .
- reaction time (s)** points to t in vt .
- Deceleration rates (m/s²)** points to d in the denominator.
- Approach Gradient (%)** points to a in the denominator.

Calculation of the visibility splay Y-distance looking to the right

Table 1: Recorded 85th %tile approach speeds

Eastern ATC, Westbound	
Speed (mph)	23.1
Speed (m/s)	10.3

Table 2: Visibility Splay Y Distance and Forward Stopping Sight Distance Calculations for the approach speed shown in Table 1

			Source of SSD
			Manual for Streets
SSD Parameters	Reaction time	t (s)	1.5
	deceleration rate	d (m/ss)	4.41
	gradient	a (%)	0
Y Distance (m)=			27.4
FSSD=			29.8

Calculation of the visibility splay Y-distance looking to the left

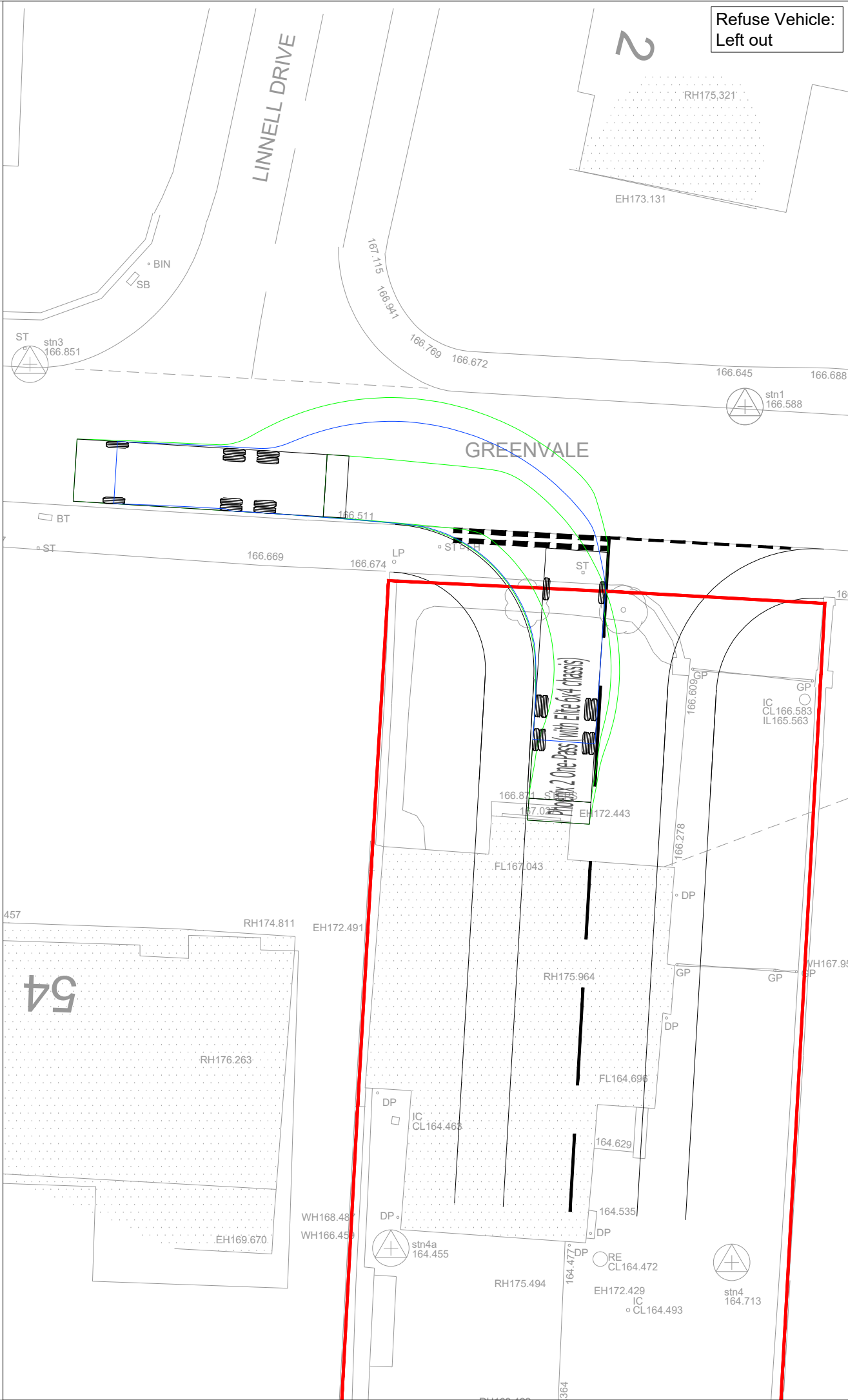
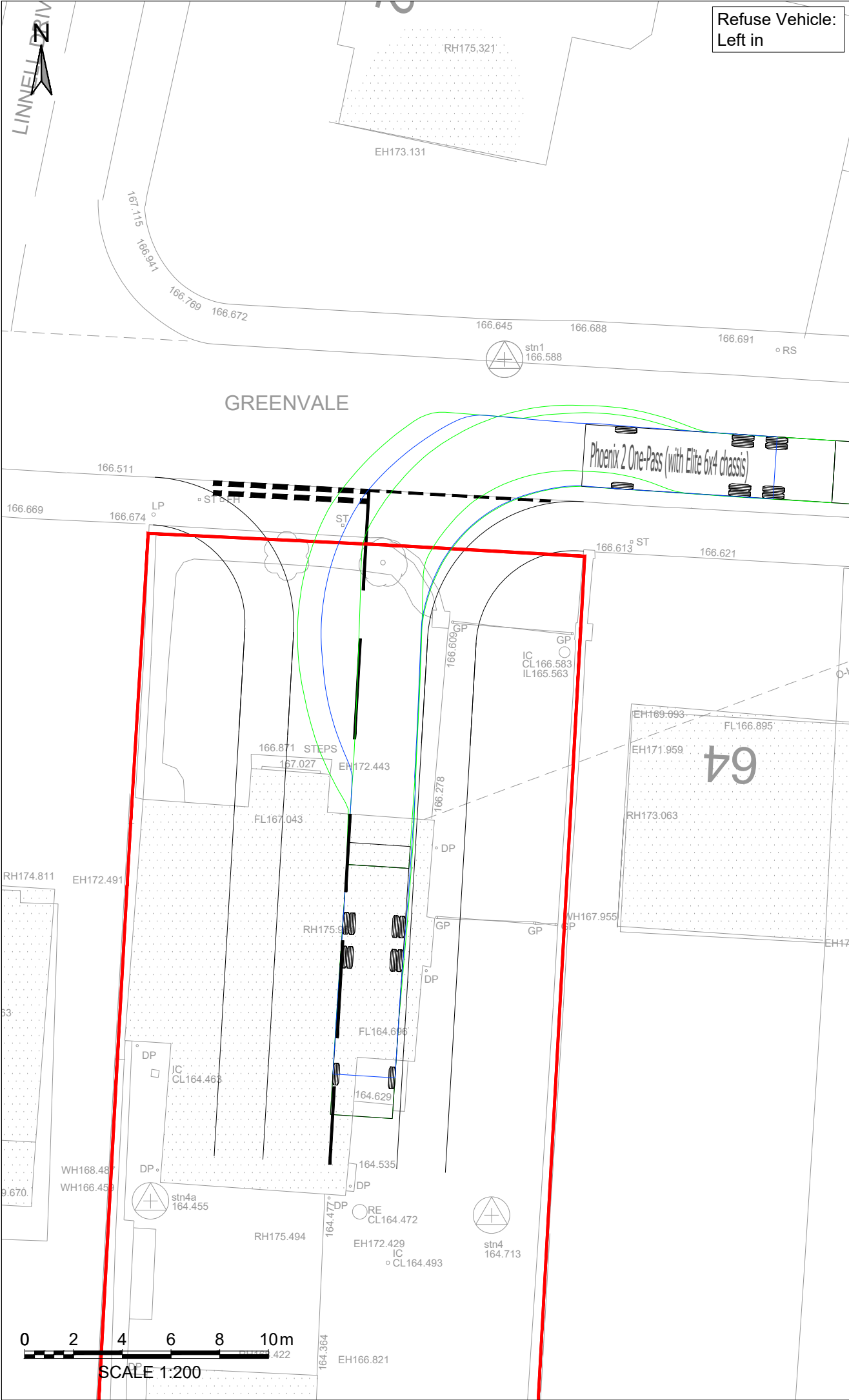
Table 3: Recorded 85th %tile approach speeds

Western ATC, Eastbound	
Speed (mph)	21.1
Speed (m/s)	9.4

Table 4: Visibility Splay Y Distance and Forward Stopping Sight Distance Calculations for the approach speed shown in Table 3

			Source of SSD
			Manual for Streets
SSD Parameters	Reaction time	t (s)	1.5
	deceleration rate	d (m/ss)	4.41
	gradient	a (%)	0
Y Distance (m)=			24.0
FSSD=			26.4

Attachment 6 - Site Access Tracking
784-B068938-00-XX-TR-O-001 P01



Notes:

- This drawing is based on a Topographical Survey and OS mapping drawing provided by Wain Homes. Tetra Tech does not take responsibility for any discrepancies.
- All measurements are in metres unless stated otherwise

Key:

- Red line site boundary provided by client
- Wheel tracking
- Body tracking

Phoenix 2 One-Pass (with Elite 6x4 chassis)

Overall Length	11.180m
Overall Width	2.550m
Overall Body Height	3.760m
Min Body Ground Clearance	0.312m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	10.150m

PRELIMINARY ISSUE

P01	PRELIMINARY FIRST ISSUE	07.08.2024	AB	MT	MT
Rev	Description	Date	Drawn	Checked	App
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Client

Wain Homes

Project Name

**Proposed Residential Development:
Land off Greenvale**

Sheet Title

**Proposed Site Access: Refuse Vehicle
Tracking**

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @	Suitability
784-B068938	AB	Aug '24	MT	Aug '24	MT	Aug '24	As Shown	S0

Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision
B068938	- TTE	- 00 - XX	- TR	- O -	001	P01

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TTE_MT_v1

Attachment 7 – Multi-Modal Trip Generation Table

Table 1: Multi-modal Trip Rates and Trip Generation associated with 65 Houses

Time Period	Trip Rates (per house)			Trip Generation (65 houses)		
	Arrivals	Departures	Total	Arrivals	Departure	Total
Total People						
08:00-09:00	0.197	0.732	0.929	13	48	60
17:00-18:00	0.542	0.213	0.755	35	14	49
Pedestrians						
08:00-09:00	0.030	0.055	0.085	2	4	6
17:00-18:00	0.028	0.022	0.050	2	1	3
Cyclists						
08:00-09:00	0.006	0.005	0.011	0	0	1
17:00-18:00	0.004	0.006	0.010	0	0	1
Public Transport User						
08:00-09:00	0.000	0.023	0.023	0	1	1
17:00-18:00	0.013	0.004	0.017	1	0	1
Vehicle Driver (no. of vehicles)						
08:00-09:00	0.133	0.388	0.521	9	25	34
17:00-18:00	0.337	0.132	0.469	22	9	30
Vehicle Passengers (calculated from vehicle occupant rate minus vehicle rate)						
08:00-09:00	0.028	0.261	0.289	2	17	19
17:00-18:00	0.159	0.049	0.208	10	3	14

**Attachment 8 - TRICS Private Houses - Midlands & North England -
exc Covid & Bungalows**

Calculation Reference: AUDIT-705118-241120-1109

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

05	EAST MIDLANDS	
	DY DERBY	1 days
	LE LEICESTERSHIRE	1 days
	NT NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS	
	ST STAFFORDSHIRE	1 days
	WK WARWICKSHIRE	1 days
08	NORTH WEST	
	AC CHESHIRE WEST & CHESTER	2 days
09	NORTH	
	DH DURHAM	1 days

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

Tetra Tech Quay West Manchester

Licence No: 705118

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: 24 to 371 (units:)
Range Selected by User: 6 to 432 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 18/05/17 to 18/05/22

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
Wednesday	1 days
Thursday	2 days
Friday	3 days

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

Selected survey types:

Manual count	8 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	5
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	6
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	8 days - Selected
Servicing vehicles Excluded	3 days - Selected

Secondary Filtering selection:**Use Class:**

C3 8 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	4 days

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

Population within 5 miles:

50,001 to 75,000	2 days
75,001 to 100,000	2 days
125,001 to 250,000	3 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	2 days
1.1 to 1.5	6 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	7 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	8 days
-----------------	--------

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

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LIST OF SITES relevant to selection parameters

1	AC-03-A-04	TOWN HOUSES		CESHIRE WEST & CHESTER
	LONDON ROAD			
	NORTHWICH			
	LEFTWICH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	24		
	Survey date: THURSDAY	06/06/19	Survey Type: MANUAL	
2	AC-03-A-06	DETACHED HOUSES		CESHIRE WEST & CHESTER
	COMMON LANE			
	NEAR CHESTER			
	WAVERTON			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total No of Dwellings:	99		
	Survey date: FRIDAY	29/04/22	Survey Type: MANUAL	
3	DH-03-A-03	SEMI-DETACHED & TERRACED		DURHAM
	PILGRIMS WAY			
	DURHAM			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	57		
	Survey date: FRIDAY	19/10/18	Survey Type: MANUAL	
4	DY-03-A-01	MIXED HOUSES		DERBY
	RADBOURNE LANE			
	DERBY			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	371		
	Survey date: TUESDAY	10/07/18	Survey Type: MANUAL	
5	LE-03-A-02	DETACHED & OTHERS		LEICESTERSHIRE
	MELBOURNE ROAD			
	IBSTOCK			
	Neighbourhood Centre (PPS6 Local Centre)			
	Village			
	Total No of Dwellings:	85		
	Survey date: THURSDAY	28/06/18	Survey Type: MANUAL	
6	NT-03-A-08	DETACHED HOUSES		NOTTINGHAMSHIRE
	WIGHAY ROAD			
	HUCKNALL			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	36		
	Survey date: MONDAY	18/10/21	Survey Type: MANUAL	
7	ST-03-A-07	DETACHED & SEMI-DETACHED		STAFFORDSHIRE
	BEACONSIDE			
	STAFFORD			
	MARSTON GATE			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	248		
	Survey date: WEDNESDAY	22/11/17	Survey Type: MANUAL	
8	WK-03-A-04	DETACHED HOUSES		WARWICKSHIRE
	DALEHOUSE LANE			
	KENILWORTH			
	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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AC-03-A-05	COVID
NY-03-A-14	Bungalow

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): 1.62

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	8	121	0.094	8	121	0.391	8	121	0.485
08:00 - 09:00	8	121	0.133	8	121	0.388	8	121	0.521
09:00 - 10:00	8	121	0.120	8	121	0.176	8	121	0.296
10:00 - 11:00	8	121	0.120	8	121	0.148	8	121	0.268
11:00 - 12:00	8	121	0.128	8	121	0.120	8	121	0.248
12:00 - 13:00	8	121	0.150	8	121	0.165	8	121	0.315
13:00 - 14:00	8	121	0.143	8	121	0.134	8	121	0.277
14:00 - 15:00	8	121	0.164	8	121	0.153	8	121	0.317
15:00 - 16:00	8	121	0.239	8	121	0.168	8	121	0.407
16:00 - 17:00	8	121	0.277	8	121	0.167	8	121	0.444
17:00 - 18:00	8	121	0.337	8	121	0.132	8	121	0.469
18:00 - 19:00	8	121	0.277	8	121	0.112	8	121	0.389
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.182			2.254			4.436

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:	24 - 371 (units:)
Survey date range:	18/05/17 - 18/05/22
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	2

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Tetra Tech Quay West Manchester

Licence No: 705118

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

MULTI-MODAL TAXIS

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	8	121	0.000	8	121	0.000	8	121	0.000
08:00 - 09:00	8	121	0.008	8	121	0.007	8	121	0.015
09:00 - 10:00	8	121	0.004	8	121	0.004	8	121	0.008
10:00 - 11:00	8	121	0.004	8	121	0.004	8	121	0.008
11:00 - 12:00	8	121	0.000	8	121	0.000	8	121	0.000
12:00 - 13:00	8	121	0.002	8	121	0.002	8	121	0.004
13:00 - 14:00	8	121	0.003	8	121	0.002	8	121	0.005
14:00 - 15:00	8	121	0.005	8	121	0.005	8	121	0.010
15:00 - 16:00	8	121	0.004	8	121	0.004	8	121	0.008
16:00 - 17:00	8	121	0.002	8	121	0.002	8	121	0.004
17:00 - 18:00	8	121	0.002	8	121	0.002	8	121	0.004
18:00 - 19:00	8	121	0.001	8	121	0.003	8	121	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.035			0.035			0.070

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.

Tetra Tech Quay West Manchester

Licence No: 705118

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	8	121	0.002	8	121	0.000	8	121	0.002
08:00 - 09:00	8	121	0.006	8	121	0.004	8	121	0.010
09:00 - 10:00	8	121	0.003	8	121	0.003	8	121	0.006
10:00 - 11:00	8	121	0.004	8	121	0.004	8	121	0.008
11:00 - 12:00	8	121	0.002	8	121	0.000	8	121	0.002
12:00 - 13:00	8	121	0.006	8	121	0.008	8	121	0.014
13:00 - 14:00	8	121	0.007	8	121	0.004	8	121	0.011
14:00 - 15:00	8	121	0.001	8	121	0.005	8	121	0.006
15:00 - 16:00	8	121	0.003	8	121	0.005	8	121	0.008
16:00 - 17:00	8	121	0.002	8	121	0.002	8	121	0.004
17:00 - 18:00	8	121	0.000	8	121	0.001	8	121	0.001
18:00 - 19:00	8	121	0.001	8	121	0.001	8	121	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.037			0.037			0.074

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.

Tetra Tech Quay West Manchester

Licence No: 705118

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

MULTI-MODAL PSVS

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	8	121	0.000	8	121	0.000	8	121	0.000
08:00 - 09:00	8	121	0.000	8	121	0.000	8	121	0.000
09:00 - 10:00	8	121	0.000	8	121	0.000	8	121	0.000
10:00 - 11:00	8	121	0.000	8	121	0.000	8	121	0.000
11:00 - 12:00	8	121	0.000	8	121	0.000	8	121	0.000
12:00 - 13:00	8	121	0.000	8	121	0.000	8	121	0.000
13:00 - 14:00	8	121	0.000	8	121	0.000	8	121	0.000
14:00 - 15:00	8	121	0.000	8	121	0.000	8	121	0.000
15:00 - 16:00	8	121	0.000	8	121	0.000	8	121	0.000
16:00 - 17:00	8	121	0.000	8	121	0.000	8	121	0.000
17:00 - 18:00	8	121	0.000	8	121	0.000	8	121	0.000
18:00 - 19:00	8	121	0.001	8	121	0.001	8	121	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.001			0.001			0.002

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 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	8	121	0.004	8	121	0.003	8	121	0.007
08:00 - 09:00	8	121	0.006	8	121	0.005	8	121	0.011
09:00 - 10:00	8	121	0.003	8	121	0.003	8	121	0.006
10:00 - 11:00	8	121	0.004	8	121	0.001	8	121	0.005
11:00 - 12:00	8	121	0.002	8	121	0.007	8	121	0.009
12:00 - 13:00	8	121	0.001	8	121	0.000	8	121	0.001
13:00 - 14:00	8	121	0.002	8	121	0.001	8	121	0.003
14:00 - 15:00	8	121	0.001	8	121	0.002	8	121	0.003
15:00 - 16:00	8	121	0.004	8	121	0.007	8	121	0.011
16:00 - 17:00	8	121	0.007	8	121	0.001	8	121	0.008
17:00 - 18:00	8	121	0.004	8	121	0.006	8	121	0.010
18:00 - 19:00	8	121	0.004	8	121	0.007	8	121	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.042			0.043			0.085

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 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	8	121	0.112	8	121	0.541	8	121	0.653
08:00 - 09:00	8	121	0.161	8	121	0.649	8	121	0.810
09:00 - 10:00	8	121	0.155	8	121	0.231	8	121	0.386
10:00 - 11:00	8	121	0.147	8	121	0.186	8	121	0.333
11:00 - 12:00	8	121	0.165	8	121	0.162	8	121	0.327
12:00 - 13:00	8	121	0.212	8	121	0.219	8	121	0.431
13:00 - 14:00	8	121	0.193	8	121	0.184	8	121	0.377
14:00 - 15:00	8	121	0.227	8	121	0.216	8	121	0.443
15:00 - 16:00	8	121	0.378	8	121	0.235	8	121	0.613
16:00 - 17:00	8	121	0.430	8	121	0.236	8	121	0.666
17:00 - 18:00	8	121	0.496	8	121	0.181	8	121	0.677
18:00 - 19:00	8	121	0.402	8	121	0.156	8	121	0.558
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.078			3.196			6.274

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 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	8	121	0.018	8	121	0.029	8	121	0.047
08:00 - 09:00	8	121	0.030	8	121	0.055	8	121	0.085
09:00 - 10:00	8	121	0.019	8	121	0.019	8	121	0.038
10:00 - 11:00	8	121	0.020	8	121	0.019	8	121	0.039
11:00 - 12:00	8	121	0.022	8	121	0.019	8	121	0.041
12:00 - 13:00	8	121	0.014	8	121	0.010	8	121	0.024
13:00 - 14:00	8	121	0.009	8	121	0.014	8	121	0.023
14:00 - 15:00	8	121	0.019	8	121	0.025	8	121	0.044
15:00 - 16:00	8	121	0.060	8	121	0.033	8	121	0.093
16:00 - 17:00	8	121	0.034	8	121	0.018	8	121	0.052
17:00 - 18:00	8	121	0.028	8	121	0.022	8	121	0.050
18:00 - 19:00	8	121	0.030	8	121	0.026	8	121	0.056
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.303			0.289			0.592

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 BUS/TRAM PASSENGERS
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	8	121	0.000	8	121	0.018	8	121	0.018
08:00 - 09:00	8	121	0.000	8	121	0.018	8	121	0.018
09:00 - 10:00	8	121	0.004	8	121	0.008	8	121	0.012
10:00 - 11:00	8	121	0.009	8	121	0.005	8	121	0.014
11:00 - 12:00	8	121	0.006	8	121	0.009	8	121	0.015
12:00 - 13:00	8	121	0.003	8	121	0.005	8	121	0.008
13:00 - 14:00	8	121	0.003	8	121	0.004	8	121	0.007
14:00 - 15:00	8	121	0.005	8	121	0.005	8	121	0.010
15:00 - 16:00	8	121	0.021	8	121	0.005	8	121	0.026
16:00 - 17:00	8	121	0.021	8	121	0.001	8	121	0.022
17:00 - 18:00	8	121	0.012	8	121	0.004	8	121	0.016
18:00 - 19:00	8	121	0.013	8	121	0.000	8	121	0.013
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.097			0.082			0.179

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 RAIL PASSENGERS
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	8	121	0.000	8	121	0.005	8	121	0.005
08:00 - 09:00	8	121	0.000	8	121	0.005	8	121	0.005
09:00 - 10:00	8	121	0.000	8	121	0.003	8	121	0.003
10:00 - 11:00	8	121	0.000	8	121	0.002	8	121	0.002
11:00 - 12:00	8	121	0.001	8	121	0.001	8	121	0.002
12:00 - 13:00	8	121	0.000	8	121	0.001	8	121	0.001
13:00 - 14:00	8	121	0.001	8	121	0.000	8	121	0.001
14:00 - 15:00	8	121	0.002	8	121	0.000	8	121	0.002
15:00 - 16:00	8	121	0.007	8	121	0.000	8	121	0.007
16:00 - 17:00	8	121	0.006	8	121	0.000	8	121	0.006
17:00 - 18:00	8	121	0.001	8	121	0.000	8	121	0.001
18:00 - 19:00	8	121	0.001	8	121	0.000	8	121	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.019			0.017			0.036

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	8	121	0.000	8	121	0.023	8	121	0.023
08:00 - 09:00	8	121	0.000	8	121	0.023	8	121	0.023
09:00 - 10:00	8	121	0.004	8	121	0.011	8	121	0.015
10:00 - 11:00	8	121	0.009	8	121	0.007	8	121	0.016
11:00 - 12:00	8	121	0.007	8	121	0.010	8	121	0.017
12:00 - 13:00	8	121	0.003	8	121	0.006	8	121	0.009
13:00 - 14:00	8	121	0.004	8	121	0.004	8	121	0.008
14:00 - 15:00	8	121	0.007	8	121	0.005	8	121	0.012
15:00 - 16:00	8	121	0.028	8	121	0.005	8	121	0.033
16:00 - 17:00	8	121	0.027	8	121	0.001	8	121	0.028
17:00 - 18:00	8	121	0.013	8	121	0.004	8	121	0.017
18:00 - 19:00	8	121	0.014	8	121	0.000	8	121	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.116			0.099			0.215

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 TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.62

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	8	121	0.134	8	121	0.595	8	121	0.729
08:00 - 09:00	8	121	0.197	8	121	0.732	8	121	0.929
09:00 - 10:00	8	121	0.181	8	121	0.264	8	121	0.445
10:00 - 11:00	8	121	0.180	8	121	0.213	8	121	0.393
11:00 - 12:00	8	121	0.196	8	121	0.198	8	121	0.394
12:00 - 13:00	8	121	0.230	8	121	0.235	8	121	0.465
13:00 - 14:00	8	121	0.208	8	121	0.203	8	121	0.411
14:00 - 15:00	8	121	0.254	8	121	0.248	8	121	0.502
15:00 - 16:00	8	121	0.470	8	121	0.281	8	121	0.751
16:00 - 17:00	8	121	0.498	8	121	0.256	8	121	0.754
17:00 - 18:00	8	121	0.542	8	121	0.213	8	121	0.755
18:00 - 19:00	8	121	0.451	8	121	0.189	8	121	0.640
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.541			3.627			7.168

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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Tetra Tech Quay West Manchester

Licence No: 705118

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

MULTI-MODAL CARS

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	8	121	0.068	8	121	0.373	8	121	0.441
08:00 - 09:00	8	121	0.102	8	121	0.356	8	121	0.458
09:00 - 10:00	8	121	0.094	8	121	0.149	8	121	0.243
10:00 - 11:00	8	121	0.091	8	121	0.119	8	121	0.210
11:00 - 12:00	8	121	0.102	8	121	0.097	8	121	0.199
12:00 - 13:00	8	121	0.119	8	121	0.130	8	121	0.249
13:00 - 14:00	8	121	0.116	8	121	0.108	8	121	0.224
14:00 - 15:00	8	121	0.135	8	121	0.122	8	121	0.257
15:00 - 16:00	8	121	0.205	8	121	0.130	8	121	0.335
16:00 - 17:00	8	121	0.252	8	121	0.139	8	121	0.391
17:00 - 18:00	8	121	0.316	8	121	0.122	8	121	0.438
18:00 - 19:00	8	121	0.264	8	121	0.101	8	121	0.365
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.864			1.946			3.810

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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Tetra Tech Quay West Manchester

Licence No: 705118

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	8	121	0.023	8	121	0.018	8	121	0.041
08:00 - 09:00	8	121	0.017	8	121	0.020	8	121	0.037
09:00 - 10:00	8	121	0.019	8	121	0.021	8	121	0.040
10:00 - 11:00	8	121	0.021	8	121	0.021	8	121	0.042
11:00 - 12:00	8	121	0.024	8	121	0.023	8	121	0.047
12:00 - 13:00	8	121	0.023	8	121	0.025	8	121	0.048
13:00 - 14:00	8	121	0.017	8	121	0.020	8	121	0.037
14:00 - 15:00	8	121	0.021	8	121	0.019	8	121	0.040
15:00 - 16:00	8	121	0.027	8	121	0.029	8	121	0.056
16:00 - 17:00	8	121	0.019	8	121	0.023	8	121	0.042
17:00 - 18:00	8	121	0.020	8	121	0.005	8	121	0.025
18:00 - 19:00	8	121	0.007	8	121	0.006	8	121	0.013
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.238			0.230			0.468

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 MOTOR CYCLES
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	8	121	0.001	8	121	0.001	8	121	0.002
08:00 - 09:00	8	121	0.000	8	121	0.001	8	121	0.001
09:00 - 10:00	8	121	0.000	8	121	0.000	8	121	0.000
10:00 - 11:00	8	121	0.000	8	121	0.000	8	121	0.000
11:00 - 12:00	8	121	0.000	8	121	0.000	8	121	0.000
12:00 - 13:00	8	121	0.000	8	121	0.000	8	121	0.000
13:00 - 14:00	8	121	0.001	8	121	0.000	8	121	0.001
14:00 - 15:00	8	121	0.002	8	121	0.002	8	121	0.004
15:00 - 16:00	8	121	0.000	8	121	0.000	8	121	0.000
16:00 - 17:00	8	121	0.002	8	121	0.001	8	121	0.003
17:00 - 18:00	8	121	0.000	8	121	0.002	8	121	0.002
18:00 - 19:00	8	121	0.002	8	121	0.000	8	121	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.008			0.007			0.015

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.

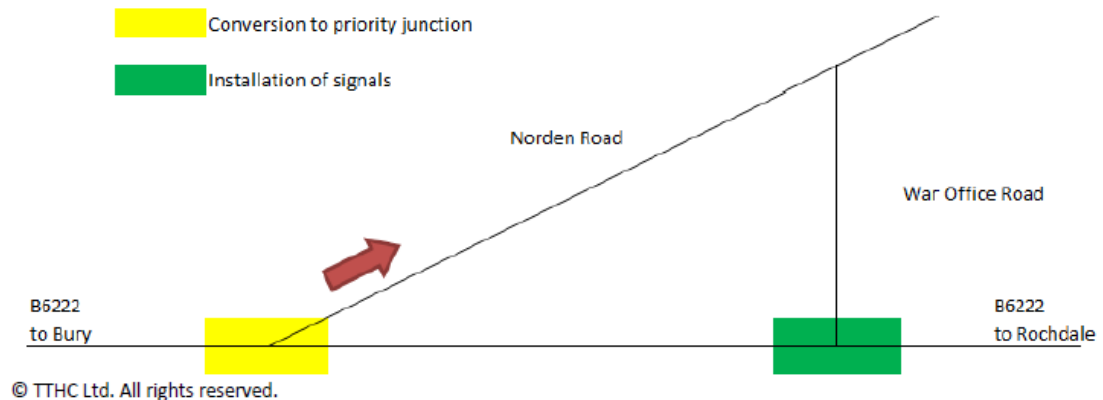
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Attachment 9 - Appendix D of PfE for JPA17

Allocation Name	Transport Interventions
	Supporting • A627 (M) Junction 1 / A627 Chadderton Way / A663 Broadway – localised roundabout improvements • A671 Rochdale Road / B6195 High Barn Street / A671 Oldham Road / B6195 Middleton Road junction improvements
JPA15 Land South of Coal Pit Lane (Ashton Road)	Necessary • Coal Pit Lane / A627 Ashton Road - junction improvements including localised improvement of Coal Pit Lane • Active travel improvements including pedestrian and cycle route between Coal Pit Lane / Ashton Road Junction and White Bank Road Supporting • Rochdale-Oldham-Ashton Quality Bus Transit corridor
JPA16 South of Rosary Road	Necessary • Active travel improvements including PRow connections to Bardsey Bridleway • Minor traffic management improvements to address local highway concerns Supporting • Rochdale-Oldham-Ashton Quality Bus Transit corridor
JPA17 Bamford and Norden	Necessary • · Norden Road / War Office Road – modifications to traffic circulation and local junction improvements • · Norden Road – new pedestrian crossing • · Bus stop upgrades at the Norden Road / War Office Road junction • · Active travel improvements including Furbarn Road improvements and North-South Greenway corridor through the site Supporting N/A
JPA18 Castleton Sidings	Necessary

Attachment 10 - Schematic Figure showing Norden Rd - War Office
Rd modifications to traffic circulation and local junction
improvements

Figure 3. Proposed mitigation scheme at B6222 Bury and Rochdale Old Road/Norden Road/War Office Road interchange



4.4.17 The results of the assessment of the mitigation are presented in Table 6. In accordance with the methodology in the Locality Assessment, one-way traffic flows on Norden Road have been provided from the GMVDM to reflect the diversions that would take place.

Table 6. GMA20 Bamford and Norden junction capacity assessments (June 2021) (after mitigation)

JUNCTION	2040 reference case AM PEAK HOUR	2040 reference case PM PEAK HOUR	2040 high scenario AM PEAK HOUR	2040 high scenario PM PEAK HOUR
B6222 Bury and Rochdale Old Road/ Queen's Park Road	81%	106%	83%	108%
B6222 Bury and Rochdale Old Road/War Office Road	60%	52%	80%	67%

4.4.23 The results demonstrate that the operational performance of each junction is very similar with and without the addition of the allocation flows. Therefore, it can be

Appendix C: TfGM Initial Pre-App Comments – 02.12.2024



Transport for
Greater Manchester

**Transport for
Greater Manchester**

2 Piccadilly Place
Manchester M1 3BG

Phone: 0161 244 1000
beenetwork.com

Your ref: PREAPP/00115/24

Our ref: ROC/24/373

Rochdale Council, Economy Directorate
Planning and Development
Number One Riverside
Smith Street
Rochdale
OL16 1XU

1st November 2024

Location: **Land South of Greenvale, Bamford, Rochdale**

Development: **Erection of 65 dwellings and access from Greenvale (PfE JPA17)**

Dear Ryan Kileen

Thank you for consulting Transport for Greater Manchester (TfGM) on the above pre-planning application. The following comments are offered as advice on transport issues for you to balance against other factors and are made in the context of TfGM's role in the planning process, as set out in the footnote below.

TfGM scoping advice has been requested from Rochdale Council in respect of a residential development comprising 65 dwellings. The site is an allocation in the Greater Manchester Plan, Places for Everyone and is covered by policy JPA 17.

Any proposals for this allocation must be in accordance with a comprehensive masterplan that has been approved by the LPA. It shall include a clear phasing strategy as part of an integrated approach to the delivery of infrastructure to support the scale of the whole development in line with Policy JP-D1 'Infrastructure Implementation.'

Development in this allocation will be required to:

¹TfGM does not have any planning powers and is not a statutory consultee in the planning process. The purpose of the advice offered is to suggest the best way to improve land use / transport integration through the development proposals. Advice is based on the information provided by the applicant, and it is not TfGM's role to undertake detailed verification unless specifically commissioned to do so. ²TfGM control and manage the traffic signals in Greater Manchester, as such any schemes that alter signalised junctions need to be agreed with TfGM. Additionally, where developments impact on signalised junctions, TfGM have a duty of care to ensure that these impacts are satisfactorily mitigated as part of the planning process.



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1. Deliver around 450 new homes including significant provision of larger (4, 5 and 6 bedroom) houses in spacious plots, to reflect the grain and density of the surrounding residential areas, or similar types of larger homes as agreed with the Local Planning Authority and affordable housing in accordance with relevant local plan requirements.
2. Retain and significantly enhance the existing recreational facilities as part of an integrated green and blue infrastructure network on the site. The residential development on the site will provide contributions towards the improvement of the facilities which will create a high quality recreational and sports 'hub' serving the local area and the borough as a whole. The development should incorporate existing public rights of way along with new routes for active travel into a high quality integrated green infrastructure network that links to existing public rights of way in the countryside to the west and north west of the site.
3. Achieve excellent design and sustainability through masterplanning and the use of design codes for the whole site to ensure comprehensive development This will include the need for an infrastructure phasing and delivery strategy in accordance with policy JP-D1.
6. Make provision for new and improved sustainable transport and highways infrastructure having regard to the indicative transport interventions set out in Appendix D in accordance with policy JP-C8.
10. Make financial contributions for offsite additional primary and secondary school provision to meet needs generated by the development in accordance with policy JP-P5.

Policy JP-D1: Infrastructure Implementation

To ensure the effective development and implementation of the infrastructure needed to deliver the vision and objectives of the Plan: We will:

7. Require applicants to prepare an infrastructure phasing and delivery strategy to be agreed by the local planning authority for sites where build out will be delivered by different developers or in phases. This strategy must outline what needs to be provided by when and who will fund and deliver it.



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TfGM would suggest that eventually a full Transport Assessment (TA) should be provided as part of the application. The TA should contain the information specified within the following sections of this letter.

1. Site Specific Comments

- I. It is critical that the PfE model should not be used to form the Transport Assessment. Strategic model flows should not be used to inform junction assessments or for trip distribution purposes. Traffic counts should be collected accordingly with queue surveys.
- II. A trip generation and distribution note should be provided as soon as possible to ensure that junction modelling is agreed at an early stage.
- III. The development allocation should be assessed as a whole, not on an incremental basis i.e. only 65 dwellings. TfGM need to understand the overall impact from the whole allocation, as this will inform the mitigation that is required. An assessment which only covers 65 dwellings will not cater for this.
- IV. In terms of traffic distribution, this should be calculated by using counted data. PfE model distribution is not acceptable and Census 2011 data is outdated. It is important to have specific reliable data to inform traffic distribution.
- V. Any junctions which are predicted to have an increase of over 30 vehicles per/hour should be assessed. The junctions to be assessed should be confirmed with TfGM and the Local Authority prior to any data collection and subsequent analysis.
- VI. Traffic modelling should use signal timing information provided by TfGM UTC unit – signal timing information can be provided from gmutc@tfgm.com.
- VII. The area is heavily congested and as such TfGM require an understanding of current traffic conditions at all junctions along Norden Road and Bagslate Road up to and including the junction with the A680 and at the junction of Bury Road / Norden Road, junction of bury road / queen's park road.
- VIII. It should be noted that a number of the potential junctions are oversaturated in traffic terms during peak periods and as such the traffic counts would not reflect the actual traffic volumes. This is because the counts would only record the flows proceeding through the green at the junction and not reflecting the traffic



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not clearing the junction. Care should be taken in the specification of the counts to ensure that the true traffic demand is recorded. TfGM will be able to advise as necessary in more detail.

- IX. Following the analysis of the impact of the development traffic, then suitable mitigation should be identified. If there are changes proposed at existing traffic signal installations (junctions and crossings) or there are new traffic signal installations, then TfGM would be happy to meet to discuss any proposals prior to submission of the full planning application and TA.
- X. Suitable and substantive sustainable measures should be provided – these should provide real and attractive alternatives to use of the private vehicle trips.
- XI. GMAL should be used to determine the accessibility of the site for public transport.
- XII. A review of public transport is required to identify provision for either existing re-routed or new services to support the development.
- XIII. Whilst the full site allocation is substantially more than the development quantum proposed under this application, mitigation to improve sustainable trips should be provided from first occupation. This is to reduce reliance on private car trips.
- XIV. In order to determine if sites were suitable to be allocated in the Places for Everyone Plan from a transport perspective; high level strategic transport modelling was undertaken using GM wide strategic trip rates. This enabled the development of high level indicative transport mitigation for a single strategic “worst-case” scenario being identified in relation to the Plan allocations. These are contained in Appendix D of the plan and an extract is shown below.

Necessary:

- Norden Road / War Office Road – modifications to traffic circulation and local junction improvements
- Norden Road – new pedestrian crossing
- Bus stop upgrades at the Norden Road / War Office Road junction
- Active travel improvements including Furbarn Road improvements and North-South Greenway corridor through the site



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For each PfE allocation, there is now a need for more detailed TA work to be undertaken as part of the Master Plan process, aligned with an infrastructure phasing and delivery strategy. This TA work should set out a transport vision for the total quantum of development proposed on the allocation site and then test a set of detailed scenarios, underpinned by local traffic counts and appropriate site-specific trip rates for all modes, to determine the optimum design and transport infrastructure requirements to mitigate the impacts. When developing effective detailed mitigation, sustainable interventions that support active travel and facilitate access to public transport should be considered in the first instance. Highway interventions should only be considered to mitigate the impact of development, once the effectiveness of sustainable interventions is understood.

Until this Master Plan work is completed and an associated TA and infrastructure phasing and delivery strategy have been produced, it is not possible to determine what infrastructure would be required to facilitate individual parcels of development, when they would be required and how they will be funded.

- XV. Additional mitigation beyond that defined in the PfE JPA 17 may be required.
- XVI. The development doesn't appear to have any access other than via the road network. Some permeability for walking, wheeling and cycling should be considered other than the convoluted connections by the footway.
- XVII. The full allocation includes various sports facilities and greenspace, which builds in activity for this development and surrounding housing. However, many of these sports facilities are prone to generating vehicle movements. Therefore ensuring that active travel networks are well linked and that public transport is available will be a key consideration.
- XVIII. Norford Way is on TfGM's bee network map as a preferred route for active travel, and it is also expected that the nearby section of Bury Road will become a route that would connect this both to Bury and Rochdale centres. TfGM would therefore expect the development to connect to these routes and facilitate travel along them.



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2. General Comments

- I. A description of current baseline traffic conditions in the area.
- II. An analysis of injury accidents during the most recent five-year period, commenting on whether there are any underlying patterns of injury accidents that might be affected by the development.
- III. Up-to-date traffic counts should be used in any assessments - scope to be agreed with the Local Highway Authority (LHA), TfGM UTC and HFAS. TfGM UTC can be contacted in respect of the availability of any traffic counts in the area that could be used for the assessment.
- IV. A clear estimate of the level of new traffic likely to be associated with the development, based on an inspection of similar (and similarly-located) developments across the UK (excluding London) via the TRICS (or similar) database. The assessment work should be undertaken using a person-trip approach and applying the appropriate modal share percentages from local Census data. Other methodologies to determine trip rates are acceptable but these should be fully explained in the TA.
- V. A clearly defined methodology for determining the distribution / assignment of development trips onto the network i.e. understanding of where such new traffic is likely to distribute to/from, based on data sources such as a Census Journey-to-Work statistics and/or vehicle turning proportions at nearby junctions.
- VI. An assessment of traffic levels and impacts at the specified year of opening of the development, and at a future year at least five years later, with due regard for traffic growth (if any).
- VII. An understanding of the likely impacts of the proposed development considered alongside any other nearby committed developments.
- VIII. In the relevant TA, clear diagrams should be provided illustrating the following elements, each individually:
 - Base Flows
 - Committed Development Flows
 - Proposed Flows
 - Proposed Distribution



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- Base plus Committed plus proposed development
 - Future plus Committed plus proposed development
- IX. TfGM HFAS recommends an increase of about 30vehs/hr at a junction as an appropriate threshold for considering the necessity of a traffic impact assessment; this is in preference to a percentage-increase threshold, which tends to favour development in already heavily-trafficked areas.
 - X. The scope of the junctions to be assessed by detailed modelling should be agreed with TfGM (UTC) and the LHA in advance and will depend upon the outcome of the trip assessment and distribution exercise. For this reason, TfGM would advise that a trip generation and distribution exercise should be issued before submission of the planning application. Once this is undertaken it will be possible to finalise TfGM requirements in terms of the TA. This will largely depend on the amount of trip generation.
 - XI. Clear details of proposed vehicular access arrangements including general servicing arrangements. An engineering drawing should be supplied showing the changes to the road network to fully understand the impact of the proposed development.
 - XII. A swept path analysis should be provided for any vehicular access.
 - XIII. A review of Traffic Regulation Orders on the surrounding streets in the vicinity of the development.
 - XIV. An assessment of the likely environmental/traffic impacts of HGVs during the construction process.

3. Site Accessibility by Sustainable Modes

Walking and cycling should form the natural mode choice for shorter trips, and also provide a viable option to facilitate longer trips through providing easy access to public transport. New developments should connect with, and enhance, existing walking and cycling networks in their vicinity, and also provide high quality facilities and networks for walking and cycling within development sites.

The TA should include a comprehensive review of the existing provision in the vicinity of the site for all pedestrians including those with disabilities. In addition to walking distances and pedestrian desire lines, pedestrian environment (including footway condition and widths) and pedestrian safety and security should be considered. An



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audit of the footways in the vicinity of the development should be undertaken and improvements identified.

A comprehensive review of the cycling infrastructure in the vicinity of the proposed development should also be undertaken. This should include an assessment of the connectivity of the site with existing cycle routes. The quality and condition of existing infrastructure, cyclist safety and security should also be considered.

The catchment area for cycling, walking and public transport should be captured in maps. The quality of the routes for pedestrians and cyclists should be described and this should include a description of any signing for cycle routes as appropriate.

The TA should provide a review of existing public transport services (including service frequency and location of nearest stations/stops), with a view to supporting improvements to existing public transport services as required, in particular, assess the quality of the surrounding bus infrastructure i.e. upgrade to shelters etc.

The TA should include a plan clearly showing details of the proposed pedestrian and cycle access points serving the site and linkages into the surrounding area. Connectivity with local public transport networks should be highlighted. The applicant should consider measures to encourage access by sustainable modes. Possible measures include but are not limited to the provision of pedestrian crossings, cycleways, cycle parking, new/improved footway ensuring that there are linkages into existing cycle and pedestrian facilities, as well as upgrades to existing bus stops (where appropriate).

TfGM would suggest that a pedestrian survey is carried out in the vicinity of the site, as per guidance <https://www.livingstreets.org.uk/media/1434/street-review-guidance-for-web.pdf> and included as part of the TA.

It should be highlighted that LTN/120 has been introduced by the DfT and this has changed the requirements for the design of cycling provision.

Details of cycle parking facilities for the proposed development (e.g., number of spaces, location and type) should be provided and shown on plan.

4. Mitigation Measures

Impacts of the development should be identified through the above assessment work. The applicant should identify appropriate mitigation to accommodate any increases in traffic generation and increased pedestrian and cyclist movements. Any appropriate



Every journey. Every day.

mitigation should be identified in conjunction with TfGM UTC and the LHA who will be happy to work with the developer to agree an approach.

The TA should consider the impact of the development on the existing public transport networks in terms of extension of bus services, additional person trips. Mitigation measures should be considered where appropriate.

5. Travel Plan

A Framework Travel Plan for the development should accompany any future planning application.

6. Other

If there are any changes planned for bus infrastructure, for example relocation of existing bus stops or the creation of new bus parking areas, TfGM would request that the applicant liaise directly with TfGM's bus infrastructure team who can be contacted at Shelters@tfgm.com.

7. Suggested Useful Guidance

In relation to walking, the importance of providing and maintaining good quality footways, free from obstruction and wide enough for when they are at their busiest, is critical to encourage and maximise walking levels associated with new developments. Useful guidance on street layouts which encourage walking is provided in Manual for Streets (Department for Transport, 2007). MfS provides guidance on lightly trafficked residential streets, and Manual for Streets 2 (CIHT, 2010) further develops the principles of the first Manual for Streets for application in wider circumstances on busier streets, including town and district centres.

In relation to cycling, infrastructure should be designed in accordance with current Greater Manchester Cycling Design Standards, the latest version of which is available from the TfGM website or by emailing cycling@tfgm.com. In particular, connections to/from and within developments should be designed in accordance with the Key Design Criteria of Safety, Coherence, Directness, Attractiveness and Comfort. A general principle is that infrastructure should be designed to be attractive to those who do not currently cycle, in order to drive the increase in cycling's mode share.

TfGM would encourage the applicant to review the Bee Network Map online via TfGM's website to determine whether there is an opportunity for this development to connect into the proposed Bee Network.



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I hope you find these comments useful in the pre-application process. Should you wish to discuss any matter further please do not hesitate to contact the Landuse team via the details below.

Yours faithfully

Landuse Team
Highways Department
Transport for Greater Manchester
Email: landuse@tfgm.com



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Appendix D: Automated Traffic Counts – Raw Data

ATC Location Plan



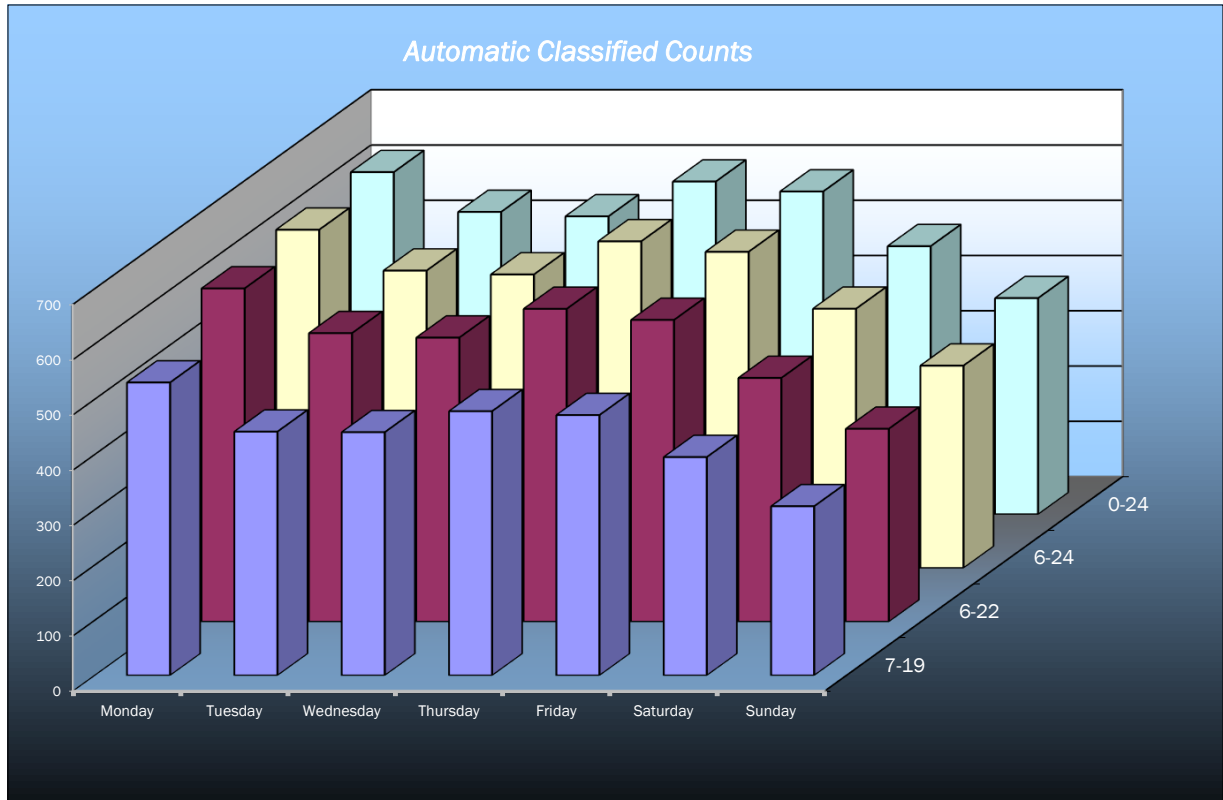
Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : WESTBOUND

VEHICLE FLOWS									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	3	3	3	1	6	6	6	3	4
2	0	1	0	1	2	5	9	1	3
3	0	1	2	3	1	1	2	1	1
4	1	1	0	1	1	2	5	1	2
5	1	1	0	0	1	1	2	1	1
6	2	2	3	5	1	1	1	3	2
7	2	7	7	5	5	1	1	5	4
8	15	17	15	16	26	6	5	18	14
9	32	33	24	32	31	8	7	30	24
10	21	19	22	28	22	17	8	22	20
11	24	26	29	23	28	43	19	26	27
12	31	31	30	28	30	45	46	30	34
13	38	40	31	48	34	40	37	38	38
14	34	30	40	34	44	41	41	36	38
15	35	30	39	39	44	49	28	37	38
16	137	49	52	55	63	44	36	71	62
17	60	65	45	57	59	37	31	57	51
18	68	56	62	72	50	36	22	62	52
19	35	45	51	46	40	29	26	43	39
20	34	31	19	35	27	16	13	29	25
21	22	28	26	29	27	16	20	26	24
22	15	15	22	19	16	13	9	17	16
23	6	8	9	21	15	15	12	12	12
24	3	8	8	4	11	13	5	7	7

7-19	530	441	440	478	471	395	306	472	437
6-22	603	522	514	566	546	441	349	550	506
6-24	612	538	531	591	572	469	366	569	526
0-24	619	547	539	602	584	485	391	578	538

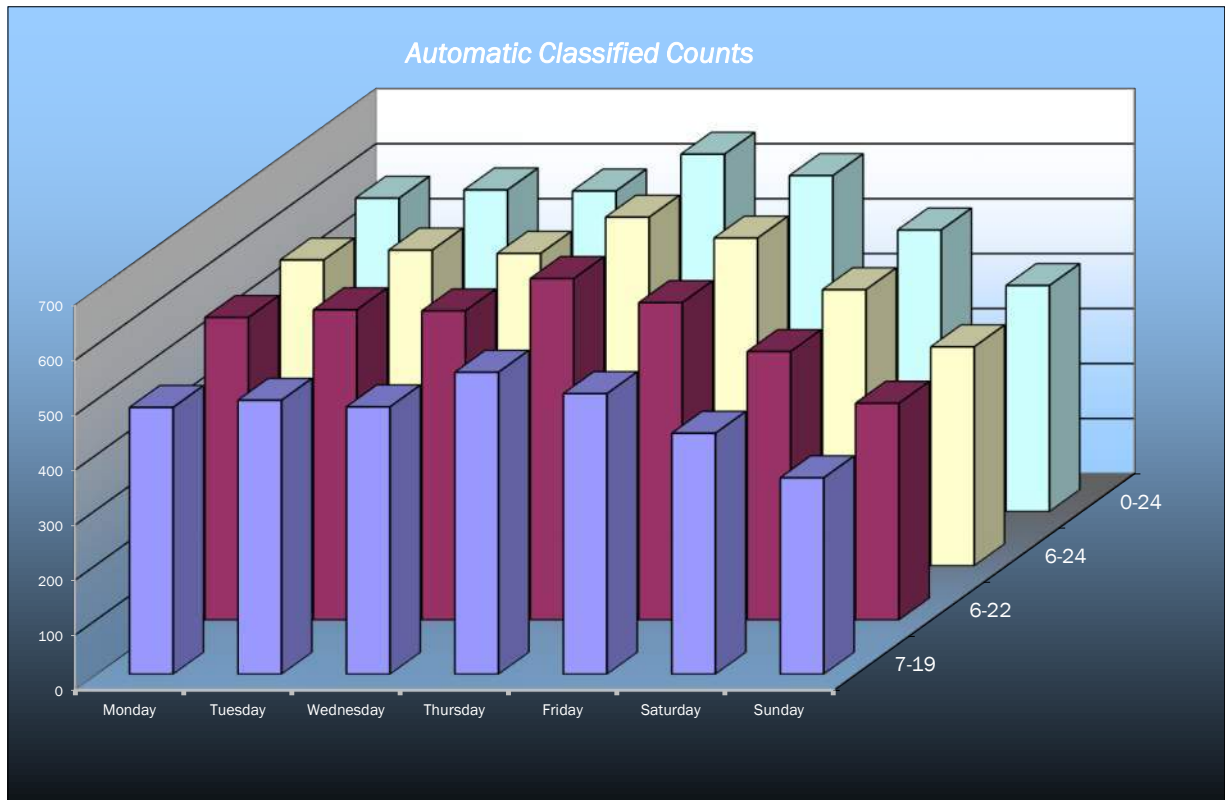


Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : EASTBOUND

EASTBOUND									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	0	1	0	1	2	4	4	1	2
2	1	0	2	0	1	4	4	1	2
3	0	0	1	1	0	1	1	0	1
4	1	0	0	1	0	0	3	0	1
5	3	3	0	1	0	0	1	1	1
6	9	7	12	12	12	1	0	10	8
7	27	27	38	25	27	4	5	29	22
8	61	62	61	65	62	17	3	62	47
9	57	59	73	60	59	39	14	62	52
10	44	49	42	59	53	56	36	49	48
11	31	37	39	44	40	54	46	38	42
12	30	38	33	38	39	37	45	36	37
13	32	28	31	31	27	56	39	30	35
14	23	36	21	31	34	34	40	29	31
15	46	24	44	38	52	29	30	41	38
16	55	32	40	48	40	31	20	43	38
17	30	50	31	41	38	30	32	38	36
18	40	33	38	40	30	26	20	36	32
19	36	50	33	54	36	29	32	42	39
20	24	23	20	23	24	19	13	23	21
21	4	10	8	17	10	13	14	10	11
22	10	6	10	7	6	14	5	8	8
23	5	3	3	10	12	7	2	7	6
24	1	7	3	3	7	7	2	4	4
7-19	485	498	486	549	510	438	357	506	475
6-22	550	564	562	621	577	488	394	575	537
6-24	556	574	568	634	596	502	398	586	547
0-24	570	585	583	650	611	512	411	600	560



Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : WESTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	18.8	18.8	25.5	22.2	17.2	17.2
2	-	15.5	-	15.5	20.5	21.5	24.4
3	-	25.5	20.5	26.3	25.5	25.5	20.5
4	25.5	15.5	-	15.5	15.5	20.5	19.5
5	15.5	25.5	-	-	15.5	15.5	20.5
6	15.5	15.5	18.8	21.5	15.5	25.5	25.5
7	20.5	16.9	18.4	17.5	17.5	15.5	15.5
8	19.0	21.8	17.5	21.1	20.1	18.8	15.5
9	17.1	16.6	16.2	17.4	17.8	18.9	15.5
10	17.4	16.9	16.4	16.6	16.4	17.9	18.0
11	18.4	16.3	19.4	18.0	17.9	17.8	18.7
12	18.3	16.8	17.6	16.2	16.8	16.8	18.1
13	16.8	17.5	16.5	16.3	16.7	16.3	18.7
14	17.9	16.5	16.3	17.0	16.4	18.4	17.7
15	16.6	17.2	18.1	15.2	17.8	16.7	17.6
16	16.4	15.3	16.7	16.6	17.1	18.7	18.3
17	17.0	17.0	17.3	18.1	17.4	16.3	17.3
18	18.4	18.5	17.7	18.0	17.8	18.0	19.0
19	17.8	17.7	19.4	17.7	18.3	18.5	17.0
20	18.4	17.4	17.6	18.3	19.6	16.8	19.3
21	18.2	18.3	18.1	18.9	18.0	18.0	18.5
22	16.8	18.2	18.2	17.5	18.0	19.2	15.5
23	18.8	19.3	21.1	19.2	16.2	20.5	16.3
24	22.2	20.5	18.0	18.0	18.9	18.6	19.5

10-12	18.4	16.5	18.5	17.1	17.4	17.3	18.4
14-16	16.5	16.2	17.4	15.9	17.5	17.7	18.0
0-24	18.1	18.1	18.0	18.3	18.1	18.6	18.5

85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	24.6	24.6	-	27.3	21.2	21.2
2	-	-	-	-	27.6	27.0	35.3
3	-	-	27.6	37.6	-	-	27.6
4	-	-	-	-	-	27.6	25.0
5	-	-	-	-	-	-	27.6
6	15.5	15.5	24.6	27.0	-	-	-
7	27.6	25.9	23.2	22.0	22.0	-	-
8	26.7	27.6	21.6	26.2	25.2	24.0	15.5
9	21.5	21.8	22.5	22.1	22.0	27.5	15.5
10	22.5	22.6	20.7	21.5	20.7	23.5	22.6
11	23.9	19.0	26.1	23.1	22.8	22.4	24.5
12	24.5	21.1	25.1	18.8	22.5	21.4	22.5
13	21.0	23.1	21.9	20.4	20.8	21.0	23.8
14	22.2	24.1	21.0	22.5	20.0	23.0	21.9
15	20.7	21.0	22.5	20.6	23.3	22.0	21.8
16	20.2	19.1	20.9	20.3	20.8	23.4	22.8
17	21.0	21.3	21.7	23.5	21.7	20.6	22.8
18	23.6	24.3	22.3	22.7	22.6	22.4	25.3
19	22.7	22.4	24.4	22.3	23.6	23.7	21.7
20	23.1	21.5	21.8	23.2	24.6	22.9	24.4
21	22.8	23.3	23.1	25.4	23.0	22.5	23.2
22	23.2	22.7	22.8	22.4	22.5	27.2	20.5
23	24.0	24.4	26.3	24.8	20.7	27.2	19.2
24	27.9	25.8	22.6	23.0	25.1	23.4	25.0

10-12	24.2	20.0	25.6	20.9	22.7	21.9	23.5
14-16	20.4	20.0	21.7	20.4	22.0	22.7	22.3
0-24	22.5	22.6	23.2	23.5	22.9	23.7	23.2

7 DAY AVERAGE SPEED	18.3
7 DAY AVERAGE 85th PERCENTILE	23.1

5 DAY OFF PEAK AVERAGE SPEED	17.1
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	21.8

Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (EASTERN SITE)

Direction : EASTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	-	25.5	-	15.5	15.5	15.5	20.5
2	15.5	-	20.5	-	25.5	18.0	18.0
3	-	-	15.5	25.5	-	25.5	15.5
4	15.5	-	-	15.5	-	-	15.5
5	12.2	25.5	-	15.5	-	-	33.0
6	17.7	16.9	16.3	18.0	16.3	15.5	-
7	17.4	18.5	18.9	18.2	16.9	10.5	13.5
8	16.0	16.8	16.4	17.8	17.1	16.1	15.5
9	16.2	16.2	15.6	17.2	15.0	16.6	19.1
10	14.8	15.1	16.0	14.5	15.1	15.8	15.8
11	14.9	14.4	15.0	14.8	17.3	16.8	14.2
12	15.2	14.6	13.7	16.2	15.5	15.8	18.5
13	14.3	16.9	14.5	14.9	16.2	16.6	16.5
14	15.8	14.1	15.0	15.5	16.5	15.5	16.6
15	16.3	15.1	17.5	13.1	16.5	15.5	16.1
16	15.1	14.9	16.3	14.6	15.3	15.2	16.0
17	16.2	15.3	15.2	15.2	16.2	17.4	16.7
18	16.9	16.4	16.8	18.1	16.2	17.4	17.5
19	17.1	16.3	16.7	17.0	17.5	17.1	15.2
20	17.6	15.9	18.5	15.1	17.1	17.1	17.8
21	20.5	17.5	16.8	17.9	17.5	16.1	16.6
22	15.5	17.2	19.5	12.6	17.2	16.4	21.5
23	13.5	12.2	15.5	15.5	14.7	14.1	15.5
24	43.0	19.8	15.5	15.5	16.9	16.9	15.5

10-12	15.0	14.5	14.3	15.5	16.4	16.3	16.3
14-16	15.7	15.0	16.9	13.9	15.9	15.3	16.0
0-24	17.1	16.9	16.5	16.2	16.8	16.4	17.4

85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	-	-	-	-	15.5	23.7	26.3
2	-	-	27.6	-	-	23.0	23.0
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	15.5
5	17.9	25.5	-	-	-	-	-
6	22.1	23.8	23.0	24.2	21.5	-	-
7	24.2	25.2	23.7	24.7	22.6	16.3	21.9
8	22.5	23.5	22.9	23.5	22.6	20.4	15.5
9	21.8	21.0	20.8	22.4	20.4	22.8	25.4
10	21.2	21.2	20.9	19.3	20.3	22.0	21.4
11	20.6	20.1	21.5	20.7	22.3	24.3	20.4
12	22.4	21.6	20.0	22.8	21.1	22.2	24.9
13	21.3	23.4	21.0	21.1	22.4	22.2	22.5
14	21.9	19.5	21.7	20.7	23.4	21.0	24.2
15	22.4	19.7	22.8	19.9	22.2	21.5	22.2
16	20.9	20.5	22.4	20.2	19.5	20.0	22.0
17	22.0	20.8	20.0	20.7	22.3	22.7	21.9
18	23.0	22.2	22.3	24.2	23.1	24.4	23.7
19	25.3	22.6	21.6	22.9	24.6	22.9	21.7
20	23.5	20.7	23.2	19.8	22.4	22.1	25.1
21	26.3	25.4	20.3	22.2	23.8	21.9	25.3
22	20.2	21.2	26.5	17.5	21.2	26.0	27.0
23	21.9	17.9	25.5	22.2	21.4	21.0	15.5
24	-	25.1	25.5	15.5	20.7	20.7	29.6

10-12	21.5	20.8	20.7	21.7	21.7	23.3	22.6
14-16	21.7	20.1	22.6	20.0	20.8	20.7	22.1
0-24	22.2	22.1	22.7	21.3	21.7	22.0	22.6

7 DAY AVERAGE SPEED	16.8
7 DAY AVERAGE 85th PERCENTILE	22.1

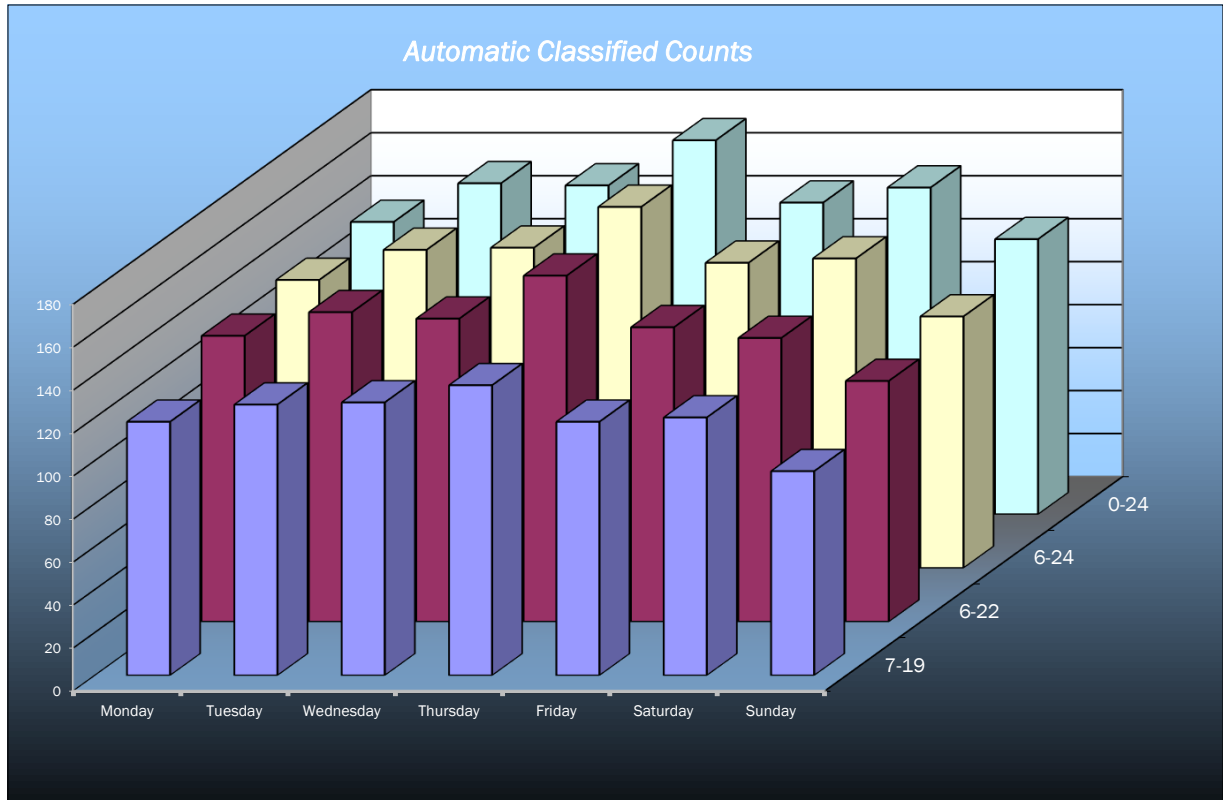
5 DAY OFF PEAK AVERAGE SPEED	15.3
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	21.2

Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : WESTBOUND

VEHICLE FLOWS									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	1	4	1	1	1	2	2	2	2
2	0	0	0	1	1	2	4	0	1
3	0	1	1	2	1	1	1	1	1
4	1	0	0	0	0	1	3	0	1
5	0	1	0	0	0	1	1	0	0
6	0	0	2	2	0	1	0	1	1
7	1	1	0	0	2	0	0	1	1
8	5	10	4	6	13	2	1	8	6
9	11	7	6	11	10	6	0	9	7
10	8	5	8	7	4	4	3	6	6
11	7	7	9	8	12	16	11	9	10
12	15	12	16	5	7	10	12	11	11
13	9	15	12	9	13	15	12	12	12
14	12	12	10	13	12	11	14	12	12
15	7	9	11	13	6	18	8	9	10
16	15	7	9	13	13	16	13	11	12
17	11	16	15	16	15	9	6	15	13
18	12	15	12	24	9	8	10	14	13
19	6	11	15	10	4	5	5	9	8
20	9	9	4	12	8	4	4	8	7
21	4	5	7	8	7	5	8	6	6
22	1	3	3	6	2	3	5	3	3
23	1	1	5	6	2	7	3	3	4
24	0	3	3	1	3	5	2	2	2
7-19	118	126	127	135	118	120	95	125	120
6-22	133	144	141	161	137	132	112	143	137
6-24	134	148	149	168	142	144	117	148	143
0-24	136	154	153	174	145	152	128	152	149

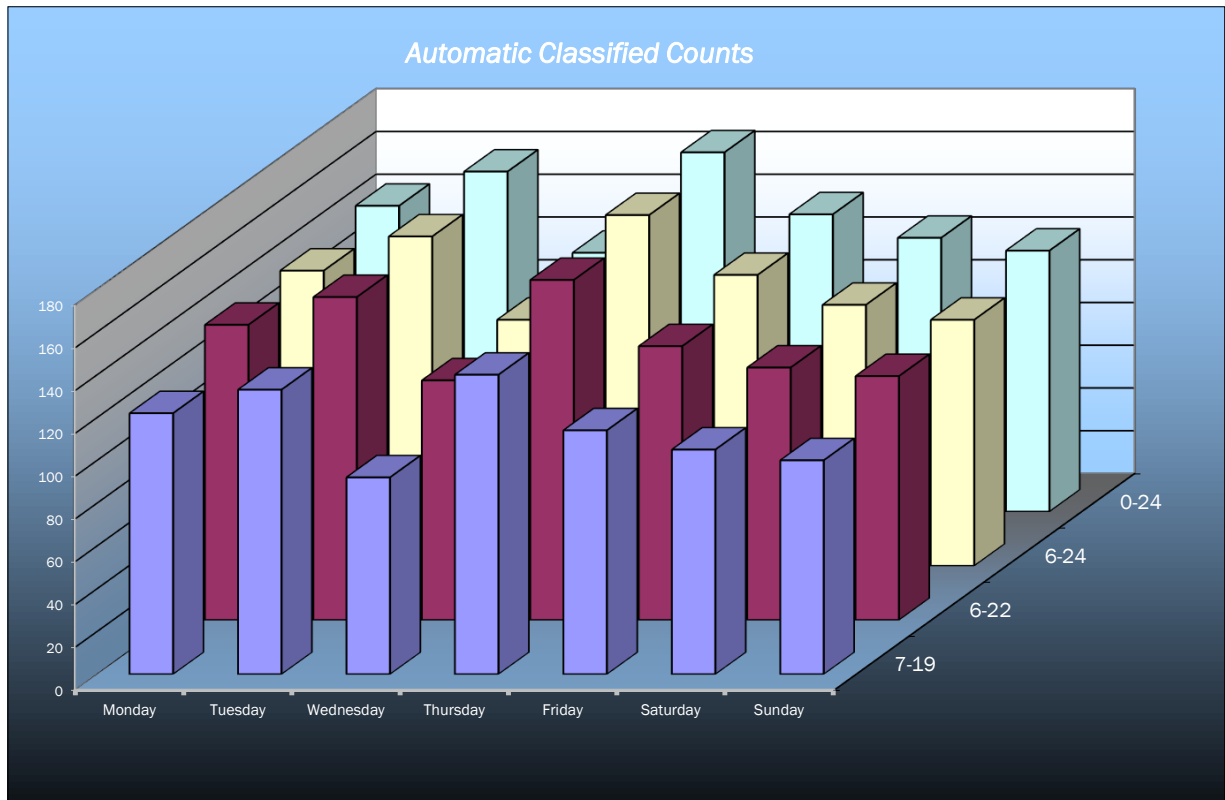


Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : EASTBOUND

EASTBOUND									
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24	WEEKDAY AVERAGE	WEEK AVERAGE
1	1	2	1	0	0	4	2	1	1
2	0	0	0	0	1	1	2	0	1
3	0	0	0	0	0	0	1	0	0
4	0	0	1	0	0	0	1	0	0
5	1	2	0	0	1	1	1	1	1
6	3	1	4	4	1	0	0	3	2
7	7	8	8	6	3	0	0	6	5
8	10	16	9	14	10	2	0	12	9
9	10	9	13	11	11	8	7	11	10
10	10	8	8	12	10	11	6	10	9
11	10	9	8	11	11	16	7	10	10
12	7	14	7	11	7	9	15	9	10
13	9	12	7	7	11	15	10	9	10
14	12	9	4	14	6	6	9	9	9
15	13	4	10	6	13	11	8	9	9
16	10	7	10	14	7	9	6	10	9
17	10	18	2	15	9	6	14	11	11
18	9	8	8	9	9	8	8	9	8
19	12	19	6	16	10	4	10	13	11
20	6	6	8	5	6	6	5	6	6
21	2	3	1	6	3	3	3	3	3
22	1	1	3	2	2	4	6	2	3
23	0	1	2	5	3	2	1	2	2
24	0	2	1	0	5	2	0	2	1
7-19	122	133	92	140	114	105	100	120	115
6-22	138	151	112	159	128	118	114	138	131
6-24	138	154	115	164	136	122	115	141	135
0-24	143	159	121	168	139	128	122	146	140



Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : WESTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	15.5	15.5	25.5	15.5	15.5	15.5
2	-	-	-	15.5	15.5	20.5	19.9
3	-	15.5	15.5	20.5	15.5	15.5	15.5
4	15.5	-	-	-	-	15.5	22.2
5	-	15.5	-	-	-	15.5	25.5
6	-	-	20.5	20.5	-	15.5	-
7	25.5	15.5	-	-	20.5	-	-
8	19.5	17.5	20.5	20.5	19.3	15.5	15.5
9	17.3	19.8	20.5	17.3	16.5	20.5	-
10	13.0	17.5	16.8	16.9	20.5	15.5	18.8
11	15.5	15.5	16.6	16.8	14.7	16.8	16.4
12	14.8	16.3	16.1	15.5	14.1	16.5	18.0
13	16.6	17.5	15.5	15.5	15.5	15.5	18.8
14	15.5	18.0	14.5	17.8	14.7	18.2	16.9
15	16.9	17.7	15.5	16.3	17.2	17.2	15.5
16	18.2	14.1	16.6	16.3	16.3	18.0	15.5
17	17.3	17.4	17.5	16.1	16.8	17.7	20.5
18	22.2	18.0	18.8	17.6	16.6	19.3	19.5
19	15.5	16.4	18.2	17.5	15.5	19.5	15.5
20	18.8	14.4	23.0	19.7	16.8	18.0	20.5
21	20.5	17.5	24.1	20.2	21.2	15.5	18.0
22	15.5	15.5	25.5	17.2	15.5	18.8	17.5
23	15.5	25.5	21.5	20.5	15.5	19.8	18.8
24	-	15.5	15.5	15.5	18.8	15.5	20.5
10-12	15.2	15.9	16.4	16.1	14.4	16.6	17.2
14-16	17.5	15.9	16.1	16.3	16.7	17.6	15.5
0-24	17.3	17.0	18.4	18.1	16.8	17.2	18.3

85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	-	15.5	-	-	-	15.5	15.5
2	-	-	-	-	-	27.6	28.6
3	-	-	-	27.6	-	-	-
4	-	-	-	-	-	-	27.9
5	-	-	-	-	-	-	-
6	-	-	27.6	27.6	-	-	-
7	-	-	-	-	27.6	-	-
8	25.0	23.8	26.3	26.0	25.9	15.5	-
9	21.4	25.1	26.0	23.3	22.2	26.0	-
10	17.6	22.0	23.2	20.7	26.3	23.7	24.6
11	15.5	15.5	19.9	20.3	17.6	20.2	23.4
12	19.4	23.0	20.6	22.6	17.9	23.9	22.5
13	19.9	23.1	22.9	22.6	21.3	22.0	25.3
14	21.5	24.2	17.7	22.2	21.4	22.9	23.6
15	20.7	22.1	15.5	19.0	21.2	22.3	20.8
16	24.1	17.9	19.9	21.2	19.0	22.5	15.5
17	23.3	22.8	23.1	22.9	20.4	22.1	26.0
18	27.1	23.4	23.8	22.7	22.6	24.4	24.7
19	21.8	21.8	22.7	21.7	23.7	25.0	22.6
20	25.9	20.4	28.0	24.8	23.2	23.0	26.3
21	30.5	25.9	27.9	27.1	26.6	15.5	22.6
22	-	15.5	25.5	21.2	15.5	24.6	22.0
23	-	-	27.0	26.0	15.5	27.7	24.6
24	-	15.5	15.5	-	24.6	15.5	27.6
10-12	17.5	19.3	20.2	21.4	17.7	22.0	23.0
14-16	22.4	20.0	17.7	20.1	20.1	22.4	18.2
0-24	22.4	21.0	22.9	23.3	21.8	22.1	23.6

7 DAY AVERAGE SPEED	17.6
7 DAY AVERAGE 85th PERCENTILE	22.5

5 DAY OFF PEAK AVERAGE SPEED	16.0
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	19.6

Automatic Classified Counts, Rochdale

LOCATION: GREENVALE (WESTERN SITE)

Direction : EASTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	15.5	15.5	15.5	-	-	18.0	15.5
2	-	-	-	-	15.5	15.5	15.5
3	-	-	-	-	-	-	15.5
4	-	-	15.5	-	-	-	15.5
5	15.5	15.5	-	-	15.5	5.5	15.5
6	15.5	15.5	13.0	15.5	15.5	-	-
7	16.9	16.8	20.5	15.5	18.8	-	-
8	19.5	19.3	19.9	19.1	18.5	20.5	-
9	16.5	16.6	16.3	16.4	14.6	19.3	19.8
10	14.5	15.5	15.5	15.5	16.5	21.9	20.5
11	15.5	14.4	11.8	14.6	15.5	14.9	14.1
12	16.9	14.8	16.9	18.2	14.1	16.6	18.2
13	14.4	17.2	14.1	16.9	12.8	15.5	15.5
14	16.3	14.4	15.5	16.9	18.8	17.2	16.6
15	17.0	15.5	17.5	15.5	16.3	14.6	16.8
16	15.5	12.6	16.5	15.5	14.1	15.5	15.5
17	16.5	16.1	15.5	16.8	17.7	18.8	16.2
18	18.8	15.5	18.0	19.9	15.5	15.5	18.0
19	18.0	19.2	18.8	16.1	18.5	20.5	18.5
20	17.2	15.5	16.8	19.5	17.2	18.8	21.5
21	25.5	15.5	25.5	17.2	18.8	15.5	15.5
22	15.5	25.5	15.5	20.5	20.5	18.0	13.8
23	-	15.5	20.5	17.5	12.2	15.5	5.5
24	-	15.5	25.5	-	15.5	20.5	-

10-12	16.2	14.6	14.3	16.4	14.8	15.7	16.1
14-16	16.3	14.1	17.0	15.5	15.2	15.0	16.1
0-24	16.9	16.3	17.4	17.1	16.3	16.9	16.2

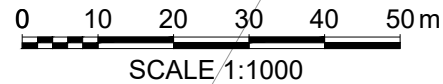
85TH PERCENTILE							
Hr Ending	Monday 4-Nov-24	Tuesday 5-Nov-24	Wednesday 6-Nov-24	Thursday 7-Nov-24	Friday 8-Nov-24	Saturday 9-Nov-24	Sunday 10-Nov-24
1	-	15.5	-	-	-	23.0	15.5
2	-	-	-	-	-	-	15.5
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	29.6	-	-	-	-	-
6	15.5	-	18.0	15.5	-	-	-
7	20.7	20.3	25.8	21.8	24.6	-	-
8	24.7	25.4	27.2	25.4	25.2	27.6	-
9	22.2	19.9	21.2	19.4	20.0	24.4	25.1
10	20.2	15.5	15.5	15.5	19.7	26.9	26.0
11	20.2	17.7	16.9	20.0	20.0	19.3	17.9
12	20.7	20.9	23.8	22.9	17.9	22.6	22.7
13	20.4	21.1	17.9	20.7	17.4	20.8	20.2
14	21.5	17.7	23.7	20.6	24.0	24.7	19.9
15	22.6	15.5	23.8	21.8	21.2	20.0	20.3
16	20.2	17.5	19.7	19.4	17.9	15.5	15.5
17	22.2	20.2	15.5	20.4	24.4	24.0	18.9
18	23.8	15.5	22.6	25.2	15.5	20.8	22.6
19	22.5	24.1	24.0	20.6	23.3	26.3	23.3
20	21.2	21.8	23.2	25.0	21.2	24.0	27.0
21	25.5	15.5	-	21.2	24.6	15.5	15.5
22	-	-	15.5	27.6	27.6	23.0	17.9
23	-	-	27.6	22.0	17.9	15.5	-
24	-	15.5	-	-	22.6	27.6	-

10-12	20.5	19.3	20.4	21.4	18.9	21.0	20.3
14-16	21.4	16.5	21.7	20.6	19.5	17.7	17.9
0-24	21.5	19.4	21.3	21.4	21.4	22.3	20.2

7 DAY AVERAGE SPEED	16.7
7 DAY AVERAGE 85th PERCENTILE	21.1

5 DAY OFF PEAK AVERAGE SPEED	15.4
5 DAY OFF PEAK AVERAGE 85th PERCENTILE	20.0

Appendix E: Proposed Site Layout: Swept Paths and Forward Stopping Sight Distances



- Notes:
1. All dimensions are in metres unless specified otherwise.
 2. This drawing is based MCK Associates Limited Drawing no.23-025-401C Rev D. Tetra Tech does not take responsibility for any discrepancies.

Key:

— Approx site boundary

Overview Plan for
Turning Heads 1 & 2
and FSSD 1 & 2

PRELIMINARY ISSUE

P02	Revised Site Layout	02.04.2025	JT	MT	AK
P01	Preliminary first issue	14.03.2025	AB	MT	AK
Rev	Description	Date	Rev	Rev	App

Document Control

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Client



Project Name
**Proposed Residential Development:
Land off Greenvale, Bamford, Rochdale**

Sheet Title
**Proposed Internal Site Layout: Swept Path Analysis
and Foward Stopping Sight Distance Checks:
Overview - Sheet 1 of 2**

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @	Suitability
784-B068938	AB	Mar '25	MT	Mar '25	AK	Mar '25	As Shown	S0
Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision		
B068938	- TTE	- 00 - XX - TR	- O - 003-01	P02				

Appendix F: Proposed Site Access: Preliminary Layout



- Notes:
1. This drawing is based on MCK Associates Limited drawing no.23-025-401C Rev D. Tetra Tech does not take responsibility for any discrepancies.
 2. All measurements are in metres unless stated otherwise
 3. Visibility splays drawn to nearside side edge in line with MfS paragraph 10.5.3
 4. November 2024 Recorded 85th Percentile Speeds
Eastern ATC: Westbound Speed = 23.1mph
Western ATC: Eastbound speed = 22.5mph
 5. MfS suggested visibility splays based on recorded speeds:
Looking to the right = 2.4m x 27.4m
Looking to the left = 2.4m x 26.3m

- Key:
- Approx site boundary
 - Visibility Splays based on recorded speeds
 - Achievable visibility splay
 - Driveway entrances

PRELIMINARY ISSUE

P03	REVISED SITE LAYOUT	02.04.2025	JT	MT	AK
P02	UPDATED VISIBILITY SPLAYS	18.03.2025	AB	MT	MT
P01	PRELIMINARY FIRST ISSUE	07.08.2024	AB	MT	MT
Rev.	Description	Date	By	CHK	App

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Client

Wain
H.M.P.L.

Project Name

**Proposed Residential Development:
Land off Greenvale, Bamford, Rochdale**

Sheet Title

**Proposed Site Access: Visibility Splay
Assessment**

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	As Shown	Suitability
784-B068938	AB	Aug '24	MT	Aug '24	MT	Aug '24	As Shown		S0
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision		
B068938	- TTE	- 00	- XX	- DR	- O	- 001	P03		

Appendix G: Proposed Site Access: Swept Paths
