TRANSPORT ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT, LAND AT MAIN AVENUE, COWLERSLEY

Strata and Thirteen Group

JULY 2025

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Contents

Chapter Title Page

1. INTRODUCTION 1
Introduction 1
Development Proposals and Background 1
Pre-application 2
Scoping Exercise 3
Report Structure 3
2. POLICY REVIEW 5
Introduction 5
National Policy Context 5
Local Policy 6
3. ACCESSIBILITY 9
Active Travel Options 9
Public Transport 13
Local Amenities 15
4. LOCAL HIGHWAY NETWORK 17
Introduction 17
Highway Network 17
Road Safety 19
5. TRIP GENREATION AND DEVELOPMENT IMPACT 21
Introduction 21
Trip Generation 21
Trip Distribution 22
Materiality 23
6. OPERATIONAL ASSESSMENTS 24
Introduction 24
Base Survey Data 24
NTM Adjusted Tempro Growth Rates 24
Modelling Scenarios 25
Operational Assessments 25
Summary 26
7. ACCESS, PARKING AND SERVICING 27
Introduction 27
Access 27
Parking 30
Servicing 30

8. ..... SUMMARY & CONCLUSIONS 32
Summary 32
Conclusion 32

1. INTRODUCTION

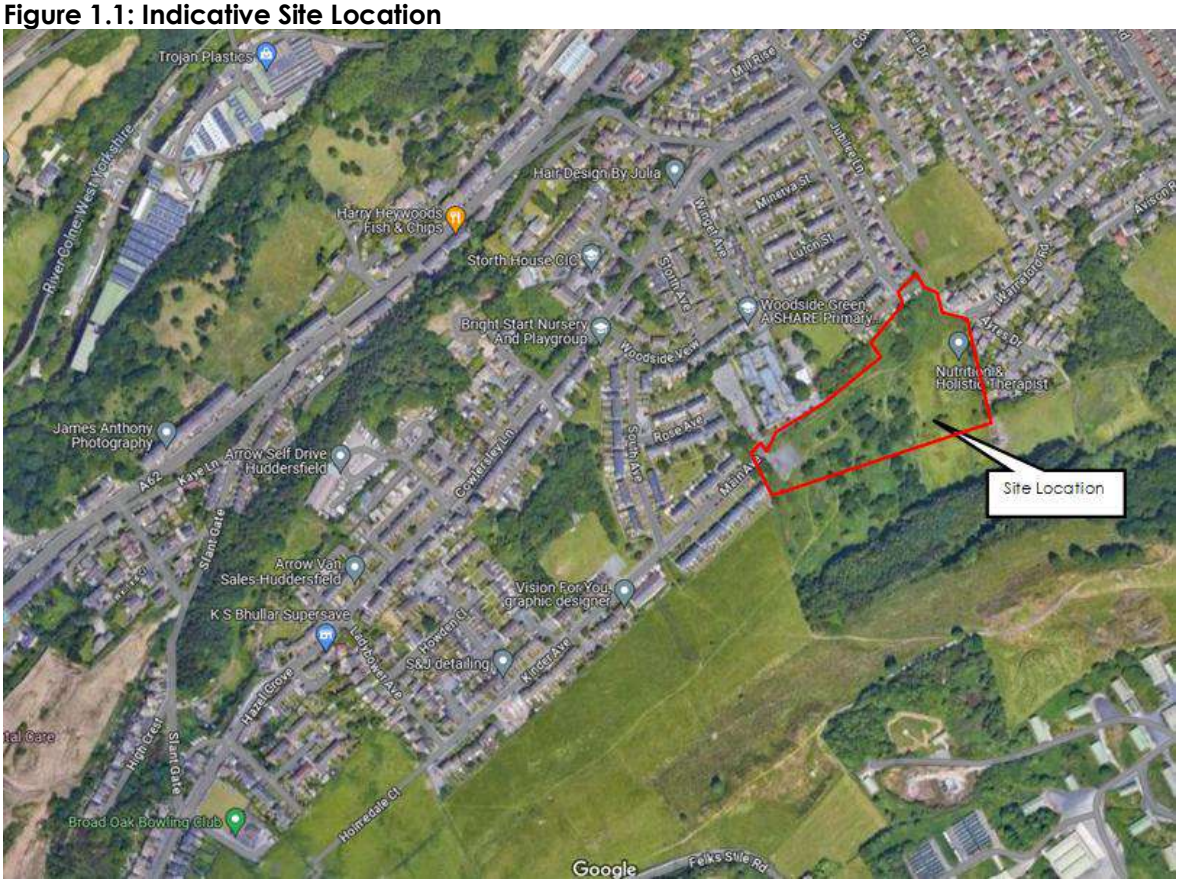
INTRODUCTION

1.1 TPS Transport Consultants Ltd. has been appointed by Strata and Thirteen Group, to prepare a Transport Assessment (TA) in support of a planning application for residential development on land at Main Avenue, Cowlersley, Huddersfield.

DEVELOPMENT PROPOSALS AND BACKGROUND

1.2 The proposed development is located to the northeast of Main Avenue and south of Windsor Road. The site is bound by open space and woodland to the south, residential dwellings and a primary school to the north and residential dwellings to the east and west. The location of the site is shown indicatively in **Figure 1.1,** whilst a proposed site layout plan is attached at **Appendix A.**

Figure 1.1: Indicative Site Location



(Source : Google Maps)

1.3 The site is allocated for residential development in the Kirklees Local Plan (Site HS156), with an indicative capacity of 76 dwellings. In line with the Kirklees Local Plan Allocations and

Designations (February 2019) document, this Transport Assessment and an associated Travel Plan have been provided as part of the application. The site layout has been designed to take account of the public rights of way in the vicinity of the site.

1.4 The application seeks permission for 57no. dwellings, comprising a mix of 2, 3 and 4-bedroom dwellings. Access is to be taken via an extension of Main Avenue to the southwest and an extension of Windsor Road, to the north, where it currently terminates. This will provide access to a linear northeast/southwest route through the site, where dwellings will take direct frontage access.

PRE-APPLICATION

1.5 A pre-application was submitted in 2021, ref: 2021/21121, for a residential development of 49 dwellings with access proposed by creating a link between Main Avenue and Windsor Road, as is proposed as part of this scheme

1.6 A pre-application response was provided by officers at Kirklees HDM in December 2021 in relation to the scheme. The full response is attached at **Appendix B,** with a summary of salient points provided below:

- Visitor car parking should be provided at 1 space per 4 dwellings and ideally should be in the form of laybys that are parallel to the carriageway;
- Ensure that forward visibility of 25m can be achieved throughout the site and visibility splays of 2.4m x 25m can be achieved at internal junctions, in line with a 20mph design speed;
- At the west of the site, where the estate road ties in with Main Avenue, the kerb alignment is abrupt and should be smoothed out to tie in with the existing carriageway and footway provision;
- School Keep Clear markings will need to be provided near to the entrance to the school, at the northern end of Main Avenue, to be funded by the developer. Also, is there scope to provide an area of additional visitor parking for school drop-off/pick-up, in order to maintain two-way flow along the proposed estate road;
- A scheme of traffic calming measures are required within the site and also on Main Avenue, up to the junction with South Avenue and along Windsor Road. This would most likely be in the form of speed cushions;
- There is restricted visibility at the junctions of Windsor Road / Cowlersley Lane, Woodside View / Cowlersley Lane and Ladybower Avenue / Hazel Grove. With

this in mind, it was suggested that speed surveys are undertaken to demonstrate 85th percentile speeds and drawings prepared demonstrating the existing visibility splay requirements; and

- Junction capacity assessments at two junctions, Windsor Road / Cowlersley Lane and Woodside View / Cowlersley Lane should be provided as part of any Transport Assessment.

1.7 The layout of the proposed development has evolved since the original pre-application submission, nonetheless, previous comments relating to layout have been taken into consideration in the context of the current proposals.

SCOPING EXERCISE

1.8 In line with the pre-app response, the scope of any Transport Assessment should be agreed with officers prior to the formal planning application. With this in mind,a Scoping Exercise was prepared by TPS in November 2023, attached at **Appendix C,** with a view to agreeing the scope of the Transport Assessment with Highways Officers at Kirklees Council at an early stage in the application process. The response from Kirklees council is attached at **Appendix D**

1.9 Despite the scoping exercise setting out trip rates for the development and demonstrating that the impact of the development at any off-site junction would be less than 30 two-way trips in either peak hour, the industry standard threshold for when further assessment is required, Kirklees have requested that off-site junction modelling be undertaken. With this in mind, junction models have been prepared for two off-site junctions where vehicles are expected to take access from. This is summarised in **Section 6**.

REPORT STRUCTURE

1.10 Following this introductory section:

Section 2 describes the transport planning policy context within which the proposals will be assessed;

Section 3 details the accessibility of the development site, focusing on the means by which residents and visitors can access the site by non-car modes of travel;

Section 4 describes the existing highway network in the vicinity of the development and key routes to the site, with reference to historic road safety records;

Section 5 summarises the predicted trip generation based on rates obtained from the TRICS database and a distribution of development traffic, based on a Gravity Model;

Section 6 considers the impact of the development at two off-site junctions;

Section 7 considers parking and servicing arrangements; and

Section 8 offers a summary and conclusions.

2. POLICY REVIEW

INTRODUCTION

2.1 This section of the Transport Assessment identifies the policy context within which the development proposals have been assessed; it clearly demonstrates how well the proposed development accords with the overarching principles set out in national and local transport planning policy.

NATIONAL POLICY CONTEXT

National Planning Policy Framework (NPPF – DCLG, December 2023)

2.2 The revised National Planning Policy Framework was published in December 2023 and sets out the government's planning policies for England and how these are expected to be applied. It continues to encourage development through the planning system, with a presumption in favour of sustainable development. Paragraph 114 states that "*in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

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

2.3 It goes on to state that "*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. (Paragraph 115)*." Paragraph 116 sets outs that applications for development should:

a) Give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus

or other public transport services, and appropriate facilities that encourage public transport use;

b) *Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*

c) *Create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*

d) *Allow for the efficient delivery of goods, and access by service and emergency vehicles; and*

e) *Be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations*

2.4 Paragraph 117 suggests that "*all developments that will generate significant amounts of movements should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impact of the proposal can be assessed.*"

2.5 Paragraph 57 of the NPPF states that "*Planning obligations must only be sought where they meet all of the following tests:*

- *Necessary to make the development acceptable in planning terms;*
- *Directly related to the development; and*
- *Fairly and reasonably related in scale and kind to the development.*

2.6 This Transport Assessment will demonstrate that the development proposals take full advantage of existing facilities for sustainable travel, locally, and will not result in a significant traffic impact on the local road network, therefore, satisfying the requirements of NPPF.

LOCAL POLICY

Kirklees Local Plan Strategy and Policies, Adopted February 2019

2.7 The Kirklees Local Plan is the statutory development plan for the Kirklees district, its purpose is to set out the policies necessary to achieve the strategy and how much new development there should be in the district and where it will go. The Local Plan covers the administrative area of Kirklees Council except for that part within the Peak District National Park for the period 2013 – 2031.

2.8 The Local Plan also includes the statement vision for the Kirklees District, which states that by 2031, Kirklees *"will be a great place to live, work and invest in, delivered through an integrated approach to housing and employment. Development will have taken place in a sustainable way (balancing economic, social and environmental priorities) and by making efficient and effective use of land and buildings supported by necessary infrastructure and with minimal effect on the environment"*.

2.9 The proposed site is allocated "HS156: Land to the East of Main Avenue, Cowlersley, Huddersfield", with an indicative capacity for 76 dwellings. As an allocated site, it has been identified that it has the ability to provide new high quality residential units which can help to revitalise the area and provide a range of house types and tenures providing a balanced and mixed community.

2.10 The following policies have been acknowledged as of relevance to the development proposals:

- **Policy LP 7 – Efficient and Effective Use of Land and Buildings**
  - *"To ensure the best use of land and buildings, proposals:*

    a. should encourage the efficient use of previously developed land in sustainable locations provided that it is not of high environmental value;

    b. should encourage the reuse or adaptation of vacant or underused properties;

    c. should give priority to despoiled, degraded, derelict and contaminated land provided that it is not of high environmental value;

    d. will allow for access to adjoining undeveloped land so it may subsequently be developed"
- **Policy LP 20 – Sustainable Travel**
  - *"New development will be located in accordance with the spatial development strategy to ensure the need to travel is reduced and that essential travel needs can be met by forms of sustainable transport other than the private car;*
  - *The council will support development proposals that can be served by alternative modes of transport such as public transport, cycling and walking and in the case of new residential development is located close to local facilities or incorporates opportunities for day to day activities on site and will accept that*

variations in opportunity for this will vary between larger and smaller settlements in the area; and

2.11 The policy aspirations of the Kirklees Local Plan (particularly Policy LP20) will be met by providing a development in a location which can be served by alternative means of travel to the private car. Indeed, this Transport Assessment will demonstrate that the site is within walking distance of local facilities and public transport opportunities, negating the need for residents to travel by car

3. ACCESSIBILITY

3.1 This section of the Transport Assessment describes the existing infrastructure that will facilitate and encourage trips to the site by foot, bicycle or public transport, rather than by car.

3.2 In the feedback to the scoping note provided to Kirklees Council, it was suggested that "*a qualitative and quantitative assessment of the site's accessibility is required (e.g. walking/cycling isochrones and travel distance alone is insufficient – ATE guidance provides a useful checklist of what is required)*." The ATE guidance is noted and is a good starting point for assessing the accessible credentials of a proposal, however, they are only a statutory consultee on residential schemes in excess of 150 units and, therefore, a full audit in line with their checklist is not required for a site of 57 dwellings, as proposed.

3.3 Notwithstanding this, an overview of the pedestrian/cycle and public transport infrastructure in the vicinity of the site is provided in this section, and is supported by a site visit undertaken in September 2024.

ACTIVE TRAVEL OPTIONS

Pedestrian Facilities

3.4 The Institution for Highways and Transportation (IHT) offers guidance on walking distance by journey purpose, this is summarised in **Table 3.1** below.

Table 3.1: Walking Distances by Journey Type

Criteria	Town Centres	Commuting / School	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m

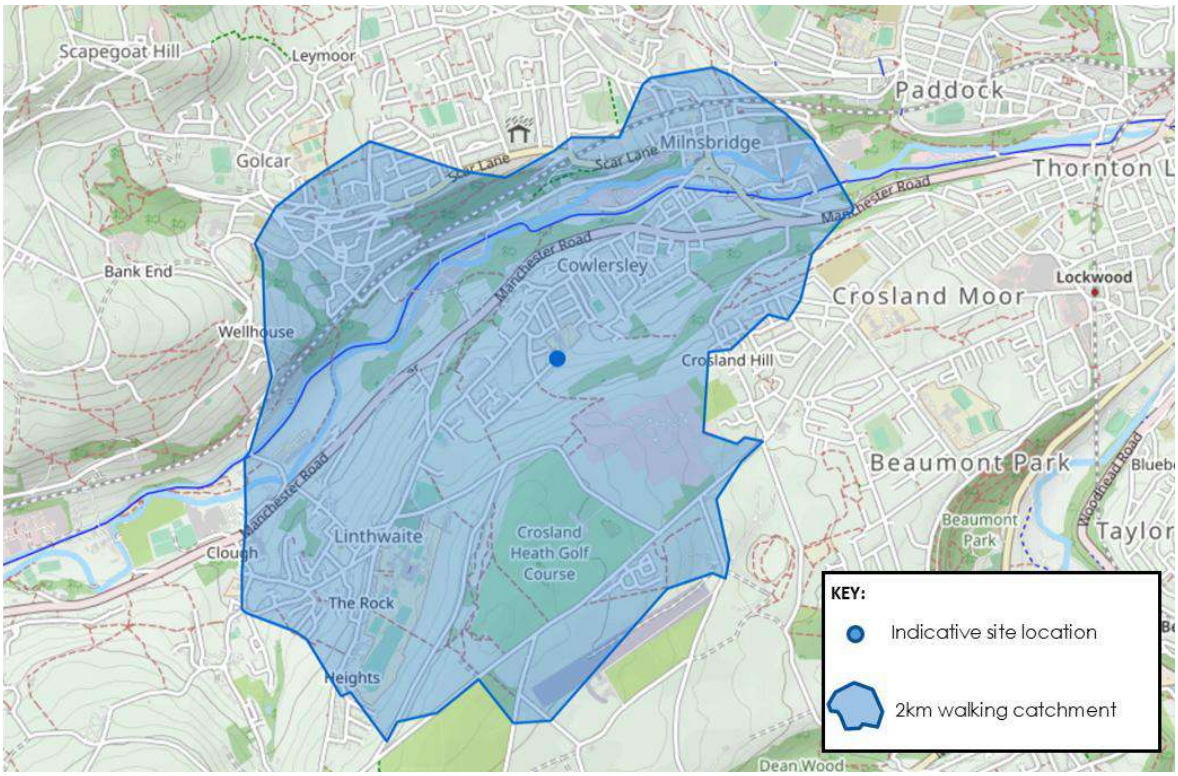
(Source: IHT)

3.5 As **Table 3.1** shows, a 2km catchment is the preferred maximum walking distance for 'commuting / school'. A 2km walking catchment from the site encompasses a large suburban area of Huddersfield, including parts of Cowlersley, Milnsbridge and Linthwaite. The 2km walking catchment is illustrated in **Figure 3.1**, overleaf

3.6 Pedestrian access to the site will be taken via the site accesses from Main Avenue to the southwest and from Windsor Road, to the north of the site, via extensions of the existing provision along these routes which will provide a north/south route for pedestrians through the site. The main road through the site has been designed to facilitate lower vehicle speeds by it not being straight in alignment.

3.7 At present, there are continuous footways along both sides of Main Avenue, measuring approximately 2m wide and featuring street lighting throughout. Throughout its length, Main Avenue forms the major arm to various residential access roads, where there is such a junction, dropped kerbs support continuous east-west pedestrian movements.

Figure 3.1: 2km Walking Catchment

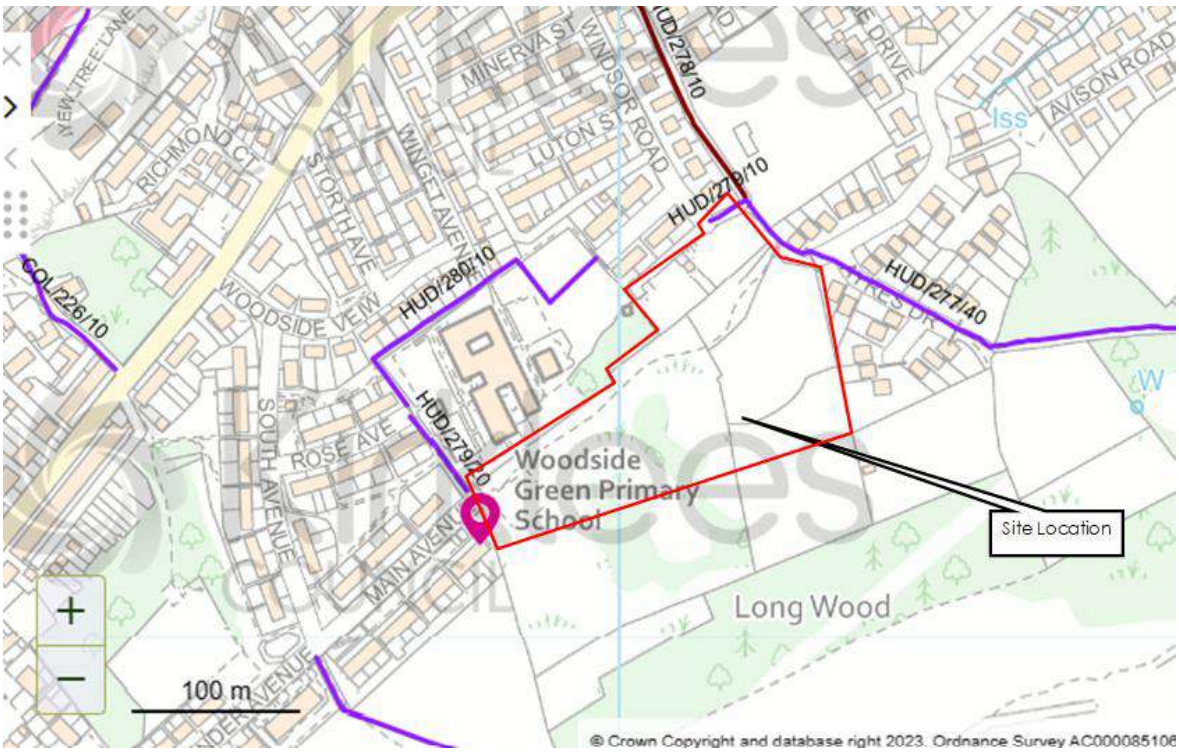


(Source: Open Street Maps)

3.8 From the alternative access point, from Windsor Road, similarly there a continuous street lit footways, typically measuring in excess of 1.75m along both sides of the carriageway, running broadly north-south. Running broadly north, after a distance of 200m, Windsor Road forms the minor approach to a priority T-junction with Cowlersley Lane, which runs broadly east-west in the vicinity of the junction. Dropped kerbs across the minor arm support east-west pedestrian movements.

3.9 There are a number of public rights of way in the vicinity of the site, an overview of which can be seen in **Figure 3.2** overleaf.

Figure 3.2: Public Rights of Way



(Source: Kirklees Council)

3.10 As can be seen in **Figure 3.2,** there are public rights of way which run in the vicinity of the site, with PROW HUD279/10 crossing the site at the northern boundary. From Main Avenue, two separate public right of ways (PRoW) can be accessed within 150m walk of the site access, providing dedicated routes for pedestrians within the local area.

3.11 PRoW HUD279/20 and 280/10 can be accessed adjacent to the site boundary of Woodside Green Primary School, connecting Main Avenue with Winget Avenue and Perseverance Street.

3.12 To the north of the site, PROW 279/10 and 277/40 provide a connection from Windsor Road to playing fields to the north and onto Warneford Road, a residential cul-de-sac, to the north of the site. These routes are unaffected by the proposals. Plot 57, as can be seen on the site layout attached at **Appendix A,** is to be constructed where there is an existing desire line that has been formed, where pedestrians are cutting the corner instead of walking along the line of the legal right of way of HUD 277/40.

3.13 It is recognised that there are a number of informal, trodden paths which traverse the site. The design of the site has taken these into account by providing a continuous north/south route through the site, which maintains the alignment of this existing, informal routes.

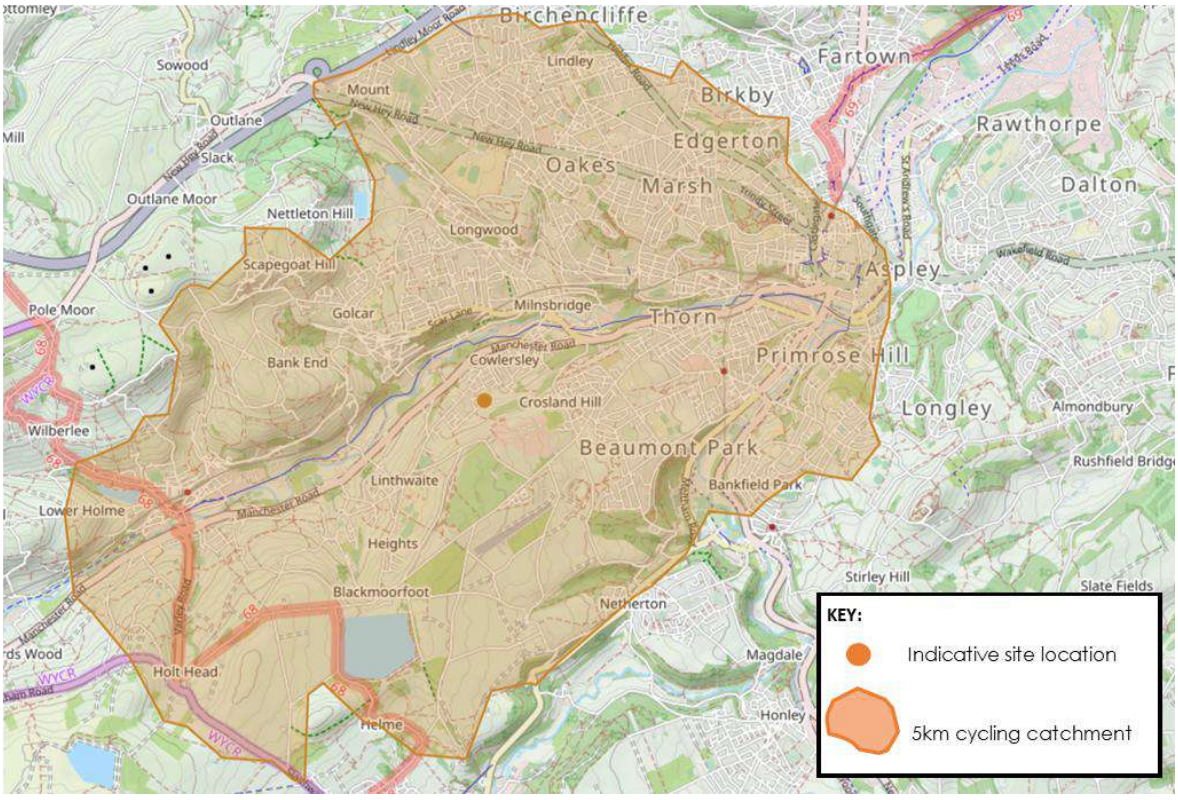
3.14 Alternatively, PRoW 234 can be accessed after a distance of 150m, to the south of the site, to the southern side of Main Avenue.

Cycle Access

3.15 Cycling can be a substitute for car trips, particularly those of up to 5km, with relevant guidance stating that "*cycling also has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport*". Cycling, therefore, plays an important role in reducing the need to travel by car.

3.16 A 5km catchment of the site includes many suburbs of Huddersfield, and the entirety of Huddersfield town centre. **Figure 3.3** illustrates a 5km cycle isochrone from the site.

Figure 3.3: 5km Cycling Catchment



(Source: Open Cycle Map)

3.17 Whilst there are no formal cycle facilities within the immediate vicinity of the site, Cowlersley Lane has a carriageway width of approximately 10m throughout its entire length, making it wide enough to facilitate both cycle and vehicular movements broadly east-west towards between the site and Huddersfield town centre.

3.18 Many of the surrounding roads are subject to a 20mph speed limit, which helps to make them more cycle friendly. It is recognised that cycling is not a viable option for all prospective residents, however, the location of the site and it's proximity to Huddersfield town centre, does make cycling a viable option for more confident cyclists. It is, therefore, considered that the site is well located for future residents to cycle for journeys to work and for leisure.

PUBLIC TRANSPORT

Bus Services

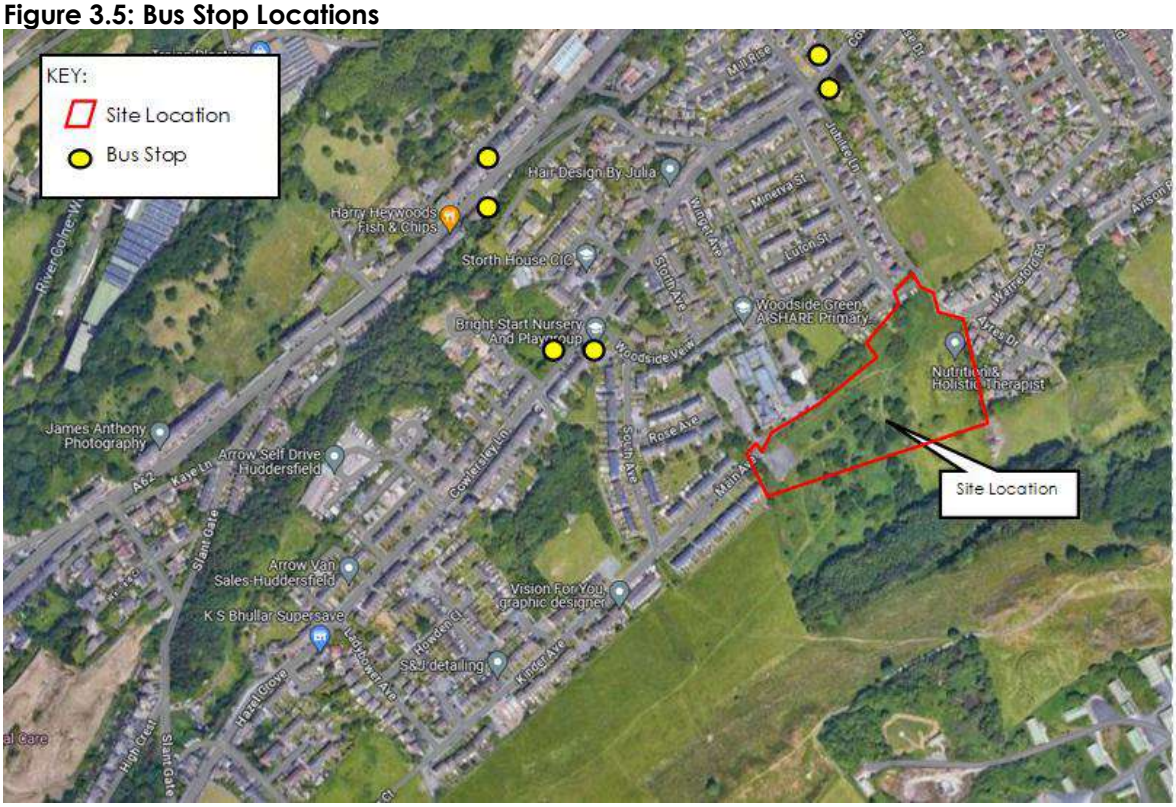
3.19 The closest bus stops to site are located on Cowlersley Lane, within 420m of the site, accessed either via Windsor Road or Main Avenue, depending on which end of the site you start/end your journey from. The stops in the vicinity of the junction of Woodside View / Cowlersley Lane, accessed via Main Avenue, comprise of a flagpole and timetable information for westbound services and a shelter with timetable information for eastbound services.

3.20 It is expected that the majority of journeys by bus would be between the site and Huddersfield town centre, as the most local major employment centre. With this in mind, the provision of a shelter for the stop towards Huddersfield and a flag only at the westbound stop, where the majority of use would be alighting, rather than boarding a bus, is considered acceptable. In addition to this, from the access from Windsor Road, the east and westbound bus stops comprise of a flag, pole and timetable information.

3.21 There are further bus stops located along the A62 Manchester Road, approximately a 600m walk to the east of the site (measured from the site access point on Windsor Road), accessed via Windsor Road, Cowlersley Lane and Yew Tree Lane. Both stops benefit from of a flagpole and timetable information. **Figure 3.5** illustrates the location of these bus stops, whilst **Table 3.2** summarises the bus services that can be accessed from the stops.

3.22 It is recognised that no bus stops are available within a 400m walking distance of the site, at present. However, consideration should be given to the report prepared by WYG in July 2015, 'How far do people walk?', which suggests that people are willing to walk up to 800m based on 85th percentile data outside London.

Figure 3.5: Bus Stop Locations



(Source: Google Maps)

Table 3.2: Bus Services

Service		Frequency		
		Weekday	Saturday	Sunday
Cowlersley Lane				
181	Huddersfield - Wilberlee	60 mins	60 mins	-
184	Huddersfield - Oldham	60 mins	60 mins	60 mins
A62 Manchester Road				
185	Huddersfield - Marsden	30 mins	30 mins	60 mins

(Source: Public Transport Operator Websites)

3.23 Given the proximity of 2 separate hourly services, which provide direct access to Huddersfield town centre within a 20-minute journey time, it is expected that the bus would represent a viable alternative to the private car for accessing employment and leisure opportunities.

Rail

3.24 The closest railway station is Lockwood, located approximately 3.2km east of the site, and can be accessed in an approximately 14-minute cycle journey via Cowlersley Lane. Lockwood is managed by Northern Trains and benefits from an hourly service between Huddersfield and Sheffield (via Barnsley and Meadowhall).

3.25 It is anticipated that residents could also make use of frequent National Rail services available from Huddersfield, which is located approximately 4.8km northeast of the site and is accessible within a 18-minute cycle journey, or an approximately 20-minute bus journey via the 181/184 Service available from Cowlersley Lane.

3.26 Huddersfield railway station benefits from 54 cycle storage spaces (as well as a Cycle Hub located on Platform 1), a range of facilities such as waiting rooms and eateries. The station has 6 platforms and is served by approximately 8-10 trains in the peak periods, to a number of regional and national destinations. **Table 3.3**, below, outlines the key destinations accessible from Huddersfield railway station.

Table 3.3: Huddersfield railway station services

Destination	Frequency
Liverpool Lime Street via Manchester Victoria	1 per hour
Manchester Airport via Manchester Victoria, Oxford Road & Piccadilly	1 per hour
Manchester Victoria via Stalybridge	1 per hour*
Manchester Piccadilly	1 per hour
Sheffield via Barnsley & Meadowhall	1 per hour
Hull via Dewsbury & Leeds	1 per hour
Newcastle Central via Leeds, York & Darlington	1 per hour
Saltburn via Leeds, York & Middlesborough	1 per hour
York via Wakefield Kirkgate & Castleford	1 per hour
Bradford Interchange via Halifax	1 per hour

(Source: National Rail) *operational during AM/PM peak hours only.

LOCAL AMENITIES

3.27 **Table 3.4,** overleaf, summarises the key health, education, retail, leisure and employment amenities located near the site, along with the distance and journey time by active modes, measured from the nearest site access point.

Table 3.4: Local Amenities

Amenity	Distance	Walk Time	Cycle Time
Health			
Bupa Dental	1.1km	13 mins	3 mins
Education			
Woodside Green Primary School	80m	1 min	1 mins
Retail and Leisure			
Londis	200m	2 mins	1 min
Hong Kong Korean Takeaway	250m	3 mins	1 min
GoLocal Convenience Store	500m	5 mins	2 mins
Linthwaite Mini Market / Harry Heywoods Fish and Chips	580m	7 mins	2 mins
ALDI	1.1km	13 mins	3 mins
Huddersfield Town Centre	~4.5km	-	15 mins
Employment			
Crowthers Business Park	2km	24 mins	8 mins

(Source: Google Maps)

Summary

3.28 The site is located within an established residential area and as such benefits from an existing network of infrastructure to support sustainable travel. There are existing footways in the vicinity of the site to support active modes of travel. Similarly, the site is in within walking distance of a number of bus stops, which prospective residents could make use of for accessing employment and leisure opportunities, particularly those in Huddersfield town centre As such it is considered that there is good sustainable transport infrastructure within the vicinity of the development site, with a range of opportunities for site users to travel by sustainable modes.

4. LOCAL HIGHWAY NETWORK

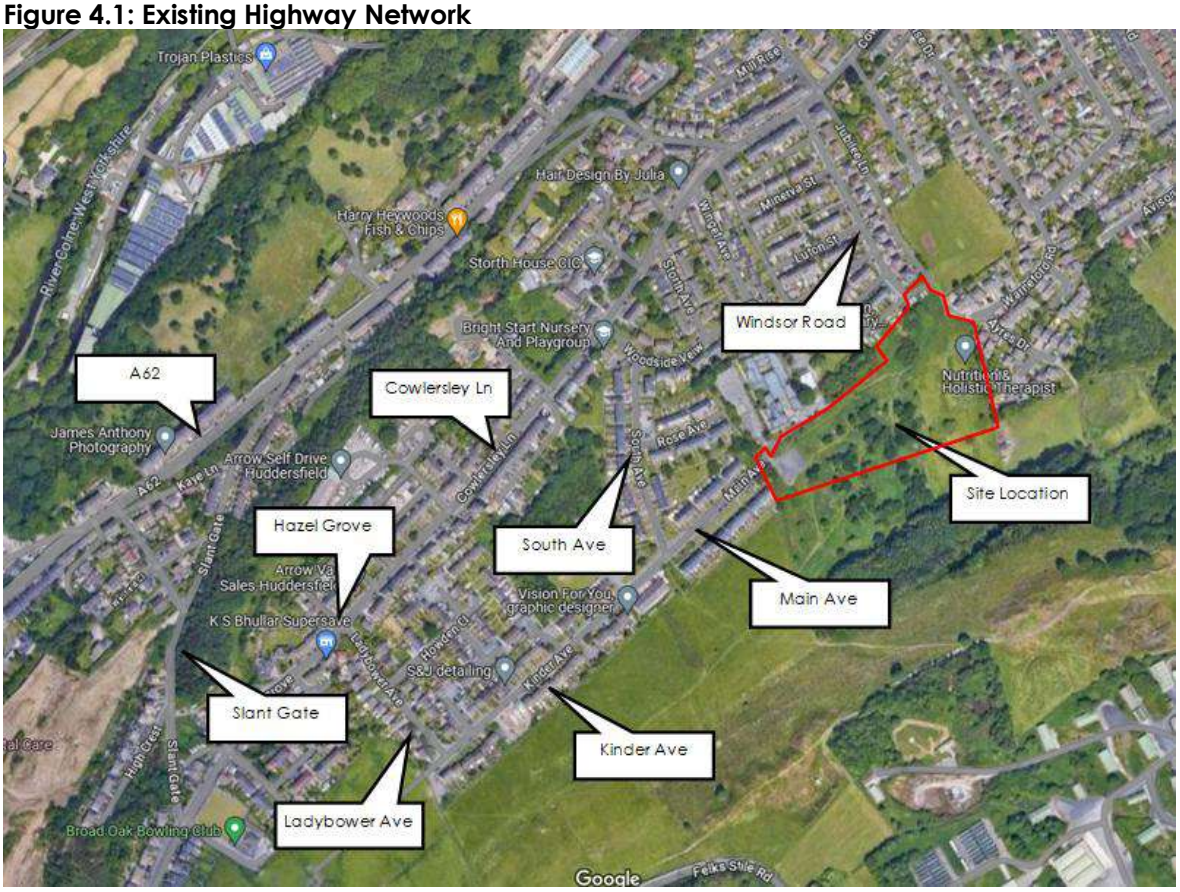
INTRODUCTION

4.1 This section of the Transport Assessment considers the nature of the existing highway network, as well as summarising historic accident data for the area surrounding the site.

HIGHWAY NETWORK

4.2 A description is provided below of the local highway network in the immediate vicinity of the site; for ease, it is also shown in **Figure 4.1**.

Figure 4.1: Existing Highway Network



(Source: Google Maps)

4.3 The site is bound by Main Avenue to the southwest, which has an approximate carriageway width of 8.5m, is subject to a 30mph speed limit and is bound by footways to both sides and benefits from street lighting on both sides. It runs broadly east-west and forms the major arm to a priority T-junction with South Avenue approximately 125m west of the where the site will take access.

4.4 There are no traffic calming measures along Main Avenue, with parking taking place to both sides of the carriageway. There are KEEP CLEAR markings in the vicinity of the access to Woodside Green Primary School, adjacent to where the site will take access. It is proposed to provide a betterment to these road markings, as part of the development proposals, lengthening the stretch of carriageway which these cover, to ensure that vehicles do not park in the vicinity of the school access at drop-off/pick-up times.

4.5 From Main Avenue, South Avenue runs broadly north-south with an approximate carriageway width of 4m, and is bound by footways and street lighting throughout. Given the narrow nature of this route, with parked cars it is not expected that this will be a primary route of choice for vehicles accessing the site. To the north, South Avenue forms the minor approach to a priority T-junction with Woodside View.

4.6 Within the vicinity of the junction, Woodside View runs broadly east-west, forming the major arm at junctions with other residential streets including Storth Avenue and Winget Avenue. The carriageway of Woodside View measures approximately 4.5m wide, and is subject to a 30mph speed limit. Woodside View forms the minor approach to Cowlersley Lane approximately 35m west of the junction with South Avenue.

4.7 Cowlersley Lane serves as a major arterial road through Cowlersley towards Huddersfield to the east and Linthwaite and Blackmoorfoot, to the south and west. Cowlersley Lane is a two-way single-carriageway route measuring approximately 10m wide and subject to a 30mph speed limit, running broadly east-west , Cowlersley Lane forms the major arm of several priority T-junctions throughout its length.

4.8 To the east, Cowlersley Lane joins the wider highway network at the signalised crossroads junction with the A62 Manchester Road.

4.9 To the west, Cowlersley Lane extends onto Hazel Grove after a distance of 230m, which runs broadly southwest towards the neighbouring suburbs of Linthwaite and Blackmoorfoot.

4.10 Back to the site access from Main Avenue, Main Avenue extends onto Kinder Avenue after a distance of 130m. Similarly, Kinder Avenue has a carriageway width of approximate 8.5m, is subject to a 30mph speed limit and is bound by footways and benefits from street lighting on both sides. Kinder Avenue forms the major arm to a priority T-junction with Ladybower Avenue after a distance of 285m. From the Kinder Avenue junction, Ladybower Avenue runs broadly north-south, forming a minor approach to Hazel Grove after a distance of approximately 150m. It is expected that this would be the route to the site for vehicles travelling to/from the south.

4.11 The site will also take access from Windsor Road, to the north. Within the vicinity of this site access, Windsor Road runs broadly north-south, forming a minor approach to a priority T-junction with Cowlersley Lane after a distance of 215m. Windsor Road has an approximate carriageway width of 7.5m, and is bound by footways and street lighting throughout, in addition to dropped kerbs where there is a minor junction.

ROAD SAFETY

4.12 Accident data for the most recent 5-year period (2018 - 2022) has been sought from www.crashmap.co.uk for the highway network surrounding the site. Crashmap offers a definitive map of the official road collision statistics. The locations of accidents recorded within the vicinity of the site are shown in **Figure 4.2** overleaf.

Figure 4.2: Locations of Recorded Accidents

(Source: Crash Map)

4.13 As can be seen from **Figure 4.2**, a total of two accidents have been recorded in the most recent 5-year period within the vicinity of the site. Of which both were categorised as were slight. This equates to an average of 0.4 accidents per year, it is therefore considered there are not any existing road safety issues that the development would exacerbate.

4.14 It is recognised that in the scoping response from Kirklees, it was suggested that the use of Crashmap is not recommended, as causation factors can't be determined. However, given

the limited number of collisions, which do not give rise to trend of collisions in a single location, it is not considered necessary to obtain full accident records.

5. TRIP GENREATION AND DEVELOPMENT IMPACT

INTRODUCTION

5.1 This section of the Transport Assessment sets out the likely vehicle trip generation associated with the proposed dwellings and the associated distribution of trips throughout the local highway network. It should be noted that the trip generation assessment undertaken as part of this section of the report is based on a development of 60 dwellings, to allow for flexibility should the scheme evolve.

TRIP GENERATION

5.2 The TRICS database has been interrogated to derive representative trip rates associated with the proposed residential use; the following TRICS parameters have been selected:

1. Land Use: 03 - Residential;
2. Category: A – Houses Privately Owned
3. Range: 37 – 73;
4. Date Range: 01/01/2015 – 03/03/2022; and
5. Location: Suburban Area.

5.3 **Table 5.2** summarises the trip rates and resultant trip generation, whilst the full TRICS output is provided at **Appendix E**.

Table 5.2: Trip Rates / Traffic Generation

	AM			PM		
	Arrival	**Departure**	**Two-Way**	**Arrival**	**Departure**	**Two-Way**
Trip Rates	0.102	0.452	0.554	0.415	0.172	0.587
Trip Generation	6	27	33	25	10	35

(Source: TRICS)

5.4 As can be seen in **Table 5.2**, the proposals are anticipated to generate 33 two-way trips in the AM peak hour and 35 two-way trips in the PM peak hour. Given the predicted trip generation of the site and the multiple routes for accessing the development from Cowlersley Lane, it is not considered that any further assessment is required, as the number of trips through any single junction is likely to be less than 30 two-way trips, the industry standard threshold for when additional assessment is required.

5.5 Notwithstanding this, in the initial pre-app response from Kirklees and in the corresponding scoping note response, Kirklees have maintained their position for the need to model the impact of the trip generation of the site on the external highway network. With this in mind, a gravity model has been undertaken, to establish the potential distribution of trips to/from the site.

TRIP DISTRIBUTION

5.6 Vehicles accessing the proposed development by car have a number of potential routes into the site, given the site will form a through route between Main Avenue and Windsor Road. In the first instance, trips associated with the development have been assigned to the local highway network using a gravity model, based on Census 2011 'Location of usual residence and place of work' data for MSOA Kirklees 045, within which the site is situated.

5.7 **Table 5.2,** below, provides a summary of the gravity model, whilst the full calculations are provided at **Appendix F.** For simplicity, trips have been distributed either east or west on Cowlersley Lane.

Table 5.2: Summary of Trip Distribution

Route	%
Cowlersley Lane east (towards Huddersfield)	79%
Cowlersley Lane west (away from Huddersfield)	21%

(Source: Consultant Calculation)

5.8 As can be seen in **Table 5.2,** 79% of vehicles are expected to arrive/depart from the east/north, whilst 21% are expected to arrive/depart from the west/south. It is assumed that vehicles arriving/departing to the east/north would do so via the Windsor Road/Cowlersley Lane junction, rather than route south, via Main Avenue, South Avenue and the junction of Woodside View/Cowlersley Lane or Ladybower Avenue/Hazel Grove.

5.9 Similarly, vehicles arriving/departing to the west/south are more likely to do so routing south along Main Avenue, onto Kinder Avenue and then using the junction of Ladybower Avenue / Hazel Grove. South Avenue has a carriageway width of less than 5m and there are often parked vehicles, making this route slow to navigate by car at times. With this in mind, it is not considered that the junction of Woodside View / Cowlersley Lane would be a preferred route option for people driving to/from the site.

5.10 With the above in mind, the materiality at the junctions of Windsor Road / Cowlersley Lane and Ladybower Avenue / Hazel Grove can be seen in **Table 5.3.** It is assumed that few vehicles would make use of the junction of Woodside View / Cowlersley Lane, given if you

want to go north, the route via Windsor Road is more direct and this route, if travelling south would first take you north before travelling south along Cowlersley Lane, past the junction of Ladybower Avenue/Hazel Grove. With this in mind, no trips have been distributed through this junction.

MATERIALITY

5.11 In order to understand the potential impact of the development proposals, an assessment of the uplift in movements as a consequence of the development has been undertaken and is presented in **Table 5.3**, below. The predicted trip distribution and generation on the local highway network can be seen on the flow diagrams attached at **Appendix G.**

Table 5.3: Number of Development Trips by Junction

Junction	Trips	
	AM	PM
Windsor Road / Cowlersley Lane	25	27
Ladybower Avenue / Hazel Grove	6	7

(Source: Consultant Calculation)

5.12 As can be seen above, during the AM peak periods, the impact at any single junction is below 30 two-way trips and, therefore, the impact at the junctions is not expected to material with the increase in trip generation likely to be negligible. However, given comments provided by Kirklees previously, an assessment of the junction of Ladybower Avenue / Hazel Grove and Windsor Road / Cowlersley Lane have been undertaken and are summarised in **Section 6.**

6. OPERATIONAL ASSESSMENTS

INTRODUCTION

6.1 This section of the Transport Assessment considers operational assessments of a number of junctions on the local road network. The operational assessments undertaken reflect 60no. dwellings, to demonstrate a robust analysis that the development will not result in a material impact upon the highway network.

6.2 Beyond the junctions modelled as part of this Transport Assessment, traffic will dissipate, such that it doesn't have a material impact elsewhere on the highway network.

BASE SURVEY DATA

6.3 Fully classified turning counts have been undertaken at the junctions identified above, in order to establish a base situation. The surveys covered the periods 07:00-10:00 and 15:30-18:30 and were undertaken on 13 December 2023, outside of any school holidays.

6.4 An analysis of the turning count data identifies that the network peak hours were 07:45-08:45 in the AM peak hour and 16:15-17:15 in the PM peak hour. The full traffic count data is included at **Appendix H,** and the surveyed peak hour flows are illustrated in figures provided at **Appendix G.**

NTM ADJUSTED TEMPRO GROWTH RATES

6.5 In line with industry standard methodology, the assessments consider a design year 5 years post submission of the planning application, i.e. 2029. To establish the likely traffic growth from the 2023 base traffic flows to a future year of 2029, the TEMPro 8 table "RTF 2018 Scenario 1" has been used. The growth factors obtained from Tempro are set out in **Table 6.1,** below.

Table 6.1: NTM Adjusted TEMPro Growth Rates

Amenity	AM	PM
Kirklees 045	1.0492	1.0492

(Source: TEMPro)

6.6 Flow diagrams are provided at **Appendix G,** which show traffic growthed to the design year. It should be noted that the traffic growth factors take account of traffic growth associated with Local Plan allocations and, therefore, there is likely to be some degree of double counting of the proposed development, given it is an allocated site.

MODELLING SCENARIOS

6.7 The junctions will be assessed in the following scenarios:

- 2029 AM and PM Base; and
- 2029 AM and PM Base + Development.

OPERATIONAL ASSESSMENTS

6.8 Junctions modelling software has been used to assess the operation of all junctions; the results are summarised for each junction in turn below. The Junctions software predicts the Ratio of Flow to Capacity (RFC) on each approach / turning movement and resultant queue length. An RFC value of less than 0.85 is generally accepted as indicating that a junction is operating within theoretical capacity. The full model outputs are provided at **Appendix I**.

Windsor Road / Cowlersley Lane

6.9 The results of the assessments of the Windsor Road / Cowlersley Lane junction are summarised in **Table 6.2** below; the full modelling outputs are provided at **Appendix I.**

Table 6.2: Windsor Road / Cowlersley Lane

	2029 Base				2029 Base + Dev			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Windsor Road / Cowlersley Lane	0.07	0.07	0.05	0.05	0.12	0.14	0.07	0.07
Cowlersley Lane (W) – Cowlersley Lane (E) / Windsor Road	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

(Source: Junctions 8)

6.10 As can be seen in **Table 6.2,** the junction of the Windsor Road / Cowlersley Lane is predicted to operate well within its practical capacity (RFC of less than 0.85) in both the AM and PM peak hours.

Ladybower Avenue / Hazel Grove

6.11 **Table 6.3** summarises the results of the operational assessment of the Ladybower Avenue / Hazel Grove junction, in the 2029 Base and the 2029 Base + Development scenarios, in order to demonstrate the impact of the development traffic on this junction. The full outputs are attached at **Appendix I.**

Table 6.3 Ladybower Avenue / Hazel Grove

	2029 Base				2029 Base + Dev			
	AM Peak		PM Peak		AM Peak		PM Peak	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Ladybower Avenue – Hazel Grove (W)	0.05	0.06	0.02	0.02	0.06	0.07	0.02	0.02
Ladybower Avenue – Hazel Grove (E)	0.05	0.05	0.04	0.04	0.05	0.05	0.04	0.04
Hazel Grove (W) – Ladybower Avenue / Hazel Grove (E)	0.03	0.04	0.04	0.06	0.03	0.04	0.05	0.08

(Source: Junction 8)

6.12 As can be seen in **Table 6.4**, in both modelling scenarios the junction is predicted to continue to operate within its practical capacity (RFC less than 0.85). Furthermore, the addition of development trips is not anticipated to result in any significant queuing on any arm of the junction.

SUMMARY

6.13 Capacity assessments have been undertaken for a number of off-site junctions. The modelling results indicate all junctions will operate satisfactorily in both peak hours with the addition of the development traffic in both the current and design year. With this in mind, no mitigation is required at the junctions from a highway capacity point of view.

7. ACCESS, PARKING AND SERVICING

INTRODUCTION

7.1 This section of the Transport Assessment considers the proposed parking and servicing arrangements for the development proposals.

ACCESS

7.2 The proposed development is to be accessed via an extension of Main Avenue, to the south and via an extension of Windsor Road, at the northwest corner of the site. A 5.5m wide access road is to be provided throughout the site, bound by a 2m wide footway to both sides, tying in with existing provision on the adjacent highway network.

7.3 Although the site is linear in shape, the access road north/south through the site has not been provided as a straight in order to provide a route with some curves with the aim of reducing vehicle speeds. A pedestrian cut through is proposed from the northern boundary of the site, connecting with Warneford Road, to the north, which aims to replace the existing informal routes across the site and provides access from Warneford Road to Cowlersley Primary School.

7.4 Where access is proposed to be taken via an extension of Main Avenue, 'SCHOOL – KEEP – CLEAR' road markings will be introduced in the vicinity of the school access, to prevent parking in the vicinity of the access, which provides a betterment to the existing arrangement. An indicative proposal for this can be seen on the drawing attached at **Appendix J,** with matters to be agreed through a suitably worded planning condition.

7.5 On-site observations noted that vehicles currently park in the junction mouth of Windsor Road / Cowlersley Lane. Therefore, in order to ensure that vehicles can pull up to the junction from Windsor Road, on the left hand side of the carriageway, double yellow line parking restrictions are proposed for a 10m length of Windsor Road and around the radii onto Cowlersley Lane. This is not expected to have a detrimental impact on parking amenity but does provide a betterment to the existing arrangement. An indicative drawing of this is attached at **Appendix K.**

7.6 As set out previously, it is expected that the primary routes for vehicular access to/from the site will be via Windsor Road and Ladybower Avenue. With this in mind, Automatic Traffic Counts were undertaken on Cowlersley Lane between Tuesday 28th November and Monday 4th December 2023 to establish the existing 85th percentile speed of vehicles. The

results of the ATCs can be seen at **Appendix L.** The results of the ATCs are summarised in **Table 7.1** below.

Table 7.1: Speed Survey Results (85TH PERCENTILE SPEED)

Location	SOUTHBOUND	NORTHBOUND
Cowlersley Lane in vicinity of Windsor Road	29.4mph	27.4mph
Hazel Grove in vicinity of Ladybower Avenue	30.3mph	26.6mph

(Source: ATCs)

7.7 As can be seen in **Table 7.1,** the 85th percentile speed of vehicles is broadly in line with the posted speed limit on Cowlersley Lane / Hazel Grove. Manual for Streets (MfS) "*provides guidance on stopping sight distances (SSDs) for streets where the 85th percentile speeds are up to 60km/h*". Paragraph 7.5.2 sets out that:

"The stopping sight distance (SSD) is the distance within which drivers need to be able to see ahead and stop from a given speed. It is calculated from the speed of the vehicles, the time required for a driver to identify a hazard and then begin to brake (the perception-reaction time), and the vehicle's rate of deceleration.

7.8 The basic formula for calculating SSD (in metres) is: *SSD = vt + v2 /2d*

Where:

V = speed (m/s)

T = driver perception-reaction time (seconds)

D = deceleration (m/s²)".

7.9 **Table 7.2,** below, summarises the Stopping Sight Distances identified in MfS.

Table 7.2: SSD identified in MfS

Design Speed	**Kph**	16	20	24	25	30	32	40	45	48	50	60
	Mph	10	12	15	16	19	20	25	28	30	31	37
SSD (m)		9	12	15	16	20	22	31	36	40	43	56
SSD adjusted for bonnet length		11	14	17	18	23	25	33	39	43	45	59

(Source: MfS Table 7.1)

7.10 As can be seen, **Table 7.2** identifies benchmark speeds and required SSDs. In reference to the observed 85th percentile speed of vehicles travelling along Hazel Grove and Cowlersley Lane, as identified in **Table 7.1,** they fall between the above benchmarks.

7.11 Therefore, in order to calculate the appropriate visibilities, based on the observed 85th percentile speed measurements, as permitted in Paragraph 7.5.2 of MfS, reference has been made to the SSD calculation. **Table 7.3 and 7.4,** below, summarises how the visibility splays were derived.

Table 7.3: SSD Calculation – Cowlersley Lane

	Southbound	Northbound
Mph	29.4	27.4
v	13.1	12.2
t	1.5	1.5
d	4.41	4.41
SSD + Bonnet	42	38

Table 7.4: SSD Calculation – Hazel Grove

	Northbound	Southbound
Mph	26.6	30.3
v	11.9	13.5
t	1.5	1.5
d	4.41	4.41
SSD + Bonnet	36	44

7.12 Based on the above, the visibility splays from both junctions are demonstrated on the drawings attached at **Appendix L.** With regard to the junction of Ladybower Avenue / Hazel Grove, it can be seen that visibility can be achieved in line with the recorded 85th percentile speed of vehicles. The visibility to southbound vehicles has been offset 0.5m into the carriageway to reflect the expected position of a vehicle, in line with manual for streets 2, rather than measuring to the nearside kerb.

7.13 With regard to the junction of Windsor Road / Cowlersley Lane, visibility to the north (to southbound vehicles) can be achieved within the limits of the adopted highway. With regard to the visibility to the south (to northbound vehicles) the visibility crosses third party land to the left of the junction. It should be noted that this is an existing arrangement and to implement a scheme to protect the visibility splays here would result in the removal of parking amenity associated with properties on Cowlersley Lane, which do not have access to off-street car parking. With this in mind, it is considered unlikely that any scheme to introduce a TRO in this location would be successful as there is likely to be a significant amount of local objections.

7.14 It should be noted that the predicted trip generation of the site, through this junction, in the morning and evening peak hours is 25 and 27 two-way trips, less than one vehicle every two minutes, which is not considered to be a severe intensification and would not give rise to highway safety concerns, in a location where there have been no recorded personal injury collisions in the latest five year period.

PARKING

Car Parking

7.15 In regard to car parking, the Kirklees Highway Design SPD states;

"Kirklees Council has not set local parking standards for residential and non-residential development, however in practice the majority of new 2 to 3 bedroom dwellings with Kirklees have provided 2 off-street parking spaces; with 4+ bedroom dwellings providing 3- off street car parking spaces… In most circumstances this has been supplemented by visitor parking at the rate of 1 per 4 dwellings".

7.16 Each dwelling is to be provided with at least 2no. allocated off-street parking spaces. In accordance with Scoping Exercise feedback, visitor parking should be provided at a ratio of 1 per 4 dwellings. It is proposed to provide13no. visitor parking spaces which equates to a ratio of 1 space per 4.4 dwellings, which is broadly in line with the required standards. In addition to this, a cycle storage solution is to be provided at all dwellings across the site.

7.17 It is considered that the proposed level of parking is provided to an appropriate standard, reflecting the size and nature of the development, and considering the site's proximity to public transport facilities and amenities.

SERVICING

General Servicing and Refuse Collection

7.18 It is anticipated that general servicing and deliveries will take place from the roadside within the site; the internal site layout is provided at **Appendix A**. Service vehicles will access the site via Main Avenue or Windsor Road. Refuse collection will be undertaken by the Kirklees Council in line with refuse collection for the nearby residential areas. In order to demonstrate the suitability of *the* site layout, a swept path analysis has been prepared, showing a 11.6m refuse vehicle accessing and egressing the site; this is provided at **Appendix M**. It is recognised that the current length of Kirklees Refuse Vehicle Fleet is approximately 11.2m, and therefore this demonstrates future proofing of the site.

Fire Appliance Access

7.19 Manual for Streets (MfS) indicates that the access requirement for emergency vehicles are generally stipulated by the Fire Service. Consulting national guidance, Table 13.1 of *The Building Regulations 2010 'Fire Safety' Approved Document B (2019 edition, incorporating the 2020 amendments) Section 13 'Vehicle Access'* stipulates that a minimum road width of 3.7m be provided and turning facilities should be provided in any cul-de-sac that is more that 20m long. Fire tenders and emergency vehicles will access the site from either Main Avenue or Windsor Road and utilise the routes provided throughout the site, in an emergency.

8. SUMMARY & CONCLUSIONS

SUMMARY

8.1 TPS has prepared this Transport Assessment to support a planning application for 57no. dwellings on land at Main Avenue, Cowlersley. The following summarises the key points:

- The proposals are in keeping with both the local and national transport and land use planning policy agenda;
- An analysis of contemporary accident data suggests that there are no accident trends that might be exacerbated by the addition of development related traffic;
- The site benefits from excellent connectivity with surrounding facilities, with opportunities for future residents to travel by non-car modes, such as walking, cycling and public transport;
- An assessment of the likely vehicle trip generation indicates that the proposed development would generate 33 two-way vehicle trips in the AM peak hour and 35 two-way vehicle trips in the PM peak hour;
- Operational assessments of two off-site junctions have been undertaken which demonstrate that the proposed development would have a negligible impact;
- Mitigation has been proposed at the junction of Windsor Road/Cowlersley Lane to restrict parking in the vicinity of the junction and a TRO is proposed in the vicinity of the adjacent school to restrict par and
- Parking has been provided in line with local car parking standards, and is considered to be at an appropriate ratio for residential development.

CONCLUSION

8.2 Given the above, it is considered that the proposals will not result in a 'severe residual cumulative impact' (the test set out in NPPF); indeed, they will be complementary to the prevailing policy agenda. As such, there are no substantive highway grounds why the development should not be granted consent.

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REPORT APPENDICES

Appendix A

Site Layout Plan

DO NOT SCALE

All dimensions to be checked on site and Architect to be notified of any discrepancies prior to commencement

DESIGNERS RISK ASSESMENT

Construction (Design and Management) Regulations 2015

RESIDUAL RISKS

REF	DATE	DESCRIPTION
P1	03.10.24	Planning Issue GP
P2	11.10.24	Apartment footprints revised. GP
P3	22.10.24	Substation ocation revised. GP
P4	23.10.24	Private drive arrargement altered plots 16-18. GP Plot 1 changed to HT11 from HT9.
P5	26.11.24	Altered following client feedback. Coocinated with levels proposals. GP
P6	26.03.25	Raised table altered at the centre of the site. GP
P7	23.05.25	Layout altered to give easement to culvert. GP

Kirklees - Main Avenue

(GIA)

Thirteen Group/Strata

	ha	acres
GROSS SITE AREA	1.81	5.24
NET SITE AREA	1.55	4.47

HOUSE TYPE	BEDROOM	APPROVED DOCUMENT M COMPLIANCE	CONFIG	STOREYS	NO	MIX %	SQ FT	SQ M	TOTAL SQ FT	TOTAL SQ M
HT6	2B3P	CAT M4(2)	HOUSE	2	7	12	784.69	72.9	5493	510.30
HT7	2B4P	CAT M4(2)	HOUSE	2	8	14	877.26	81.5	7018	652.00
HT8	3B4P	CAT M4(1)	HOUSE	2	8	14	928.92	86.3	7431	690.40
HT9	3B5P	CAT M4(1)	HOUSE	2	3	5	1020.42	94.80	3061	284.40
HT10	3B5P	CAT M4(2)	HOUSE	2	1	2	1020.42	94.80	1020	94.80
HT11	3B5P	CAT M4(2)	HOUSE	2	7	12	1020.42	94.80	7143	663.60
HT12	3B5P	CAT M4(2)	HOUSE	2	8	14	1032.26	95.90	8258	767.20
HT14	4B6P	CAT M4(2)	HOUSE	2	1	2	1184.03	110.00	1184	110.00
HT24	4B6P	CAT M4(1)	HOUSE	2.5	6	11	1357.33	126.10	8144	756.60
APT (G)	2B3P	CAT M4(2)	APARTMENT	1	4	7	659.83	61.30	2639	245.20
APT (1)	2B3P	CAT M4(2)	APARTMENT	1	4	7	731.95	68.00	2928	272.00
			OVERALL TOTALS		57	100			54320	5047

OVERALL DENSITY	
UNITS / ha	36.77
UNITS / ACRE	12.75
SQ M / ha	3256
SQ FT / ACRE	12152

OVERALL MIX			TOTAL	%
2 BED			23	40
3 BED			27	47
4 BED			7	12
			57	100

TOTALS	57

OVERALL MIX APPROVED DOCUMENT M			TOTAL	%
CAT M4(1)			17	30
CAT M4(2)			40	70
CAT M4(3)			0	0
			57	100

NOTE: Nett area excludes all public open space and associated structural landscaping / buffer planting / half road

N

0 5 10 20 50 metres

Scale 1:500 @ A1

REV	DATE	INITIAL	DESCRIPTION

PROJECT / CLIENT: Kirklees Cluster Sites
Main Avenue, Cowersley

PROJECT NO.: N81-3084

DRAWING STATUS: Planning

DRAWING TITLE: Proposed Site Layout

DRAWING NO.: 102

PROJECT LEADER	DRAWN BY	CHECKED BY	DRAWING REVISION
GP	GP	IDP	P8

SCALE: 1 to 500 @ A1

DATE: 22.10.2024

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Architecture
Masterplanning
Urban Design

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Appendix B

Pre-Application Response

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Off Market Street, Huddersfield, HD1 2JR

Consultation Response from KC, Highways Development Management		
2021/21121 at Main Avenue, Cowlersley, Huddersfield, HD4 5US		
Pre application advice for residential development		
Date Responded: 14/12/21	**Responding Officer:** A Darwin	**Responding Ref:** 2-17SW/1

Development Overview:

The site is located in Cowlersley approximately 2.5miles west of Huddersfield Town Centre, and is allocated for residential development in the Local Plan (Site HS156), with a site area of 2.18ha and an indicative capacity of 76 dwellings.

Based on the Illustrative Proposed Site Layout Plan provided, the development currently proposes 49 dwellings (although this may be increased), with access proposed by creating a link between Main Avenue to the southwest and Windsor Road to the northeast.

Reference to Plans/Documents:

- Pre-application Discussion Document – October 2021
- Site Location Plan – N81-3084-100-P1

Policy:

Local Plan Policies – LP5, LP19, LP20, LP21, LP22, LP23, LP24; Kirklees Highway Design Guide SPD, Housebuilder Design SPD, NPPF

Reference should also be made to the Councils latest 'Waste Management Design Guide for New Developments' and other S38 design guidance documents that provide detailed requirements relating to the highway and development layout (see link https://www.kirklees.gov.uk/beta/regeneration-and-development/highways-guidance-and-standards.aspx).

Site Access:

Vehicular access is proposed by providing a new residential estate road that connects Main Avenue to the southwest and Windsor Road to the northeast, both of which currently terminate as cul-de-sacs. Whilst no dimensions are provided on the illustrative plan, it appears that the main section of estate road has been designed at 5.5m wide, with 2m wide footways on both sides, and with a slightly wider section of carriageway proposed along the extended section of Windsor Road to tie-in to the existing road width. This access strategy is acceptable in principle (subject to the further site layout comments and road safety issues identified below).

Site Layout/Servicing/Waste Collection:

The Councils Section 38 Team have been consulted regarding the Illustrative Layout and a number of issues have been identified, which should be taken into consideration as follows:

- All internal roads shall be built to adoptable standards, as set out in the Kirklees Highway Design Guide SPD and Highways Guidance Note – Section 38 Agreements for Highway Adoptions March 2019 (version 1) and associated documents. In particular, reference should be taken to minimum requirements relating to centreline radius, junction/forward visibility, junction spacing, gradients and access for the Kirklees Design Refuse Vehicle. At present it is clear that the internal roads do not comply fully with minimum adoption requirements.

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- Adequate visitor parking must be incorporated into the layout, with a minimum provision of 1 space per 4 units. Ideally this should be in the form of laybys that are parallel to the carriageway or through additional carriageway widening. Additional visitor parking is also likely to be required to accommodate parking associated with the adjacent Woodside Green primary school and to take into account the loss of the existing garages.
- There are 2 banks of 8 parking spaces shown within the layout that front directly on to the carriageway. A 2m wide footway is required in front of these spaces, as pedestrians are unlikely to walk to the rear of the spaces and would instead walk within the carriageway. It is also unclear whether these spaces are intended as shared communal spaces. Further clarification is required, as shared spaces are likely to create amenity problems should there be a shortfall in spaces, which appears to be the case (see further comments relating to parking).
- The 90 degree bend that is proposed is not in accordance with standards, with a very small centreline radius and restricted forward visibility, which is unacceptable. A minimum 20m centreline radius should be used to ensure refuse vehicle swept paths are not compromised. The bend may also need to be widened to 6.1m (subject to swept path analysis) to ensure that the refuse vehicle can safely pass oncoming or parked vehicles. 25m forward visibility should be provided throughout the site in accordance with the 20mph design speed, and should be demonstrated on the submission plans. All visibility splays and forward visibility envelopes must be contained with the adopted highway.
- At the west end of the estate road as it ties into Main Avenue, the kerb alignment appears to include abrupt transition tapers. These tie-in arrangements also need to comply with minimum centreline radii and forward visibility requirements.
- The private drive access from the 90 degree bend appears to serve 7 dwellings. However, a maximum of 5 dwellings are permitted from private drives and the proposal should be amended. Visibility splays of 2.4x25m are required at the private drives.
- Swept Path Analysis (SPA) is required to demonstrate that the Kirklees Design Refuse Vehicle can pass oncoming and/or parked vehicles, and turn within any adoptable turning heads (none currently required, which is welcomed). SPA should also be provided of the entire site layout, which must be in accordance with the vehicle parameters set out in Table 1 of the S38 design guide entitled 'Emergency Access, Waste Management, Servicing and Deliveries – April 2020 (version 1)'.
- Where private drives are proposed, turning space is required for cars and light van deliveries, which should be demonstrated by Swept Path Analysis (SPA).
- Bin presentation points are required for all dwellings, which should conform to the Councils latest S38 design guide entitled 'Emergency Access, Waste Management, Servicing and Deliveries – April 2020 (version 1)' and should be clearly noted on the submission plans. For any roads (e.g. private drives) where dedicated refuse vehicle turning heads are not provided, suitably sized and located communal bin presentation points are required adjacent to the adopted highway. All bin presentation points should conform to the maximum carry distances and gradients set out in Council guidance and should ensure that bins can be presented on collection day without causing obstruction to the highway, pavements or driveways.
- The provision of Street Trees is welcomed and should be provided in accordance with the NPPF, Kirklees Highway Design Guide SPD and Kirklees Housebuilder SPD.
- The site falls away relatively steeply from Main Avenue and achieving acceptable gradients may therefore be problematic and careful consideration is required to ensure that acceptable gradients are achieved.

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Parking:

The level of parking proposed for the development is not confirmed in the submission information. Therefore, guidance should be taken from the Councils Highway Design Guide SPD to the recommended level and quality of provision (1 space for 1 bed, 2 spaces for 2-3 bed and 3 spaces for 4+ bed units are typically required). Reference should also be taken from the Councils Housebuilder SPD, which provides recommendations for the location of parking spaces to ensure high quality design. If integral garages are to be considered as contributing towards parking provision they must provide internal dimensions of 3m x 6m.

All dwellings must include at least 1 no. electric vehicle charging point (more are desirable). Secure cycle parking is required for all dwellings and should allow for electric cycle charging.

Visitor parking should be provided at a ratio of 1:4 dwellings, which should ideally be within laybys. No provision is currently shown on the site plan. Additional parking should also be proposed to accommodate school related parking that is likely to occur.

Full details of the parking provision should be confirmed in the Transport Assessment that will be required to support any future planning application, with robust justification provided should there be any shortfall in provision.

The proposals will result in the loss of existing garages at the end of Windsor Road, and the supporting document suggests that these are to be demolished and relocated. However, no details have been provided to confirm where these are to be relocated and this should be confirmed in the submission, as the loss of the garages could result in parking being displaced onto surrounding streets. Existing on-street parking may also be an issue on the surrounding streets, including Windsor Road, South Avenue and Woodside View and this matter should be considered in the Transport Assessment.

PROW:

Jubilee Lane is a public byway that runs to the rear of residential properties fronting Windsor Road and affords access to the sheds and garages in the rear gardens. This route extends in an east-west alignment across the northern boundary of the site as public footpath HUD/277/20 at the southern end of Windsor Road and links to Warnerford Road/Ayres Drive. It is unclear from the illustrative plans whether a new connection to this path and Warneford Road are proposed, which should be considered.

There also appear to be a number of informal walking routes through the site that link to the existing PROW and these may need to be taken into account in the design of the site layout.

Road Safety:

The Councils Road Safety Team have been consulted and highlighted a number of issues that need to be taken into account as follows:

- There have been complaints about obstructive parking on Main Avenue by the school entrance, and both parents and residents have asked for School Keep Clear markings to be provided. It is expected that these will be incorporated into the proposals, with the development funding the necessary TRO's. It is also likely that parents will use the new estate roads to park within the development. Therefore, this needs to be taken into account and additional visitor parking provided, to ensure blocking of the estate roads and drives does not occur.

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Off Market Street, Huddersfield, HD1 2JR

- There have also been complaints regarding the speed of traffic around the school on the surrounding streets. These proposals are likely to be exacerbated by the development, with the new link creating a direct route to Cowlersley Road via Windsor Road. Therefore, it is expected that the development implements a package of traffic calming measures (60m spacing to achieve 20mph design speed) along the new estate roads, Main Avenue (from junction with South Avenue) and Windsor Road, to address this issue and mitigate the impact of development along these roads. These works would need be implemented through S38/S278 agreement(s).
- There have been reports of drivers parking at the junction of Windsor Road / Cowlersley Lane that block visibility to/from oncoming traffic and this has resulted in traffic injury accidents / damage only collisions. This matter should be investigated as part of the required Transport Assessment, and it may be necessary for the development to fund No Waiting TRO's at the junction radii to mitigate this issue.
- At the Windsor Road / Cowersley Lane, Woodside View / Cowlersley Lane and Ladybower Avenue/Hazel Grove junctions there appears to be restricted junction visibility in both directions. This should be investigated through accurate visibility splay measurements and speed survey data to identify any deficiency with the visibility splays. Should this confirm that visibility splays are below standard, mitigation measures should be proposed (in addition to the TRO's previously mentioned).

Should planning permission be granted, a condition will be required to secure a Construction Management Plan, to ensure that construction traffic avoids school start/finish times and that all construction parking is catered for on-site and not on surrounding streets.

Accessibility:

A review of the sites accessibility by non-car modes should be provided in the Transport Assessment. Where necessary, this should include improvements to ensure that the development is accessible to all users, including safe links to nearby public transport facilities.

Should the development density increase to 50 units or above, a Travel Plan will be required for the development. Kirklees Council will require a Travel Plan monitoring fee to be secured as part of the S106 agreement. For a development of this scale (classed as a 'small major' residential development) the fee is £10,000 (£2,000 per year for 5 years).

The provision of Residential Metro cards (or Sustainable Transport Fund) should be taken into consideration. WYCA will be consulted at the planning application stage and may recommend a contributory sum accordingly. Bus stop improvements may also be required.

Traffic Impact/Network Assessment:

A Transport Assessment will be required in support of the proposed, the scope of which must be agreed with HDM prior to the planning submission.

<u>Junction Assessments</u>

Junction capacity assessments will be required at the following junctions as a minimum:

- Windsor Road / Cowersley Lane, and
- Woodside View / Cowlersley Lane.

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Depending on the scale of development proposed, additional junctions may also need to be assessed and this should be agreed with HDM at the scoping stage.

Highway Adoption Issues:

The internal road layout shall be built to adoptable standards, as set out in the Kirklees 'Highway Design Guide SPD' and 'Highways Guidance Note – Section 38 Agreements for Highway Adoptions' March 2019 (version 1) and associated documents.

Sufficient detail must be provided with the planning submission to check that the proposed highways are suitable for adoption, and should clearly show the extent of proposed adoption and any areas that are to remain private (e.g. landscaping, parking areas and PoS). The following information is required as a minimum:

- Long sections, cross-sections and contours;
- Dimensioned plans, including visibility splays and forward visibility sight-lines;
- Kerbing details and surface treatments;
- Extent of proposed adoption and unadopted communal areas to be confirmed. Details regarding the maintenance of unadopted communal areas/facilities are also required.

Any retaining features affecting the highway will require formal technical approval by the Council as the Highway Authority. We would recommend providing details of all proposed retaining features and underground storage facilities (including pipes) to my colleague Farhad Khatibi (Team Leader) in the structures section at the earliest opportunity, who will be able to advise of the necessary requirements in more detail.

Planning Submission Information Requirements:

The following information is required to support the planning submission:

- Transport Assessment;
- Travel Plan (for a development of 50 units and above);
- S106 Heads of Terms;
- Proposed highway details;
- Stage 1 Road Safety Audit for both S278 & S38 works, and Designers Response;
- Swept Path Analysis (SPA).

Appendix C

Scoping Note

TPS Transport Consultants Ltd
Highways Scoping Note

Client	Strata
Project	Main Avenue, Cowersley, Huddersfield
TPS Reference	P2445
Date Prepared	30/11/23
Prepared By	JT
Checked By	GS

Copyright Statement

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The information, ideas and other intellectual property set out in this report and supporting technical appendices are the property of TPS Transport Consultants Ltd and are for the sole benefit of Strata in respect of development proposals at Main Avenue, Cowersley, Huddersfield.

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- Not conveyed to other consultants or personnel without the prior approval of TPS Transport Consultants Ltd; and
- Not copied in part or in whole.

1. INTRODUCTION

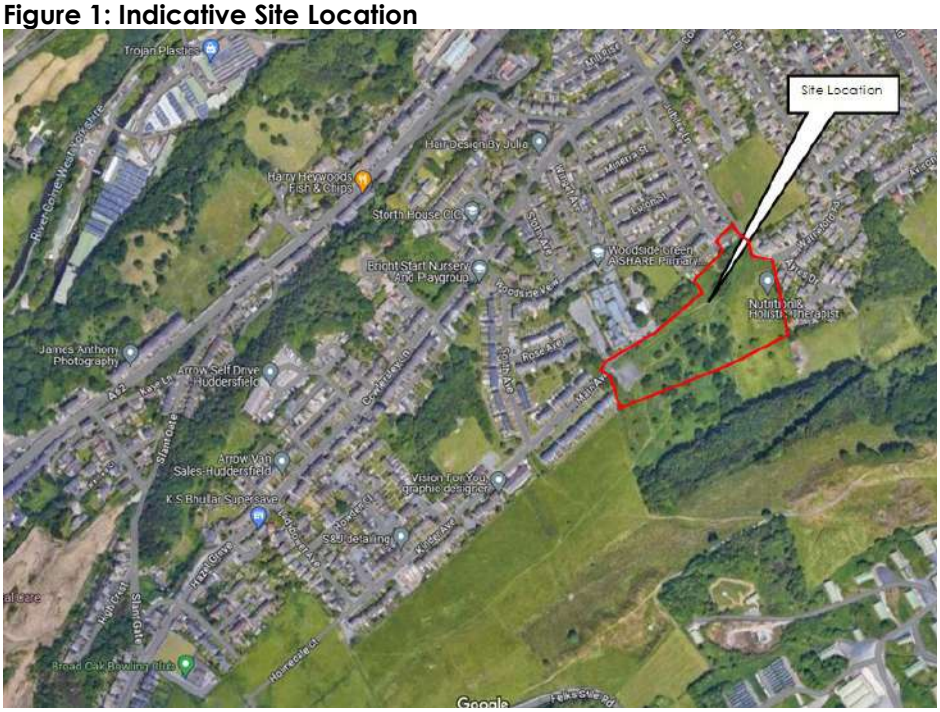
1.1 TPS Transport Consultants Ltd. has been appointed by Strata, to prepare a Transport Statement (TS) in support of a forthcoming planning application for residential development at Main Avenue, Cowersley, Huddersfield.

1.2 This Note has been prepared with a view to agreeing the scope of the Transport Statement with Highways Officers at Kirklees Council at an early stage in the application process, and in line with the request in pre-application feedback (ref: 2021/21121) that the scope of a Transport Assessment should be agreed with Highways Development Management (HDM) prior to submission. Feedback / discussion on the suggested scope is welcomed.

Site Location & Access

1.3 The proposed development is located to the northeast of Main Avenue and southwest of Windsor Road. The site is allocated for residential development in the Kirklees Local Plan (Site HS156), with an indicative capacity of 76 dwellings. The location of the development site is shown in **Figure 1**, whilst **Appendix A** includes an indicative layout plan for the proposals to which this Scoping Note relates.

Figure 1: Indicative Site Location



(Source : Google Maps)

1.4 The proposed development is for 57 dwellings, with access to be taken via an extension of Main Avenue to the southwest and connecting with Windsor Road, to the north, where it currently terminates.

Pre-application

1.5 A pre-application response was provided by officers at Kirklees HDM in December 2021 in relation to a scheme for 49 dwellings on the site, within which it was requested that the scope of any Transport Assessment be agreed with officers prior to a formal planning submission.

1.6 The layout of the proposed development has evolved since the original pre-application submission, nonetheless, previous comments relating to layout have been taken into consideration in the context of the current proposals.

2. ACCESS BY SUSTAINABLE MODES

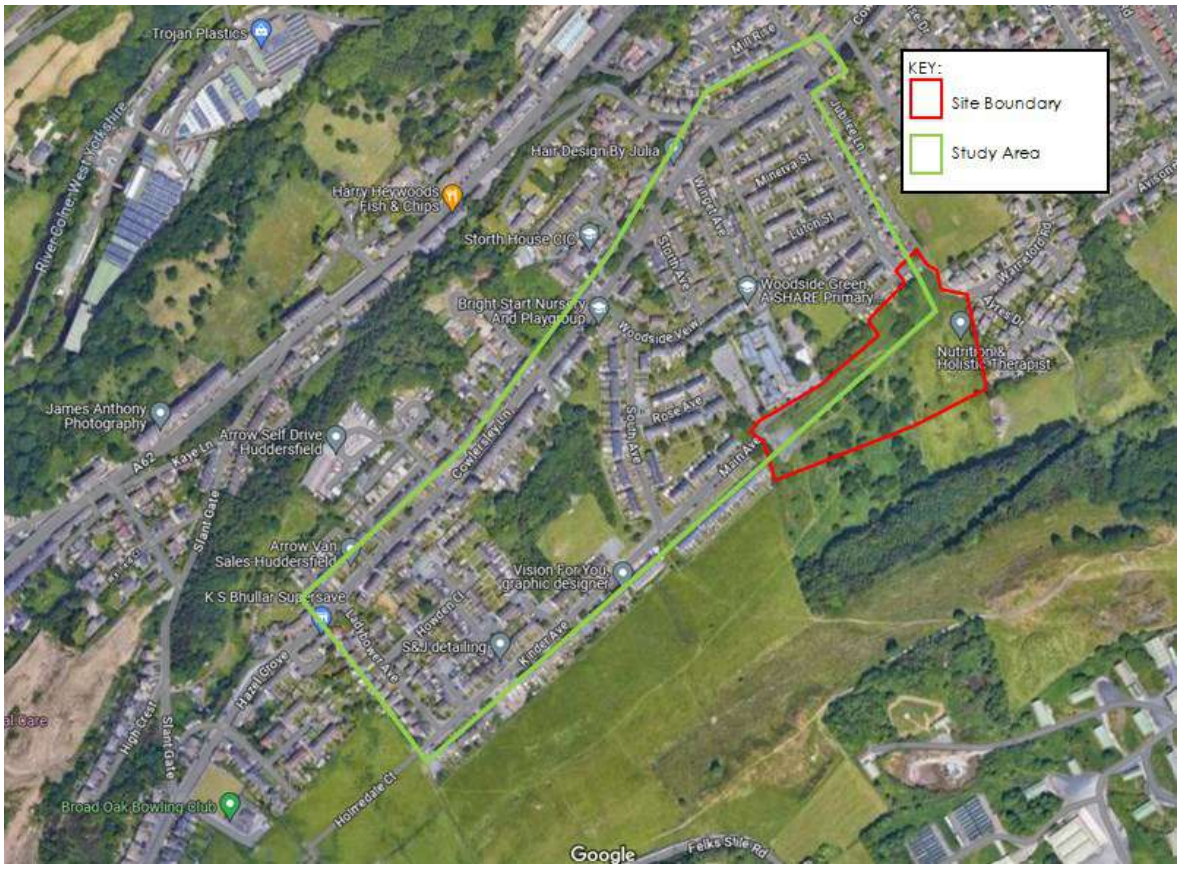
2.1 The Transport Statement will provide a detailed review of pedestrian facilities, including walking routes to and from key local amenities and services, a review of local cycle infrastructure and the available public transport services, in the vicinity of the site.

2.2 The site will be designed to encourage and facilitate trips by active travel modes, providing connections to and through the site, and making use of the existing Public Right of Way network in the vicinity of the site.

3. ROAD SAFETY

3.1 Accident data for the most recent 5-year period (2018 – 2022) will be obtained from www.crashmap.co.uk for the network surrounding the site. Crashmap offers a definitive map of the official road collision statistics. The proposed extent of the study area (illustrated in **Figure 2**) extends to key routes to/from the site.

Figure 2: Accident Study Area



(Source: Crash Maps)

3.2 Accidents will be analysed for any trends in location and cause, with a view to determining any existing road safety issues that might be exacerbated by an uplift in traffic, attributable to the development proposals.

4. TRIP GENERATION & DISTRIBUTION

Trip Generation

4.1 The trip generation of the proposed 57 dwellings will be based on trip rates obtained from the TRICS database. It is considered that the site is in a suburban area and, therefore, trip rates have been chosen accordingly, based on sites with similar geographical characteristics.

4.2 The average trip rates obtained from the TRICS database can be seen in **Table 1** below, whilst the full output is attached at **Appendix B.**

Table 1: TRICS Trip Rates

	AM			PM		
	Arrival	**Departure**	**Two-Way**	**Arrival**	**Departure**	**Two-Way**
Trip Rates	0.102	0.452	0.554	0.415	0.172	0.587
Trip Generation	6	26	32	24	10	34

(Source: TRICS)

4.3 As can be seen in **Table 1,** the proposed development could be expected to generate up to 32 two-way trips in the AM peak hour and 34 two-way trips in the evening peak hour.

Impact Assessment

4.4 In the pre-application response received in December 2021, it was requested that junction assessments be undertaken at the following junctions as a minimum:

- Windsor Road / Cowersley Lane; and
- Woodside View / Cowersley Lane.

4.5 It should be noted that vehicles travelling to/from the site, will have the choice of the following routes for accessing the development from Cowersley Lane:

- Ladybower Avenue / Hazel Grove (to the south);
- Woodside View / Cowersley Lane (to the west); and
- Windsor Road / Cowersley Lane (to the northwest).

4.6 Given the choice of three routes and the predicted trip generation in **Table 1,** it is not expected that the trip generation at a single junction will exceed 30 or more two-way trips in any peak hour, the level at which the impact is considered to be material, and, therefore, no additional assessment will be undertaken.

5. ACCESS AND PARKING

5.1 The development will take access from Main Avenue to the south and from Windsor Road, to the northwest, via an extension where the existing roads terminate. Access is to be taken where there are existing garages at the termination of Windsor Road. It is understood that works to relocate these garages is due to take place in January, with the plans attached at **Appendix C,** demonstrating the existing and proposed layout.

5.2 Once within the site, there will be a priority T-junction towards the northern end of the site, where the proposed route south will form the minor arm.

5.3 To the east of this, there will be a private drive serving no more than 5 dwellings. The main route through the site continues south, connecting with Main Avenue, at the southern end of the site.

5.4 The proposed carriageway through the site will be 5.5m wide with a 2m wide footway to both sides, which will tie in with existing provision on Windsor Road and Main Avenue, respectively.

5.5 A highway design compliance checklist would be submitted with the application, confirming how the proposals reflect Kirklees' standards.

5.6 It is proposed to undertake ATCs on Cowersley Lane, in the vicinity of the junctions with Windsor Road, Woodside View and Ladybower Avenue to determine existing 85th percentile speeds of vehicles in these locations and the potential for introducing TROs near the junctions to improve visibility for emerging vehicles. The results of the ATCs and any potential mitigation will be included within the Transport Statement to be submitted in support of the application.

Parking within the development

5.7 It is proposed for dwellings to be a mix of 1no., 2no. or 3no. bed dwellings. In line with the Kirklees Council Highway Design Guide SPD, 1no. bedroom dwellings will be provided with one space per dwelling, whilst 2/3 bedroom dwellings will be provided with 2 parking spaces. Visitor parking will also be provided at a ratio of 1 space per 4 dwellings (15 spaces), to either be provided in either laybys forming part of the adopted highway or on-street in locations which would not have a detrimental impact on servicing of the site. All dwellings will be provided with an EV charging point.

5.8 Consideration will also be given to a reasonable amount of visitor parking to be provided near to Woodside Green Primary School.

Servicing

5.9 General servicing and delivery access will be via Main Avenue and Windsor Road, with a refuse vehicle driving through the site, as required. The internal layout of the site will be designed such that service vehicles are able to access and egress the site satisfactorily.

5.10 Refuse collection will be undertaken by Kirklees Council in line with the current arrangements carried out across the neighbouring residential area. Swept path analysis of the proposed layout will be undertaken as part of the Transport Statement. Confirmation of the refuse vehicle specification, required for the swept paths, is requested from the council.

Fire Appliance Access

5.11 Manual for Streets (MfS) indicates that the access requirement for emergency vehicles are generally stipulated by the Fire Service. Consulting national guidance, *The Building* Regulations *2019 'Fire Safety' (2020) Approved Document B Section 5 'Access and Facilities for the Fire and Rescue Service'*, Table 8 of the document sets out that 'Typical Fire and Rescue Service Vehicle Access Route Specification' which stipulates that a minimum road width of 3.7m be provided and turning facilities should be provided in any cul-de-sac that is more that 20m long. Fire tenders and emergency vehicles will access the site from Main Avenue or Windsor Road.

6. CONSTRUCTION TRAFFIC IMPACT

6.1 Clarity is sought on whether a Constructions Traffic Management Plan (CTMP) is required to accompany the application, or whether this could be conditioned. It is envisaged that the scope of a CTMP would be as follows:

- A site plan, including development details.
- The parking of vehicles of contractors.
- Loading, unloading and storage of plant and materials within the site.
- Access to the site, including means to control and manage access and egress of vehicles to and from the site for the duration of construction.
- Vehicle routing from the site to the wider strategic road network including swept path analysis at any key junctions. This would look to avoid local residential areas, constrained routes and sensitive receptors, as far as possible.
- Provision of wheel washing facilities at the site exit and a commitment to sweep adjacent roads when required and at the reasonable request of the Council.
- Measures to be introduced to minimise the impact of noise, dust and vibration from the proposed construction operations.
- Opportunities for recycling/disposing of waste resulting from demolition and construction works.
- Measures to ensure the safety of all users of the public highway especially cyclists and pedestrians in the vicinity of the site and especially at the accesses.
- Where possible, avoidance of network and school peak hours for deliveries and details of a booking system to avoid vehicles waiting on the public highway.
- Details of the construction programme and a schedule of traffic movements.

6.2 The CTMP would be submitted to Kirklees for approval and adhered to throughout the construction period.

7. TRAVEL PLAN

7.1 Alongside the Transport Statement, a Travel Plan will accompany the application; this will confirm the Strata's approach to minimising the impacts of travel and transport and will reflect the Travel Plans being delivered elsewhere across Kirklees by TPS.

7.2 The Travel Plan will be structured as follows:

- Introduction – to include site location and development details, access arrangements and car parking.
- Aims and objectives.
- Policy context, illustrating compliance with both national and local policy.
- Site accessibility and connectivity with local amenities.
- Travel Plan measures.
- Targets and monitoring mechanisms, including reporting to Kirklees.

7.3 Confirmation is requested as to Kirklees Council's current monitoring fees for Travel Plans, which will be secured through the S106. In addition, confirmation is also sought as to whether the council will be requesting Residential Metro cards or a sustainable transport fund. Clarification on the cost per dwelling of these, is sought.

8. SUMMARY

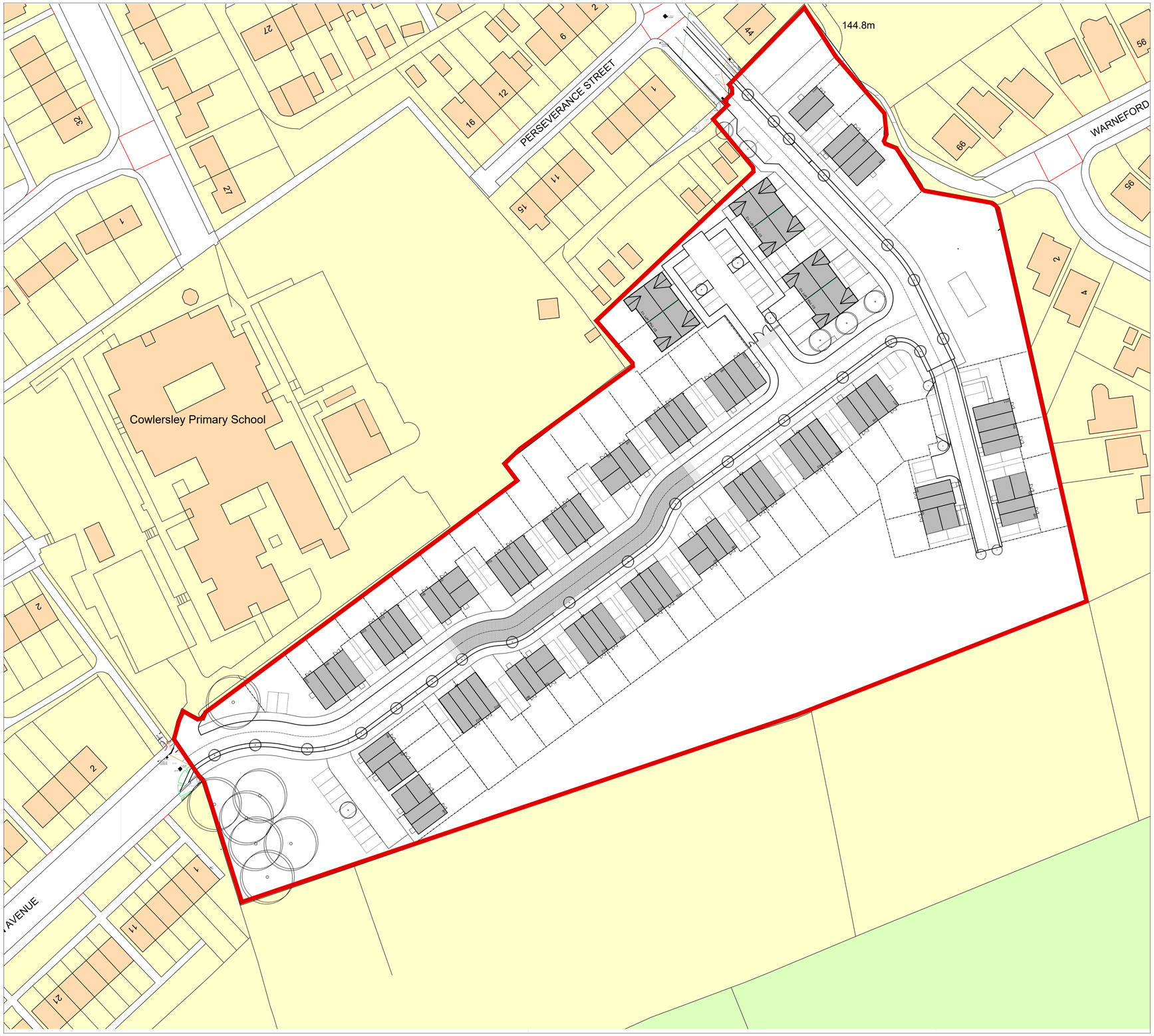
8.1 This Scoping Note has been prepared to set out the intended scope of the Transport Statement and Travel Plan that will accompany a planning application for residential development at Main Avenue, Cowersley, with a view to agreeing this with Kirklees Council Highways Development Management at the earliest opportunity.

8.2 In response to this Note, we would request feedback on:

- The extent of the accident study area proposed.
- The scope / location of the proposed traffic counts.
- The approach to trip generation and distribution.
- The approach to car parking / cycle parking provision.
- Confirmation as to whether a CTMP is required at application stage.
- The suggested content for the Travel Plan and related S106 requirements

Appendix A

Draft Layout



DO NOT SCALE
All dimensions to be checked on site and Architect to be notified of any discrepancies prior to commencement

DESIGNER'S RISK ASSESSMENT
Construction (Design and Management) Regulations 2015

RESIDUAL RISKS:

REF:	DESCRIPTION	DATE:

Kirklees - Main Avenue
Option 2 Schedule

(GIA)

Thirteen Group

		ha	acres
GROSS SITE AREA		2.14	5.29
NET SITE AREA		1.34	3.31

HOUSE TYPE	BEDROOM	CONFIG	STOREYS	NO	MIX %	SQ FT	SQ M	TOTAL SQ FT	TOTAL SQ M
HT7	2B4P	HOUSE	2	8	14	865.42	80.4	6923	643.20
HT8	3B4P	HOUSE	2	8	14	927.85	86.2	7423	689.60
HT9	3B5P	HOUSE	2	5	9	1020.42	94.80	5102	474.00
HT11	3B5P	HOUSE	2	6	11	1021.49	94.90	6129	569.40
HT12	3B5P	HOUSE	2	18	32	1044.10	97.00	18794	1746.00
APT (G)	2B3P	APARTMENT	1	6	11	693.19	64.40	4159	386.40
APT (1)	2B4P	APARTMENT	1	6	11	777.15	72.20	4663	433.20
		OVERALL TOTALS		**57**	**100**			**53193**	**4942**

OVERALL DENSITY	
UNITS / ha	42.54
UNITS / ACRE	17.22
SQ M / ha	323
SQ FT / ACRE	1493

OVERALL MIX	TOTAL	%
2 BED	20	35
3 BED	37	65
4 BED		0
	57	100

NOTE: Net area excludes all public open space and associated structural landscaping / buffer planting / half road

TOTAL NO	57

N

0 5 10 20 50 metres

Scale 1:500 @ A1

REVISION	DATE	DESCRIPTION	CHECKED
D5	09.05.23	Red line boundary revised to following boundary issued by Kirklees.	
D4	21.04.23	Title red line boundary added.	
D3	09.06.22	Revised following Pre-Application planning meeting.	

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ARCHITECTURE | MASTERPLANNING | URBAN DESIGN

IDPartnership Northern, St Jude's, Barker Street, Shieldfield, Newcastle upon Tyne, NE2 1AS
T: +44 (0)191 261 4442 | W: idpartnership.com | E: info@idpartnership-northern.com

PROJECT / CLIENT
Kirklees Cluster Bid
Main Avenue, Cowersley

DRAWING TITLE
Proposed Site Layout

PROJECT ARCHITECT	MM	PROJECT NO. N81-2993	DRAWING REVISION D5
DRAWN BY	GP	DRAWING NO. 101	
CHECKED	IDP		
SCALE	1 to 500 at A1	DRAWING STATUS DRAFT	
DATE	25.05.22		

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Appendix B

TRICS Output

Calculation Reference: AUDIT-640801-231127-1142

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
	KC	KENT	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
	TB	TORBAY	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
09	NORTH		
	DH	DURHAM	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 37 to 73 (units:)
Range Selected by User: 35 to 100 (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: 01/01/15 to 15/05/23

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

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	2 days
Thursday	2 days

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

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7

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	7

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	4 days - Selected
Servicing vehicles Excluded	7 days - Selected

Secondary Filtering selection:

Use Class:

C3	7 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:

5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
25,001 to 50,000	2 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 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	2 days
No	5 days

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

PTAL Rating:

No PTAL Present	7 days

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

LIST OF SITES relevant to selection parameters

1 DH-03-A-01 SEMI DETACHED DURHAM
GREENFIELDS ROAD
BISHOP AUCKLAND

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 50
Survey date: TUESDAY *28/03/17* *Survey Type: MANUAL*

2 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY *28/09/15* *Survey Type: MANUAL*

3 HC-03-A-23 HOUSES & FLATS HAMPSHIRE
CANADA WAY
LIPHOOK

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 62
Survey date: TUESDAY *19/11/19* *Survey Type: MANUAL*

4 HI-03-A-14 SEMI-DETACHED & TERRACED HIGHLAND
KING BRUDE ROAD
INVERNESS
SCORGUIE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 40
Survey date: WEDNESDAY *23/03/16* *Survey Type: MANUAL*

5 KC-03-A-03 MIXED HOUSES & FLATS KENT
HYTHE ROAD
ASHFORD
WILLESBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 51
Survey date: THURSDAY *14/07/16* *Survey Type: MANUAL*

6 SF-03-A-07 MIXED HOUSES SUFFOLK
FOXHALL ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 73
Survey date: THURSDAY *09/05/19* *Survey Type: MANUAL*

7 TB-03-A-01 TERRACED HOUSES TORBAY
BRONSHILL ROAD
TORQUAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 37
Survey date: WEDNESDAY *30/09/15* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	7	55	0.055	7	55	0.319	7	55	0.374
08:00 - 09:00	7	55	0.102	7	55	0.452	7	55	0.554
09:00 - 10:00	7	55	0.159	7	55	0.191	7	55	0.350
10:00 - 11:00	7	55	0.110	7	55	0.162	7	55	0.272
11:00 - 12:00	7	55	0.128	7	55	0.162	7	55	0.290
12:00 - 13:00	7	55	0.196	7	55	0.167	7	55	0.363
13:00 - 14:00	7	55	0.157	7	55	0.175	7	55	0.332
14:00 - 15:00	7	55	0.144	7	55	0.180	7	55	0.324
15:00 - 16:00	7	55	0.225	7	55	0.146	7	55	0.371
16:00 - 17:00	7	55	0.316	7	55	0.136	7	55	0.452
17:00 - 18:00	7	55	0.415	7	55	0.172	7	55	0.587
18:00 - 19:00	7	55	0.295	7	55	0.175	7	55	0.470
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.302			2.437			4.739

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:	37 - 73 (units:)
Survey date date range:	01/01/15 - 15/05/23
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	4
Surveys manually removed from selection:	0

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

Appendix

Existing and Proposed Layout of Garages, Windsor Road

DO NOT SCALE FROM THIS DRAWING
ALL DIMENSIONS MUST BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION

Key Legend

- Garages as Existing
- Tarmac as Existing
- Concrete as Existing
- Gravel as Existing
- Area of Trees and Dense Undergrowth
- Site Edged Red

Existing Site Plan

1 : 200

N

2 0 2 4 6 8 10
SCALE 1: 200 m

Rev	Date	Int	Description
1	12.10.21	AW	Revised Redline Boundary

btp ARCHITECTS
RIBA Chartered Practice

CLIENT:
Kirklees Council - Housing Growth

PROJECT:
Main Avenue, Huddersfield

DESCRIPTION:
Existing Site Plan

PURPOSE OF ISSUE:
Planning

DRAWN BY:	CHECKED	DATE:	SCALE @ A2:
AW	VS	08/10/21	1 : 200

JOB NO:	STATUS CODE:	DRAWING NO:	REV
3838	S0	102	1

FILE IDENTIFIER:
MA-BTP-00-XSP-DR-A-3838_102.1

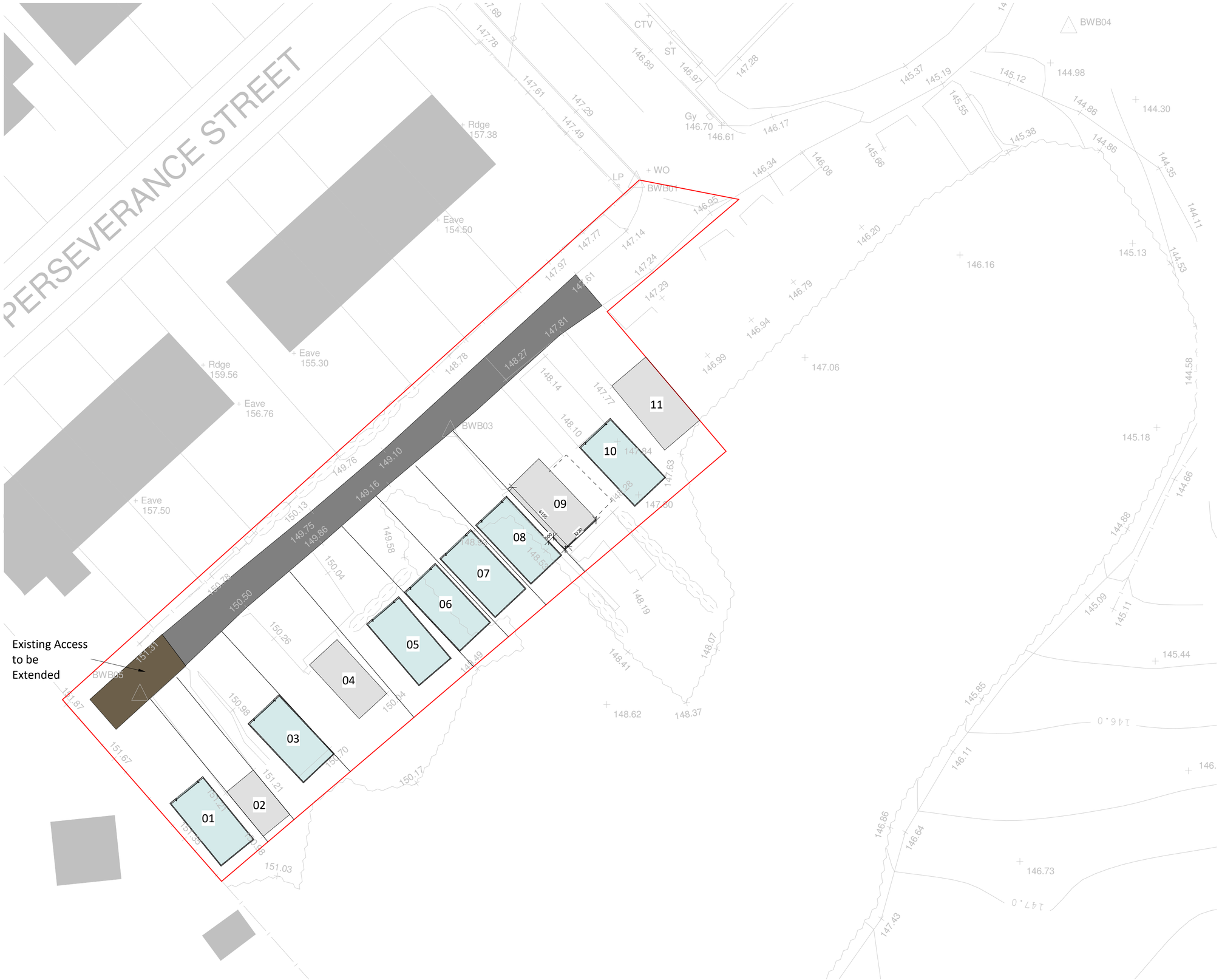
Elizabeth House 486 Didsbury Road Heaton Mersey Stockport SK4 3BS
0161 443 1221 info@bernardtaylor.co.uK www.btparchitects.co.uk

DO NOT SCALE FROM THIS DRAWING
ALL DIMENSIONS MUST BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION

Schedule of Accommodation

	Proposed New Garage Plots 1,3,5,6,7,8 & 10	no 7
	Existing Retained Garages Plots 2,4,9 & 11	no 4
	TOTAL	**no 11**

- Retained Parking Surface
- Garage Access surface as Existing
- Road Surfacing to be Extended
- Site Edged Red



Garages Site Plan as Proposed
1 : 200

N

2 0 2 4 6 8 10
SCALE 1:200 m

Rev	Date	Int	Description
4	14.10.21		Revision of Garage sizes following on comments by planning officer.
3	12.10.21	AW	Revised Redline Boundary
2	28.09.21	AW	Amended to suit comments
1	14.09.21	AW	Redline boundary amended. Additional Garages added

btp ARCHITECTS — RIBA Chartered Practice

CLIENT:
Kirklees Council - Housing Growth

PROJECT:
Main Avenue, Huddersfield

DESCRIPTION:
Garages Site Plan as Proposed

PURPOSE OF ISSUE:
Planning

DRAWN BY:	CHECKED	DATE:	SCALE @ A2:
AP	VS	20/07/21	1 : 200

JOB NO:	STATUS CODE:	DRAWING NO:	REV
3838	S0	105	4

FILE IDENTIFIER:
MA-BTP-00-SP-DR-A-3838_105.4

Elizabeth House 486 Didsbury Road Heaton Mersey Stockport SK4 3BS
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Appendix D

Scoping Note Response

John Turner

From: Adam Darwin <Adam.Darwin@kirklees.gov.uk>
Sent: 11 December 2023 13:54
To: John Turner
Cc: Highways DevelopmentControl
Subject: 2021/21121 / 2-17SW/1 at Main Avenue, Cowlersley, Huddersfield, HD4 5US

Hi John,

Comments on the scoping report as follows:

- The use of Crashmap data is not recommended, as causation factors cannot be determined from this data. The extent of the study area suggested is generally acceptable. However, please extend slightly (perhaps circa 50m) along Cowersley Road on approach to the junctions serving the site.
- Whilst the TRICS rates may be acceptable, further justification is required in the TA (e.g. no detail of parameters have been provided). Any trip rates used should also directly relate to travel plan targets and mode split.
- In terms of junction assessments (safety & capacity/operation), as per my pre-app response these must include the two junctions I mentioned as a minimum, to ensure the development impact is fully understood. I note you quote 30 trips as being a material impact, but this has no basis in current guidance.
- In terms of traffic distribution, I am open to suggestions on this. However, a combination of census data and existing turning proportions on Cowersley Lane may be appropriate. If this process identifies that the third junction you mention on to Cowersley Lane being utilised, then the TA should also assess this junction in terms of safety and capacity/operation.
- Refuse tracking should be in accordance with the design vehicle identified in highway design SPD, S38 guidance notes and Waste Strategy guidance document (all available on-line – see links below). This is currently a 11.85m refuse vehicle (although current fleet only includes 11.2m vehicle, layouts need to be future proofed).
- A CTMP can be conditioned. However, it would be helpful to include some key details in the TA report. In particular, construction access and routing, contractor parking, timing restrictions for HGV movements (e.g. school start/finish times) etc.
- In terms of the Travel Plan, TPS provided a TP for a development at Woodhead Road, Brockholes (also referenced as Honley). I would recommend that this TP document is used as a starting point. In terms of monitoring contribution, for a development of this scale the contribution is £10,000 (£2,000 for 5 years). We would expect a Sustainable Travel Fund or MCard scheme to secured by S106 (STF at equivalent cost to MCard scheme) . The current costs of the MCard scheme are available on the WYMetro website. If a Sustainable Travel Fund approach is taken, then the TA/TP should identify how the fund is intended to be used.
- In terms of parking, visitor parking needs to be well integrated into the street, ideally in laybys. If laybys are not provided, this is likely to result in additional highway widering in any case. At present there is currently no layby parking in the adopted streets, which is unlikely to be acceptable. Layby parking should also be provided near the school access. Cycle parking is also required for all dwellings (LTN 1/20 provides guidance on what constitutes high quality/inclusive provision).
- The verges with trees look to be too narrow. These should be min. 2m wide to allow for tree planting. This width will also allow for visitor parking laybys to be introduced (2.4m wide laybys are needed for shared surfaces without an adjacent footway).
- A qualitative and quantatitive assessment of the site accessibility is required (e.g. walking/cycling isochrones and travel distance alone is insufficient – ATE guidance provides a useful checklist of what is required). Consideration of any necessary improvements should also be considered. I note that the current plan doesn't provide ped./cycle connectively to Warneford Road, and also doesn't protect / enhance the current PROW network (e.g. HUD 279/10 & HUD 277/40).

- It is good to see that a compliance checklist will be provided to confirm that all streets comply with standard (fully dimensioned plans and levels/gradient info are also required, including visibility splays etc). Please ensure that the information also confirms compliance with our Waste Strategy guidance, include bin presentation points, carry distances, reversing distances etc. At present it appears that the private drive at the east end of the site may not comply in terms of bin carry and vehicle reversing distance. It also appears that the centreline radii on the main section of street is not compliant (min. 20m CLR is required).

See links below to the local guidance mentioned above:
https://www.kirklees.gov.uk/beta/planning-policy/pdf/highway-design-guide-spd.pdf
https://www.kirklees.gov.uk/beta/regeneration-and-development/highways-guidance-and-standards.aspx
https://www.kirklees.gov.uk/beta/planning-applications/pdf/waste-management-design-guide-new-developments.pdf

Kind Regards

Adam Darwin FIHE
Group Engineer – Highway Development Management
E adam.darwin@kirklees.gov.uk
T 01484 221000 (Ext.77596)

From: John Turner <john.turner@tpsconsultants.co.uk>
Sent: Wednesday, December 6, 2023 11:12 AM
To: Adam Darwin <Adam.Darwin@kirklees.gov.uk>
Subject: RE: Main Avenue, Cowersley

CAUTION: External email. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Adam,

That's strange, please find attached the scoping note and your previous pre-app.

Hopefully straight forward enough.

Thanks

John Turner
Principal Consultant

T: 01924 664 638
M: 07940 562 769
www.tpsconsultants.co.uk

From: Adam Darwin <Adam.Darwin@kirklees.gov.uk>
Sent: Wednesday, December 6, 2023 11:09 AM
To: John Turner <john.turner@tpsconsultants.co.uk>
Subject: RE: Main Avenue, Cowersley

Hi John,

Sorry I haven't come back to you. From checking my inbox, I don't appear to have received your email for some reason. Please can you reissue the scoping note (and the pre-app ref, so I can check previous comments)?

Kind Regards

Adam Darwin FIHE
Group Engineer – Highway Development Management
E adam.darwin@kirklees.gov.uk
T 01484 221000 (Ext.77596)

From: John Turner <john.turner@tpsconsultants.co.uk>
Sent: Wednesday, December 6, 2023 10:58 AM
To: Adam Darwin <Adam.Darwin@kirklees.gov.uk>
Subject: RE: Main Avenue, Cowersley

CAUTION: External email. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Adam,

I hope you're keeping well.

Just following up on the scoping note I sent over to you last week, to firstly confirm that you received what I sent over and secondly getting your thoughts on this. We are wanting to crack on with the Transport Statement, with the aim of a planning submission in early January, so a prompt response would be beneficial for us and Strata.

Thanks,

John

John Turner
Principal Consultant

T: 01924 664 638
M: 07940 562 769
www.tpsconsultants.co.uk

From: John Turner
Sent: Thursday, November 30, 2023 3:55 PM
To: adam.darwin@kirklees.gov.uk
Subject: Main Avenue, Cowersley

Hi Adam,

I hope you and the family are keeping well. How is it going at Kirklees?

We are working with Strata on proposals for land at Main Avenue, Cowersley, to which you have previously provided pre-application feedback (attached). Although the scheme has moved on since this pre-app, parts of it are still relevant and within it, it suggests that the scope of any Transport Assessment/Statement should be scoped with HDM prior to submission. With this in mind, please find attached a scoping note for your review/comment, prior to us proceeding with the Transport Statement for the proposed scheme.

If you want to discuss, please don't hesitate to give me a call on the details below.

Thanks

John Turner
Principal Consultant

T: 01924 664 638
M: 07940 562 769
www.tpsconsultants.co.uk

Website | News | Email Updates | Facebook | Twitter

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Appendix E

TRICS Output

Calculation Reference: AUDIT-640801-231127-1142

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
	KC	KENT	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
	TB	TORBAY	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
09	NORTH		
	DH	DURHAM	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 37 to 73 (units:)
Range Selected by User: 35 to 100 (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: 01/01/15 to 15/05/23

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

Selected survey days:

Monday	1 days
Tuesday	2 days
Wednesday	2 days
Thursday	2 days

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

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7

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	7

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	4 days - Selected
Servicing vehicles Excluded	7 days - Selected

Secondary Filtering selection:

Use Class:

C3	7 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:

5,001 to 10,000	2 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
25,001 to 50,000	2 days

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	2 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 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	2 days
No	5 days

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

PTAL Rating:

No PTAL Present	7 days

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

LIST OF SITES relevant to selection parameters

1 DH-03-A-01 SEMI DETACHED DURHAM
GREENFIELDS ROAD
BISHOP AUCKLAND

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 50
Survey date: TUESDAY *28/03/17* *Survey Type: MANUAL*

2 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY *28/09/15* *Survey Type: MANUAL*

3 HC-03-A-23 HOUSES & FLATS HAMPSHIRE
CANADA WAY
LIPHOOK

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 62
Survey date: TUESDAY *19/11/19* *Survey Type: MANUAL*

4 HI-03-A-14 SEMI-DETACHED & TERRACED HIGHLAND
KING BRUDE ROAD
INVERNESS
SCORGUIE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 40
Survey date: WEDNESDAY *23/03/16* *Survey Type: MANUAL*

5 KC-03-A-03 MIXED HOUSES & FLATS KENT
HYTHE ROAD
ASHFORD
WILLESBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 51
Survey date: THURSDAY *14/07/16* *Survey Type: MANUAL*

6 SF-03-A-07 MIXED HOUSES SUFFOLK
FOXHALL ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 73
Survey date: THURSDAY *09/05/19* *Survey Type: MANUAL*

7 TB-03-A-01 TERRACED HOUSES TORBAY
BRONSHILL ROAD
TORQUAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 37
Survey date: WEDNESDAY *30/09/15* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	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	7	55	0.055	7	55	0.319	7	55	0.374
08:00 - 09:00	7	55	0.102	7	55	0.452	7	55	0.554
09:00 - 10:00	7	55	0.159	7	55	0.191	7	55	0.350
10:00 - 11:00	7	55	0.110	7	55	0.162	7	55	0.272
11:00 - 12:00	7	55	0.128	7	55	0.162	7	55	0.290
12:00 - 13:00	7	55	0.196	7	55	0.167	7	55	0.363
13:00 - 14:00	7	55	0.157	7	55	0.175	7	55	0.332
14:00 - 15:00	7	55	0.144	7	55	0.180	7	55	0.324
15:00 - 16:00	7	55	0.225	7	55	0.146	7	55	0.371
16:00 - 17:00	7	55	0.316	7	55	0.136	7	55	0.452
17:00 - 18:00	7	55	0.415	7	55	0.172	7	55	0.587
18:00 - 19:00	7	55	0.295	7	55	0.175	7	55	0.470
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.302			2.437			4.739

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:	37 - 73 (units:)
Survey date date range:	01/01/15 - 15/05/23
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	4
Surveys manually removed from selection:	0

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

Appendix F

Gravity Model

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

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population
units
date
usual residence

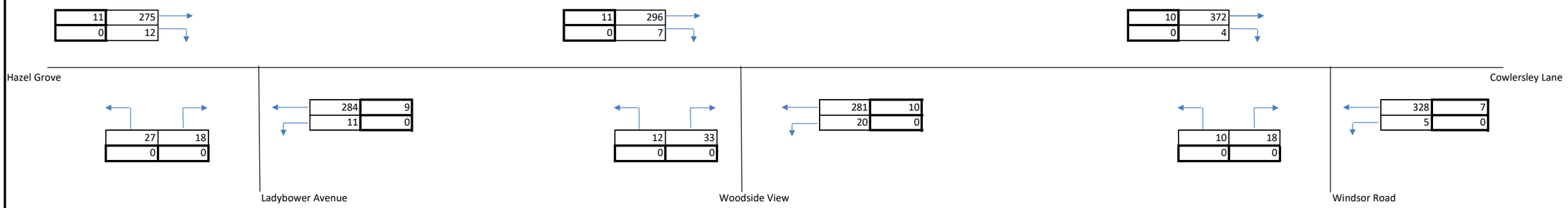
	Total		1	2	
place of work : 2011 super output area - middle layer	2,489	%	Cowlersley Lane	Hazel Grove	Total
E02002299 : Kirklees 029	445	17.88%	18%	0%	
E02002315 : Kirklees 045	249	10.00%	5%	5%	
E02002312 : Kirklees 042	182	7.31%	7%	0%	
E02002319 : Kirklees 049	121	4.86%	5%	5%	
E02002303 : Kirklees 033	112	4.50%	4%	0%	
E02002304 : Kirklees 034	102	4.10%	4%	0%	
E02002268 : Calderdale 025	69	2.77%	3%	0%	
E02002309 : Kirklees 039	66	2.65%	3%	0%	
E02002325 : Kirklees 055	63	2.53%	0%	3%	
E02002251 : Calderdale 008	62	2.49%	0%	0%	
E02006875 : Leeds 111	57	2.29%	2%	0%	
E02002311 : Kirklees 041	55	2.21%	1%	1%	
E02002313 : Kirklees 043	53	2.13%	2%	0%	
E02002295 : Kirklees 025	43	1.73%	2%	0%	
E02002306 : Kirklees 036	39	1.57%	0%	2%	
E02002329 : Kirklees 059	39	1.57%	1%	1%	
E02002301 : Kirklees 031	36	1.45%	1%	0%	
E02002322 : Kirklees 052	35	1.41%	0%	1%	
E02002317 : Kirklees 047	34	1.37%	0%	1%	
E02002320 : Kirklees 050	33	1.33%	0%	1%	
E02002323 : Kirklees 053	33	1.33%	1%	0%	
E02002318 : Kirklees 048	32	1.29%	1%	0%	
E02002262 : Calderdale 019	31	1.25%	1%	0%	
E02002308 : Kirklees 038	28	1.12%	1%	1%	
E02002287 : Kirklees 017	27	1.08%	1%	0%	
E02002264 : Calderdale 021	24	0.96%	1%	0%	
E02002321 : Kirklees 051	24	0.96%	1%	0%	
E02002324 : Kirklees 054	23	0.92%	1%	0%	
E02002327 : Kirklees 057	19	0.76%	1%	0%	
E02002292 : Kirklees 022	18	0.72%	1%	0%	
E02002307 : Kirklees 037	18	0.72%	1%	0%	
E02002258 : Calderdale 015	17	0.68%	1%	0%	
E02002285 : Kirklees 015	17	0.68%	1%	0%	
E02002297 : Kirklees 027	17	0.68%	1%	0%	
E02002328 : Kirklees 058	17	0.68%	0%	0%	
E02002280 : Kirklees 010	16	0.64%	1%	0%	
E02002293 : Kirklees 023	15	0.60%	1%	0%	
E02002316 : Kirklees 046	15	0.60%	1%	0%	
E02002272 : Kirklees 002	14	0.56%	1%	0%	
E02002300 : Kirklees 030	13	0.52%	1%	0%	
E02002302 : Kirklees 032	12	0.48%	0%	0%	
E02002221 : Bradford 039	11	0.44%	0%	0%	
E02002286 : Kirklees 016	11	0.44%	0%	0%	
E02002454 : Wakefield 017	11	0.44%	0%	0%	
E02002275 : Kirklees 005	10	0.40%	0%	0%	
E02002283 : Kirklees 013	10	0.40%	0%	0%	
E02006876 : Leeds 112	10	0.40%	0%	0%	
E02002296 : Kirklees 026	9	0.36%	0%	0%	
E02002305 : Kirklees 035	9	0.36%	0%	0%	
E02002419 : Leeds 090	9	0.36%	0%	0%	
E02002239 : Bradford 057	8	0.32%	0%	0%	
E02002255 : Calderdale 012	8	0.32%	0%	0%	
E02002411 : Leeds 082	8	0.32%	0%	0%	
E02003785 : South Cambridgeshire 011	8	0.32%	0%	0%	
E02001111 : Oldham 014	7	0.28%	0%	0%	
E02002235 : Bradford 053	7	0.28%	0%	0%	
E02002269 : Calderdale 026	7	0.28%	0%	0%	
E02002294 : Kirklees 024	7	0.28%	0%	0%	
E02002314 : Kirklees 044	7	0.28%	0%	0%	
E02002435 : Leeds 106	7	0.28%	0%	0%	
	100%	**79%**	**21%**	**100%**	

Route		%	AM IN	AM OUT	AM 2-WAY	PM IN	PM OUT	PM 2-WAY	AADT 24 HR
			6	27	33	25	10	35	312
1	Cowlersley Lane	79%	5	21	26	20	8	28	246
2	Hazel Grove	21%	1	6	7	5	2	7	65
		100%	6	27	33	25	10	35	311

Junctions		%	IN	OUT	2-WAY	IN	OUT	2-WAY	AADT
1	WINDSOR RD / COWLERSLEY LN	79%	5	21	26	20	8	28	246
2	LADYBOWER AVE / HAZEL GROVE	21%	1	6	7	5	2	7	65

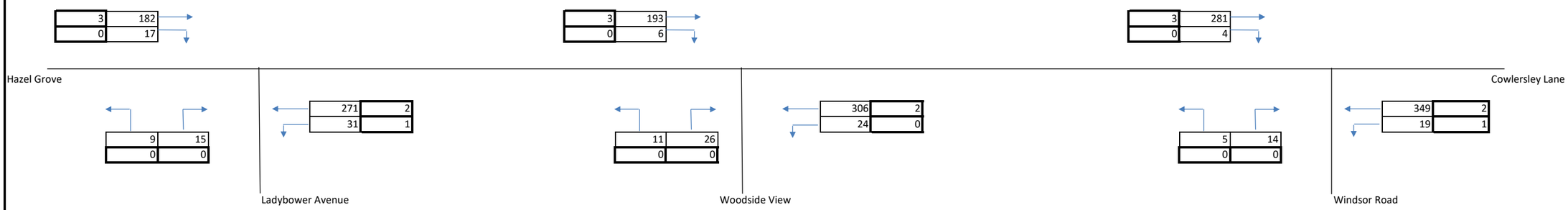
Appendix G

Network Flow Diagrams



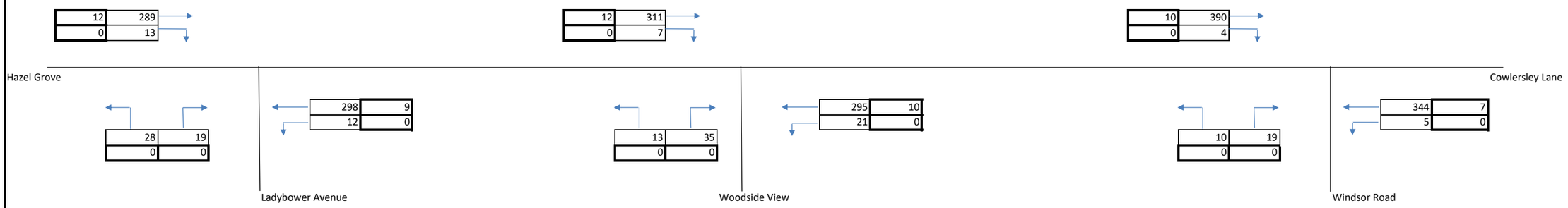
Total Vehs HGVs

Client: Strata	**Project:** P2445. Main Avenue	**Title:** 2023 Base AM 07:45-08:45		**Number:** Figure 5.X	**Revision:**	**Date**	Oct-24	**Checked**	JT
						Design	ST	**Approved**	JT



Total Vehicles HGVs

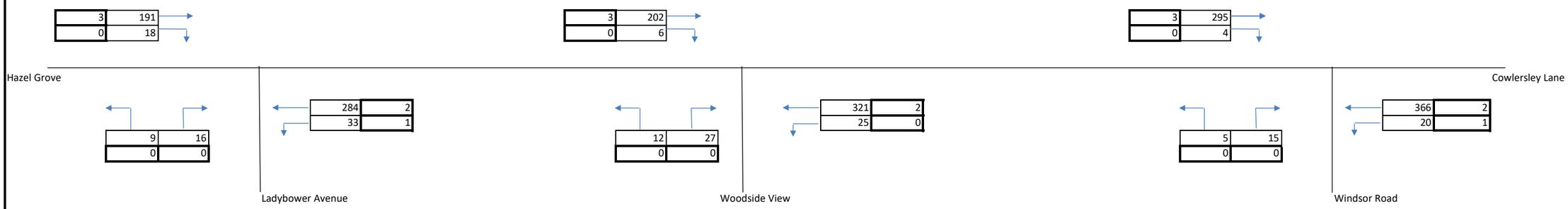
Client: Strata	**Project:** P2445. Main Avenue	**Title:** 2023 Base PM 16:15-17:15		**Number:** Figure 2	**Revision:**	**Date**	Oct-24	**Checked**	JT
						Design	ST	**Approved**	JT



Tempro Growth Factor 2023 to 2029	1.0492

Total Vehs	HGVs

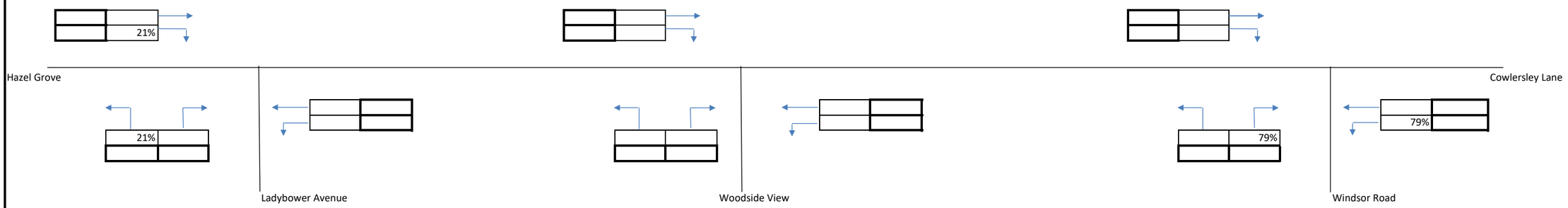
Client: Strata	**Project:** P2445. Main Avenue	**Title:** 2029 Base AM 07:45-08:45		**Number:** Figure 3	**Revision:**	**Date**	Oct-24	**Checked** JT
						Design	ST	**Approved** JT



Tempro Growth Factor 2023 to 2029	1.0492

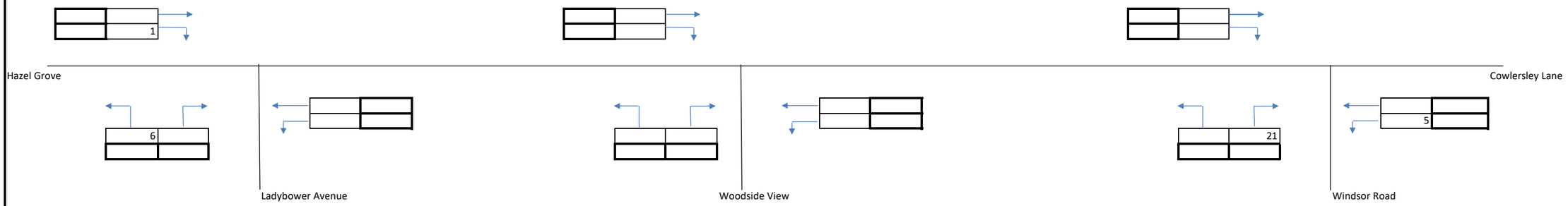
Total Vehs	HGVs

Client: Strata	**Project:** P2445. Main Avenue	**Title:** 2029 Base AM 16:15-17:15		**Number:** Figure 4	**Revision:**	**Date**	Oct-24	**Checked** JT
						Design	ST	**Approved** JT



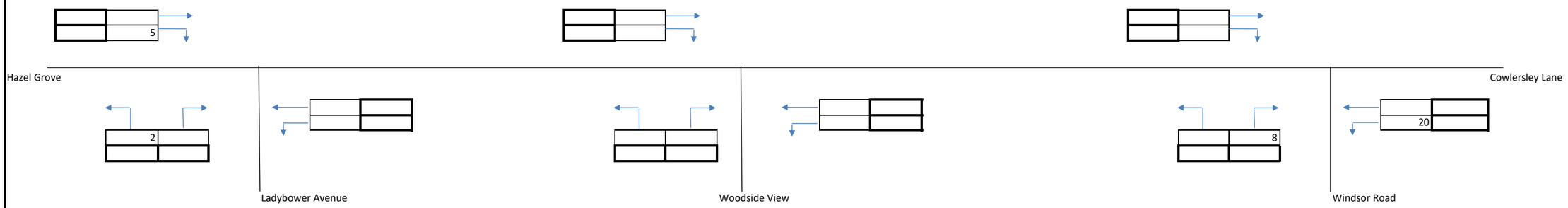
Total Vehs	HGVs

Client: Strata	**Project:** P2445. Main Avenue	**Title:** Trip Distribution		**Number:** Figure 5	**Revision:**	**Date**	Oct-24	**Checked**	JT
						Design	ST	**Approved**	JT



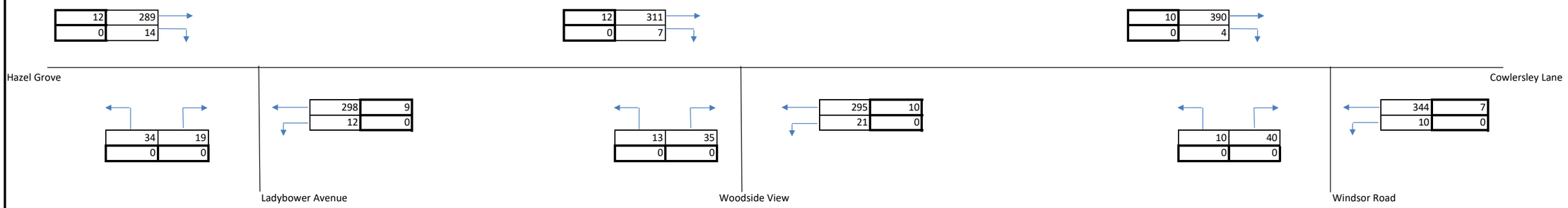
Total Vehs	HGVs

Client:	Project:	Title:		Number:	Revision:	Date	Oct-24	Checked	JT
Strata	P2445. Main Avenue	Trip Gen AM		Figure 6		Design	ST	Approved	JT



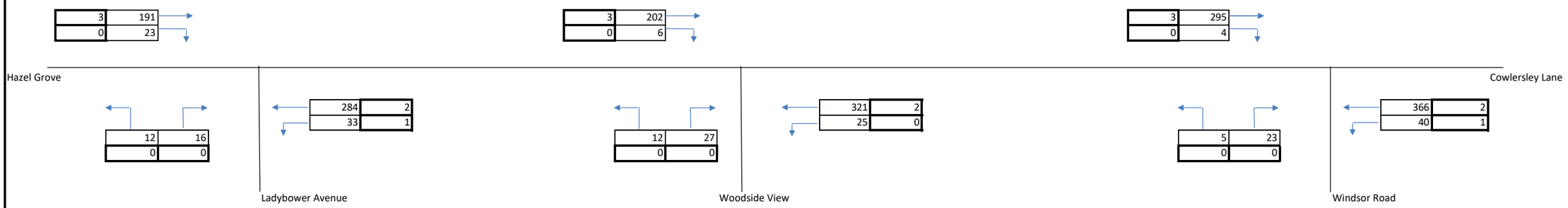
Total Vehs	HGVs

Client: Strata	**Project:** P2445. Main Avenue	**Title:** Trip Gen PM		**Number:** Figure 7	**Revision:**	**Date**	Oct-24	**Checked**	JT
						Design	ST	**Approved**	JT



Total Vehs	HGVs

Client:	Project:	Title:		Number:	Revision:	Date	Oct-24	Checked	JT
Strata	P2445. Main Avenue	2029 Base + Dev AM		Figure 8		Design	ST	Approved	JT



Total Vehs	HGVs

Client:	Project:	Title:		Number:	Revision:				
Strata	P2445. Main Avenue	2029 Base + Dev PM		Figure 9		Date	Oct-24	Checked	JT
						Design	ST	Approved	JT

Appendix H

Traffic Count Data

Site 1:	**Cowlersley Lane/Windsor Road**	**A:**	**Cowlersley Lane (East)**
Day:	**Wednesday**	**B:**	**Windsor Road**
Date:	**13 December 2023**	**C:**	**Cowlersley Lane (West)**
Weather:	**Dull & Showers AM/Fine & Cloudy PM**		

	A - B								A - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	1	0	0	0	0	0	0	1	16	6	0	0	0	0	1	23
07:15	0	0	0	0	0	0	0	0	36	3	0	0	0	1	0	40
07:30	1	0	0	0	0	0	0	1	46	10	0	0	0	1	1	58
07:45	0	1	0	0	0	0	0	1	70	19	0	0	1	0	2	92
08:00	0	2	0	0	0	0	0	2	62	7	0	0	0	1	2	72
08:15	2	0	0	0	0	0	0	2	76	12	2	0	0	0	1	91
08:30	0	0	0	0	0	0	0	0	65	6	1	0	0	0	1	73
08:45	1	0	0	0	0	0	0	1	46	9	1	0	0	0	1	57
09:00	1	1	0	0	0	0	0	2	42	5	0	0	0	0	0	47
09:15	0	0	0	0	0	0	0	0	43	4	0	0	0	0	1	48
09:30	2	0	0	0	0	0	0	2	39	6	2	0	0	0	1	48
09:45	2	0	0	0	0	0	0	2	38	4	0	1	0	0	0	43
Total	**10**	**4**	**0**	**0**	**0**	**0**	**0**	**14**	**579**	**91**	**6**	**1**	**1**	**3**	**11**	**692**
15:30	3	1	0	0	0	0	0	4	59	8	0	0	0	0	0	67
15:45	2	1	0	0	0	0	0	3	52	7	0	0	0	0	1	60
16:00	2	0	0	0	0	1	0	3	65	8	0	0	0	0	0	73
16:15	3	0	0	0	0	0	0	3	76	9	0	0	0	1	1	87
16:30	7	0	0	0	0	0	0	7	69	8	0	0	0	0	0	77
16:45	4	1	1	0	0	0	0	6	77	7	0	0	1	0	1	86
17:00	2	1	0	0	0	0	0	3	87	12	0	0	0	0	0	99
17:15	6	1	0	0	0	0	0	7	82	6	1	0	0	0	1	90
17:30	3	0	0	0	0	0	0	3	75	10	0	0	1	0	0	86
17:45	4	0	0	0	0	0	0	4	96	11	0	0	0	0	0	107
18:00	4	1	0	0	0	0	0	5	65	6	0	0	0	0	0	71
18:15	5	2	0	0	0	0	0	7	49	8	1	0	0	0	1	59
Total	**45**	**8**	**1**	**0**	**0**	**1**	**0**	**55**	**852**	**100**	**2**	**0**	**2**	**1**	**5**	**962**

	B - A								B - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
07:15	5	0	0	0	0	0	0	5	2	0	0	0	0	0	0	2
07:30	3	0	0	0	0	0	0	3	1	0	0	0	0	0	0	1
07:45	3	2	0	0	0	1	0	6	3	0	0	0	0	0	0	3
08:00	3	2	0	0	0	0	0	5	1	0	0	0	0	0	0	1
08:15	3	1	0	0	0	0	0	4	4	0	0	0	0	0	0	4
08:30	3	0	0	0	0	0	0	3	2	0	0	0	0	0	0	2
08:45	2	1	0	0	0	0	0	3	2	0	0	0	0	0	0	2
09:00	3	0	0	0	0	0	0	3	1	0	0	0	0	0	0	1
09:15	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
09:30	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
09:45	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	1
Total	**29**	**7**	**0**	**0**	**0**	**1**	**0**	**37**	**20**	**2**	**0**	**0**	**0**	**0**	**0**	**22**

15:30	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
15:45	2	0	0	0	0	0	0	2	0	1	0	0	0	0	0	1
16:00	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
16:15	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1
16:30	6	0	0	0	0	0	0	6	3	0	0	0	0	0	0	3
16:45	4	2	0	0	0	0	0	6	1	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	2	0	0	0	0	0	0	2	1	1	0	0	0	0	0	2
17:30	3	0	0	0	0	0	0	3	6	0	0	0	0	0	0	6
17:45	3	0	0	0	0	0	0	3	2	0	0	0	0	0	0	2
18:00	2	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0
18:15	2	1	0	0	0	0	0	3	3	0	0	0	0	0	0	3
Total	**34**	**5**	**0**	**0**	**0**	**0**	**0**	**39**	**17**	**2**	**0**	**0**	**0**	**0**	**0**	**19**

	C - A								C - B							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	43	9	0	0	0	0	0	52	0	1	0	0	0	0	0	1
07:15	48	4	1	0	0	0	1	54	0	0	0	0	0	0	0	0
07:30	64	11	1	0	0	0	0	76	0	0	0	0	0	0	0	0
07:45	74	6	0	0	0	0	0	80	0	0	0	0	0	0	0	0
08:00	87	16	1	0	0	0	3	107	1	0	0	0	0	0	0	1
08:15	80	9	0	0	0	0	2	91	1	0	0	0	0	0	0	1
08:30	81	8	1	0	0	1	3	94	2	0	0	0	0	0	0	2
08:45	67	3	1	1	0	0	0	72	2	0	0	0	0	0	0	2
09:00	64	7	1	0	0	0	1	73	1	0	0	0	0	0	0	1
09:15	60	3	0	0	0	0	2	65	2	1	0	0	0	0	0	3
09:30	51	5	1	0	0	0	2	59	0	0	0	0	0	0	0	0
09:45	48	4	1	1	0	0	0	54	1	0	0	0	0	0	0	1
Total	**767**	**85**	**8**	**2**	**0**	**1**	**14**	**877**	**10**	**2**	**0**	**0**	**0**	**0**	**0**	**12**

15:30	60	5	1	0	0	0	0	66	1	0	0	0	0	0	0	1
15:45	51	1	0	0	0	0	1	53	2	0	0	0	0	0	0	2
16:00	53	11	1	0	0	0	2	67	2	0	0	0	0	0	0	2
16:15	71	8	0	0	0	0	1	80	0	0	0	0	0	0	0	0
16:30	68	12	1	0	0	0	1	82	2	0	0	0	0	0	0	2
16:45	46	7	0	0	0	1	0	54	0	0	0	0	0	0	0	0
17:00	58	7	0	0	0	0	0	65	2	0	0	0	0	0	0	2
17:15	41	4	0	0	0	0	0	45	2	0	0	0	0	0	0	2
17:30	54	4	0	0	1	0	1	60	5	1	0	0	0	0	0	6
17:45	65	5	0	0	0	0	1	71	2	0	0	0	0	0	0	2
18:00	52	2	0	0	0	1	1	56	0	0	0	0	0	0	0	0
18:15	33	3	1	0	1	0	1	39	1	0	0	0	0	0	0	1
Total	**652**	**69**	**4**	**0**	**2**	**2**	**9**	**738**	**19**	**1**	**0**	**0**	**0**	**0**	**0**	**20**

Site 2:	**Cowlersley Lane/Woodside View**	**A:**	**Cowlersley Lane (East)**
Day:	**Wednesday**	**B:**	**Woodside View**
Date:	**13 December 2023**	**C:**	**Cowlersley Lane (West)**
Weather:	**Dull & Showers AM/Fine & Cloudy PM**		

	A - B								A - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	1	0	0	0	0	0	0	1	16	3	0	0	0	0	1	20
07:15	1	0	0	0	0	0	0	1	21	3	0	0	0	1	0	25
07:30	2	3	0	0	0	0	0	5	36	9	0	0	0	0	0	45
07:45	8	1	0	0	0	0	0	9	48	6	0	0	0	1	3	58
08:00	2	1	0	0	0	0	0	3	57	4	0	0	1	1	2	65
08:15	3	0	0	0	0	0	0	3	87	8	2	0	0	0	1	98
08:30	5	0	0	0	0	0	0	5	47	11	1	0	0	0	1	60
08:45	4	0	0	0	0	0	0	4	53	3	1	0	0	0	1	58
09:00	6	0	0	0	0	0	0	6	26	7	0	0	0	0	0	33
09:15	5	1	0	0	0	0	0	6	16	4	0	0	0	0	1	21
09:30	4	0	0	0	0	0	0	4	21	5	2	1	0	0	1	30
09:45	3	0	0	0	0	0	0	3	30	7	0	0	0	0	0	37
Total	**44**	**6**	**0**	**0**	**0**	**0**	**0**	**50**	**458**	**70**	**6**	**1**	**1**	**3**	**11**	**550**

15:30	9	0	0	0	0	0	0	9	42	8	0	0	0	0	0	50
15:45	6	4	0	0	0	0	0	10	63	9	0	0	0	0	1	73
16:00	4	1	0	0	0	0	0	5	57	5	0	0	0	0	0	62
16:15	7	2	0	0	0	0	0	9	60	13	0	0	0	1	0	74
16:30	6	0	0	0	0	0	0	6	66	7	0	0	0	0	1	74
16:45	3	0	0	0	0	0	0	3	68	5	0	0	0	0	1	74
17:00	5	1	0	0	0	0	0	6	71	12	0	0	1	0	0	84
17:15	8	2	0	0	0	0	0	10	80	3	1	0	0	0	1	85
17:30	12	1	0	0	0	0	0	13	53	12	0	0	1	0	0	66
17:45	5	1	0	0	0	0	0	6	54	7	0	0	0	0	0	61
18:00	6	0	0	0	0	0	0	6	29	7	0	0	0	0	0	36
18:15	13	0	1	0	0	0	0	14	49	3	1	0	0	0	1	54
Total	**84**	**12**	**1**	**0**	**0**	**0**	**0**	**97**	**692**	**91**	**2**	**0**	**2**	**1**	**5**	**793**

	B - A								B - C							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	6	0	0	0	0	0	0	6	1	0	0	0	0	0	0	1
07:15	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
07:30	8	0	0	0	0	0	0	8	1	0	0	0	0	0	0	1
07:45	10	1	0	0	0	0	0	11	1	0	0	0	0	0	0	1
08:00	6	1	0	0	0	0	0	7	1	3	0	0	0	0	0	4
08:15	7	0	0	0	0	0	0	7	2	1	0	0	0	0	0	3
08:30	8	0	0	0	0	0	0	8	3	1	0	0	0	0	0	4
08:45	5	0	0	0	0	0	0	5	2	0	0	0	0	0	0	2
09:00	4	1	0	0	0	0	0	5	1	0	0	0	1	0	0	2
09:15	4	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0
09:30	3	0	0	0	0	0	0	3	1	0	0	0	0	0	0	1
09:45	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
Total	**69**	**4**	**0**	**0**	**0**	**0**	**0**	**73**	**13**	**5**	**0**	**0**	**1**	**0**	**0**	**19**
15:30	9	0	0	0	0	0	0	9	3	0	0	0	0	0	0	3
15:45	8	0	0	0	0	0	0	8	1	0	0	0	0	0	0	1
16:00	4	0	0	0	0	0	0	4	1	0	0	0	0	0	0	1
16:15	5	0	0	0	0	0	0	5	3	0	0	0	0	0	0	3
16:30	7	1	0	0	0	0	0	8	1	0	0	0	0	0	0	1
16:45	4	0	0	0	0	0	0	4	5	0	0	0	0	0	0	5
17:00	8	1	0	0	0	0	0	9	2	0	0	0	0	0	0	2
17:15	7	1	0	0	0	0	0	8	1	0	0	0	0	0	0	1
17:30	6	0	0	0	0	0	0	6	0	1	0	0	0	0	0	1
17:45	6	0	0	0	0	0	0	6	1	0	0	0	0	0	0	1
18:00	7	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0
18:15	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total	**72**	**4**	**0**	**0**	**0**	**0**	**0**	**76**	**18**	**2**	**0**	**0**	**0**	**0**	**0**	**20**

	C - A								C - B							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	32	4	0	0	0	0	0	36	1	0	0	0	0	0	0	1
07:15	40	2	1	0	0	0	1	44	0	0	0	0	0	0	0	0
07:30	58	8	1	0	0	0	0	67	1	0	0	0	0	0	0	1
07:45	58	10	0	0	0	0	0	68	0	0	0	0	0	0	0	0
08:00	61	8	1	0	0	0	4	74	1	0	0	0	0	0	0	1
08:15	72	7	0	0	0	1	1	81	2	1	0	0	0	0	0	3
08:30	60	8	1	1	0	0	3	73	3	0	0	0	0	0	0	3
08:45	63	7	1	0	0	0	0	71	0	0	0	0	0	0	0	0
09:00	57	8	1	0	0	0	1	67	1	0	0	0	0	0	0	1
09:15	45	4	1	0	0	0	3	53	2	0	0	0	0	0	0	2
09:30	32	4	0	0	0	0	1	37	1	0	0	0	0	0	0	1
09:45	35	9	1	1	0	0	0	46	1	3	0	0	0	0	0	4
Total	**613**	**79**	**8**	**2**	**0**	**1**	**14**	**717**	**13**	**4**	**0**	**0**	**0**	**0**	**0**	**17**
15:30	70	13	1	0	0	0	0	84	1	0	0	0	0	0	0	1
15:45	27	5	0	0	0	0	2	34	1	0	0	0	0	0	0	1
16:00	51	9	1	0	0	0	1	62	0	0	0	0	0	0	0	0
16:15	44	9	0	0	0	0	1	54	0	0	0	0	0	0	0	0
16:30	49	7	1	0	0	0	1	58	1	0	0	0	0	0	0	1
16:45	36	8	0	0	0	1	0	45	1	0	0	0	0	0	0	1
17:00	33	3	0	0	0	0	0	36	4	0	0	0	0	0	0	4
17:15	41	9	0	0	0	0	0	50	0	0	0	0	0	0	0	0
17:30	39	5	0	0	1	0	1	46	1	0	0	0	0	0	0	1
17:45	39	1	0	0	0	0	1	41	0	2	0	0	0	0	0	2
18:00	30	5	0	0	1	1	1	38	2	0	0	0	0	0	0	2
18:15	26	4	1	0	0	0	1	32	1	0	0	0	0	0	0	1
Total	**485**	**78**	**4**	**0**	**2**	**2**	**9**	**580**	**12**	**2**	**0**	**0**	**0**	**0**	**0**	**14**

Site 3:	**Hazel Grove/Ladybower Avenue/Un-named Access Road**	**A:**	**Hazel Grove (East)**
Day:	**Wednesday**	**B:**	**Ladybower Avenue**
Date:	**13 December 2023**	**C:**	**Hazel Grove (West)**
Weather:	**Dull & Showers AM/Fine & Cloudy PM**	**D:**	**Un-named Access Road**

	A - B								A - C								A - D							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	1	0	0	0	0	0	0	1	14	3	0	0	0	0	1	18	0	0	0	0	0	0	0	0
07:15	1	0	0	0	0	0	0	1	19	3	0	0	0	1	0	23	0	0	0	0	0	0	0	0
07:30	2	0	1	0	0	0	0	3	36	5	0	0	0	0	0	41	0	0	0	0	0	0	0	0
07:45	2	0	0	0	0	0	0	2	47	9	0	0	0	1	2	59	0	0	0	0	0	0	0	0
08:00	1	0	0	0	0	0	0	1	56	6	0	0	1	0	2	65	0	0	0	0	0	0	0	0
08:15	4	1	0	0	0	0	0	5	85	8	1	0	0	1	2	97	0	0	0	0	0	0	0	0
08:30	3	0	0	0	0	0	0	3	50	11	1	0	0	0	1	63	0	0	0	0	0	0	0	0
08:45	2	0	0	0	0	0	0	2	52	4	1	0	0	0	1	58	0	0	0	0	0	0	0	0
09:00	3	0	0	0	0	0	0	3	28	4	0	0	0	0	0	32	0	0	0	0	0	0	0	0
09:15	1	0	0	0	0	0	0	1	17	6	0	0	0	0	1	24	0	0	0	0	0	0	0	0
09:30	2	0	0	0	0	0	0	2	21	5	2	1	0	0	0	29	0	0	0	0	0	0	0	0
09:45	4	0	0	0	0	0	0	4	27	5	0	0	0	0	1	33	0	0	0	0	0	0	0	0
Total	**26**	**1**	**1**	**0**	**0**	**0**	**0**	**28**	**452**	**69**	**5**	**1**	**1**	**3**	**11**	**542**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	A - B								A - C								A - D							
Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**

15:30	3	0	0	0	0	0	0	3	41	9	0	0	0	0	0	50	0	0	0	0	0	0	0	0
15:45	6	0	0	0	0	0	0	6	51	9	0	0	0	0	1	61	0	0	0	0	0	0	0	0
16:00	4	0	0	0	0	0	0	4	56	5	0	0	0	0	0	61	0	0	0	0	0	0	0	0
16:15	4	2	0	0	0	0	0	6	53	12	0	0	0	1	0	66	0	0	0	0	0	0	0	0
16:30	7	0	0	0	0	0	0	7	54	5	0	0	0	0	1	60	1	0	0	0	0	0	0	1
16:45	6	1	0	0	0	0	0	7	57	5	0	0	0	0	1	63	0	0	0	0	0	0	0	0
17:00	8	1	1	0	1	0	0	11	69	13	0	0	0	0	0	82	0	0	0	0	0	0	0	0
17:15	12	0	0	0	0	0	0	12	73	2	1	0	0	0	1	77	0	0	0	0	0	0	0	0
17:30	3	1	0	0	0	0	0	4	55	11	0	0	1	0	0	67	0	0	0	0	0	0	0	0
17:45	4	1	0	0	0	0	0	5	53	4	0	0	0	0	0	57	0	0	0	0	0	0	0	0
18:00	3	1	0	0	0	0	0	4	24	7	0	0	0	0	0	31	0	0	0	0	0	0	0	0
18:15	12	1	0	0	0	0	0	13	33	2	1	0	0	0	1	37	0	0	0	0	0	0	0	0
Total	**72**	**8**	**1**	**0**	**1**	**0**	**0**	**82**	**619**	**84**	**2**	**0**	**1**	**1**	**5**	**712**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

B - A **B - C** **B - D**

Time	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total
07:00	5	0	0	0	0	0	0	5	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
07:15	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	12	1	1	0	0	0	0	14	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
07:45	9	0	0	0	0	0	0	9	4	2	0	0	0	0	0	6	0	0	0	0	0	0	0	0
08:00	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:15	3	0	0	0	0	0	0	3	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
08:30	4	0	0	0	0	0	0	4	12	2	0	0	0	0	0	14	0	0	0	0	0	0	0	0
08:45	1	0	0	0	0	0	0	1	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
09:00	2	1	0	0	0	0	0	3	7	0	0	0	1	0	0	8	0	0	0	0	0	0	0	0
09:15	4	0	0	0	0	0	0	4	4	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0
09:30	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
09:45	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**49**	**3**	**1**	**0**	**0**	**0**	**0**	**53**	**46**	**5**	**0**	**0**	**1**	**0**	**0**	**52**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

15:30	3	1	0	0	0	0	0	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
15:45	4	0	0	0	0	0	0	4	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
16:00	4	0	0	0	0	0	0	4	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
16:15	1	1	0	0	0	0	0	2	1	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0

16:30	1	2	0	0	0	0	0	3	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
16:45	5	1	0	0	0	0	0	6	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
17:00	4	0	0	0	0	0	0	4	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
17:15	3	0	0	0	0	0	0	3	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0
17:30	3	0	0	0	0	0	0	3	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
17:45	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
18:15	7	0	0	0	0	0	0	7	2	2	0	0	0	0	0	4	0	0	0	0	0	0	0
Total	**40**	**5**	**0**	**0**	**0**	**0**	**0**	**45**	**22**	**4**	**0**	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

C - A **C - B** **C - D**

Time	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**	**Car**	**LGV**	**OGVI**	**0GV2**	**P/C**	**M/C**	**PSV**	**Total**
07:00	26	5	1	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	38	2	0	0	0	0	1	41	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
07:30	46	6	0	0	0	0	0	52	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
07:45	48	8	0	0	0	0	0	56	5	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
08:00	60	9	1	0	0	0	4	74	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:15	70	6	0	0	0	1	1	78	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
08:30	55	7	1	1	0	0	3	67	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
08:45	65	7	1	0	0	0	0	73	3	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0
09:00	55	8	1	0	0	0	1	65	3	1	0	0	0	0	0	4	1	0	0	0	0	0	0	1
09:15	41	3	0	0	0	0	3	47	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
09:30	31	6	0	0	0	0	1	38	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
09:45	34	6	1	1	0	0	0	42	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Total	**569**	**73**	**6**	**2**	**0**	**1**	**14**	**665**	**24**	**3**	**0**	**0**	**0**	**0**	**0**	**27**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

15:30	70	12	1	0	0	0	0	83	6	0	0	0	0	1	0	7	1	0	0	0	0	0	0	1
15:45	25	5	0	0	0	0	3	33	4	0	0	0	0	0	0	4	1	0	0	0	0	0	0	1
16:00	47	9	1	0	0	0	0	57	6	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0
16:15	42	9	0	0	0	0	1	52	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
16:30	48	5	1	0	0	0	1	55	4	0	0	0	0	0	0	4	0	1	0	0	0	0	0	1
16:45	32	7	0	0	0	1	0	40	3	1	0	0	0	1	0	5	0	0	0	0	0	0	0	0
17:00	32	3	0	0	0	0	0	35	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
17:15	37	9	0	0	1	0	0	47	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0

17:30	35	6	0	0	0	0	1	42	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
17:45	34	3	0	0	0	0	1	38	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
18:00	32	5	0	0	1	1	1	40	6	0	0	0	0	0	0	6	0	1	0	0	0	0	0	1
18:15	20	4	1	0	0	0	1	26	5	2	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Total	**454**	**77**	**4**	**0**	**2**	**2**	**9**	**548**	**54**	**3**	**0**	**0**	**0**	**2**	**0**	**59**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**4**

D - A **D - B** **D - C**

Time	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total	Car	LGV	OGVI	0GV2	P/C	M/C	PSV	Total
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix I

Junction Modelling Outputs

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: P2445_Main Avenue, Ladybower Ave Junction.arc8
Path: C:\Users\micro\Dropbox\Project Files\TPS Project Files\P2445. Main Avenue, Cowlersley, Huddersfield\Technical\Junction Modelling
Report generation date: 30/08/2024 12:00:09

« (Default Analysis Set) - 2029 Ladybower Ave / Hazel Grove, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	A1 - 2029 + Dev Ladybower Ave / Hazel Grove									
Stream B-C	0.07	6.52	0.06	A	6.71	0.02	5.93	0.02	A	6.54
Stream B-A	0.05	8.96	0.05	A		0.04	8.94	0.04	A	
Stream C-AB	0.04	5.04	0.03	A		0.08	5.51	0.05	A	
Stream C-A	-	-	-	-		-	-	-	-	
Stream A-B	-	-	-	-		-	-	-	-	
Stream A-C	-	-	-	-		-	-	-	-	
	A1 - 2029 Ladybower Ave / Hazel Grove									
Stream B-C	0.06	6.45	0.05	A	6.73	0.02	5.91	0.02	A	6.67
Stream B-A	0.05	8.96	0.05	A		0.04	8.91	0.04	A	
Stream C-AB	0.04	5.04	0.03	A		0.06	5.47	0.04	A	
Stream C-A	-	-	-	-		-	-	-	-	
Stream A-B	-	-	-	-		-	-	-	-	
Stream A-C	-	-	-	-		-	-	-	-	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D3 - 2029 Ladybower Ave / Hazel Grove, AM " model duration: 08:00 - 09:30
"D4 - 2029 Ladybower Ave / Hazel Grove, PM" model duration: 17:00 - 18:30
"D5 - 2029 + Dev Ladybower Ave / Hazel Grove, AM" model duration: 08:00 - 09:30
"D6 - 2029 + Dev Ladybower Ave / Hazel Grove, PM" model duration: 17:00 - 18:30

Run using Junctions 8.0.6.541 at 30/08/2024 12:00:08

File summary

Title	P2445 Main Avenue
Location	Ladybower Ave / Hazel Grove
Site Number	
Date	02/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	P2445
Enumerator	micro
Description	

Analysis Options

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

Units

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

(Default Analysis Set) - 2029 Ladybower Ave / Hazel Grove, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Ladybower Avenue - Minor Arm Geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Rel
2029 Ladybower Ave / Hazel Grove, AM	2029 Ladybower Ave / Hazel Grove	AM		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		6.73	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description	Arm Type
Hazel Grove (E)	A	Hazel Grove (E)		Major
Ladybower Avenue	B	Ladybower Avenue		Minor
Hazel Grove (W)	C	Hazel Grove (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
Hazel Grove (W)	9.50		0.00		2.20	91.00	✓	0.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Ladybower Avenue	One lane plus flare				9.00	3.25	3.25	3.25	3.00	✓	1.00	21	22

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	544.533	0.084	0.213	0.134	0.304
1	B-C	672.574	0.087	0.221	-	-
1	C-B	626.662	0.206	0.206	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Hazel Grove (E)	ONE HOUR	✓	319.00	100.000
Ladybower Avenue	ONE HOUR	✓	47.00	100.000
Hazel Grove (W)	ONE HOUR	✓	314.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To		
		Hazel Grove (E)	Ladybower Avenue	Hazel Grove (W)
From	Hazel Grove (E)	0.000	12.000	307.000
	Ladybower Avenue	19.000	0.000	28.000
	Hazel Grove (W)	301.000	13.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To		
		Hazel Grove (E)	Ladybower Avenue	Hazel Grove (W)
From	Hazel Grove (E)	0.00	0.04	0.96
	Ladybower Avenue	0.40	0.00	0.60
	Hazel Grove (W)	0.96	0.04	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Hazel Grove (E)	Ladybower Avenue	Hazel Grove (W)
From	Hazel Grove (E)	1.000	1.000	1.000
	Ladybower Avenue	1.000	1.000	1.000
	Hazel Grove (W)	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Hazel Grove (E)	Ladybower Avenue	Hazel Grove (W)
From	Hazel Grove (E)	0.0	0.0	0.0
	Ladybower Avenue	0.0	0.0	0.0
	Hazel Grove (W)	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-C	0.05	6.45	0.06	A	25.69	38.54	3.99	6.22	0.04	3.99	6.22
B-A	0.05	8.96	0.05	A	17.43	26.15	3.68	8.45	0.04	3.68	8.45
C-AB	0.03	5.04	0.04	A	18.51	27.77	2.77	5.99	0.03	2.77	5.99
C-A	-	-	-	-	269.62	404.43	-	-	-	-	-
A-B	-	-	-	-	11.01	16.52	-	-	-	-	-
A-C	-	-	-	-	281.71	422.56	-	-	-	-	-

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	21.08	5.27	20.94	0.00	615.89	0.034	0.00	0.04	6.049	A
B-A	14.30	3.58	14.18	0.00	461.37	0.031	0.00	0.03	8.049	A
C-AB	13.92	3.48	13.83	0.00	729.03	0.019	0.00	0.02	5.033	A
C-A	222.48	55.62	222.48	0.00	-	-	-	-	-	-
A-B	9.03	2.26	9.03	0.00	-	-	-	-	-	-
A-C	231.13	57.78	231.13	0.00	-	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	25.17	6.29	25.14	0.00	604.72	0.042	0.04	0.04	6.211	A
B-A	17.08	4.27	17.05	0.00	445.19	0.038	0.03	0.04	8.408	A
C-AB	17.78	4.44	17.75	0.00	749.34	0.024	0.02	0.03	4.920	A
C-A	264.50	66.12	264.50	0.00	-	-	-	-	-	-
A-B	10.79	2.70	10.79	0.00	-	-	-	-	-	-
A-C	275.99	69.00	275.99	0.00	-	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	30.83	7.71	30.78	0.00	589.23	0.052	0.04	0.05	6.446	A
B-A	20.92	5.23	20.87	0.00	422.84	0.049	0.04	0.05	8.954	A
C-AB	23.82	5.95	23.77	0.00	777.35	0.031	0.03	0.04	4.777	A
C-A	321.90	80.48	321.90	0.00	-	-	-	-	-	-
A-B	13.21	3.30	13.21	0.00	-	-	-	-	-	-
A-C	338.01	84.50	338.01	0.00	-	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	30.83	7.71	30.83	0.00	589.21	0.052	0.05	0.06	6.446	A
B-A	20.92	5.23	20.92	0.00	422.83	0.049	0.05	0.05	8.956	A
C-AB	23.83	5.96	23.83	0.00	777.37	0.031	0.04	0.04	4.779	A
C-A	321.89	80.47	321.89	0.00	-	-	-	-	-	-
A-B	13.21	3.30	13.21	0.00	-	-	-	-	-	-
A-C	338.01	84.50	338.01	0.00	-	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	25.17	6.29	25.22	0.00	604.69	0.042	0.06	0.04	6.212	A
B-A	17.08	4.27	17.13	0.00	445.18	0.038	0.05	0.04	8.412	A
C-AB	17.80	4.45	17.84	0.00	749.37	0.024	0.04	0.03	4.921	A
C-A	264.48	66.12	264.48	0.00	-	-	-	-	-	-
A-B	10.79	2.70	10.79	0.00	-	-	-	-	-	-
A-C	275.99	69.00	275.99	0.00	-	-	-	-	-	-

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-C	21.08	5.27	21.11	0.00	615.84	0.034	0.04	0.04	6.055	A
B-A	14.30	3.58	14.34	0.00	461.34	0.031	0.04	0.03	8.053	A
C-AB	13.95	3.49	13.98	0.00	729.06	0.019	0.03	0.02	5.036	A
C-A	222.45	55.61	222.45	0.00	-	-	-	-	-	-
A-B	9.03	2.26	9.03	0.00	-	-	-	-	-	-
A-C	231.13	57.78	231.13	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.51	0.03	6.049	A	A
B-A	0.46	0.03	8.049	A	A
C-AB	0.34	0.02	5.033	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:15-08:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.64	0.04	6.211	A	A
B-A	0.58	0.04	8.408	A	A
C-AB	0.44	0.03	4.920	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:30-08:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.81	0.05	6.446	A	A
B-A	0.75	0.05	8.954	A	A
C-AB	0.60	0.04	4.777	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (08:45-09:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.82	0.05	6.446	A	A
B-A	0.78	0.05	8.956	A	A
C-AB	0.61	0.04	4.779	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:00-09:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.67	0.04	6.212	A	A
B-A	0.62	0.04	8.412	A	A
C-AB	0.45	0.03	4.921	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (09:15-09:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-C	0.54	0.04	6.055	A	A
B-A	0.49	0.03	8.053	A	A
C-AB	0.34	0.02	5.036	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.6.541 [19821,26/11/2015]
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Filename: P2445_Main Avenue, Windsor Road Junction.arc8
Path: C:\Users\micro\Dropbox\Project Files\TPS Project Files\P2445. Main Avenue, Cowlersley, Huddersfield\Technical\Junction Modelling
Report generation date: 30/08/2024 12:04:54

« (Default Analysis Set) - 2029 + Dev Windsor Road / Cowlerley Lane, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)
	A1 - 2029 + Dev Windsor Road / Cowlerley Lane									
Stream B-AC	0.14	9.07	0.12	A	8.52	0.07	8.45	0.07	A	7.81
Stream C-AB	0.01	4.69	0.01	A		0.01	5.06	0.01	A	
Stream C-A	-	-	-	-		-	-	-	-	
Stream A-B	-	-	-	-		-	-	-	-	
Stream A-C	-	-	-	-		-	-	-	-	
	A1 - 2029 Windsor Road / Cowlerley Lane									
Stream B-AC	0.07	8.08	0.07	A	7.42	0.05	8.05	0.05	A	7.34
Stream C-AB	0.01	4.69	0.01	A		0.01	5.04	0.01	A	
Stream C-A	-	-	-	-		-	-	-	-	
Stream A-B	-	-	-	-		-	-	-	-	
Stream A-C	-	-	-	-		-	-	-	-	

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

"D3 - 2029 Windsor Road / Cowlerley Lane, AM" model duration: 08:00 - 09:30
"D4 - 2029 Windsor Road / Cowlerley Lane, PM" model duration: 17:00 - 18:30
"D5 - 2029 + Dev Windsor Road / Cowlerley Lane, AM" model duration: 08:00 - 09:30
"D6 - 2029 + Dev Windsor Road / Cowlerley Lane, PM " model duration: 17:00 - 18:30

Run using Junctions 8.0.6.541 at 30/08/2024 12:04:53

File summary

Title	P2445 Main Avenue
Location	
Site Number	
Date	02/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	P2445
Enumerator	micro
Description	

Analysis Options

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

Units

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

(Default Analysis Set) - 2029 + Dev Windsor Road / Cowlerley Lane, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

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

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relatio
2029 + Dev Windsor Road / Cowlerley Lane, PM	2029 + Dev Windsor Road / Cowlerley Lane	PM		ONE HOUR	17:00	18:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C		7.81	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description	Arm Type
Cowlersley Lane (E)	A	Cowlersley Lane (E)		Major
Windsor Road	B	Windsor Road		Minor
Cowlersley Lane (W)	C	Cowlersley Lane (W)		Major

Major Arm Geometry

Name	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
Cowlersley Lane (W)	7.25		0.00		2.20	105.00	✓	0.00

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

Minor Arm Geometry

Name	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
Windsor Road	One lane	5.00										17	19

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	590.788	0.102	0.257	0.162	0.367
1	B-C	762.848	0.111	0.279	-	-
1	C-B	634.770	0.233	0.233	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

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

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
Cowlersley Lane (E)	ONE HOUR	✓	408.00	100.000
Windsor Road	ONE HOUR	✓	27.00	100.000
Cowlersley Lane (W)	ONE HOUR	✓	302.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To		
		Cowlersley Lane (E)	Windsor Road	Cowlersley Lane (W)
From	Cowlersley Lane (E)	0.000	40.000	368.000
	Windsor Road	22.000	0.000	5.000
	Cowlersley Lane (W)	298.000	4.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To		
		Cowlersley Lane (E)	Windsor Road	Cowlersley Lane (W)
From	Cowlersley Lane (E)	0.00	0.10	0.90
	Windsor Road	0.81	0.00	0.19
	Cowlersley Lane (W)	0.99	0.01	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To		
		Cowlersley Lane (E)	Windsor Road	Cowlersley Lane (W)
From	Cowlersley Lane (E)	1.000	1.000	1.000
	Windsor Road	1.000	1.000	1.000
	Cowlersley Lane (W)	1.000	1.000	1.000

Heavy Vehicle Percentages - (untitled) (for whole period)

		To		
		Cowlersley Lane (E)	Windsor Road	Cowlersley Lane (W)
From	Cowlersley Lane (E)	0.0	0.0	0.0
	Windsor Road	0.0	0.0	0.0
	Cowlersley Lane (W)	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
B-AC	0.07	8.45	0.07	A	24.78	37.16	4.88	7.88	0.05	4.88	7.88
C-AB	0.01	5.06	0.01	A	5.75	8.63	0.76	5.27	0.01	0.76	5.27
C-A	-	-	-	-	271.37	407.05	-	-	-	-	-
A-B	-	-	-	-	36.70	55.06	-	-	-	-	-
A-C	-	-	-	-	337.68	506.52	-	-	-	-	-

Main Results for each time segment

Main results: (17:00-17:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	20.33	5.08	20.16	0.00	507.01	0.040	0.00	0.04	7.393	A
C-AB	4.30	1.08	4.28	0.00	715.37	0.006	0.00	0.01	5.062	A
C-A	223.06	55.77	223.06	0.00	-	-	-	-	-	-
A-B	30.11	7.53	30.11	0.00	-	-	-	-	-	-
A-C	277.05	69.26	277.05	0.00	-	-	-	-	-	-

Main results: (17:15-17:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	24.27	6.07	24.23	0.00	485.58	0.050	0.04	0.05	7.803	A
C-AB	5.51	1.38	5.51	0.00	732.07	0.008	0.01	0.01	4.954	A
C-A	265.98	66.49	265.98	0.00	-	-	-	-	-	-
A-B	35.96	8.99	35.96	0.00	-	-	-	-	-	-
A-C	330.82	82.71	330.82	0.00	-	-	-	-	-	-

Main results: (17:30-17:45)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	29.73	7.43	29.66	0.00	455.84	0.065	0.05	0.07	8.446	A
C-AB	7.43	1.86	7.42	0.00	755.42	0.010	0.01	0.01	4.812	A
C-A	325.08	81.27	325.08	0.00	-	-	-	-	-	-
A-B	44.04	11.01	44.04	0.00	-	-	-	-	-	-
A-C	405.18	101.29	405.18	0.00	-	-	-	-	-	-

Main results: (17:45-18:00)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	29.73	7.43	29.73	0.00	455.84	0.065	0.07	0.07	8.448	A
C-AB	7.43	1.86	7.43	0.00	755.42	0.010	0.01	0.01	4.812	A
C-A	325.07	81.27	325.07	0.00	-	-	-	-	-	-
A-B	44.04	11.01	44.04	0.00	-	-	-	-	-	-
A-C	405.18	101.29	405.18	0.00	-	-	-	-	-	-

Main results: (18:00-18:15)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	24.27	6.07	24.34	0.00	485.57	0.050	0.07	0.05	7.807	A
C-AB	5.52	1.38	5.53	0.00	732.08	0.008	0.01	0.01	4.956	A
C-A	265.97	66.49	265.97	0.00	-	-	-	-	-	-
A-B	35.96	8.99	35.96	0.00	-	-	-	-	-	-
A-C	330.82	82.71	330.82	0.00	-	-	-	-	-	-

Main results: (18:15-18:30)

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	Start Queue (PCU)	End Queue (PCU)	Delay (s)	LOS
B-AC	20.33	5.08	20.37	0.00	507.00	0.040	0.05	0.04	7.400	A
C-AB	4.31	1.08	4.32	0.00	715.38	0.006	0.01	0.01	5.064	A
C-A	223.05	55.76	223.05	0.00	-	-	-	-	-	-
A-B	30.11	7.53	30.11	0.00	-	-	-	-	-	-
A-C	277.05	69.26	277.05	0.00	-	-	-	-	-	-

Queueing Delay Results for each time segment

Queueing Delay results: (17:00-17:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.60	0.04	7.393	A	A
C-AB	0.09	0.01	5.062	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:15-17:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.77	0.05	7.803	A	A
C-AB	0.12	0.01	4.954	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:30-17:45)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.01	0.07	8.446	A	A
C-AB	0.16	0.01	4.812	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (17:45-18:00)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	1.04	0.07	8.448	A	A
C-AB	0.16	0.01	4.812	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (18:00-18:15)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.82	0.05	7.807	A	A
C-AB	0.12	0.01	4.956	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Queueing Delay results: (18:15-18:30)

Stream	Queueing Total Delay (PCU-min)	Queueing Rate Of Delay (PCU-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
B-AC	0.65	0.04	7.400	A	A
C-AB	0.10	0.01	5.064	A	A
C-A	-	-	-	-	-
A-B	-	-	-	-	-
A-C	-	-	-	-	-

Appendix J

Potential TRO in vicinity of school

Double yellow line restrictions at all times, to restrict parking near to the school and on the bends entering the site from the south

SCHOOL — KEEP — CLEAR

Date	Rev	Description	Drawn	Chkd
28.03.25	A	Site layout plan updated	JT	JT

Project: Main Avenue, Cowlersley, Huddersfield	Revision: A
Title: Proposed TRO - Main Avenue	Scale @ A3: 1:250
TPS Project Number: P2445	Drawing Number: D - 1004

Appendix K

Windsor Road / Cowlersley Lane TRO

Proposed double yellow lines
to restrict parking in vicinity of junction

COWLERSLEY LANE

WINDSOR ROAD

80

78a

149.4m

69 to 71

73

PO

92

94

98

108

104

106

110

75

79

81

87

68

154.2m

Date	Rev	Description	Drawn	Chkd

tps

Project	Revision
Main Avenue, Cowlersley, Huddersfield	
Title	**Scale @ A3**
Proposed TRO - Windsor Road	1:250
TPS Project Number	**Drawing Number**
P2445	D - 1001

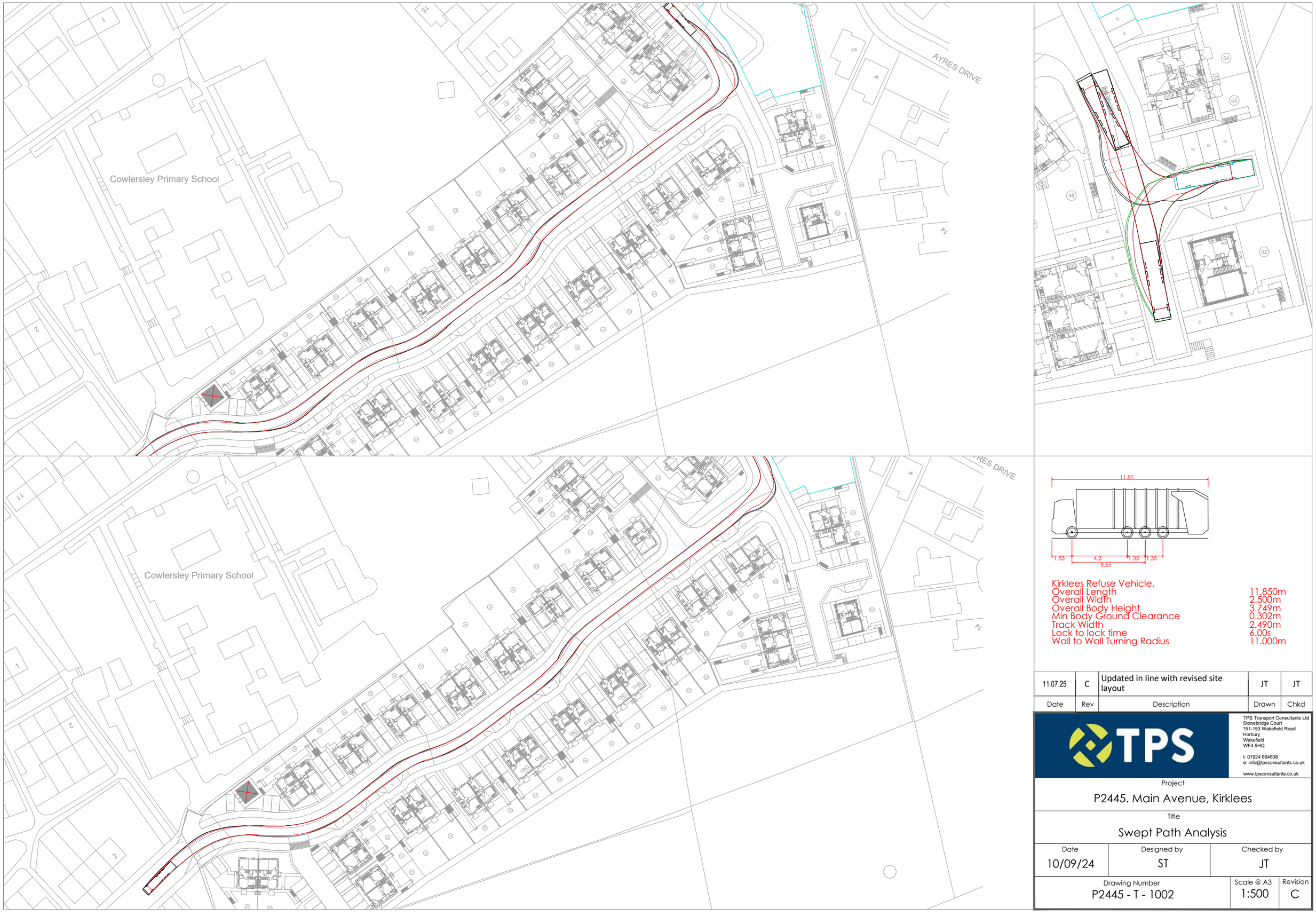
Appendix L

ATC Data –

https://www.dropbox.com/scl/fo/mdpt2lebylfsl1atnig4p/AGFeuZdwW5-N-Cms5scPqJI?rlkey=gbyen41dg0gi1cdfjbei878mh&dl=0

Appendix M

Swept Path Analysis



Kirklees Refuse Vehicle.

Overall Length	11.850m
Overall Width	2.500m
Overall Body Height	3.749m
Min Body Ground Clearance	0.302m
Track Width	2.490m
Lock to lock time	6.00s
Wall to Wall Turning Radius	11.000m

Date	Rev	Description	Drawn	Chkd
11.07.25	C	Updated in line with revised site layout	JT	JT

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Project

P2445. Main Avenue, Kirklees

Title

Swept Path Analysis

Date	Designed by	Checked by
10/09/24	ST	JT

Drawing Number	Scale @ A3	Revision
P2445 - T - 1002	1:500	C