



## Accrue (Forum) 1 LLP

## GREAT STONE ROAD, STRETFORD

## Transport Assessment

**VN0201565**

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## 1 INTRODUCTION

1.1.1 Vectos have been commissioned by Accrue (Forum) 1 LLP to appraise the transport implications of a revised proposal for residential development at the site of the former B&Q store off Great Stone Road, Stretford. The scheme proposes a development of 333 apartments, along with ancillary commercial accommodation.

### 1.2 Site Location and Description

1.2.1 The site lies circa 1.5km to the north-east of Stretford town centre within the Old Trafford / Stretford urban area, and 3.5km to the south-west of Manchester city centre and occupies a broadly rectangular parcel of land. The site location in relation to the Manchester conurbation is shown in **Plan 1**. The location of the site in a local context is presented in **Plan 2**. The site is bound to the north and east by Old Trafford Cricket Ground and associated facilities, whilst to the south lies the Manchester – Altrincham tram line. Great Stone Road forms the south-eastern boundary to the site.

1.2.2 **Figure 1.1** shows the aerial view of the site location and the red line boundary of the proposed development site. Old Trafford Metrolink station is a short distance from the site.



**Figure 1.1. Aerial View of the Site**



1.2.3 The site has previously accommodated a B&Q store that closed down in 2016. A total of 103 car parking spaces were provided on the site to serve the B&Q store.

### 1.3 Planning History

1.3.1 An outline planning application (Ref: 94974/OUT/18) was submitted for the development of the site in July 2018. This application proposed the removal of the existing retail units and associated structure and the erection of a building for a mix of uses. The proposed development mix included 433 apartments and communal spaces ancillary to the residential use, flexible space for use class A1, A3, B1, D1 and/or D2, undercroft car parking, new public realm and associated engineering works and infrastructure. Vectos prepared the Transport Assessment in support of that planning application.

1.3.2 Following the submission of the planning application, Transport for Greater Manchester (TFGM) and Trafford Council provided comments on the Transport Assessment in relation to the trip distribution and trip generation proposed, the accessibility audit completed for the site and requested additional modelling be completed for the development proposals. Vectos completed a Transport Addendum note in November 2018 to address these concerns.

1.3.3 The application was subsequently refused by Trafford Council however the refusal was not based on an adverse impact on highway capacity or safety. Therefore, the revised scheme has been assessed using the agreed methodology outlined with the previous Transport Assessment and Transport Addendum Note.

### 1.4 Document scope

1.4.1 This Transport Assessment has been prepared to inform the Local Highway Authority, Trafford Metropolitan Borough Council (TMBC) of the effects of the proposed development on the local transport network.

1.4.2 Following this introductory chapter, the report comprises a further six chapters as follows:

- **Chapter 2** considers the transport planning policy context of the site and proposed development;
- **Chapter 3** discusses the baseline conditions in the vicinity of the site, including access, the surrounding highway network and existing traffic conditions;
- **Chapter 4** provides an accessibility audit of the site by sustainable travel modes;
- **Chapter 5** outlines the development proposals;



- **Chapter 6** outlines the trip generation and trip distribution proposed for the development;
- **Chapter 7** provides an analysis of the traffic impact of the development; and,
- **Chapter 8** provides a summary and conclusion to the report.



## 2 TRANSPORT POLICY CONTEXT

### 2.1 National Policy

2.1.1 The revised National Planning Policy Framework was updated on 19 February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012 and revised in July 2018.

2.1.2 The NPPF supports development that balances economic, social and environmental gains, while considering local circumstances and opportunities. Paragraph 17 of NPPF sets out the 12 principles of planning, including a need to:

*'...actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant developments in locations which are or can be made sustainable...'*

2.1.3 Chapter 32 of the NPPF states that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

2.1.4 Chapter 32 also states that plans and decisions should take account of whether:

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





2.1.5 National policy regarding sustainable transport is outlined in section 4 of NPPF. NPPF supports giving people a choice of how they travel and acknowledges that different policies, measures and interventions will be required for different communities, locations and developments. In line with this, paragraph 30 states that:

*'... local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.'*

2.1.6 The location of the site close to existing sustainable transport networks offers an excellent range of opportunities for sustainable trip making to a wealth of available local employment opportunities, amenities and facilities. The proposal for residential development at this site is therefore in accordance with paragraphs 17, 30 and 32 of NPPF and guidance outlined in PPG

## 2.2 Local Policy

2.2.1 The TMBC Core Strategy was adopted in 2012 and outlines policy measures to promote growth for the Borough to 2026. Strategic Objective 1 (Meeting Housing Needs) of the Core Strategy supports sites that area located in sustainable locations. This is supported by Policy L4 (Sustainable Transport and Accessibility) that prioritises the locations for development within the most sustainable areas accessible by a choice of modes of transport.

2.2.2 TMBC's parking and layout standards are set out in SPD3 'Parking Standards and Design' (January 2012) and replicated in Appendix 3 of the Core Strategy. The policy outlines different standards for different accessibility areas of Trafford. The site falls within area C as defined by these accessibility areas.

2.2.3 For car parking, the SPD provides maximum standards whilst the cycle parking standards are minimum standards. It states that developments can provide lower than the maximum standard car parking levels if one or more of the following criteria can be met:

- There is sufficient capacity for on-street parking without affecting the safety or convenience of other residents.
- The developer can demonstrate that satisfactory sustainable travel measures including residential travel plans are proposed and how they will be implemented.
- There is no on-street parking permitted in the vicinity of the development.
- The development meets other planning objectives and would not unacceptably worsen the parking situation.

- 2.2.4 The primary concern of the Council's residential parking standards is to protect on-street amenities from inappropriate parking to ensure that residential streets remain functional for all users. The standards provided in the SPD for residential development do not differentiate between houses and apartments, therefore the applicable parking standards to the site are set out in **Table 2.1**.

		Area Type C	Disabled up to 200 bays	Disabled over 200 bays	Cycle Spaces
Dwelling Houses	1 Bed	1	Negotiated on a case by case basis		1 (allocated) 1 (communal)
	2 – 3 Bed	2			2 (allocated) 1 (communal)
	4+ Bed	3			4 (allocated) 2 (communal)

**Table 2.1. Extract from Trafford MBC Parking Standards (Greater Manchester Transport Strategy 2040)**

- 2.2.5 Transport for Greater Manchester (TfGM) produced their latest transport strategy document in February 2017, which sets out policies aimed at delivering world class connections throughout the area by 2040.

- 2.2.6 In relation to new development, TfGM's document states that appropriate demand management tools and techniques will be needed to manage traffic flows on the highways network, particularly during peak periods, noting that the performance and resilience of the highways network will not be achieved simply through road building. This highlights the importance of promoting sustainable transport modes in new developments.

## 2.3 Civic Quarter Area Action Plan

- 2.3.1 The Civic Quarter Masterplan Supplementary Planning Document (SPD) was released for public consultation in October 2018. Trafford Council have announced in January 2020 that they will revise and extend this plan however an updated SPD is not currently available to view.

- 2.3.2 The masterplan covers four quarters surrounding the Talbot Road/Warwick Road junction and is bound by Great Stone Road, Chester Road, White City Way and the Altrincham Metrolink line. The proposed development site lies on the south-western corner of the SPD area. The four quarters would be the Town Hall Quarter, Leisure Quarter, Campus Quarter and Commercial Quarter.



- 2.3.3 The SPD will focus on creating high quality public realm areas with improved permeability. A key aim of the SPD is to improve pedestrian and cycle connectivity within the SPD area and enhance the existing public transport infrastructure. The plan highlights that vehicle movements along Talbot Road and within the Civic Quarter should be reduced to provide an improved environment of non-car users within the area.



### 3 BASELINE TRANSPORT CONDITIONS

#### 3.1 Local Highway Network

3.1.1 The site is currently accessed via a priority junction with Great Stone Road. Great Stone Road is a local distributor road connecting the A5014 Talbot Road to the north of the site with the residential areas of Firswood to the south of the site. It is circa. 8.0m in width in the vicinity of the site and is subject to a 30mph speed limit. It provides a single lane in each direction. Footways with street lighting are provided to both sides of the carriageway. Double yellow line waiting restrictions are in place along both sides of the road.

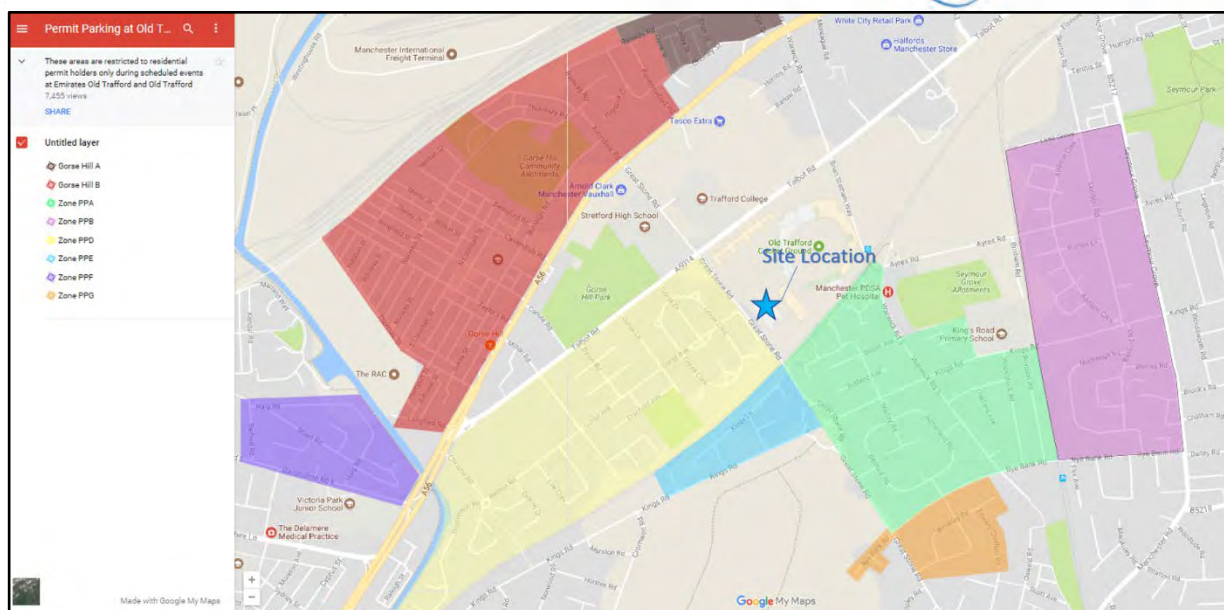
3.1.2 Great Stone Road rises in level as it passes over the Manchester-Altrincham tram line. Shortly to the south of the tram crossing, Great Stone Road forms a large gyratory providing connections to Kings Road running broadly east and west and extends further south towards Chorlton-cum-Hardy.

3.1.3 Around 180m to the north of the existing site access, Great Stone Road forms a four-arm signalised junction with the A5014 Talbot Road. On approach to the junction, Great Stone Road flares to provide two lanes, with the offside lane for right-turning traffic only. Extending north from the four-arm signalised junction, Great Stone Road is subject to a 20mph speed limit and forms a signalised junction with the A56 Chester Road. It provides access to Trafford College and Stretford High School.

3.1.4 Talbot Road provides an arterial route running parallel with the A56 connecting Stretford with the southern part of Manchester city centre. It is subject to a 30mph speed limit and provides a single lane in each direction, flaring to two lanes on approach to the signalised junction with Great Stone Road. Talbot Road provides access to Old Trafford cricket ground.

#### 3.2 Parking

3.2.1 As referred to above, double yellow line waiting restrictions are in place along both sides of Great Stone Road, prohibiting on-street parking in the vicinity of the site. Much of the residential area surrounding the site is subject to a parking permit scheme on event days at the nearby football and cricket grounds. **Figure 3.1** illustrates the areas covered by the event day parking permit scheme.



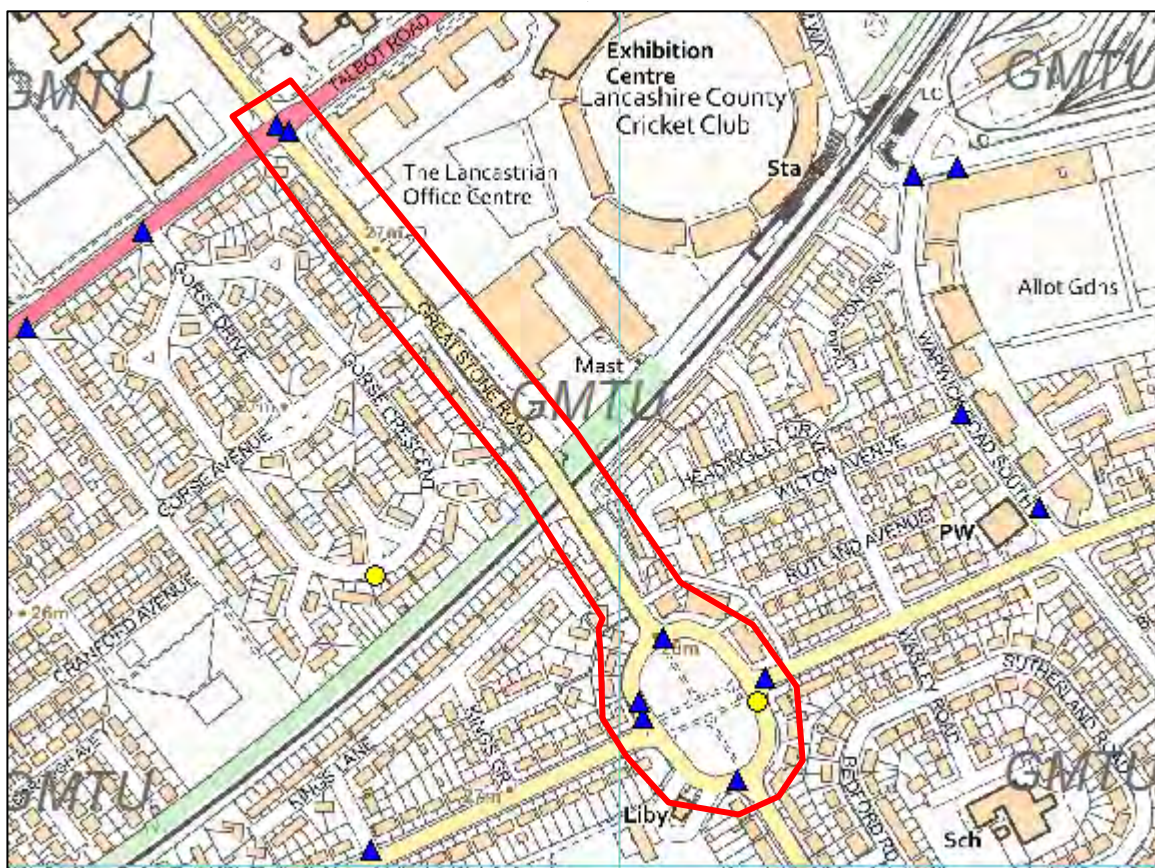
**Figure 3.1. Parking Permit Scheme Spatial Overview**

3.2.2 It can be seen from **Figure 3.1** that the residential areas closest to the site (shaded yellow, blue and green) are all subject to the event day parking permit scheme. This means parking is permitted for event day permit holders only and applies for events at both the football and cricket stadia.

3.2.3 Event day permit only restrictions are in force on the day of a match or other restricted event from two hours before until one hour after the end of the event. This helps to prevent inappropriate parking on these days.

### 3.3 Accident Record

3.3.1 Accident data for the local highway network has been obtained from the TfGM online accident database, with the accident location plot provided in **Figure 3.2**. The data covers the most recent five-year period for which data is available, up to June 2019.



**Figure 3.2. Accident Plot (taken from TfGM Interactive Accident Map)**

- 3.3.2 It can be seen from **Figure 3.2** that there have been no recorded accidents within the last five years along Great Stone Road in the vicinity of the existing site access. There is therefore no evidence within the accident record to suggest there are any safety concerns with the operation of the site access.
- 3.3.3 Two accidents have been recorded at the Great Stone Road / Talbot Road junction, which is a relatively low accident rate for this busy urban intersection. Six accidents have been recorded at the Great Stone Road gyratory to the south of the tram line. Five of the accidents resulted in slight injury and one was recorded a serious incident. None of the incidents involved pedestrians.
- 3.3.4 The review of accident data does not indicate any accident concerns or blackspots on the local highway network.

### 3.4 Baseline Traffic Flows

3.4.1 Baseline traffic flows for the local highway network have been obtained through a classified traffic turning count at the Great Stone Road / Talbot Road junction. This survey was undertaken on Wednesday 15<sup>th</sup> November 2017 (during term time) and covered the morning and evening peak periods. The results of the survey revealed the following morning and evening peak hours:

- Morning peak hour: 07:45 – 08:45
- Evening peak hour: 16:30 – 17:30

3.4.2 A traffic flow diagram showing the recorded morning and evening peak hour flows is shown in **Figure 3.3** and **Figure 3.4**.

3.4.3 The survey revealed that two-way traffic flows along Great Stone Road in the vicinity of the site access are 1,236 during the morning peak hour and 1,285 during the evening peak hour.

### 3.5 Car Ownership

3.5.1 2011 Census data has been examined to establish car ownership levels in the local area. Car ownership trends for the Longford Ward, within which the site is located has been analysed, and **Table 3.1** provides a summary of the recorded car ownership trends at this geographical scale, segregated by accommodation type i.e. house or apartment.

Ward	Households without a car		
	All Households	Houses only	Apartments only
Longford	31%	23%	59%

**Table 3.1. Ward Car Ownership Levels** (source: Census 2011 LC4415EW Dataset, accessed via *nomis website*)

3.5.2 **Table 3.1** indicates that whilst nearly one third of all households within the Longford Ward did not have access to a car during the most recent Census survey, when this figure is disaggregated by accommodation type, it can be seen that of those households that are in apartments, 59% do not have access to a car, over twice the level for houses only. This points to a specific characteristic of apartment living in the area, whereby not owning a car is more common than owning a car for apartment dwellers.

## 4 ACCESSIBILITY AUDIT

### 4.1 Site Accessibility – Walking

4.1.1 The Chartered Institute of Highways and Transportation (CIHT) document entitled 'Providing for Journeys on Foot' provides guidance on what are considered to be acceptable walking distances. Table 3.2 of the document provides acceptable maximum walking distances for different journey purposes. For commuting and school trips, this is 2 kilometres. The acceptable walking distance to a local bus stop is defined as 400 metres, whilst a preferred maximum walk distance to other facilities is set at 1.2km, with a preferred distance of 800m.

4.1.2 With this in mind, **Plan 3** shows the 400m, 800m, 1.2km and 2km catchments from the site. It can be seen from this plan that a wide range of employment destinations, facilities and amenities are located within a reasonable walk catchment of the site. **Table 4.1** lists some of these along with the calculated walk distance from the centre of the site.

Destination Type	Destination	Walk Distance from the Centre of the Site
<b>Education</b>	Trafford College	330m
	Stretford High School	330m
	St Teresa's RC Primary School	650m
	Gorse Hill Primary School	850m
	King's Road Primary School	800m
<b>Transport</b>	Talbot Road Bus Stops	300m
	Great Stone Road Bus Stop	350m
	Old Trafford Metrolink Tram Stop	500m
	National Cycle Route 55	600m
<b>Retail</b>	Quadrant Convenience store & Post Office	380m
	Go Local Convenience Store	270m
	Tesco Extra	700m
	White City Retail Park	1.2km



<b>Sport / Leisure</b>	Old Trafford Cricket Ground	400m
	Stretford Sports Village	260m
	Gorse Hill Park	450m
	Manchester Disc Golf	870m
	Longford Park / Trafford Athletic Club	900m
	Gorse Hill Community Allotments	750m
	Old Trafford Football Ground	1.1km
<b>Medical</b>	Pharmacy	370m
	Gorse Hill Medical Centre	710m
	North Trafford Group Practice	730m

**Table 4.1. Selected Local Amenities and Walk Distance from the Site**

- 4.1.3 It is clear from **Table 4.1** that the site is well located in relation to a wide range of existing everyday amenities and facilities, along with a wealth of employment destinations such as Trafford College, Trafford Town Hall, Lancashire County Cricket Club, Oakland House, Alexander House, Centrica, The Lancastrian Office Centre and the potential UA92 site. This will ensure that residents of the site will be able to access key everyday facilities without the need to use a car.
- 4.1.4 The site is well connected to the existing footway network, with footways leading into the site from both directions, and continuous footway provision along both sides of Great Stone Road. A push button pedestrian crossing facility with a pedestrian refuge is provided across the Talbot Road western arm of the Great Stone Road / Talbot Road junction. Dropped kerbs and tactile paving is provided across all arms at this junction. A pedestrian refuge is also provided across the Talbot Road eastern arm of the junction.
- 4.1.5 A review of the footways in the vicinity of the site has been conducted. Following this review, it is considered that the footways along Great Stone Road are in good condition and provide uninterrupted footway connections to the bus stops located south of the site near the Quadrant roundabout. These footways also provide continuous connections to Talbot Road to the north of the site. There are no obvious signs of defects with the footway which would result in an adverse impact on pedestrian safety/comfort.



4.1.6 The footways along Talbot Road are in a good condition and provide connections to the bus stops located to the east of the junction with Great Stone Road. There are no obvious signs of defects with the footway which would result in an adverse impact on pedestrian safety/comfort.

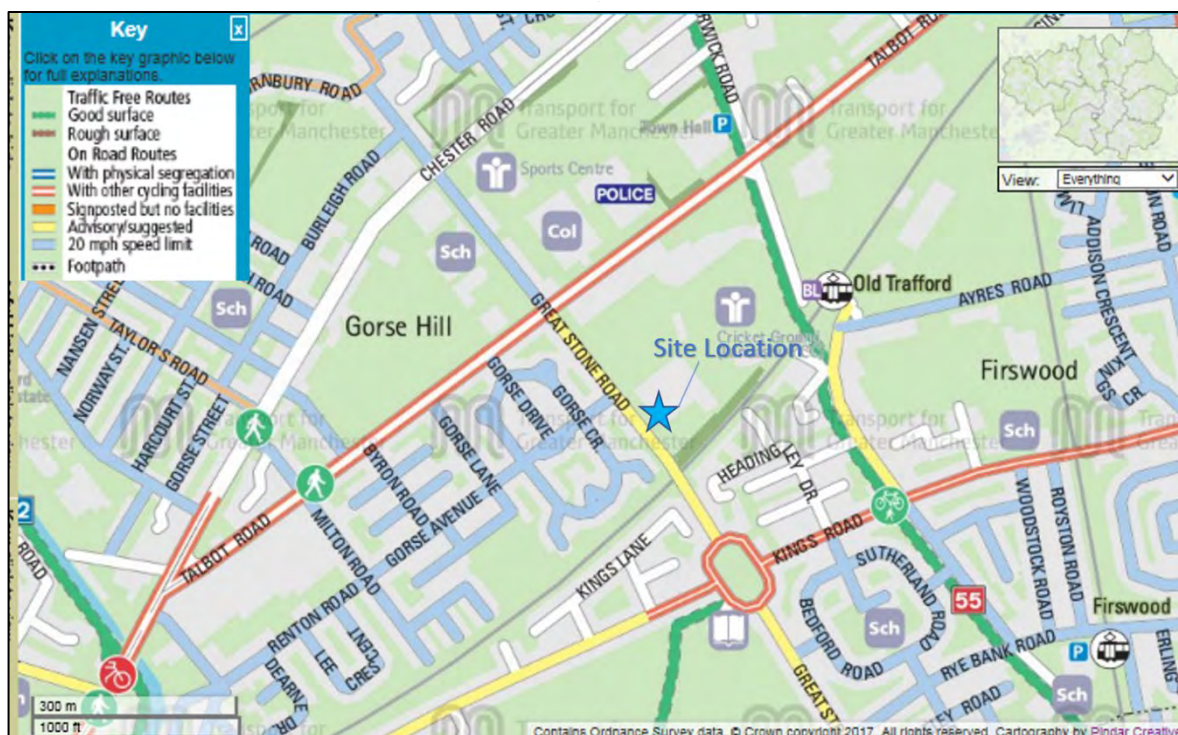
4.1.7 Footways in the area are street-lit, and of a sufficient width to accommodate two-way pedestrian movement.

## 4.2 Site Accessibility – Cycling

4.2.1 Cycling is becoming an increasingly popular mode of transport and is an effective mode for short trips. Guidance suggests that many utility cycle journeys are under 3 miles (5 kilometres) although for commuters a trip distance of over 5 miles (8 kilometres) is not uncommon.

4.2.2 **Plan 4** shows the 5km cycle catchment for the site, illustrating that Manchester city centre is within a realistic cycle commuting distance, along with much of the wider Manchester conurbation including The Trafford Centre, Trafford Park, Media City and Salford Quays. The site also benefits from proximity to a number of existing cycle routes and cycle infrastructure.

4.2.3 **Figure 4.1** shows an extract of the Greater Manchester cycle map and illustrates that Great Stone Road is designated as an advisory/suggested cycle route, and that there are cycling facilities along Talbot Road and King's Road. Furthermore, National Cycle Route 55 passes to the east of the site running north-south adjacent to Warwick Road and Brian Statham Way, and is a national route linking Preston to the north and Ironbridge to the south.



**Figure 4.1. Cycle Facilities in the Vicinity of the Site**

- 4.2.4 Along Talbot Road, mandatory cycle lanes are provided in both directions and there are advanced cycle stop lines on all approaches to the Great Stone Road / Talbot Road signalised junction. National Cycle Route 55 provides a traffic free route with a good surface.
- 4.2.5 A review of the cycle facilities along Talbot Road and King Street and at the Talbot Road/Great Stone Road junction has been conducted. The review revealed that cycle facilities along Talbot Road have been recently upgraded as part of the Stretford Cycleway, with new cycle lane delineators installed to provide safe segregated space for cyclists on both west and east bound lanes. Advanced cycle stop lines are also provided on all arms of the Talbot Road/Great Stone Road junction. Cycle facilities are therefore of a high standard along this key route close to the site.
- 4.2.6 Whilst there are no specific cycle lanes provided along Kings Road, this road is in good condition and of sufficient width for cyclists to be able to share the road with other road users. There are no obvious signs of defects in the road surface which would result in an adverse impact on cyclist safety/comfort.
- 4.2.7 Therefore, there are good cycle links in the vicinity of the site, providing connections to Manchester city centre and to the wider Manchester conurbation.

### 4.3 Site Accessibility – Bus

4.3.1 CIHT guidance indicates that for commuting purposes bus stops should be within a 400-metre walk of residential development. **Plan 1** indicates that there are five bus stops located within a 400-metre walk from the edge of the site. These are the stops along Talbot Road and Great Stone Road / King's Road. A summary of the services available from these stops is provided in **Table 4.2**.

Service Number	Route	Approximate Frequency (per hour)			
		Mon – Fri		Sat	Sun
		Day	Evening		
<b>Great Stone Road / King's Road</b>					
<b>15</b>	Manchester - Flixton	3	2	3	1
<b>Talbot Road</b>					
<b>253</b>	Partington - Manchester	2 Services AM peak	-	-	-
<b>278</b>	Reddish – Wythenshawe Interchange – Manchester	1	1	-	-

**Table 4.2: Summary of Bus Frequencies**

4.3.4 A review of the existing bus stop infrastructure has been conducted. This review highlights the following information;

- Trafford College Stop (A) provides a flag post which indicates the bus stop location and is served by Bus Routes 253 and 278.
- Trafford College Stop (B) provides a flag post which indicates the bus stop location and is served by Bus Routes 253 and 278;
- Great Stone Road Stop (A) provides a flag post and tactile paving which indicates the bus stop location and is served by Bus Route 15;
- Great Stone Road Stop (B) provides a flag post and a bus shelter which provides seating and timetable information and is served by Bus Route 15; and
- The Quadrant Stop provides a flag post and a bus shelter which provides seating and timetable information and is served by Bus Route 15.

4.3.5 **Figure 4.2** overleaf provides an extract of the bus stop plan and provides labels for each bus stop.

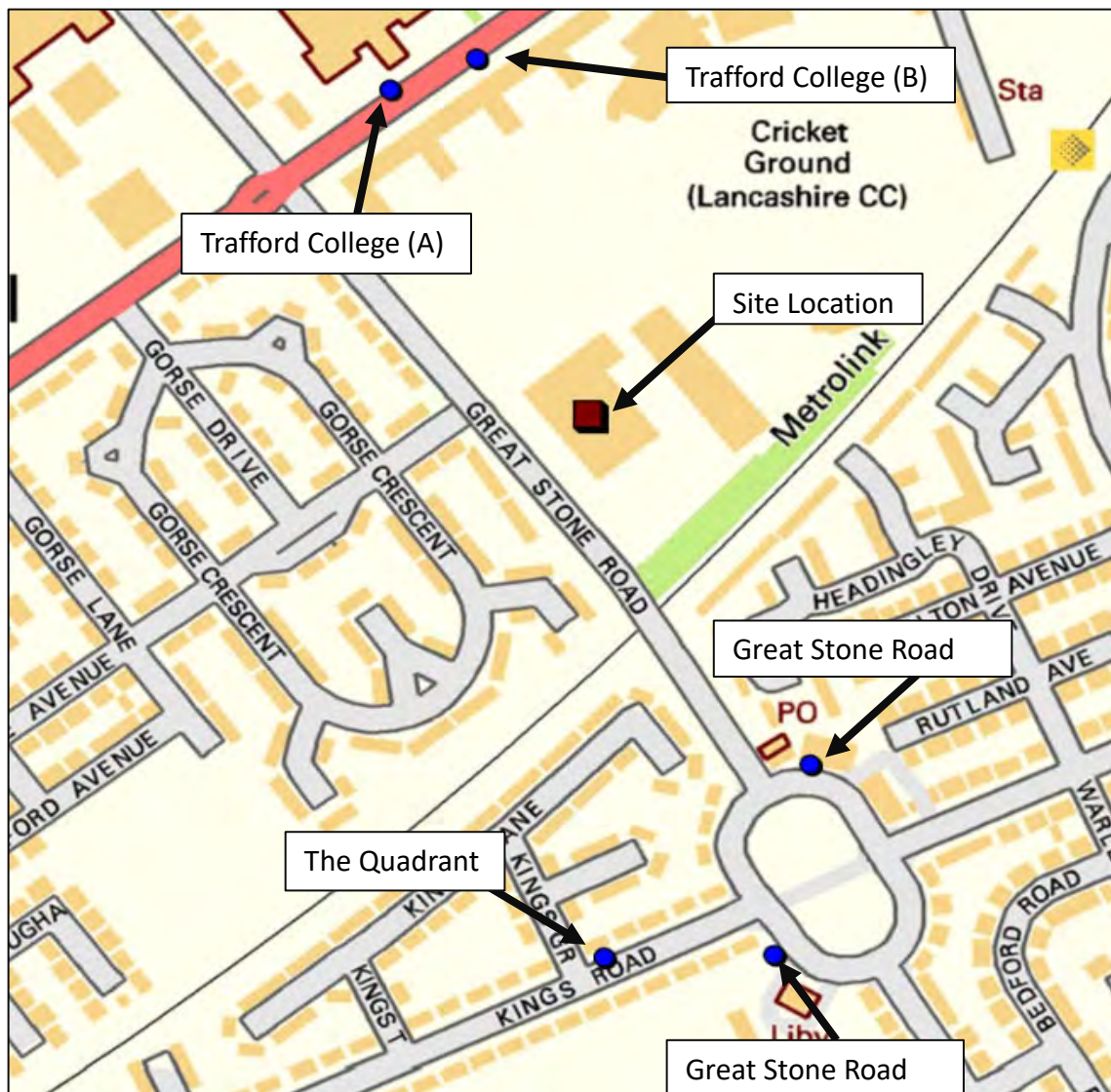


Figure 4.2: Bus Stop Location Plan

4.3.6 In addition to the regular services identified in **Table 4.2**, there are school services that operate at stops on Great Stone Road close to the site access. The site is therefore well located for encouraging trips by bus, with the number 15 service in particular providing a frequent service into Manchester city centre.

#### 4.4 Site Accessibility – Metrolink

4.4.1 The site lies circa. 500m walk distance from the Old Trafford Metrolink tram stop, approximate to a 6-minute walk. This stop lies on the Altrincham to Manchester line and is served by frequent Metrolink services throughout the day. The journey time from Old Trafford to the city centre is around 10 minutes. Stretford town centre can be reached in four minutes by tram.



4.4.2 Old Trafford is within Zone 2 of the Metrolink network. The following services operate from the Old Trafford tram stop:

- Altrincham – Piccadilly; 12-minute frequency, Monday to Thursday 06:00 – 23:30, Friday and Saturday 06:00 – 00:30 and Sundays 07:00 – 22:30; and,
- Altrincham – Bury; 12-minute frequency, Monday to Friday 07:15 – 19:30 and Saturday 09:30 – 18:00.

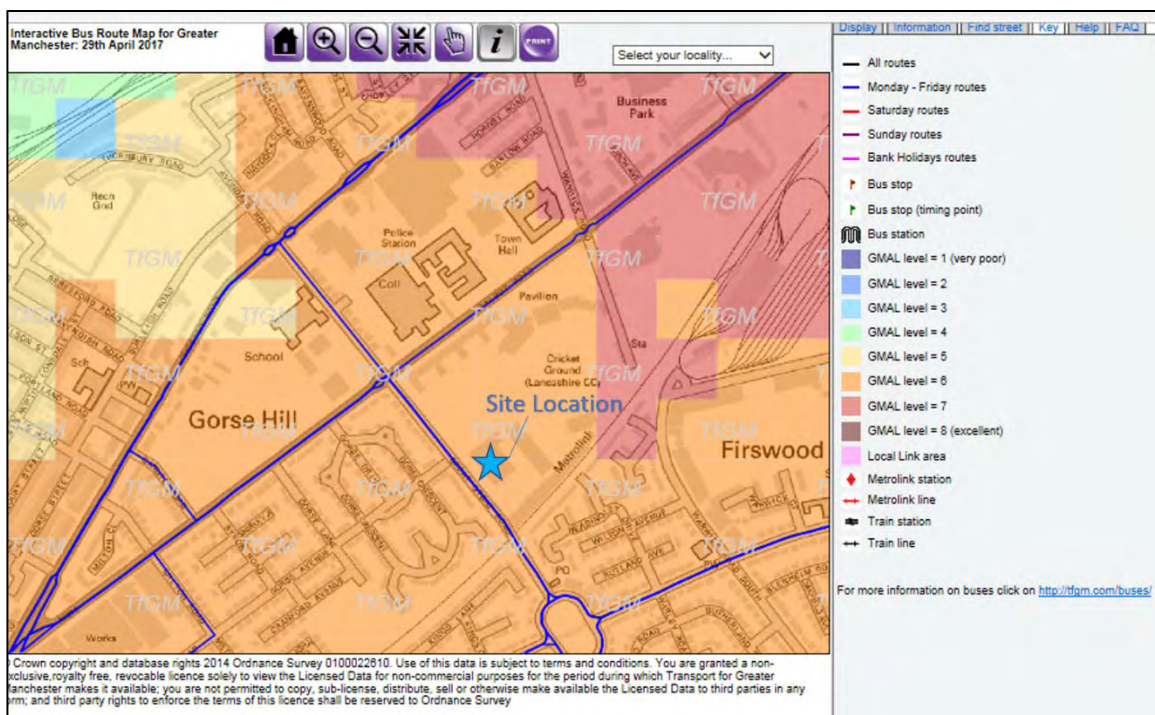
4.4.3 Interchanges can be made at Trafford Bar for services towards Chorlton, East Didsbury and Manchester Airport and Cornbrook for services on the Eccles via Media City UK to Ashton-Under Lyne service. The tram services summarised above also provide connections to Deansgate, Manchester Victoria and Manchester Piccadilly National Rail Stations.

4.4.4 The high frequency of services available from Old Trafford are suitable for a variety of trip purposes. Travel by Metrolink will therefore be a viable and attractive option for many residents of the proposed development.

## 4.5 Greater Manchester Accessibility Level

4.5.1 The Greater Manchester Accessibility Level (GMAL) is a measure of the accessibility of a location by all types of public transport. It is a measure that considers both the proximity of the bus stops, tram stops and train stations, and the frequency of services using the stops / stations. GMAL ranges from 1 (very poor) to 8 (excellent). The GMAL score for the site is 6, which indicates a good accessibility level and corroborates the findings of this accessibility review. The GMAL extract is shown in **Figure 4.3** overleaf.

4.5.2 In summary, the site is very well located to encourage the use of sustainable transport modes. It is well connected to an established network of pedestrian and cycle infrastructure, benefits from proximity to bus stops providing frequent services to Manchester city centre and is close to the Metrolink tram network via the Old Trafford tram stop. These characteristics of the site will ensure that a high proportion of everyday trips generated by the proposed development can be made by sustainable transport modes.



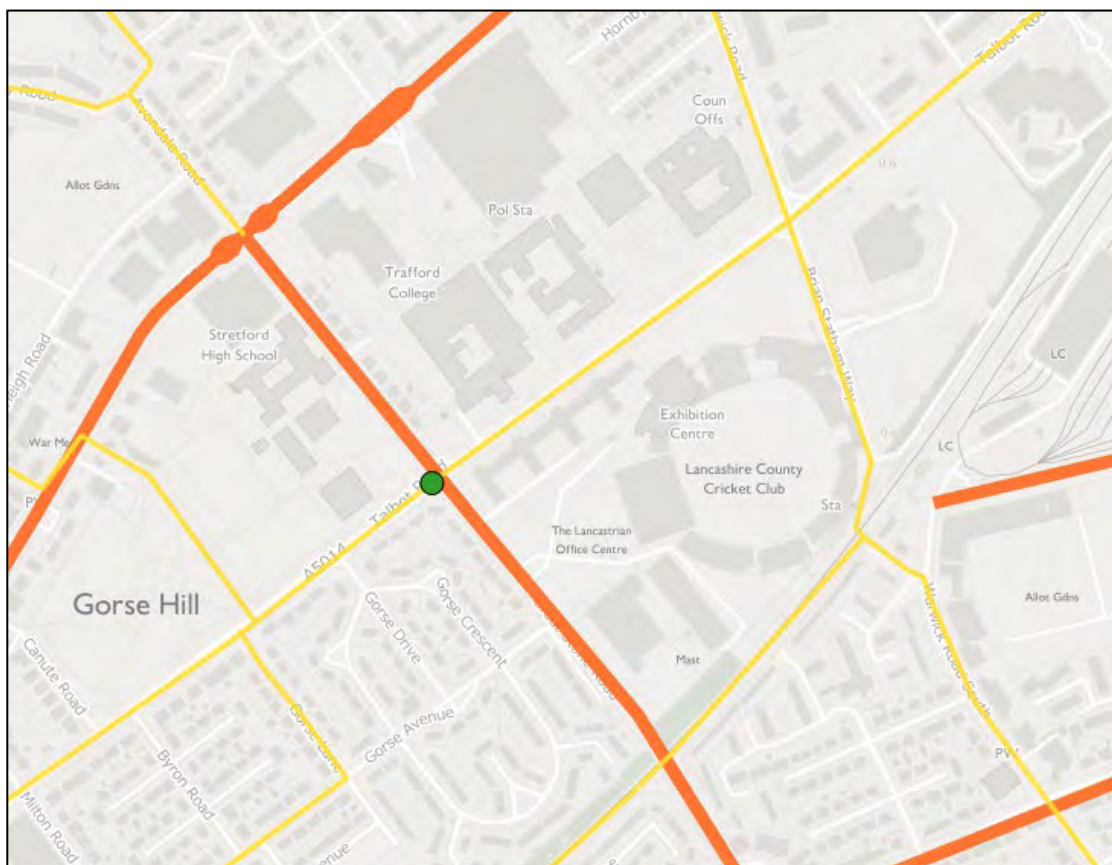
**Figure 4.3. GMAL Analysis (source: GMTU Interactive Bus Map)**

## 4.6 Improvements to the Pedestrian, Cycle and Public Transport Environment

- 4.6.1 As part of the Civic Quarter SPD, outlined in Section 2, and wider sustainable transport strategies within Greater Manchester there are proposals to enhance the pedestrian, cycling and public transport network within the local area.
- 4.6.2 As outlined in the Civic Quarter SPD, Trafford Council have the intention to downgrade Talbot Road, Brian Statham Way and Warwick Road. Talbot Road would be downgraded to better accommodate pedestrians and cyclists and would include initiatives such as reducing vehicle speeds, narrowing the carriageway, removing turning lanes and using the space to improve the public realm.
- 4.6.3 The Council's intention to downgrade Warwick Road would also include providing a better environment for pedestrians and cyclists. Brian Statham Way would be pedestrianised and allow access for certain vehicles only. Similar to the Talbot Road scheme, the downgrading process would include initiatives which would reduce vehicle speeds, narrow carriageway widths and remove turning lanes to provide an enhanced public realm.

### Manchester Bee Network

- 4.6.4 The Manchester Bee Network project is a Greater Manchester wide scheme aimed at improving the walking and cycling network in Manchester. Bee Network is a vision for Greater Manchester to become the very first city region in the U.K to have a fully joined up cycling and walking network.
- 4.6.5 As shown in **Figure 4.4** Great Stone is recognised as a Busy Beeway indicating it is a popular route for cyclists. Talbot Road and several streets within the local area are identified as being part of the Beeway network. Therefore, these routes will be protected or enhanced as part of the Beelines project.
- 4.6.6 **Figure 4.4** also highlights that confirmed infrastructure improvements will go ahead at the Talbot Road/Great Stone Road junction as part of the Bee Network proposals. These improvements will include providing improved crossing facilities for pedestrians and cyclists.



**Figure 4.4: Manchester Bee Network (source: TFGM, Beelines Map)**

- 4.6.7 These proposals indicate an improving environment for pedestrian and cyclists within the local area. The development proposals will link into the existing and proposed sustainable transport infrastructure.





## 5 DEVELOPMENT PROPOSALS

### 5.1 Overview

5.1.1 The revised planning application proposes the development of three separate buildings with a maximum building height of 8 storeys (ground floor plus eight storeys). The buildings would provide a total of 333 dwellings with a mix of studio, one-bedroom, and two-bedroom apartments. The building will also include further ancillary spaces, bicycle storage, associated plant room and substation. The site will also accommodate a 98 space undercroft car park.

5.1.2 A site layout plan is shown at **Appendix A** to this report.

### 5.2 Access Strategy

5.2.1 There will be segregated access points off Great Stone Road for pedestrians and vehicles, with vehicular access achieved via a new access road at the north-western end of the site, and a new pedestrian access linking directly to the new building at podium level above the car park, central to the site. The aim is to remove conflicts between vehicles and pedestrians, giving priority to people accessing the building on foot or by bicycle.

### 5.3 Vehicular Access Arrangements

5.3.1 Vehicular access to the site will be achieved via a new priority-controlled access junction with Great Stone Road. This will be in a similar location to, and will replace, the existing site access. A general arrangement access drawing is provided as **DWG VN201565-D100**. This demonstrates that the requisite 2.4m x 43m visibility splay can be achieved in both directions from the site access. The expected levels of traffic using the site access are below the thresholds that would require the provision of a ghost island right turn facility on Great Stone Road.

5.3.2 The access road will lead to the car park and provide access to the refuse stores and cycle stores. The access road will be 5.5m in width, allowing comfortable two-way movement for cars, and sufficient room for a refuse vehicle and a car to pass. There is sufficient space within the site for a refuse vehicle to turn around, to enable it to leave the site in forward gear. A swept path analysis for a large refuse vehicle accessing the site is shown in **DWG VN201565-TR100 Rev A**.



## 5.4 Car Parking

5.4.1 A total of 98 car parking spaces are proposed within the site. This represents a car parking ratio of 0.30 spaces per apartment. This level of car parking provision is considered to be appropriate for this development and to accord with Trafford's car parking standards.

5.4.2 As outlined in Section 2, Trafford's car parking standards are maximum standards. Applying the maximum standards to the proposed development would suggest a maximum car parking provision of 556 spaces, however as stated in Trafford's car parking guidance, provision below the maximum standards can be justified where:

- *There is sufficient capacity for on-street parking without affecting the safety or convenience of other residents.*
- *The developer can demonstrate that satisfactory sustainable travel measures including residential travel plans are proposed and how they will be implemented.*
- *There is no on-street parking permitted in the vicinity of the development.*
- *The development meets other planning objectives and would not unacceptably worsen the parking situation.*

5.4.3 In the case of the proposed development site, there is no on-street parking permitted in the vicinity of the development, as detailed in section 2, given that Great Stone Road is subject to double yellow line waiting restrictions. In addition, the developer is committing to providing incentives to promote sustainable travel, through engaging with car club operators to explore the potential to provide car club spaces within the site, and through the development and implementation of a travel plan for the site.

5.4.4 There are additional factors that support the proposed level of car parking at the site, and that demonstrate that there would be no adverse impact on the operation of the local highway network as a result of the proposed parking provision, and these are detailed below.

### *Resident Characteristics*

5.4.5 The Independent Transport Commission produced a paper in 2015 (Occasional Paper 6: Traffic and Towns) exploring, amongst other things, contemporary trends in car ownership. It describes how the utility derived from owning a car is being reduced due to a number of factors including the increased costs of owning a car and improved alternatives. Therefore, in urban areas in particular, there is a growing trend for residents to live without the need to own a car.



5.4.6 The findings of the 'Traffic and Towns' paper is supported by TfGM's 'Greater Manchester Transport Strategy 2040' document, which also concludes that attitudes towards owning and using a car are evolving, and many people are changing the way that they travel. This is characterised by the expansion of the sharing economy, where people are more inclined to hire things to meet their mobility needs rather than own them outright. The popularity of ridesharing company Uber, and the growing use of cycle hire services such as Mobike are examples of this trend.

5.4.7 These wider technological and behavioural changes make it much easier for people to live in urban areas without the need to own a car, and indeed many people who choose to live in urban areas with good access to a range of travel modes do not wish to own or regularly use a car. Urban dwellers who live without a car typically do so out of choice rather than as a result of income constraint, and the less parking that is provided, the more a development will appeal to those who do not prioritise owning or using a car when choosing where to live.

#### *Accessibility Characteristics*

5.4.8 Section 4 of this report detailed the excellent accessibility of the site by sustainable travel modes, highlighting the opportunities for residents to meet their daily travel requirements without the need to own a car. The site has a GMAL score of 6, just two steps below the maximum level, and as such is considered an entirely suitable location for reduced parking levels. The accessibility of the site is of a level that will enable the development to function with a reduced level of parking and will enable apartments to be marketed to future residents that may not prioritise car ownership. To assist with this sustainable transport strategy, measures will be included to promote travel by non-car modes and meet casual car use needs.

5.4.9 There will be no car parking provided for the retail/commercial elements of the proposed development as these uses will be ancillary to the residential development. Moreover, given the sustainable location of the site, as outlined within **Section 4**, there are various options available for staff/visitors to access the site by non-car-based transportation. The existing double yellow line parking restriction enforced along Great Stone Road restricts the availability of on-street parking which detracts further from car-based access to the site.

5.4.10 The proposed level of parking at the site, is therefore considered to be fully justified and not likely to result in any wider impacts on the operation of the surrounding highway network or function of surrounding residential areas due to on-street parking.



## 5.5 Cycle Parking

5.5.1 A total of 420 cycle parking spaces will be provided within the site. These will be located within secure, covered cycle stores at ground floor level (244 spaces) and basement level (176 spaces).

## 5.6 Pedestrian Access

5.6.1 The pedestrian access will be from Great Stone Road to the podium level of the building, above the car park. This will ensure convenient access for pedestrians, away from the vehicle access. The pedestrian access will join directly onto the footway along Great Stone Road.

## 5.7 Servicing

5.7.1 The vehicle tracking presented in **DWG VN201565-TR100 Rev A** highlights that a refuse vehicle would be able to enter the site using the access from Great Stone Road. This vehicle would then be able to turn around within the site to exit in a forward gear.



## 6 TRAFFIC GENERATION AND DISTRIBUTION

### 6.1 Introduction

6.1.1 This section of the report considers the vehicle trip forecasts for the proposed development and sets them within the context of the recent DIY store use of the site.

### 6.2 B&Q Store Trip Generation

6.2.1 The site currently permits A1 retail use and recently operated as a B&Q store, with a store size of approximately 2,875 m<sup>2</sup>. To derive a representative trip profile for such a store, the TRICS (version 7.5.1) database was utilised, with a trip rate search using the following criteria:

<u>Retail – DIY Superstore TRICS Search Criteria</u>	
Geographical Area:	Excluding Republic of Ireland and Greater London
Land Use:	Retail – DIY superstore without garden centre
Location Type:	Edge of Town
GFA Parameter Range (m <sup>2</sup> GFA):	100 – 11,800
Date Range:	01/01/09 – 23/11/14
Selected Days:	Mon - Fri
Use Class:	A1

6.2.2 The TRICS search returned just one survey, this being a Homebase store in Bournemouth surveyed in 2014, and the full TRICS report is provided at **Appendix B** to this report. This is considered to be representative of the B&Q that formerly operated on the site, given that they both offer similar products and services. The traditional morning and evening peak hour trip rates for the store are presented in **Table 6.1**, along with the forecast trip generation for a store the size of the B&Q that previously operated on the Great Stone Road site.

Type	Weekday Morning Peak 08:00-09:00			Weekday Evening Peak 17:00-18:00		
	Arr.	Dep.	Total	Arr.	Dep.	Total
<b>Trip Rate</b>						
(All vehicles)	0.224	0.155	0.379	0.569	0.586	1.155
<b>Trip Generation (2,875 m<sup>2</sup>)</b>						
(All vehicles)	6	4	11	16	17	33

**Table 6.1. TRICS A1 Retail DIY Superstore Trip Rates and Forecast Trip Generation**

6.2.3 It can be seen from **Table 6.1** that the existing A1 retail use at the site was likely to have generated in the order of 11 two-way vehicle trips during the morning peak hour, and 33 two-way trips in the evening peak hour. A typical assignment of these trips across the surrounding network has been produced based on the existing turning movements as recorded in the 2017 traffic survey, which are presented in Figure 3.3. The results of the assignment exercise are presented in **Figure 6.1**.

### 6.3 Proposed Trip Generation

6.3.1 To forecast the trip generation associated with the proposed residential use of the site, reference has again been made to the TRICS database, using the following search criteria:

<b>Residential – Flats Privately Owned TRICS Search Criteria</b>	
Geographical Area:	Excluding Republic of Ireland and Greater London
Land Use:	Residential – Flats privately owned
Location Type:	Edge of Town, Suburban Area
Parameter Range (no. of dwellings):	6 – 215 (this is the min and max available)
Date Range:	01/01/10 – 26/09/17
Selected Days:	Mon - Fri
Use Class:	C3



- 6.3.2 The above search criteria returned 15 surveys and the full TRICS report is provided at **Appendix C** to this report. Analysis of each of the survey sites revealed that all but one of the sites had on-site car parking in excess of the level of the proposed scheme (0.52 spaces per apartment), ranging from 0.52 to 1.84, and with an average of 1.2 car parking spaces per apartment. It is considered that deriving a trip rate per unit for these sites that provide much greater ratios of car parking would be unrepresentative of the proposed development, therefore a trip rate per parking space has been derived instead.
- 6.3.3 To derive this figure, each of the TRICS survey sites returned in the search has been analysed in detail to establish the number of units and number of parking spaces provided on-site. Where off-site parking is available and not included in the detailed site survey, these sites have not been included as they may omit some parking demand.
- 6.3.4 A summary of the exercise deriving the trip rate per parking space is provided at **Appendix D** to this report, whilst a summary of the resulting peak hour trip rates and trip forecasts for the proposed scheme is shown in **Table 6.2**. These trip rates were utilised in the previous assessment of the site and were accepted by Trafford Council and TFGM.

Type	Weekday Morning Peak 08:00-09:00			Weekday Evening Peak 17:00-18:00		
	Arr.	Dep.	Total	Arr.	Dep.	Total
<b>Trip Rate per Parking Space</b>						
<b>(All vehicles)</b>	0.098	0.198	0.296	0.234	0.102	0.336
<b>Trip Generation (98 parking spaces)</b>						
<b>(All vehicles)</b>	10	19	29	23	10	33

**Table 6.2. TRICS Residential Flats Privately Owned Trip Rates (trip rate per parking space) and Forecast Trip Generation**

- 6.3.5 It can be seen from **Table 6.2** that the proposed residential development could be expected to generate a total of 29 two-way vehicle trips during the morning peak hour, and 33 two-way trips during the evening peak hour.

## 6.4 Net Trip Generation

6.4.1 Considering the permitted A1 use of the site, and the proposed residential use, a net trip generation for the site can be derived, and this is summarised in **Table 6.3**.

Type	Weekday Morning Peak 08:00-09:00			Weekday Evening Peak 17:00-18:00		
	Arr.	Dep.	Total	Arr.	Dep.	Total
<b>DIY Store</b>	6	4	10	16	17	33
<b>Residential</b>	10	20	30	23	10	33
<b>Net Trip Generation</b>	<b>4</b>	<b>16</b>	<b>20</b>	<b>7</b>	<b>-7</b>	<b>0</b>

**Table 6.3. Net Trip Generation Forecast**

6.4.2 **Table 6.3** illustrates that, once the permitted retail use of the site has been taken into account, the trips generated by the proposed residential use of the site that are additional to the permitted retail use are in the order of 20 two-way trips during the morning peak hour. This is less than one vehicle trip per minute during these busiest periods. There would be no increase in trips during the evening peak period.

## 6.5 Distribution and Assignment

6.5.1 The distribution for the development has been calculated using the surveyed peak hour turning proportions. Baseline traffic flows for the local highway network were obtained through a classified turning count at the Great Stone Road / Talbot Road junction. These surveys were undertaken on Wednesday 15<sup>th</sup> November 2017 and covered the morning and evening peak periods. The traffic flow diagram is provided as **Figure 3.3**.

6.5.2 The southbound flows past the site were calculated by summing the left-hand turn and right-hand turns from Talbot Road and the ahead movements from the northern arm of Great Stone Road. The flows on the Great Stone Road southern arm were summed to calculate the northbound flows past the site. These figures were then used to calculate the turning proportions at the Talbot Road/Great Stone Road junction and at the site access. The resulting distribution is shown in **Figure 6.2**.





- 6.5.3 It can be seen from **Figure 6.2** that traffic is expected to distribute relatively evenly across the local highway network during both peak periods, with 56% travelling to and from the north via the Talbot Road signal junction in the morning peak, and 38% of trips travelling through this junction in the evening peak.
- 6.5.4 Applying the distribution to the peak hour trip generation figures in **Table 6.2**, the assigned development trips are presented in **Figure 6.3**. This shows that during the morning peak hour, 13 two-way trips are expected to the south of the site access on Great Stone Road, and 16 two-way trips are expected to the north of the access, routeing through the Great Stone Road / Talbot Road junction. During the evening peak hour, the numbers are 21 and 13 respectively. These are considered very low traffic generation levels.
- 6.5.5 Considering the flows that would have been generated by the B&Q store, the 'net' trip assignment on the surrounding highway network is shown in **Figure 6.4**. This shows that during the morning peak hour 8 two-way trips are expected to the south of the site access on Great Stone Road, and 10 two-way trips are expected to the north of the access, routeing through the Great Stone Road / Talbot Road junction. During the evening peak hour there is no increase in two-way movements at the site. The increase in vehicle arrivals at the site corresponds to a decrease in the number of departures at the site.

## 6.6 Ancillary Non-Residential use Trip Generation

- 6.6.1 The development proposals include a small amount of ancillary non-residential floor space that will serve to provide retail or leisure facilities for residents on the site. Given that these uses would be designed to serve those on site, and would have no dedicated parking, it is not appropriate to derive a separate trip generation for these uses as they are not expected to generate external trips in their own right.

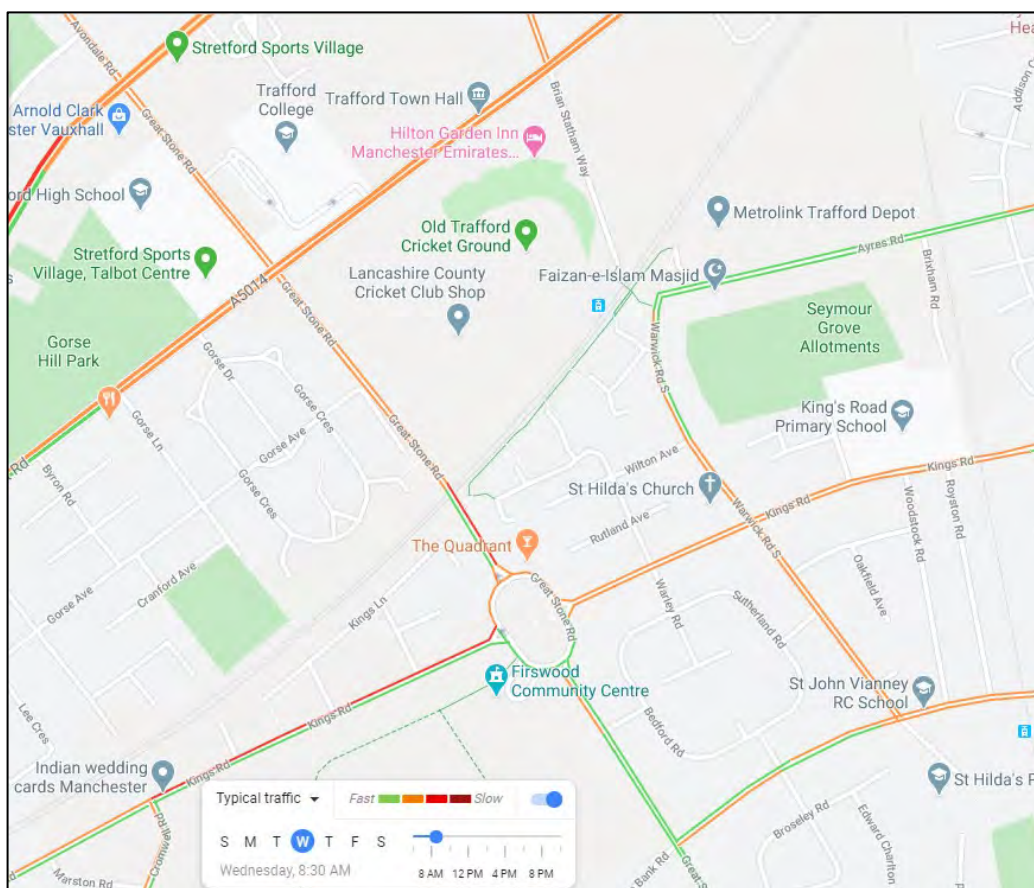


## 7 TRAFFIC IMPACT ASSESSMENT

### 7.1 Existing Traffic Conditions

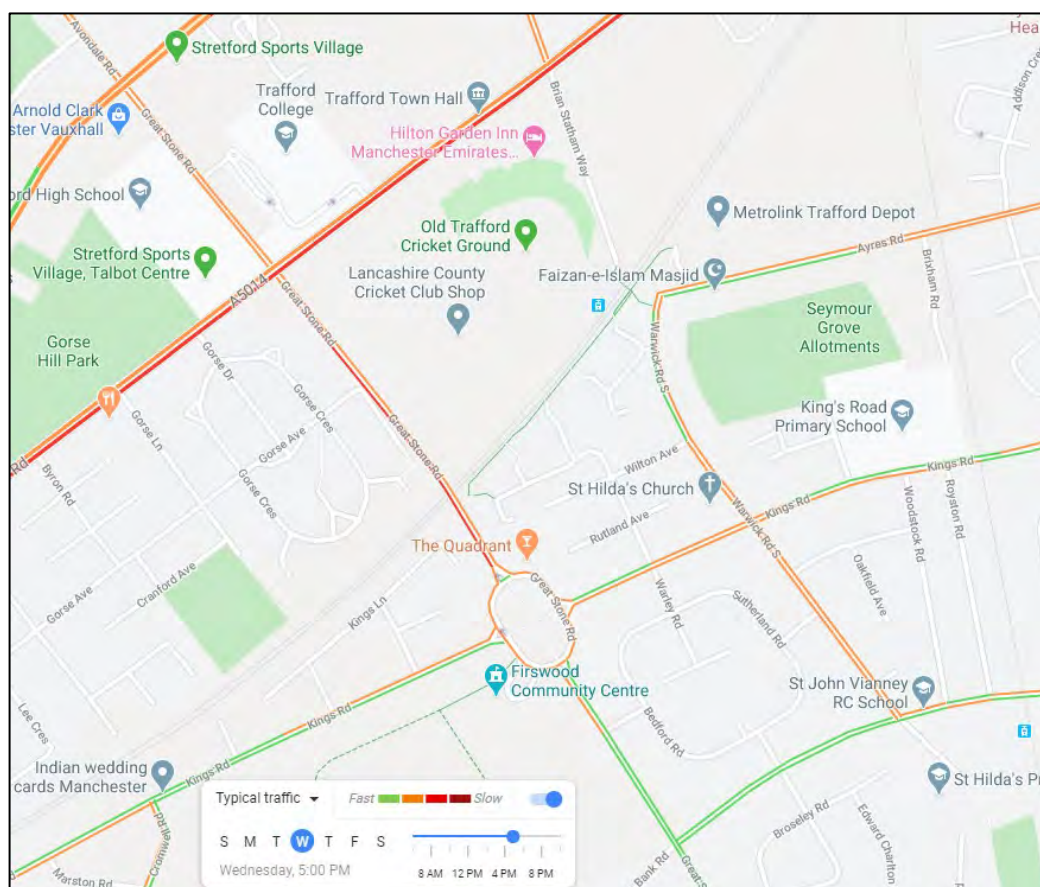
7.1.1 A review of the typical peak hour traffic flows on Talbot Road, Great Stone Road and Kings Road has been conducted based on observations at the junctions local to the site during the morning and evening peak period. The view of traffic over the wider network is described using the Google Maps typical traffic speeds function is an indication of queues and delays.

7.1.2 **Figure 7.1** shows the typical traffic conditions during the AM peak period and shows the typical speeds at 08:30. Wednesday was chosen as it represents a neutral day.



**Figure 7.1: Typical Traffic: AM Peak**

- 7.1.3 This analysis indicates that there is slow moving traffic on Talbot Road, Great Stone Road and Kings Road. On-site observations also revealed slow moving traffic on these approaches, with peak queues on Great Stone Road of around 20 vehicles, split across the two approach lanes. On Talbot Road, queues were observed at around 10 vehicles in length on both eastbound and westbound approaches, with rolling queues in evidence at these locations as vehicles travel along this corridor from one signal junction to the next. The queue on the Great Stone Road northern arm was observed to peak at around 10 vehicles in length.
- 7.1.4 **Figure 7.1** indicates that there is free flowing traffic on the eastern and southern approach to the Quadrant roundabout. While there is queuing on the western and northern approach to the roundabout there is free flowing traffic around the roundabout. This indicates there is no queuing within the roundabout, and it continues to operate safely during the AM peak period.
- 7.1.5 **Figure 7.2** shows the typical traffic conditions during the PM peak period and shows the typical speeds at 17:00. Wednesday was chosen as it represents a neutral day.



**Figure 7.2: Typical Traffic: PM Peak**



7.1.6 This analysis indicates that there is slow moving traffic on Talbot Road, Great Stone Road and Kings Road. Queueing on the Great Stone Road southern arm was observed to peak at around 20 vehicles, across the two approach lanes. Queueing on the Talbot Road approaches peaked at around 15-20 vehicles, with rolling queues in evidence along this corridor. The queue on the Great Stone Road northern approach peaked at around 15 vehicles in length.

7.1.7 **Figure 7.2** indicates that there is slow moving traffic experienced on all arms of the roundabout on the approach to the roundabout. Slow moving traffic is also observed within the roundabout during the evening peak period. There is free flowing traffic on the exit arms of Great Stone Road to the south of the roundabout and on the Kings Road exit to the west of the roundabout.

## 7.2 Junction Modelling – Great Stone Road/Talbot Road

7.2.1 Section 6 provides an assessment of the forecast change in flows at the Great Stone Road / Talbot Road junction as a result of the proposed development. This is the junction closest to the site, where a change in conditions as a result of development could be expected to be greatest.

7.2.2 In response to the previous application, TfGM and TMBC requested that detailed junction capacity modelling should be undertaken in light of the congested nature of the surrounding roads. The Great Stone Road/Talbot Road signal-controlled junction has therefore been assessed using industry-standard LinSig junction modelling software and utilising signal data provided by TfGM.

7.2.3 The vehicle flows presented in Section 6 have been used to assess the baseline traffic situation at the Great Stone Road/Talbot Road junction in the AM and PM peak periods along with the scenario accounting for the net change in vehicle trips as a result of the proposed development.

7.2.4 The results of the junction assessment are summarised in the following paragraphs with the full modelling output results provided in **Appendix E**.

## Surveyed Flows

7.2.5 **Table 7.1** below provides a summary of the AM and PM peak surveyed flows as shown in **Figure 3.3**.

Arm	AM Peak		PM Peak	
	DoS	MMQ (PCU)	DoS	MMQ (PCU)
Great Stone Road North – Ahead, Left, Right	56.2%	6.0	92.9%	13.9
Great Stone Road South – Left, Ahead	86.4%	12.1	101.6%	21.3
Great Stone Road South - Right	66.5%	4.7	51.9%	1.8
Talbot Road East – Left, Ahead, Right	44.5%	0.4	103.6%	40.6
Talbot Road West – Right, Left, Ahead	88.2%	16.7	101.4%	21.8
<b>PRC %</b>	<b>2%</b>		<b>-15.3%</b>	

**Table 7.1: Surveyed Flows Junction Modelling Results**

7.2.6 **Table 7.1** indicates that during the AM peak hour under existing conditions, the junction is approaching its theoretical capacity with a practical reserve capacity (PRC) of 2%. In the PM peak hour, the modelling indicates that the junction is currently operating slightly over theoretical capacity with a PRC of -15.1%. The modelling suggests that queues form in both the AM and PM peaks, with the PM peak showing the longest queues.

7.2.7 It should be noted that where the degree of saturation (DoS) exceeds 100%, the queue results become less realistic, which accounts for the relatively high queue shown for Talbot Road East in the PM peak, however a certain level of queueing on this arm in the PM peak would be expected given the high tidal movement of traffic away from the city centre at this time.

7.2.8 The modelling suggests queues along Great Stone Road of 12 PCUs during the AM peak, and 21 PCUs in the PM peak under existing conditions. This is broadly consistent with observations of the local network during the peak periods.

### Surveyed Flows plus Net Development Trips

7.2.9 The net change in traffic flows at the junction as a result of development have been modelled in relation to the surveyed flows. The results of this exercise are presented in **Table 7.2**.

Arm	AM Peak		PM Peak	
	DoS	MMQ (PCU)	DoS	MMQ (PCU)
Great Stone Road North – Ahead, Left, Right	56.2%	6.0	92.9%	13.9
Great Stone Road South – Left, Ahead	86.4%	12.1	101.6%	21.3
Great Stone Road South - Right	66.5%	4.7	51.9%	1.8
Talbot Road East – Left, Ahead, Right	44.5%	0.4	103.8%	40.6
Talbot Road West – Right, Left, Ahead	88.2%	16.7	101.4%	21.8
<b>PRC %</b>	<b>2.0%</b>		<b>-15.3%</b>	

**Table 7.2: Surveyed Flows plus Development Junction Modelling Results**

7.2.10 It can be seen from **Table 7.2** that the net trip impact does not materially alter the operation of the junction in both the AM and PM peak periods.

7.2.11 In light of the above results for the junction closest to the site, it is clear that any modelling of junctions further from the site will show even less of an impact and there would therefore be limited value in undertaking such an exercise.

### 7.3 Servicing Trips

7.3.1 A forecast of servicing trips generated by the proposed development has been undertaken using the TRICS trip rate information provided at **Appendix C**. This suggests a two-way daily trip rate of 0.024 trips per dwelling, which equates to 10 two-way servicing vehicle trips per day being generated by the site. The swept path assessments referred to in Chapter 5 illustrates that larger vehicles are able to access the site safely.

7.3.2 The commercial uses will primarily be for the use of residents of the scheme however, they will also be made available for use by existing residents within the locality of the site. However, the scale and nature of these uses will not generate any additional vehicular trips as people will travel on foot.



#### **7.4 Summary**

- 7.4.1 A review of Google Maps typical traffic information and on-site observations indicate that there is currently slow-moving traffic along Great Stone Road, Talbot Road and Kings Road. However, this level of traffic is reflective of the busy nature of the area in the peak periods, situated close to arterial routes connecting into Manchester City Centre.
- 7.4.2 A detailed junction capacity modelling exercise has been undertaken for the junction closest to the site, the Great Stone Road/Talbot Road junction. The modelling exercise suggests that the proposed development will result in a negligible change in the operation of the junction.
- 7.4.3 Based on this review, the proposed development will not give rise to a material impact upon the operation of the surrounding highway network that could be classed as severe, or that would be expected to affect the safe operation of the surrounding highway network.



## 8 SUMMARY AND CONCLUSIONS

### 8.1 Summary

- 8.1.1 Vectos have been commissioned by Accrue (Forum) 1 LLP to appraise the transport implications of a revised proposal for residential development at the site of the former B&Q store off Great Stone Road, Stretford. The scheme proposes a development of 333 apartments, along with ancillary commercial accommodation.
- 8.1.2 A review of local and national transport planning policy has revealed that the proposed development accords with the core policy objectives of delivering development in sustainable locations, thereby reducing the need to travel and encouraging the use of more sustainable transport modes.
- 8.1.3 A review of baseline transport network conditions has been undertaken, including a traffic survey at the Great Stone Road / Talbot Road signalised junction to the north of the site. A review of accident data has revealed that there are no prevailing highway safety issues that would call the proposed development into question.
- 8.1.4 An accessibility audit has revealed that the site is very well located to encourage the use of sustainable transport modes. It is well connected to an established network of pedestrian and cycle infrastructure, benefits from proximity to bus stops providing frequent services to Manchester city centre and is close to the Metrolink tram network via the Old Trafford tram stop. These characteristics of the site will ensure that a high proportion of everyday trips generated by the proposed development can be made by sustainable transport modes.
- 8.1.5 The excellent accessibility of the site is illustrated by car ownership data, which indicates that of those households within the local area that are in apartments, 59% do not have access to a car. This points to a specific characteristic of apartment living in the area, whereby not owning a car is more common than owning a car for apartment dwellers.
- 8.1.6 The proposed access arrangement has been designed in accordance with the appropriate design standards and is considered to provide a safe and suitable vehicular access to the site. The pedestrian access to the site will be segregated from the vehicle access, helping to reduce potential conflict between these different road users. The internal site layout can accommodate the movements of a refuse vehicle such that one will be able to enter and exit the site in forward gear.





8.1.7 A total of 98 car parking spaces are proposed within the site. This represents a car parking ratio of 0.30 spaces per apartment. This level of car parking provision is considered to be appropriate for this development and to accord with Trafford's car parking standards.

8.1.8 A traffic impact assessment has been undertaken of the proposed development and it has been concluded that the proposed development will not give rise to any significant impacts upon the operation of the local highway network.

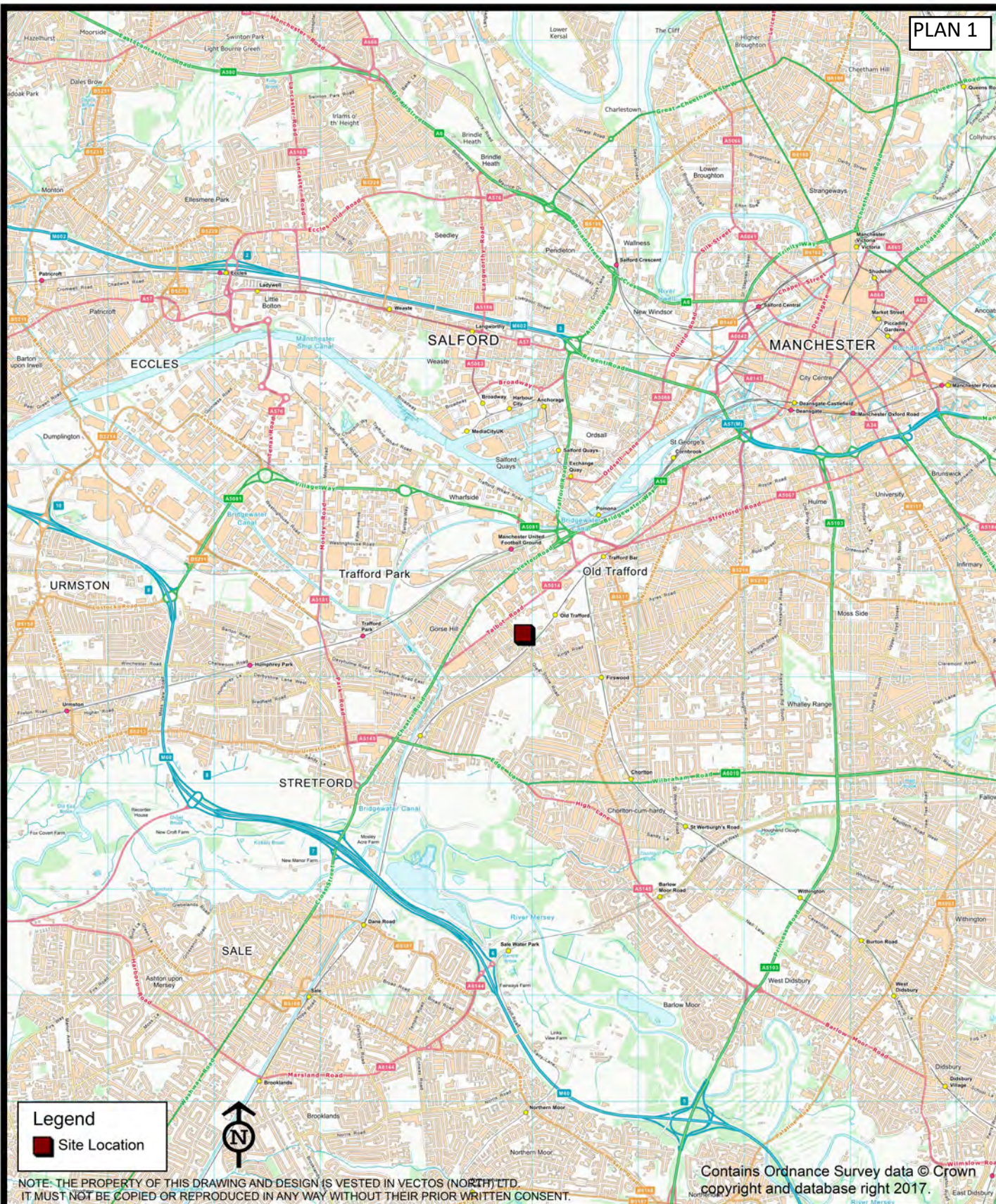
## **8.2 Conclusion**

8.2.1 In conclusion, it is considered that the proposed development is acceptable in highways and transport terms.





# PLANS



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CLIENT:  
**Accrue Forum 1 LLP**

PROJECT TITLE:  
**Great Stone Road, Revised Scheme**

DRAWING TITLE:  
**Site Location (Wider Context)**



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

DRAWN: TO	CHECKED: TA	DATE 12.02.20
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SCALE: 1:50,000 at A4
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DRAWING NO: VN201565-G101
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REVISION: .
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CLIENT:  
**Accrue Forum 1 LLP**

PROJECT TITLE:  
**Great Stone Road, Revised Scheme**

DRAWING TITLE:  
**Site Location (Local Context)**

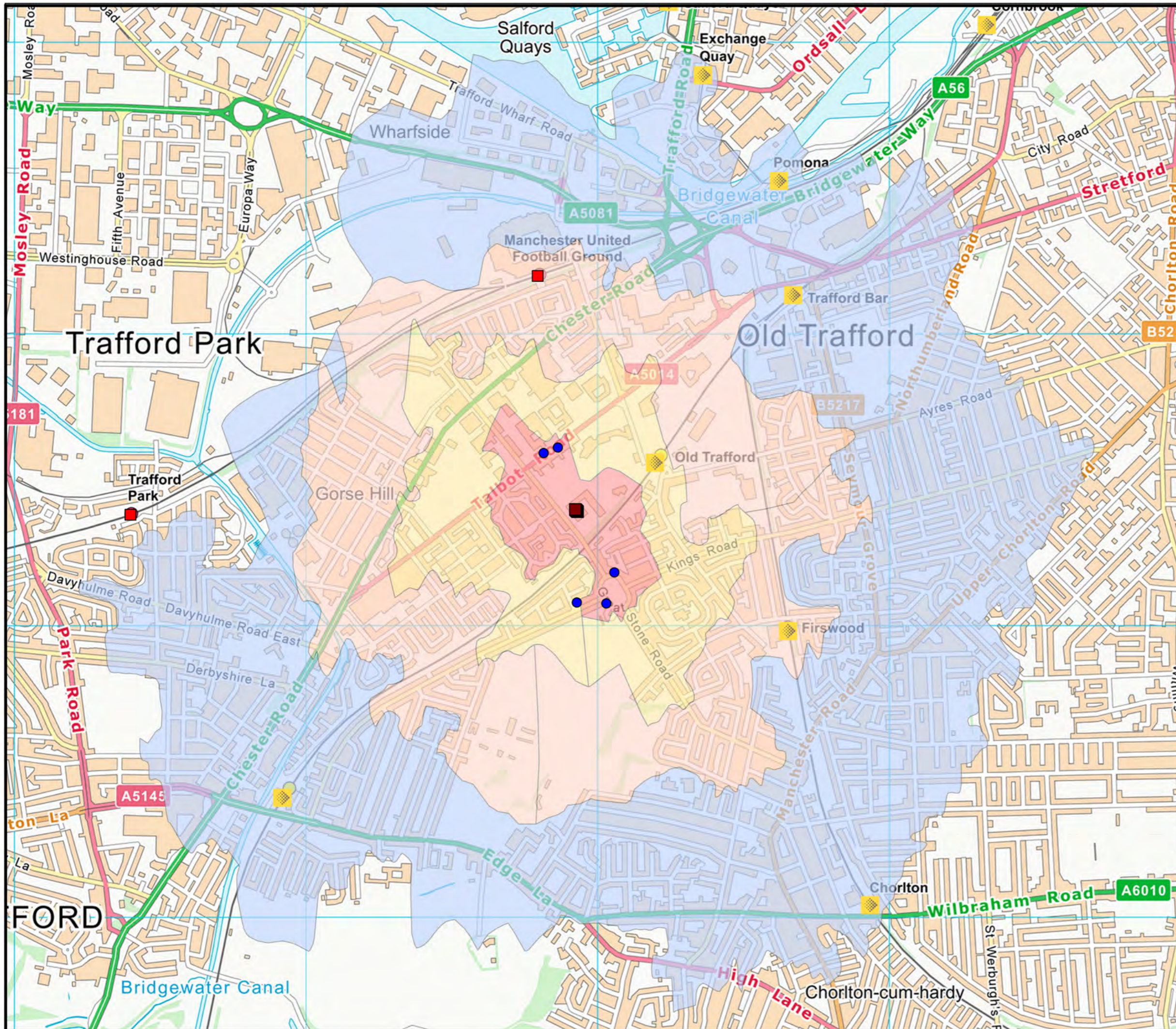


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Legend

- Site Location
- Public Transport**
- Metrolink
- Bus Stop
- Pedestrian Catchment**
- 0 - 400m
- 400m - 800m
- 800m - 1.2km
- 1.2km - 2km

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CLIENT:

Accrue Forum 1 LLP

PROJECT TITLE:

Great Stone Road, Revised Scheme

DRAWING TITLE:

Pedestrian Walking Catchment

SCALE:

N.T.S

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CHECKED:

TA

DATE:

Feb 2020

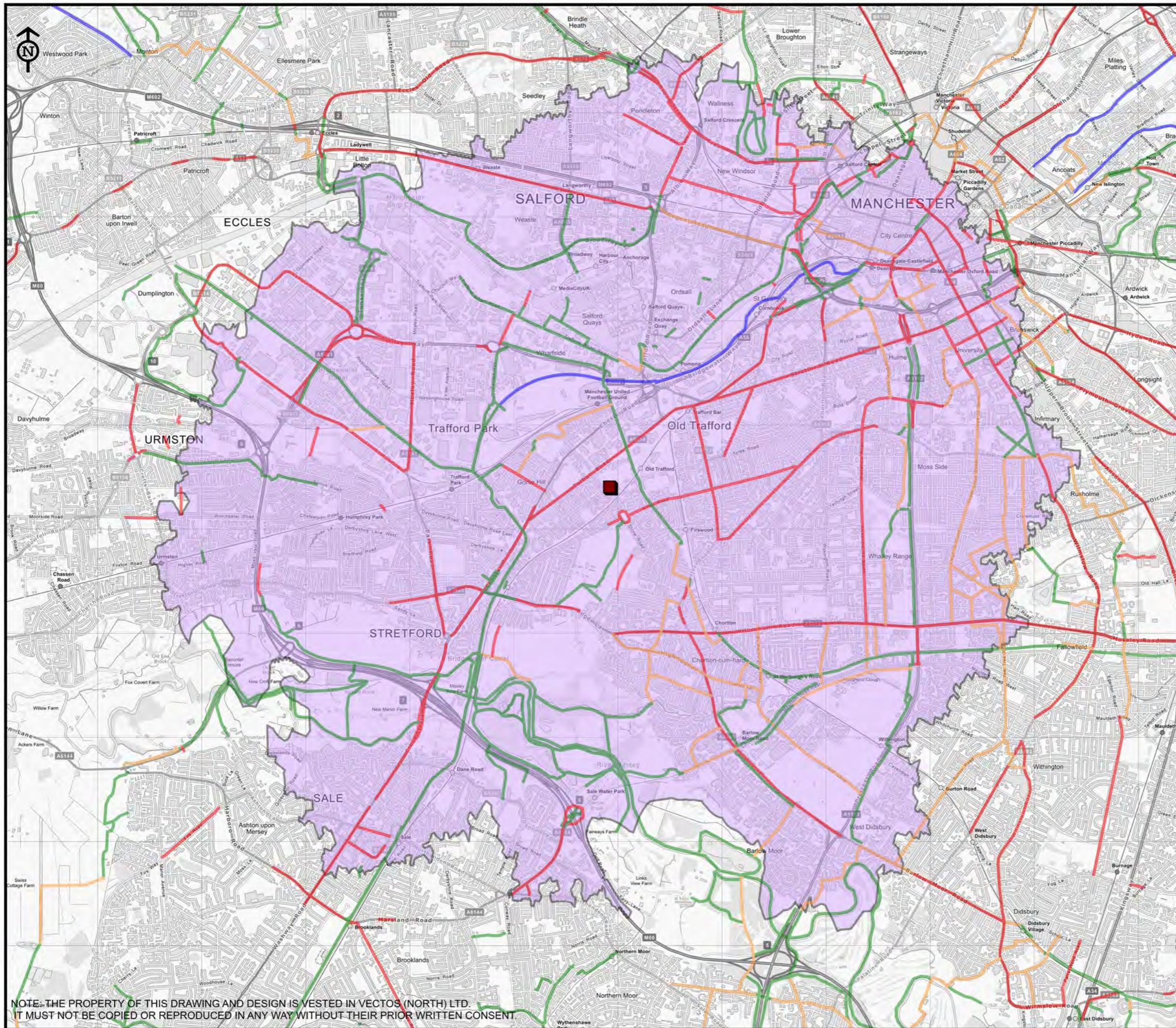


Oxford Place, 61 Oxford Street, Manchester M1 6EQ  
t:0161 228 1008 e:manchester@vectos.co.uk

DRAWING NO:

VN201565-G102

REVISION:



Legend

■ Site Location

Cycle Catchment

0 - 5km

Cycle Routes

- Signed Route
- On Road with Cycle Lane
- Off Road Cycle Route
- Canal Tow Path

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CLIENT:

Accrue Forum 1 LLP

PROJECT TITLE:

Great Stone Road, Revised Scheme

DRAWING TITLE:

Cycle Catchment with Local Provision

SCALE:

N.T.S

DRAWN:

TO

CHECKED:

TA

DATE:

Feb 2020



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

DRAWING NO:

VN201565-G103

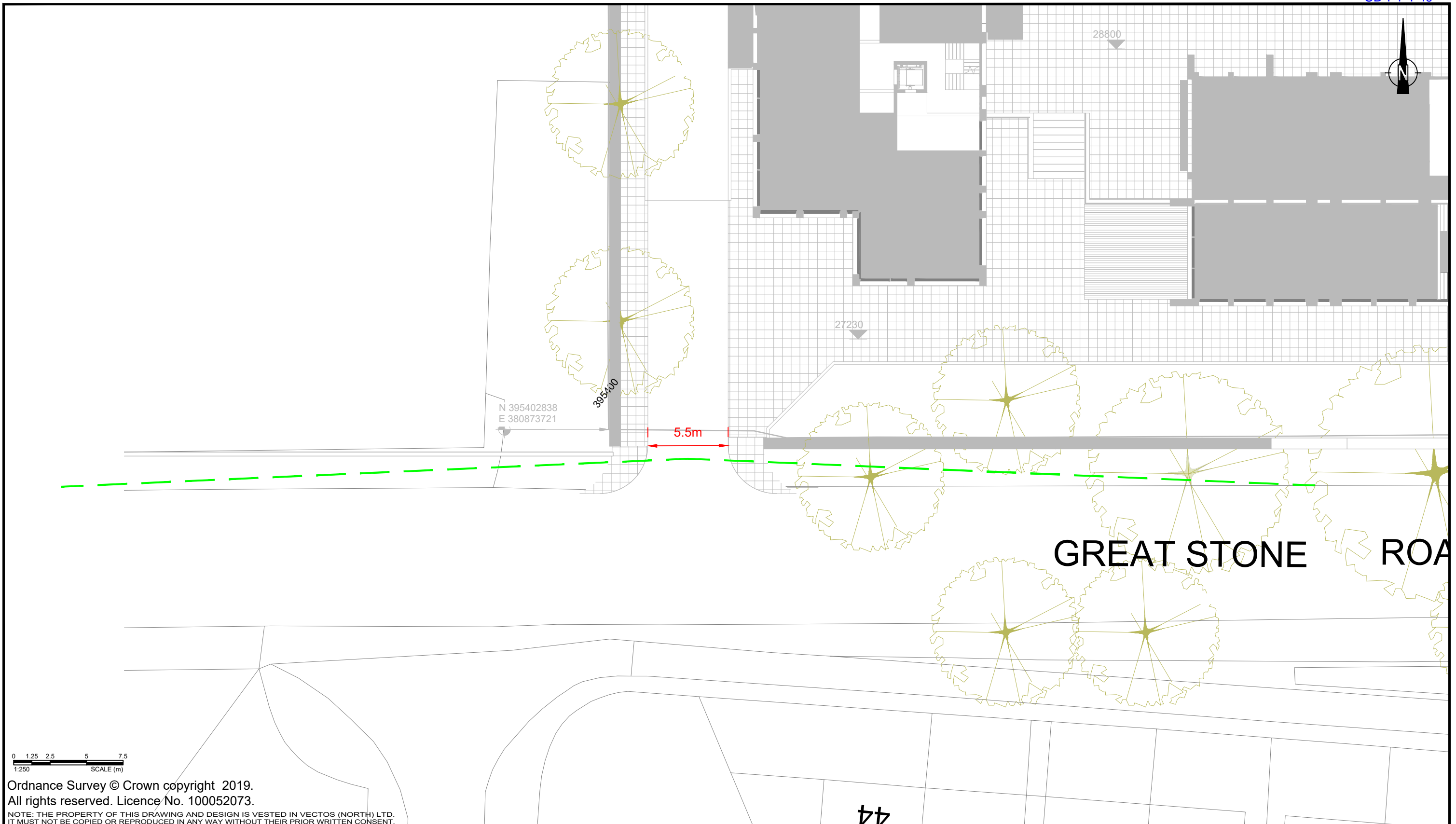
REVISION:

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## **DRAWINGS**





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

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REV.	DETAILS	DRAWN	CHECKED	DATE

**Notes:**

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

— Visibility splay - 2.4m x 43m

**Great Stone Road, Revised Scheme**

**Proposed Site Access - Visibility Review**

DRAWN: TO	CHECKED: TR	DATE: 13.02.20	SCALES: 1:250 at A3
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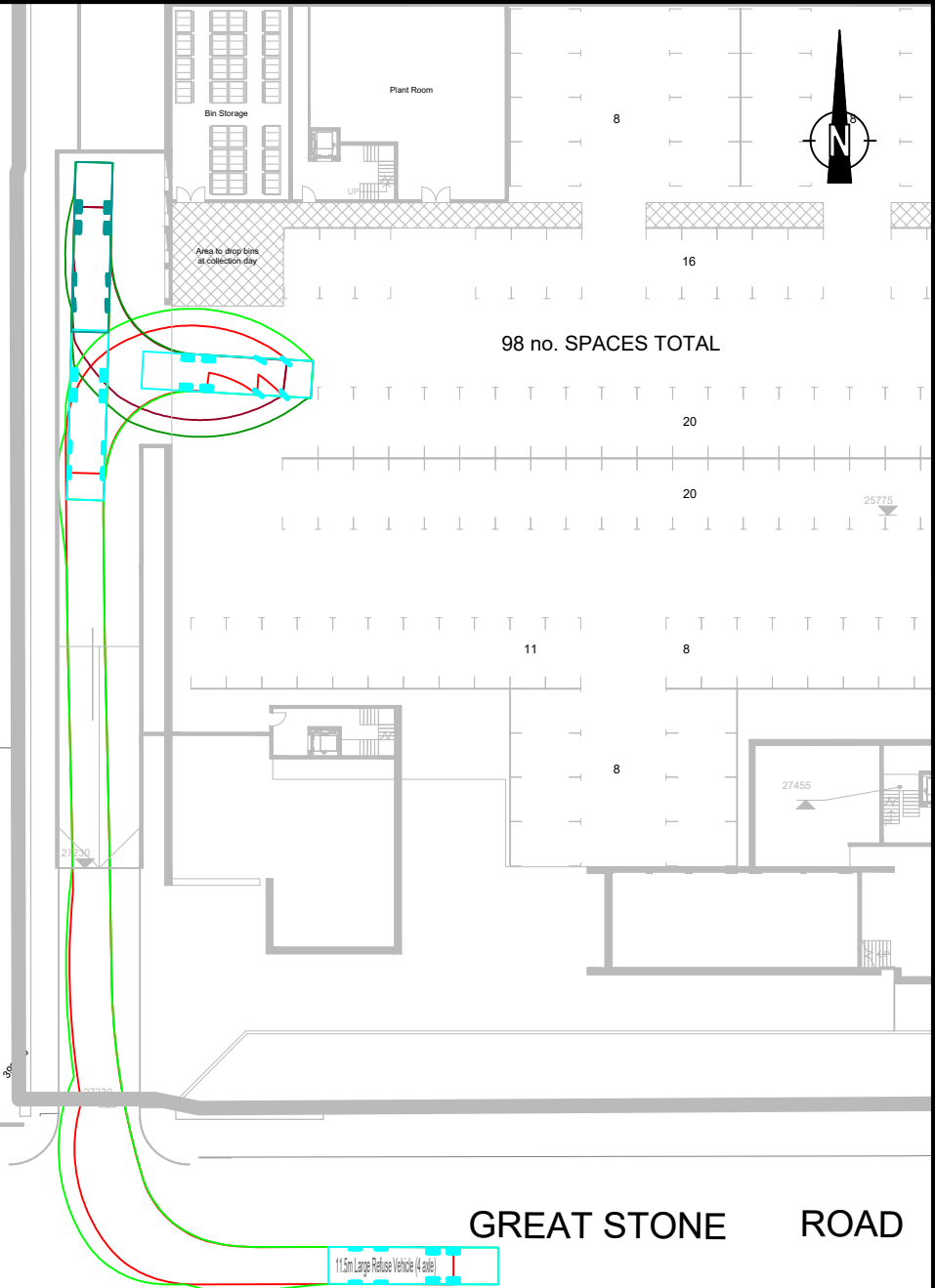
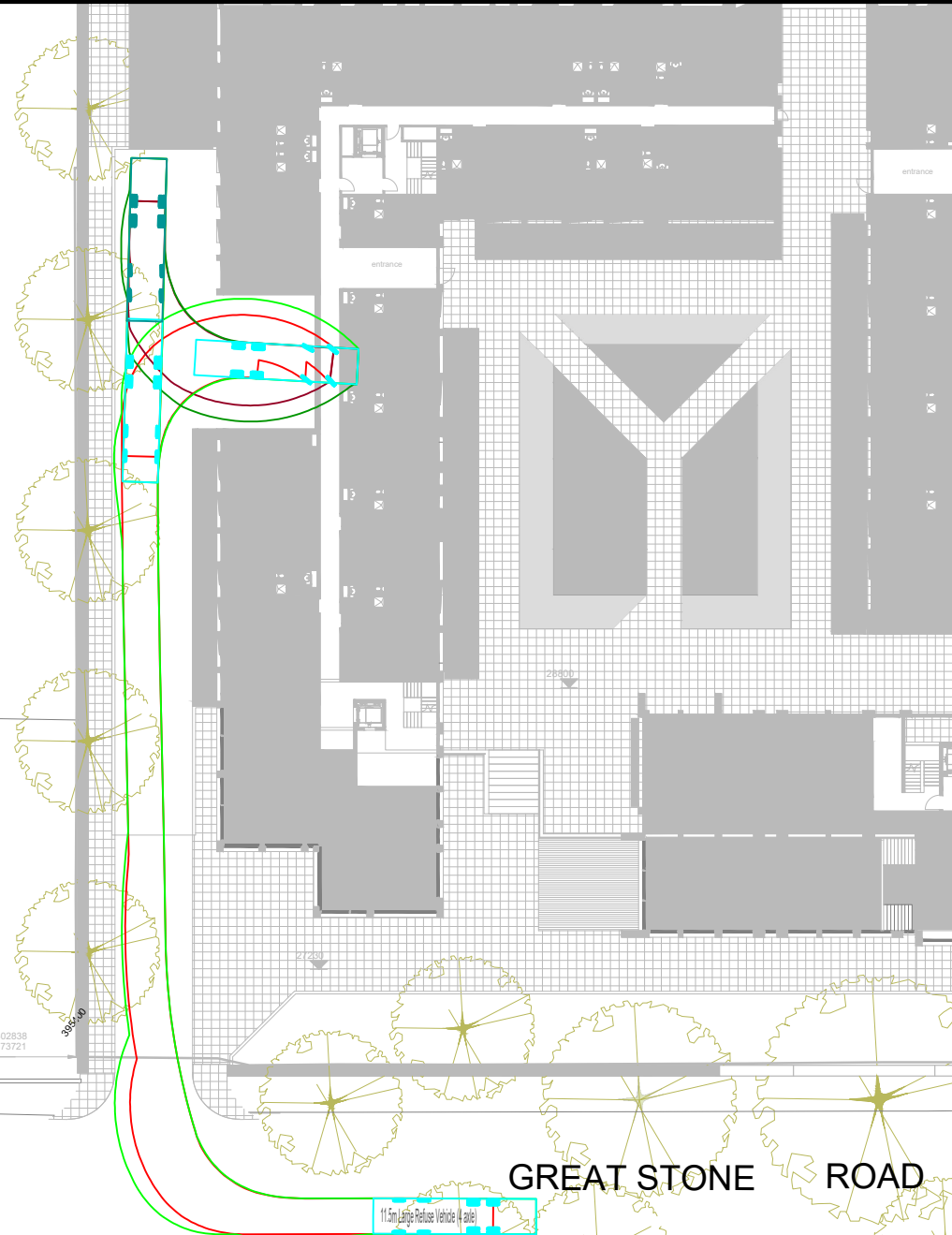
**Accrue Forum 1 LLP**

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

DRAWING NUMBER: VN201565-D100	REVISION: .
----------------------------------	----------------

Level 0

Level -1

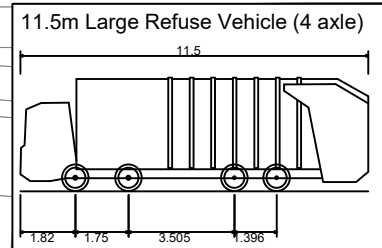
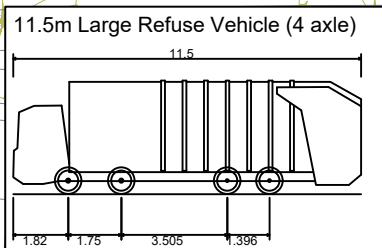


GREAT STONE ROAD

GREAT STONE ROAD

11.5m Large Refuse Vehicle (4 axle)

11.5m Large Refuse Vehicle (4 axle)



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

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



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REV.	DETAILS	DRAWN	CHECKED	DATE
A	Site layout amended	TO	TA	13.02.20

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

Great Stone Road, Revised Scheme

Accrue Forum 1 LLP

Swept Path Analysis - Large Refuse Vehicle



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

DRAWN: TO	CHECKED: TR	DATE: 13.02.20	SCALES: 1:500 at A3	DRAWING NUMBER: VN201565-TR100	REVISION: A
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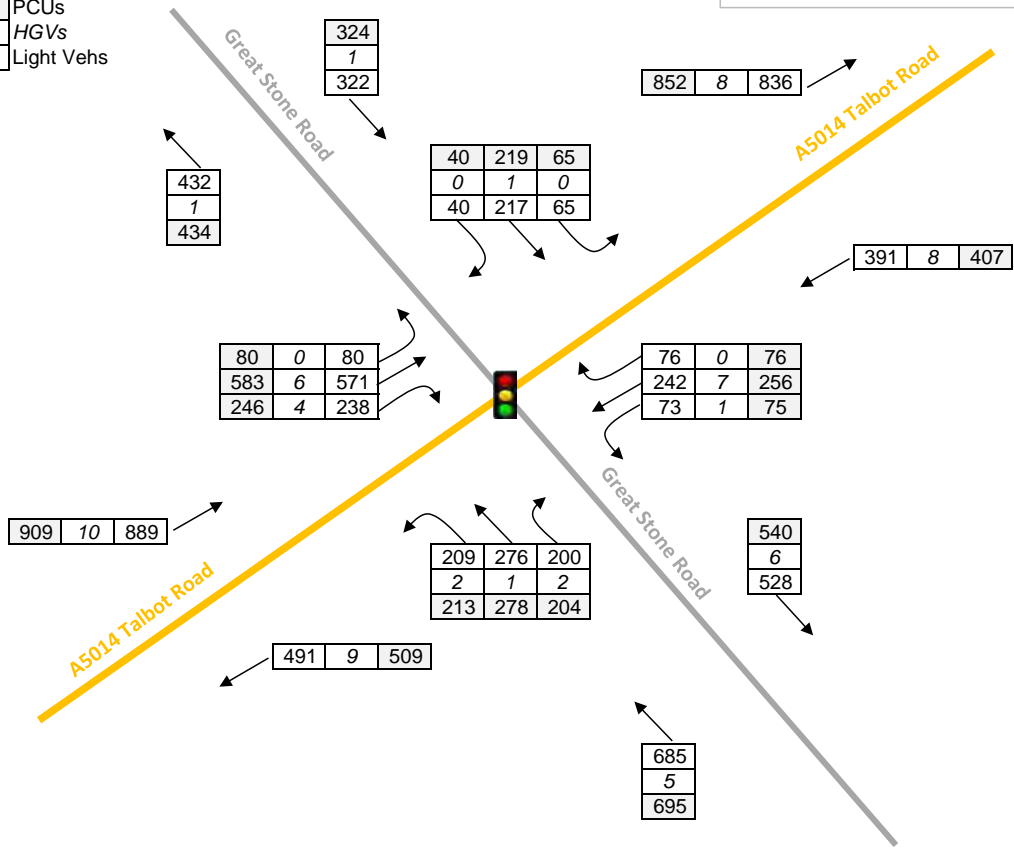


## FIGURES

Figure 3.3. 2017 Surveyed Flows

- x PCUs
- x HGVs
- x Light Vehs

Morning Peak Hour (07:45 - 08:45)



Evening Peak Hour (16:30 - 17:30)

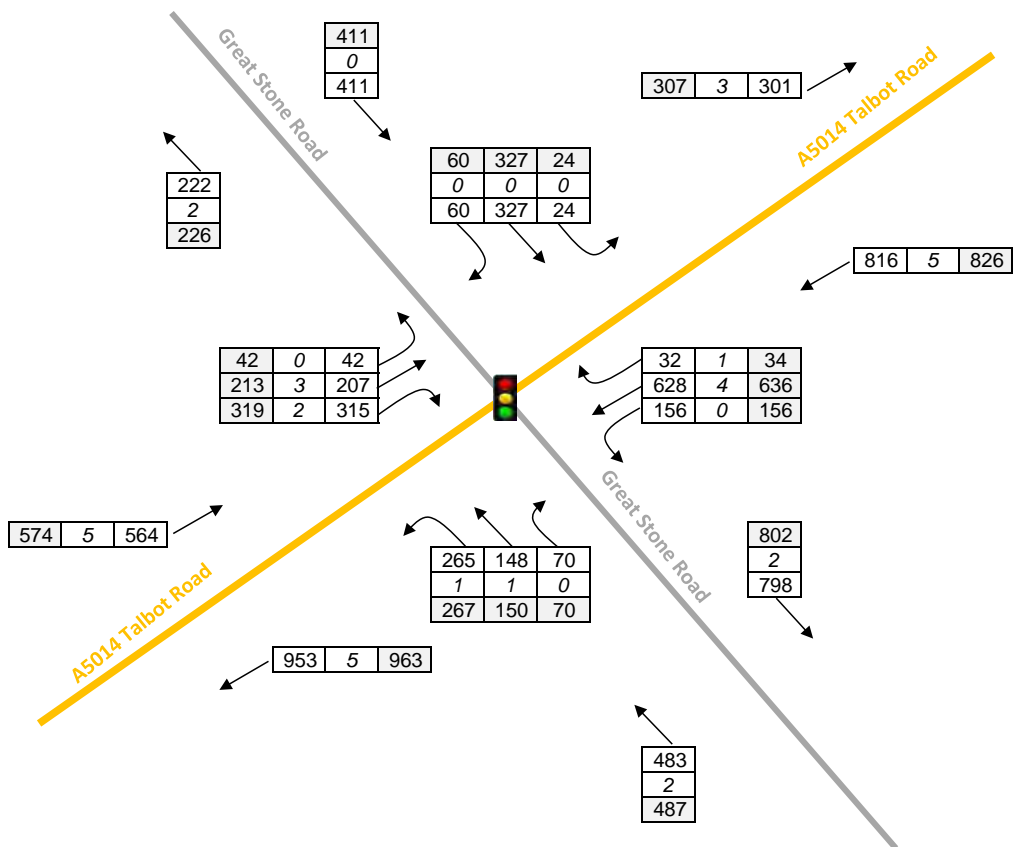
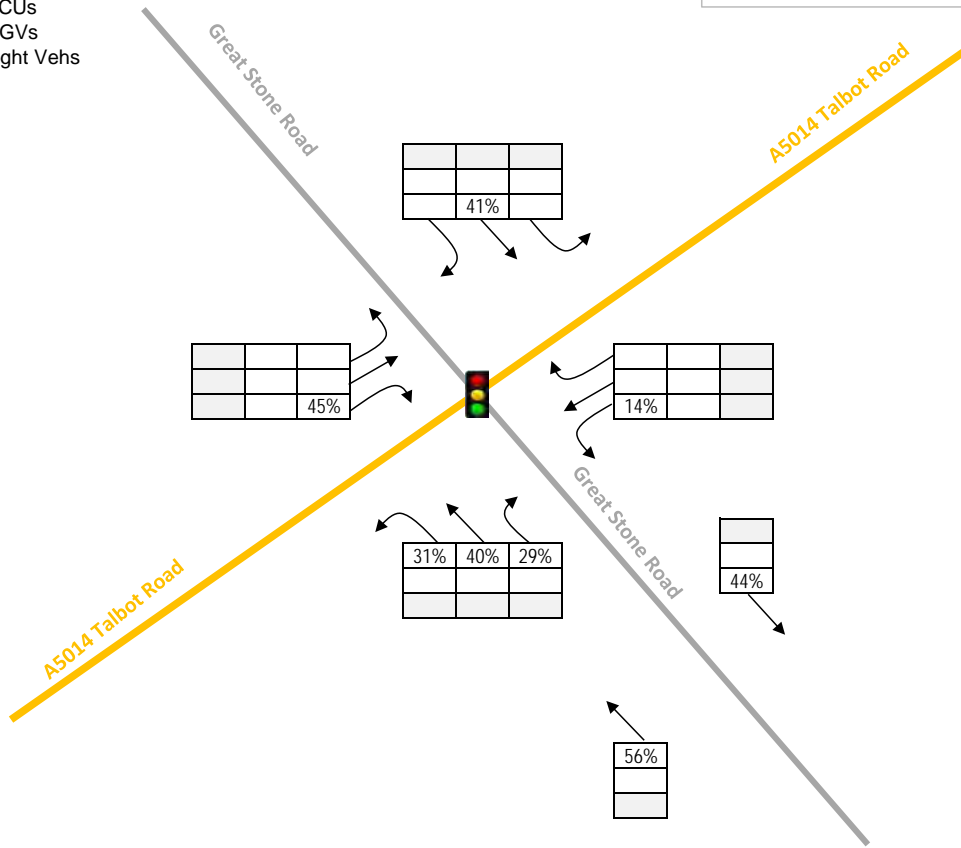


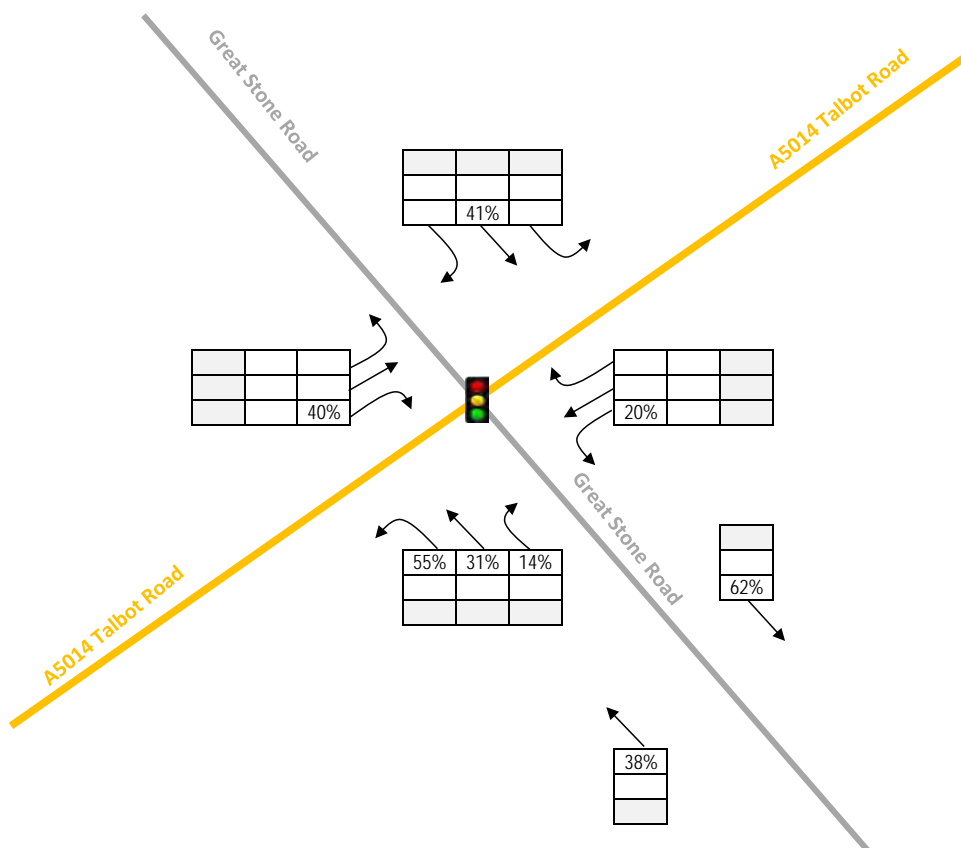
Figure 6.1. Turning Proportions

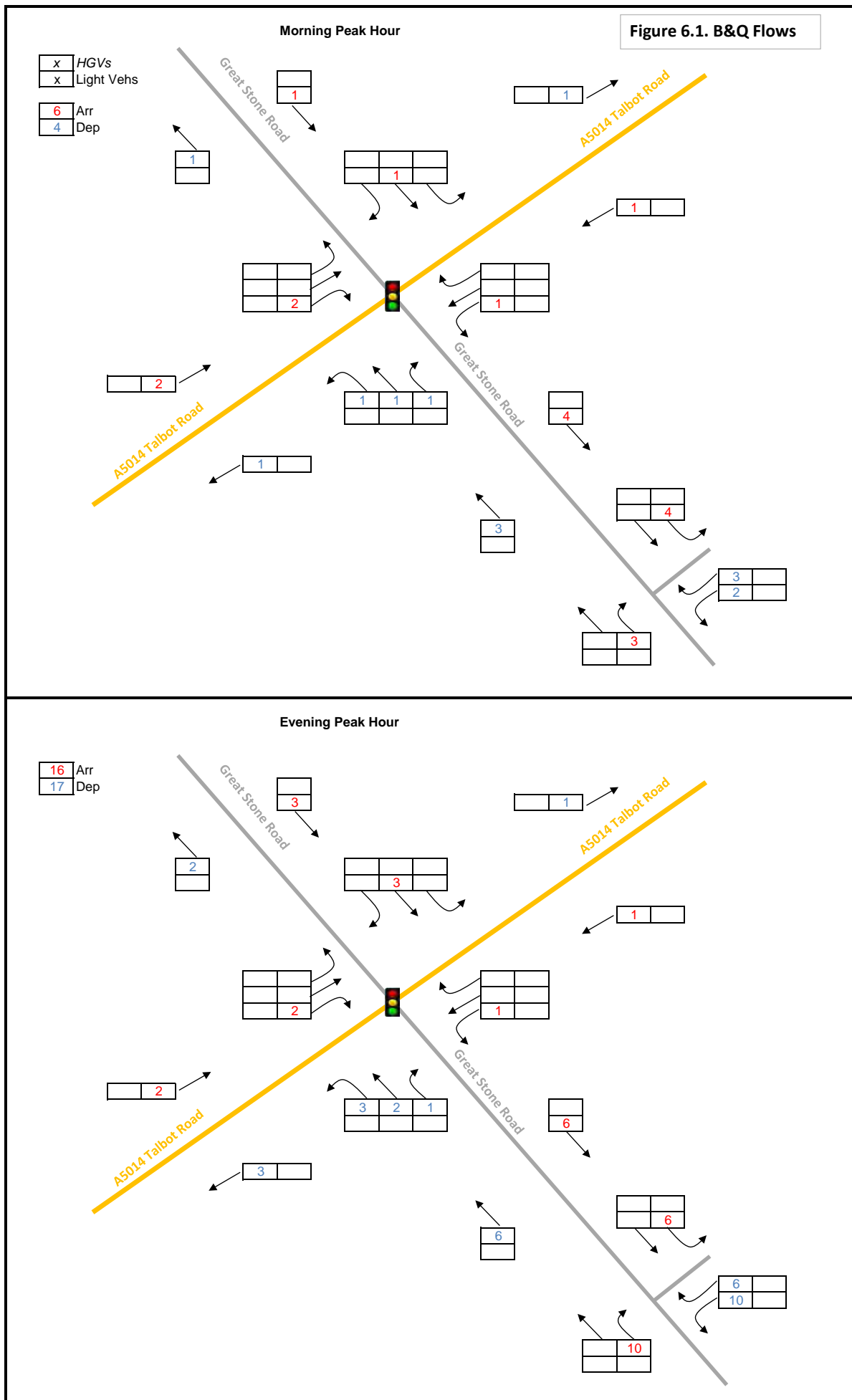
x	PCUs
x	HGVs
x	Light Vehs

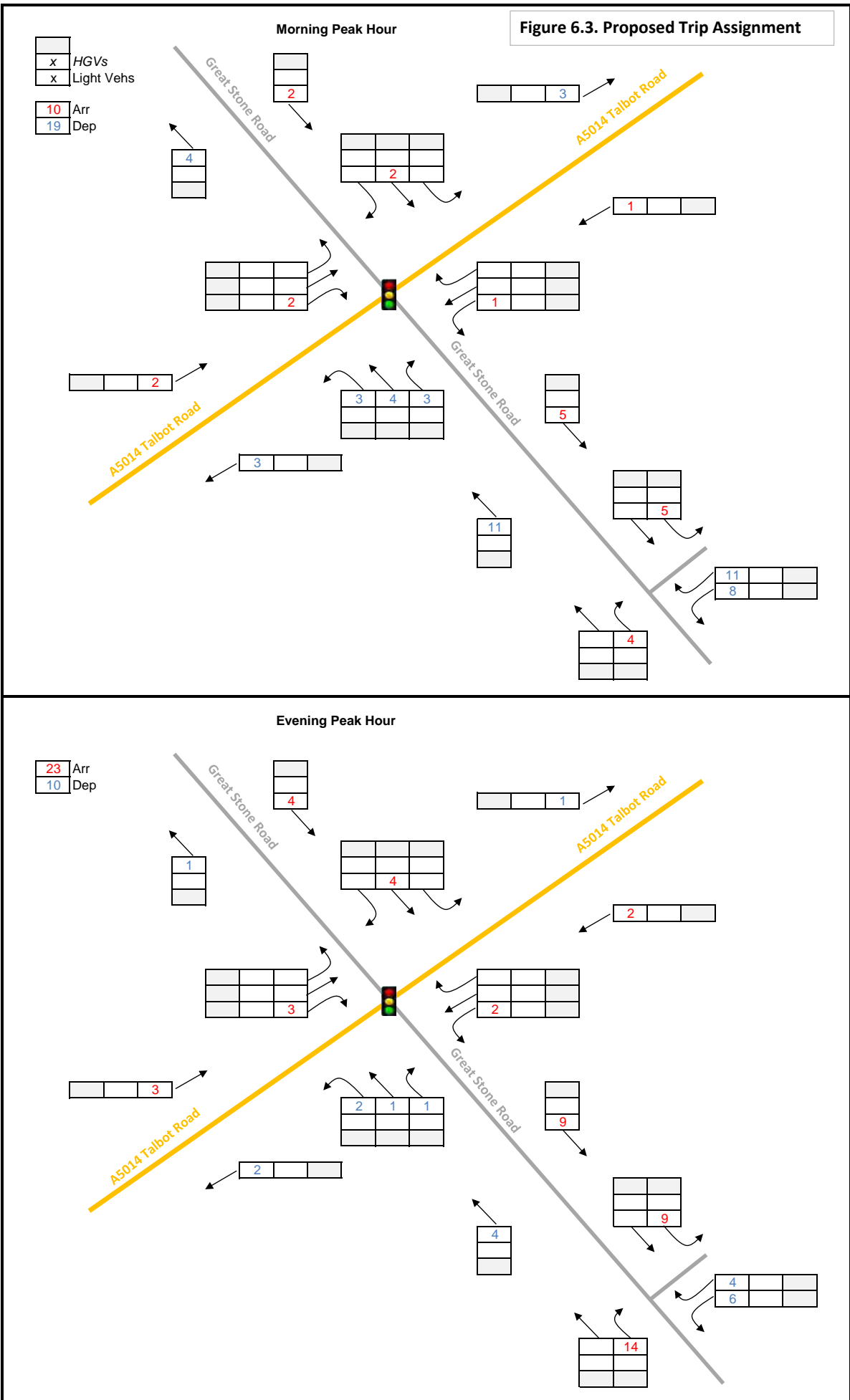
Morning Peak Hour (07:45 - 08:45)

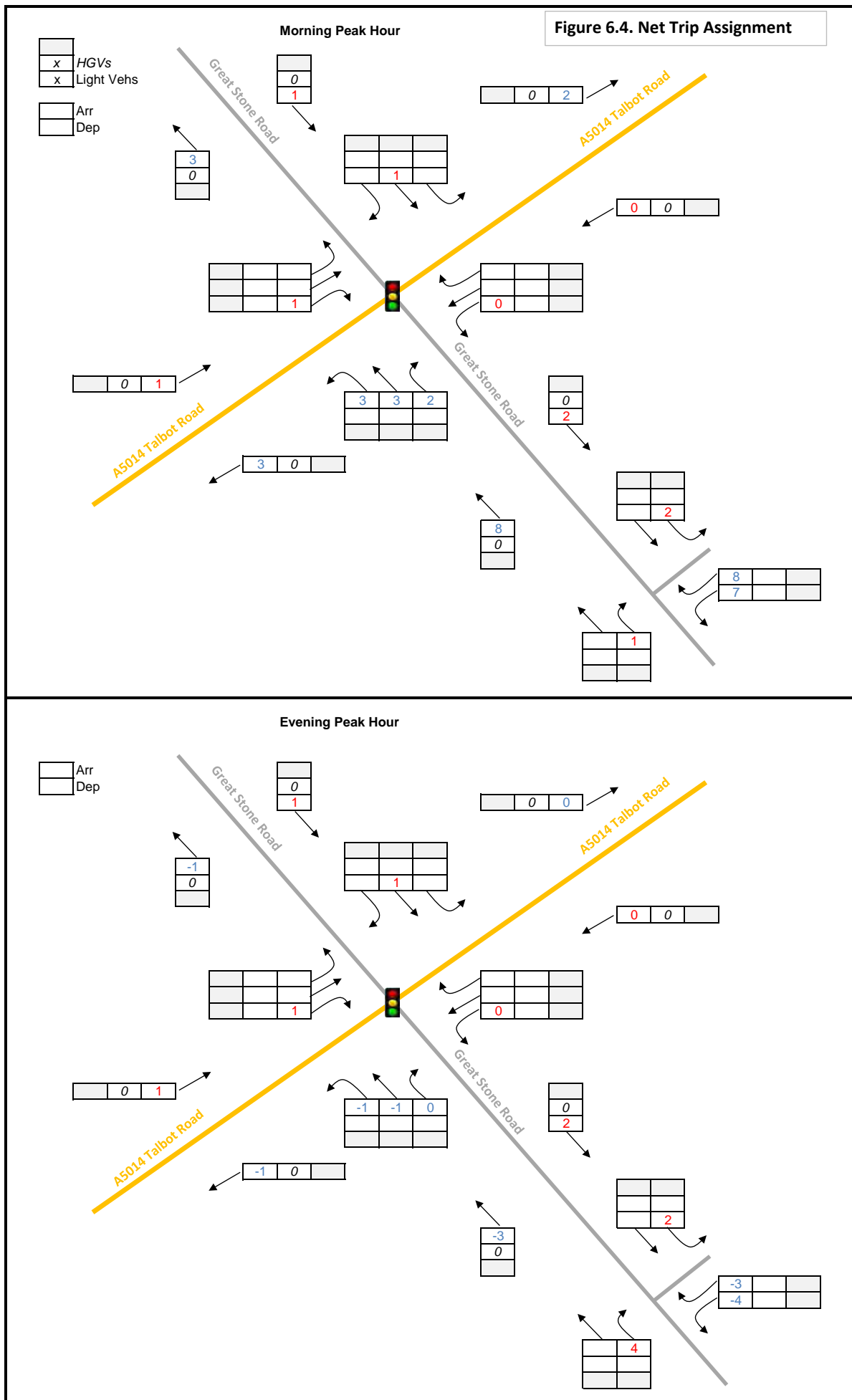


Evening Peak Hour (16:30 - 17:30)













## **APPENDICES**



## **Appendix A**

### **Proposed Site Layout**

Notes:

All dimensions are in millimetres unless stated otherwise. No dimensions to be scaled from drawings. All dimensions to be checked on site prior to manufacture.

Any discrepancies between drawings and site conditions are to be reported to the contract manager.

This drawing is to be read in conjunction with all relevant Structural Engineers and Mechanical & Electrical Engineers drawings and specifications.

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By Room Name Legend

- 1B
- 2B
- 3B
- Cafe
- Residents Amenity Space
- Retail Unit
- Studio Bed



1 Level 0  
1 : 200

PLANNING

Rev	Description	Date	By	Chk



oea  
 O'Connell East Architects  
 63 Newson Street, Manchester, M1 1ET  
 T 0161 839 7380 F 0161 833 7438

dwg title:	Level 0 Plan		
job title:	Great Stone Road		
scale:	1 : 200	@ A0	drawn: POC
date:	21/06/17		job no: 1664
dwg no:	PL_102		rev:



## **Appendix B**

### **TRICS Output**

### **DIY Superstore**

## TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL  
 Category : E - DIY SUPERSTORE - WITHOUT GARDEN CENT  
 VEHICLES

Selected regions and areas:

03 SOUTH WEST  
 DC DORSET 1 days

## Secondary Filtering selection:

Parameter: Gross floor area  
 Actual Range: 5800 to 5800 (units: sqm)  
 Range Selected by User: 100 to 11800 (units: sqm)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 23/11/14

Selected survey days:

Friday 1 days

Selected survey types:

Manual count 1 days  
 Directional ATC Count 0 days

Selected Locations:

Edge of Town 1

Selected Location Sub Categories:

Retail Zone 1

## Secondary Filtering selection:

Use Class:

A1 1 days

Population within 1 mile:

20,001 to 25,000 1 days

Population within 5 miles:

250,001 to 500,000 1 days

Car ownership within 5 miles:

1.1 to 1.5 1 days

Petrol filling station:

Included in the survey count 0 days  
 Excluded from count or no filling station 1 days

Travel Plan:

No 1 days

PTAL Rating:

No PTAL Present 1 days

LIST OF SITES relevant to selection parameters

1	DC-01-E-01	HOMEBASE	DORSET
	MALLARD ROAD		
	MALLARD RD RET. PARK		
	BOURNEMOUTH		
	Edge of Town		
	Retail Zone		
	Total Gross floor area:	5800 sqm	
	<i>Survey date: FRIDAY</i>	<i>21/03/14</i>	<i>Survey Type: MANUAL</i>

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.069	1	5800	0.017	1	5800	0.086
08:00 - 09:00	1	5800	0.224	1	5800	0.155	1	5800	0.379
09:00 - 10:00	1	5800	0.517	1	5800	0.397	1	5800	0.914
10:00 - 11:00	1	5800	0.741	1	5800	0.655	1	5800	1.396
11:00 - 12:00	1	5800	0.862	1	5800	1.017	1	5800	1.879
12:00 - 13:00	1	5800	0.948	1	5800	1.017	1	5800	1.965
13:00 - 14:00	1	5800	1.034	1	5800	0.914	1	5800	1.948
14:00 - 15:00	1	5800	0.759	1	5800	0.845	1	5800	1.604
15:00 - 16:00	1	5800	1.017	1	5800	0.879	1	5800	1.896
16:00 - 17:00	1	5800	0.603	1	5800	0.552	1	5800	1.155
17:00 - 18:00	1	5800	0.569	1	5800	0.586	1	5800	1.155
18:00 - 19:00	1	5800	0.207	1	5800	0.276	1	5800	0.483
19:00 - 20:00	1	5800	0.224	1	5800	0.362	1	5800	0.586
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			<b>7.774</b>			<b>7.672</b>			<b>15.446</b>

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0



TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT

TAXI S

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
08:00 - 09:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
09:00 - 10:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
10:00 - 11:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
11:00 - 12:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
12:00 - 13:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
13:00 - 14:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
14:00 - 15:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
15:00 - 16:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
16:00 - 17:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
17:00 - 18:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
18:00 - 19:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
19:00 - 20:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.034			0.000			0.034

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT  
OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
08:00 - 09:00	1	5800	0.052	1	5800	0.034	1	5800	0.086
09:00 - 10:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
10:00 - 11:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
11:00 - 12:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
12:00 - 13:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
13:00 - 14:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
14:00 - 15:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
15:00 - 16:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
16:00 - 17:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
17:00 - 18:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
18:00 - 19:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
19:00 - 20:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.086			0.085			0.171

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT

PSVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
08:00 - 09:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
09:00 - 10:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
10:00 - 11:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
11:00 - 12:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
12:00 - 13:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
13:00 - 14:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
14:00 - 15:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
15:00 - 16:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
16:00 - 17:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
17:00 - 18:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
18:00 - 19:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
19:00 - 20:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.000			0.000			0.000

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT  
CYCLISTS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
08:00 - 09:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
09:00 - 10:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
10:00 - 11:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
11:00 - 12:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
12:00 - 13:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
13:00 - 14:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
14:00 - 15:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
15:00 - 16:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
16:00 - 17:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
17:00 - 18:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
18:00 - 19:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
19:00 - 20:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.085			0.068			0.153

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0



TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT CARS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.034	1	5800	0.000	1	5800	0.034
08:00 - 09:00	1	5800	0.155	1	5800	0.103	1	5800	0.258
09:00 - 10:00	1	5800	0.483	1	5800	0.328	1	5800	0.811
10:00 - 11:00	1	5800	0.724	1	5800	0.638	1	5800	1.362
11:00 - 12:00	1	5800	0.793	1	5800	0.983	1	5800	1.776
12:00 - 13:00	1	5800	0.914	1	5800	0.966	1	5800	1.880
13:00 - 14:00	1	5800	1.017	1	5800	0.879	1	5800	1.896
14:00 - 15:00	1	5800	0.741	1	5800	0.845	1	5800	1.586
15:00 - 16:00	1	5800	0.983	1	5800	0.862	1	5800	1.845
16:00 - 17:00	1	5800	0.603	1	5800	0.534	1	5800	1.137
17:00 - 18:00	1	5800	0.534	1	5800	0.534	1	5800	1.068
18:00 - 19:00	1	5800	0.190	1	5800	0.259	1	5800	0.449
19:00 - 20:00	1	5800	0.207	1	5800	0.345	1	5800	0.552
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			7.378			7.276			14.654

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT  
LGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.034	1	5800	0.017	1	5800	0.051
08:00 - 09:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
09:00 - 10:00	1	5800	0.034	1	5800	0.052	1	5800	0.086
10:00 - 11:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
11:00 - 12:00	1	5800	0.034	1	5800	0.017	1	5800	0.051
12:00 - 13:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
13:00 - 14:00	1	5800	0.017	1	5800	0.034	1	5800	0.051
14:00 - 15:00	1	5800	0.017	1	5800	0.000	1	5800	0.017
15:00 - 16:00	1	5800	0.034	1	5800	0.017	1	5800	0.051
16:00 - 17:00	1	5800	0.000	1	5800	0.017	1	5800	0.017
17:00 - 18:00	1	5800	0.034	1	5800	0.052	1	5800	0.086
18:00 - 19:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
19:00 - 20:00	1	5800	0.017	1	5800	0.017	1	5800	0.034
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.272			0.274			0.546

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

Vectos (North) Limited 3rd Floor, Oxford Place, 61 Oxford St Manchester

Licence No: 715001

TRIP RATE for Land Use 01 - RETAIL/E - DIY SUPERSTORE - WITHOUT GARDEN CENT  
MOTOR CYCLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
08:00 - 09:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
09:00 - 10:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
10:00 - 11:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
11:00 - 12:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
12:00 - 13:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
13:00 - 14:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
14:00 - 15:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
15:00 - 16:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
16:00 - 17:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
17:00 - 18:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
18:00 - 19:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
19:00 - 20:00	1	5800	0.000	1	5800	0.000	1	5800	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.000			0.000			0.000

## Parameter summary

Trip rate parameter range selected:	5800 - 5800 (units: sqm)
Survey date date range:	01/01/10 - 23/11/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0



## **Appendix C**

### **TRICS Output**

#### **Residential**

Calculation Reference: AUDIT-715001-180416-0441

## TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	HC HAMPSHIRE	1 days
	OX OXFORDSHIRE	1 days
03	SOUTH WEST	
	DC DORSET	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	2 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	NT NOTTINGHAMSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	RI EAST RIDING OF YORKSHIRE	1 days
09	NORTH	
	CB CUMBRIA	2 days
	TV TEES VALLEY	1 days
11	SCOTLAND	
	EB CITY OF EDINBURGH	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	1 days

## Secondary Filtering selection:

Parameter: Number of dwellings  
 Actual Range: 14 to 135 (units: )  
 Range Selected by User: 6 to 215 (units: )

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 26/09/17

Selected survey days:

Monday	2 days
Tuesday	5 days
Wednesday	5 days
Thursday	1 days
Friday	2 days

Selected survey types:

Manual count	15 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	12
Edge of Town	3

Selected Location Sub Categories:

Residential Zone	10
No Sub Category	5

## Secondary Filtering selection:

Use Class:

C3 15 days

Population within 1 mile:

1,001 to 5,000	4 days
10,001 to 15,000	4 days
20,001 to 25,000	2 days
25,001 to 50,000	4 days
50,001 to 100,000	1 days



## Secondary Filtering selection (Cont.):

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	5 days

Car ownership within 5 miles:

0.6 to 1.0	4 days
1.1 to 1.5	11 days

Travel Plan:

No	15 days
----	---------

PTAL Rating:

No PTAL Present	15 days
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LIST OF SITES relevant to selection parameters

1	AN-03-C-02 BLOCK OF FLATS SUMMERHILL AVENUE KNOCK BELFAST Edge of Town Residential Zone Total Number of dwellings: 22 <i>Survey date: FRIDAY 28/11/14</i>	ANTRIM	<i>Survey Type: MANUAL</i>
2	CA-03-C-02 BLOCK OF FLATS WESTFIELD ROAD NETHERTON PETERBOROUGH Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 44 <i>Survey date: TUESDAY 18/10/11</i>	CAMBRI DGESHI RE	<i>Survey Type: MANUAL</i>
3	CA-03-C-03 BLOCKS OF FLATS CROMWELL ROAD  CAMBRIDGE Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 82 <i>Survey date: MONDAY 18/09/17</i>	CAMBRI DGESHI RE	<i>Survey Type: MANUAL</i>
4	CB-03-C-02 BLOCK OF FLATS BRIDGE LANE  PENRITH Edge of Town No Sub Category Total Number of dwellings: 35 <i>Survey date: WEDNESDAY 11/06/14</i>	CUMBRIA	<i>Survey Type: MANUAL</i>
5	CB-03-C-03 FLATS & BUNGALOWS LOUND STREET  KENDAL Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 33 <i>Survey date: MONDAY 09/06/14</i>	CUMBRIA	<i>Survey Type: MANUAL</i>
6	DC-03-C-02 FLATS IN BLOCKS PALM COURT SPA ROAD WEYMOUTH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 14 <i>Survey date: FRIDAY 28/03/14</i>	DORSET	<i>Survey Type: MANUAL</i>
7	EB-03-C-01 BLOCKS OF FLATS MYRESIDE ROAD CRAIGLOCKHART EDINBURGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 32 <i>Survey date: TUESDAY 26/05/15</i>	CITY OF EDINBURGH	<i>Survey Type: MANUAL</i>
8	ES-03-C-01 BLOCK OF FLATS OLD SHOREHAM RD HOVE BRIGHTON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 71 <i>Survey date: TUESDAY 26/09/17</i>	EAST SUSSEX	<i>Survey Type: MANUAL</i>
9	HC-03-C-02 FLATS WORTING ROAD  BASINGSTOKE Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 16 <i>Survey date: THURSDAY 21/10/10</i>	HAMPSHI RE	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

10	NT-03-C-01 LAWRENCE WAY	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	NOTTINGHAM Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 56 <i>Survey date: TUESDAY 08/11/16</i>			
	<i>Survey Type: MANUAL</i>			
11	NT-03-C-02 CASTLE MARINA ROAD	HOUSES (SPLIT INTO FLATS)		NOTTINGHAMSHIRE
	NOTTINGHAM Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 135 <i>Survey date: WEDNESDAY 09/11/16</i>			
	<i>Survey Type: MANUAL</i>			
12	OX-03-C-01 OXFORD ROAD COWLEY OXFORD	BLOCK OF FLATS		OXFORDSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 14 <i>Survey date: WEDNESDAY 20/10/10</i>			
	<i>Survey Type: MANUAL</i>			
13	RI-03-C-01 465 PRIORY ROAD	FLATS		EAST RIDING OF YORKSHIRE
	HULL Edge of Town Residential Zone Total Number of dwellings: 20 <i>Survey date: TUESDAY 13/05/14</i>			
	<i>Survey Type: MANUAL</i>			
14	SF-03-C-03 TOLLGATE LANE	BLOCKS OF FLATS		SUFFOLK
	BURY ST EDMUNDS Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 30 <i>Survey date: WEDNESDAY 03/12/14</i>			
	<i>Survey Type: MANUAL</i>			
15	TV-03-C-02 ACKLAM ROAD LINTHORPE MIDDLESBROUGH	FLATS		TEES VALLEY
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 85 <i>Survey date: WEDNESDAY 29/06/11</i>			
	<i>Survey Type: MANUAL</i>			

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	46	0.058	15	46	0.149	15	46	0.207
08:00 - 09:00	15	46	0.064	15	46	0.237	15	46	0.301
09:00 - 10:00	15	46	0.093	15	46	0.135	15	46	0.228
10:00 - 11:00	15	46	0.080	15	46	0.089	15	46	0.169
11:00 - 12:00	15	46	0.081	15	46	0.078	15	46	0.159
12:00 - 13:00	15	46	0.081	15	46	0.068	15	46	0.149
13:00 - 14:00	15	46	0.077	15	46	0.087	15	46	0.164
14:00 - 15:00	15	46	0.096	15	46	0.099	15	46	0.195
15:00 - 16:00	15	46	0.110	15	46	0.074	15	46	0.184
16:00 - 17:00	15	46	0.107	15	46	0.090	15	46	0.197
17:00 - 18:00	15	46	0.221	15	46	0.093	15	46	0.314
18:00 - 19:00	15	46	0.132	15	46	0.094	15	46	0.226
19:00 - 20:00	2	15	0.333	2	15	0.200	2	15	0.533
20:00 - 21:00	2	15	0.100	2	15	0.033	2	15	0.133
21:00 - 22:00	2	15	0.133	2	15	0.100	2	15	0.233
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			1.766			1.626			3.392

## Parameter summary

Trip rate parameter range selected:	14 - 135 (units: )
Survey date date range:	01/01/10 - 26/09/17
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED

TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	46	0.007	15	46	0.007	15	46	0.014
08:00 - 09:00	15	46	0.001	15	46	0.001	15	46	0.002
09:00 - 10:00	15	46	0.004	15	46	0.003	15	46	0.007
10:00 - 11:00	15	46	0.003	15	46	0.004	15	46	0.007
11:00 - 12:00	15	46	0.004	15	46	0.004	15	46	0.008
12:00 - 13:00	15	46	0.001	15	46	0.000	15	46	0.001
13:00 - 14:00	15	46	0.000	15	46	0.001	15	46	0.001
14:00 - 15:00	15	46	0.006	15	46	0.006	15	46	0.012
15:00 - 16:00	15	46	0.003	15	46	0.003	15	46	0.006
16:00 - 17:00	15	46	0.001	15	46	0.001	15	46	0.002
17:00 - 18:00	15	46	0.003	15	46	0.003	15	46	0.006
18:00 - 19:00	15	46	0.003	15	46	0.003	15	46	0.006
19:00 - 20:00	2	15	0.000	2	15	0.000	2	15	0.000
20:00 - 21:00	2	15	0.000	2	15	0.000	2	15	0.000
21:00 - 22:00	2	15	0.000	2	15	0.000	2	15	0.000
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.036			0.036			0.072

## Parameter summary

Trip rate parameter range selected:	14 - 135 (units: )
Survey date date range:	01/01/10 - 26/09/17
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	46	0.001	15	46	0.003	15	46	0.004
08:00 - 09:00	15	46	0.001	15	46	0.001	15	46	0.002
09:00 - 10:00	15	46	0.001	15	46	0.001	15	46	0.002
10:00 - 11:00	15	46	0.000	15	46	0.000	15	46	0.000
11:00 - 12:00	15	46	0.001	15	46	0.001	15	46	0.002
12:00 - 13:00	15	46	0.003	15	46	0.003	15	46	0.006
13:00 - 14:00	15	46	0.000	15	46	0.000	15	46	0.000
14:00 - 15:00	15	46	0.003	15	46	0.001	15	46	0.004
15:00 - 16:00	15	46	0.001	15	46	0.001	15	46	0.002
16:00 - 17:00	15	46	0.001	15	46	0.001	15	46	0.002
17:00 - 18:00	15	46	0.000	15	46	0.000	15	46	0.000
18:00 - 19:00	15	46	0.000	15	46	0.000	15	46	0.000
19:00 - 20:00	2	15	0.000	2	15	0.000	2	15	0.000
20:00 - 21:00	2	15	0.000	2	15	0.000	2	15	0.000
21:00 - 22:00	2	15	0.000	2	15	0.000	2	15	0.000
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.012			0.012			0.024



## Parameter summary

Trip rate parameter range selected:	14 - 135 (units: )
Survey date date range:	01/01/10 - 26/09/17
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	46	0.000	15	46	0.000	15	46	0.000
08:00 - 09:00	15	46	0.000	15	46	0.000	15	46	0.000
09:00 - 10:00	15	46	0.000	15	46	0.000	15	46	0.000
10:00 - 11:00	15	46	0.000	15	46	0.000	15	46	0.000
11:00 - 12:00	15	46	0.000	15	46	0.000	15	46	0.000
12:00 - 13:00	15	46	0.000	15	46	0.000	15	46	0.000
13:00 - 14:00	15	46	0.000	15	46	0.000	15	46	0.000
14:00 - 15:00	15	46	0.001	15	46	0.001	15	46	0.002
15:00 - 16:00	15	46	0.000	15	46	0.000	15	46	0.000
16:00 - 17:00	15	46	0.001	15	46	0.001	15	46	0.002
17:00 - 18:00	15	46	0.001	15	46	0.001	15	46	0.002
18:00 - 19:00	15	46	0.000	15	46	0.000	15	46	0.000
19:00 - 20:00	2	15	0.000	2	15	0.000	2	15	0.000
20:00 - 21:00	2	15	0.000	2	15	0.000	2	15	0.000
21:00 - 22:00	2	15	0.000	2	15	0.000	2	15	0.000
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.003			0.003			0.006

## Parameter summary

Trip rate parameter range selected:	14 - 135 (units: )
Survey date date range:	01/01/10 - 26/09/17
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED  
CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	46	0.006	15	46	0.013	15	46	0.019
08:00 - 09:00	15	46	0.003	15	46	0.015	15	46	0.018
09:00 - 10:00	15	46	0.004	15	46	0.006	15	46	0.010
10:00 - 11:00	15	46	0.001	15	46	0.004	15	46	0.005
11:00 - 12:00	15	46	0.006	15	46	0.004	15	46	0.010
12:00 - 13:00	15	46	0.004	15	46	0.001	15	46	0.005
13:00 - 14:00	15	46	0.001	15	46	0.003	15	46	0.004
14:00 - 15:00	15	46	0.004	15	46	0.003	15	46	0.007
15:00 - 16:00	15	46	0.006	15	46	0.004	15	46	0.010
16:00 - 17:00	15	46	0.007	15	46	0.001	15	46	0.008
17:00 - 18:00	15	46	0.006	15	46	0.003	15	46	0.009
18:00 - 19:00	15	46	0.009	15	46	0.001	15	46	0.010
19:00 - 20:00	2	15	0.000	2	15	0.000	2	15	0.000
20:00 - 21:00	2	15	0.000	2	15	0.000	2	15	0.000
21:00 - 22:00	2	15	0.000	2	15	0.000	2	15	0.000
22:00 - 23:00									
23:00 - 24:00									
<b>Total Rates:</b>			0.057			0.058			0.115

## Parameter summary

Trip rate parameter range selected:	14 - 135 (units: )
Survey date date range:	01/01/10 - 26/09/17
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0



## **Appendix D**

### **Trip Rate Per Parking Space Calculation**

Private Flats, suburban & edge of town			Survey Data				Trip Rate per Parking Space			
TRICS Site	Dwellings	No. of parking spaces	AM		PM		AM		PM	
			Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
AN-03-C-02 / 01	22	22	4	9	11	0	0.182	0.409	0.500	0.000
CA-03-C-03 / 01	82	93	7	26	25	8	0.075	0.280	0.269	0.086
CB-03-C-02 / 01	35	38	3	5	11	6	0.079	0.132	0.289	0.158
CB-03-C-03 / 01	40	17	3	4	7	5	0.176	0.235	0.412	0.294
DC-03-C-02 / 01	14	20	3	4	4	1	0.150	0.200	0.200	0.050
EB-03-C-01 / 01	32	50	1	5	4	4	0.020	0.100	0.080	0.080
ES-03-C-01 / 01	71	81	3	10	6	6	0.037	0.123	0.074	0.074
NT-03-C-02 / 01	135	98	6	10	5	7	0.061	0.102	0.051	0.071
<b>Average:</b>							<b>0.098</b>	<b>0.198</b>	<b>0.234</b>	<b>0.102</b>

Proposed Development  
 333 dwellings  
 98 parking spaces

	ARR	DEP	2 Way
AM	10	19	29
PM	23	10	33



## **Appendix E**

### **LinSig Junction Modelling Results**

#### **Great Stone Road/Talbot Road Junction**

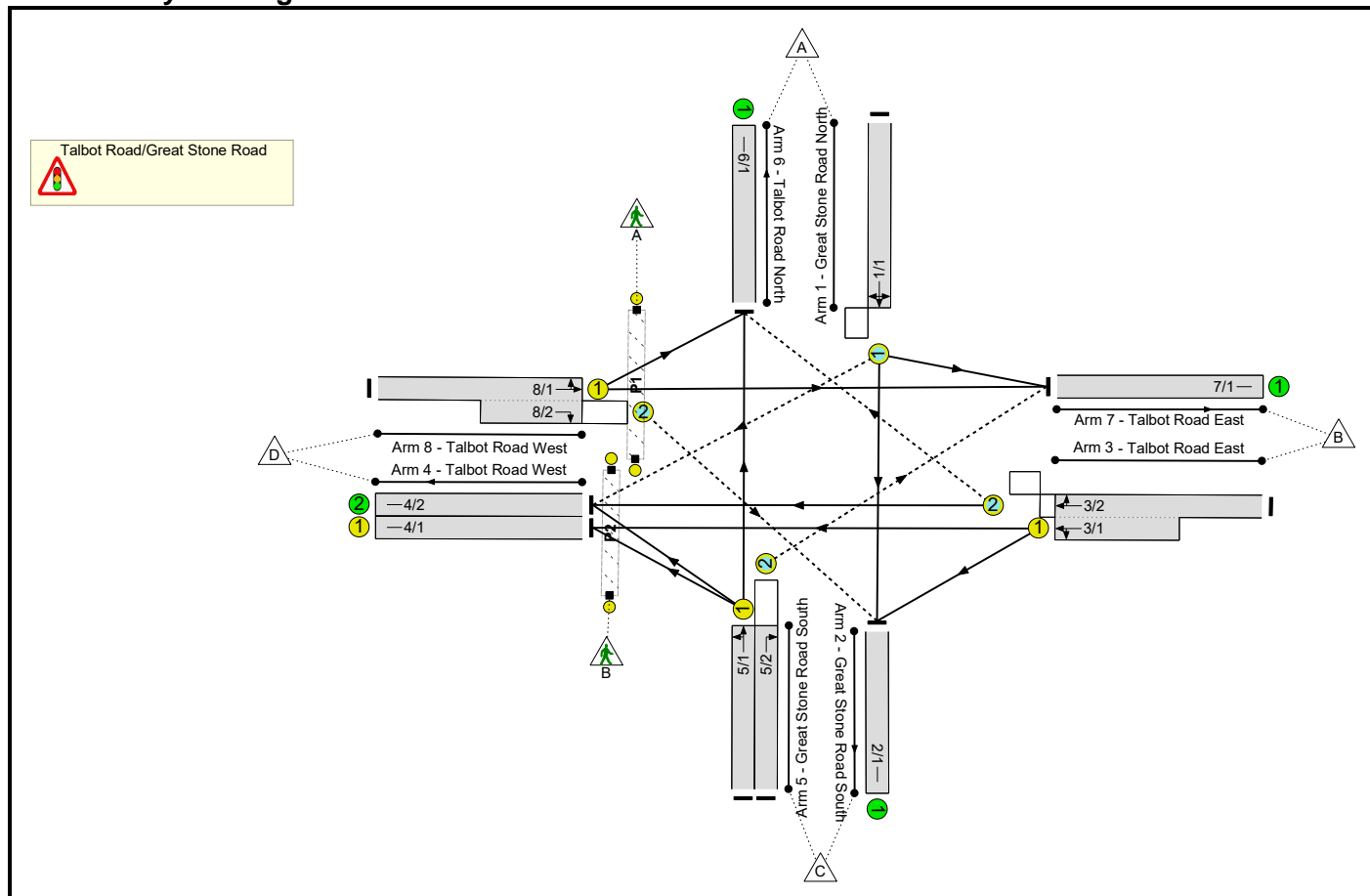


Full Input Data And Results  
**Full Input Data And Results**

**User and Project Details**

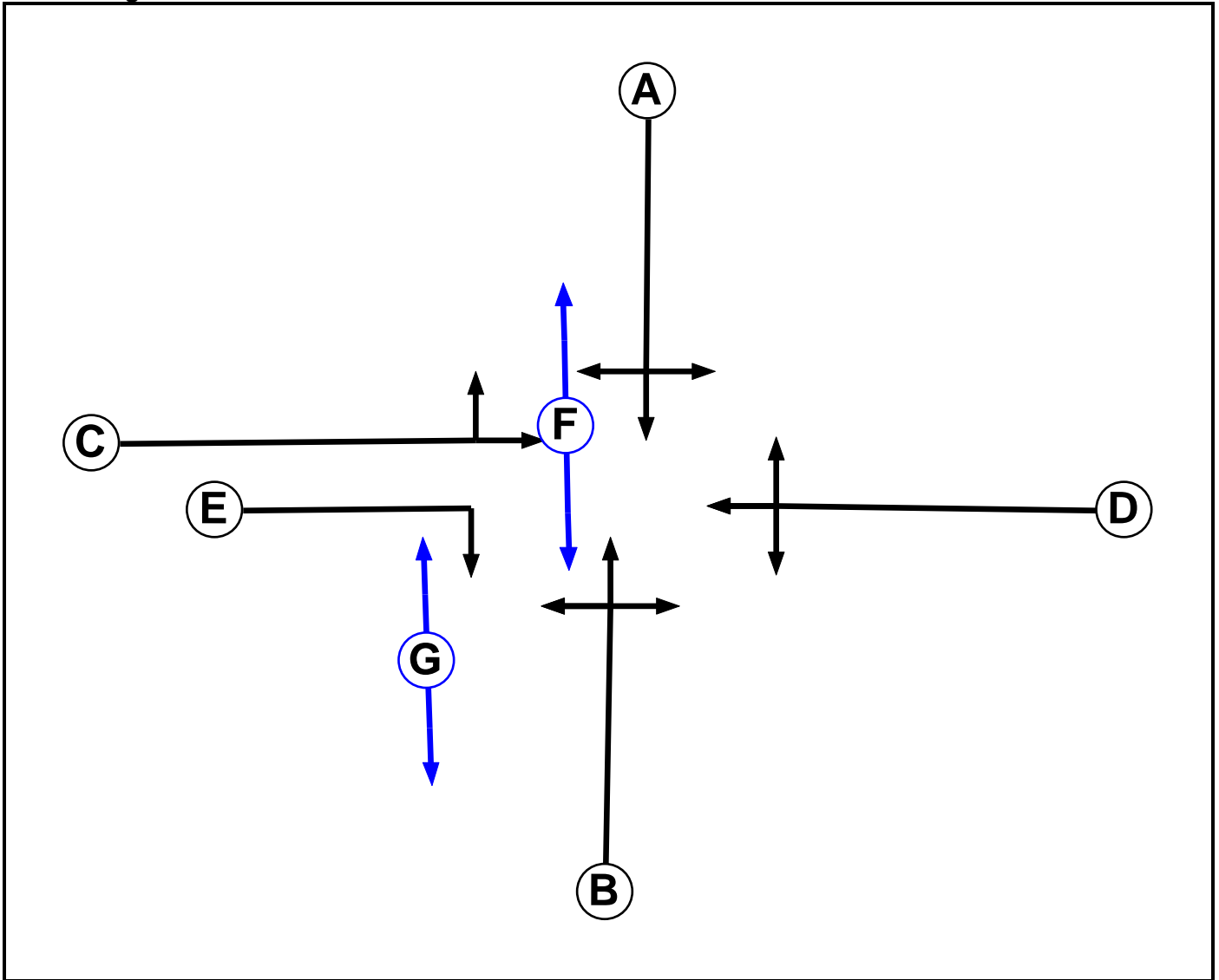
<b>Project:</b>	<b>VN201595</b>
<b>Title:</b>	<b>Great Stone Road Trafford</b>
<b>Location:</b>	
<b>Date Completed:</b>	February 2020
<b>Additional detail:</b>	
<b>File name:</b>	Talbot Road_Great Stone Road.lsg3x
<b>Author:</b>	Tim Ashley
<b>Company:</b>	Vectos
<b>Address:</b>	

**Network Layout Diagram**



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		3	3
F	Pedestrian		5	5
G	Pedestrian		5	5

Full Input Data And Results

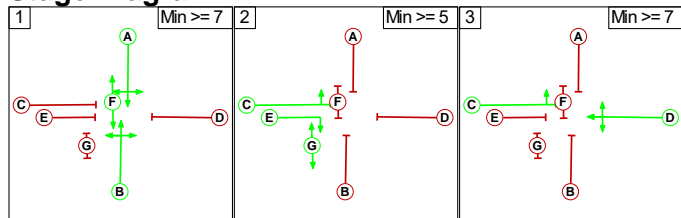
**Phase Intergrens Matrix**

	Starting Phase						
	A	B	C	D	E	F	G
A	-	-	7	7	7	-	8
B	-	-	10	10	10	-	11
C	7	7	-	-	-	5	-
D	7	7	-	-	7	-	7
E	7	7	-	4	-	5	-
F	-	-	5	-	5	-	-
G	5	5	-	5	-	-	-

**Phases in Stage**

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

**Stage Diagram**



**Phase Delays**

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	E	Losing	1	1

**Prohibited Stage Change**

From Stage	To Stage		
	1	2	3
1	-	11	10
2	7	-	5
3	7	7	-

Full Input Data And Results

**Give-Way Lane Input Data**

Junction: Talbot Road/Great Stone Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/1 (Great Stone Road North)	4/2 (Right)	1439	0	5/1	1.09	All	2.00	2.00	0.50	2	2.00
3/2 (Talbot Road East)	6/1 (Right)	1439	0	8/1	1.09	All	3.00	2.00	0.50	3	3.00
5/2 (Great Stone Road South)	7/1 (Right)	1439	0	1/1	1.09	To 2/1 (Ahead) To 7/1 (Left)	3.00	-	0.50	3	3.00
8/2 (Talbot Road West)	2/1 (Right)	1439	0	3/1	1.09	All	3.00	-	0.50	3	3.00
				3/2	1.09	To 4/2 (Ahead)					

## Full Input Data And Results

## Lane Input Data

Junction: Talbot Road/Great Stone Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Great Stone Road North)	O	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 2 Ahead	Inf
											Arm 4 Right	35.00
											Arm 7 Left	16.00
2/1 (Great Stone Road South)	U		2	3	60.0	Geom	-	5.00	0.00	Y		
3/1 (Talbot Road East)	U	D	2	3	8.2	Geom	-	2.60	0.00	Y	Arm 2 Left	16.00
											Arm 4 Ahead	Inf
3/2 (Talbot Road East)	O	D	2	3	60.0	Geom	-	2.60	0.00	Y	Arm 4 Ahead	Inf
											Arm 6 Right	35.00
4/1 (Talbot Road West)	U	D	2	3	60.0	Geom	-	2.50	0.00	Y		
4/2 (Talbot Road West)	U		2	3	60.0	Geom	-	2.50	0.00	Y		
5/1 (Great Stone Road South)	U	B	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 4 Left	16.00
											Arm 6 Ahead	Inf
5/2 (Great Stone Road South)	O	B	2	3	60.0	Geom	-	3.50	0.00	N	Arm 7 Right	35.00
6/1 (Talbot Road North)	U		2	3	60.0	Geom	-	3.00	0.00	Y		
7/1 (Talbot Road East)	U		2	3	60.0	Geom	-	3.00	0.00	Y		
8/1 (Talbot Road West)	U	C	2	3	60.0	Geom	-	2.60	0.00	Y	Arm 6 Left	16.00
											Arm 7 Ahead	Inf
8/2 (Talbot Road West)	O	E	2	3	6.7	Geom	-	2.60	0.00	Y	Arm 2 Right	35.00

## Full Input Data And Results

**Traffic Flow Groups**

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Peak Baseline'	07:45	08:45	01:00	
2: 'PM Peak Baseline'	16:30	17:30	01:00	
3: 'AM Peak plus Development'	07:45	08:45	01:00	
4: 'PM Peak plus Development'	16:30	17:30	01:00	

**Scenario 1: 'AM Peak'** (FG1: 'AM Peak Baseline', Plan 1: 'Network Control Plan 1')

**Traffic Flows, Desired****Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	65	219	40	324
	B	76	0	75	256	407
	C	278	204	0	213	695
	D	80	583	246	0	909
	Tot.	434	852	540	509	2335

**Traffic Lane Flows**

Lane	Scenario 1: AM Peak
<b>Junction: Talbot Road/Great Stone Road</b>	
1/1	324
2/1	540
3/1 (short)	75
3/2 (with short)	407(In) 332(Out)
4/1	0
4/2	509
5/1	491
5/2	204
6/1	434
7/1	852
8/1 (with short)	909(In) 663(Out)
8/2 (short)	246

Full Input Data And Results

**Lane Saturation Flows**

Junction: Talbot Road/Great Stone Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Great Stone Road North)	3.75	0.00	Y	Arm 2 Ahead	Inf	67.6 %	1943	1943
				Arm 4 Right	35.00	12.3 %		
				Arm 7 Left	16.00	20.1 %		
2/1 (Great Stone Road South)	5.00	0.00	Y				2115	2115
3/1 (Talbot Road East)	2.60	0.00	Y	Arm 2 Left	16.00	100.0 %	1714	1714
				Arm 4 Ahead	Inf	0.0 %		
3/2 (Talbot Road East)	2.60	0.00	Y	Arm 4 Ahead	Inf	77.1 %	1857	1857
				Arm 6 Right	35.00	22.9 %		
4/1 (Talbot Road West)	2.50	0.00	Y				1865	1865
4/2 (Talbot Road West)	2.50	0.00	Y				1865	1865
5/1 (Great Stone Road South)	3.20	0.00	Y	Arm 4 Left	16.00	43.4 %	1859	1859
				Arm 6 Ahead	Inf	56.6 %		
5/2 (Great Stone Road South)	3.50	0.00	N	Arm 7 Right	35.00	100.0 %	2018	2018
6/1 (Talbot Road North)	3.00	0.00	Y				1915	1915
7/1 (Talbot Road East)	3.00	0.00	Y				1915	1915
8/1 (Talbot Road West)	2.60	0.00	Y	Arm 6 Left	16.00	12.1 %	1854	1854
				Arm 7 Ahead	Inf	87.9 %		
8/2 (Talbot Road West)	2.60	0.00	Y	Arm 2 Right	35.00	100.0 %	1798	1798

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

**Traffic Flows, Desired**

**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	24	327	60	411
	B	34	0	156	636	826
	C	150	70	0	267	487
	D	42	213	319	0	574
	Tot.	226	307	802	963	2298

## Full Input Data And Results

**Traffic Lane Flows**

Lane	Scenario 2: PM Peak
<b>Junction: Talbot Road/Great Stone Road</b>	
1/1	411
2/1	802
3/1 (short)	156
3/2 (with short)	826(In) 670(Out)
4/1	0
4/2	963
5/1	417
5/2	70
6/1	226
7/1	307
8/1 (with short)	574(In) 255(Out)
8/2 (short)	319



Full Input Data And Results

**Lane Saturation Flows**

Junction: Talbot Road/Great Stone Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Great Stone Road North)	3.75	0.00	Y	Arm 2 Ahead	Inf	79.6 %	1967	1967
				Arm 4 Right	35.00	14.6 %		
				Arm 7 Left	16.00	5.8 %		
2/1 (Great Stone Road South)	5.00	0.00	Y				2115	2115
3/1 (Talbot Road East)	2.60	0.00	Y	Arm 2 Left	16.00	100.0 %	1714	1714
				Arm 4 Ahead	Inf	0.0 %		
3/2 (Talbot Road East)	2.60	0.00	Y	Arm 4 Ahead	Inf	94.9 %	1871	1871
				Arm 6 Right	35.00	5.1 %		
4/1 (Talbot Road West)	2.50	0.00	Y				1865	1865
4/2 (Talbot Road West)	2.50	0.00	Y				1865	1865
5/1 (Great Stone Road South)	3.20	0.00	Y	Arm 4 Left	16.00	64.0 %	1825	1825
				Arm 6 Ahead	Inf	36.0 %		
5/2 (Great Stone Road South)	3.50	0.00	N	Arm 7 Right	35.00	100.0 %	2018	2018
6/1 (Talbot Road North)	3.00	0.00	Y				1915	1915
7/1 (Talbot Road East)	3.00	0.00	Y				1915	1915
8/1 (Talbot Road West)	2.60	0.00	Y	Arm 6 Left	16.00	16.5 %	1846	1846
				Arm 7 Ahead	Inf	83.5 %		
8/2 (Talbot Road West)	2.60	0.00	Y	Arm 2 Right	35.00	100.0 %	1798	1798

**Scenario 3: 'AM Peak plus Development'** (FG3: 'AM Peak plus Development', Plan 1: 'Network Control Plan 1')

**Traffic Flows, Desired**

**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	65	219	40	324
	B	76	0	76	256	408
	C	278	204	0	213	695
	D	80	583	246	0	909
	Tot.	434	852	541	509	2336

## Full Input Data And Results

**Traffic Lane Flows**

Lane	Scenario 3: AM Peak plus Development
<b>Junction: Talbot Road/Great Stone Road</b>	
1/1	324
2/1	541
3/1 (short)	76
3/2 (with short)	408(In) 332(Out)
4/1	0
4/2	509
5/1	491
5/2	204
6/1	434
7/1	852
8/1 (with short)	909(In) 663(Out)
8/2 (short)	246

Full Input Data And Results

**Lane Saturation Flows**

Junction: Talbot Road/Great Stone Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Great Stone Road North)	3.75	0.00	Y	Arm 2 Ahead	Inf	67.6 %	1943	1943
				Arm 4 Right	35.00	12.3 %		
				Arm 7 Left	16.00	20.1 %		
2/1 (Great Stone Road South)	5.00	0.00	Y				2115	2115
3/1 (Talbot Road East)	2.60	0.00	Y	Arm 2 Left	16.00	100.0 %	1714	1714
				Arm 4 Ahead	Inf	0.0 %		
3/2 (Talbot Road East)	2.60	0.00	Y	Arm 4 Ahead	Inf	77.1 %	1857	1857
				Arm 6 Right	35.00	22.9 %		
4/1 (Talbot Road West)	2.50	0.00	Y				1865	1865
4/2 (Talbot Road West)	2.50	0.00	Y				1865	1865
5/1 (Great Stone Road South)	3.20	0.00	Y	Arm 4 Left	16.00	43.4 %	1859	1859
				Arm 6 Ahead	Inf	56.6 %		
5/2 (Great Stone Road South)	3.50	0.00	N	Arm 7 Right	35.00	100.0 %	2018	2018
6/1 (Talbot Road North)	3.00	0.00	Y				1915	1915
7/1 (Talbot Road East)	3.00	0.00	Y				1915	1915
8/1 (Talbot Road West)	2.60	0.00	Y	Arm 6 Left	16.00	12.1 %	1854	1854
				Arm 7 Ahead	Inf	87.9 %		
8/2 (Talbot Road West)	2.60	0.00	Y	Arm 2 Right	35.00	100.0 %	1798	1798

**Scenario 4: 'PM Peak plus Development'** (FG4: 'PM Peak plus Development', Plan 1: 'Network Control Plan 1')

**Traffic Flows, Desired**

**Desired Flow :**

	Destination					
	A	B	C	D	Tot.	
Origin	A	0	24	327	60	411
	B	34	0	156	636	826
	C	150	70	0	267	487
	D	42	213	319	0	574
	Tot.	226	307	802	963	2298

## Full Input Data And Results

**Traffic Lane Flows**

Lane	Scenario 4: PM Peak plus Development
<b>Junction: Talbot Road/Great Stone Road</b>	
1/1	411
2/1	802
3/1 (short)	156
3/2 (with short)	826(In) 670(Out)
4/1	0
4/2	963
5/1	417
5/2	70
6/1	226
7/1	307
8/1 (with short)	574(In) 255(Out)
8/2 (short)	319

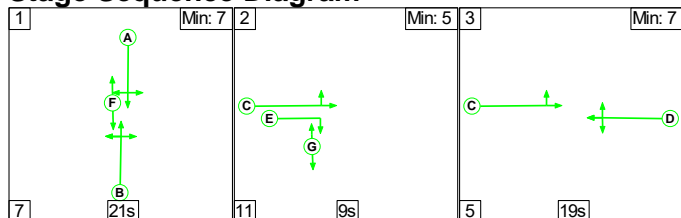
Full Input Data And Results

Lane Saturation Flows

Junction: Talbot Road/Great Stone Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Great Stone Road North)	3.75	0.00	Y	Arm 2 Ahead	Inf	79.6 %	1967	1967
				Arm 4 Right	35.00	14.6 %		
				Arm 7 Left	16.00	5.8 %		
2/1 (Great Stone Road South)	5.00	0.00	Y				2115	2115
3/1 (Talbot Road East)	2.60	0.00	Y	Arm 2 Left	16.00	100.0 %	1714	1714
				Arm 4 Ahead	Inf	0.0 %		
3/2 (Talbot Road East)	2.60	0.00	Y	Arm 4 Ahead	Inf	94.9 %	1871	1871
				Arm 6 Right	35.00	5.1 %		
4/1 (Talbot Road West)	2.50	0.00	Y				1865	1865
4/2 (Talbot Road West)	2.50	0.00	Y				1865	1865
5/1 (Great Stone Road South)	3.20	0.00	Y	Arm 4 Left	16.00	64.0 %	1825	1825
				Arm 6 Ahead	Inf	36.0 %		
5/2 (Great Stone Road South)	3.50	0.00	N	Arm 7 Right	35.00	100.0 %	2018	2018
6/1 (Talbot Road North)	3.00	0.00	Y				1915	1915
7/1 (Talbot Road East)	3.00	0.00	Y				1915	1915
8/1 (Talbot Road West)	2.60	0.00	Y	Arm 6 Left	16.00	16.5 %	1846	1846
				Arm 7 Ahead	Inf	83.5 %		
8/2 (Talbot Road West)	2.60	0.00	Y	Arm 2 Right	35.00	100.0 %	1798	1798

Scenario 1: 'AM Peak' (FG1: 'AM Peak Baseline', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

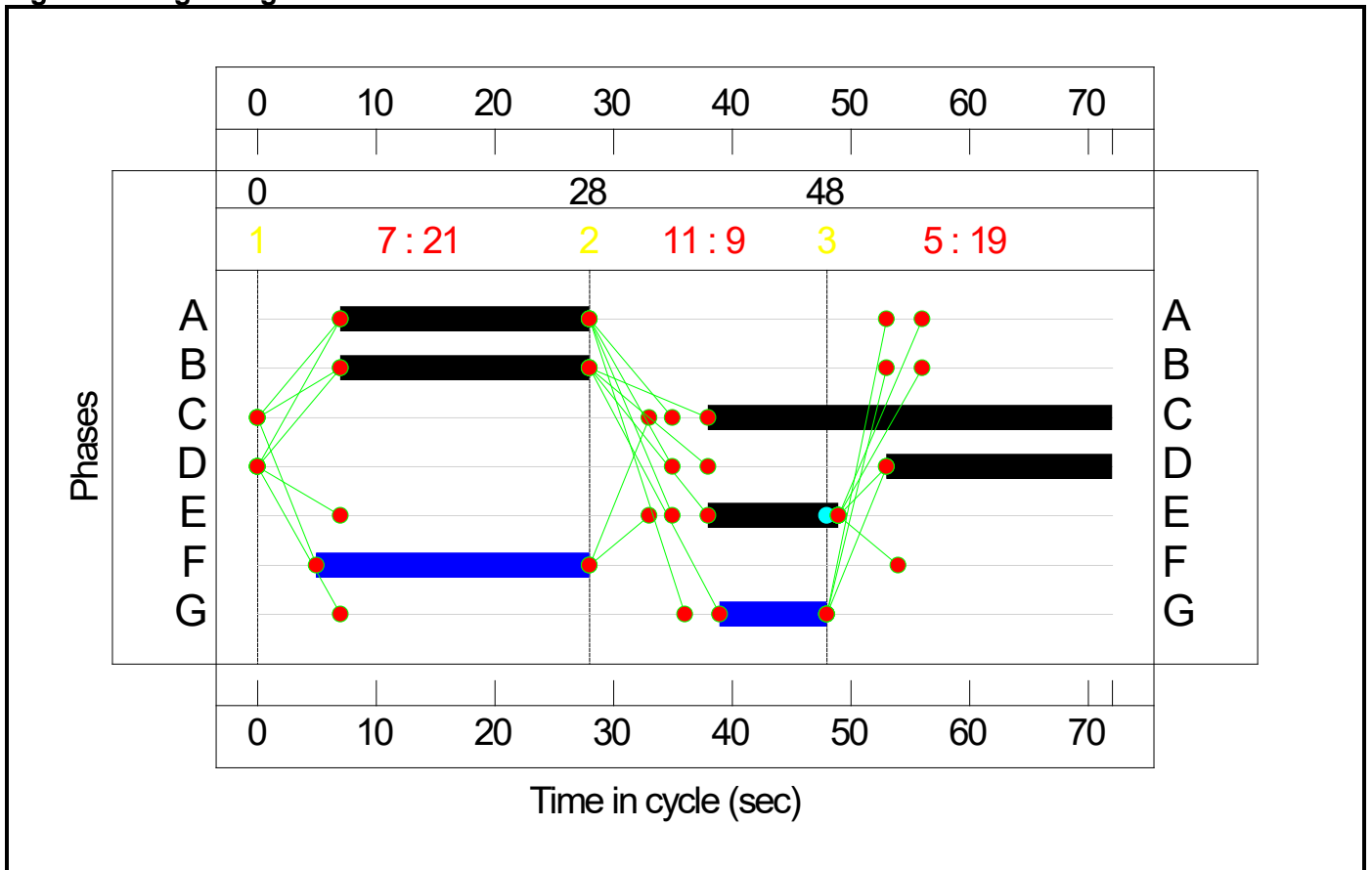


Stage Timings

Stage	1	2	3
Duration	21	9	19
Change Point	0	28	48

Full Input Data And Results

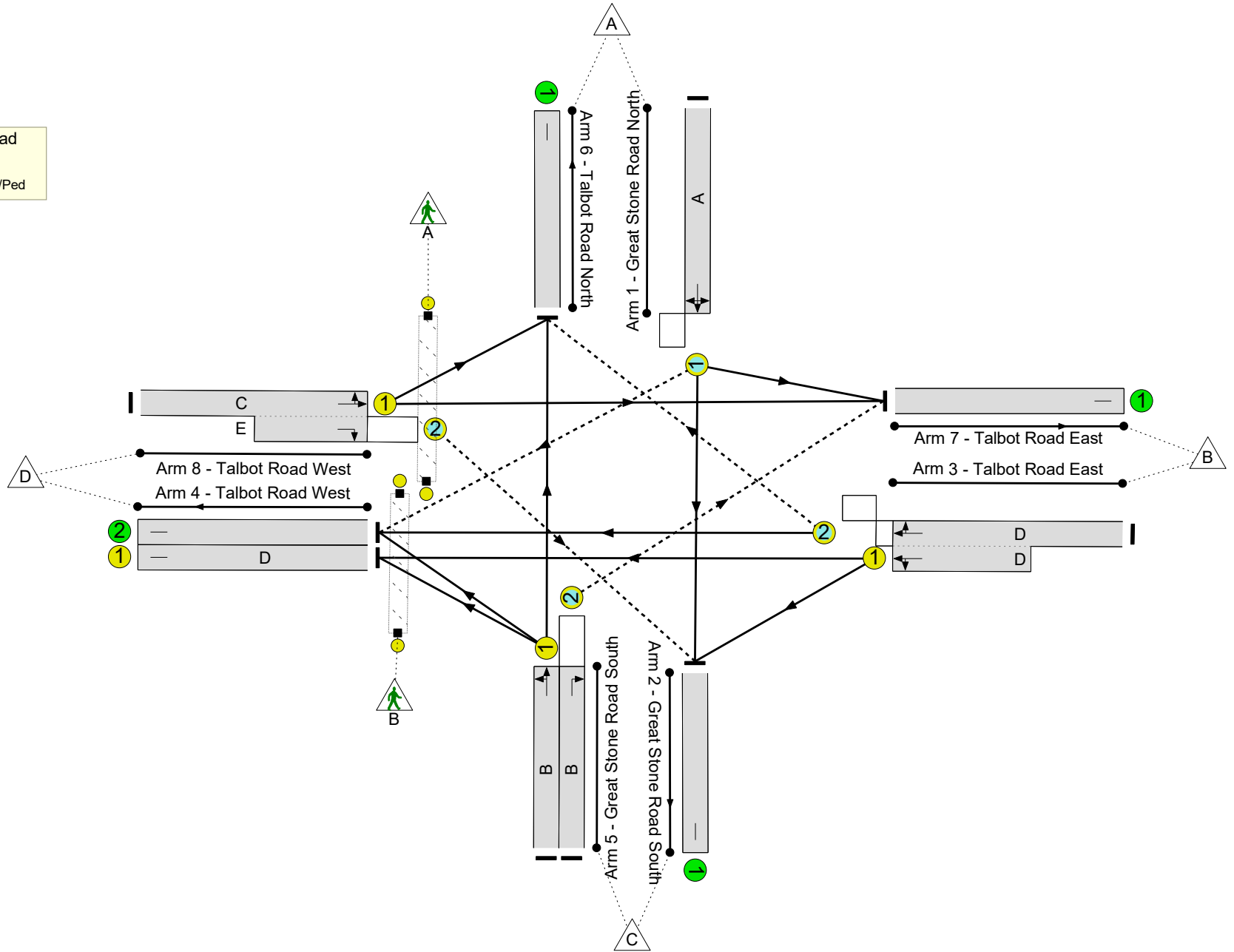
Signal Timings Diagram



Full Input Data And Results  
**Network Layout Diagram**

Full Input Data And Results

Talbot Road/Great Stone Road  
PRC: 2.0 %  
Total Traffic Delay: 25.3 pcuHr  
Ave. Route Delay Per Ped: 0.0 s/Ped





## Full Input Data And Results

## Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Great Stone Road Trafford	-	-	N/A	-	-		-	-	-	-	-	-	88.2%
Talbot Road/Great Stone Road	-	-	N/A	-	-		-	-	-	-	-	-	88.2%
1/1	Great Stone Road North Ahead Right Left	O	N/A	N/A	A		1	21	-	324	1943	577	56.2%
2/1	Great Stone Road South	U	N/A	N/A	-		-	-	-	540	2115	2115	25.5%
3/2+3/1	Talbot Road East Left Ahead Right	O+U	N/A	N/A	D		1	19	-	407	1857:1714	489+111	67.8 : 67.8%
4/1	Talbot Road West	U	N/A	N/A	D		1	19	-	0	1865	518	0.0%
4/2	Talbot Road West	U	N/A	N/A	-		-	-	-	509	1865	1865	27.3%
5/1	Great Stone Road South Left Ahead	U	N/A	N/A	B		1	21	-	491	1859	568	86.4%
5/2	Great Stone Road South Right	O	N/A	N/A	B		1	21	-	204	2018	307	66.5%
6/1	Talbot Road North	U	N/A	N/A	-		-	-	-	434	1915	1915	22.7%
7/1	Talbot Road East	U	N/A	N/A	-		-	-	-	852	1915	1915	44.5%
8/1+8/2	Talbot Road West Right Left Ahead	U+O	N/A	N/A	C E		1	34:11	-	909	1854:1798	752+279	88.2 : 88.2%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	F		1	23	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	9	-	0	-	0	0.0%

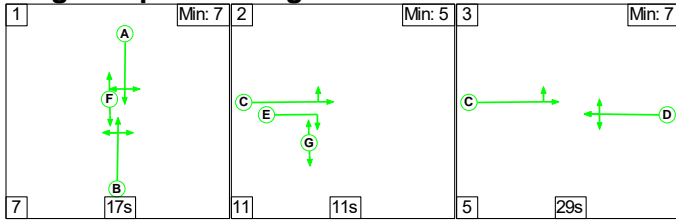
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
<b>Network: Great Stone Road Trafford</b>	-	-	303	225	38	14.4	10.1	0.8	25.3	-	-	-	-
<b>Talbot Road/Great Stone Road</b>	-	-	303	225	38	14.4	10.1	0.8	25.3	-	-	-	-
1/1	324	324	40	0	0	1.9	0.6	0.1	2.7	29.5	5.4	0.6	6.0
2/1	540	540	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
3/2+3/1	407	407	75	0	1	2.5	1.0	0.1	3.7	32.7	5.8	1.0	6.9
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	509	509	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
5/1	491	491	-	-	-	3.2	3.0	-	6.2	45.3	9.1	3.0	12.1
5/2	204	204	188	0	16	1.2	1.0	0.5	2.6	46.7	3.7	1.0	4.7
6/1	434	434	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/1	852	852	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
8/1+8/2	909	909	0	225	21	5.6	3.5	0.0	9.2	36.3	13.2	3.5	16.7
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
C1      PRC for Signalled Lanes (%): 2.0      Total Delay for Signalled Lanes (pcuHr): 24.36      Cycle Time (s): 72 PRC Over All Lanes (%): 2.0      Total Delay Over All Lanes(pcuHr): 25.26													

Full Input Data And Results

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

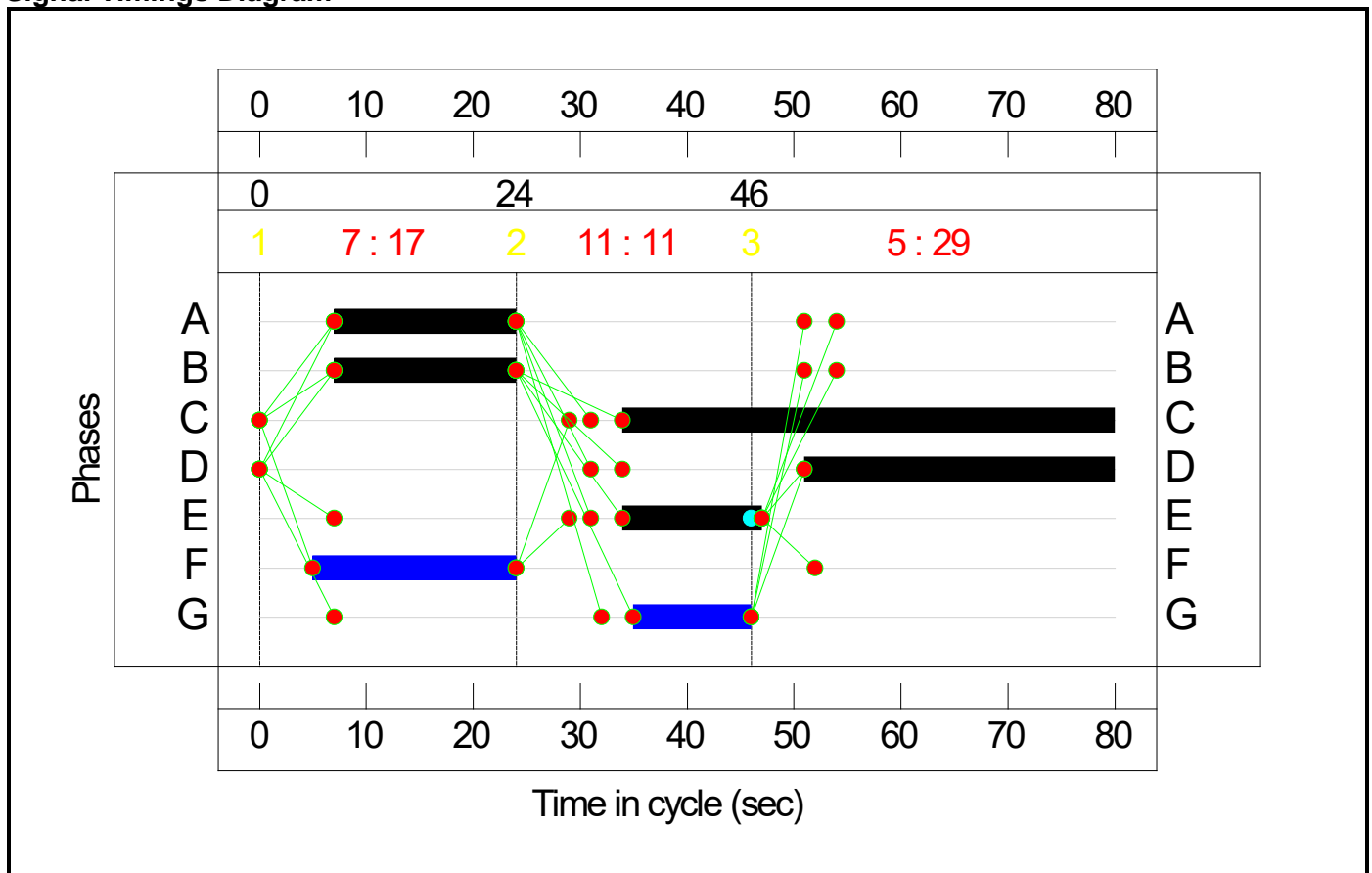
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	17	11	29
Change Point	0	24	46

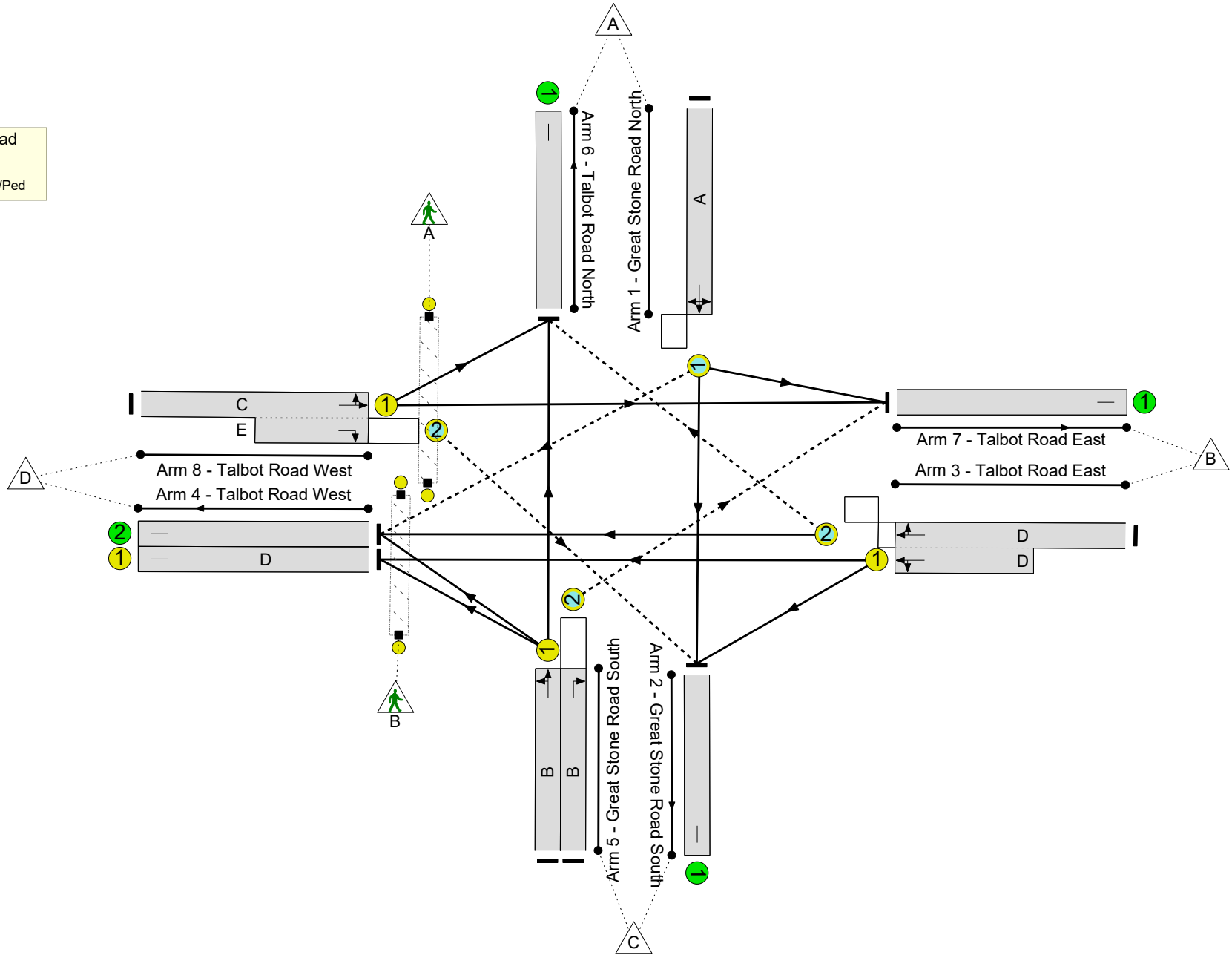
Signal Timings Diagram



Full Input Data And Results  
**Network Layout Diagram**

Full Input Data And Results

Talbot Road/Great Stone Road  
PRC: -15.3 %  
Total Traffic Delay: 74.4 pcuHr  
Ave. Route Delay Per Ped: 0.0 s/Ped



## Full Input Data And Results

## Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Great Stone Road Trafford	-	-	N/A	-	-		-	-	-	-	-	-	103.8%
Talbot Road/Great Stone Road	-	-	N/A	-	-		-	-	-	-	-	-	103.8%
1/1	Great Stone Road North Ahead Right Left	O	N/A	N/A	A		1	17	-	411	1967	443	92.9%
2/1	Great Stone Road South	U	N/A	N/A	-		-	-	-	802	2115	2115	37.4%
3/2+3/1	Talbot Road East Left Ahead Right	O+U	N/A	N/A	D		1	29	-	826	1871:1714	646+150	103.8 : 103.8%
4/1	Talbot Road West	U	N/A	N/A	D		1	29	-	0	1865	699	0.0%
4/2	Talbot Road West	U	N/A	N/A	-		-	-	-	963	1865	1865	50.2%
5/1	Great Stone Road South Left Ahead	U	N/A	N/A	B		1	17	-	417	1825	411	101.6%
5/2	Great Stone Road South Right	O	N/A	N/A	B		1	17	-	70	2018	135	51.9%
6/1	Talbot Road North	U	N/A	N/A	-		-	-	-	226	1915	1915	11.6%
7/1	Talbot Road East	U	N/A	N/A	-		-	-	-	307	1915	1915	16.0%
8/1+8/2	Talbot Road West Right Left Ahead	U+O	N/A	N/A	C E		1	46:13	-	574	1846:1798	252+315	101.4 : 101.4%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	F		1	19	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	0	0.0%

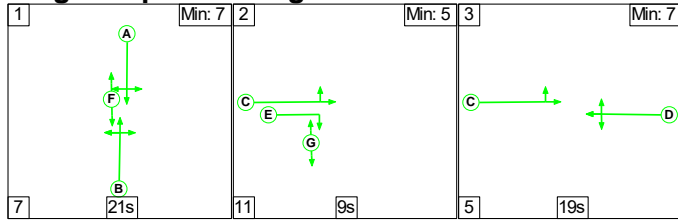
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
<b>Network: Great Stone Road Trafford</b>	-	-	51	247	179	17.7	56.2	0.5	74.4	-	-	-	-
<b>Talbot Road/Great Stone Road</b>	-	-	51	247	179	17.7	56.2	0.5	74.4	-	-	-	-
1/1	411	411	0	0	60	3.5	5.0	0.2	8.6	75.4	8.9	5.0	13.9
2/1	792	792	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/2+3/1	826	796	32	0	1	6.3	23.7	0.0	30.0	130.8	16.9	23.7	40.6
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	936	936	-	-	-	0.0	0.5	-	0.5	1.9	0.0	0.5	0.5
5/1	417	411	-	-	-	3.8	11.9	-	15.8	136.2	9.4	11.9	21.3
5/2	70	70	20	0	50	0.5	0.5	0.3	1.3	66.7	1.2	0.5	1.8
6/1	222	222	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/1	307	307	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1+8/2	574	570	0	247	67	3.6	14.1	0.0	17.7	111.2	7.7	14.1	21.8
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):	-15.3	Total Delay for Signalled Lanes (pcuHr):	73.41	Cycle Time (s):	80					
			PRC Over All Lanes (%):	-15.3	Total Delay Over All Lanes(pcuHr):	74.37							

Full Input Data And Results

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

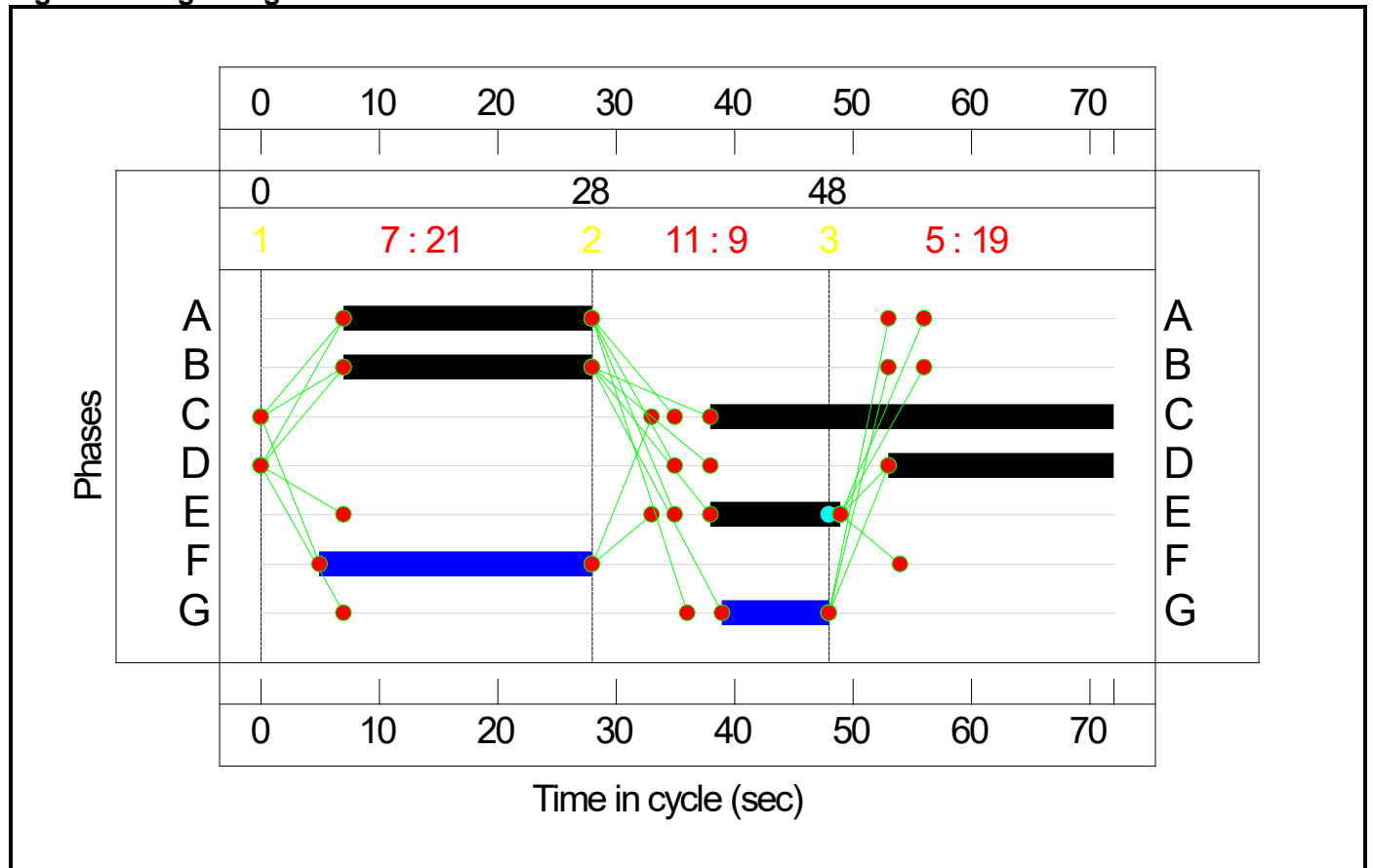
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	21	9	19
Change Point	0	28	48

Signal Timings Diagram

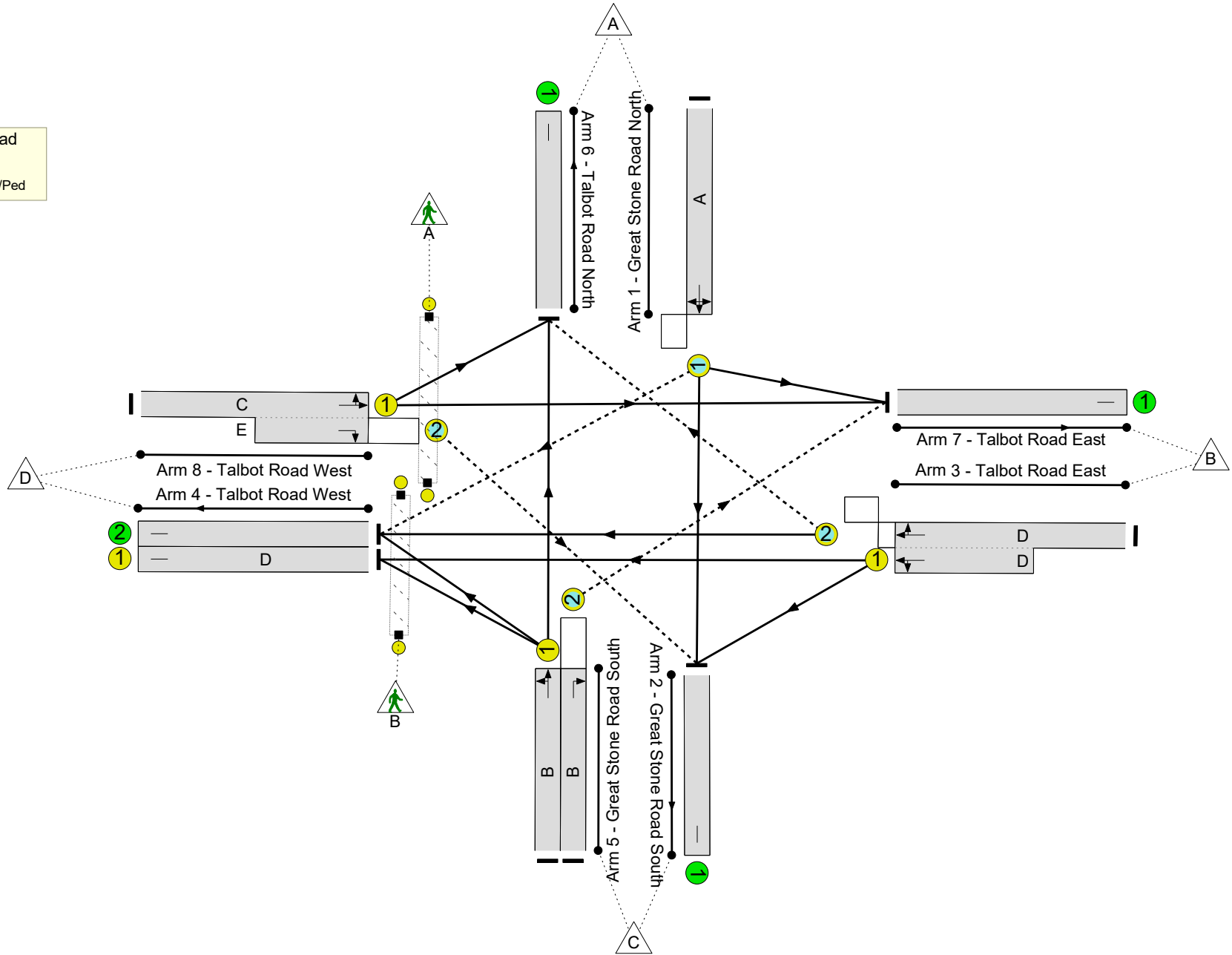




Full Input Data And Results  
**Network Layout Diagram**

Full Input Data And Results

Talbot Road/Great Stone Road  
PRC: 2.0 %  
Total Traffic Delay: 25.3 pcuHr  
Ave. Route Delay Per Ped: 0.0 s/Ped



## Full Input Data And Results

## Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Great Stone Road Trafford	-	-	N/A	-	-		-	-	-	-	-	-	88.2%
Talbot Road/Great Stone Road	-	-	N/A	-	-		-	-	-	-	-	-	88.2%
1/1	Great Stone Road North Ahead Right Left	O	N/A	N/A	A		1	21	-	324	1943	577	56.2%
2/1	Great Stone Road South	U	N/A	N/A	-		-	-	-	541	2115	2115	25.6%
3/2+3/1	Talbot Road East Left Ahead Right	O+U	N/A	N/A	D		1	19	-	408	1857:1714	489+112	67.9 : 67.9%
4/1	Talbot Road West	U	N/A	N/A	D		1	19	-	0	1865	518	0.0%
4/2	Talbot Road West	U	N/A	N/A	-		-	-	-	509	1865	1865	27.3%
5/1	Great Stone Road South Left Ahead	U	N/A	N/A	B		1	21	-	491	1859	568	86.4%
5/2	Great Stone Road South Right	O	N/A	N/A	B		1	21	-	204	2018	307	66.5%
6/1	Talbot Road North	U	N/A	N/A	-		-	-	-	434	1915	1915	22.7%
7/1	Talbot Road East	U	N/A	N/A	-		-	-	-	852	1915	1915	44.5%
8/1+8/2	Talbot Road West Right Left Ahead	U+O	N/A	N/A	C E		1	34:11	-	909	1854:1798	752+279	88.2 : 88.2%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	F		1	23	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	9	-	0	-	0	0.0%

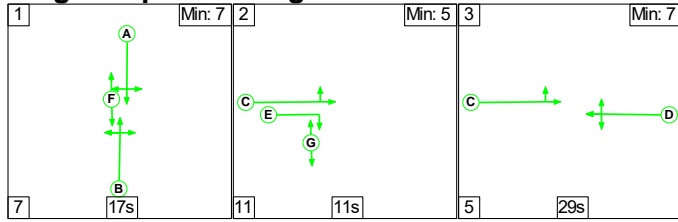
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
<b>Network: Great Stone Road Trafford</b>	-	-	303	225	38	14.4	10.1	0.8	25.3	-	-	-	-
<b>Talbot Road/Great Stone Road</b>	-	-	303	225	38	14.4	10.1	0.8	25.3	-	-	-	-
1/1	324	324	40	0	0	1.9	0.6	0.1	2.7	29.5	5.4	0.6	6.0
2/1	541	541	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2
3/2+3/1	408	408	75	0	1	2.5	1.0	0.1	3.7	32.7	5.8	1.0	6.9
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	509	509	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
5/1	491	491	-	-	-	3.2	3.0	-	6.2	45.3	9.1	3.0	12.1
5/2	204	204	188	0	16	1.2	1.0	0.5	2.6	46.7	3.7	1.0	4.7
6/1	434	434	-	-	-	0.0	0.1	-	0.1	1.2	0.0	0.1	0.1
7/1	852	852	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
8/1+8/2	909	909	0	225	21	5.6	3.5	0.0	9.2	36.3	13.2	3.5	16.7
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
C1                      PRC for Signalled Lanes (%): 2.0                      Total Delay for Signalled Lanes (pcuHr): 24.36                      Cycle Time (s): 72 PRC Over All Lanes (%): 2.0                      Total Delay Over All Lanes(pcuHr): 25.27													

Full Input Data And Results

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

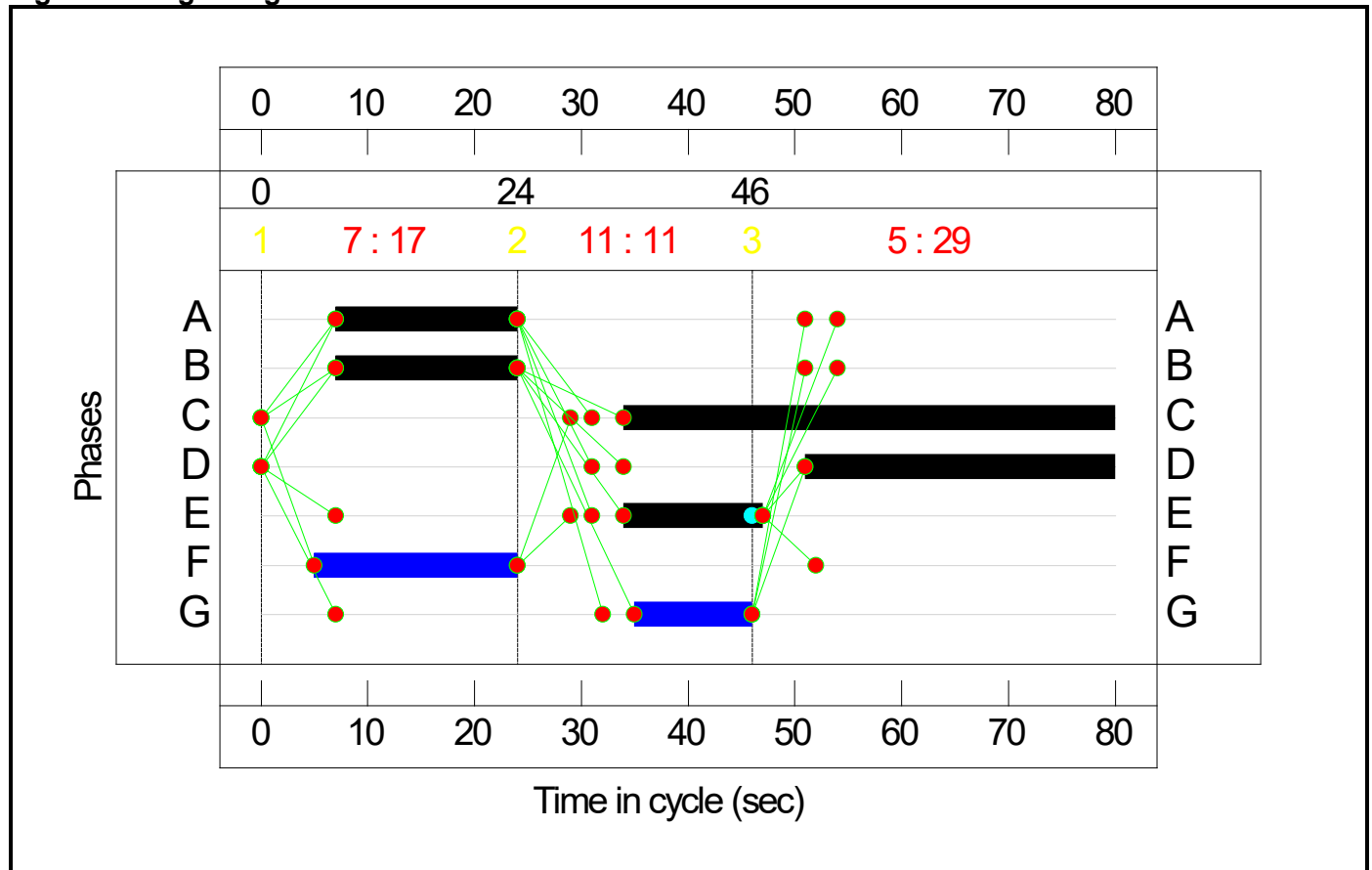
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	17	11	29
Change Point	0	24	46

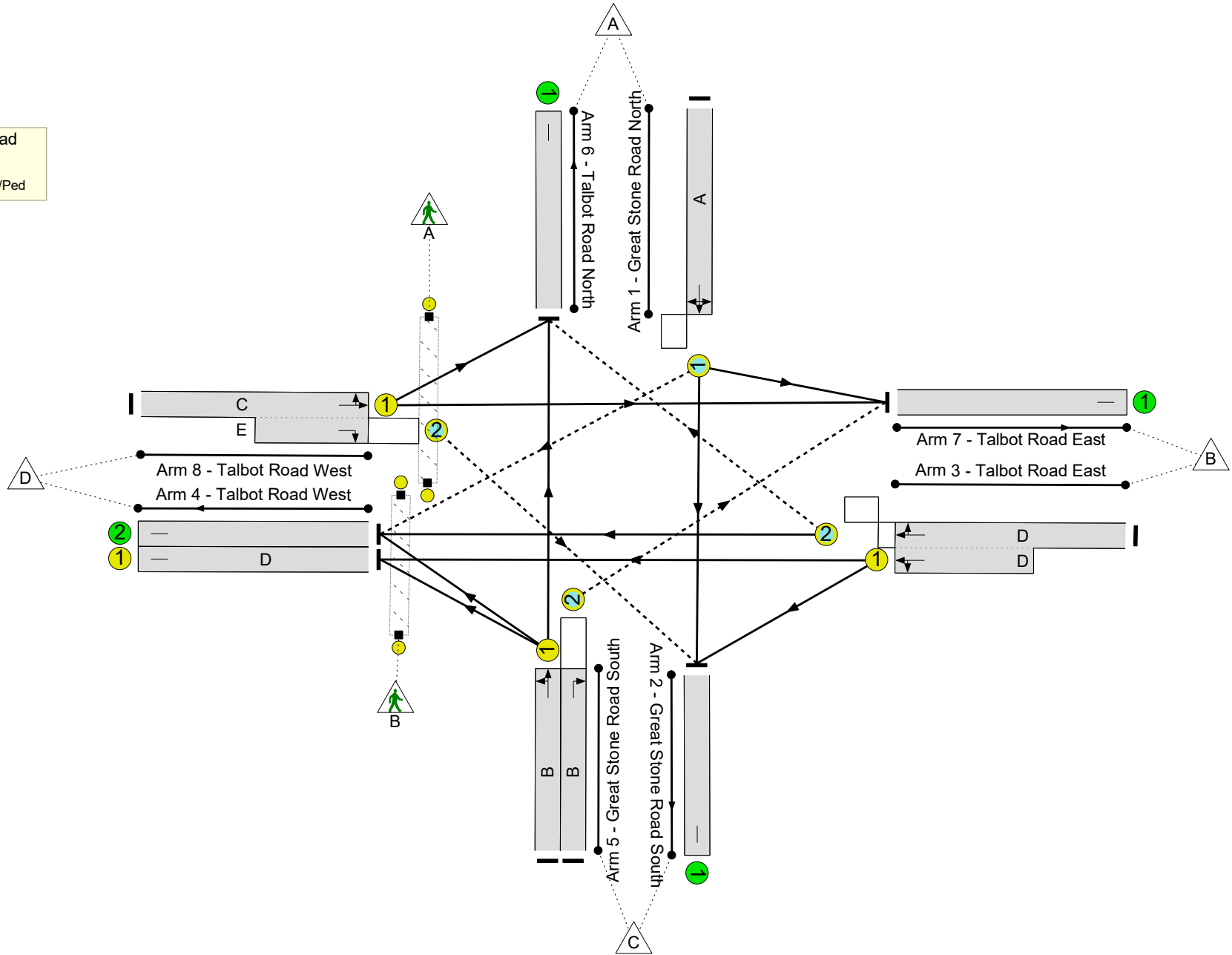
Signal Timings Diagram



Full Input Data And Results  
**Network Layout Diagram**

Full Input Data And Results

Talbot Road/Great Stone Road  
PRC: -15.3 %  
Total Traffic Delay: 74.4 pcuHr  
Ave. Route Delay Per Ped: 0.0 s/Ped



## Full Input Data And Results

## Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Great Stone Road Trafford	-	-	N/A	-	-		-	-	-	-	-	-	103.8%
Talbot Road/Great Stone Road	-	-	N/A	-	-		-	-	-	-	-	-	103.8%
1/1	Great Stone Road North Ahead Right Left	O	N/A	N/A	A		1	17	-	411	1967	443	92.9%
2/1	Great Stone Road South	U	N/A	N/A	-		-	-	-	802	2115	2115	37.4%
3/2+3/1	Talbot Road East Left Ahead Right	O+U	N/A	N/A	D		1	29	-	826	1871:1714	646+150	103.8 : 103.8%
4/1	Talbot Road West	U	N/A	N/A	D		1	29	-	0	1865	699	0.0%
4/2	Talbot Road West	U	N/A	N/A	-		-	-	-	963	1865	1865	50.2%
5/1	Great Stone Road South Left Ahead	U	N/A	N/A	B		1	17	-	417	1825	411	101.6%
5/2	Great Stone Road South Right	O	N/A	N/A	B		1	17	-	70	2018	135	51.9%
6/1	Talbot Road North	U	N/A	N/A	-		-	-	-	226	1915	1915	11.6%
7/1	Talbot Road East	U	N/A	N/A	-		-	-	-	307	1915	1915	16.0%
8/1+8/2	Talbot Road West Right Left Ahead	U+O	N/A	N/A	C E		1	46:13	-	574	1846:1798	252+315	101.4 : 101.4%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	F		1	19	-	0	-	0	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	G		1	11	-	0	-	0	0.0%



Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
<b>Network: Great Stone Road Trafford</b>	-	-	51	247	179	17.7	56.2	0.5	74.4	-	-	-	-
<b>Talbot Road/Great Stone Road</b>	-	-	51	247	179	17.7	56.2	0.5	74.4	-	-	-	-
1/1	411	411	0	0	60	3.5	5.0	0.2	8.6	75.4	8.9	5.0	13.9
2/1	792	792	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/2+3/1	826	796	32	0	1	6.3	23.7	0.0	30.0	130.8	16.9	23.7	40.6
4/1	0	0	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	936	936	-	-	-	0.0	0.5	-	0.5	1.9	0.0	0.5	0.5
5/1	417	411	-	-	-	3.8	11.9	-	15.8	136.2	9.4	11.9	21.3
5/2	70	70	20	0	50	0.5	0.5	0.3	1.3	66.7	1.2	0.5	1.8
6/1	222	222	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
7/1	307	307	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
8/1+8/2	574	570	0	247	67	3.6	14.1	0.0	17.7	111.2	7.7	14.1	21.8
Ped Link: P1	0	0	-	-	-	-	-	-	-	-	-	-	-
Ped Link: P2	0	0	-	-	-	-	-	-	-	-	-	-	-
C1			PRC for Signalled Lanes (%):	-15.3	Total Delay for Signalled Lanes (pcuHr):	73.41	Cycle Time (s):	80					
			PRC Over All Lanes (%):	-15.3	Total Delay Over All Lanes (pcuHr):	74.37							