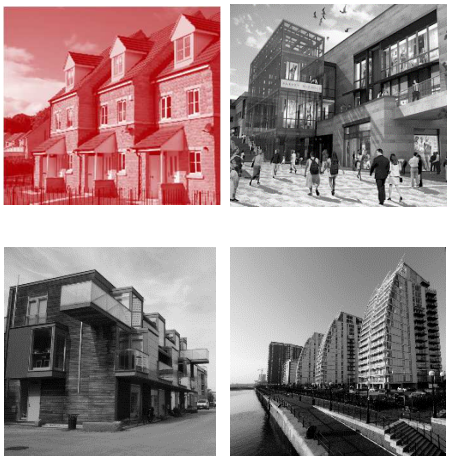
Land off Birmingham Road, Great Barr **06/09/2017**

Reference number MID3833-R001b



ACCESS METHODOLOGY NOTE

HIMOR GROUP

SYSTRA

LAND OFF BIRMINGHAM ROAD, GREAT BARR

ACCESS METHODOLOGY NOTE

IDENTIFICATION TABLE	
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1. INTRODUCTION

1.1 Background

1.1.1 SYSTRA (formerly JMP Consultants Ltd.) has been approached by Himor Group to produce an Access Strategy in relation to a proposed development at the Peak House Farm site in Great Barr.

1.2 Aims and objectives of the report

1.2.1 The aim of this report is to produce an outline Access Strategy to consider a range of access options for the site. Consideration will be taken for sustainable travel modes as well as private motor vehicle.

1.2.2 SYSTRA has considered the best approach to presenting the relevant information and has, therefore, included:

- Likely trip generation, distribution and assignment including identification of key junctions impacts;
- Access arrangements including items such as potential visibility splay requirements;
- Outline design of traffic signal access off the A34 (2D drawing);
- Public transport availability and potential enhancements;
- Links to PROW networks and pedestrian permeability to key services;

1.2.3 In order to provide a greater level of detail, a site visit has been undertaken to examine existing highway conditions in the area and to take photographs to highlight any key constraints.

1.3 Report Structure

1.3.1 This report takes the following structure:

- **Chapter 2** contains a review of the existing site, in particular regards to the existing highway network, sustainable travel availability and local amenities;
- **Chapter 3** contains a summary of the development propositions, alongside a trip generation, distribution and an identification of likely impact at key junctions;
- **Chapter 4** contains a review of the constraints and opportunities, in regards to access, by both sustainable modes and private motor vehicle, presented as annotated schematic diagrams;
- **Chapter 5** contains the conclusion and recommendations.

1.3.2 The appendices also present:

- Detailed outputs of trip generation, distribution and junction analysis
- Outline designs for site access

2. BASELINE REVIEW

2.1 Site context

2.1.1 The proposed development site is located near the north-east border of the Sandwell Metropolitan Borough Council (SMBC) area, between the Great Barr Yew Tree areas of the West Midlands. The site location is shown in **Figure 1**.

2.1.2 The site is currently undeveloped, therefore does not currently generate any trips to or from the site. The land is divided into open fields which appear to be used for agricultural use. The eastern extent of the site is bordered by a residential area. To the south, the site lies adjacent to the Q3 Academy School. The west of the site is bound by the Aston University Recreation Ground; a large outdoor sports facility with a number of multiuse sports pitches.

2.1.3 The Great Barr area is largely a residential suburb, located between the employment hubs of Birmingham, Walsall, Wolverhampton and West Bromwich. The majority of existing residential units are either detached or semi-detached properties, built in the early 20th century.

Figure 1. Regional Location Plan

2.2 Highways

2.2.1 The north of the site is constrained by the A34/Birmingham Road. This is a dual carriageway 'Red Route' which links Birmingham and Walsall. There is currently no direct access to the site from this road. The road is subject to a 30mph speed limit. Traffic count data for the A34/Birmingham Road adjacent to the site was obtained from the Department of Transport. The data shows that traffic levels along the route have been relatively static for the past 12 year period, with a slight reduction in the overall number of vehicles using the route. The average annual daily traffic flow is approximately 25,000 vehicles, with HGVs making up 3% of vehicles.

2.2.2 Wilderness Lane forms the south-eastern boundary of the site, as well as providing access from the A34/Birmingham Road to the adjacent residential area. There is a footway that runs alongside a green verge on the eastern side of Wilderness Lane. The properties along the lane have adequate off-street parking and on-street parking seems to be limited to visitors to the property and adjacent school. The lane is subject to a standard 30mph speed limit; however this reduces to a 20mph 'safe school zone' at the southern extent of the site. This is supported by the presence of road markings, width reducing features and speed cushions.

2.2.3 Wilderness Lane, and linking roads, provides a route that links the A34/Birmingham Road to the A4041 Newton Road. This enables vehicles to bypass the M6 junction 7. It is likely that the route is primarily used by through-traffic at peak hours due to the circuitous routing and difficult turning manoeuvres required, making it undesirable at lower traffic periods. Southbound through-traffic, at present, must make a U-turn on the A34/Birmingham Road in order to access Wilderness Lane.

2.3 Sustainable Transport

2.3.1 The following section outlines the sustainable travel options that are currently available at the development site. The site is located between a number of large employment and leisure hubs, with numerous, frequent transport links.

Walking

Table 1. Walking destinations from centre of site

DESTINATION	WALKING DISTANCE / KM (APPROX.)
Bus stops (Grove Vale, before Peak House Rd)	0.30
Bus stops (Grove Vale, opp Merrions Close)	0.40
Q3 Academy school	0.75
Aston University Recreation Centre	0.80
Red House park	1.10
Grove Vale Primary School	1.40
Aldi food store	1.60
Holy Name Roman Catholic Primary School	1.60
The Surgery, Great Barr	1.80
Scott Arm Dentist Practice, Great Barr	1.90
GBPH Yew Tree Surgery	1.90
Yew Tree Primary School	2.00
Bus stops (Grove Vale, before Peak House Rd)	0.30

2.3.2 The site is located adjacent to a number of Public Rights of Way (PRoW). A PRoW is present along the southern boundary of the site, which links Wilderness Lane with the Rushall Canal and Yew Tree suburb. Further development of PRoWs in Sandwell Metropolitan Borough (SMB) has been proposed in a Rights of Way Improvement Plan, published in November 2007. There are no existing or proposed PRoWs crossing the development site.

2.3.3 The Rushall Canal can be accessed approximately 200 metres from the south west corner of the site. The adjacent canal network provides a traffic-free link to the eastern suburbs of Walsall, Perry Barr area of Birmingham and Hall Green area of Wednesbury, all within a 2km walking isochrones.

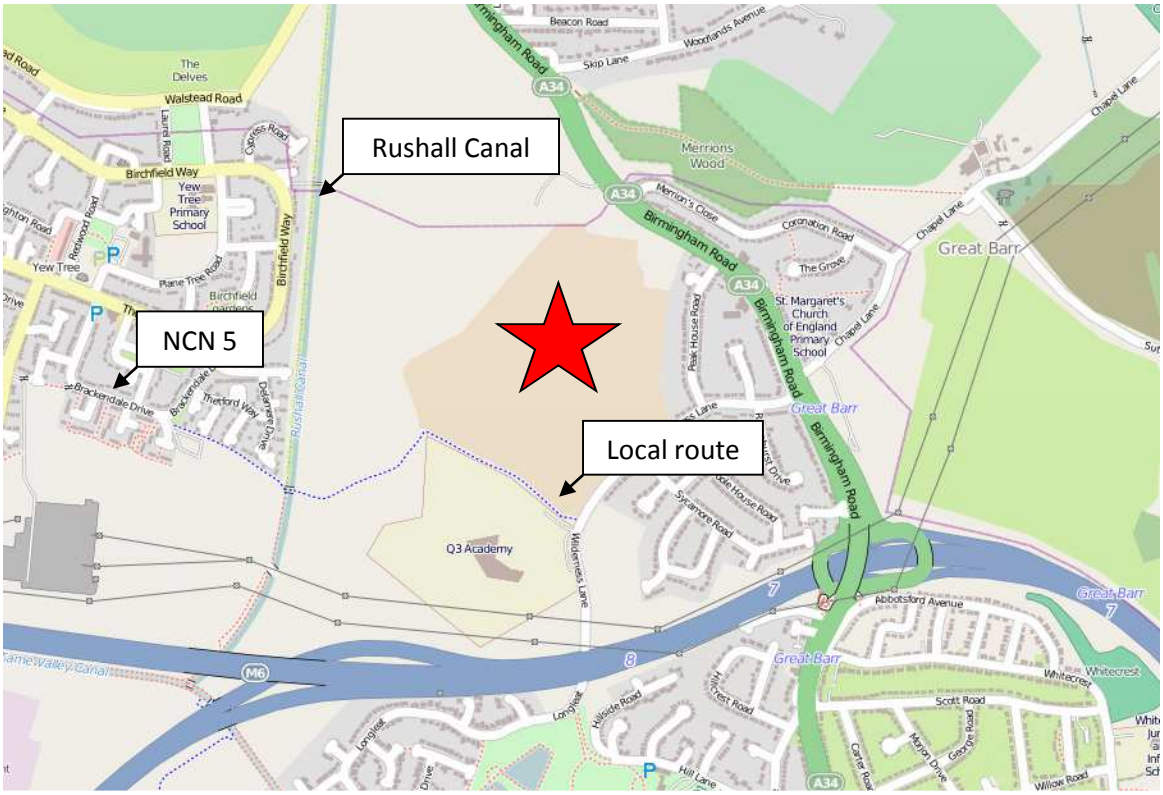
2.3.4 A number of local amenities are accessible on foot within a 2km radius of the centre of the site. A selection is presented in **Table 1**.

Cycling

2.3.5 The site benefits from its close proximity to a long-distance cycle route that forms part of the National Cycle Network. Route 5 is located 200 metres from the south west boundary of the site and provides a signed north-south route across the wider West Midlands area and beyond. To the north, the route utilises low traffic roads to reach the centre of Walsall. To the south, the route continues to Birmingham City Centre.

2.3.6 **Figure 2** shows the proximity of the National Cycle Network, as well as a number of local cycling link routes that pass close to the site boundary. Improvements are also being made to the A34/Walsall road, just south of the site, under the Birmingham Cycle Revolution Programme which will make it easier for cyclists to travel into the centre of Birmingham, along a fast and continuous route.

Figure 2. Site Location Plan – Cycle Routes



Bus

2.3.7 The area around the development site is currently served by a number of high-frequency bus services, that provide a 'turn-up and go' level of service. An extract from Network West Midlands' bus route map has been included in **Figure 3** with the site and nearest bus stops annotated. The frequency of bus services serving these stops has been included in **Table 2**.

2.3.8 Bus stops to the east are located approximately 400-500 metres walk from the centre of the site, on Wilderness Lane and the A34/Birmingham Rd. Stops to the west are currently approximately 1.2 kilometres walk from the centre of the site, via the PRoW at the southern boundary of the site.

2.3.9 Two of the existing bus services, 425 and 401E, are local services that serve the existing residential areas around the development site. The 401E in particular, offers a frequent, almost 'door-to-door' service, for local residents to travel to Walsall, in which connection can be made to regional rail services.

2.3.10 Services which run along the A34 / Birmingham Rd link the site to Walsall and Birmingham. When the 51 and X51 service patterns are combined, a bus arrives in both directions up to every five minutes. This service frequency makes the bus an attractive proposition to local residents with journey times of approximately 15 minutes to Walsall and 25 minutes to Birmingham centres. Travelling south, connection to regional and national rail services can be made at Perry Barr and Birmingham stations.

2.3.11 The 45 service, which runs to the west of the site, provides a frequent link to West Bromwich with buses every 15 minutes, Monday to Friday.

Figure 3. Bus Map (Network West Midlands)

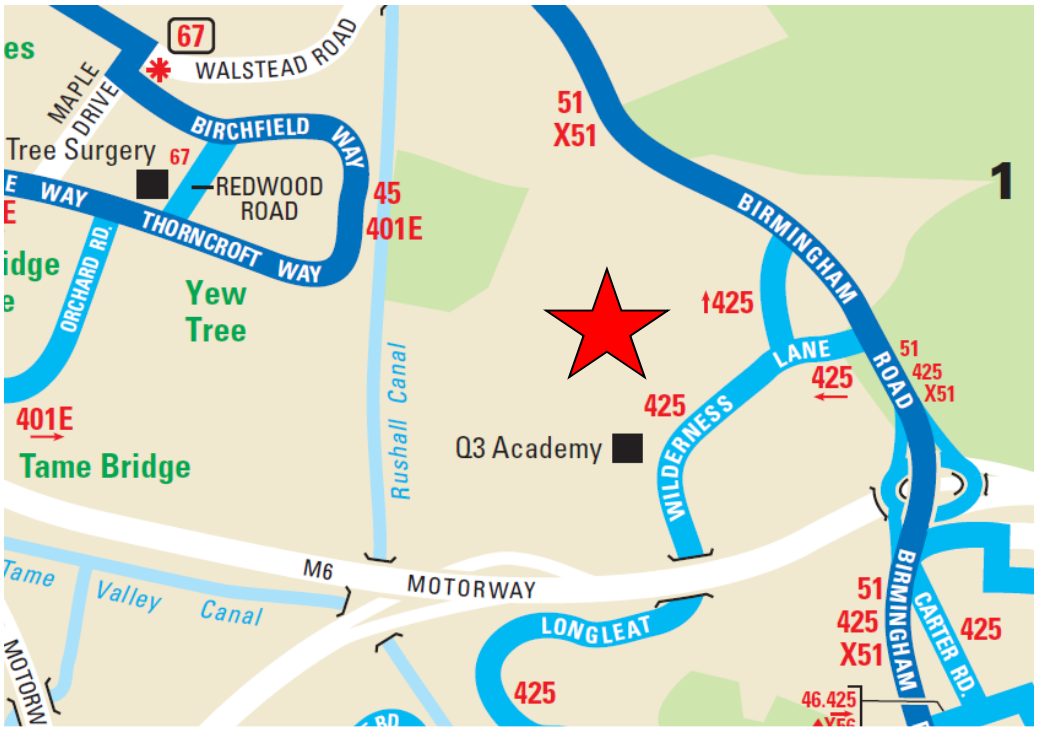


Table 2. Bus Frequency

Nº	ROUTE	DAYTIME FREQUENCY / BUSES PER HOUR		
		MON – FRI	SAT	SUN
51	Birmingham – Great Barr – Perry Barr – Walsall	7	7	4
X51	Birmingham – Great Barr – Walsall – (Cannock)*	3	4	2
425	Gorse Farm – Newton – Grove Vale – Gorse Farm	1	1	0
45	Walsall – Bescot – Grove Vale – Hall End – West Bromwich	4	4	2
401E	Walsall – Bescot – Fullbrook – Delves – Friar Park – Grove Vale	4	4	0

**Limited Service*

Rail

2.3.12 The nearest station to the site is Tame Bridge Parkway, which is on the Rugeley Trent Valley line, and is 3.5km from the centre of the development site. Trains that stop at the station form two principal routes: Wolverhampton – Birmingham New Street – Walsall and Birmingham New Street – Rugeley Trent Valley. The frequencies of these services are presented in **Table 3**.

2.3.13 The station can be accessed on foot or by bicycle via the Tame Valley canal or the Yew Tree residential area, as shown in **Figure 4**. Alternatively, the site has a limited number of parking spaces for rail users.

2.3.14 The line is currently electrified between Birmingham New Street and Walsall. Recent government announcements have secured funding for the extension of electrification to Rugeley Trent Valley. This will likely result in performance improvements, with more reliable journeys encouraging a further uptake in users.

2.3.15 The station is within the Network West Midlands area, allowing integrated travel options, including joint ticketing and discount season tickets for regular users.

Figure 4. Site Location Plan - Nearest Rail Link

Table 3. Tame Bridge Parkway service frequencies

ROUTE (PRINCIPAL STATIONS)	DAYTIME FREQUENCY / TRAINS PER HOUR		
	MON – FRI	SAT	SUN
Wolverhampton Birmingham New Street Tame Bridge Parkway Walsall	4 [06:01 / 23:46]	4 [06:07 / 23:46]	4 [09:37 / 23:37]
Birmingham New Street Tame Bridge Parkway Walsall Cannock Rugeley Trent Valley	4 [06:17 / 23:17]	4 [06:46 / 23:16]	4 [09:52 / 23:29]

Figure 5. Local Rail Map

2.4 Local amenities

2.4.1 The site is well positioned in order to take advantage of a range of local amenities. As well as being discussed in the following section, a number of key locations have been highlighted on the plans that accompany this report.

2.4.2 There are a large number of primary schools located close to the development site. The site is also adjacent to the Q3 Academy School: a purpose built building, opened in 2010. As well as offering secondary education, the site also offers a number of community facilities, including sports hall, gym, events space, restaurant and beauty salon. A list of local schools and their respective travel distances is given below.

Table 4. Local school provision

SCHOOL	WALKING / CYCLE DISTANCE (KM)
Q3 Academy	0.60
Grove Vale Primary School	1.50
Holy Name Roman Catholic School	1.50
Yew Tree Primary School	1.90
Whitecrest Junior and Infant School	2.40
Q3 Academy	0.60

2.4.3 As can be seen in **Table 4**, the schools are located within a reasonable walking and cycling distance from the site, therefore there is a large scope for reducing the number of vehicle trips generated by the site for journeys associated with the 'school run'.

2.4.4 Two local centres have been identified as serving the residents of the proposed site. These are located on Redwood Rd, in the Yew Tree area, and the junction of the A34/Birmingham Road and Queslett Rd / Newton Rd (Scott Arms), in the Great Barr area. Both include provision for grocery shopping, off-licences, post offices, pharmacies and fast food establishments. The latter also offers numerous banking outlets and an Aldi food store.

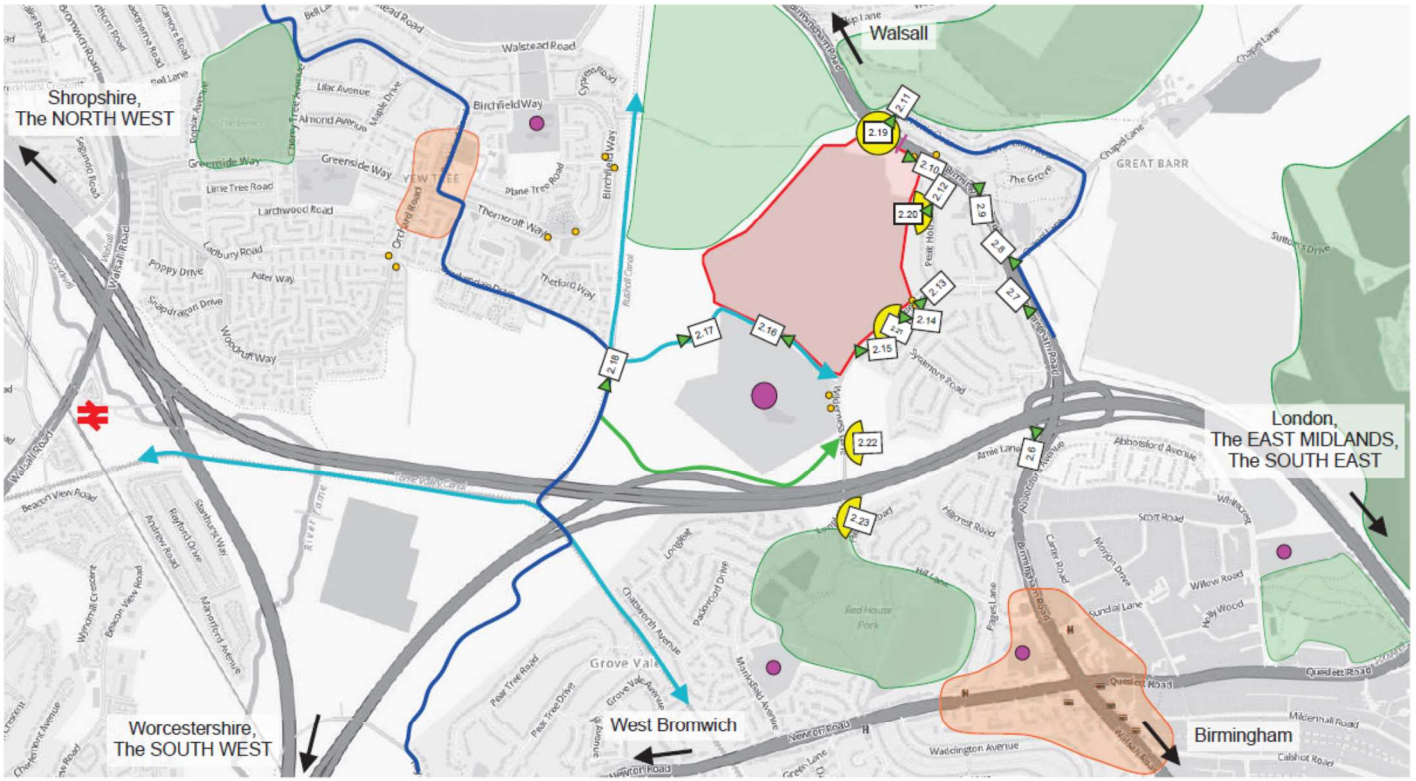
Table 5. Local centre provision

LOCAL CENTRE	DISTANCE FROM CENTRE OF SITE / KM		BUS SERVICES
	WALKING / CYCLING	CAR	
Redwood Rd, Yew Tree	1.7	2.8	-
Scott Arms	1.7	2.9	425, 51, X51

2.4.5 As can be seen in **Table 5**, the walking and cycling routes to the respective centres are significantly shorter than the routes that must be taken by car. This is due to a number of pedestrian- and cycle-only links that already exist adjacent to the site. There is, therefore a large potential for reducing vehicle trips to these local centres through measures such as Travel Plan.

2.5 Site visit

2.5.1 A site visit was carried out on Tuesday 22nd July 2014 between 8am and 10am in order to coincide with the AM peak period. The following section contains a selection of photos taken during this site visit, along with a discussion of relevant points. The location of the included photos can be seen on the plan diagram included on the following page.



Site boundary | School | Footpath | Pedestrian crossing

Bus stop | Local centres | Foot/Cycle path | Photo location with figure number (2.6)

Railway station | Recreation ground | Cycle route | Composite photo location with figure number (2.6)

Peak House Farm
Access Methodology

Site Visit 22/07/14
Photo Locations

2.5.2 **Figure 6** shows the northbound A34/Walsall Rd approach to the M6 junction 7 at the beginning of the AM peak period. It was observed that there was no delay to traffic using the gyratory during the site visit period. The A34 flyover was also clear of traffic and provided a quick route for trips in a north-south direction.

2.5.3 There was no observed delay on the M6 westbound, however, traffic was travelling at reduced speeds eastbound, with the managed motorway system maintaining a steady flow.

2.5.4 **Figure 7** shows slight queuing on the A34/Birmingham Rd approaching the M6 junction 7, possibly as a result of the westbound M6 traffic. Access to the A34 flyover was clear, with no delays to motorists.

2.5.5 The junction of the A34/Birmingham Rd and Wilderness Lane effectively operate as an enlarged 'left in, left out' junction from the A34/Birmingham Rd, however access is maintained to residential frontages with short sections of two way service roads.

Figure 6. M6 J7 A34 NB entry slip (08:07 22/07/14)

Figure 7. A34 south, junction with Wilderness Lane opposite Chapel Lane (08:17 22/07/14)

2.5.6 **Figure 8** shows the junction of the A34/Birmingham Rd with Chapel Lane, which provides access to Merrion's Close. Traffic signals allow northbound traffic on the A34 a dedicated right turning phase. Pedestrian crossing provision is also good with a number of signalised crossings. These allow pedestrians to access bus stops on both sides of the road. At this location, signals have recently been installed to provide an alternative crossing provision to the existing subway.

2.5.7 **Figure 9** shows an example of the U-turn manoeuvres that were witnessed at regular intervals along the A34/Birmingham Rd. The low levels of traffic along the route meant this did not lead to additional delay; however there were safety implications with vehicles sometimes being stationary in the outside lane.

2.5.8 There were a number of fixed speed cameras along the A34/Birmingham Rd in the vicinity of the proposed development site.

Figure 8. A34 south, junction with Chapel Lane (08:19 22/07/14)

Figure 9. A34 north, between Wilderness Lane and Peak House Road (08:20 22/07/14)

2.5.9 **Figure 10** shows the existing northbound bus lay adjacent to the northern extent of the development site boundary. As well as a 24hr bus lane, road markings also indicate the presence of a fixed speed camera.

2.5.10 **Figure 11** shows the A34/Birmingham Road from its approach on Merrion's Close. Access to and from Merrion's close is currently available to both the north- and southbound A34, via two gaps in the central median. Merrion's Close is signed as having an HGV restriction, presumably due to the narrow width of the road.

Figure 10. A34 north, bus stop 'Grove Vale, opp Merrions Close' (08:23 22/07/14)

Figure 11. Merrion's Close, junction with A34 (08:32 22/07/14)

2.5.11 **Figure 12** shows Peak House Rd, which links the A34/Birmingham Road to Wilderness Lane. The photo illustrates the roads suitability for providing a local bus service. This example shows a school service providing a sustainable link to the nearby Q3 Academy.

2.5.12 **Figure 13** shows Wilderness Lane in the period just before the start of the school day. It was observed that a large number of students arriving at the school were either walking or using school bus services. There was not a noticeable number of private vehicles being used to drop off students at the school and the road remained free-flowing along its length, despite the presence of a regularly stopping refuse vehicle.

2.5.13 Wilderness Lane is a wide local access road. During the site visit period, no vehicles were observed to be parked on Wilderness Lane. Off-street parking provision for the adjacent residential area was good, with the majority of properties having at least two off-street parking spaces. At the time of the site visit a refuse vehicle was working along Wilderness lane. There were, however, no significant delays caused to other vehicles.

Figure 12. Peak House Road, junction with Farm House Way, school bus (08:37 22/07/14)

Figure 13. Wilderness Lane south, near Peak House Road (08:41 22/07/14)

2.5.14 **Figure 14** and **Figure 15** both show the eastern extent of the development site boundary, adjacent to Wilderness Lane. There is currently no well-used, formal entrance to the site. Historic access to the site has been made through the point shown in **Figure 15**. The road is lit for its entire length.

Figure 14. Wilderness Lane south, north of Sycamore Road (08:41 22/07/14)

Figure 15. Wilderness Lane south, south of Sycamore Road (08:44 22/07/14)

2.5.15 **Figure 16** shows the foot and cycle link that exists along the southern boundary of the development site. The route links Wilderness Lane to the Rushall Canal with a high quality tarmac surface. The path is marked as a shared route and links to the National Cycle Network.

2.5.16 **Figure 17** shows the route beyond the south west corner of the development site. Ownership of this land is not apparent; however the quality of the route suggests recent development. The path is approximately 2.5 metres wide.

2.5.17 The route is not lit at any point.

Figure 16. Foot and cycleway along southern site boundary (08:49 22/07/14)

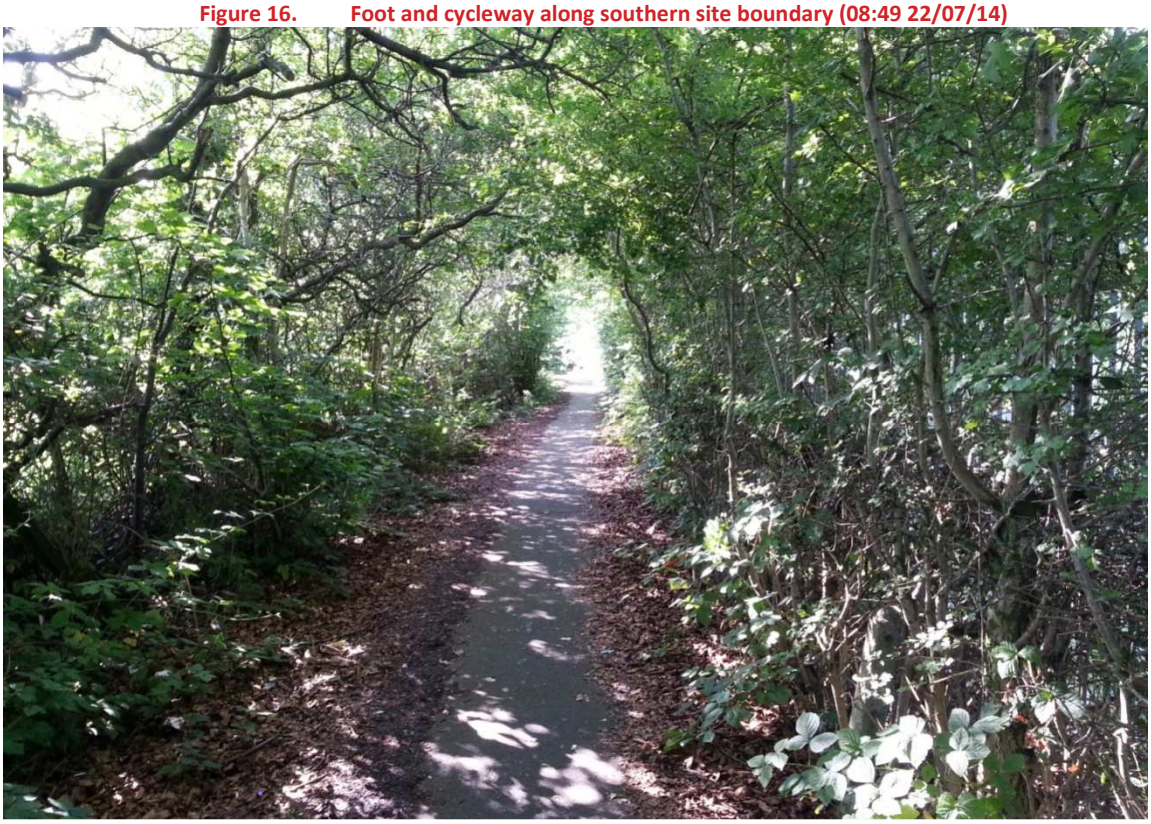


Figure 17. Foot and cycleway between site boundary and Rushall canal (08:54 22/07/14)

2.5.18 **Figure 2.18** shows the Rushall Canal near the point of access by the shared path shown in **Figure 2.17**. The National Cycle Network is well signed in the vicinity of the site and utilises good quality paths, primarily formed of crushed stone and tarmac.

Figure 18. Rushall Canal National Cycle Network (09:01 22/07/14)

Figure 19. A34, junction with Merrion's Close, potential primary site access point (08:27 22/07/14) [composite]

Figure 20. Peak House Road (north left) between A34 and Wilderness Lane (08:38 22/07/14) [composite]

2.5.19 **Figure 19** shows a composite photo of the location suggested for the primary access point from the A34/Birmingham Road to the development site. The top portion of the photo shows the southbound A34 carriageway and Merrion's close. The bottom portion of the photo shows the northbound A34 carriageway. The gaps allowing access between Merrion's Close and the northbound carriageway can also be seen.

2.5.20 **Figure 20** shows Peak House Road, between the A34/Birmingham Road and Wilderness Lane. Vehicles can currently access this route directly from the northbound carriageway of the A34 and from the southbound carriageway with a U-turn manoeuvre. It can be seen that there is only a small number of vehicles using this route during the AM peak period.

Figure 21. Sycamore Road, junction with Wilderness Lane, potential secondary site access point (08:43 22/07/14) [composite]

Figure 22. Wilderness Lane (north right) between Q3 Academy and M6 underbridge (09:28 22/07/14) [composite]

Figure 23. Wilderness Lane (north right) between M6 underbridge and Red House Park (09:25 22/07/14) [composite]

2.5.21 **Figure 21** shows the eastern extent of the development site boundary from the junction of Sycamore Rd and Wilderness Lane. The junction is currently kept clear with double

yellow line restrictions and there is a large visibility splay due to the wide green verges. This is the location proposed for a secondary access point to the development site.

2.5.22 **Figure 22** shows Wilderness Lane south of the development site and the Q3 Academy. This portion of road has been designated as a 'Safe School Zone' and operates a reduced speed limit of 20mph, encouraged with the use of regular speed cushions, road narrowing and traffic islands. 'School - Keep Clear' markings were also in place with comprehensive signage restricting loading along the stretch of road adjacent to the Q3 academy. Drop-off parking and bus and coach stops are provided in a dedicated lay by at the front of the academy.

2.5.23 **Figure 23** shows Wilderness Lane, south of the M6 underbridge. To the left of the photo is Red House Park, which provides a walking and cycling route to the nearby Great Barr local centre. Traffic levels along the road were low. A daytime bus service runs along Wilderness Lane and provides an hourly link to nearby residential and commercial locations. Bus stops are well signed and have up-to-date timetables.

3. PROPOSED DEVELOPMENT

3.1 Background

3.1.1 At this point the development mix and quantum is outline and unconfirmed.

3.1.2 In order to undertake an early stage, high-level assessment of potential traffic generation we have assumed that up to 750 private residential dwellings could be developed on the site. This development quantum and mix is subject to alteration as the scheme progresses and once the development mix and quantum is confirmed an updated and detailed assessment would be required to support a planning application.

3.2 Trip generation and distribution

3.2.1 For the purpose of this assessment, person trip figures have been gathered using the 'Houses Privately Owned' category on the TRICS (v7.1.1) database. As well as factoring these figures against Office for National Statistics' 'Method of Travel to Work' data from 'Great Barr with Yew Tree' in 2011, vehicle trip rates have also been taken from the TRICS output. This is believed to be more representative as it takes into account the fact that not all journeys will be to work. The results of this analysis have been summarised in the tables below.

Table 6. Method of Travel to Work statistics Great Barr with Yew Tree (ONS, 2011)

METHOD OF TRAVEL TO WORK	%
Underground, metro, light rail, tram	0.32%
Train	3.32%
Bus, minibus or coach	13.84%
Taxi	0.29%
Motorcycle, scooter or moped	0.46%
Driving a car or van	69.78%
Passenger in a car or van	6.62%
Bicycle	0.96%
On foot	3.92%
Other method of travel to work	0.48%
TOTAL	100%

Table 7. Trip Rates: Houses Privately Owned

TRIP RATES (PER DWELLING)		ARRIVALS	DEPARTURES	TWO-WAY
People	AM Peak (08:00 - 09:00)	0.255	0.875	1.130
	PM Peak (17:00 - 18:00)	0.635	0.398	1.033
Vehicles (Census)	AM Peak (08:00 - 09:00)	0.178	0.611	0.789
	PM Peak (17:00 - 18:00)	0.443	0.278	0.721
Vehicles (TRICS)	**AM Peak (08:00 - 09:00)**	**0.157**	**0.445**	**0.602**
	PM Peak (17:00 - 18:00)	**0.417**	**0.246**	**0.663**

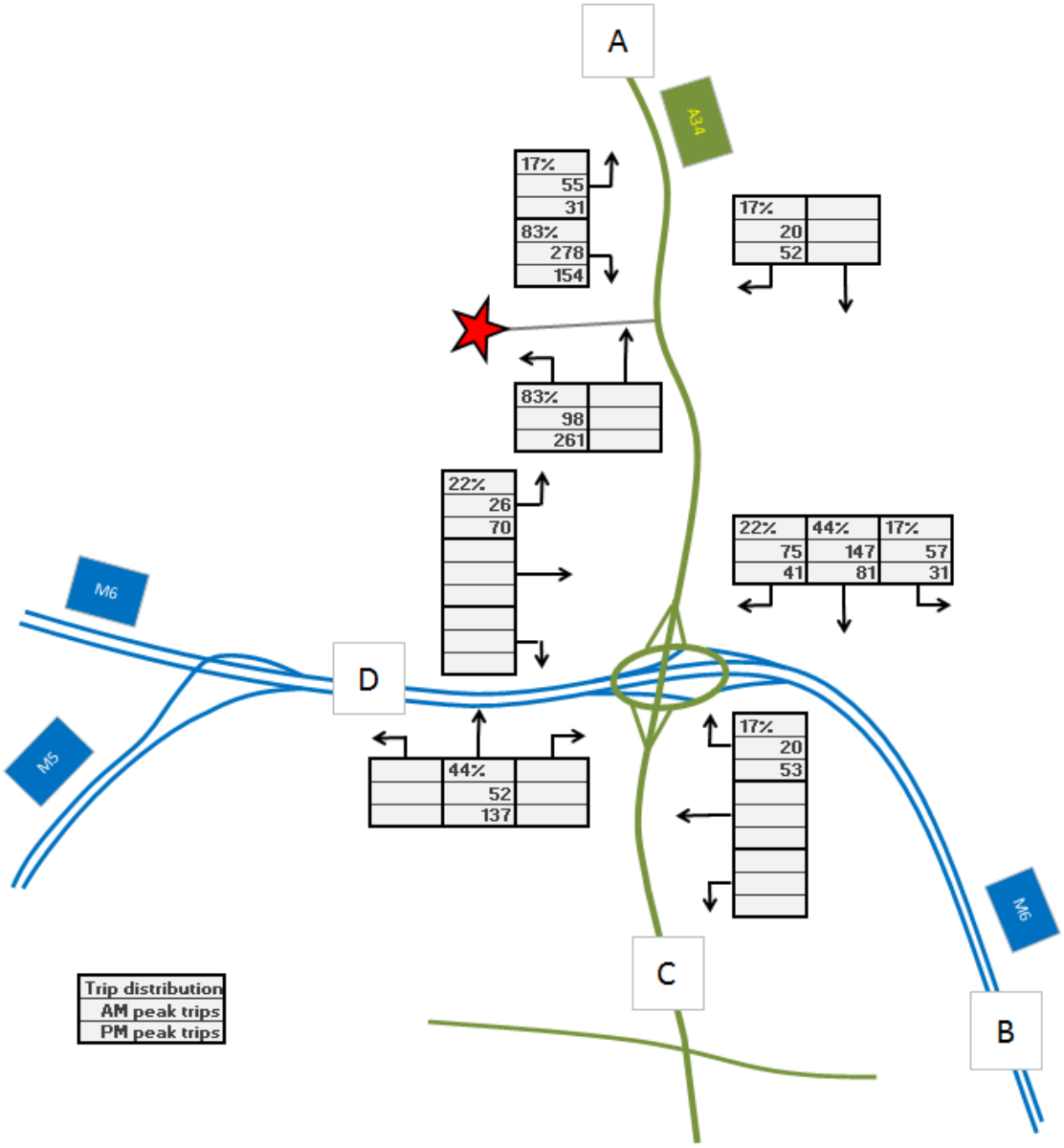
Table 8. Trip Generation: Houses Privately Owned (750 dwellings)

TRIP GENERATION (ESTIMATE)		ARRIVALS	DEPARTURES	TWO-WAY
Vehicles	AM Peak (08:00 - 09:00)	118	333	451
	PM Peak (17:00 - 18:00)	313	185	498

3.2.2 Our analysis suggests that 451 two-way AM peak 498 two-way PM peak trips could be generated by the development.

3.2.3 2001 'UK Travel Flows' census data has then been used to distribute the generated trips across the local highway network. **Figure 24** shows that 83% of trips travel on the A34 south of the site. 44% of trips utilise the A34 south of junction 7 of the M6 and 39% of trips use the M6. 17% of trips utilise the A34 north of the site.

Figure 24. Proposed development trip distribution (750 dwellings)



3.2.4 The high level nature of the analysis has not taken into account all possible journey routings. It has also assumed that all trips will utilise the primary access point onto the A34/Birmingham Rd. It is likely that a number of trips, especially those to nearby local centres will utilise Wilderness Lane as an alternative crossing of the M6. This will result in the reduction of the number of trips turning right out of the site onto the A34/Birmingham Rd.

3.2.5 Trips travelling north to the site, may also chose to utilise the secondary access points to the development site via the existing A34 / Wilderness Lane junction, therefore reducing the demand for left turning at the proposed new junction at Merrion's Close.

3.2.6 Numerous local trips will likely use elements of the network that have not been analysed using this high-level model. Trips such as journeys to schools, local shops and other amenities. It is also likely that a proportion of these will avoid elements of the modelled routes, therefore leading to a reduction in generated trips on the Strategic Road Network and surrounding roads. The figures presented can, therefore, be considered to represent a 'worst-case' scenario.

3.3 Junctions requiring further investigation

3.3.1 The trip distribution figures given in the previous section have highlighted a number of junctions that may require further modelling as part of a Transport Assessment, in order to satisfy the requirements of the relevant highway authorities, as well as Highways England, in regards to the nearby M5 and M6 motorway. These have been summarised in the **Table 9**.

Table 9. Junctions requiring further investigation

LOCATION	JUNCTION TYPE
A34/Birmingham Road / Merrion's Close / Development site	Proposed 4-way signalised
M6 (junction 7) / A34/Birmingham Rd	Non-conventional gyratory
M6 (junction 8) / M5	Grade-separated
A34/Birmingham Rd / A34 Walsall Rd / Newton Rd / Queslett Rd	4-way signalised
A34/Birmingham Rd / Broadway / Birmingham Road	Double mini roundabout

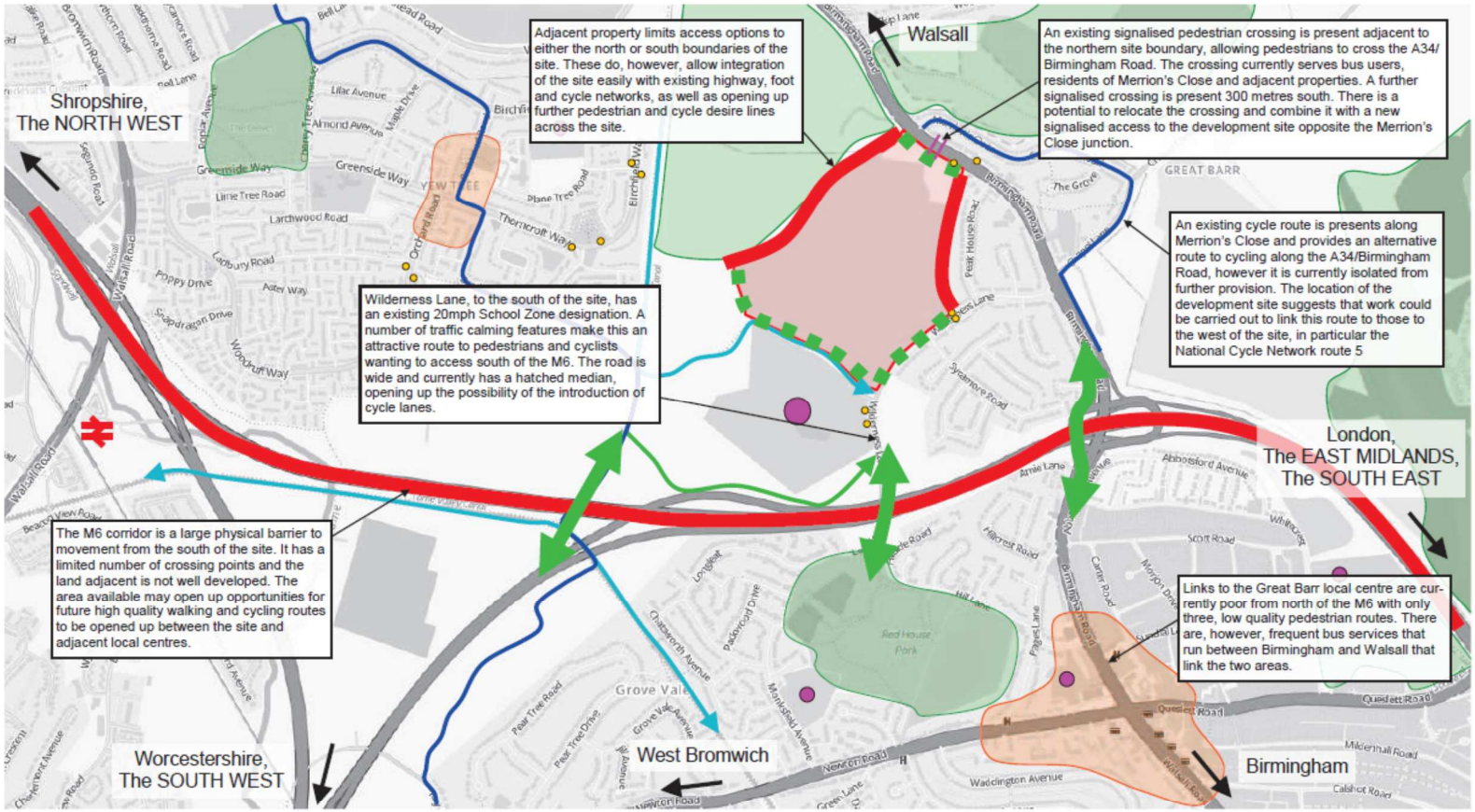
3.3.2 Highways England will likely require mitigation steps to be taken where any element of the Strategic Road Network is affected by 30 or more additional one-way trips. In order to assess this, detailed modelling of relevant junctions will likely be required as part of the Transport Assessment.

3.3.3 The site is located near the edge of Sandwell Metropolitan Borough's highway authority region, therefore liaison will also be necessary with the adjacent highway authorities: Birmingham City Council and Walsall Council, who are responsible for a number of junctions highlighted in **Table 9**.

4. CONSTRAINTS AND OPPORTUNITIES

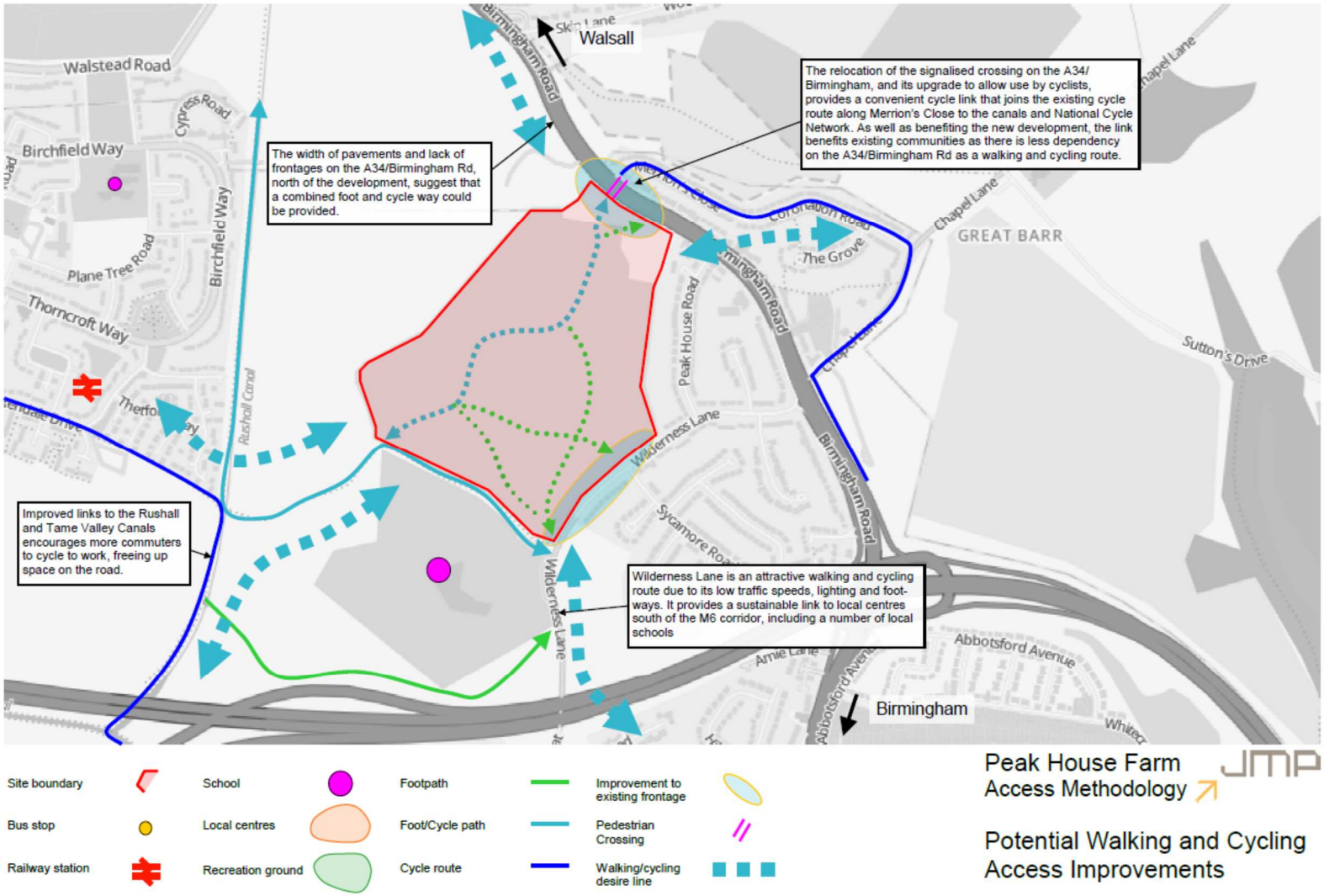
4.1.1 Schematic plans have been included in the following pages to outline:

- Site Constraints and opportunities
- Walking and cycling access improvements
- Potential rerouting of the existing 425 bus service
- Private motor vehicle access arrangements



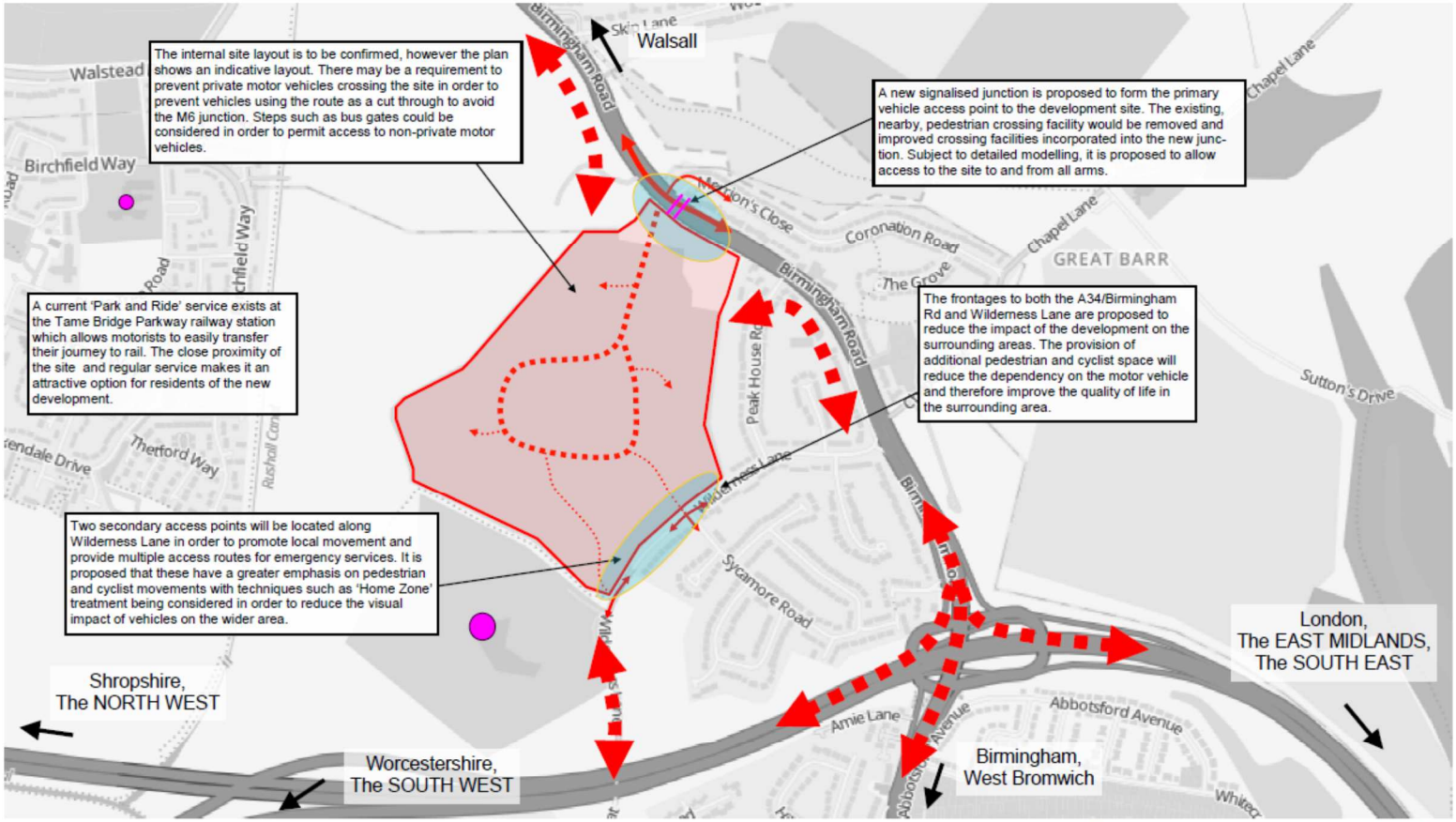
Peak House Farm Access Methodology

Site Constraints and Opportunities



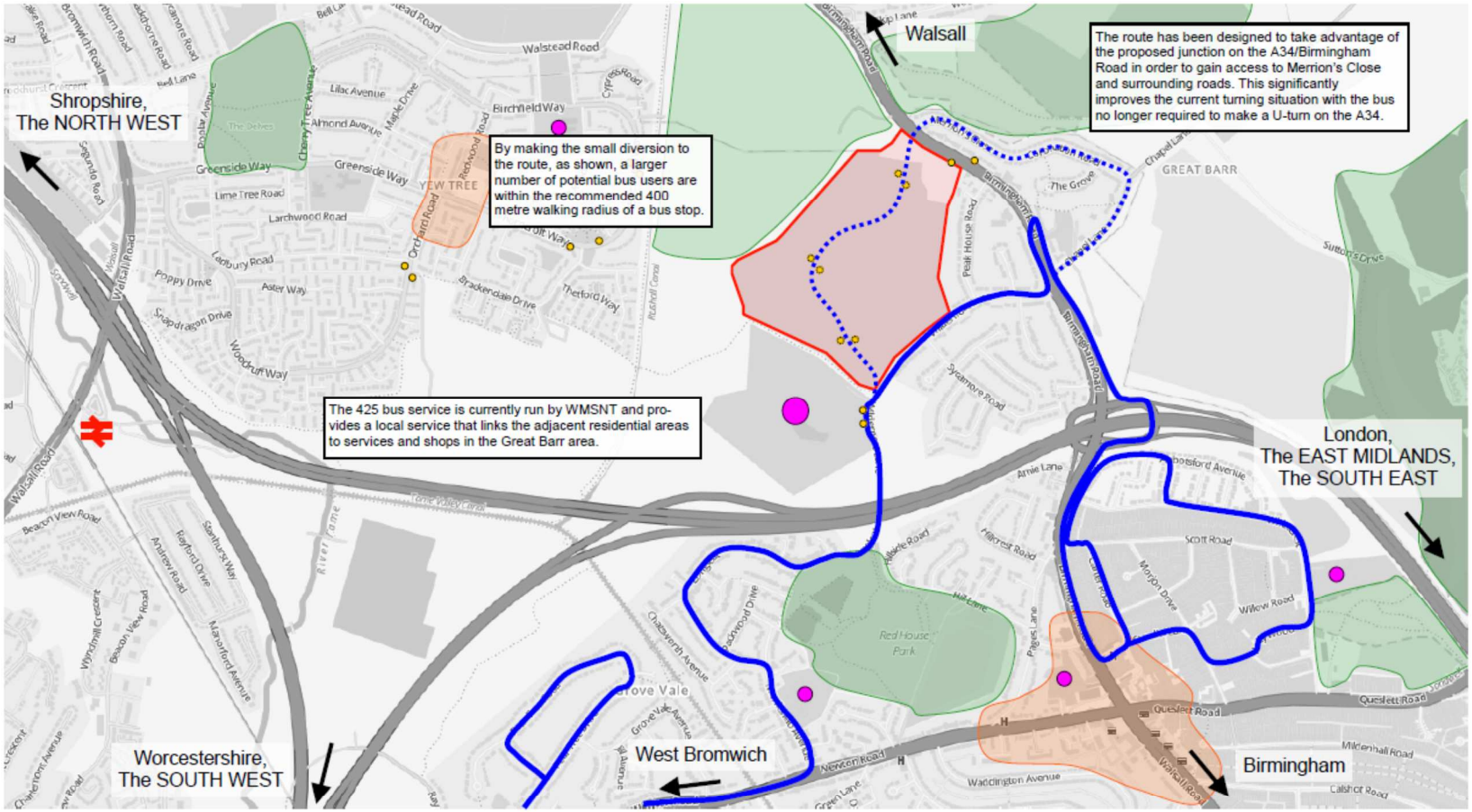
Peak House Farm
Access Methodology

Potential Walking and Cycling Access Improvements



Peak House Farm
Access Methodology

Potential Private Motor Vehicle Access Improvements



Peak House Farm Access Methodology

Potential 425 Bus Diversion Route

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

5.1.1 The report has shown that the proposed development site is located in a sustainable location. The site is well served by existing, frequent bus services and is close to a developed network of traffic-free walking and cycling routes. Tame Bridge Parkway station is also only a short distance away and provides frequent regional train services.

5.1.2 An early stage, high level estimate of trip generation associated with the site has been undertaken and is based on the site comprising up to 750 privately owned residential dwellings. This exercise has been undertaken for indicative purposes only and an updated detailed analysis will be required once the development mix and quantum on the site is confirmed. The trip assignment exercise has only considered the major elements of the SRN and surrounding distributor roads therefore can be considered to represent a 'worst-case' scenario for additional trips onto the A34/Birmingham Rd and M6 Junction 7, in particular.

5.1.3 The site is located within a suitable walking and cycling distance of the a number of local amenities, including shops, schools, GPs and dental practices, therefore a proportion of generated trips will be confined to local roads and therefore not have the predicted impact on the SRN. Further modelling will likely be required at a later date in order to confirm the detailed impact of the development on the SRN and major distributor roads.

5.1.4 There is a large potential for a high proportion of generated trips using sustainable modes, with a high level of existing provision, as well as potential upgrades to features such as high-quality walking and cycling corridors, 'Home Zone' provision and diverted local bus routes. The site is also located within an acceptable cycling distance of Tame Bridge Parkway railway station.

5.1.5 Junctions requiring further assessment have been identified. These are made up of: both elements of the SRN and local distributor roads. These include junctions in the three adjacent highway authority areas of: Sandwell, Birmingham and Walsall.

5.2 Recommendation

5.2.1 Because of the site's sustainable location and based on high level assessment, SYSTRA believes that there is scope for continuation of the development propositions on the Peak House Farm site, near Great Barr and that a detailed traffic analysis will be required to support any future planning application.

Appendix A

TRICS DATA

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	2 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days
	FI	FIFE	1 days
	SR	STIRLING	1 days

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

Filtering Stage 2 selection:

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

Parameter: Number of dwellings
Actual Range: 108 to 237 (units:)
Range Selected by User: 100 to 491 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 29/05/13

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

Selected survey days:

Monday	3 days
Tuesday	3 days
Wednesday	2 days
Thursday	4 days
Friday	3 days

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

Selected survey types:

Manual count	15 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	8
Edge of Town	7

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

Selected Location Sub Categories:

Residential Zone	11
No Sub Category	4

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

Filtering Stage 3 selection:

Use Class:

C3	15 days

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

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	2 days
15,001 to 20,000	8 days
20,001 to 25,000	3 days
25,001 to 50,000	1 days

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

Population within 5 miles:

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

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

Car ownership within 5 miles:

0.6 to 1.0	6 days
1.1 to 1.5	9 days

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

Travel Plan:

No	15 days

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

LIST OF SITES relevant to selection parameters

1 CF-03-A-02 MIXED HOUSES CARDIFF
DROPE ROAD

CARDIFF
Edge of Town
Residential Zone
Total Number of dwellings: 196
Survey date: FRIDAY 05/10/07 Survey Type: MANUAL

2 CH-03-A-06 SEMI-DET./BUNGALOWS CHESHIRE
CREWE ROAD

CREWE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 129
Survey date: TUESDAY 14/10/08 Survey Type: MANUAL

3 EX-03-A-01 SEMI-DET. ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Edge of Town
Residential Zone
Total Number of dwellings: 237
Survey date: TUESDAY 13/05/08 Survey Type: MANUAL

4 FA-03-A-02 MIXED HOUSES FALKIRK
ROSEBANK AVENUE & SPRINGFIELD DRIVE

FALKIRK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 161
Survey date: WEDNESDAY 29/05/13 Survey Type: MANUAL

5 FI-03-A-03 MIXED HOUSES FIFE
WOODMILL ROAD

DUNFERMLINE
Edge of Town
Residential Zone
Total Number of dwellings: 155
Survey date: MONDAY 30/04/07 Survey Type: MANUAL

6 LN-03-A-01 MIXED HOUSES LINCOLNSHIRE
BRANT ROAD
BRACEBRIDGE
LINCOLN
Edge of Town
Residential Zone
Total Number of dwellings: 150
Survey date: TUESDAY 15/05/07 Survey Type: MANUAL

7 LN-03-A-02 MIXED HOUSES LINCOLNSHIRE
HYKEHAM ROAD

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 186
Survey date: MONDAY 14/05/07 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 NT-03-A-03 SEMI DETACHED NOTTINGHAMSHIRE
B6018 SUTTON ROAD

KIRKBY-IN-ASHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 166
Survey date: WEDNESDAY 28/06/06 Survey Type: MANUAL

9 NY-03-A-06 BUNGALOWS & SEMI DET. NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: FRIDAY 14/10/11 Survey Type: MANUAL

10 SF-03-A-02 SEMI DET./TERRACED SUFFOLK
STOKE PARK DRIVE
MAIDENHALL
IPSWICH
Edge of Town
Residential Zone
Total Number of dwellings: 230
Survey date: THURSDAY 24/05/07 Survey Type: MANUAL

11 SH-03-A-04 TERRACED SHROPSHIRE
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108
Survey date: THURSDAY 11/06/09 Survey Type: MANUAL

12 SR-03-A-01 DETACHED STIRLING
BENVIEW

STIRLING
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: MONDAY 23/04/07 Survey Type: MANUAL

13 TV-03-A-01 HOUSES & FLATS TEES VALLEY
POWLETT ROAD

HARTLEPOOL
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 225
Survey date: THURSDAY 14/04/05 Survey Type: MANUAL

14 WO-03-A-03 DETACHED WORCESTERSHIRE
BLAKEBROOK
BLAKEBROOK
KIDDERMINSTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 138
Survey date: FRIDAY 05/05/06 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

15 WO-03-A-06 DET./TERRACED WORCESTERSHIRE
ST GODWALDS ROAD
ASTON FIELDS
BROMSGROVE
Edge of Town
No Sub Category
Total Number of dwellings: 232
Survey date: THURSDAY 30/06/05 Survey Type: MANUAL

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

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

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	170	0.081	15	170	0.299	15	170	0.380
08:00 - 09:00	15	170	0.157	15	170	0.445	15	170	0.602
09:00 - 10:00	15	170	0.169	15	170	0.220	15	170	0.389
10:00 - 11:00	15	170	0.155	15	170	0.191	15	170	0.346
11:00 - 12:00	15	170	0.181	15	170	0.175	15	170	0.356
12:00 - 13:00	15	170	0.196	15	170	0.189	15	170	0.385
13:00 - 14:00	15	170	0.198	15	170	0.180	15	170	0.378
14:00 - 15:00	15	170	0.180	15	170	0.184	15	170	0.364
15:00 - 16:00	15	170	0.306	15	170	0.211	15	170	0.517
16:00 - 17:00	15	170	0.336	15	170	0.203	15	170	0.539
17:00 - 18:00	15	170	0.417	15	170	0.246	15	170	0.663
18:00 - 19:00	15	170	0.281	15	170	0.230	15	170	0.511
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.657			2.773			5.430

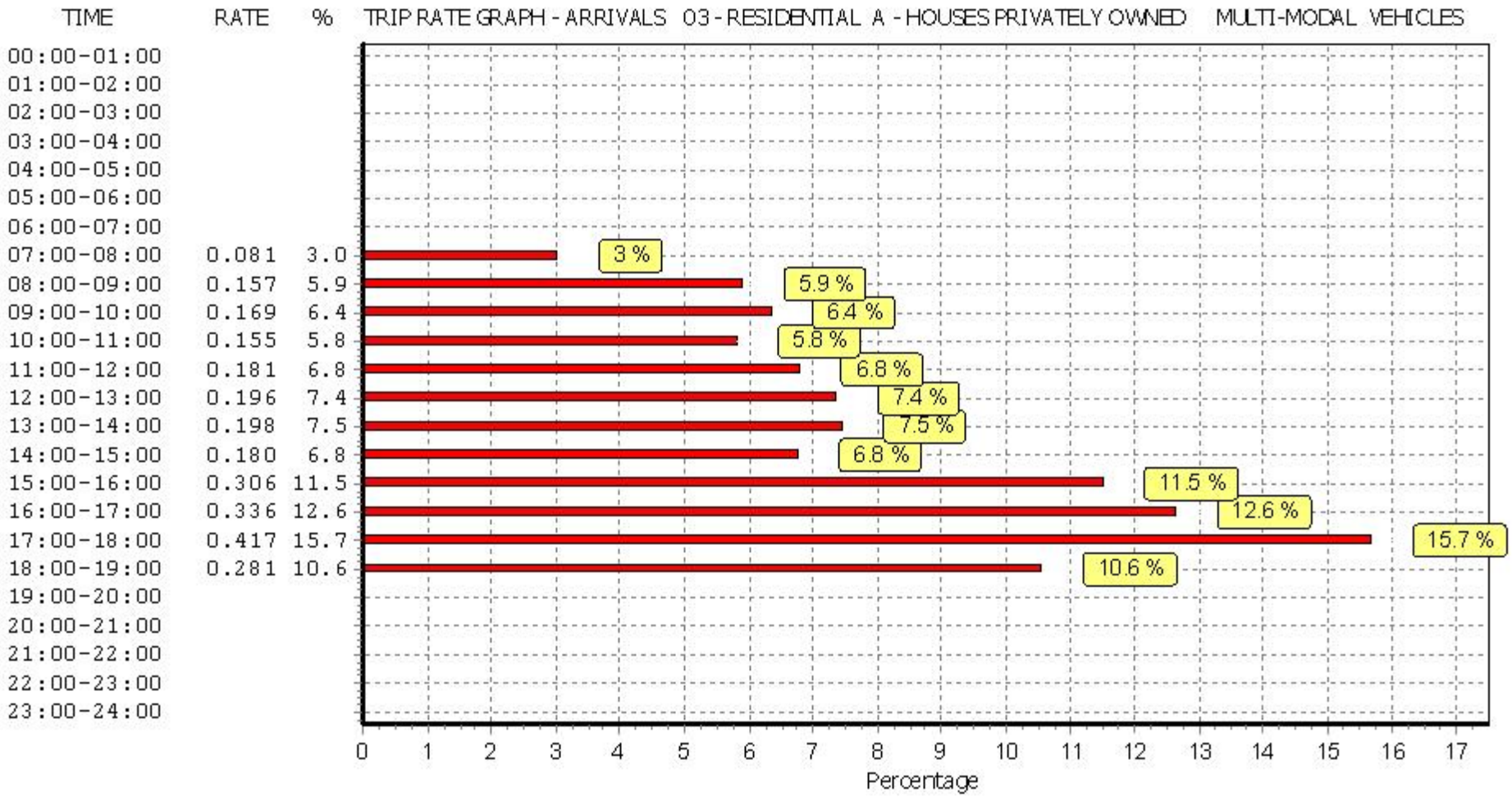
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are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

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

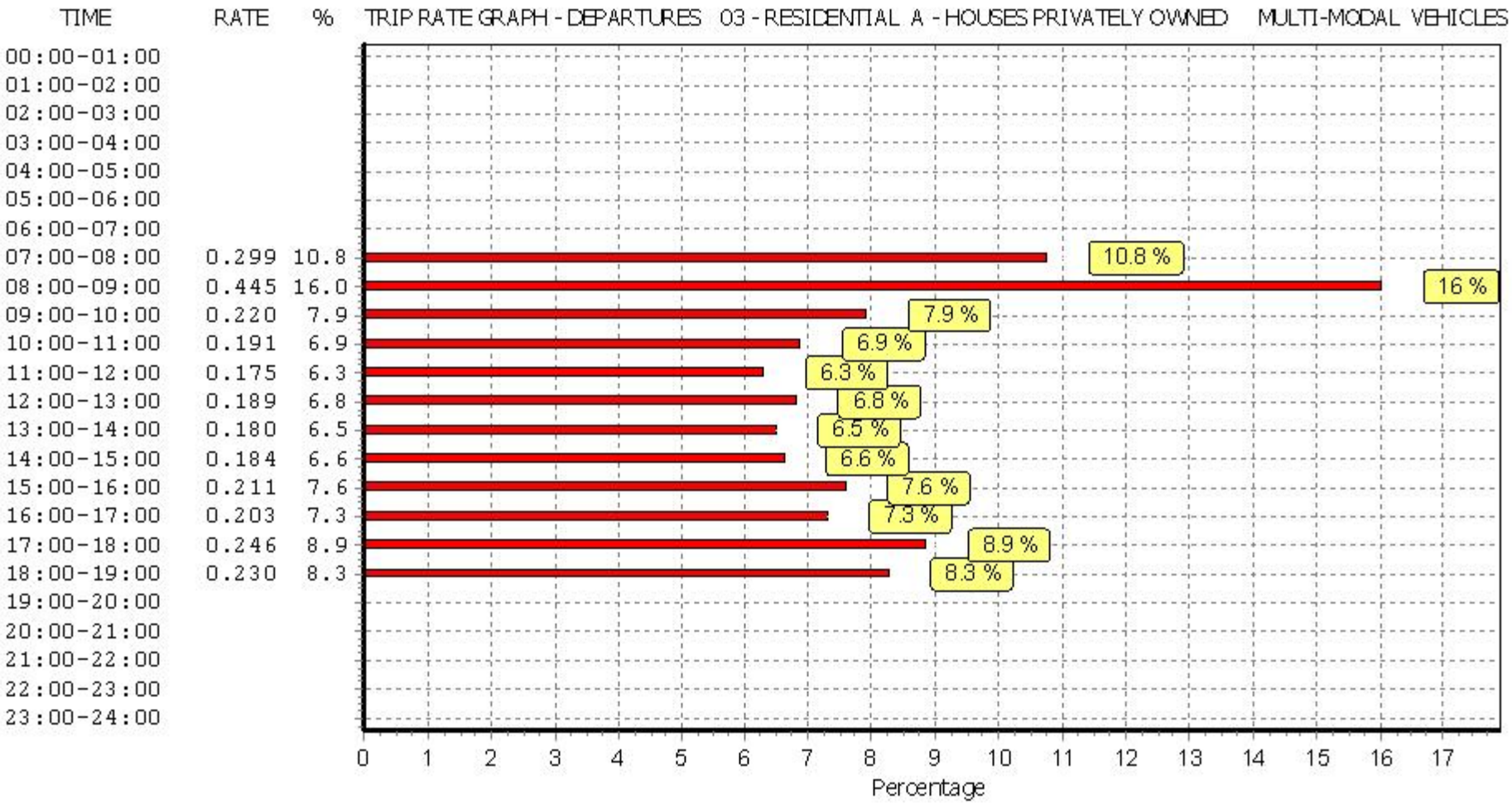
Parameter summary

Trip rate parameter range selected:	108 - 237 (units:)
Survey date date range:	01/01/05 - 29/05/13
Number of weekdays (Monday-Friday):	15
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

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



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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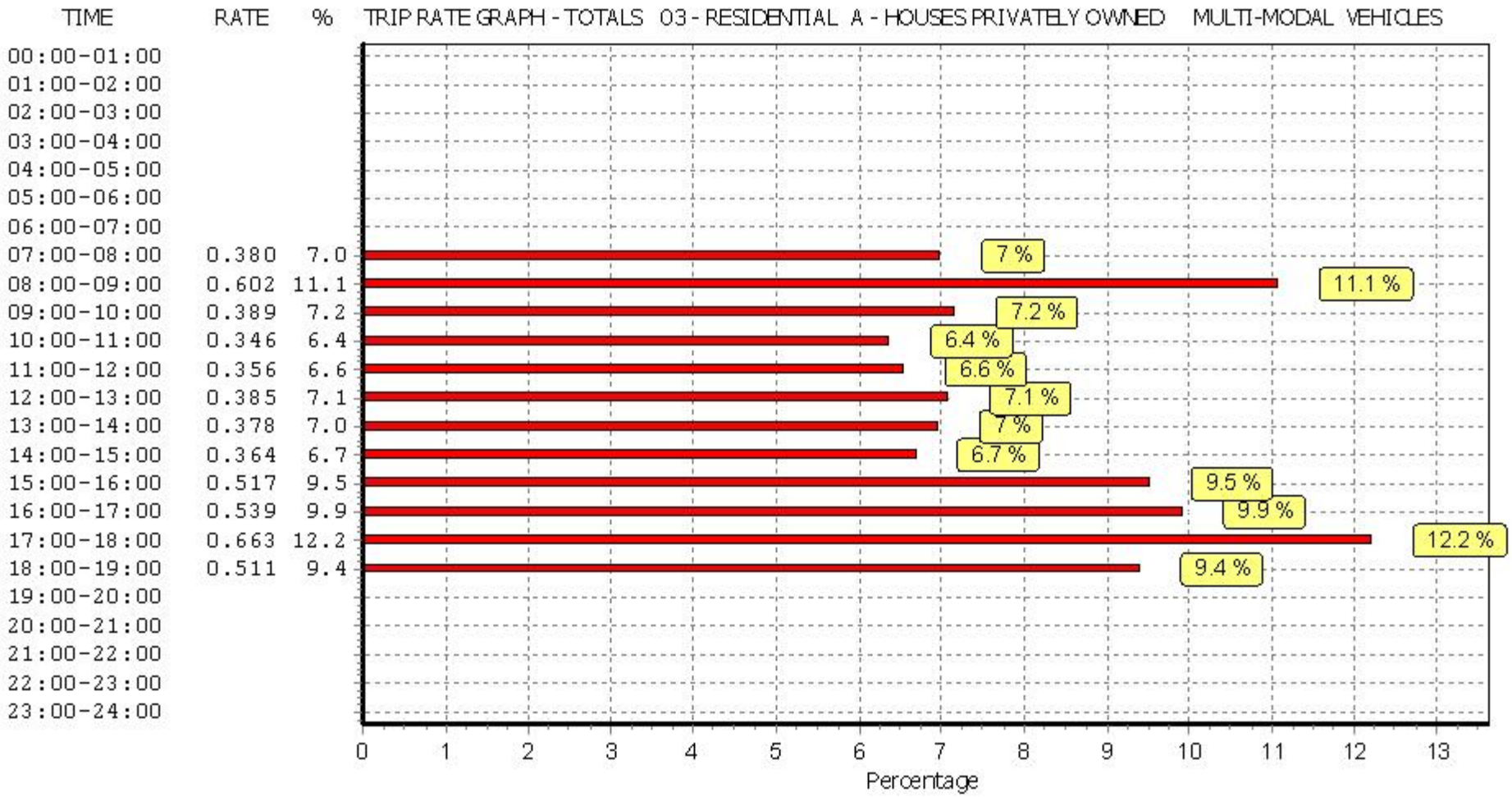

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TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	15	170	0.129	15	170	0.421	15	170	0.550
08:00 - 09:00	15	170	0.255	15	170	0.875	15	170	1.130
09:00 - 10:00	15	170	0.251	15	170	0.349	15	170	0.600
10:00 - 11:00	15	170	0.236	15	170	0.302	15	170	0.538
11:00 - 12:00	15	170	0.266	15	170	0.271	15	170	0.537
12:00 - 13:00	15	170	0.294	15	170	0.287	15	170	0.581
13:00 - 14:00	15	170	0.292	15	170	0.273	15	170	0.565
14:00 - 15:00	15	170	0.278	15	170	0.281	15	170	0.559
15:00 - 16:00	15	170	0.691	15	170	0.381	15	170	1.072
16:00 - 17:00	15	170	0.554	15	170	0.354	15	170	0.908
17:00 - 18:00	15	170	0.635	15	170	0.398	15	170	1.033
18:00 - 19:00	15	170	0.461	15	170	0.403	15	170	0.864
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.342			4.595			8.937

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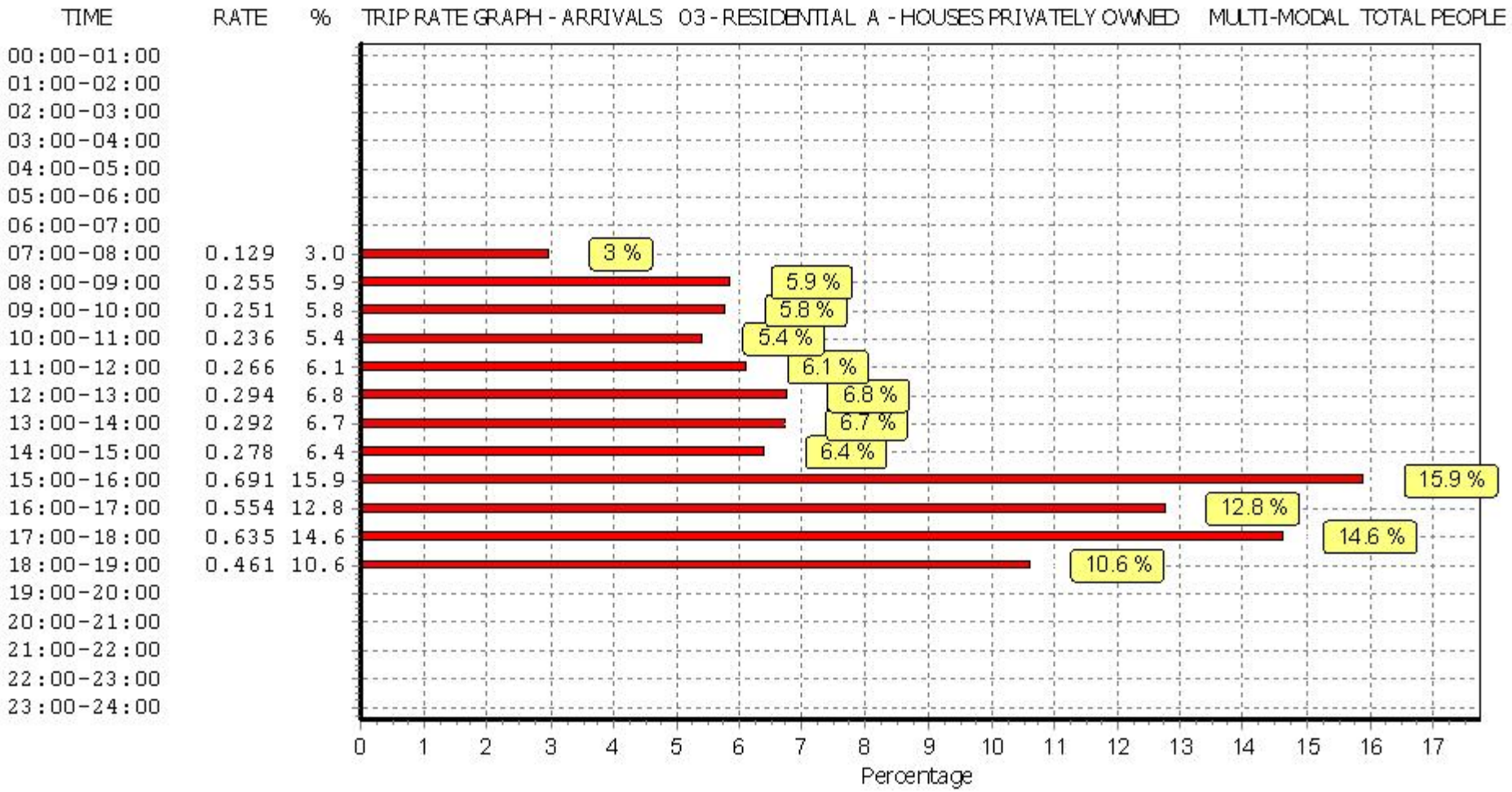

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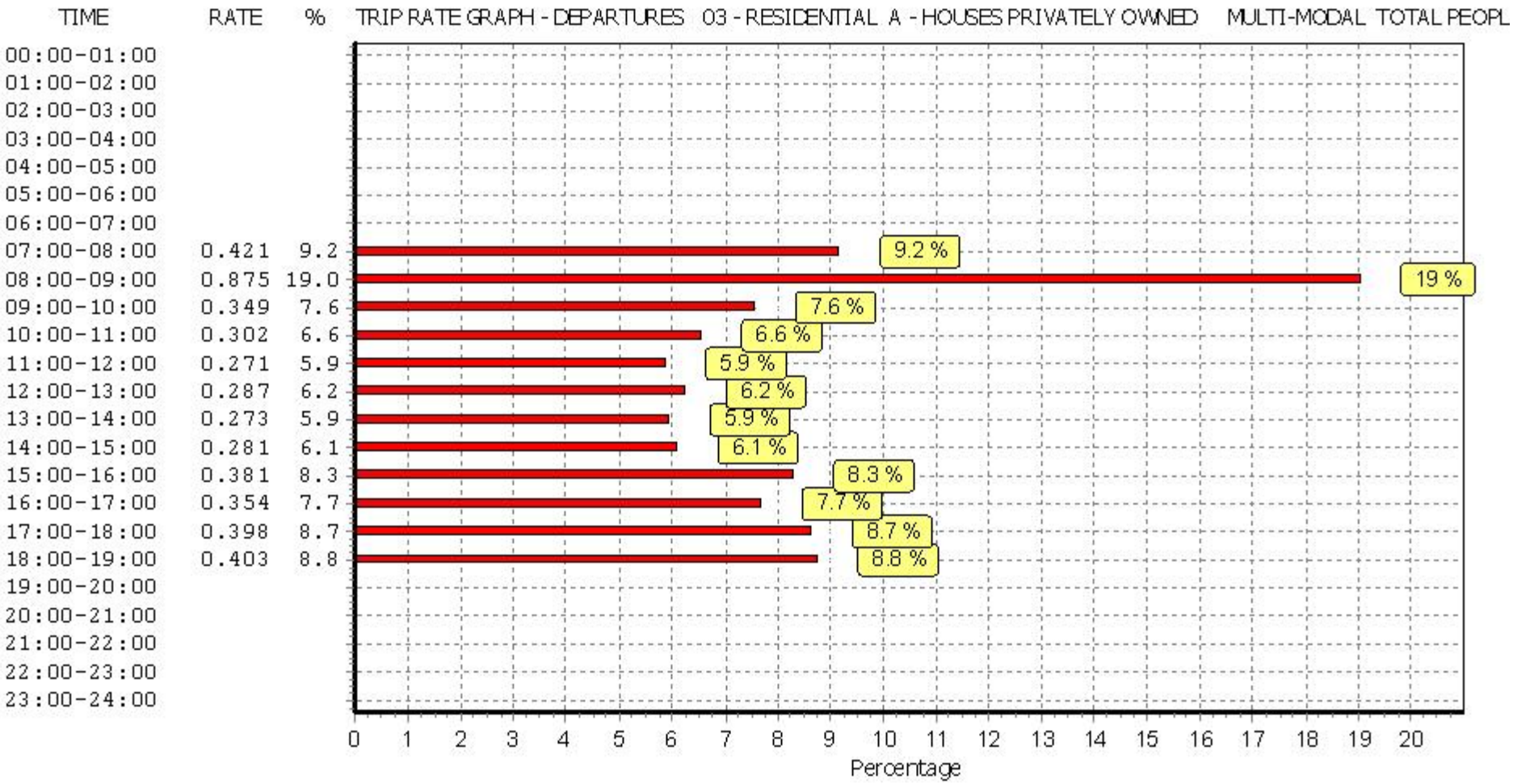

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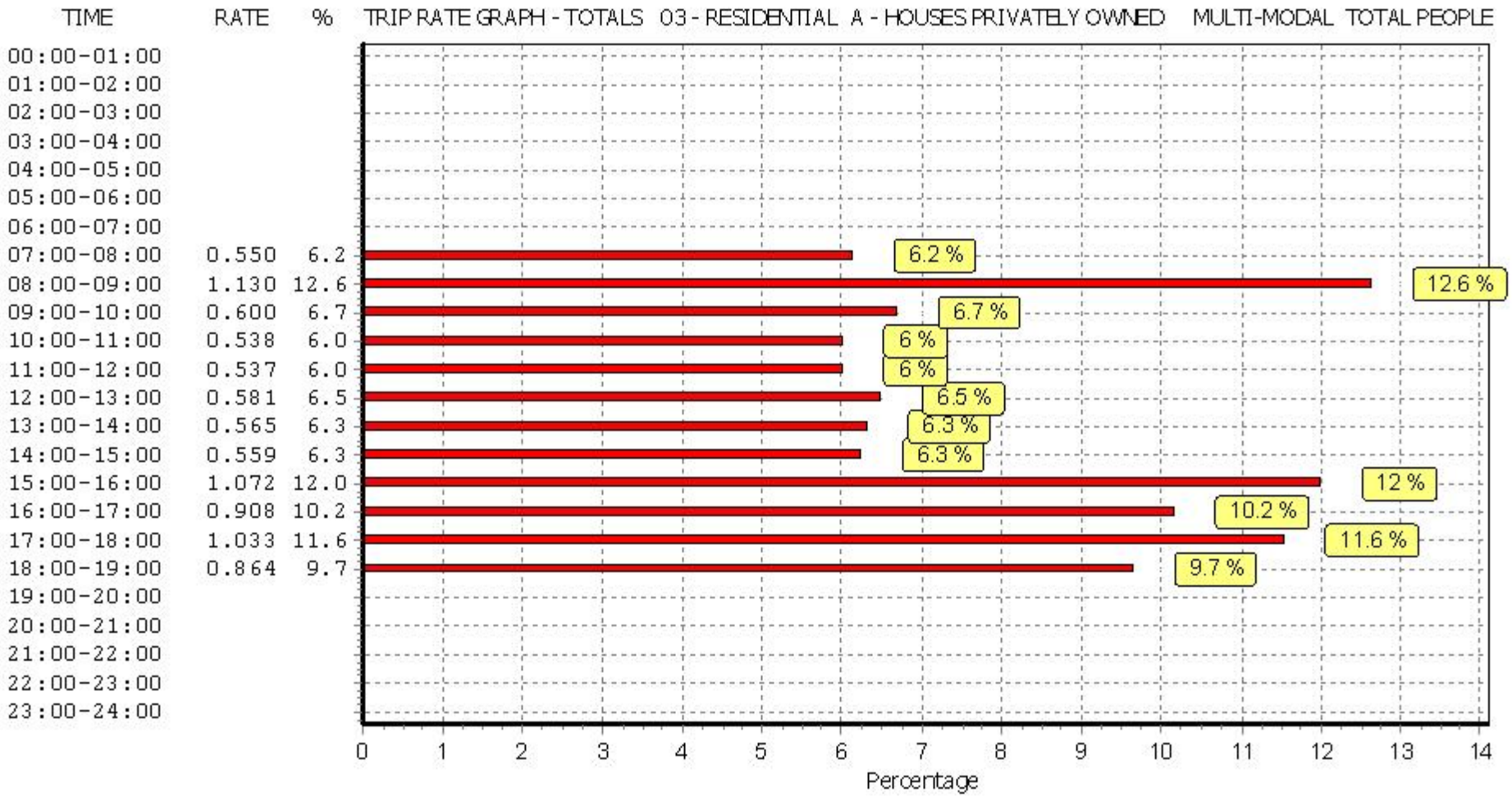

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Appendix B

FORECAST VEHICLE TRIP DISTRIBUTION

QS701EW - Method of travel to work

population	All usual residents aged 16 to 74
units	Persons
area type	2011 wards
area name	E05001266 : Great Barr with Yew Tree
rural urban	Total

Method of Travel to Work	**2011**		
All categories: Method of travel to work	8,928		
Work mainly at or from home	*162*		
Underground, metro, light rail, tram		18	0.32%
Train		186	3.32%
Bus, minibus or coach		776	13.84%
Taxi		16	0.29%
Motorcycle, scooter or moped		26	0.46%
Driving a car or van		3,912	**69.78%**
Passenger in a car or van		371	6.62%
Bicycle		54	0.96%
On foot		220	3.92%
Other method of travel to work		27	0.48%
Not in employment	*3,160*		
		5606.00	

Trip rates (per dwelling)		**Arrivals**	**Departures**	**Total**
People	AM Peak (08:00 - 09:00)	0.255	0.875	1.130
	PM Peak (17:00 - 18:00)	0.635	0.398	1.033
Vehicles (census data)	AM Peak (08:00 - 09:00)	0.178	0.611	0.789
	PM Peak (17:00 - 18:00)	0.443	0.278	0.721
Vehicles (TRICS)	**AM Peak (08:00 - 09:00)**	**0.157**	**0.445**	**0.602**
	PM Peak (17:00 - 18:00)	**0.417**	**0.246**	**0.663**

Number of dwellings:	750

2001 census - UK travel flows (ward)

area of residence	00CSFG : Great Barr (2003 CAS ward)
date	2001

area of workplace : 2003 CAS ward	T203:25 (Car - driver : All people)		A	B	C	D
00CSFG : Great Barr	223	6.1%			100%	
00CNFS : Ladywood	212	5.8%			100%	
00CSGA : West Bromwich Central	185	5.1%			100%	
00CNFB : Aston	147	4.0%		50%	50%	
00CNFW : Nechells	122	3.3%		100%		
00CUFR : St. Matthew's	121	3.3%	100%			
00CNFZ : Perry Barr	106	2.9%			100%	
00CSFJ : Greets Green and Lyng	89	2.4%				100%
00CSFZ : Wednesbury South	79	2.2%			100%	
00CSFN : Oldbury	74	2.0%				100%
00CNGG : Soho	68	1.9%			100%	
00CNFY : Oscott	66	1.8%			100%	
00CSFS : St. Pauls	66	1.8%				100%
00CUFQ : Pleck	62	1.7%	100%			
00CSFH : Great Bridge	59	1.6%			100%	
00CNFP : Kingsbury	57	1.6%		100%		
00CSFU : Soho and Victoria	55	1.5%				100%
00CNFG : Edgbaston	54	1.5%			100%	
00CUFM : Palfrey	51	1.4%	100%			
00CNGM : Sutton New Hall	43	1.2%			100%	
00CSFY : Wednesbury North	43	1.2%	100%			
00CSFK : Hateley Heath	39	1.1%			100%	
00CUFD : Birchills Leamore	38	1.0%	100%			
00CSFW : Tipton Green	37	1.0%			100%	
00CUFA : Aldridge Central and South	36	1.0%	100%			
00CUFC : Bentley and Darlaston North	33	0.9%	100%			
00CNGL : Sutton Four Oaks	31	0.8%			100%	
00CNGN : Sutton Vesey	30	0.8%			100%	
00CNGP : Washwood Heath	30	0.8%		100%		
00CNGB : Sandwell	28	0.8%			100%	
00CNGF : Small Heath	27	0.7%		50%	50%	
00CNGK : Stockland Green	27	0.7%			100%	
00CSFF : Friar Park	27	0.7%	100%			
00CTFA : Bickenhill	27	0.7%		50%	50%	
00CNFH : Erdington	24	0.7%		100%		
00CUFJ : Darlaston South	24	0.7%	100%			
00CNGH : Sparkbrook	23	0.6%		50%	50%	
00CTFD : Elmdon	23	0.6%		50%	50%	
00CUFW : Willenhall South	23	0.6%	100%			
47UDFX : Matchborough	23	0.6%				100%
00CWFQ : St. Peter's	22	0.6%				100%
00CNFA : Acock's Green	21	0.6%		50%	50%	
00CSFL : Langley	21	0.6%				100%
00CSFD : Charlemont	20	0.5%			100%	
00CUFK : Hatherton Rushall	20	0.5%	100%			
47UBGT : Waseley	20	0.5%				100%
00CNFL : Handsworth	19	0.5%			100%	
00CNFT : Longbridge	19	0.5%				100%
00CSFQ : Princes End	19	0.5%	50%		50%	
00CRFW : St. James's	18	0.5%				100%
00CSFM : Newton	16	0.4%			100%	
00CRFM : Kingswinford North and Wall H	15	0.4%				100%
00CNFU : Moseley	14	0.4%		50%	50%	
41UBFU : Cannock South	13	0.4%				100%
00CNFR : Kingstanding	13	0.4%			100%	
00CUFG : Bloxwich West	13	0.4%	100%			
00CUFP : Pheasey	13	0.4%	100%			
00CUFT : Streetly	13	0.4%	100%			
00CWFW : Wednesfield South	13	0.4%				100%
00CNGC : Selly Oak	12	0.3%			100%	
00CRFB : Belle Vale and Hasbury	12	0.3%				100%
00CUFL : Paddock	12	0.3%	100%			
00CRFD : Brockmoor and Pensnett	11	0.3%				100%
00CRFF : Coseley East	11	0.3%				100%
00CRFX : St. Thomas's	11	0.3%				100%
00CSFE : Cradley Heath and Old Hill	11	0.3%				100%
00CWFA : Bilston East	11	0.3%				100%
00CNFJ : Fox Hollies	10	0.3%		50%	50%	
00CNFK : Hall Green	10	0.3%		50%	50%	
00CRFC : Brierley Hill	10	0.3%				100%
00CUFH : Brownhills	10	0.3%	100%			
00CRFK : Halesowen South	9	0.2%				100%
00CSFB : Blackheath	9	0.2%				100%
00CTFP : Shirley South	9	0.2%		50%	50%	
00CUFB : Aldridge North and Walsall Wo	9	0.2%	100%			
41UFHN : Brewood and Coven	8	0.2%				100%

00CNGE : Sheldon	8	0.2%			100%	
00CTFM : St. Alphege	8	0.2%		50%	50%	
00CTFR : Silhill	8	0.2%		50%	50%	
00CWFC : Blakenhall	8	0.2%				100%
00CNFE : Bournville	7	0.2%			100%	
00CRFT : Quarry Bank and Cradley	7	0.2%				100%
00CSFA : Abbey	7	0.2%				100%
00CUFS : Short Heath	7	0.2%	100%			
00CWFF : Ettingshall	7	0.2%				100%
00FNNL : Castle	6	0.2%		100%		
41UDGY : Little Aston	6	0.2%	100%			
41UDHE : Stowe	6	0.2%	100%			
41UKFP : Castle	6	0.2%			100%	
41UKFR : Mercian	6	0.2%			100%	
00CNFM : Harborne	6	0.2%			50%	50%
00CNGD : Shard End	6	0.2%		100%		
00CRFQ : Netherton and Woodside	6	0.2%				100%
00CRFZ : Wollaston and Stourbridge We	6	0.2%				100%
00CSFT : Smethwick	6	0.2%				100%
00CWFE : East Park	6	0.2%				100%
00CWFJ : Heath Town	6	0.2%				100%
47UDFM : Abbey	6	0.2%				100%
47UGGF : Mitton	6	0.2%				100%
31UBGR : Winstanley	5	0.1%		100%		
41UDGP : Chasetown	5	0.1%	100%			
41UFHU : Featherstone and Shareshill	5	0.1%				100%
00CNFD : Billesley	5	0.1%			100%	
00CNFF : Brandwood	5	0.1%			100%	
00CNGA : Quinton	5	0.1%				100%
00CSFC : Bristnall	5	0.1%				100%
00CTFJ : Meriden	5	0.1%		50%	50%	
00CUFE : Blakenall	5	0.1%	100%			
00CUFF : Bloxwich East	5	0.1%	100%			
00CWFD : Bushbury	5	0.1%				100%
47UDFR : Church Hill	5	0.1%				100%
00GFPT : The Nedge	4	0.1%				100%
41UDHC : Shenstone	4	0.1%	100%			
41UGGQ : Forebridge	4	0.1%		100%		
41UKFT : Stonydelph	4	0.1%			100%	
00CNFC : Bartley Green	4	0.1%				100%
00CNGR : Yardley	4	0.1%		50%	50%	
00CQFA : Bablake	4	0.1%		100%		
00CQFL : St. Michael's	4	0.1%		100%		
00CRFJ : Halesowen North	4	0.1%				100%
00CRFN : Kingswinford South	4	0.1%				100%
00CWFN : Park	4	0.1%				100%
47UDFT : Greenlands	4	0.1%				100%
00EHNY : Northgate	3	0.1%				100%
00EUND : Birchwood	3	0.1%				100%
00BNFA : Ardwick	3	0.1%				100%
00BTFE : Audenshaw	3	0.1%				100%
00FBNY : St Mary's	3	0.1%		100%		
00FANL : Myton	3	0.1%		100%		
00CXFX : Shipley East	3	0.1%		50%		50%
00CXGB : Tong	3	0.1%		50%		50%
00CYFN : St. John's	3	0.1%		50%		50%
00CYFS : Town	3	0.1%		50%		50%
00DBFK : Ossett	3	0.1%		50%		50%
00FKMZ : Alvaston	3	0.1%		100%		
00FYNL : Bridge	3	0.1%		100%		
00FYNS : Dunkirk and Lenton	3	0.1%		100%		
00FYNW : Radford and Park	3	0.1%		100%		
17UKFY : Etwall	3	0.1%		100%		
31UBGD : Enderby and St John's	3	0.1%		100%		
31UCGG : Anstey	3	0.1%		100%		
31UDGL : Fleckney	3	0.1%		100%		
31UHGB : Ashby Holywell	3	0.1%		100%		
34UFGB : Castle	3	0.1%		100%		
34UHFR : Brickhill	3	0.1%		100%		
37UBGG : Woodhouse	3	0.1%		100%		
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00GFPE : Ketley and Oakengates	3	0.1%				100%
00GFPF : Lawley and Overdale	3	0.1%				100%
00GFPW : Wrockwardine	3	0.1%				100%
39UBGH : Donington and Albrighton Nort	3	0.1%				100%
39UDFT : Carreg Llwyd	3	0.1%				100%
39UEGD : Bowbrook	3	0.1%				100%
39UEGK : Harlescott	3	0.1%				100%

41UBGA : Heath Hayes East and Wimble	3	0.1%				100%
41UBGE : Norton Canes	3	0.1%				100%
41UCGF : Branston	3	0.1%		50%	50%	
41UCGH : Burton	3	0.1%		50%	50%	
41UDGF : Alrewas and Fradley	3	0.1%	100%			
41UDGH : Boley Park	3	0.1%	100%			
41UDGM : Chadsmead	3	0.1%	100%			
41UDGX : Leomansley	3	0.1%	100%			
41UFHT : Essington	3	0.1%				100%
41UFHZ : Huntington and Hatherton	3	0.1%				100%
41UGGM : Common	3	0.1%		100%		
41UGHB : Penkside	3	0.1%		100%		
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41UGHJ : Walton	3	0.1%		100%		
41UKFL : Amington	3	0.1%			100%	
41UKFW : Wilnecote	3	0.1%			100%	
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44UBGC : Coleshill South	3	0.1%		100%		
44UBGD : Curdworth	3	0.1%		100%		
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44UCFZ : Exhall	3	0.1%		100%		
44UCGD : Poplar	3	0.1%		100%		
44UFGB : Clarendon	3	0.1%		100%		
44UFGK : Radford Semele	3	0.1%		100%		
44UFGL : St John's	3	0.1%		100%		
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00CQFB : Binley and Willenhall	3	0.1%		100%		
00CQFE : Foleshill	3	0.1%		100%		
00CQFG : Holbrook	3	0.1%		100%		
00CQFJ : Lower Stoke	3	0.1%		100%		
00CQFK : Radford	3	0.1%		100%		
00CQFQ : Westwood	3	0.1%		100%		
00CQFT : Wyken	3	0.1%		100%		
00CRFA : Amblecote	3	0.1%				100%
00CRFE : Castle and Priory	3	0.1%				100%
00CRFU : St. Andrews	3	0.1%				100%
00CRGA : Wordsley	3	0.1%				100%
00CSFR : Rowley	3	0.1%				100%
00CSFX : Tividale	3	0.1%				100%
00CTFB : Castle Bromwich	3	0.1%		50%	50%	
00CTFN : Shirley East	3	0.1%		50%	50%	
00CTFQ : Shirley West	3	0.1%		50%	50%	
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00CWFH : Graiseley	3	0.1%				100%
00CWFK : Low Hill	3	0.1%				100%
00CWFM : Oxley	3	0.1%				100%
00CWFR : Spring Vale	3	0.1%				100%
00CWFT : Tettenhall Wightwick	3	0.1%				100%
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47UBFZ : Beacon	3	0.1%				100%
47UBGF : Hillside	3	0.1%				100%
47UBGR : Tardebigge	3	0.1%				100%
47UBGS : Uffdown	3	0.1%				100%
47UEFS : Claines	3	0.1%				100%
47UEGB : Warndon	3	0.1%				100%
47UEGD : Warndon Parish South	3	0.1%				100%
47UFGQ : Bengeworth	3	0.1%				100%
47UFHC : Droitwich West	3	0.1%				100%
47UFHQ : Lovett and North Claines	3	0.1%				100%
47UGGD : Habberley and Blakebrook	3	0.1%				100%
47UGGM : Wribbenhall	3	0.1%				100%
12UCGA : Ely East	3	0.1%		100%		
26UFGU : Letchworth East	3	0.1%		100%		
33UBHZ : Thetford-Saxon	3	0.1%		100%		
00BKGH : Knightsbridge and Belgravia	3	0.1%		100%		
00AEHC : Tokyngton	3	0.1%		100%		
00AFGS : Hayes and Coney Hall	3	0.1%		100%		
00ASGW : Pinkwell	3	0.1%		100%		
00ATGQ : Isleworth	3	0.1%		100%		
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00MGNB : Bletchley and Fenny Stratford	3	0.1%		100%		
00MDMY : Farnham	3	0.1%		100%		
00MDND : Upton	3	0.1%		100%		
11UFHK : Terriers and Amersham Hill	3	0.1%		100%		
24UCGM : Alton Westbrooke	3	0.1%		100%		
24UHGB : St Faith's	3	0.1%		100%		
24UPGK : Bishops Waltham	3	0.1%		100%		
29UEHB : Sandwich	3	0.1%		100%		
38UDHF : Henley South	3	0.1%		100%		
38UEHB : Hendreds	3	0.1%		100%		
00HXNW : Wroughton and Chiseldon	3	0.1%				100%
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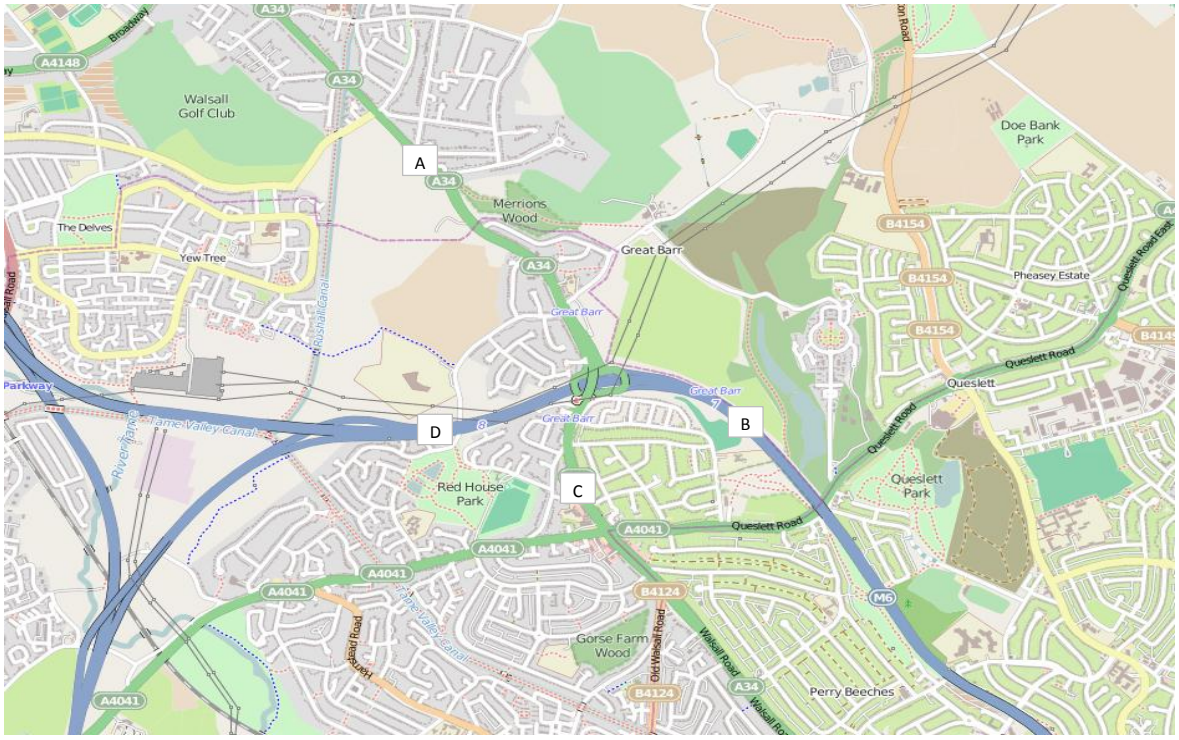
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B
C
D
Walsall Golf Club
Doe Bank Park
Merrions Wood
The Delves
Yew Tree
Great Barr
Pheasey Estate
Queslett
Queslett Park
Red House Park
Gorse Farm Wood
Perry Beeches
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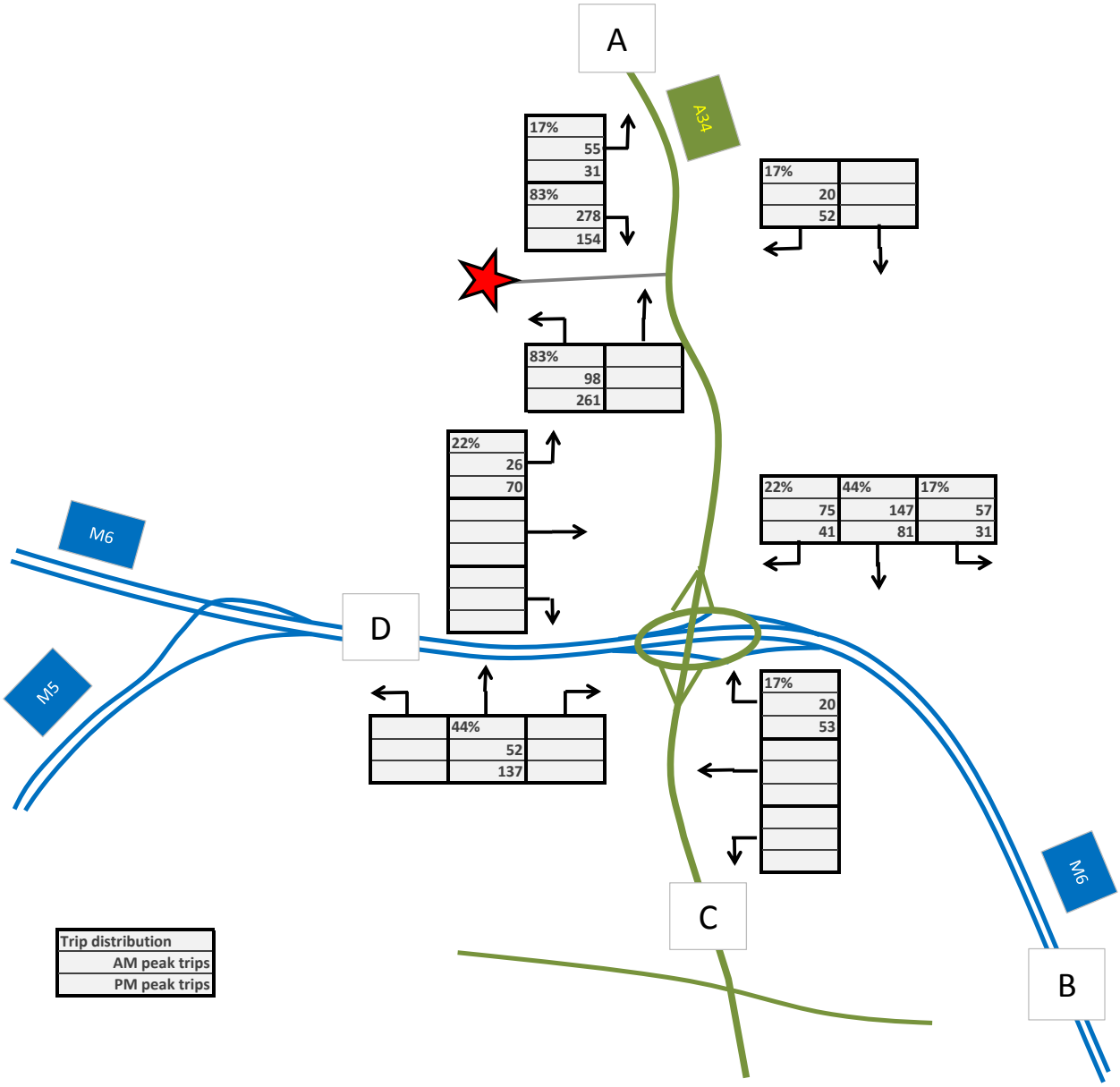
A4148
A4041
B4154
B4124
M6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147
81
17%
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31
M6
M5
D
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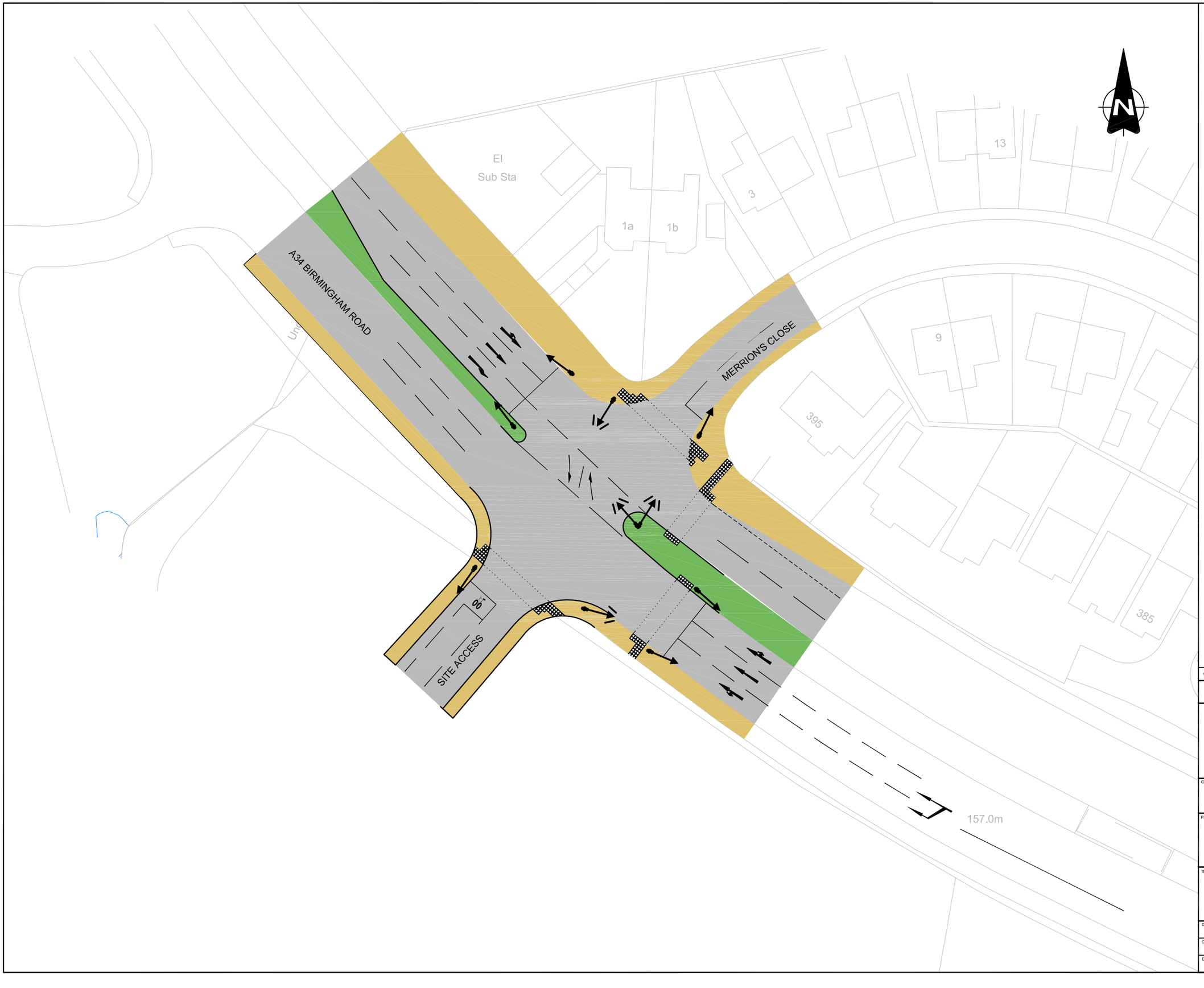
137
17%
20
53
C
M6
B
Trip distribution
AM peak trips
PM peak trips

Appendix C

OUTLINE JUNCTION DESIGN



KEY

- Carriageway
- Footway
- Central reservation
- Proposed kerbline
- Primary signal
- Secondary signal
- Tactile paving

Rev.	Date	Revision details	Drawn	Checked	Approved

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F 0121 230 6011
E birmingham@jmp.co.uk
W www.jmp.co.uk

Client
HIMOR GROUP

Project
PEAK HOUSE FARM
GREAT BARR

Title
GENERAL ARRANGMENT
SITE ACCESS

Drawn	Checked	Approved
NJH	AB	AB
Original drg. size: A3	Date: 23.07.14	Scale: 1:500
Drawing Status: INFORMATION	Drawing Number: MID3833 - 001	Rev.: -

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