

Gleeson Homes

**Marchmont Farm,
Hemel Hempstead**

Transport Strategy

November 2014

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1 INTRODUCTION

- 1.1 Vectos has been commissioned by Gleeson Homes to provide an initial appraisal of the proposed development of 350 residential units on land at the northern periphery of Hemel Hempstead, Hertfordshire.
- 1.2 The site is bounded by Margaret Lloyd Park and residential areas to the east, the A4147 Link Road to the south, and by arable land to the north and west.
- 1.3 The location of the site is shown in **Figure 1.1**.

Figure 1.1: Site Location Plan



- 1.4 An illustrative layout of the site is provided in **Appendix A**.
- 1.5 The structure of the remainder of the report is as follows:
 - **Section 2:** Policy Context
 - **Section 3:** Existing Accessibility
 - **Section 4:** Traffic Generation
 - **Section 5:** Access Solution
 - **Section 6:** Summary and Conclusions

2 POLICY CONTEXT

National Planning Policy Framework

- 2.1 The National Planning Policy Framework (NPPF) was published by the Department for Communities and Local Government in March 2012 and sets out national policy for delivering sustainable growth and development in England. The NPPF details how it expects policy to be applied and it aims to make the planning system less complex and more accessible. It replaces a wealth of Planning Policy Statements and Guidance including PPG13 and PPS1.
- 2.2 The NPPF states that sustainable transport is about '*giving people a real choice about how they travel*' whilst recognising that solutions will '*vary from urban to rural areas*'. It advises that decisions should take account of amongst others whether '*safe and secure access to the site can be achieved for all people*', and that '*development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe*'.
- 2.3 In terms of transport the objectives outlined in the NPPF are to:
- '*facilitate economic growth by taking a positive approach to planning for development;*
 - '*make the fullest possible use of sustainable modes of travel; and*
 - '*support reductions in greenhouse gas emissions and congestion, and promote accessibility through planning for the location and mix of development.*'
- 2.4 Section 4 of the NPPF deals with 'promoting sustainable transport', and states:
- 'The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel.*
- All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. 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.'*

2.5 The NPPF states in Section 3 that:

'Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- *accommodate the efficient delivery of goods and supplies;*
- *give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;*
- *create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;*
- *incorporate facilities for charging plug-in and other ultra-low emission vehicles; and*
- *consider the needs of people with disabilities by all modes of transport.*

A key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan.'

2.6 The NPPF states that local authorities should consider the accessibility of a development alongside the type, mix and use of the development as well as looking at local car ownership and the overall need to reduce the use of high emission vehicles when determining planning applications.

National Planning Practice Guidance (NPPG), 2014

2.7 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance web-based resource. One section relates specifically to Transport and is titled 'Travel Plans, Transport Assessments and Statements in decision-taking' and this provides the overarching principles of Travel Plans, Transport Assessments and Statements.

2.8 The guidance explains the role of Transport Assessments and Statements as: *"ways of assessing the potential transport impacts of developments (and they may propose mitigation*

measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans). The guidance also states that Travel Plans are “long term management strategies for integrating proposals for sustainable travel into the planning process”. They should be brought forward in parallel with development proposals and should be integrated in to the design of developments.

2.9 The guidance explains that when preparing Transport Assessments and Travel Plans the following key principles should be taken into account:

- *“proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible;*
- *established at the earliest practicable possible stage of a development proposal;*
- *be tailored to particular local circumstances (other locally-determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally);*
- *be brought forward through collaborative ongoing working between the Local Planning Authority/ Transport Authority, transport operators, Rail Network Operators, Highways Agency where there may be implications for the strategic road network and other relevant bodies. Engaging communities and local businesses in Travel Plans, Transport Assessments and Statements can be beneficial in positively supporting higher levels of walking and cycling (which in turn can encourage greater social inclusion, community cohesion and healthier communities).”*

2.10 The guidance demonstrates that Transport Assessments and Statements and Travel Plans can positively contribute in the following ways:

- *“encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads.*

Local Policy - Dacorum Core Strategy 2006-2031

- 2.11 The Dacorum Core Strategy was adopted on 25th September 2013 and sets out to manage change in Dacorum over the years to 2031.
- 2.12 The strategy states that Hemel Hempstead will be *“the main centre for development and change in the borough and the focus for new homes, jobs and infrastructure”*.
- 2.13 Marchmont Farm is an allocated site for up to 300 residential units, and forms part of circa 8,800 new homes that are to be provided in the borough over the period of the plan.
- 2.14 The Marchmont Farm local allocation (reference LA1) is described on page 153 of the core strategy, with a summary of the development aspirations provided below:
- *“Around 300 new homes;*
 - *Extension of Margaret Lloyd Park;*
 - *Mix of two and three storey housing including 40% affordable homes;*
 - *A contribution towards educational and community facilities;*
 - *Impact on the local road network mitigated through the promotion of sustainable travel options, including pedestrian links to the local centre; and*
 - *The proposal will be delivered as an allocation in the Site Allocations DPD where detailed planning requirements will be established.”*

Local Allocation Marchmont Farm Draft Master Plan 2014

- 2.15 This master plan was prepared by Dacorum Borough Council and Gleeson Developments Ltd in September 2014. Its purpose is to supplement the Site Allocations DPD by setting development principles and a framework through which a high quality residential scheme can be delivered on the site.
- 2.16 The Draft Master Plan states that *“the development will include between 300 and 350 homes, accompanied by open space and sustainable transport and green links. The number of units assumed for the site within the Site Allocations DPD is slightly higher than originally in the Core Strategy (which specified ‘around 300’). This is a result of further testing of site capacity through the master plan and Site Allocations Processes ”*.

3 EXISTING ACCESSIBILITY

Pedestrians and Cyclists

- 3.1 One of the main factors demonstrating the suitability of a development site is its accessibility by non-car modes of transport. This helps to reduce the reliance on the use of the private car as well as promoting the aims of sustainable travel choices.
- 3.2 Manual for Streets' (MfS) describes "walkable neighbourhoods" as those which are "typically characterised by having a range of facilities within 10 minutes' (around 800m) walking distance". However, MfS also states that this is not an upper limit.
- 3.3 It is commonly accepted that walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly those under 2km. The pedestrian provision in the vicinity of the site is considered to be relatively good, providing continuous links to key facilities and amenities; including the local neighbourhood centre, schools and bus stops.
- 3.4 There are also a number of existing Public Rights of Way (PRoW's) in the vicinity of the site. These are shown in **Figure 3.1**.
- 3.5 The 2km catchment is presented in **Figure 3.2** and includes the northern section of the Hemel Hempstead Industrial Estate to the east.
- 3.6 Cycling has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport. Within the vicinity of the site there are on road cycle lanes along both sides of Aycliffe Drive. The relatively moderate traffic flows that have been observed in the area mean that cyclists should feel comfortable on much of the surrounding highway network.
- 3.7 The 5km catchment is also presented in **Figure 3.3** and covers the majority of Hemel Hempstead including the rail station to the south.
- 3.8 There is also evidence that longer distances are common for commuters – up to at least 7km. DfT's 'Cycle Infrastructure Design' (October 2008) states that:

“In common with other modes, many utility cycle journeys are under three miles (4.8km), although for commuter journeys, a trip distance of over 5 miles (7.2km) is not uncommon.”

Public Transport

- 3.9 The closest bus stops to the site are located on Washington Avenue and Aycliffe Drive, as shown in **Figure 3.4**. The majority of the bus stops in the vicinity of the site are equipped with shelters, seating, a small waiting area, timetable information and sign poles. An example of the bus stop provision is shown in **Photograph 1**.

Photograph 1: Example of bus stop provision in the vicinity of the site



- 3.10 The bus stop on Washington Avenue is served by Arriva Bus service number 4. The service operates with a 20min frequency between Monday to Saturday and an hourly service on a Sunday. The route includes Boxmoor, Hemel Hempstead, Highfield and Grovehill.
- 3.11 The bus stop on Aycliffe Drive is served by service number 2, 748 and 759; however only route 2 is a local service. Service number 2 operates a 10 minute frequency between Mondays to Fridays, a 15 minute frequency on Saturdays and a 20 minute frequency on Sundays.

- 3.12 Initial discussions with HCC have indicated that either service number 2 or 4 is most likely option to serve the site, and that the site would require a turn-around facility for buses.

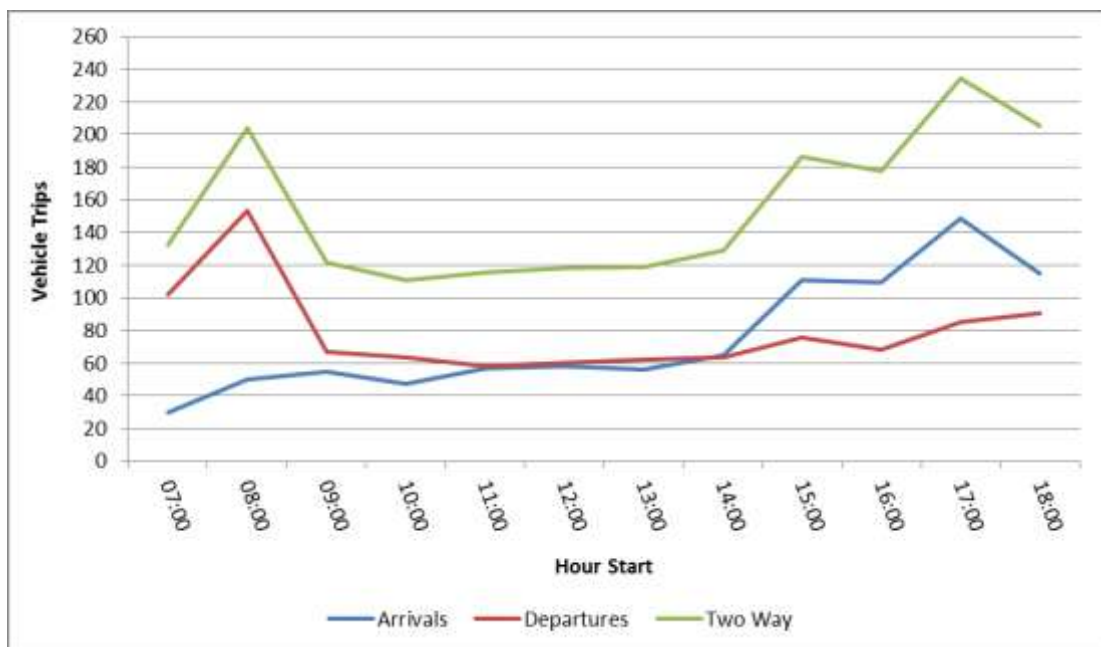
- 3.13 In summary, the site is accessible by a variety of different modes of transport, including walking, cycling and public transport.

4 TRAFFIC GENERATION

Vehicle Trip Generation

- 4.1 Trip rates for the proposed development have been based on trips derived from the TRICS database.
- 4.2 The housing mix for the development has not yet been finalised. Therefore to ensure a robust assessment the initial traffic generation has been based on the site comprising 350 privately owned houses.
- 4.3 To reflect the location of the site, only TRICS sites located at Edge of Town and Neighbourhood Centre locations have been included in the assessment. A copy of the TRICS output is included at **Appendix B**.
- 4.4 An assessment of the daily trip generation using the TRICS trip rates has identified that the development peaks are between 0800-0900 and 1700-1800, as shown in **Table 4.1**.

Table 4.1: Average Daily Traffic Generation for 350 Residential Units.



- 4.5 The average trip rates and corresponding traffic generation for the AM and PM peak hours are shown in **Table 4.1**.

Table 4.1: Traffic Generation – 350 Residential Units

	AM Peak Hour			PM Peak Hour		
	Arrivals	Departures	Two Way	Arrivals	Departures	Two Way
Average Trip Rate/dwelling	0.143	0.439	0.582	0.425	0.244	0.669
Vehicles	50	154	204	149	85	234

- 4.6 Based on the assessment above the two way traffic generation is likely to be up to 204 and 234 two way vehicle trips in the AM and PM peak hours respectively, which equates to between 3 and 4 additional vehicle movements per minute during the peak hours.
- 4.7 It should also be noted that the vehicle trip rates used do not account for affordable housing, which typically generates less movements than private housing. This is a robust approach for the initial site appraisal.

Distribution

- 4.8 For the initial site appraisal it has been assumed that there will an even 50/50 split of vehicles arriving and departing the site from the east and west of the access onto the A4147 Link Road.
- 4.9 Based on this assumption there is likely to be an increase of 102 vehicles in the AM peak hour and 117 in the PM peak vehicles at the following two junctions:
- Aycliffe Drive / A4147 / Cambrian Way 4 arm roundabout; and
 - Piccotts End Road / A4147 4 arm roundabout.
- 4.10 The increase equates to less than 2 vehicle movements per minute at each of the junctions during the peak hours. This level of additional traffic is unlikely to have a significant impact on the operation of the junctions.
- 4.11 As previously noted, this is based on a robust trip generation calculation that does not account for the typically lower traffic attraction of affordable housing.

Modal Split

- 4.12 An analysis of the 2011 census data has been undertaken to determine the likely modal splits for the proposed development.

4.13 Applying the mode by which people travel to work (Ref: Census Table QS701EW) to the forecast number of vehicle trips would result in the modal splits as shown in **Table 4.2**. People not in employment have been removed from the method of travel to work mode split calculation.

Table 4.2: Forecast Modal Splits

Mode	Modal Split (%)	Two-Way	
		AM Peak	PM Peak
Work mainly at or from home	3.2%	10	11
Train	3.1%	9	11
Bus, minibus or coach	7.0%	21	24
Taxi	0.4%	1	1
Motorcycle, scooter or moped	1.0%	3	3
Driving a car or van	68.0%	204	234
Passenger in a car or van	6.6%	20	23
Bicycle	1.5%	4	5
On foot	8.8%	26	30
Other method of travel to work	0.5%	2	2
Total	100%	300	344

4.14 The number of total person trips identified in **Table 4.2** show that there will not be any adverse impact on the capacity of existing public transport services in the area as the demands for such modes of transport, based on recent local data, is expected to be relatively low.

5 ACCESS SOLUTION

- 5.1 The following section considers the potential access options to the site for pedestrians, cyclists and vehicles.

Pedestrian and Cyclists

- 5.2 There are a number of potential pedestrian/cycle access points to the site, as shown in **Figure 5.1**.
- 5.3 There are three potential pedestrian access points at the north eastern boundary of the site, and would provide a good connection to existing bus stops and Bancroft Primary further afield to the north. The majority of the surrounding roads benefit from footways and are suitable for pedestrians.
- 5.4 The key pedestrian link towards Grovehill is likely to be along the northern perimeter of Margaret Lloyd Park from Piccotts End Lane. This path appears to be used fairly frequently by dog walkers, although is relatively poorly maintained and could benefit from improvement. The main drawback is that it is not lit, which makes it an unattractive route in the hours of darkness. Further consideration would be needed to determine if some form of lighting would be suitable along this route.
- 5.5 There is an existing footpath that passes diagonally through the park and connects with the route along the northern perimeter. This is a relatively well maintained tarmac path that would provide a good connection to the local centre from the southeast of the site, however there is a relatively steep upward gradient in an eastern direction. This route is also unlit.
- 5.6 There is a third unlit path that passes through Hunting Gate Wood from the southeast of the site towards Aycliffe Drive. There is also a link from the path to Aycliffe Drive Primary school via a pedestrian subway under Hunting Gate. This route is also on a fairly steep gradient.
- 5.7 There are two further potential pedestrian access points at the southeast corner of the site. These provide a link via Marlborough Rise and Sevenmead towards the bus stops on Aycliffe Drive and further afield to the north towards the local centre and primary school. The route is suitable for pedestrians and benefits from footways and street lighting.

5.8 In summary, the initial appraisal indicates that there are reasonably good opportunities to provide pedestrian and cycle connections to the key local destinations.

Vehicles

5.9 A number of access options to the proposed development have been appraised including access from the following highway links:

- Laidon Square;
- Piccotts End Lane; and
- A4147 Link Road.

5.10 The viability of providing access to the site for vehicles has been based on an appreciation of a number of good practice documents on highway layout/arrangements including Manual for Streets 1 and 2 and the HCC Roads in Hertfordshire: A Design Guide 3rd Edition. Vectos has also undertaken a number of site visits during the peak and off peak traffic periods to understand the current situation with regard to traffic movements and on street parking.

5.11 Based on the information available it is considered that the only viable location for the main vehicular access is onto the A4147 Link Road. Due to the nature of Laidon Square and Piccotts End Lane they would only be suitable for emergency accesses.

5.12 It is feasible to provide a vehicular connection to Laidon Sqaure for all vehicles, but this is not currently recommended as it would lead to more traffic using the residential roads in the northern part of the Grovehill area. There would be no impact on the amenity of local residents if a direct connection is provided to the A4147 Link Road.

Main Vehicle Access

5.13 Two options for the main vehicle access to the site from the A4147 Link Road have been considered. Option 1 is the construction of a new priority junction with ghost island right turn lane. Option 2 is the construction of a 3 arm roundabout junction in the same location.

5.14 In addition, both options include the provision of a pedestrian/cycle access from the Link Road to the east of the vehicle access.

5.15 The potential access options are shown in the feasibility design included at **Appendix C**.

- 5.16 It is considered that both of the main site access options would have sufficient capacity to accommodate the traffic associated with 350 residential units.
- 5.17 During the initial project scoping with the local highway authority the principle of a single main vehicular access onto the Link Road was agreed, with HCC indicating that the roundabout is likely their preferred option as it would help to control speed along the road, would likely have the required capacity and is comparatively safe.

Secondary Vehicle Access

- 5.18 Further to this, HCC requested that a secondary vehicular access into Grovehill should be investigated and Piccotts End Lane should be retained. A secondary access into Grovehill would have a negative impact on the amenity of local residents and is not needed for capacity reasons. Piccotts End Lane will be retained through the site, but would need to be crossed by a vehicular route.
- 5.19 Further consideration to both an all-purpose vehicular access to Laidon Road and the retention of Piccotts End Lane can be undertaken in the Transport Assessment Report that would be prepared in support of a planning application and in the detailed masterplanning for the site.

6 SUMMARY AND CONCLUSIONS

Summary

- 6.1 Marchmont Farm has been allocated in the Dacorum Core Strategy for approximately 350 new homes and the extension of Margaret Lloyd Park. The core strategy states that the impact on the local road network mitigated through the promotion of sustainable travel options, including pedestrian links to the local centre.
- 6.2 The existing pedestrian provision in the vicinity of the site is considered to be relatively good, providing continuous links to key facilities and amenities; including the local neighbourhood centre, schools and bus stops
- 6.3 Within the vicinity of the site there are on-road cycle lanes along both sides of Aycliffe Drive. The relatively moderate traffic flows that have been observed in the area mean that cyclists should feel comfortable on much of the surrounding highway network.
- 6.4 Initial discussions with the HCC have indicated that either bus service number 2 or 4 could serve the site.
- 6.5 The initial two way traffic generation calculation suggests the development is likely to result in up to 204 and 234 two way vehicle trips in the AM and PM peak hours respectively, which equates to between 3 and 4 additional vehicle movements per minute during the peak hours.
- 6.6 Further to this, there is likely to be an increase of less than 2 vehicle movements per minute at the Aycliffe Drive / A4147 and Piccotts End Road / A4147 roundabout junctions during the peak hours. This level of additional traffic is unlikely to have a significant impact on the operation of the junctions.
- 6.7 The initial mode split calculations indicate that there will not be any adverse impact on the capacity of existing public transport services in the area as the demands for such modes of transport, based on recent local data, is expected to be relatively low.
- 6.8 In relation to pedestrian and cyclist accessibility, the initial appraisal indicates that there are reasonably good opportunities to provide connections to the key local destinations.

- 6.9 The viability of providing access to the site for vehicles has been based on an appreciation of a number of good practice documents on highway layout/arrangements.
- 6.10 Based on the information available it is considered that the only viable location for the main vehicular access is onto the A4147 Link Road.
- 6.11 It is considered that a main site access option in the form of a roundabout or priority junction would have sufficient capacity to accommodate the traffic associated with 350 residential units. During the initial project scoping with the local highway authority the principle of a single main vehicular access onto the Link Road was agreed, with HCC indicating that the roundabout is likely their preferred option.

Conclusion

- 6.12 In conclusion, an initial appraisal of the site has shown that the proposed development of approximately 350 residential units could be accommodated on the local traffic and transportation network.
- 6.13 The location of the site accords with local planning and transport policy and could be accessed by a number of sustainable transport modes.
- 6.14 On this basis, there are no highways and transport reasons why the proposed site should not be developed for approximately 350 residential units and why this level of development could not be brought forward now.

FIGURES



Key

-  Site Location
-  Footpath
(Source: Hertfordshire County Council Rights of Way Map Online)

Marchmont Farm,
Hemel Hempstead

Gleeson Homes

Public Rights of Way

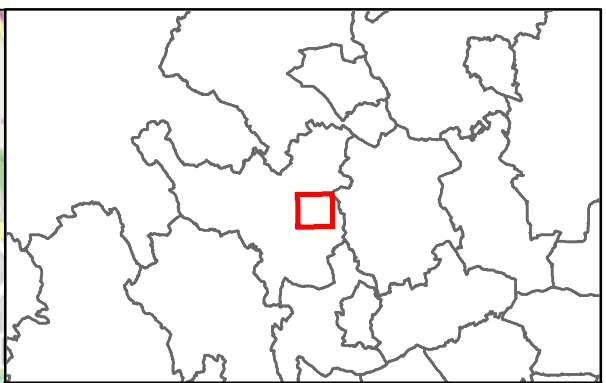
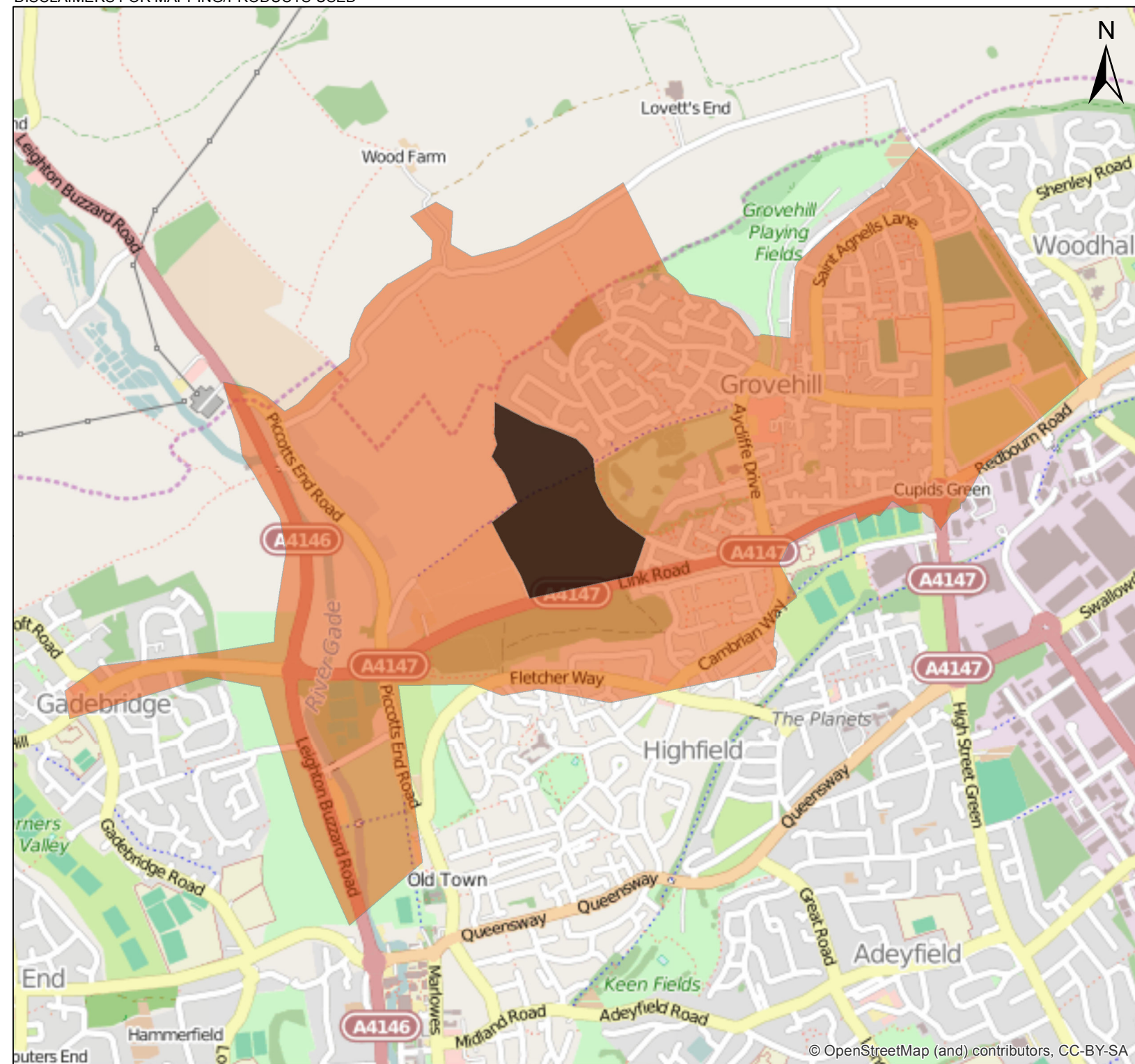
SCALES: **NTS**

DRAWN: BB	CHECKED: MM	DATE: 10/11/14	REVISION: .
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Network Building, 97 Tottenham Court Road, London W1T 4TP
Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk

DRAWING REFERENCE: **Figure 3.1**



Legend

- Site Location
- 2km Walking Catchment

TITLE: **Walking Isochrone**

CLIENT: **Gleeson Homes**

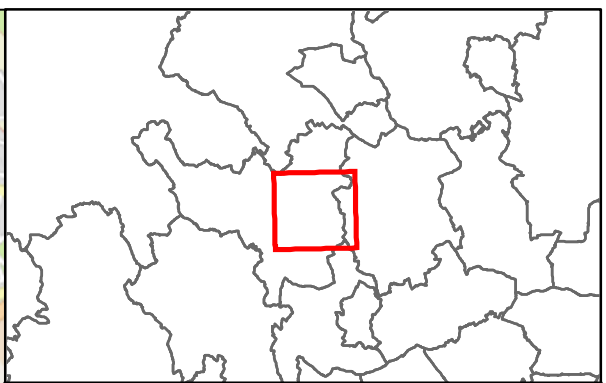
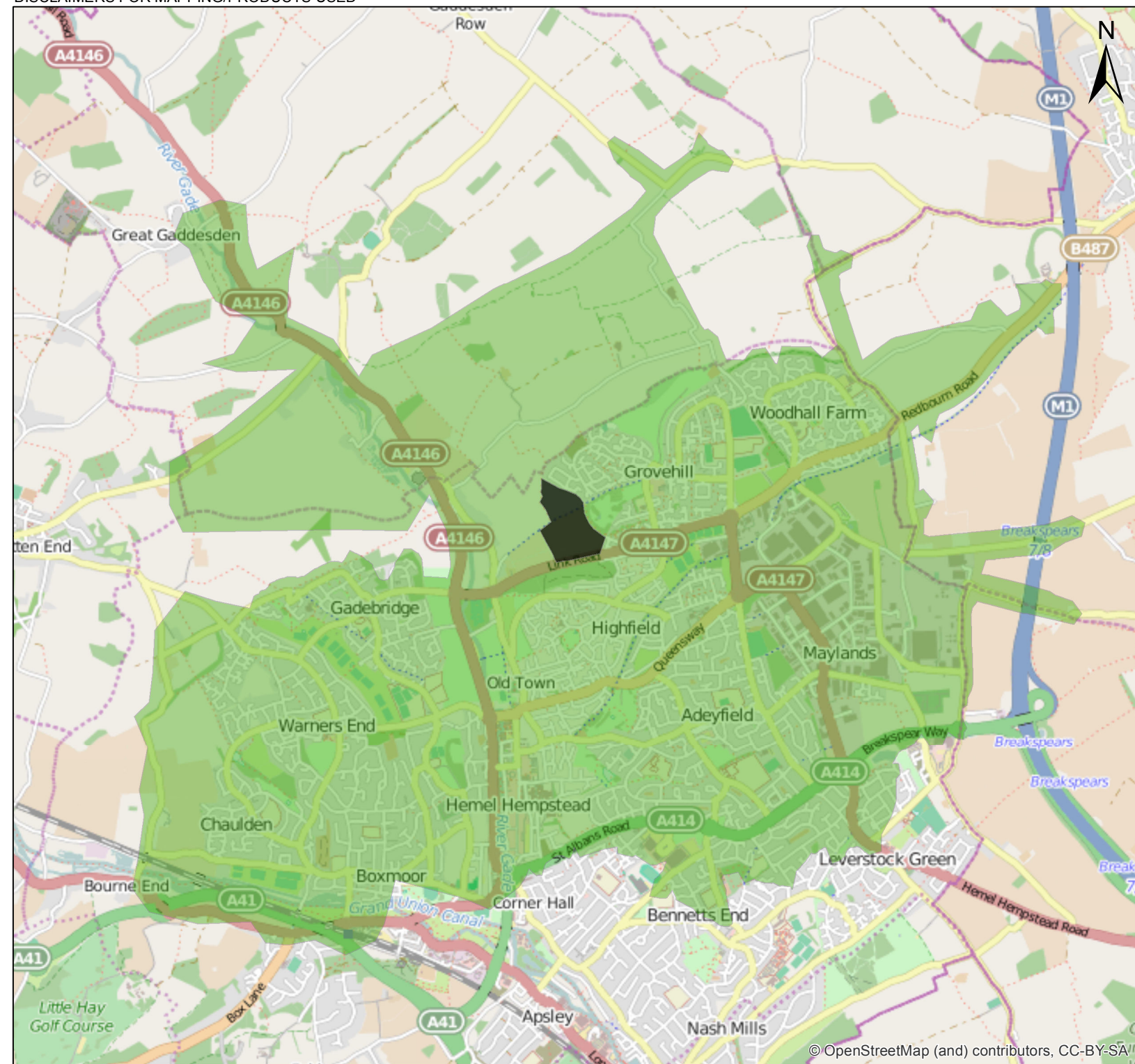
LOCATION: **Marchmont Farm, Hemel Hempstead**



FIGURE: **Figure 3.2**

DRAWN BY: H.J	CHECKED BY: M.M	DATE: 14/11/2014
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© OpenStreetMap (and) contributors. CC-BY-SA



Legend

- Site Location
- 5km Catchment

TITLE: **Cycling Isochrone**

CLIENT: **Gleeson Homes**

LOCATION: **Marchmont Farm, Hemel Hempstead**




FIGURE: **Figure 3.3**

DRAWN BY: H.J	CHECKED BY: M.M	DATE: 14/11/2014
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Key

-  Site Location
-  Approximate Bus Stop Location

Marchmont Farm,
Hemel Hempstead

Gleeson Homes

Public Transport
Infrastructure Plan

SCALE: **NTS**

DRAWN: BB	CHECKED: MM	DATE: 10/11/14	REVISION: .
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DRAWING REFERENCE: **Figure 3.4**

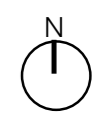
APPENDIX A

Illustrative Site Layout Plan



Marchmont Farm Preferred option Masterplan

drawing no. 5428 / 01
 scale NTS
 date March 2014



APPENDIX B

Residential Houses-Privately Owned TRICS Output

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02 SOUTH EAST		
EX ESSEX		1 days
04 EAST ANGLIA		
SF SUFFOLK		1 days
06 WEST MIDLANDS		
ST STAFFORDSHIRE		1 days
WO WORCESTERSHIRE		1 days
08 NORTH WEST		
GM GREATER MANCHESTER		1 days
MS MERSEYSIDE		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: 224 to 372 (units:)
 Range Selected by User: 200 to 400 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/00 to 13/05/08

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

Selected survey days:

Tuesday	2 days
Thursday	3 days
Friday	1 days

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

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	5
Neighbourhood Centre (PPS6 Local Centre)	1

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	4
No Sub Category	2

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

Filtering Stage 3 selection:

Use Class:

C3 6 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:

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

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

Population within 5 miles:

75,001 to 100,000 2 days
125,001 to 250,000 3 days
500,001 or More 1 days

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

Car ownership within 5 miles:

0.6 to 1.0 3 days
1.1 to 1.5 3 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:

Not Known 2 days
No 4 days

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

LIST OF SITES relevant to selection parameters

1	EX-03-A-01 MILTON ROAD CORRINGHAM STANFORD-LE-HOPE Edge of Town Residential Zone Total Number of dwellings: 237 Survey date: TUESDAY 13/05/08	SEMI-DET.	ESSEX	Survey Type: MANUAL
2	GM-03-A-08 ELM TREE ROAD LOWER BREDBURY STOCKPORT Edge of Town Residential Zone Total Number of dwellings: 247 Survey date: FRIDAY 12/10/01	SEMI DETACHED	GREATER MANCHESTER	Survey Type: MANUAL
3	MS-03-A-01 PALACE FIELDS AVENUE RUNCORN Neighbourhood Centre (PPS6 Local Centre) Residential Zone Total Number of dwellings: 372 Survey date: THURSDAY 06/10/05	TERRACED	MERSEYSIDE	Survey Type: MANUAL
4	SF-03-A-02 STOKE PARK DRIVE MAIDENHALL IPSWICH Edge of Town Residential Zone Total Number of dwellings: 230 Survey date: THURSDAY 24/05/07	SEMI DET./TERRACED	SUFFOLK	Survey Type: MANUAL
5	ST-03-A-03 QUEENSVILLE STAFFORD Edge of Town No Sub Category Total Number of dwellings: 224 Survey date: TUESDAY 04/07/00	MIXED HOUSES	STAFFORDSHIRE	Survey Type: MANUAL
6	WO-03-A-06 ST GODWALDS ROAD ASTON FIELDS BROMSGROVE Edge of Town No Sub Category Total Number of dwellings: 232 Survey date: THURSDAY 30/06/05	DET./TERRACED	WORCESTERSHIRE	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

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	6	257	0.086	6	257	0.292	6	257	0.378
08:00 - 09:00	6	257	0.143	6	257	0.439	6	257	0.582
09:00 - 10:00	6	257	0.156	6	257	0.191	6	257	0.347
10:00 - 11:00	6	257	0.135	6	257	0.182	6	257	0.317
11:00 - 12:00	6	257	0.163	6	257	0.167	6	257	0.330
12:00 - 13:00	6	257	0.167	6	257	0.171	6	257	0.338
13:00 - 14:00	6	257	0.161	6	257	0.178	6	257	0.339
14:00 - 15:00	6	257	0.186	6	257	0.182	6	257	0.368
15:00 - 16:00	6	257	0.316	6	257	0.217	6	257	0.533
16:00 - 17:00	6	257	0.312	6	257	0.195	6	257	0.507
17:00 - 18:00	6	257	0.425	6	257	0.244	6	257	0.669
18:00 - 19:00	6	257	0.328	6	257	0.259	6	257	0.587
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.578			2.717			5.295

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

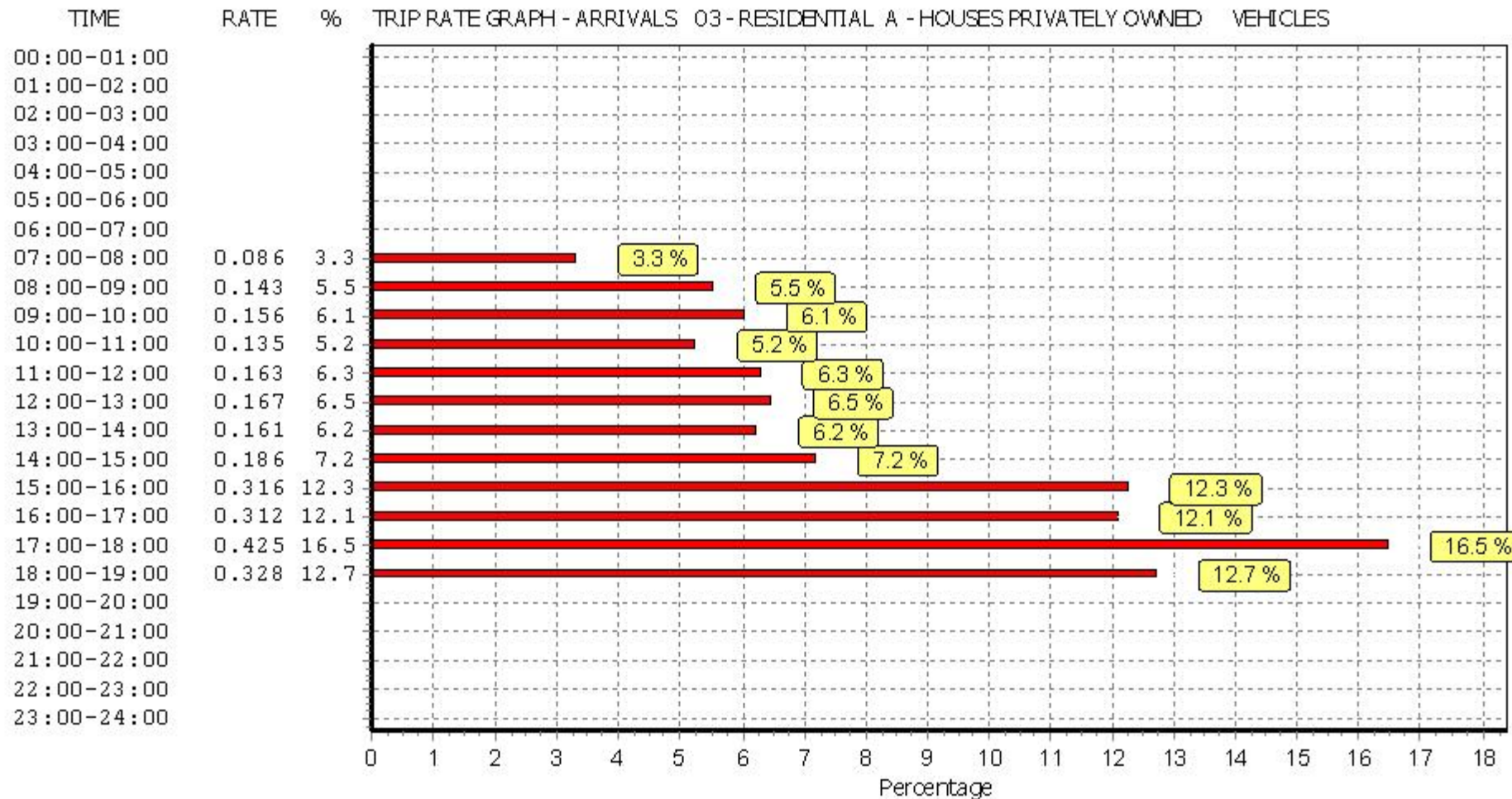
Trip rate parameter range selected: 224 - 372 (units:)
 Survey date date range: 01/01/00 - 13/05/08
 Number of weekdays (Monday-Friday): 6
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 1

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.

Houses Privately Owned - Edge of Town and Neighbourhood Centre Sites

VECTOS 97 TOTTENHAM COURT ROAD LONDON

Licence No: 152301

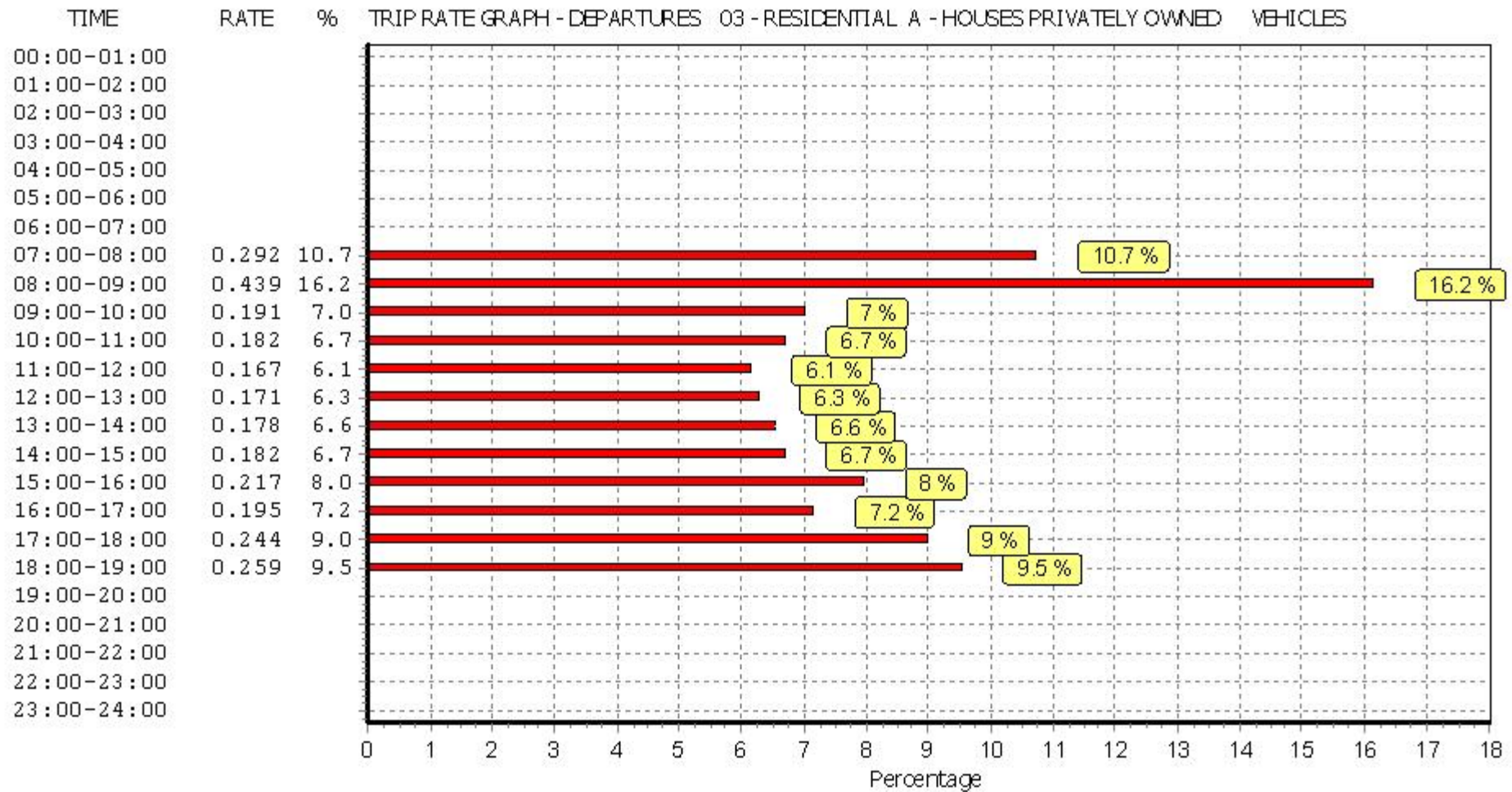


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

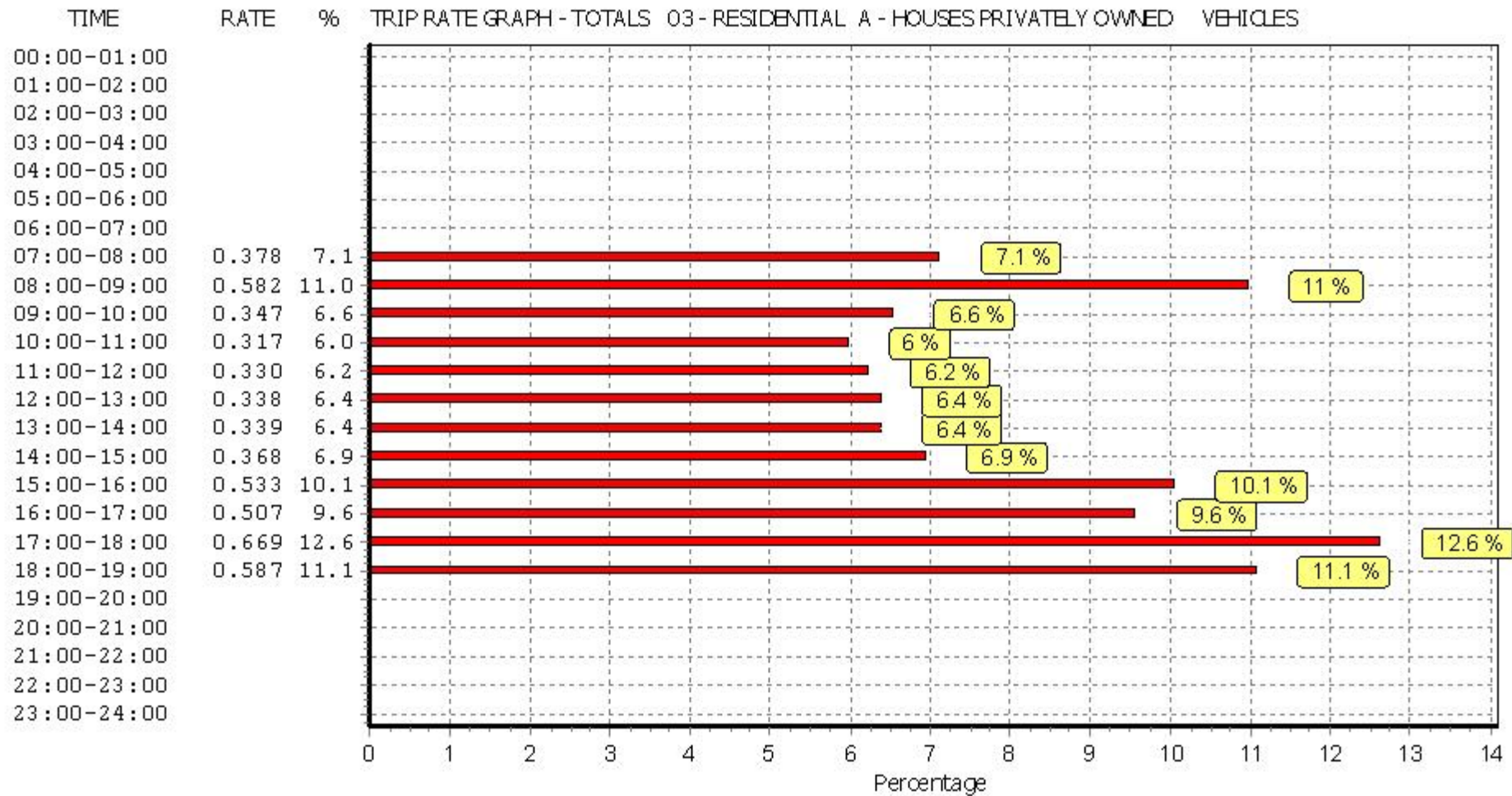
Houses Privately Owned - Edge of Town and Neighbourhood Centre Sites

VECTOS 97 TOTTENHAM COURT ROAD LONDON

Licence No: 152301



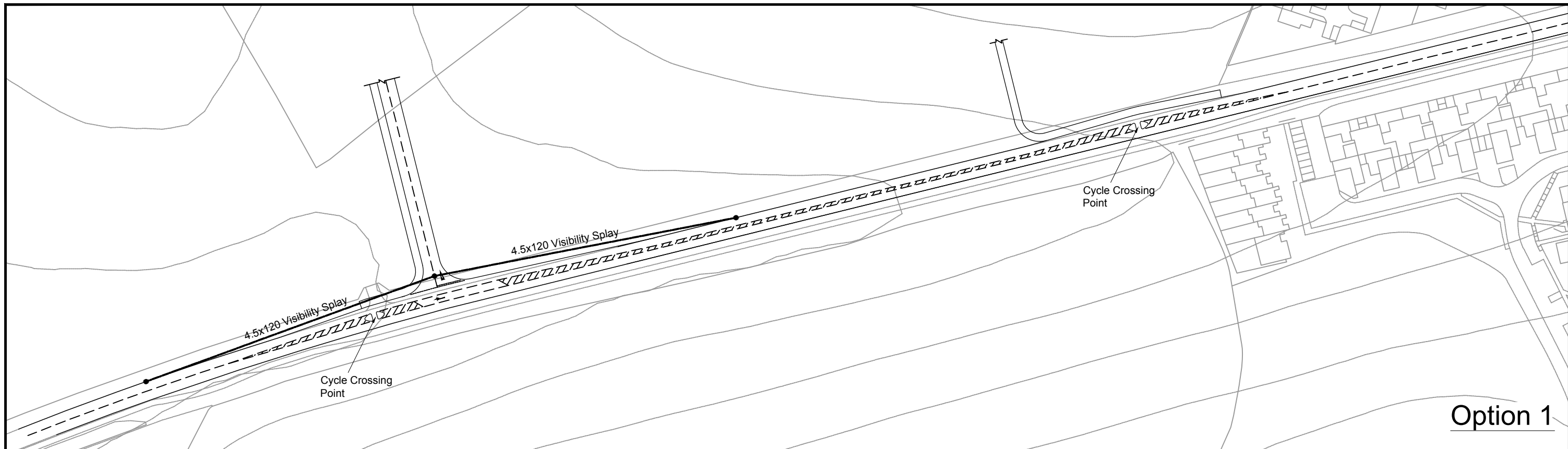
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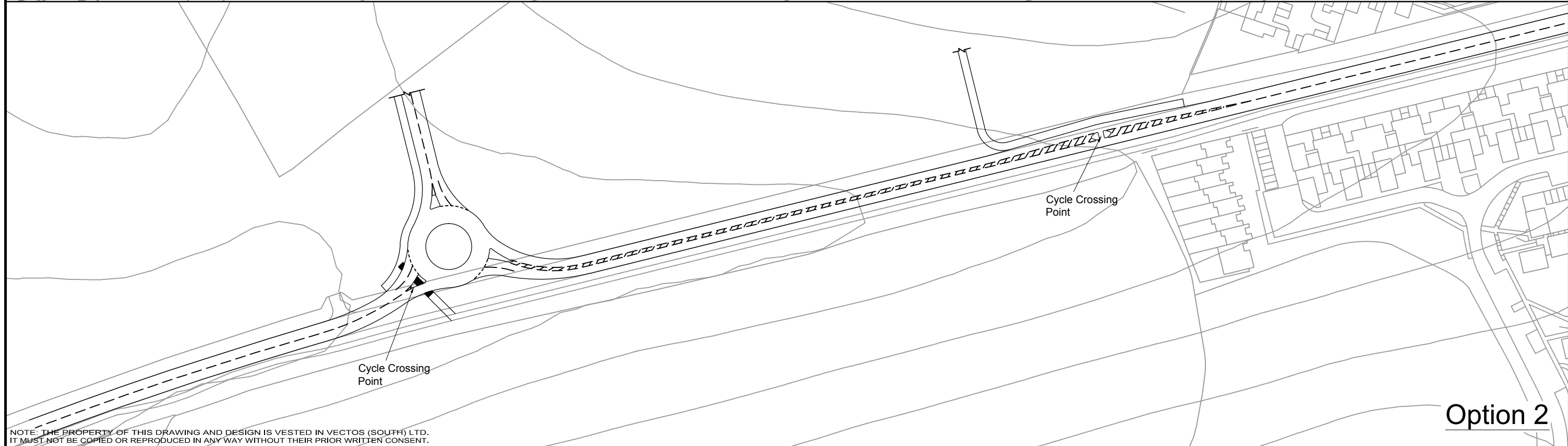
This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through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

APPENDIX C

Potential Site Access Options



Option 1



Option 2

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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.

Marchmont Farm

Potential Access Options

DRAWN: JM	CHECKED: ID	DATE: 24/11/2011	SCALES: 1:1250 @ A3
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Gleeson Homes



85 Tottenham Court Road, London W1T 4TQ
t: 020 7268 3020 e: enquiries@vectos.co.uk

DRAWING NUMBER: 110085-PD-01	REVISION: .
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