



**WOOL TRANSPORT STRATEGY
AND ASSESSMENT**

**Client: Redwood Partnership
and
The Lulworth Estate**



i-Transport



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i-Transport LLP
Grove House
Lutyens Close
Chineham Court
Basingstoke
Hampshire
RG24 8AG
Tel: 01256 338640
Fax: 01256 338644
www.i-transport.co.uk

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SECTION 1 INTRODUCTION

1.1 Introduction

1.1.1 i-Transport has been instructed by Redwood Partnership and The Lulworth Estate to provide highways and transportation advice to consider the transport implications of promoting sites in Wool, Dorset for residential development in the Purbeck District Local Plan Partial Review.

1.2 Background

1.2.1 The Purbeck Local Plan Part 1 was adopted in November 2012. This report identified that an additional 2,520 dwellings should be provided in Purbeck up to 2027. Policy SW recommends 360 additional dwellings in South West Purbeck, where Wool is located, but does not specifically allocate any housing to Wool.

1.2.2 Policy IAT (Improving Accessibility and Transport) of the local plan sets out a commitment to achieving improvements to the level of accessibility in the district by promoting development in locations that reduce the need to travel and provide opportunities for travel by foot, cycle and public transport.

1.2.3 The Purbeck Local Plan Part 1 is committed to achieving improvements to local transport through the implementation of the Purbeck Transportation Strategy (*ref: Policy ATS: Implementing an Appropriate Transport Strategy for Purbeck*). The strategy includes a series of measures aimed at achieving improvements to travel by sustainable modes. Details of planned transport improvements in Wool are set out in Section 2.

1.2.4 Wool is one of six villages designated as a Key Service village in the Local Plan. This is the second highest of five tiers of settlement that are ranked in order of sustainability. Policy LD of the local plan states that development should be directed towards the most sustainable settlements. Wool is the only Key Service Village with a railway station, and the 'Settlement Strategy' document of September 2011 (part of the Local Plan evidence base) advises that Wool is the only Key Service Village with over 20 facilities. On this basis, the highly sustainable nature of the settlement is acknowledged within the Purbeck Local Plan Part 1.

1.2.5 During the lead up to the adoption of the Local Plan, the Strategic Housing Market Assessment (SHMA) identified a need for 170 new dwellings per annum in Purbeck (ref: *Inspectors Report to Purbeck District Council on the Examination to the Purbeck Local Plan Part 1, paragraph 16*). The Local Plan enables only 120 dwellings per annum to come forward – a shortfall of 50 dwellings per annum. As a result, the Inspector examining the Local Plan recommended (and the Local Authority accepted) that the local authority undertake a ‘Partial Review’ to investigate ways of meeting housing needs.

1.2.6 The Inspector’s Report acknowledges that Purbeck District Council was not supportive of development at Wool at that time due to ‘detrimental highway consequences’, specifically delays to traffic caused by a railway level crossing on the A352. Further development was also not supported by the Parish Council. However, the Inspector argues at paragraph 49 that:

“The views of the local community are important but should be balanced against the need for additional housing in the District; the opportunities to mitigate adverse impacts on European protected sites; the sustainability credentials of the village (which is identified as a key service village and includes shops, schools, a station on the main London to Weymouth railway and the nearby DGTP [Dorset Green Technology Park]); and the likelihood that the current re-signalling of the railway line will result in reduced delays at the level crossing.”

1.2.7 The Inspector’s Report recommends further evidence be provided to consider the transport implications of residential development at Wool, such as the traffic implications on the railway crossing and wider highway network, and how improvements could be undertaken in the local area to sustainably accommodate development. It is considered that this report provides sufficient evidence to demonstrate residential development is achievable and acceptable in Wool in highways terms.

1.2.8 Wool is located immediately east of a large business park, Dorset Green Technology Park (DGTP). There are aspirations to expand DGTP and Policy SW of the adopted Purbeck Local Plan Part 1 states that :

“New employment development will be focused at Dorset Green Technology Park to provide both local and wider job opportunities, supported by improved public transport links with Wool. The existing allocation will be safeguarded on the Proposals Map and reviewed through the Partial Review of the Local Plan, the Site Allocations Plan or a neighbourhood plan”.

1.2.9 There are already plans by Dorset Local Enterprise Partnership to increase the number of employees at DGTP. The Purbeck Local Plan Partial Review Issues and Options Consultation document identifies potential for up to 43 hectares of land at DGTP, which could be suitable for bringing forward employment uses.

1.3 **Scope**

1.3.1 This assessment presents a transport strategy aimed at demonstrating how up to 1,000 dwellings could be accessed and sustainably accommodated within the village. Wool is considered to be already a highly sustainable, 'self-contained' settlement, with a high proportion of residents already working in Wool and using sustainable travel modes. There are around twice as many jobs as economically active residents in Wool so additional housing with appropriate improvements aimed at incentivising non-car modes could reduce the need to travel and further enhance the 'self-containment' of Wool.

1.3.2 The report also presents the traffic impact of development on the operation of key junctions in Purbeck (informed by discussions with officers at Dorset County Council (DCC) as local highway authority) and on queuing at the railway crossing on the A352 in Wool. The study finds that the proposal would not adversely affect the operation of the local junctions and the queuing at the level crossing would not change materially. Furthermore, the impact on the crossing will be similar to that of the current aspirations to expand DGTP, as presented by Dorset Local Enterprise partnership (which fall far short of wider aspirations for development at DGTP). The combination of employment and residential developments coming forward together will help to reduce the impact on the level crossing by allowing more employees to live closer to their place of work. Furthermore, development at Wool provides an opportunity to implement a package of sustainable transport improvement works (such as those set out at Section 3 of this report) aimed at encouraging non-car travel. To this end, development at Wool is compliant with, and would help to achieve, the aspirations of Purbeck Local Plan Part 1.

1.3.3 A draft of this report has been provided to DCC for comments. The feedback of DCC is incorporated within this report.

1.3.4 The remainder of this document is divided into four sections:

- Section 2 introduces the potential development sites which are the subject of this study and sets out the existing transport conditions in Wool;
- Section 3 shows how access could be achieved to each site and sets out a package of transport measures that would support development of up to 1,000 dwellings;
- Section 4 sets out the traffic impact of development of 1,000 units on queues at the level crossing and local and wider transport network; and
- Section 5 provides a summary and conclusions.

SECTION 2 EXISTING CONDITIONS

2.1 Introduction

2.1.1 This section sets out the locations of the sites considered in this report and the existing transport conditions in Wool, including local provision for access on foot, cycle, bus and rail. It also describes the local transport network and presents the results of traffic surveys. Finally, the existing travel patterns of the population of Wool are set out.

2.2 Site Locations

2.2.1 The promotion relates to five separate parcels of land in Wool. The sites are set out in Comparative Site Assessment Report prepared by Savills (July 2013). A range of options for developing sites is set out therein. This report is based on a pattern of development in line with 'Option B'. A plan showing the areas that would be developed for residential use under Option B is provided in Appendix A for ease of reference. The extent of the sites within which these residential areas are situated is illustrated on a site location plan, also in Appendix A.

2.2.2 Although the number of dwellings that could be brought forward at each site is not fixed, indicative dwelling numbers have been used for the purposes of the traffic study. The sites, which are identified by letters consistent with the Savills site location plan (Appendix A), are as follows:

- Site A (this study assumes circa 250 dwellings could be developed at this site): situated in the south-east of Wool and bordered by the B3071 Lulworth Road to the east, footpath 28/9 to the south-east and footpath 28/10 to the west;
- Site C (circa 300 dwellings): situated in the south-west of Wool and bordered by the A352 Dorchester Road to the north, residential property to the east, agricultural land to the south and a rural lane (unnamed) to the west;
- Site F (circa 250 dwellings): Situated in the west of Wool and bordered by Monterey Avenue to the south, Burton Road to the east and Dorset Green Technology Park (DGTP) to the west;

- Site G (circa 150 dwellings): situated in the west of Wool and bordered by the railway line to the north, residential property on The Poppies and Frome Avenue to the east and property on Burton Road to the west. There is a gated access on the A352 to the south; and
- Site H (circa 50 dwellings): situated in East Burton, a village which adjoins Wool on its north-western side. Site H is bordered by East Burton Road to the north, the London to Weymouth railway line to the south and residential properties to the east and west.

2.3 Local Transport Infrastructure

Walking

- 2.3.1 On the A352 Dorchester Road, the main east-west route through the village, there are footways the northern side of the road between the roundabout junction with Burton Road west of the village and the priority junction with Baileys Drove (passing site G). There are currently no footways fronting site C. East of Baileys Drove there are footways on both sides of the A352 in Wool, passing several shops on Dorchester Road. There is also a puffin crossing east of Baileys Drove. The road is street lit throughout the village.
- 2.3.2 Towards the north-east of the village, the A352 intersects with the B3071 Station Road, which has a footway on both sides between the A352 and the railway station. There are dropped kerb crossing facilities on Station Road in front of the station. The B3071 continues further east and then south as High Street, where there are retail units and a public house. There are footways on one side of the road by the shops. Further south the road becomes Lulworth Road where it passes site A. The footway continues south to Duck Street, some 280m south of the shops but does not extend as far as site A. The road is street lit within the village.

- 2.3.3 Immediately north of the junction with the B3071 Station Road, the A352 crosses the Waterloo to Weymouth railway line. There is an at-grade, level crossing (a 'full' crossing with barriers on both sides of the road and both sides of the tracks) with 'virtual' footways painted onto both sides of the road. Continuing north the A352 passes a further small retail area and intersects with East Burton Road. There are footways on both sides of the road in this area. North of East Burton Road, the footway widens to form a shared cycleway, the Sika Trail which leads to Bovington. Bovington is primarily home to Bovington Armour Centre with accommodation for up to 2,000 army personnel living on site, although there are some local facilities accessible to the public.
- 2.3.4 Collier's Lane is a minor residential street that connects the B3071 High Street immediately south of the shops and the A352 Dorchester Road, west of the shops. In common with most residential streets in the village, it is street lit with footways on both sides.
- 2.3.5 East Burton Road runs from east to west just north of the railway line, connecting the A352 with Burton Road, passing site H. It has footways on the south side for 600m (substandard in width), the westernmost point being at the north-western corner of site H. To the east of this, there is a 500m stretch of the road leading to the junction with the A352 that currently has no footway. The road is not street lit.
- 2.3.6 Burton Road runs from north to south in the west of the village connecting East Burton Road at East Burton with the A352 at the 'Burton Cross' roundabout. It forms the eastern frontage to site F. There is a footway on the northern side of the road between the A352 and Monterey Avenue (the access to DGTP) but no footways along the majority of its length. There is a second at-grade, level crossing (another 'full' barrier controlled crossing) of the railway line with 'virtual footways' on Burton Road.
- 2.3.7 Monterey Avenue has a footway on the north side of the road, connecting with the footway on the northern side of Burton Road.
- 2.3.8 Baileys Drove is a residential street accessed via Dorchester Road, with its northern end immediately to the south of the railway line.
- 2.3.9 In addition to the footways described above, Wool is served by a network of public footpaths, which are described further below. Their locations are illustrated in Figure 2.1.

- SE28/9 – provides a connection between Lulworth Road (B3071) in the south-east of wool and New Buildings to the south of Wool, passing along the southern edge of site A. The footpath is not made up or lit;
- SE28/10 – provides a north-south connection between Collier’s Lane and New Buildings, south of Wool, passing along the western boundary of site A. The footpath is not made up or lit;
- SE28/11 – this provides a link between Burton Road leading south-west through site F to Monterey Avenue and the A352. The path passes through the middle of a field and has gates at the edges of the field. It is neither made up nor lit;
- SE28/13 – this provides a link east from Burton Road, leading through site G to Dorchester Road, crossing over Bailey’s Drove. The footpath is not lit although it is made up between Bailey’s Drove and Dorchester Road; and
- SE28/14 – this provides a north-south link between East Burton Road east of site H, across the railway line and through site G to footpath SE28/13. There are stiles at the railway line and where the footpath intersects with footpath SE28/13. The footpath is neither made up nor lit.

2.3.10 In addition to the barrier controlled level crossings on the A352 and Burton Road, there are three further crossings of the railway line for pedestrians, with access gained via stiles or gates at the edge of the tracks. These are at the following locations (also illustrated in Figure 2.1):

- Connecting the A352 Dorchester Road and East Burton Road, approximately 200m west of the A352 Dorchester Road /B3071 Station Road junction;
- On footpath SE 28/14 (see above); and
- Connecting the northern end of Bailey’s Drove with East Burton Road.

2.3.11 Paragraph 4.4.1 of the Manual for Streets (MfS) states:

“Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes’ (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents.”

2.3.12 On this basis, 2km is considered to be a ‘reasonable’ walking distance. A walk from the northern part of site F in the west of the village to the retail at High Street at the far eastern end is approximately 1.7 km. Other walking distances to facilities within the village are shorter than this and therefore within the 2km walk distance identified by MfS.

Cycling

2.3.13 National cycle route 2, passes through Wool and leads west to Dorchester and east to Stoborough. The route runs along East Burton Road, then south on the A352 over the railway crossing and east on the B3071 past the station before continuing east on Bindon Lane. This is illustrated in Figure 2.1.

2.3.14 The Sika Trail intersects with national cycle route 2 and leads north-west to Bovington Camp as an off-road shared cycle route.

2.3.15 The remainder of the roads in Wool are not designated cycle routes although the roads are flat, single carriageway roads subject to a 30 mph speed limit, with street lights. The majority of roads in Wool are lightly trafficked. As such, conditions on these roads are likely to be suitable for cyclists.

2.3.16 Data provided within the National Travel Survey demonstrates that the average distance per journey by bike is approximately 4.4km, with the current average length of an employment and leisure cycle trip some 5.2km. The built up areas of Wool, DGTP and Bovington Camp to the north fall within cycling distance from the sites.

Bus

2.3.17 The closest bus stops to site H are outside The Ship public house on the A352 Dorchester Road, 900m from the site and can be accessed using the pedestrian crossing of the railway that links the A352 with East Burton Road, 200m west of the A352/B3071 junction. There are further bus stops on the A352 opposite and adjacent to Linclieth Road, which are 950m from site H and these can be access using the gated pedestrian crossing of the railway that links East Burton Road to Baileys Drove.

2.3.18 The closest bus stops to sites A, C and F and G are also those on the A352 in the vicinity of Linclieth Road (approximately 960m, 220m, 630m and 860m from the four sites respectively) Further bus stops are located outside the railway station and on the A352 north of East Burton Road.

2.3.19 The bus stops are served by the routes described in Table 2.1 below and illustrated in Figure 2.2.

Table 2.1: Local Bus Routes

Route	Destinations	Service Frequency		
		Weekdays	Saturdays	Sundays
X53	Weymouth, Wool, Wareham, Poole	One bus every two hours in each direction	One bus every two hours in each direction	One bus every two hours in each direction
104	Wool, Winfrith, Coombe Keynes, Bovington Camp, Wareham	3 services per day to/from Bovington Camp, 2 to/from Wareham, 1 to/from other destinations	3 services per day to/from Bovington Camp, 2 to/from Wareham, 1 to/from other destinations	No service

Source: Traveline

2.3.20 Wool benefits from accessibility by bus to local towns in Dorset. Typical journey times for journeys are 30 minutes to Weymouth, 15 minutes to Wareham and 45 minutes to Poole. Further improvements to bus services are identified in the Purbeck Transportation Strategy, details of which are provided in Section 2.9.

Rail

2.3.21 Wool railway station is located adjacent to the junction of the A352 Dorchester Road and the B3071 Station Road, between 900m and 1.9km from the five sites. It benefits from nearly 30 car parking spaces including one space for the disabled. There is also a taxi stand and bus stop although there are currently no cycle parking spaces. The station is on the Weymouth to London Waterloo line, with additional calling points at Dorchester, Weymouth, Wareham and Poole. Table 2.2 below provides a summary of the rail services from Wool.

Table 2.2: Wool Station – Rail Services

Destination	Typical Frequency		Average Journey Duration
	Peak	Off-Peak	
Dorchester	2 per hour	1 per hour	13 mins
Weymouth	2 per hour	1 per hour	25 mins
Wareham	2 per hour	1 per hour	6 mins
Poole	2 per hour	1 per hour	20 mins
London Waterloo	2 per hour	1 per hour	2hours 20mins

Source: National Rail

2.3.22 It can be seen from the above that Wool benefits from a good level of accessibility by rail with services to several of the surrounding towns. It is noted that the rail services provide links to Dorchester, Weymouth, Wareham and Poole on a higher frequency than the buses and with shorter journey times.

2.4 Accessibility to Local Facilities

2.4.1 When considering the accessibility of a site, it is important to consider the reasons why people make journeys. Table NTS0409 of the DfT's National Travel Survey identifies the proportion of all trips by purpose:

• Leisure ¹	27%
• Shopping	20%
• Commuting	15%
• Education/escort education	11%
• Personal business (e.g doctor's)	11%
• Other escort	9%
• Other including just walk	4%
• Business	3%
• All purposes	100%

2.4.2 On this basis, the main reasons for making a journey are employment, education, retail, leisure and healthcare. The following paragraphs describe the local amenities located within a reasonable walking and cycling distance of the site. These are illustrated in Figure 2.3 and described below.

Employment

2.4.3 Wool has a wealth of local facilities, primarily within three commercial areas, further details of which are provided below. All of these destinations in Wool are potential places of employment to local residents (e.g. shops, schools). The facilities are within a reasonable walk and cycle distance from the five sites.

2.4.4 In addition, DGTP is situated immediately to the west of the village and as such Wool benefits from close proximity to a large source of local employment (some 72 hectares of land). DGTP is within a reasonable walk (measured to the centre of DGTP) from sites F, G and H and parts of site C and is within a reasonable cycle distance from all sites.

¹ Visit friends at home and elsewhere, entertainment, sport, holiday and day trip.

Education

- 2.4.5 Wool has a nursery on Collier's Lane and two primary schools, St Mary's Roman Catholic Primary and Wool Church of England VA Primary. As such there are opportunities for children to attend school in Wool up to age 11. These are within a reasonable walk or cycle distance from the sites in Wool.
- 2.4.6 Purbeck Secondary School is a mixed comprehensive school located in Wareham and provides education from ages 11 to 18. Children from Wool and East Burton attending this school benefit from a school bus.

Retail

- 2.4.7 Wool includes three main commercial areas. The largest is located along Dorchester Road to the east of Collier's Lane. The area includes a convenience store, butcher, greengrocer, Boots pharmacy, hairdresser, petrol filling station and shop, car sales and a public house.
- 2.4.8 A second commercial area is located north of the railway crossing on the A352 and this includes a petrol filling station and shop and Kwik Fit tyre fitter; and a further commercial area is situated on High Street and this includes a Spar with post office and a bakery.
- 2.4.9 There is further retail in the centre of Wareham, approximately 900m from Wareham station, which is accessible from Wool via a short train journey.
- 2.4.10 Supermarkets and higher order retail outlets can be found locally in both Dorchester and Weymouth. Extensive further retail is available at the Brewery Square development in the centre of Dorchester, which is currently being opened in phases. Brewery Square is located adjacent to Dorchester South rail station; and at the Dolphin Shopping Centre, a short walk from Poole station. Again, these towns are accessible from Wool by train.

Leisure

- 2.4.11 There are public houses on the B3071 High Street and along the A352 Dorchester Road; there is a café and fish and chips takeaway at the commercial area north of the railway crossing; and a Chinese take away at the commercial area on Dorchester Road. There is a library on Collier's Lane with a recreation ground immediately to the north.

2.4.12 There are further leisure opportunities in the centres of Weymouth and Dorchester, where the Brewery Square development has now been partially completed. This already includes bars, restaurants, shops and a cinema and further facilities are under construction. There are direct train services from Wool to these towns and the facilities within these towns are within walking distance from the station.

2.4.13 In addition, Poole railway station is situated in the centre of Poole and Wareham railway station is approximately 900m north of the commercial centre of Wareham.

Healthcare

2.4.14 There is a doctor's surgery (the Wellbridge Practice) on Meadow Lane, close to the centre of the settlement and a dentist south of Collier's Lane. In addition, there is a Boots pharmacy on the A352 Dorchester Road. These are within a reasonable walking or cycling distance from the site. Wool therefore caters well for the day-to-day healthcare needs of local residents.

Summary on Accessibility

2.4.15 It can be seen residents of Wool benefit from day-to-day retail, leisure and healthcare facilities, extensive employment, pre-school and primary education within a reasonable walk or cycling distance. Access to higher order leisure, retail and secondary / further education in Dorchester, Weymouth, Wareham and Poole can be gained using public transport. It can therefore be seen that Wool is a highly sustainable village in transport terms.

2.4.16 Wool is one of six villages designated as a Key Service village in the Local Plan. This is the second highest of five tiers of settlement that are ranked in order of sustainability. Policy LD of the local plan states that development should be directed towards the most sustainable settlements. Wool is the only Key Service Village with a railway station, and that the 'Settlement Strategy' document of September 2011 (part of the Local Plan evidence base) advises that Wool is the only Key Service Village with over 20 facilities. On this basis, the highly sustainable nature of the settlement is acknowledged within the Purbeck Local Plan Part 1.

2.5 Local and Wider Highway Network

- 2.5.1 The A352 runs through Wool from the south-west, where it intersects with Burton Road (at the Burton Cross roundabout) to north-east, where it turns north at the junction with the B3071 Station Road and crosses over the railway line. The B3071 leads south to West Lulworth.
- 2.5.2 Burton Road leads west to a junction with Monterey Avenue and then north to East Burton Road. Monterey Road provides access to DGTP.
- 2.5.3 East Burton Road provides a link between Moreton in the west and the A352 north of the railway crossing in the east, passing through East Burton.
- 2.5.4 Burton Road and East Burton Road are rural lanes with frontage access to dwellings. Some stretches of these roads are not sufficiently wide to allow a car to pass a HGV or refuse collection vehicle.
- 2.5.5 Outside of Wool the A352 leads east to Wareham, intersecting just outside Wareham with the A351. This in turn links Swanage with the A35 trunk road south of Lytchett Minster.
- 2.5.6 The A352 west of Wool leads to Dorchester, intersecting firstly with the B3390 road to Crossways and the A353 to Weymouth at a four arm roundabout; and secondly with the A35 trunk road just outside Dorchester.
- 2.5.7 Tout Hill, which intersects with the A352 at a three arm roundabout to the north-east of Wool, passes east of Bovington Camp and provides a further link to the A35 trunk road, where the roads intersect at Bere Regis. The A35 trunk road provides a link between Dorchester and Poole, via Lytchett Minster.

2.6 Traffic Surveys

- 2.6.1 Manual classified counts were undertaken by Countsequential Ltd at the following junctions on Tuesday 8 July 2014 from 0700 to 1000 and 1600 to 1900 hours:
- A352 / A353 / B3390 roundabout west of Wool;
 - A352 'Burton Cross' roundabout at Wool;
 - A352 / Tout Hill east of Wool; and

- A351 / A35 trunk road at Lytchett Minster.

2.6.2 A further classified turning count was undertaken at the four arm roundabout junction of the A352 / A353 / B3070 Worgret Road at Wareham during the same time periods on Tuesday 30 September 2014. Surveys were not possible at this junction on 8 July 2014 due to road works in the vicinity. The traffic surveys are included as Appendix B.

2.6.3 The peak hour for traffic movements in Wool (based on analysis of the A352 Burton Cross and A352 / Tout Hill roundabouts) is 0800-0900 during the morning peak and 1615 to 1715 during the evening peaks. The network traffic flows during this time period are provided in Figures 2.4 and 2.5 for the morning and evening network peak periods respectively.

2.6.4 It should be noted that traffic flows at the junction of the A35/A351 were higher during a different period of the evening peak – from 1645 to 1745 hours. The evening peak traffic flows for this junction are therefore based on the 1645 to 1745 period. Table 2.3 below summarises the one way traffic flows within the study area.

Table 2.3: Local one-way Link Flows

Link	Morning Peak		Evening Peak	
	North / East bound	South / West bound	North / East bound	South / West bound
A35 east of A351	1,668	1,681*	1,807	1,707*
A351 south of A35	755	924*	1,072	898*
A351 north of Wareham	685	639*	709	674*
A352 east of Tout Hill	373	402*	362	447*
Tout Hill	269	345*	406	380*
A351 south of Tout Hill	508	613*	573	684*
A352 west of Burton Cross	517*	276	357*	621
A353 south of A352	465*	236	322*	656
A352 west of A353	242*	203	227*	320

Source: Countsequential Limited

*denotes direction of flow that heads towards Wool

2.6.5 It can be seen from the above that traffic flows on the 'A roads' in the vicinity of the site are considerably lower than on the A35 trunk road. It is also notable that the predominant flow of traffic on the majority of links in the vicinity of the village is into Wool during the morning peak and out of Wool during the evening peak, suggesting a net in-movement of vehicular trips to Wool during the daytime.

2.7 Travel Patterns

Commuting Patterns

2.7.1 Analysis of 2001 census data (provided in Appendix C) shows that Wool had some 1,703 residents in employment, of which 815 (47.3%) worked in Wool ward, excluding those working from home. Census data also shows that 3,653 people were employed in Wool, of which 815 employees (22.3% of employees who make trips to work) come from Wool itself. Wool therefore had 1,950 more job positions than residents (over twice as many) and as such most employees must travel into Wool to work.

2.7.2 2011 census data is not currently available for travel to work information at ward level. However, available data does identify that the ward of Wool in 2011 had 2,588 residents in employment while 4,302 people were in employment in the ward. In 2011 Wool therefore had 1,714 more job positions than working residents (over 1.5 times as many).

2.7.3 The results are likely to explain the identified net in-movement of cars to Wool during the day. They suggest an imbalance in the provision of housing which could be addressed through additional housing for people who currently work in Wool but live elsewhere. This could in turn help reduce the distances employees in Wool travel to work and potentially reduce the need to travel by car, noting that Wool is accessible by walking and cycling. Additional housing at this location is therefore compliant with the policies in Purbeck Local Plan Part 1.

Mode Split

2.7.4 Table 2.4 summaries the 2001 travel to work mode split of residents in Wool and of residents in Wool who work in Wool. A comparison with Wool mode split data in 2011 is also provided while relevant census data is provided in Appendix C.

Table 2.4: Mode Split Data

	2001 – Wool Residents working in Wool	2001 – Wool Residents (all workplaces)	2011 – Wool Residents (all workplaces)	2011 – Purbeck residents
Car Driver	48%	63%	65%	70%
Car Passenger	6%	7%	4%	6%
Foot	28%	15%	17%	14%
Bicycle	14%	9%	6%	3%
Motorcycle	3%	2%	2%	2%
Bus	1%	2%	1%	2%
Train	0%	2%	4%	2%
Other	0%	0%	1%	1%
Total	100%	100%	100%	100%

Source: 2001/2011 Census

2.7.5 Table 2.4 indicates that Wool is a sustainable settlement when compared with the district as a whole, with 65% of journeys to work made by car, compared with 70% across the district. Residents in Wool are also more likely to walk, cycle or use the train than elsewhere. This is likely to be because of the large proportion of residents who both live and work within the village, which is a relatively compact settlement (no walk distance within the village is greater than approximately 1.7km). Indeed, among residents in Wool who work in Wool, fewer than half drive to work, over one quarter walk and 14% cycle (five times the district average in 2011). Although the data dates back to 2001, it can be seen by comparing the 2nd and 3rd columns above that mode splits did not change significantly between 2001 and 2011, although it is noted that the percentage of rail trips to work doubled between 2001 and 2011.

2.8 Railway Crossing on A352

2.8.1 As noted previously, there is an at grade barrier controlled railway level crossing on the A352 in Wool, situated immediately to the west of Wool railway station. The queues that arise when the barriers are down are the subject of local concern. It is understood that re-signalling works undertaken early in 2014 have not resolved that concern.

- 2.8.2 A queue length survey was undertaken by Countsequential on Tuesday 8th July from 0700 to 1000 and from 1600 to 1900 recording the times barriers went down and up and the resulting maximum queue lengths on the A352 on both sides of the crossing and on the B3071 Station Road (which gives way to the A352 south of the crossing and is therefore also affected by queues). The queue length survey is provided in Appendix D.
- 2.8.3 Those surveys identified an average closure period of 3 minutes and 40 seconds. They identified that occasionally queue lengths exceeded 30 vehicles, but never for more than four minutes. They also identified that even after the longest closures, the queues dispersed within 2 minutes.
- 2.8.4 In response to a draft of this report, DCC questioned whether the surveys were representative of a typical weekday. DCC subsequently provided weekday queue length surveys for Thursday 9 September 2014 (after re-signalling works) and Thursday 20 September 2012 (before re-signalling). The data is also included as Appendix D.
- 2.8.5 The surveyed provided by DCC showed an average barrier closure time in 2014 of 3 minutes 44 seconds (similar to those identified in the Countsequential survey). Average maximum queue lengths of 35 vehicles on the A352 north of the crossing and 23 vehicles on the A352 south of the crossing were recorded. On the B3071 Station Road and East Burton Road average maximum queue lengths of no more than four vehicles were recorded.
- 2.8.6 The 2012 survey identified an average closure period of 3 minutes and 47 seconds (slightly longer than 2014), with average maximum queues of 25 and 23 vehicles on the A352 to the north and south of the crossing respectively, and 3 vehicles on East Burton road and the B3071 High Street.
- 2.8.7 In general the results are similar for the September 2014 and September 2012 surveys. The only exception is a longer queue length that was observed on the A352 north of the crossing which was the consequence of a 13 minute closure that occurred. Three further (shorter) closures then occurred within half an hour, resulting in lengthy queues. This event caused longer than average queues across the day on this approach.

- 2.8.8 This closure was therefore clearly exceptional. Whilst such events may from time to time occur, it can be seen that overall closure times are similar in the September 2014, July 2014 and September 2012 surveys (around 3 minutes 50 seconds). The queue lengths are also generally fairly similar.
- 2.8.9 It is noted that more closures were recorded in 2014 than 2012 (49 and 34 respectively). This suggests the number of train services through Wool has increased and means that the likelihood of a driver encountering a queue when passing through the crossing may be greater, which may in turn explain recent local concern in respect of the crossing. However, the evidence provided by DCC shows that typical closure duration and queue lengths have changed little between 2012 and 2014.
- 2.8.10 There is also concern with some of DCC's survey data. It is noted that one closure of just 12 seconds in duration was recorded. This yielded a maximum queue of 12 vehicles on the A352. Such observations are questionable. Not only is the duration surprisingly short and unlikely to have been sufficient time to allow a train to pass, a queue of 12 vehicles in 12 seconds equates to a traffic flow of 1 vehicle per second.
- 2.8.11 It is understood that work remains in progress to re-signal the crossing in order to achieve more consistent closure times and reduced queue lengths. DCC continue to liaise with Network Rail on the matter.

2.9 Planned Future Development

- 2.9.1 Planning permission has been granted for 153 dwellings on land at Worgret Road in Wareham (Planning App Ref: 6/2013/0278). The traffic flows that are expected to be generated from that development are included within the traffic study in this report.
- 2.9.2 It is understood that there are aspirations to expand DGTP and this is acknowledged in the adopted Purbeck Local Plan Part 1. The scale of the enlargement is not currently known although the Local Plan notes that "**large scale growth is not considered essential to the delivery of the vision or required to meet Dorset employment needs.**" The expansion of the Technology Park is therefore not included within the junction capacity testing within the agreed study area (*ref: Section 4*). Notwithstanding this, DCC reviewed a draft of this report and requested the study allowed for the impact of an expansion at DGTP on the level crossing. This is provided in Section 4.

2.9.3 The Local Plan notes that should any major expansion of DGTP take place then improved transport links from there to the railway station will be needed to minimise the impact on the level crossing at Wool.

2.9.4 The Local Plan also makes reference to transport improvements in Wool that are identified by the Purbeck Transportation Strategy (*ref text supporting Policy SW, page 43 of the Local Plan*). Improvements of relevance to future development at Wool include:

- New bus service X43 Swanage – Harmans Cross – Wareham – wool – Lulworth – Weymouth;
- Cycleway Wool – DGTP; and
- Wool rail station interchange improvements.

2.9.5 The above improvements are likely to be of benefit to future residents of homes in Wool and development at Wool could help to bring these forward.

2.10 Summary

2.10.1 Wool is a compact village, with walk distances from the identified sites not exceeding 1.7km. Footways are generally provided although some deficiencies exist. The entire village is within a reasonable cycling distance and benefits from lit single carriageway, typically lightly trafficked roads with 30mph speed limits. There is limited cycleway provision but there are aspirations to improve this.

2.10.2 The site benefits from bus connections to Weymouth, Wareham and Poole and there are aspirations to improve bus services in the village. There is also a railway station that benefits from direct services to Dorchester, Wareham, Weymouth, Poole and London Waterloo. There are aspirations to improve transport connections between the station and DGTP.

2.10.3 Concern has been raised regarding delays caused by a level crossing on the railway line in the village. It is understood that Network Rail is in the process of 're-signalling' the crossing to reduce variation in closure times and that timing improvements could therefore reduce queuing. However, works undertaken to date have not fully addressed this issue.

- 2.10.4 Survey evidence to date shows average closures last approximately 3 minutes and 50 seconds. Results before and after re-signalling are broadly similar. It is noted that the barrier came down more times during the 2014 surveys than the 2012 surveys.
- 2.10.5 The village benefits from a wide range of amenities including retail, restaurants / pubs, a nursery, primary schools, doctors' surgery , dentist, Boots pharmacy, library, children's nursery and extensive employment opportunities through DGTP. Secondary education and higher order leisure and retail facilities are located in Dorchester, Weymouth, Wareham and Poole and are accessible by public transport. As a result, Wool is highly sustainable in transport terms for a village of its size and census data confirms that a large proportion (nearly half) of residents work within Wool and among these residents, travel to work by car is below the district average. The sustainable status of Wool is confirmed by its classification as a 'Key Service Village' in the Local Plan.
- 2.10.6 Census data finds that Wool has roughly at least 1.5 times as many jobs as it has working residents and traffic surveys identify a net in-movement of car trips during the daytime, which is likely to occur as a result of this. Provision of additional housing at Wool could provide a large number of people who work in Wool and live elsewhere with the opportunity to live closer to their work, thereby reducing the length of their journeys to work and need to use a car. This in turn supports transport policy set out in the Local Plan.

SECTION 3 TRANSPORT AND ACCESS STRATEGY

3.1 Introduction

3.1.1 This section sets out how access could be gained into each potential development site. Each site is reviewed in turn for firstly vehicular and then pedestrian / cycle access. It also sets out necessary and desirable improvements to local infrastructure aimed at maximising opportunities for non-car travel. A plan showing the access strategy is shown in Figure 3.1.

3.2 Vehicular Access

Site A

3.2.1 Site A has a frontage on the B3071 although it is understood the eastern part of the site (allotments and watercress beds) will not be developed. A simple priority junction with adjoining footway from the B3071, preferably into the north eastern corner of Wool (i.e. closer to the village to reduce walk distances) would provide a suitable means of access.

Site C

3.2.2 This site has a long frontage on the A352 Dorchester Road. The site could potentially accommodate in excess of 300 homes. It is therefore recommended that ideally two points of vehicular access and adjoining footways be provided from Dorchester Road, spaced so as to avoid access roads on the northern side of Dorchester Road.

Site F

3.2.3 Site F has a long frontage along East Burton Road and Monterey Avenue, the access to DGTP. Burton Road is classed as highway while Monterey Avenue is not. On this basis, access could be provided onto Burton Road in the form of a priority junction with adjoining footways and/or shared cycleway, preferably towards the southern end of the road to minimise traffic impact on Burton Road as most vehicles will route in that direction.

Site G

- 3.2.4 A gate provides access into site G from the northern side of the A352 Dorchester Road and this could be upgraded to provide a priority junction vehicular access, plus footways.

Site H

- 3.2.5 Site H has a frontage of 95m along East Burton Road from which a new vehicular access (with adjoining footways) could be provided in the form of a priority junction. Alternatively, access could be achieved by extending Sandhills Crescent into the site. There would be no need to provide two vehicular accesses. However, a pedestrian / cycle access onto Sandhills Crescent would be desirable.

3.3 Pedestrian / Cycle Access

- 3.3.1 Vehicular accesses would ideally provide at least one footway. Additional points of pedestrian and/or cycle access could be provided to maximise site permeability and encourage trips by means other than the car. Suggested improvements to walking and cycling links are set out below:

- A footway along the western side of the B3071 Lulworth Road connecting the footway at the access to site A with Collier's lane;
- Improvements to footpath SE28/10 (lighting and hard surfacing) and a point of access into site A to provide an alternative (shorter) walking route to Wool;
- Access into site A from footpath SE28/10;
- Pedestrian / cycle accesses at the north-eastern and north-western corners of site C to facilitate access in both directions;
- A new footway on Dorchester Road fronting site C;
- pedestrian links into site F from footpath SE28/13 and improvements to that footpath, to provide a shorter walk into the centre of Wool;
- pedestrian / cycle links from site F to DGTP to the walk for residents of sites F and G to DGTP;

- a further pedestrian access into the north-east of site F to shorten the walk to DGTP for residents of site H and East Burton;
- Retention and upgrading of footpath SE28/11 within site F;
- Retention and upgrading of footpath SE28/13 and SE28/14 within site G and SE28/14 north of the railway line. Removal of a stile at intersection of footpaths SE28/13 and SE28/14; and
- Footway adjacent to site H vehicular access to tie in with existing footway on south side of East Burton Road.

3.4 Access by Public Transport

3.4.1 A development of up to 1,000 dwellings is likely to enhance the viability of existing bus services in Wool and make viable the provision of new bus services, which could be routed to suit the location of the new development. There is potential for the services to be routed through site C if this has two accesses. Examples of possible improvements include:

- Links to Dorchester and Wareham, the closest local towns to Wool; and / or
- a 16 or 32 seater bus could operate as a village shuttle connecting all sites (potentially entering many of them) with DGTP, the retail on Dorchester Road, High Street and the A352 north of the railway line, the railway station and the schools.

3.4.2 New bus stops could be provided on East Burton Road outside site H and on the B3071, Collier's Lane, East Burton Road and on the A352 east of the Burton Cross roundabout. A new bus stop on the A352 would be of benefit to residents boarding existing or any future services between local towns while the other bus stops would be served by the village circular.

3.4.3 The addition of the new bus stops would mean that there will be bus stops on the roads adjacent to each site, with the exception of site A, where the nearest bus stop will be some 350m from any residential development provided. In any event, these represent significant reductions in walk distances when compared with the current situation. Furthermore, the bus stops would benefit from a higher frequency of services than they do at the moment.

3.4.4 Wool already benefits from a good rail service although it is noted that improving Wool station is an aspiration in the Purbeck Transportation Study and Local Plan. Residential development at Wool could help fund improvements to the station, for example provision of sheltered cycle parking, which is currently not available at the station. Coupled with new cycle and bus links to the station, this will encourage travel by rail.

3.5 The recommendations above are consistent with, and will help to achieve, the aspirations in the Local Plan and Purbeck Transportation Study as they could improve bus connections between Wool and local towns and improve connections between DGTP and Wool station.

3.6 **Wider Road Network Improvements**

3.6.1 The following paragraphs set out additional highway improvements aimed at mitigating the increase in multi-modal travel demands in Wool, additional to those improvements above that are necessary to allow access into the site to be achieved.

3.6.2 Noting that Wool is a compact village, typically lightly trafficked and relatively flat, there is considerable merit in encouraging trips around the village to be made by cycle. For this reason, it is considered that development at wool provides the opportunity to create a network of cycleways and routes throughout Wool. The strategy could include:

- New cycle lanes or a shared cycleway on the A352 Dorchester Road between site F and National Cycle Route 2 to connect sites C, F and G with the station and retail facilities on the A352; and
- New cycle lanes on Collier's Lane connecting the retail at Dorchester Road with the retail at the B3071 High Street.

3.6.3 The recommendations above are consistent with, and will help to achieve, aspirations set out in the Local Plan.

3.7 Travel Plan

3.7.1 A development of this scale provides an opportunity to bring forward a comprehensive Travel Plan incorporating hard and soft measures aimed at reducing the percentage of trips by residents that are made by car. The Travel Plan would benefit from, and further enhance the benefits of, the transport improvements presented in this section.

3.8 Non-Residential Development

3.8.1 A development of 1,000 dwellings is likely to make viable a larger range of facilities services than currently exists. To further improve the 'containment' of trips within Wool, the opportunity exists to set aside part of the land for non-residential uses. For example, the provision of facilities at the northern edge of site C would provide a natural extension of existing retail on Dorchester Road and also benefit from close proximity to existing and enhanced transport infrastructure.

3.9 Summary

3.9.1 Vehicular accesses in the form of priority junctions with footways / shared cycleways are achievable from all sites. Additional pedestrian and cycle accesses should be provided in order to improve permeability and reduce walk / cycle distances.

3.9.2 A new cycle route connecting DGTP with Wool station and National Cycle Route 2 would encourage travel by cycle and would be consistent with Local Plan aspirations. There is also potential for footpaths to be upgraded and for a new footways to be introduced.

3.9.3 New bus routes could connect Wool to local towns and / or providing a new village shuttle aimed at connecting the sites with DGTP, Wool rail station and local retail. This would also be compatible with the aspirations of the Local Plan and Purbeck Transportation Strategy

3.9.4 A comprehensive Travel Plan and an element of non-residential development would further enhance the sustainability of residential development at Wool.

SECTION 4 TRAFFIC IMPACT

4.1 Introduction

4.1.1 This section of the transport assessment considers the traffic impact of the proposed development under the following sub headings:

- Design year;
- Committed development;
- Traffic generation;
- Traffic Distribution and Assignment
- Traffic impact;
- Operational Assessments; and
- Impact on Level Crossing Queues.

4.1.2 The analysis is undertaken for the local highway network weekday morning and evening peak hours. A description of the study area is included in section 2, with peak hour traffic flows presented in Figure 2.4 (morning peak) and 2.5 (evening peak).

4.2 Design Year

4.2.1 The design year for this assessment is 2019 (five years after the study year) in accordance with good practice set out in Guidance on Transport Assessment (2007). Growth factors are unadjusted and based on all rural roads in the 'Rural Purbeck' area. The growth factors are summarised in Table 4.1 below.

Table 4.1: Traffic Growth Factors

	AM Peak	PM Peak
2014 – 2019	1.0623	1.0681

Source: TEMPRO

4.2.2 The traffic analysis is presented in the following figures:

- Figure 4.1 – Projected 2019 Traffic Flows Weekday Morning Hour Traffic Flows (0800-0900); and

- Figure 4.2 – Projected 2019 Traffic Flows Weekday Evening Hour Traffic Flows (1615-1715).

4.3 Committed Development

4.3.1 As explained in Section 2, the development traffic of a residential proposal on land at Worgret Road in Wareham is included as a committed development. Traffic flows have been obtained from the Transport Assessment for that proposal. Development traffic flows for the proposed development of land at Worgret Road are included at Figure 4.3.

4.3.2 The 2019 traffic flows including committed development is set out in the following figures:

- Figure 4.4 – 2019 plus Committed Development Weekday Morning Peak Hour Traffic Flows (0800-0900); and
- Figure 4.5 – 2019 plus Committed Development Weekday Evening Peak Hour Traffic Flows 1615-1715).

4.4 Traffic Generation

4.4.1 Trip rates for the proposal have been derived from the TRICS database (version 2014(b) from surveys of sites falling within the ‘mixed private/affordable housing’ category, based on sites in England excluding Greater London in edge of town locations (weekday surveys only), with populations within 1 mile of under 10,000 people. The use of the ‘mixed private / affordable housing’ category is appropriate as Policy AH of the Purbeck Local Plan requires at least 40% of housing to be ‘affordable’. This policy would apply to residential development at Wool. The resulting trip rates are summarised in Table 4.2 below and the TRICS outputs are included as Appendix E.

Table 4.2: Vehicular Trip Rates per Dwelling

Time	Trip Rate (per dwelling)		
	Arrive	Depart	Total
Weekday AM Peak Hour	0.142	0.340	0.482
Weekday PM Peak Hour	0.263	0.188	0.451

Source: TRICS

4.4.2 DCC have been provided with a draft of this report and in response expressed concern that the trip rates have been underestimated. DCC argue that a ‘village’ location would be more appropriate than an edge of town location. The derivation of the trip rates above has been undertaken with reference to the TRICS Good User Guide 2013, paragraphs 11.1 and 11.2 of which state:

“Obtaining a representative sample of data for a trip rate calculation involves a balance between meeting a set of criteria for inclusion and the availability of data.”

“The general rule for obtaining a representative sample of data is to include as many sites as possible. But this should not be to the detriment of selection criteria. Wherever possible, users should aim to use as stringent a set of criteria as possible and obtain a selected set of at least 5 or 6 sites. However, there are no fixed rules; the aim is to achieve a balance. It is better practice to have a lower but practical number of sites acceptable to the selection criteria than to have a larger data set which is not. In the latter case, the trip rates produced will more likely be misrepresentative than the former case. However, because of the complex diversity of the database, it is impossible to define a preferred number of sites. It is more important that users ensure that all sites selected are compatible with the appropriate criteria, agreed in advance by all parties involved in the project. After this, trip rates can be scrutinised for basic reliability and robustness in the first instance using “cross testing” (see 11.7), with more detailed auditing to follow this.”

4.4.3 This study has been informed by undertaking several ‘runs’ of the TRICS database. The first ‘run’ involved all sites in England other than those in Greater London. Subsequent runs sought to refine the dataset to achieve greater compatibility with the location of the sites. This meant initially excluding town centre / edge of centre sites, then excluding sites with populations within one mile of less than 10,000 people. The results are illustrated in Table 4.3 below and this shows an incremental increase in two-way trip rate as the sites are refined, reflecting the fact that locations in more populated areas or town centres are likely to be less car dependent than areas such as Wool. The TRICS outputs are included as Appendix E.

Table 4.3: Comparison of Selections – Mixed Private / Affordable Housing

	Number of Surveys	Trip rate per dwelling		
		Morning Peak	Evening Peak	24 hours
All sites	25	0.424	0.404	3.688
Excluding town centre and edge of town centre	23	0.449	0.422	3.884
Suburb and edge of town (population within 1mile under 10,000)*	6	0.482	0.451	4.421

Source: TRICS

4.4.4 It is important to note that there is no ‘village’ category on TRICS. The closest matches to the sites in Wool therefore lie in edge of town or suburban locations. Further refinements have also been made for population. Table 4.3 confirms this approach is robust as the most refined run, with the most similar sites, yielded the highest trip rates.

4.4.5 It can be seen that the trip rates derived from the mixed private /affordable housing are slightly higher than the composite trip rate during the morning peak and slightly lower during the evening peak. Overall, they are broadly similar.

4.4.6 It is considered that the trip rates on which the traffic study is based are representative and they take account of the following:

- The opportunity for residents to work in Wool noting the ‘surplus’ of jobs in Wool;
- The likelihood that a high proportion of non-work related trips will be to destinations in Wool; and

- The low mode split for travel by car among those with destinations in Wool.

4.4.7 The trip rates derived from the 'mixed private / affordable housing' category on TRICS are therefore used in the assessment. The traffic generation of each site and the total traffic generation of 1,000 houses is set out in Table 4.4 below.

Table 4.4: Traffic Generation of Each Site and in Total

Site	Number of Dwellings	Morning Peak			Evening Peak		
		Arrive	Depart	Two-way	Arrive	Depart	Two-way
Site A	250	36	85	121	66	47	113
Site C	300	43	102	145	79	56	135
Site G	150	21	51	72	39	28	67
Site F	250	36	85	121	66	47	113
Site H	50	7	17	24	13	9	22
Total	1000	143	340	483	263	187	450

Source: Consultant

4.5 Traffic Distribution and Assignment

Traffic Distribution

4.5.1 The likely journey purpose for the generated car driver peak hour trips have been determined using data derived from the National Travel Survey (NTS) 2012 (DfT). The proportion of peak hour trips by journey purpose by car is presented in Table 4.5 below.

Table 4.5: Proportion of Peak Hour Trips by Journey Purpose (Car Driver Only)

Trip Purpose	Morning Peak Hour	Evening Peak Hour
Commuting/Business	42%	46%
All Other Journey Purposes	58%	54%
Total	100%	100%

Source: Table NTS0502 Trip start time by time of day and trip purpose (Monday to Friday only), Car driver: 2008/2012, National Travel Survey, DfT, 2012

4.5.2 The data presented in Table 4.5 has been used to distribute the development generated traffic. The analysis has been undertaken on the basis that 46% of the weekday peak hour development vehicular trips will be for employment journeys and the remaining 54% of the vehicle trips will be all other purposes, including education, shopping, leisure and personal business trips for both the morning and evening peak hour periods.

Commuting / Employment Trips

4.5.3 An analysis of the 2001 Journey to Work data (car drivers only) for Wool ward (where the site is located) is provided in Appendix C and summarised in Table 4.6 below. It should be noted that data from the 2011 census is not currently available for ward level.

Table 4.6: 2001 Journey to Work data (Car Drivers Only) for Wool Ward – Distribution

Destination	% of Commuting Trips	% of all Trips
Wool	39.6%	18.2%
Wareham	11.9%	5.5%
Poole	12.0%	5.5%
Crossways	7.2%	3.3%
Dorchester	6.6%	3.1%
Swanage	4.8%	2.2%
Other	3.6%	1.6%
Bournemouth	2.9%	1.4%
Weymouth	2.9%	1.3%
Blandford Forum	2.3%	1.1%
Wimborne Minster	1.9%	0.9%
Bere Regis	1.0%	0.5%
Corfe Mullen	0.8%	0.4%
Owermoigne	0.9%	0.4%
Ferndown	0.7%	0.3%
Lytchett Minster	0.3%	0.1%
Stalbridge	0.3%	0.1%
Shaftesbury	0.3%	0.1%
Total	100.0%	46.0%

Source: 2001 Census

4.5.4 This analysis identifies that the largest proportion of journeys to work are to destinations within Wool (nearly 40%), followed by Wareham and Poole (both 12%). The remainder of journeys are to numerous towns and villages throughout the region.

4.5.5 It is acknowledged that the ward of Wool includes Bovington Armour Centre, a military camp which accommodates up to 2,000 personnel. Whilst this is likely to be a large source of employment, the majority of these jobs are likely to be taken up by people living within the centre. This study therefore makes a limited allowance for residents of Wool village to work in Bovington (5%). However, it is assumed that the majority of residents who work in the ward of Wool would do so either at DGTP (75%) or within the village (20%), which includes a range of retail facilities and two primary schools among other facilities.

Non-Work Trips

4.5.6 In order to undertake a robust assessment of the likely distribution for other journey purposes a P/T^2 gravity model within a 30-minute drive time of the site has been developed. Gravity modelling is recognised in DfT's Guidance on Transport Assessment (ref para 4.73) as a method for estimating the percentage of trips with a destination in each local town.

4.5.7 Appendix F provides the gravity model. A summary of the distribution of trips for the 'other' journey purposes by destination is presented in Table 4.7 below.

Table 4.7: Distribution of 'Other' Journey Purposes (Car Drivers Only)

Destination	% of Non-Commuting Trips	% of all Trips
Wool	32.2%	17.4%
Poole	31.1%	16.8%
Weymouth	15.6%	8.4%
Wareham	9.0%	4.9%
Dorchester	8.0%	4.3%
Blandford Forum	2.8%	1.5%
Bere Regis	1.3%	0.7%
Total	100.0%	54.0%

Source: Consultant's Estimates

4.5.8 This analysis identifies that over 30% of non-work trips will be to Wool, with some 30% also travelling to Poole, the largest settlement within a half hour drive. Weymouth will also attract around 15% of non-work trips by car.

Combined Trip Distribution

4.5.9 The traffic distributions associated with the work and non-work trips have been combined and the overall traffic distributions for the development traffic are summarised in Table 4.8 below.

Table 4.8: Summary of Traffic Distribution

Destination	% of Trips - Commuting	% of Trips - Non Commuting	% of Trips - Combined
Wool*	18.2%	17.4%	35.60%
Poole	5.5%	16.8%	22.30%
Wareham	5.5%	4.9%	10.40%
Weymouth	1.3%	8.4%	9.70%
Dorchester	3.1%	4.3%	7.40%
Crossways	3.3%		3.30%
Blandford Forum	1.1%	1.5%	2.60%
Swanage	2.2%		2.20%
Bournemouth	1.4%		1.40%
Bere Regis	0.5%	0.7%	1.20%
Wimborne Minster	0.9%		0.90%
Corfe Mullen	0.4%		0.40%
Owermoigne	0.4%		0.40%
Ferndown	0.3%		0.30%
Lytchett Minster	0.1%		0.10%
Stalbridge	0.1%		0.10%
Shaftesbury	0.1%		0.10%
Other	1.6%		1.6%
Total	46.0%	52.0%	100.0%

Source: Consultant's Estimates

*Includes allowance for Bovington

4.5.10 Over one third of peak hour trips will be to destinations within Wool, including the Technology Park, schools and retail facilities. Poole will attract over 20% of peak hour trips, Wareham and Weymouth 10% each. This confirms evidence presented in Section 2 that Wool is already relatively 'self-contained' and thus sustainable in transport terms for a village of its size.

Traffic Assignment

4.5.11 Table 4.9 sets out the assignment of development generated traffic out of the study area.

Table 4.9: Summary of Traffic Assignment

Exit Point from Study Area and Route to Exit Point	% of development generated trips	Key Destinations
High Street destinations, via B3071	8%	Wool, destinations in vicinity of High Street
A352 west of junction with A353, via A352 to west	8%	Dorchester
Tout Hill, via A352 to east	6%*	Bere Regis, Blandford Forum, Bovington
Worgret Road east of A351/A352 junction, via A352 to east	6%	Wareham
North Wareham, via A352 to east	4%	North Wareham destinations off A351 north of A352 roundabout
B3071 south of Wool, via B3071	3%	Dorset Coast, Lulworth
Destinations on north of level crossing, via A372 or East Burton Road	3%	Wool, destinations at junction of A352 / East Burton Road
A35 (east of A351 roundabout) via A352 to east, then A351	26%	Poole, Bournemouth
A351 south of junction with A352, via A352 to east	2%	Swanage
DGTP via A352 or Burton Road	14%	Wool, destinations at Technology Park
Dorchester Road destinations via A352	10%	Wool, destinations in vicinity of Dorchester Road / Collier's Lane
A353 south of junction with A352, via A352 to west	10%	Weymouth
Total	100%	

Source: Consultant's Estimates

4.5.12 The assignment of traffic from each site to the surrounding area has been considered in turn. In doing so, the following assumptions regarding vehicular access have been assumed:

- Site A: Accessed via B3071;
- Site C: Accessed via A352;
- Site F: Accessed via Burton Road;
- Site G: Accessed via A352; and
- Site H: Accessed via East Burton Road.

4.5.13 The distribution of development traffic from each site in turn, expressed as a percentage, is illustrated in figures 4.6 to 4.10, while a summary illustration of traffic distribution is provided in Figure 4.11.

4.5.14 The assignment of development traffic flows across the study area is illustrated for each site in turn in figures 4.12 to 4.16, while the total development traffic flows from all five sites is illustrated in Figure 4.17.

4.5.15 Traffic flows in 2019 with committed development and development traffic flows are presented in Figures 4.18 (morning peak) and 4.19 (evening peak).

4.6 Traffic Impact

4.6.1 This section sets out the traffic impact of the proposal, firstly on the wider highway network and secondly on the operation of the railway level crossing on the A352 at Wool.

Road Network Traffic Impact

4.6.2 The main traffic impacts of residential development comprising 1,000 dwellings in Wool, in comparison with the 2019 scenario including committed developments, are summarised below:

Table 4.10: Impact of Development Traffic on Two Way Link Flow

Link	Morning Peak Hour			Evening Peak Hour		
	2019 + Committed Traffic Flow (vehs)	Development Traffic (vehs)	% Increase	2019 + Committed Traffic Flow (vehs)	Development Traffic (vehs)	% Increase
A35 East of A351	3,611	125	3.5%	3,812	116	3.0%
A351 South of A35	1,844	125	6.8%	2,170	116	5.3%
A351 North of A352	1,469	142	9.7%	1,543	135	8.7%
A352 East of Tout Hill	837	181	21.6%	880	171	19.4%
A352 West of Tout Hill	1,202	211	17.6%	1,358	198	14.6%
Tout Hill at junction with A352	655	30	4.6%	845	27	3.2%
A352 East of Burton Cross	781	138	17.7%	1,019	126	12.4%
A352 West of Burton Cross	842	87	10.3%	1,045	80	7.7%
A353 South of A352	745	46	6.2%	1,045	44	4.2%
A352 West of A353	473	41	8.7%	584	36	6.2%

Source: Consultant's Estimates

- 4.6.3 The largest increases in traffic will be on the A352 west of Tout Hill where two way traffic movements will increase by 211 (18%) during the morning peak and 198 (15%) during the evening peak.
- 4.6.4 At the A35 trunk road east of the junction with the A351 at Lytchett Minster, expected increases in traffic are 125 vehicles during the morning peak and 116 vehicles during the evening peak – both increases of 3%.

4.6.5 It should be noted that the A35 can also be accessed via Tout Hill which leads to Bere Regis and via the A352 at Dorchester. Traffic increases at the southern end of Tout Hill equate to no more than 30 vehicles. Some of this traffic is routing to Bovington Camp so the level of traffic affecting the A35 at Bere Regis will be even lower. On the A352 west of the A353, increases of no more than some 40 vehicles are expected, most of which will route to Dorchester rather than use the A35 itself, noting that the distribution study identifies no other major destinations in that direction. On this basis, the only location on the trunk road network where traffic flows are likely to change materially is the A35 to the east of the junction with the A351 at Lytchett Minster.

4.7 Operational Assessments

4.7.1 Operational assessments have been undertaken for the following local junctions during both the weekday morning and evening peak hours:

- Junction of A35 with A351 and Dorchester Road, Lytchett Minster;
- Junction of A351 with A352 and Worgret Road, Wareham;
- Junction of A352 and Tout Hill east of Wool;
- A352 'Burton Cross' roundabout, Wool; and
- Junction of A352 / A353 / B3390 west of Wool.

4.7.2 The TRL program Junctions 8 has been used to assess the capacity of the junctions.

Junction of A35 with A351 and Dorchester Road ('Bakers Arms' Roundabout)

4.7.3 Full Junctions 8 outputs are included in Appendix G. The results of the assessments of this junction are shown in Table 4.11.

Table 4.11: Operational Assessment A35 / A351 Junction

Arm	Morning Peak Hour		Evening Peak Hour *	
	RFC	Queue	RFC	Queue
2014				
Dorchester Rd	0.46	1	0.30	0
A35 East	0.90	8	0.85	5
A351	0.72	2	0.96	14
A35 West	0.73	3	0.76	3
2019 plus Committed Development				
Dorchester Rd	0.55	1	0.35	1
A35 East	0.97	19	0.94	12
A351	0.82	4	1.07	55
A35 West	0.81	4	0.82	4
2019 plus committed development plus Development				
Dorchester Rd	0.58	1	0.35	1
A35 East	0.99	25	0.97	19
A351	0.90	8	1.11	76
A35 West	0.84	5	0.83	5

Source: Junctions 8.

*Evening peak for this junction only is from 1645 to 1745

- 4.7.4 The tables above show that the junction operates at stress on the A35 eastern arm during the morning peak and the A35 eastern and A351 approaches during the evening peak. There is sufficient spare capacity for the A35 eastern approach to remain within capacity in 2019 with committed development and development generated traffic. However, the A351 approach is forecast to reach capacity in the 2019 scenario with committed development during the evening peak, both with and without development.
- 4.7.5 The development of 1,000 dwellings at Wool is forecast to increase traffic flow through the junction by 135 movements during the morning peak or 108 movement during the evening peak (approximately two vehicles per minute). With reference to figures 4.18 and 4.19, this equates to a traffic increases of 3.2% during the morning peak and 2.5% during the evening peak.
- 4.7.6 The traffic increases are small in the context of the forecast traffic growth from 2014 to 2019 (6-7%) as derived from TEMPRO. That growth allows for an additional 513 homes in the 'Rural Purbeck' from 2014 to 2019.

- 4.7.7 Census data identifies that there is a shortfall of housing in Wool as the number of employees in Wool is greater than the number of economically active residents, suggesting that many employees must travel from outside Wool to get to work. It should be noted that census data provided in Appendix C suggests that some 354 out of 2,535 employees in Wool drive from Bournemouth / Poole / Christchurch (approximately 14% of all employees).
- 4.7.8 As noted above, up to 125 additional trips per hour are expected through the junction as a result of development at Wool. If fewer than 20% of the 354 employees in Wool who drive in from Bournemouth / Poole / Christchurch were to buy one of the new homes in Wool, then this would remove around half the development generated trips from the A35 / A351 junction.
- 4.7.9 Notwithstanding the above comments, it is noted that the Purbeck Transportation Strategy and Local Plan have aspirations to bring forward improvements to the A35 / A351 roundabout. The precise nature of these improvements has not been specified although there appears to be highway land available to bring forward improvements such as an additional entry lane on the A35 and A351 approaches using land from either the edge of the carriageway or the splitter islands. Alternatively, additional capacity could be achieved through signalisation of the roundabout. Any development at Wool could make a contribution towards bringing forward such improvements, which would benefit all vehicle movements through the junction.

Junction of A351 with A352 and Worgret Road

- 4.7.10 Full Junctions 8 outputs are included in Appendix G. The results of the assessments of this junction are shown in Table 4.12 below.

Table 4.12: Operational Assessment for A351 / A352 / Worgret Road Junction

Arm	Morning Peak Hour		Evening Peak Hour	
	RFC	Queue	RFC	Queue
2014				
A351 North	0.38	1	0.37	1
Worgret Rd	0.22	<1	0.21	<1
A351 South	0.35	1	0.43	1
A352	0.40	1	0.37	1
2019 plus Committed Development				
A351 North	0.42	1	0.43	1
Worgret Rd	0.28	<1	0.25	<1
A351 South	0.39	1	0.47	1
A352	0.44	1	0.41	1
2019 plus committed development plus Development				
A351 North	0.44	1	0.47	1
Worgret Rd	0.29	<1	0.28	<1
A351 South	0.40	1	0.49	1
A352	0.53	1	0.46	1

Source: Junctions 8

- 4.7.11 The junction typically operates within capacity during peak hours and this would continue to be the case in 2019, with and without development at Wool.

Junction of A352 and Tout Hill East of Wool

- 4.7.12 Full Junctions 8 outputs are included in Appendix G. The results of the assessments of this junction are shown in Table below.

Table 4.13: Operational Assessment for A352 / Tout Hill Junction

Arm	Morning Peak Hour		Evening Peak Hour	
	RFC	Queue	RFC	Queue
2014				
A352 East	0.39	1	0.42	1
A352 South	0.41	1	0.45	1
Tout Hill	0.22	<1	0.24	<1
2019 plus Committed Development				
A352 East	0.43	1	0.46	1
A352 South	0.44	1	0.49	1
Tout Hill	0.23	<1	0.27	<1
2019 plus committed development plus Development				
A352 East	0.48	1	0.55	1
A352 South	0.55	1	0.55	1
Tout Hill	0.25	<1	0.28	<1

Source: Junctions 8

4.7.13 The proposed development will not adversely impact on the operation of the junction, which will continue to operate within capacity.

A352 'Burton Cross' roundabout, Wool

4.7.14 Full Junctions 8 outputs are included in Appendix G. The results of the assessments of this junction are shown in Table 4.14 below.

Table 4.14: Operational Assessment for Burton Cross Roundabout

Arm	Morning Peak Hour		Evening Peak Hour	
	RFC	Queue	RFC	Queue
2014				
A352 East	0.31	<1	0.34	1
Un-named Rd	0.01	<1	0.03	<1
A352 West	0.39	1	0.26	<1
Monterey Ave	0.04	<1	0.32	1
2019 plus Committed Development				
A352 East	0.33	<1	0.37	1
Un-named Rd	0.01	<1	0.03	<1
A352 West	0.42	1	0.27	<1
Monterey Ave	0.04	<1	0.34	1
2019 plus committed development plus Development				
A352 East	0.39	1	0.41	1
Un-named Rd	0.01	<1	0.03	<1
A352 West	0.44	1	0.31	<1
Monterey Ave	0.09	<1	0.39	1

Source: Junctions 8

4.7.15 The proposal will not result in a material impact on the operation of this junction, which will continue to operate within capacity.

Junction of A352 with A353 and B3390 West of Wool

4.7.16 Full Junctions 8 outputs are included in Appendix G. The results of the assessments of this junction are shown in Table 4.15.

Table 4.15: Operational Assessment for A352 / A353 / B3390 Junction

Arm	Morning Peak Hour		Evening Peak Hour	
	RFC	Queue	RFC	Queue
2014				
A352 East	0.15	<1	0.39	1
A353	0.27	<1	0.20	<1
A352 West	0.19	<1	0.16	<1
B3390	0.09	<1	0.18	<1
2019 plus Committed Development				
A352 East	0.16	<1	0.42	1
A353	0.29	<1	0.21	<1
A352 West	0.20	<1	0.17	<1
B3390	0.10	<1	0.20	<1
2019 plus committed development plus Development				
A352 East	0.20	<1	0.43	1
A353	0.30	<1	0.23	<1
A352 West	0.21	<1	0.19	<1
B3390	0.10	<1	0.20	<1

Source: Junctions 8

- 4.7.17 The proposed development will not adversely impact on the operation of the junction, which will continue to operate within capacity.

Summary of Operational assessments

- 4.7.18 The operational assessments confirm that the majority of the junctions within the study area operate with ample spare capacity and will continue to do so following the build out of 1,000 dwellings. The exception to this is the junction of the A35 and A351 (the 'Bakers Arms' Roundabout) which currently operates under stress, particularly during the evening peak hours. The addition of traffic growth will cause the A351 southern approach to reach capacity during the evening peak. However, this conclusion takes no account of the redistributive effect of providing more housing in Wool, which is likely to provide a better balance between jobs and economically active residents, thus reducing the number of peak hour commuter trips to Wool on the network. In any event, improvements at the junction are deliverable and development at Wool could contribute towards them.

4.8 Impact on Queue Length

4.8.1 The following paragraphs consider the potential increases that may arise on the A352 on each side of the level crossing as a result of development traffic.

4.8.2 With reference to Figure 4.17, Table 4.16 below identifies the additional hourly traffic flows expected to approach the crossing from the A352 to the north and south and from Station Road. From this, estimates of additional queue length during barrier closures are provided based on a typical minute closure time (around 3 minutes 50 seconds).

Table 4.16 Estimated Impact of Development on Queue Length

	A352 North of Barrier	A352 South of Barrier
Morning Peak		
Development Traffic (vehs per hour)	48	72
Addition to queue per minute (vph/60)	0.80	1.20
Estimated additional Queue (vehs) – 3 min 50 sec closure	+3.07	+4.60
Evening Peak		
Development Traffic (vehs per hour)	87	39
Addition to queue per minute (vph/60)	1.45	0.65
Estimated additional Queue (vehs) – 3 min 50 sec closure	+5.56	+2.49

Source: Consultant's Estimates

4.8.3 It can be seen from the above that the development of 1,000 dwellings would result in a peak hour increase in queues at the level crossing of between 2 and 5 vehicles on the southern approach and between 3 and 6 vehicles on the northern approach, based on a typical closure time. This will increase dispersal time by approximately 6 to 12 seconds.

Sensitivity Test

4.8.4 DCC, in response to a draft of this report, consider that the volume of development traffic likely to route through the level crossing will be greater than estimated. The reason for this is they consider that residents of Wool who work in Wool ward will not work in the village of Wool but in Bovington.

- 4.8.5 The traffic analysis assumed that of those residents who live in Wool ward and drove to work in Wool ward, 75% work in the Technology Park, 20% in Wool and 5 % within Bovington. The estimate was based on the fact that Bovington Armour Centre is a military camp housing some 2,000 Bovington army personnel (and many of these people therefore both live and work there, rather than commuting in from Wool). Outside of the military camp, Bovington has relatively few employment opportunities. It was also assumed that no peak hour 'non-work' trips (e.g. to schools, shops, healthcare, etc) from Wool to Bovington will take place during the network peaks as the village of Wool provides for these facilities.
- 4.8.6 Notwithstanding the above comments, a sensitivity test has been undertaken on the basis that 50% of work-based trips by Wool residents driving to work in Wool have a destination in Bovington (with the remaining 50% assumed to travel to DGTP). To add further robustness, it is assumed that 10% of non-work trips with a destination in Wool will also be to Bovington
- 4.8.7 The sensitivity test yields an increase in the percentage of development traffic expected to route to Tout Hill (which provides access to Bovington and other destinations to the north) from 6% to 16%. Table 4.17 presents the traffic flows expected to route across the level crossing under the sensitivity test scenario as well as the increase in comparison with the original estimate. The derivation of the sensitivity test figures is provided in Appendix H

Table 4.17: Estimated Impact of Development on Queue Length – Sensitivity Test - 16% Travel to Tout Hill

	A352 North of Barrier	A352 South of Barrier
Morning Peak		
Development Traffic (vehicles per hour) – sensitivity test	57	84
Addition to queue per minute (vph/60)	0.95	1.4
Estimated additional Queue (vehs) – 3min 50 sec closure – Sensitivity Test	3.64	5.37
Estimated Additional Queue – Original Assessment	3.07	4.60
Difference between estimates	+0.57	+0.77
Evening Peak		
Development Traffic (vehicles per hour) – sensitivity test	102	46
Addition to queue per minute (vph/60)	1.70	0.77
Estimated additional Queue (vehs) – 3 min 50 sec closure	6.52	2.94
Estimated Additional Queue – Original Assessment	5.56	2.49
Difference between estimates	+0.96	+0.45

Source: Consultant's Estimates

- 4.8.8 Table 4.17 shows that if 50% of work related traffic (and 10% of non-work related trips) destined for Wool routed to Bovington then this would result in an increase of less than one vehicle on any approach during the peak periods, compared with the original estimate. On this basis, the development of up to 1,000 houses will not adversely affect typical peak hour maximum queue lengths at the level crossing.

DGTP Expansion – Impact on Level Crossing

4.8.9 DCC have requested that consideration be given to the impact of an expansion of DGTP on the level crossing. The level of employment for the Local Plan Partial Review remains to be confirmed. Potential for the expansion of DGTP is identified in the issues and options consultation (which indicates that up to 43 hectares of land could be suitable to bring forward for employment uses). Whilst there are limited details of how the site might be developed in the long term, Dorset Local Enterprise Partnership have a Strategic Economic Plan document (March 2014) which sets out the following plans, which are awaiting government funding:

- Increasing the number of jobs at the site by 356 from 550 to 906 employees (65% increase);
- A project of three phases, as follows:
 - Phase 1 – 900 sqm of employment floorspace providing 36 jobs;
 - Phase 2 – 5,000 sqm of employment floorspace providing 200 jobs (this already has planning consent (application reference: 6/2009/0465); and
 - Phase 3 - 3,000 sqm of employment floorspace providing 120 jobs.

4.8.10 An estimate of the impact on the level crossing has been undertaken by applying the peak hour office trip rates that were presented and agreed with DCC in the transport assessment for Phase 2 of the DGTP expansion (see excerpt from TA in Appendix I) to 8,900 sqm of office floorspace (the total floorspace of all phases). The use of office trip rates is appropriate as they were used in the TA for 'phase 2'. Given that the ratio of employees to floorspace ratios for all three phases of development are identical, it is likely that the other two phases will be similar in terms of land use.

4.8.11 The resulting traffic flows have been assigned to the network on the basis that 60% of development traffic will route over the level crossing, as identified by census journey to work data for employees in Wool (see Appendix C). It includes an allowance for residents of Bovington (who equate to approximately 49% of the population of Wool – see census data in Appendix C). Table 4.18 below summarises the trip rates, the total additional hourly traffic flow and the percentage expected to route through the level crossing (by direction).

Table 4.18: Office Trip Rates, Traffic Flow and Estimate of Additional Traffic Routing over Level Crossing

	Weekday Morning Peak (0800-0900)		Weekday Evening Peak (1700-1800)	
	In	Out	In	Out
Office trip rates (per 100sqm)	1.551	0.294	0.163	1.167
Office traffic flow (8,900sqm) Traffic Flow	138	26	15	104
Traffic Flow through Level Crossing (60%)	83	16	9	62

Source: TRICS / Census Data

4.8.12 Based on the above, Table 4.19 below provides an estimate of the additional queues expected at the level crossing as a result of the LEP's aspirations for expanding DGTP.

Table 4.19: Additional Queues at Level Crossing

	A352 North of Barrier (inbound trips)	A352 South of Barrier (outbound trips)
Morning Peak		
Development Traffic Over Crossing (vehs per hour)	83	16
Addition to queue per minute (vph/60)	1.38	0.26
Estimated additional Queue (vehs) – 3 min 50 sec closure	5.29	1.00
Evening Peak		
Development Traffic (vehs per hour)	9	62
Addition to queue per minute (vph/60)	0.145	1.04
Estimated additional Queue (vehs) – 3 min 50 sec closure	0.56	3.98

Source: Consultant's Estimates

4.8.13 Table 4.20 provides a comparison of the typical peak hour queues resulting from residential development traffic (based on both the original distribution and the sensitivity test) with the estimated additional queues resulting from the expansion of DGTP. The combined impact of the two is also set out.

Table 4.20: Impact of Residential Development and Expansion of DGTP on Queue Lengths at Crossing

Estimated Increase in Queue Length – 3 min 50 sec Closure	A352 North of Barrier (inbound trips)	A352 South of Barrier (outbound trips)
Morning Peak		
A. 1,000 dwellings (original distribution)	3.07	4.60
B. 1,000 dwellings (sensitivity test)	3.64	5.37
C. DGTP Expansion	5.29	1.00
D. Combined (A+C)	8.36	5.60
Evening Peak		
A. 1,000 dwellings (original distribution)	5.56	2.49
B. 1,000 dwellings (sensitivity test)	6.52	2.94
C. DGTP Expansion	0.56	3.98
D. Combined (A+C)	6.12	6.47

Source: Consultant's Estimates

- 4.8.14 It can be seen from the above that the maximum increase in queue lengths associated with the expansion DGTP and residential development at Wool are broadly similar (approximately 5 vehicles on any one side during the morning peak and 4 to 6 vehicles on any one side during the evening peak). It is important to note that residents travelling to work and employees travelling to DGTP will predominantly be travelling in the opposite direction. As a result, whilst the two developments will increase the number of cars by similar numbers, implementing both will not double that increase. Instead, the cumulative impacts of residential development and expansion of DGTP will be evenly balanced between the two approaches to the crossing, with up to 8 additional vehicles on each approach, instead of up to 6 additional vehicles. An increase in queue length of 8 vehicles will increase dispersal time by approximately 16 seconds.

- 4.8.15 It is important to note that the above assessment only accounts for the expansion plans of the Local Enterprise Partnership. The level of employment provision in the Local Plan Partial Review has not yet been confirmed. The Issues and Options consultation document (Option 6a) identifies potential at DGTP for up to 43 ha of employment land. Whilst that includes previously developed land, it is clear that a level of development far greater than that which is considered in this comparative study could come forward. This will result in significantly larger traffic flows and thus increases in queue lengths than identified in Table 4.20.
- 4.8.16 Purbeck District Council are supportive in principle of the expansion of DGTP as the expansion of DGTP is referred to in Policy SW of the Purbeck Local Plan (Part 1). Furthermore, planning permission has already been granted for part of the Dorset LEP's planned expansion at DGTP. Development which increases the traffic flow across the level crossing is therefore acceptable in principle to the local highway authority. It therefore follows that residential development at Wool should equally be acceptable in principle.
- 4.8.17 Section 2 of this report identifies that there are already more jobs than residents in Wool and that there is therefore an imbalance between housing and employment and thus a need for more housing within Wool to reduce levels of in-commuting. Any expansion of DGTP will further exacerbate the imbalance and strengthens the case for providing more housing. If a higher proportion of DGTP employees are able to buy homes in Wool then they will be able to:
- i) Travel to work by car without passing the level crossing; and
 - ii) Travel to work by means other than the car, potentially taking advantage of new opportunities for sustainable travel implemented through funding by the developments.
- 4.8.18 Residential development therefore has the potential to reduce the number of drivers using the crossing. Furthermore, development at Wool will bring forward a package of sustainable transport measures aimed at encouraging non car travel, for example by improving links to the railway station.

4.8.19 Notwithstanding this, the additional residential development would not result in an adverse impact on queues and delays at the level crossing, irrespective of the percentage of traffic that ultimately routes to Bovington and irrespective of whether the LEP's planned expansion of DGTP takes place.

4.9 **Summary**

4.9.1 The development of 1,000 dwellings in Wool is anticipated to generate up to 480 trips during the morning peak hour and 450 trips during the evening peak hour. Wool is expected to be a destination for 35% of peak hour trips.

4.9.2 The junctions in the vicinity of Wool operate within capacity and will continue to do so if 1,000 dwellings were constructed. The only junction found to be operating at stress is the junction of the A351 with the A35. However, the junction is 'earmarked' for improvement in the Purbeck Transportation Strategy and it is apparent that there is potential for improvements such as widening and / or signalisation to be undertaken within the highway and future development at Wool could contribute towards this.

4.9.3 Development would result in modest increases in queue length along the A352 which occurs when the level crossing barrier is closed. The increases would be broadly similar to those that would arise as a result of the LEP's planned expansion of DGTP. In the event that both the LEP's planned expansion of DGTP and residential development came forward, the increases would be evenly balanced between the northern and southern approaches because residential and employment traffic would predominantly be travelling in opposing directions.

4.9.4 Increases in queue length arising from residential development of up to 1,000 homes would not be as great as any increases in queue length that might arise as a result of the wider expansion of DGTP.

4.9.5 The traffic study takes no account for the potential for new housing at Wool to reduce the number of employees travelling into Wool / DGTP from areas such as Poole, Bournemouth and Christchurch to the east. Relocation of such residents would help to reduce traffic flows at the A35 / A351 roundabout and level crossing. The study also takes no account of sustainable transport improvements that would come forward in association with development at Wool. These would be aimed at increasing non-car travel in Wool, for example by improving links to the railway station.

SECTION 5 SUMMARY AND CONCLUSIONS**5.1 Summary**

- 5.1.1 This report has been produced to inform the partial review of the Purbeck Local Plan. The partial review of the Local Plan is required to address a shortfall in housing provision against objectively assessed housing needs. The partial review will investigate opportunities for additional settlement extensions including potential for growth at Wool.
- 5.1.2 The purpose of this report is to outline a transport strategy which would enable up to 1,000 dwellings at Wool. The report sets out how five potential development sites could be accessed by all modes of travel and how the local transport infrastructure could be improved so as to encourage travel in Wool by non-car modes, reduce the need to travel outside the village and in so doing, minimise the traffic implications for the railway crossing. The report also quantifies the traffic increases on the level crossing and the impact on junctions in the local and wider highway network.
- 5.1.3 The settlement benefits from a wide range of amenities that collectively serve residents' day-to-day needs. A large proportion (nearly half) of economically active Wool residents also work within Wool. Amenities in Wool are within a reasonable walking or cycling distance and travel to work by car within Wool is below the district average. Good public transport links, particularly a rail station, facilitate access to other local towns and higher order services that residents may use. Wool is therefore highly sustainable in transport terms. As a result of this range of facilities, the Local Plan identifies Wool as a Key Service Village, and Policy LD states that development should be directed at such settlements.
- 5.1.4 Wool has over 1.5 times as many jobs as it has working residents, which is likely to explain an observed net in-movement of car trips into the village during the day. This in turn suggests a local imbalance between jobs and housing and provision of more housing would provide the opportunity for more employees in Wool to live closer to work, thus reducing trip lengths and the need to travel by car. Residential development in Wool is sustainable in transport terms and therefore complies with Policy IAT of the Purbeck Local Plan Part 1.

5.1.5 Residential development comprising up to 1,000 dwellings would need to be brought forward alongside a package of measures aimed at making best use of and enhancing Wool's sustainable location. This includes:

- direct vehicular access from the highway adjoining each site (ideally two from site C) and, where achievable, additional pedestrian and cycle accesses;
- new cycle routes connecting DGTP, Wool station and National Cycle Route 2, consistent with Local Plan aspirations;
- new bus routes connecting Wool to local towns and / or providing a new village shuttle aimed at connecting the sites with DGTP, Wool rail station and local retail;
- improvements to the railway station including the provision of sheltered cycle parking; and
- a comprehensive village Travel Plan and ideally some land being used for non-residential development.

5.1.6 Many of the measures highlighted above are already identified in the Purbeck Transportation Strategy. Residential development in Wool would facilitate the implementation of these programmed improvements.

5.1.7 The development of up to 1,000 dwellings in Wool is anticipated to generate up to 480 trips during the network peak hours and Wool is expected to be a destination for 35% of peak hour trips, reflecting its sustainable location and the prominence of DGTP as an employer.

5.1.8 Concern has been raised regarding delays caused by a level crossing on the railway line in the village. However, the traffic study in this report finds that development traffic will not have a material adverse effect on queue lengths at the level crossing. This remains the case based on a sensitivity test that assumes that half of work trips to Wool and 10% of non-work trips to Wool have a destination in Bovington (i.e. driving over the level crossing).

- 5.1.9 There are aspirations to expand DGTP and the Dorset LEP are seeking funding for up to 8,900 sqm of office floorspace (which would result in a 65% increase in the number of employees at DGTP). Part of this expansion already has planning permission. Furthermore, expansion at DGTP is accepted in the Purbeck Local Plan (Part 1) and is therefore accepted in principle by Purbeck District Council and DCC.
- 5.1.10 The Dorset LEP's plans will result in a broadly similar increase in the number of cars queuing at the level crossing to the development of 1,000 homes at Wool. If both developments came forward, then the overall impact would be relatively evenly spread between the approaches to the crossing because residential and employment trips will be travelling in opposing directions (i.e. implementing both does not double the increase in queue on any approach – see Table 4.20).
- 5.1.11 Any further expansion of DGTP adds weight to the case for more housing because it will further increase the housing 'shortfall' in relation to jobs in Wool. The provision of residential development in addition to employment development will allow more employees to live in Wool and thus travel to work without needing to drive over the level crossing. Furthermore, development at Wool will bring an opportunity to enhance local non-car transport infrastructure through measures such as those outlined in Section 3. Residential development in addition to employment development would therefore have a lower residual cumulative impact on queue length at the level crossing.
- 5.1.12 The main junctions in the vicinity of Wool operate within capacity and will continue to do so if 1,000 dwellings were constructed. The only junction found to be operating at stress is the junction of the A351 with the A35. Improvements to this junction are achievable and future development at Wool could contribute towards this although it should be noted that development within Wool will help reduce the number of people driving to work in Wool through these junctions.

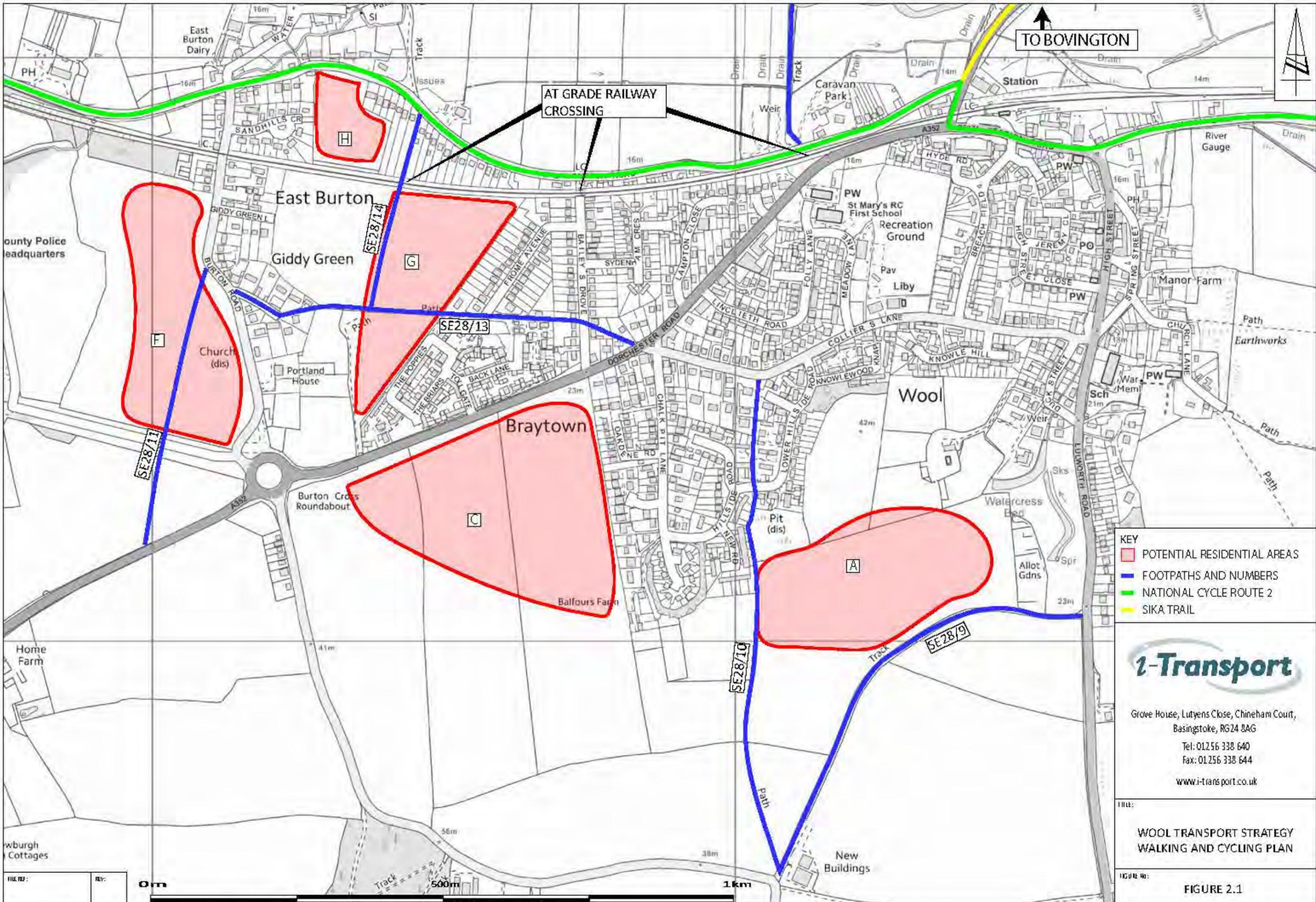
5.2 Conclusion

5.2.1 It is therefore concluded that:

- The site is a sustainable location for residential development, which will further enhance Wool's sustainability credentials through a package of local transport improvements;

- Residential development of up to 1,000 homes can be accommodated within the local highway network;
- Residential development of up to 1,000 homes will not result in a severe cumulative residual impact on queuing at the railway crossing ; and
- On this basis, Wool is a suitable location for a residential development allocation.

FIGURES



↑
TO BOVINGTON

AT GRADE RAILWAY
CROSSING

- KEY
- POTENTIAL RESIDENTIAL AREAS
 - FOOTPATHS AND NUMBERS
 - NATIONAL CYCLE ROUTE 2
 - SIKA TRAIL



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Fax: 01256 338 644
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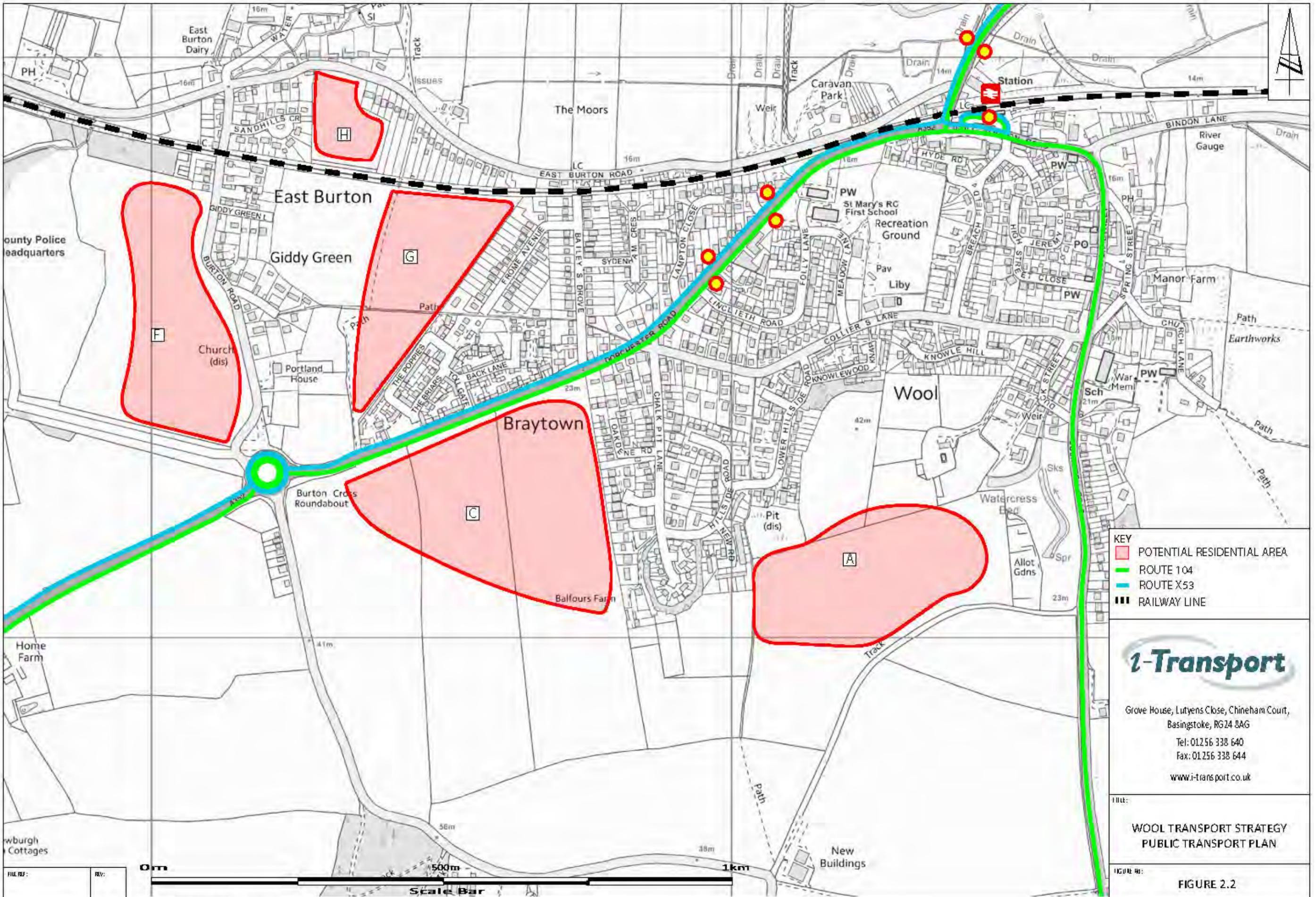
TITLE:
**WOOL TRANSPORT STRATEGY
WALKING AND CYCLING PLAN**

FIGURE NO:
FIGURE 2.1

FILE REF: REV:



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- KEY**
- POTENTIAL RESIDENTIAL AREA
 - ROUTE 104
 - ROUTE X53
 - RAILWAY LINE

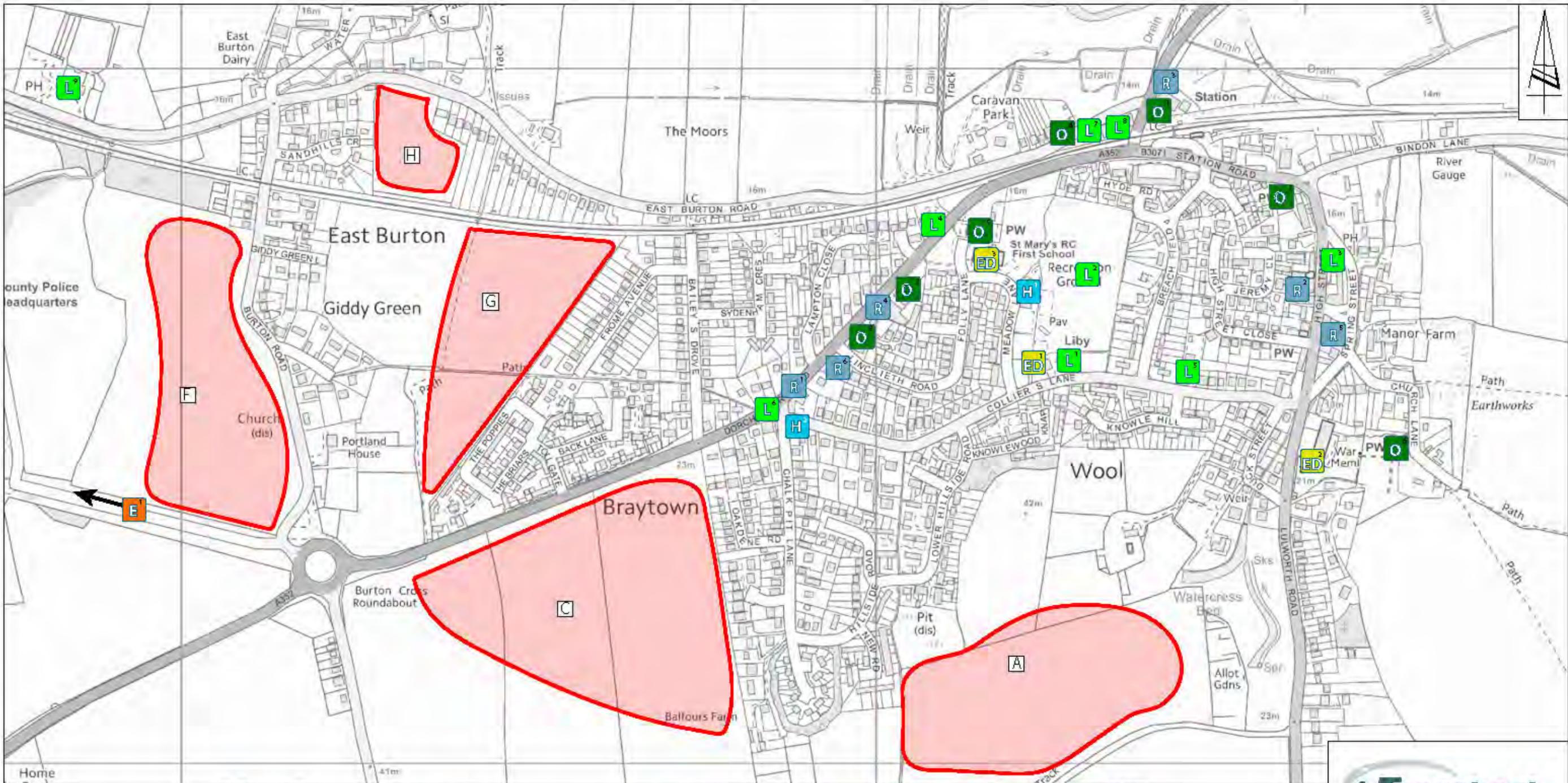
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**WOOL TRANSPORT STRATEGY
PUBLIC TRANSPORT PLAN**

FIGURE 2.2

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<p>KEY</p> <p> POTENTIAL RESIDENTIAL AREA</p>	<p>EMPLOYMENT:</p> <p> DORSET GREEN TECHNOLOGY PARK</p>	<p>RETAIL:</p> <p> RETAIL INCLUDING BUTCHER, GREENGROCERS, DIY STORE & CONVENIENCE STORE</p> <p> SPAR AND POST OFFICE</p> <p> GULF PETROL STATION & STORE</p> <p> MURCO PETROL STATION & STORE</p> <p> WILLIAMS BAKERY</p> <p> BOOTS & HAIRDRESSERS</p>	<p>LEISURE:</p> <p> WOOL LIBRARY</p> <p> RECREATION GROUND</p> <p> BLACK BEAR INN</p> <p> SHIP INN</p> <p> BRITISH LEGION</p> <p> HONG KONG GARDEN CHINESE TAKEAWAY</p> <p> FISH & CHIPS</p> <p> CAFE BIJOU</p>	<p>EDUCATION:</p> <p> KIDS OF WOOL</p> <p> WOOL C OF EVA PRIMARY SCHOOL</p> <p> ST MARY'S RC FIRST SCHOOL</p> <p>HEALTH:</p> <p> THE WELL BRIDGE PRACTICE</p> <p> MOUTHPEACE DENTAL SURGERY</p>	<p>OTHER:</p> <p> SEVEN STARS</p> <p> RAPID FIT TYRES</p> <p> USED CAR CENTRE</p> <p> WOOL & BOVINGTON MOTORS</p> <p> BOB PRESSLEE MOTORCYCLES</p> <p> ST JOSEPHS RC CHURCH</p> <p> THE CHURCH OF THE HOLY ROOD</p> <p> WOOL METHODIST CHURCH</p>
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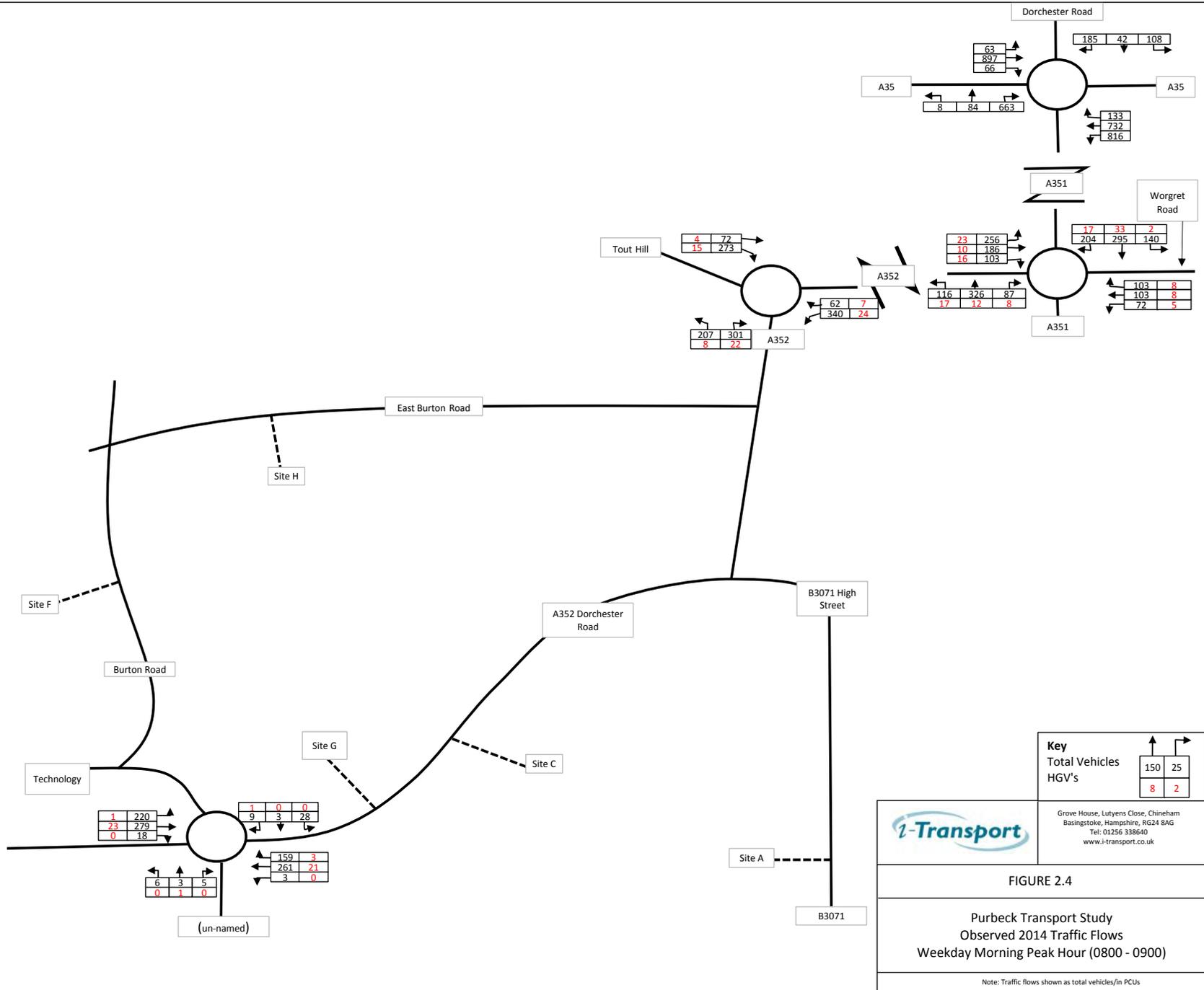
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**WOOL TRANSPORT STRATEGY
LOCAL FACILITIES PLAN**

FIGURE 2.3

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Key

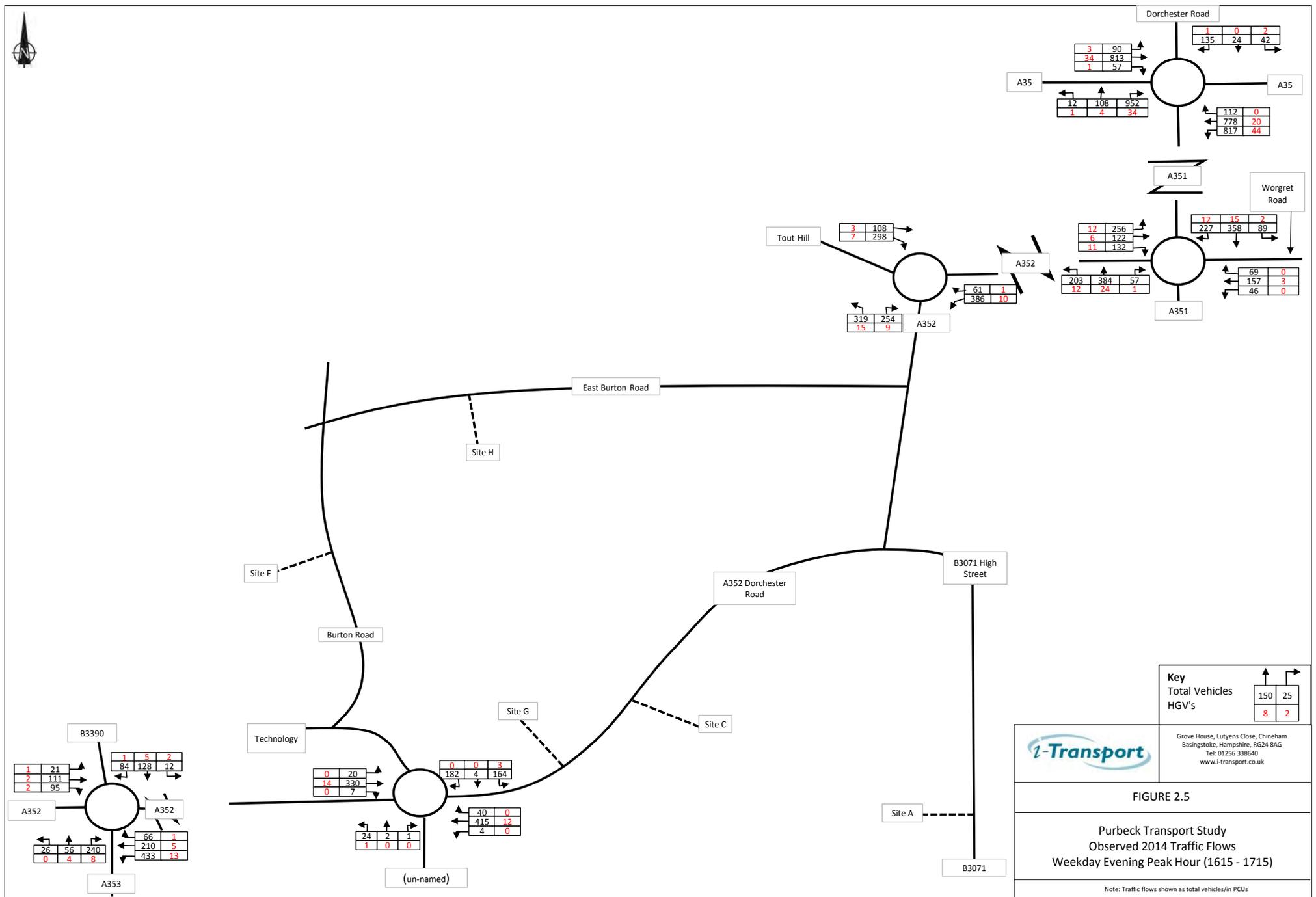
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HGV's	8	2

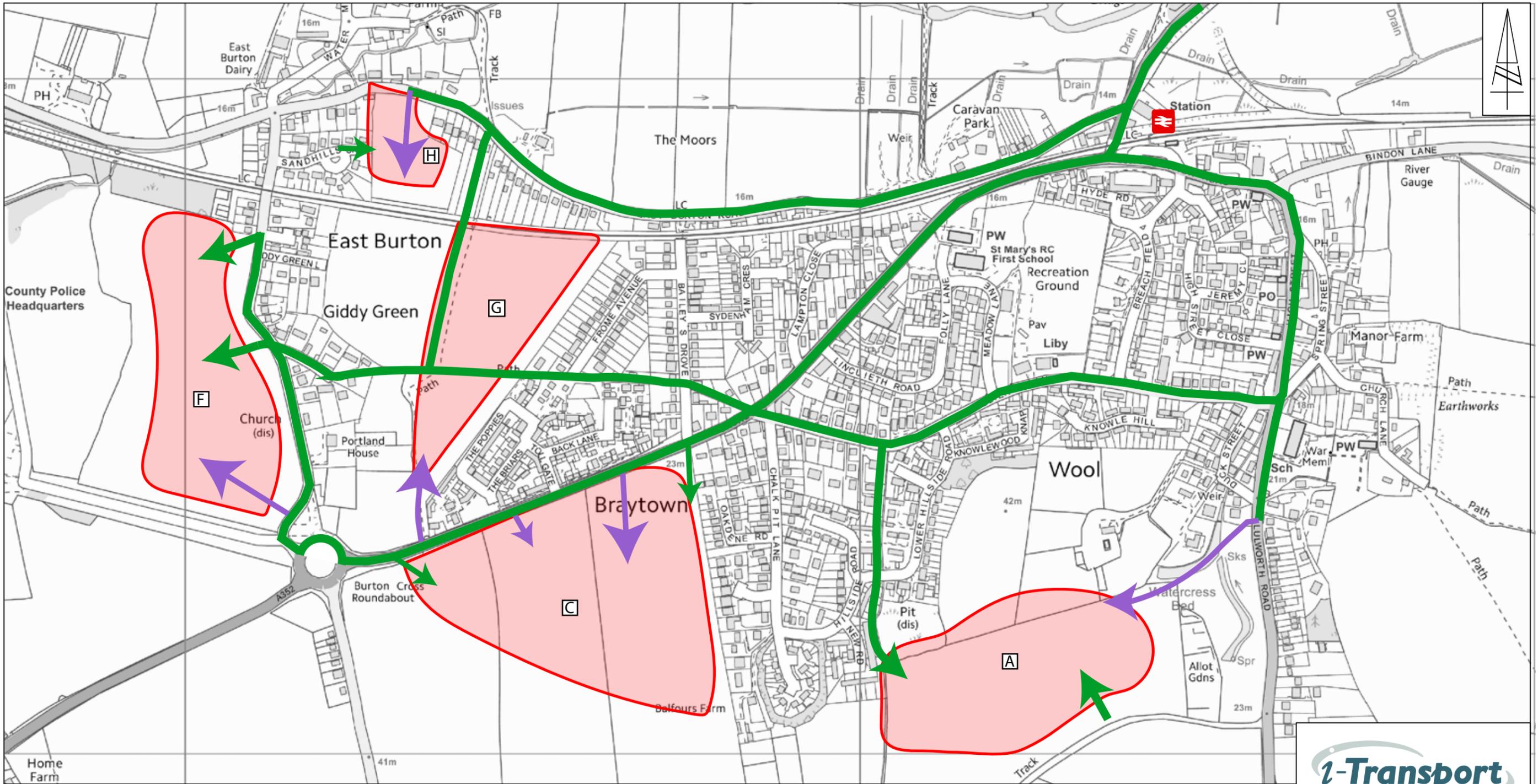
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FIGURE 2.4

Purbeck Transport Study
Observed 2014 Traffic Flows
Weekday Morning Peak Hour (0800 - 0900)

Note: Traffic flows shown as total vehicles/in PCUs





KEY

- POTENTIAL RESIDENTIAL AREAS
- PEDESTRIAN AND CYCLING LINKS AND ACCESS POINTS
- IMPROVEMENTS TO RAIL STATION EG CYCLE PARKING
- POTENTIAL VEHICLE ACCESS POINTS

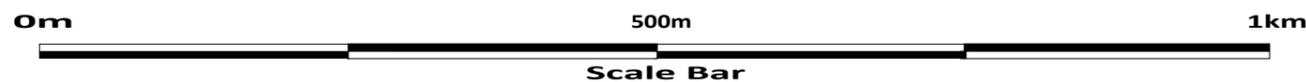


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TITLE:
**WOOL TRANSPORT STRATEGY
 ACCESS STRATEGY**

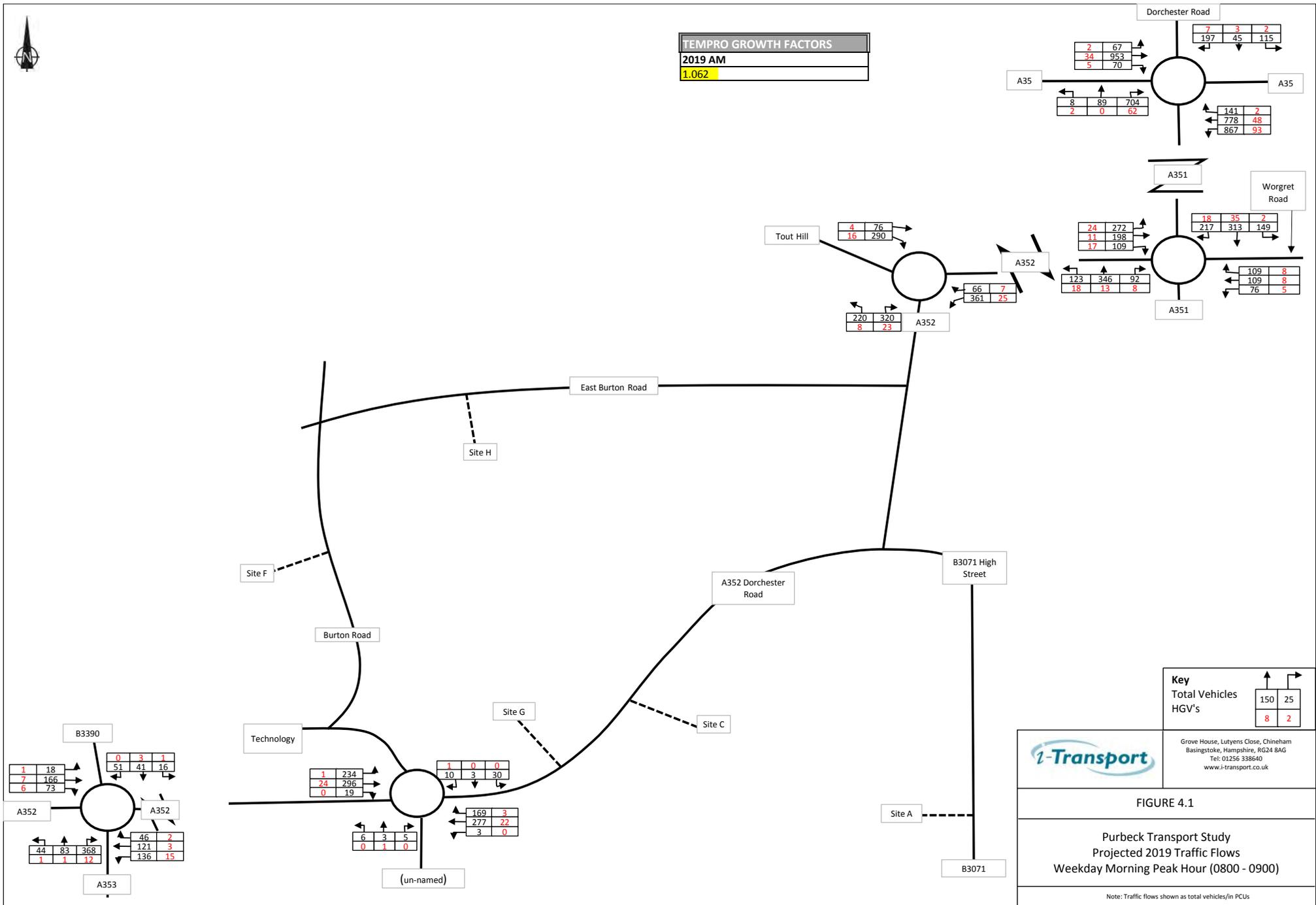
FIGURE No:
FIGURE 3.1

FILE REF: REV:





TEMPRO GROWTH FACTORS	
2019 AM	
1.062	



Key

Total Vehicles	150	25
HGV's	8	2

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FIGURE 4.1

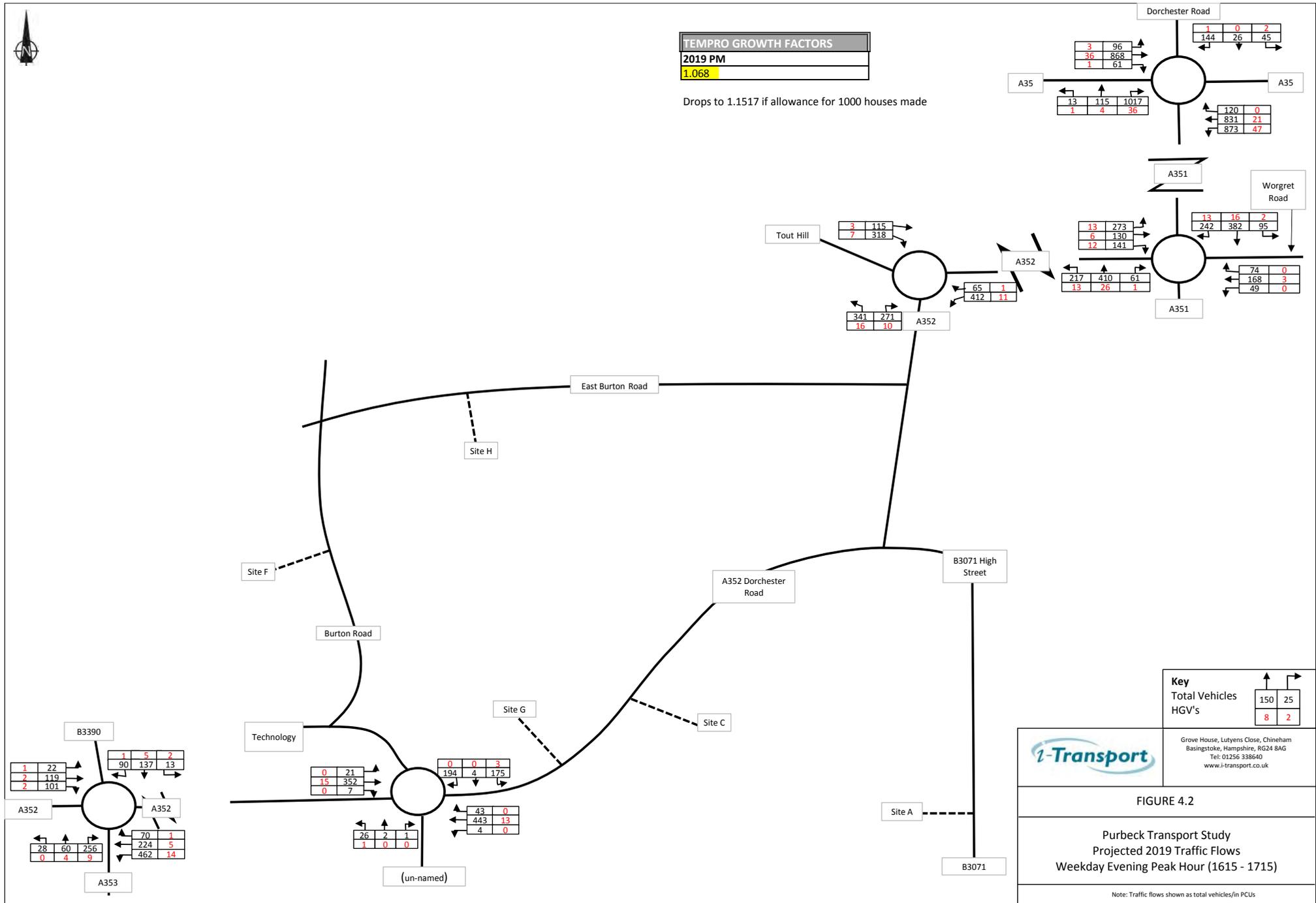
Purbeck Transport Study
Projected 2019 Traffic Flows
Weekday Morning Peak Hour (0800 - 0900)

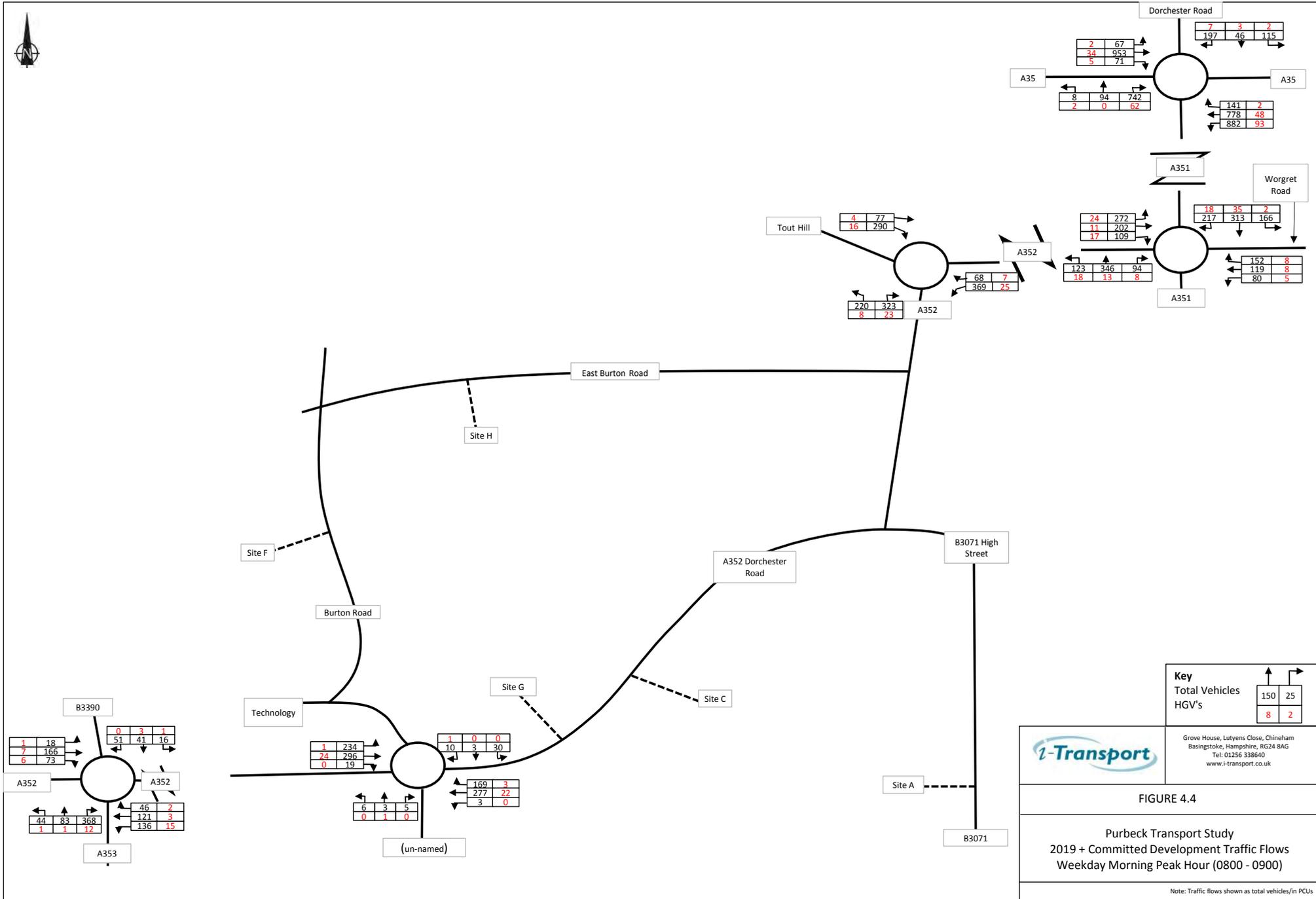
Note: Traffic flows shown as total vehicles/m PCUs

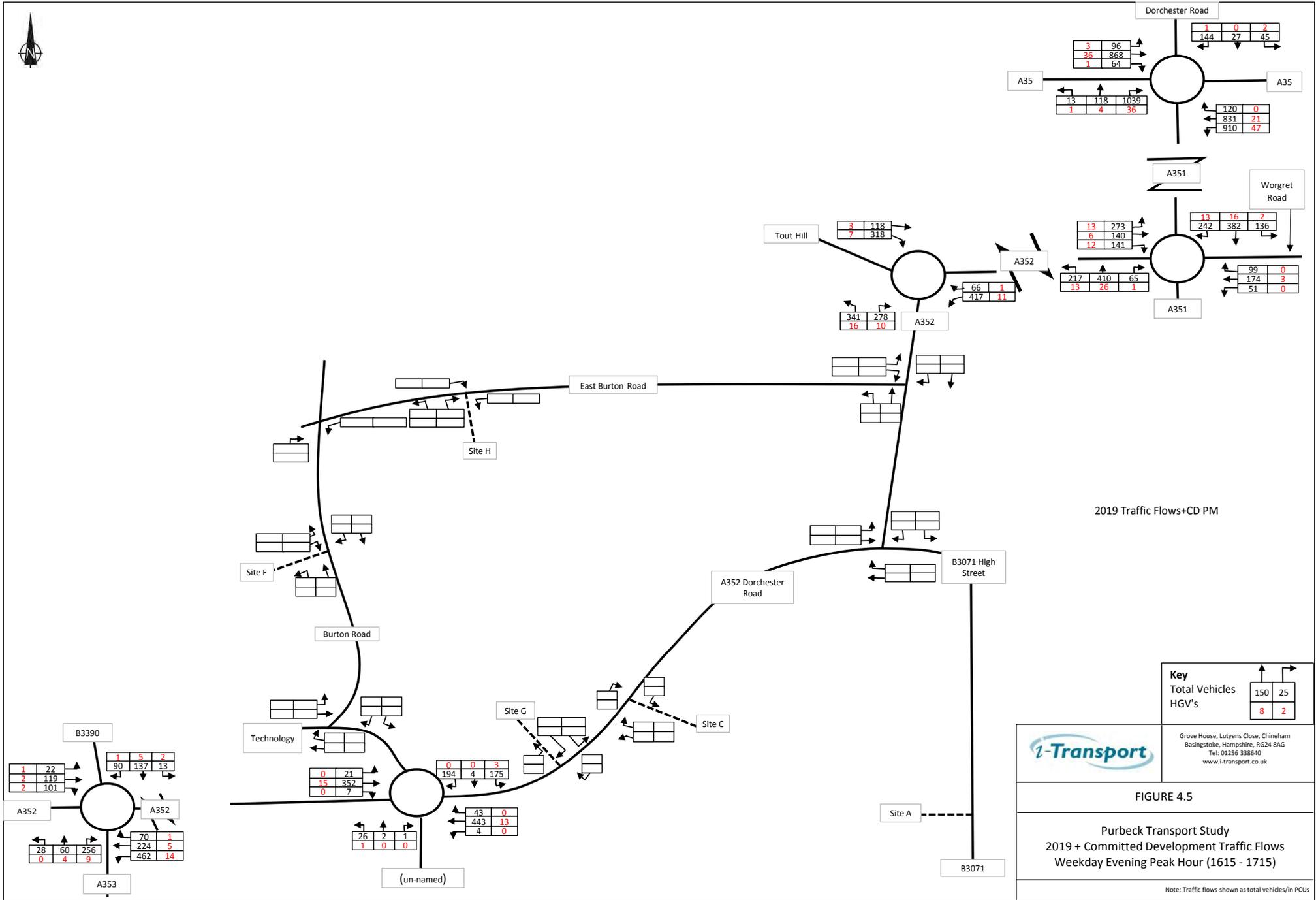


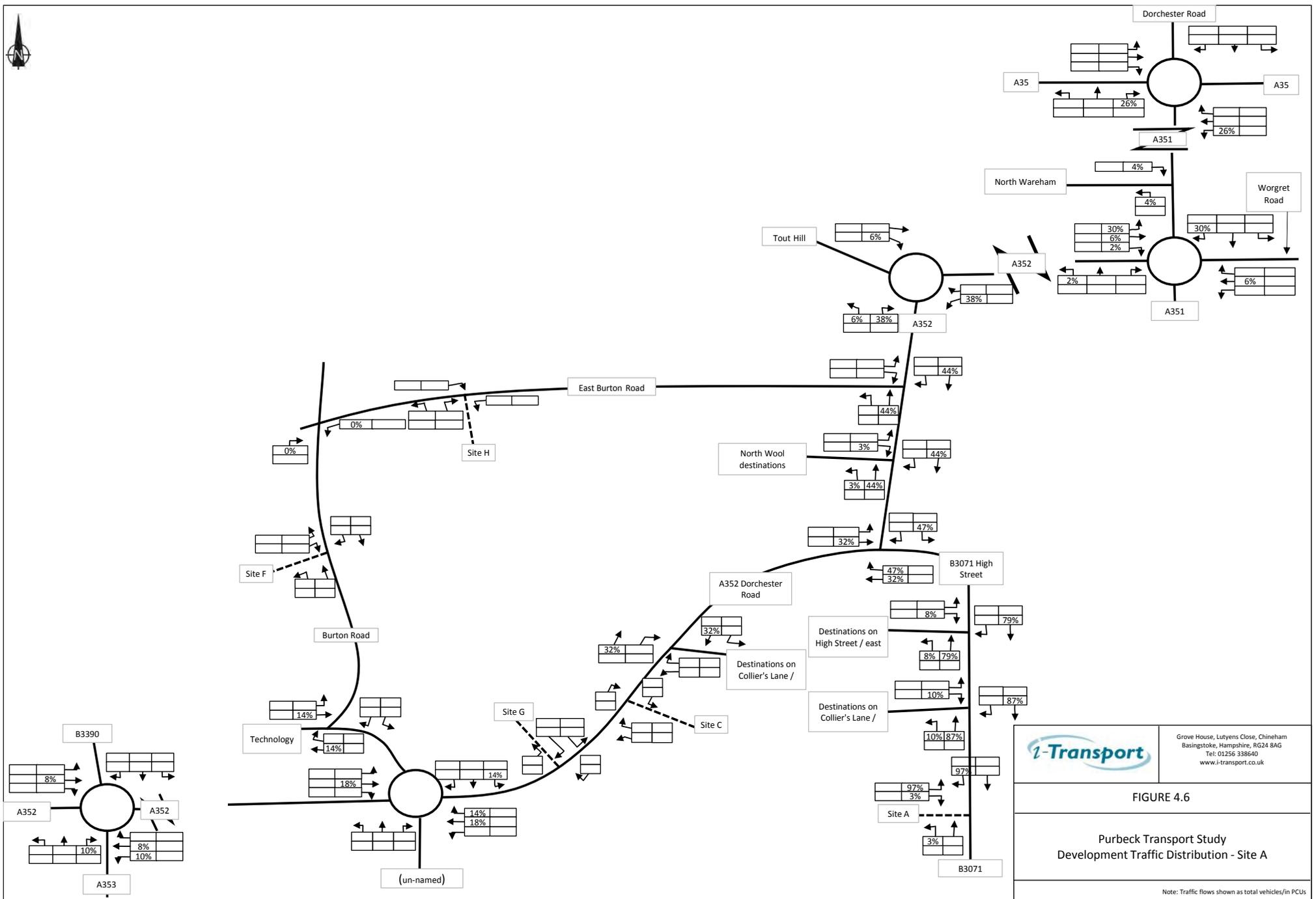
TEMPRO GROWTH FACTORS
2019 PM
1.068

Drops to 1.1517 if allowance for 1000 houses made

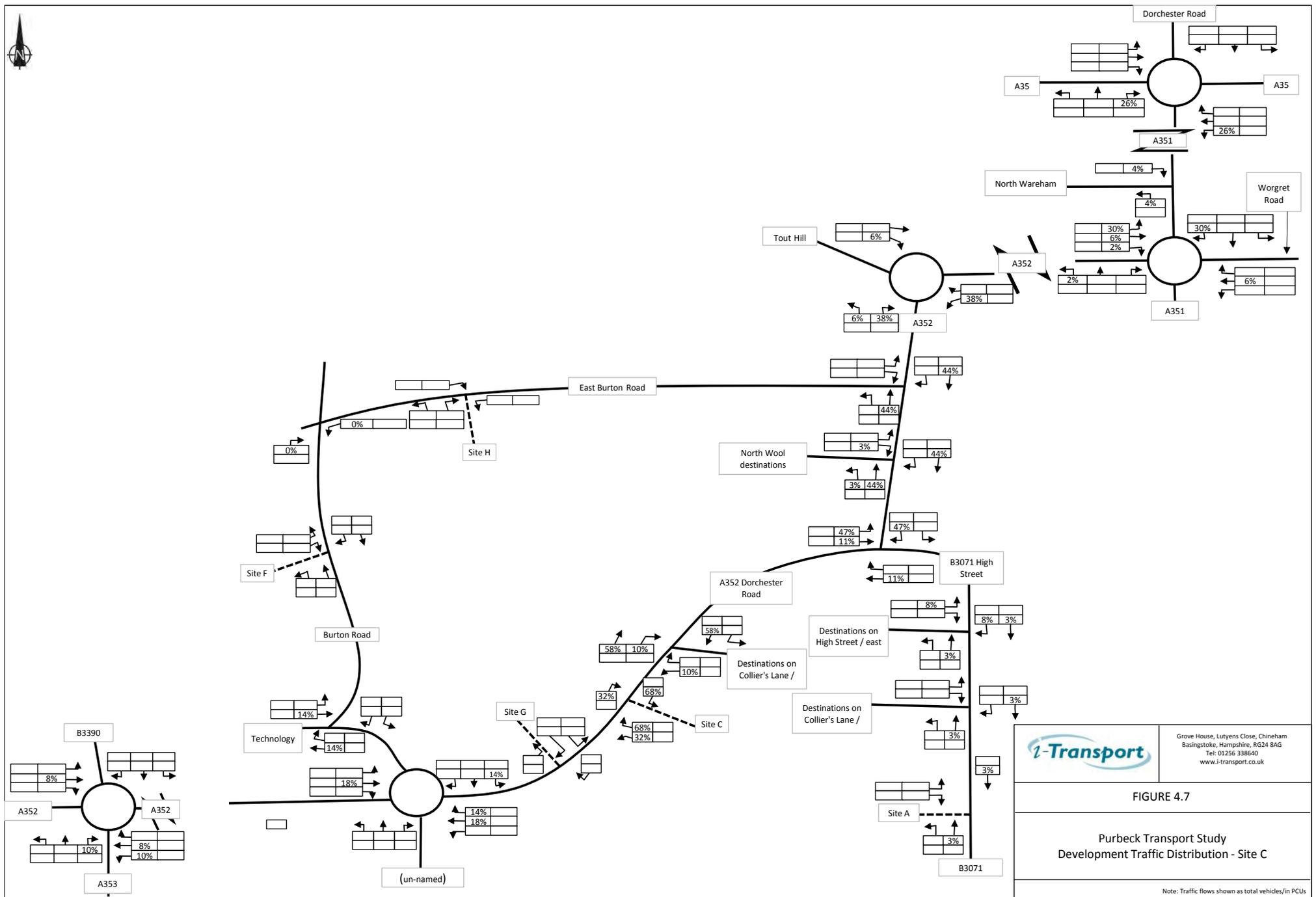


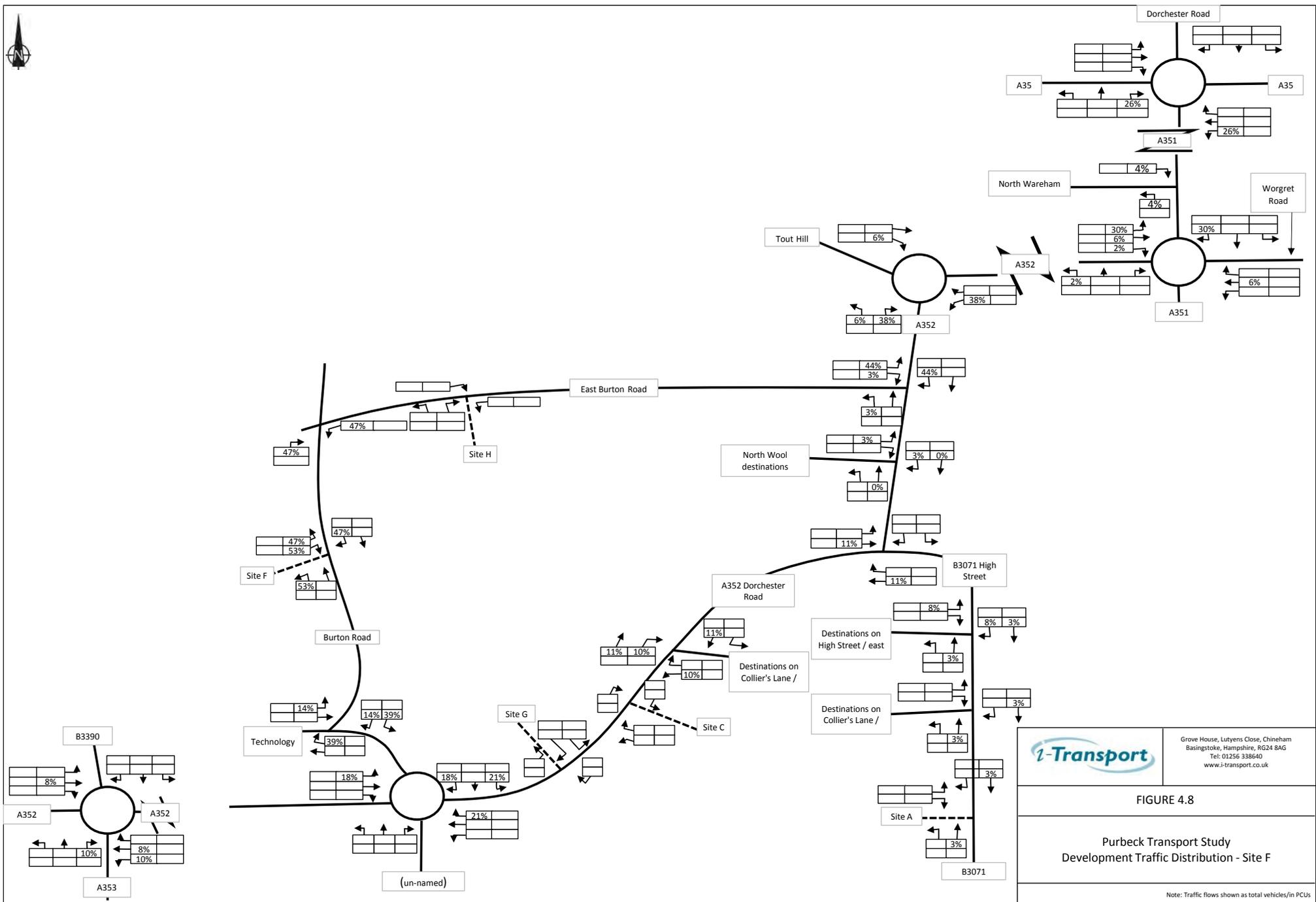


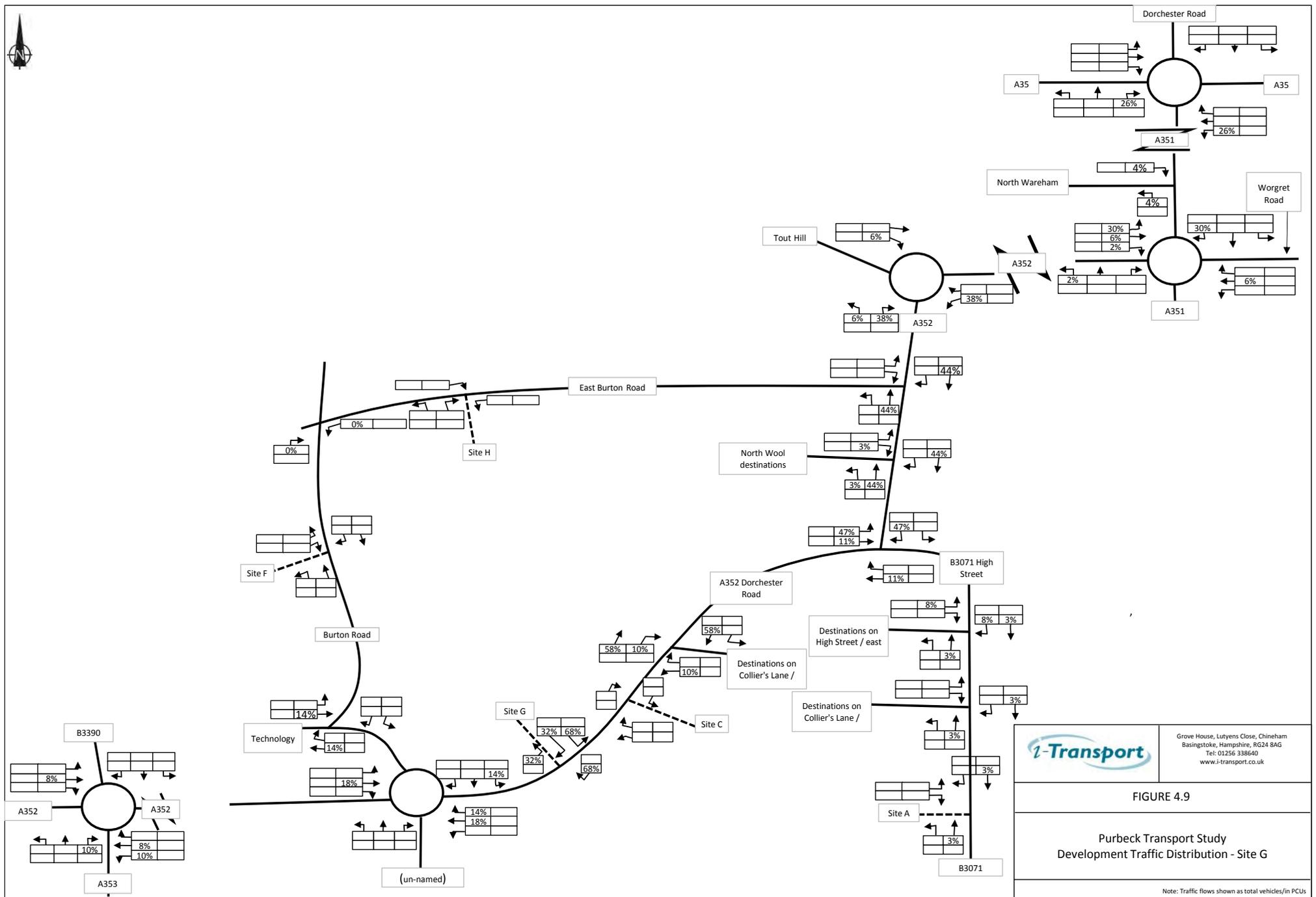


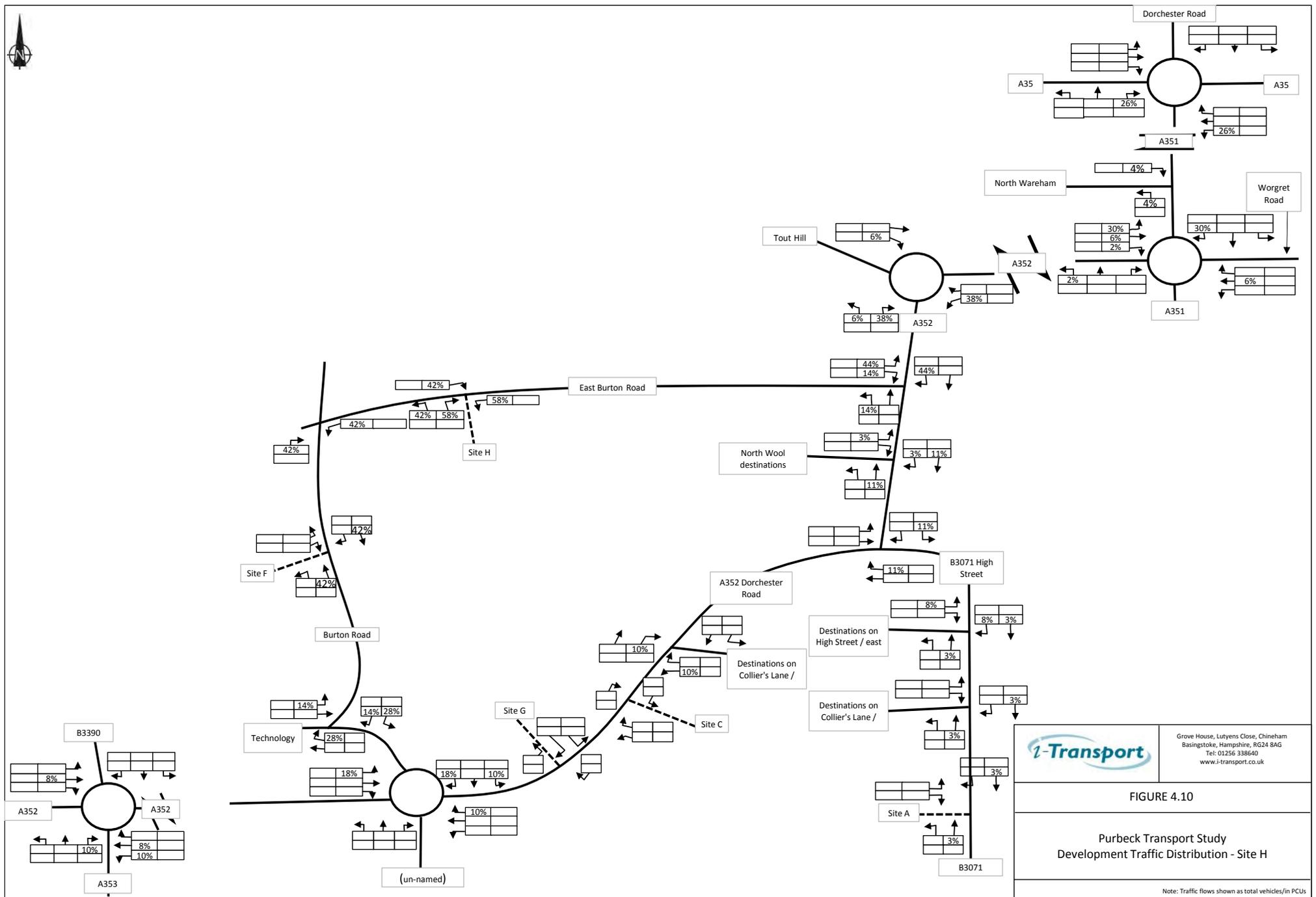


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FIGURE 4.6	
Purbeck Transport Study Development Traffic Distribution - Site A	
Note: Traffic flows shown as total vehicles/m PCUs	







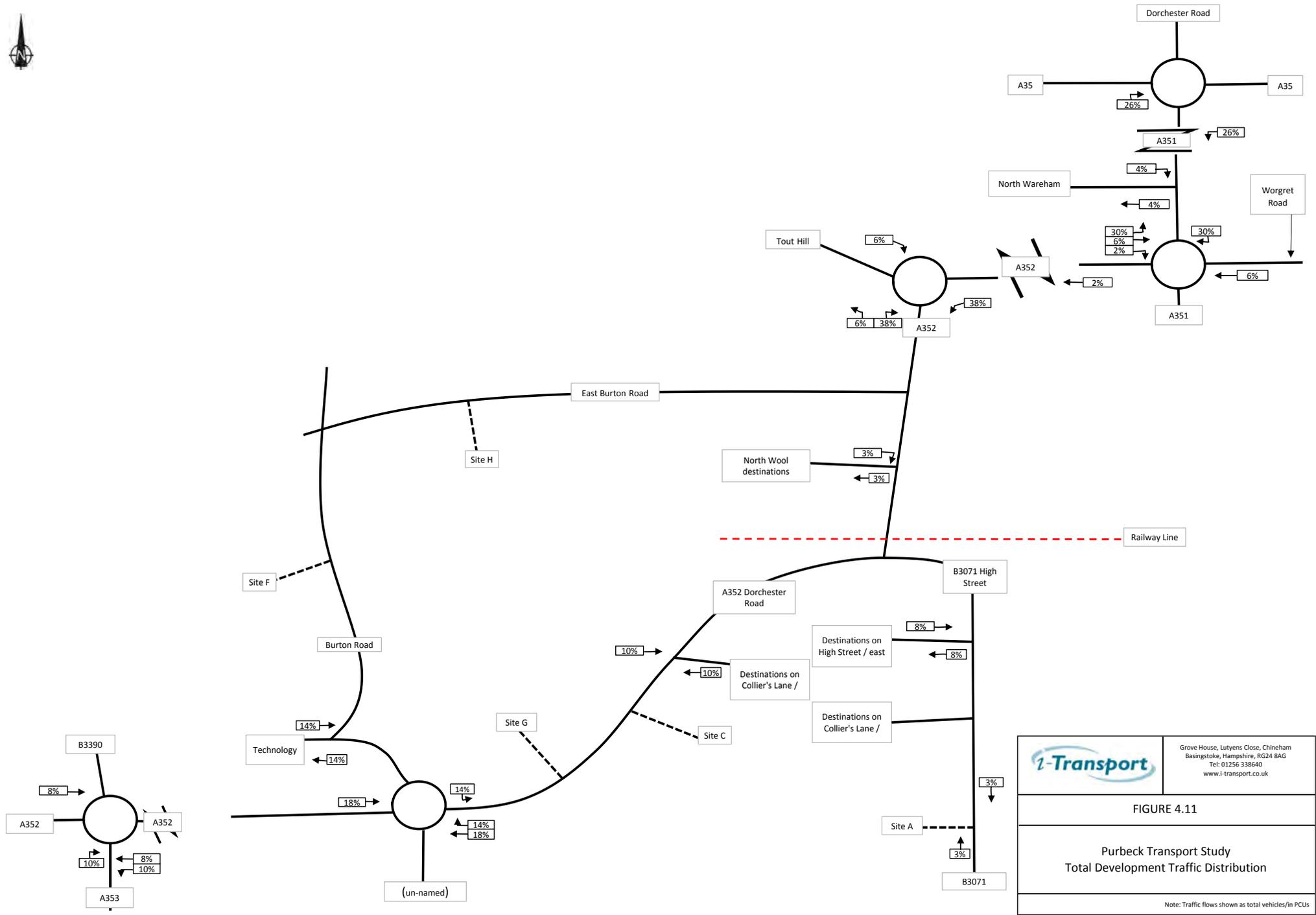


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FIGURE 4.10

Purbeck Transport Study
 Development Traffic Distribution - Site H

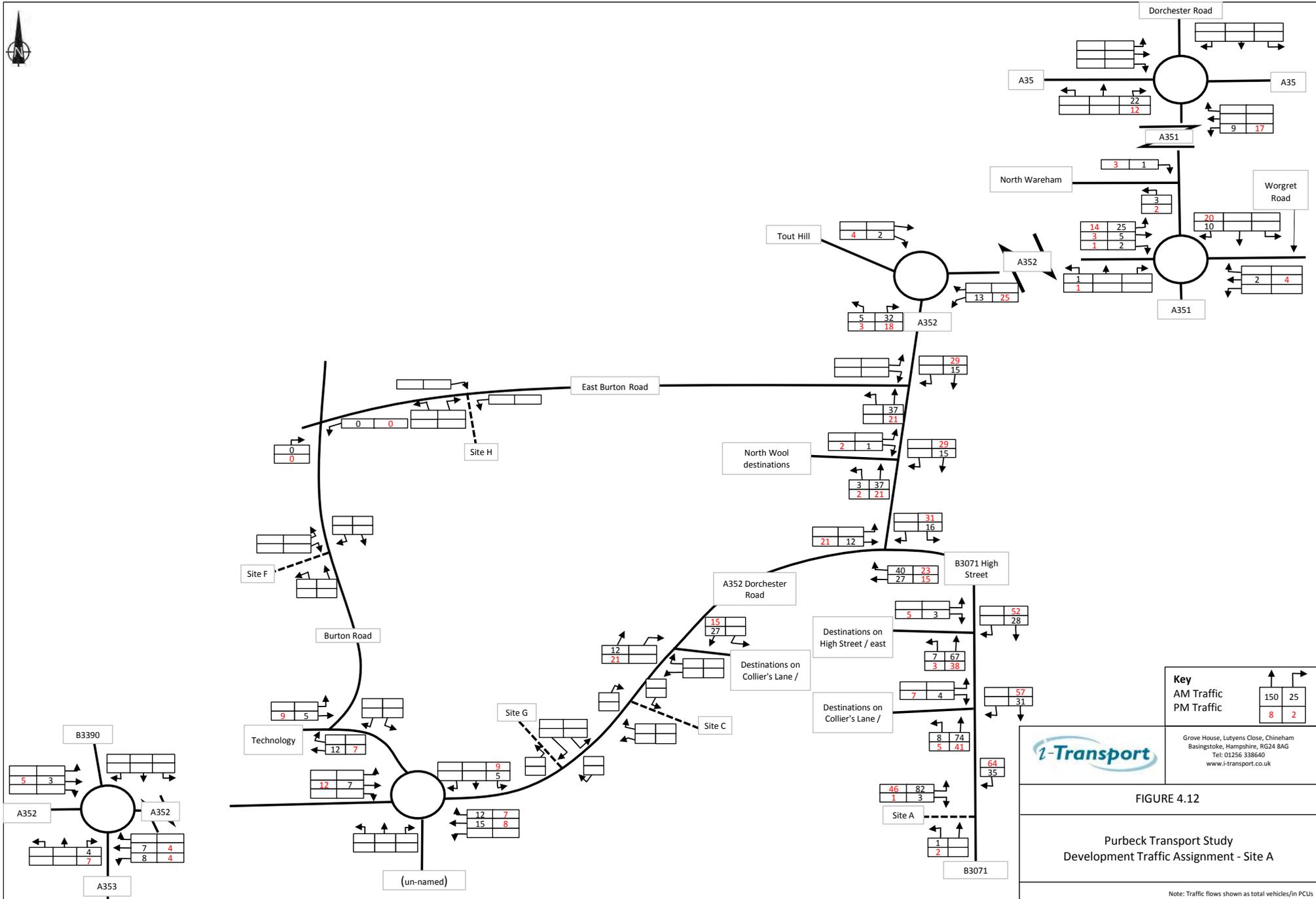
Note: Traffic flows shown as total vehicles/m PCUs

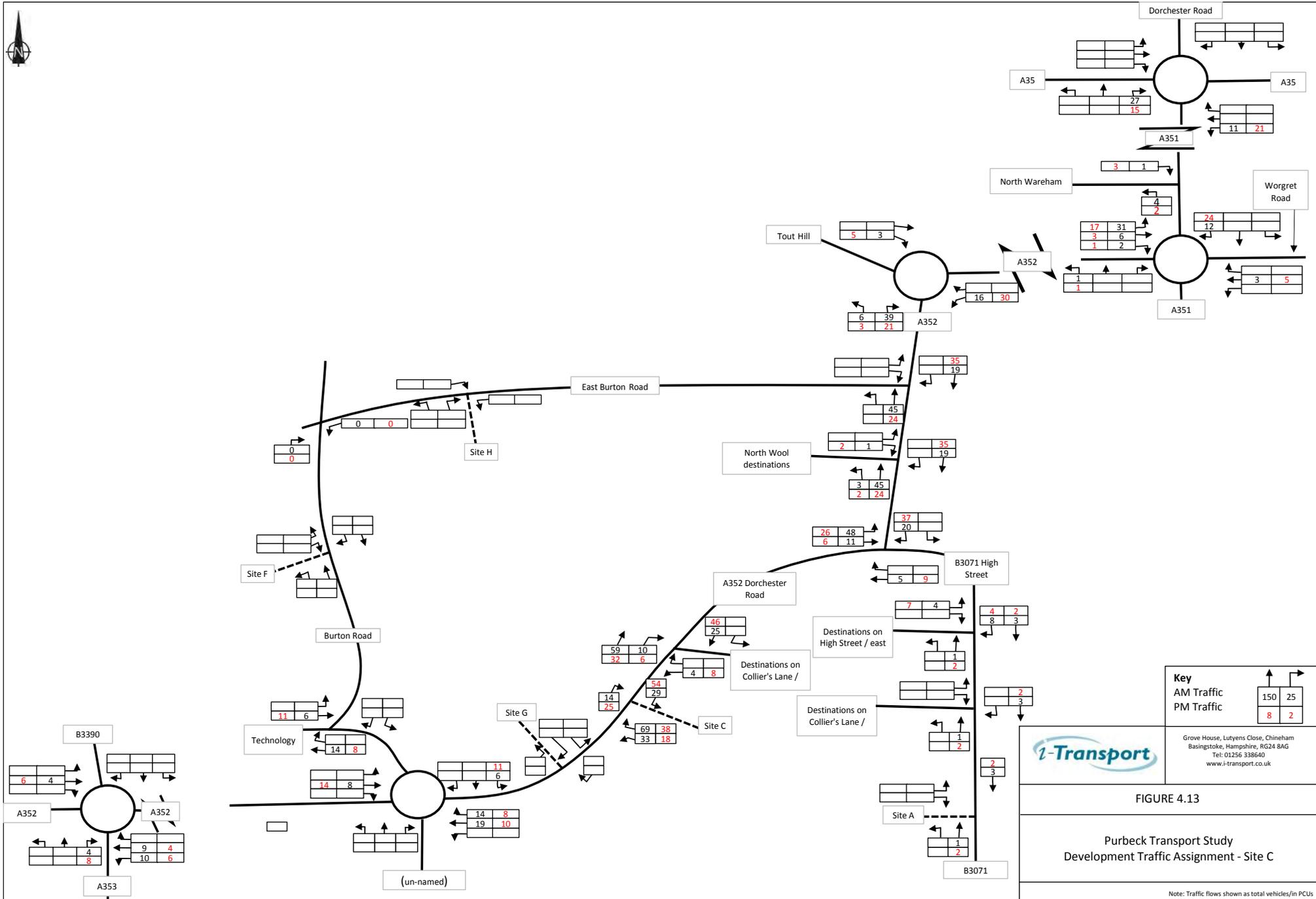


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	FIGURE 4.11

Purbeck Transport Study
Total Development Traffic Distribution

Note: Traffic flows shown as total vehicles/m PCUs

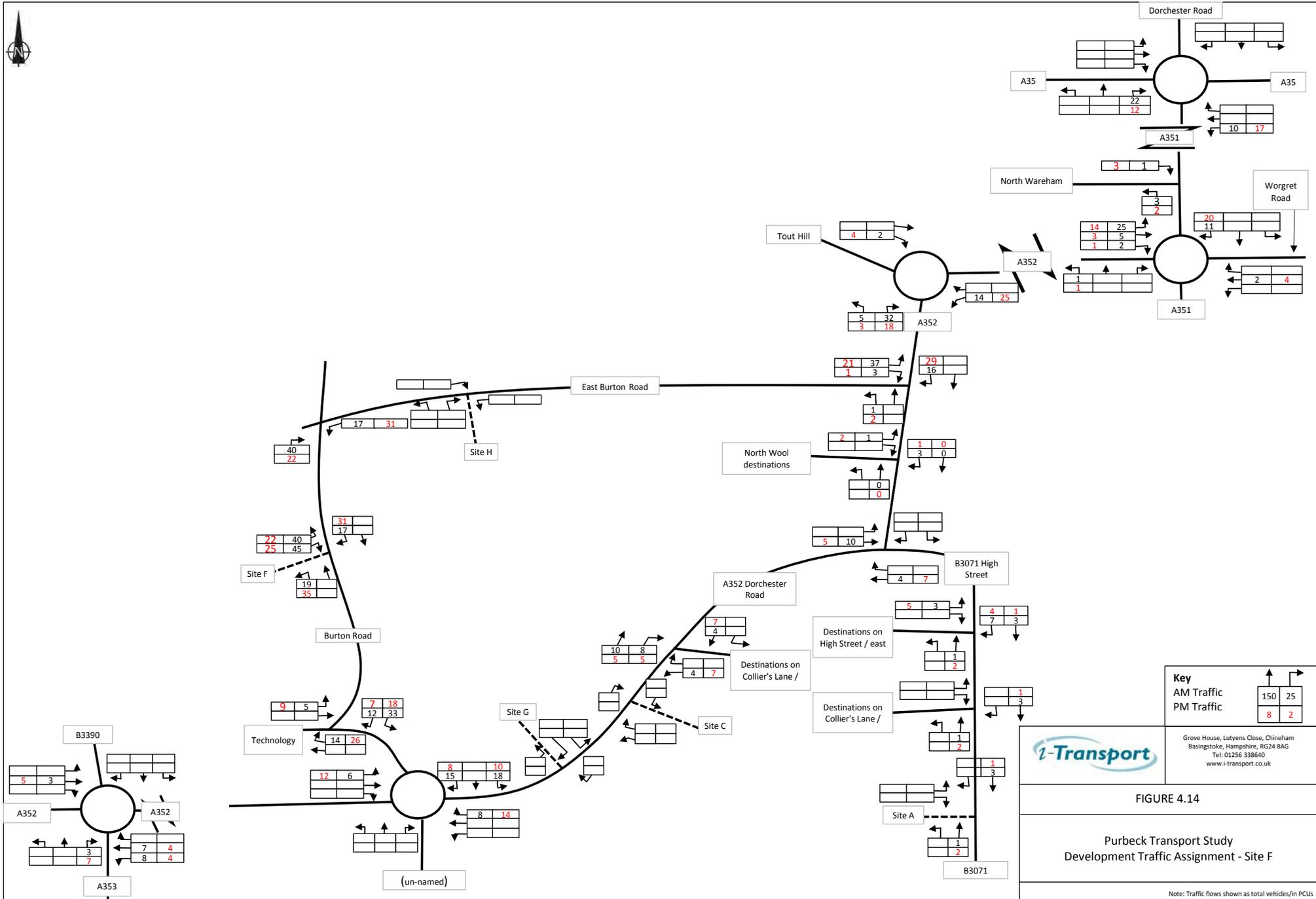


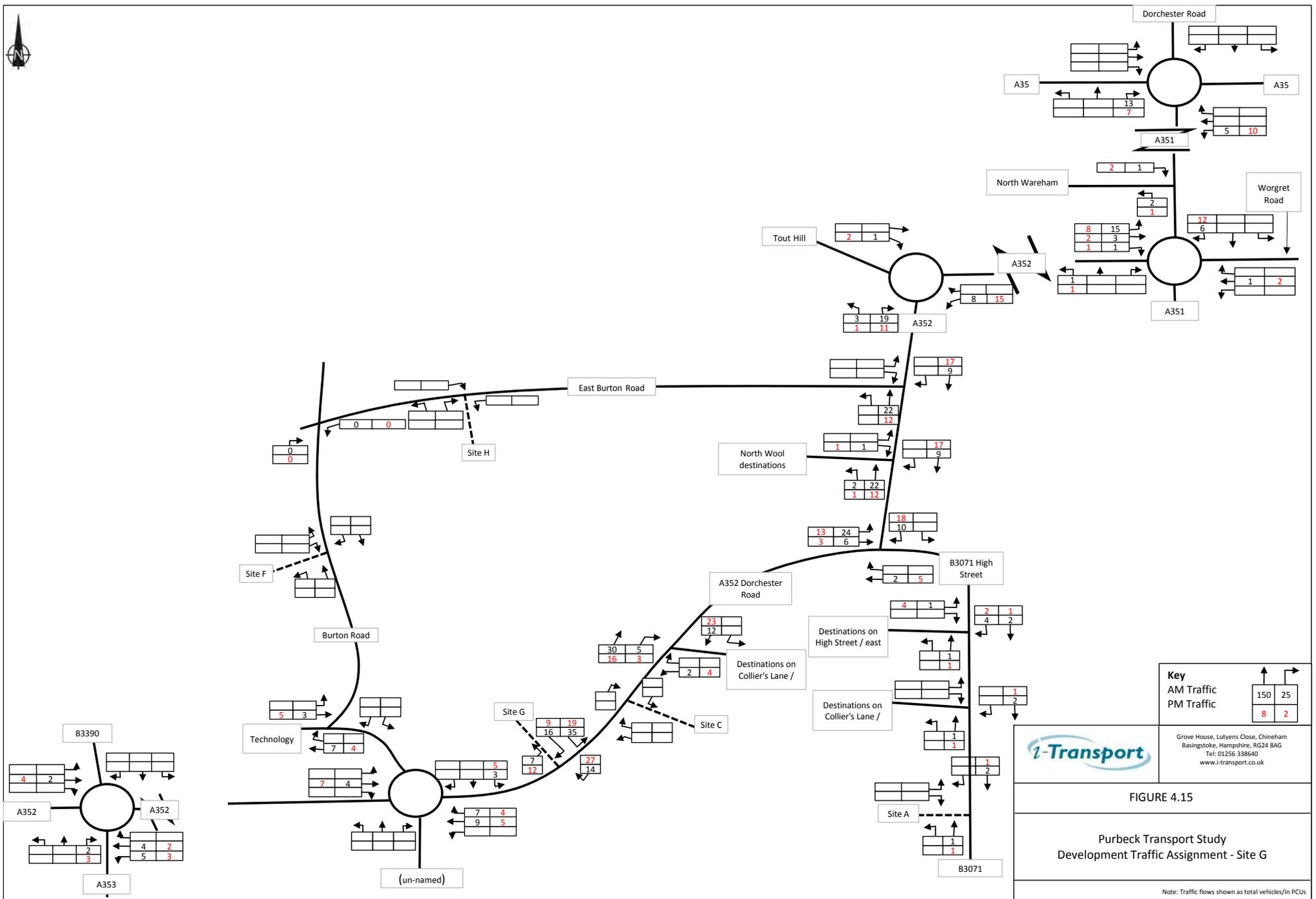


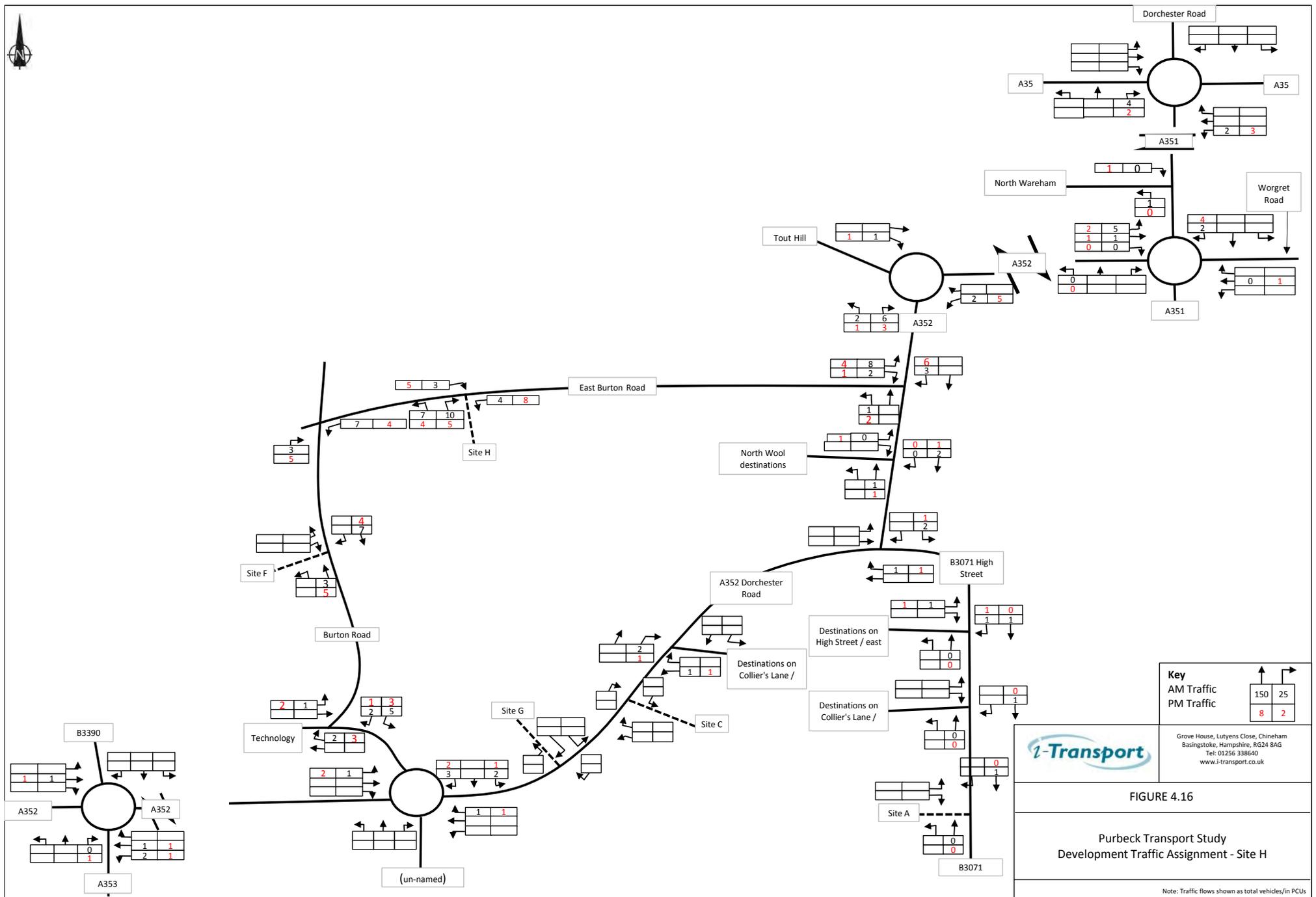
Key AM Traffic PM Traffic	<table border="1"> <tr><td>150</td><td>25</td></tr> <tr><td>8</td><td>2</td></tr> </table>	150	25	8	2
	150	25			
8	2				
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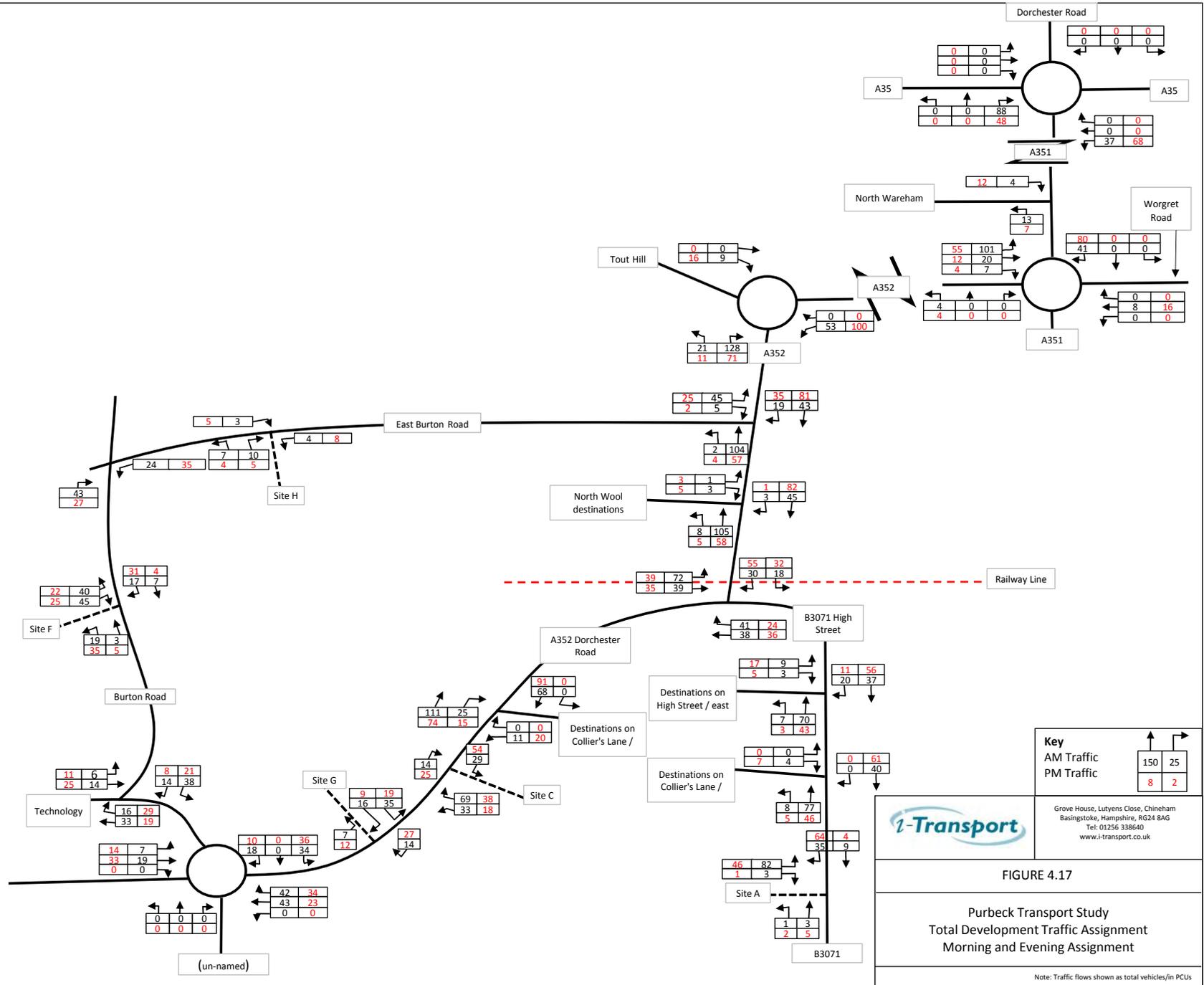
FIGURE 4.13
Purbeck Transport Study
Development Traffic Assignment - Site C

Note: Traffic flows shown as total vehicles/m PCUs









Key

AM Traffic	↑	↓
PM Traffic	↑	↓
	150	25
	8	2

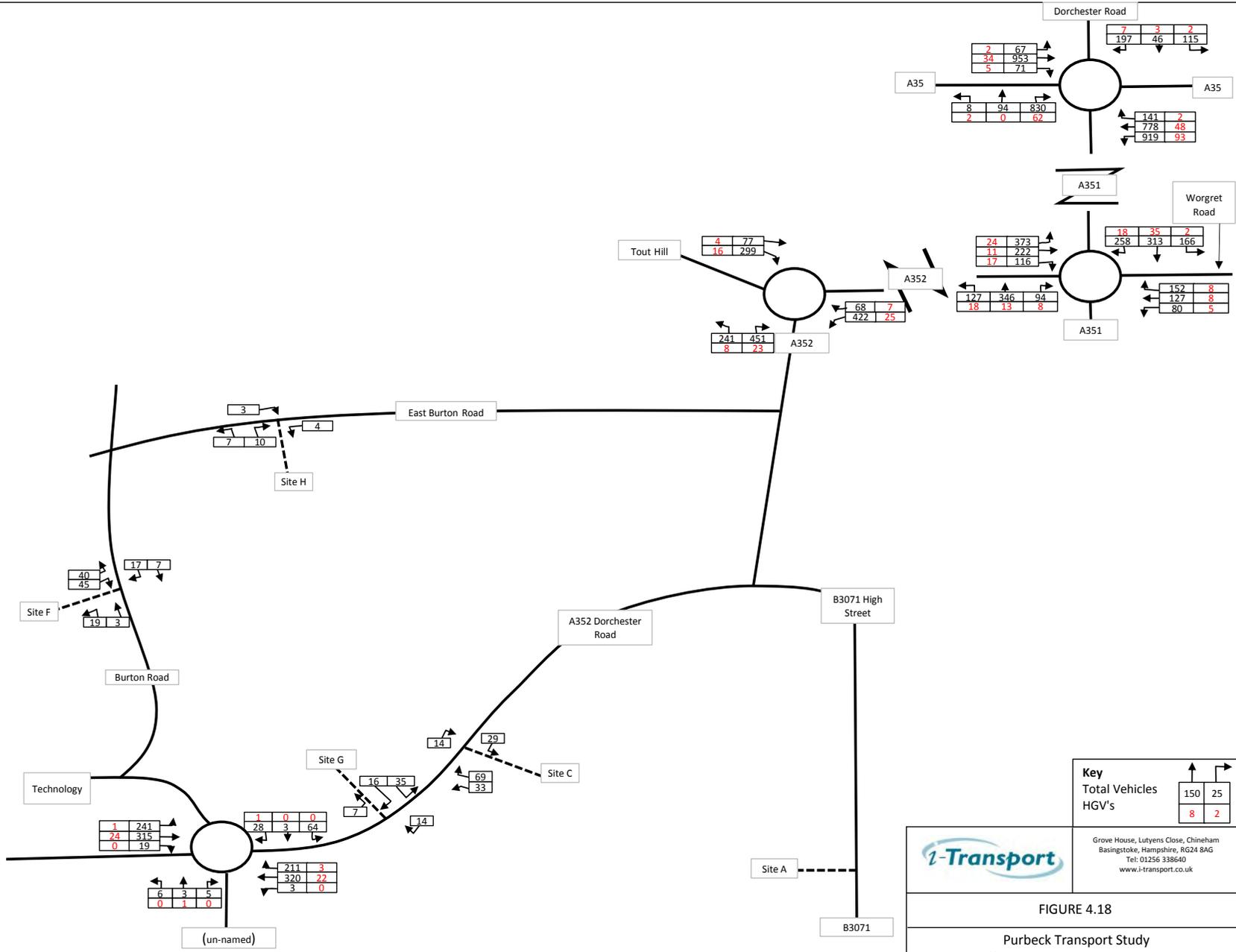
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FIGURE 4.17

Purbeck Transport Study
 Total Development Traffic Assignment
 Morning and Evening Assignment

Note: Traffic flows shown as total vehicles/in PCUs



Key

Total Vehicles	150	25
HGV's	8	2

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FIGURE 4.18

Purbeck Transport Study
2019 Traffic Flows + Committed Development +
Development Traffic
Weekday Morning Peak Hour (0800 - 0900)

Note: Traffic flows shown as total vehicles/in PCUs

