Land South-West of Camp Road, Heyford Park

Transport Assessment & Residential Travel Plan

On behalf of **Dorchester Group**

Project Ref: 33374/001 | Rev: - | Date: November 2016

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Document Control Sheet

Project Name: **Land South-West of Camp Road, Heyford Park**

Project Ref: **33374**

Report Title: **Transport Assessment & Residential Travel Plan**

Doc Ref: **FINAL**

Date: **07 November 2016**

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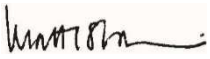
Approved by:	Matt Whiston	Partner		07 November 2016
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved
-	07/11/2016	Draft for Client Review	EK	DW	MW
-	16/11/2016	Final for submission	EK	DW	MW

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1 Introduction

1.1 Background

1.1.1. Peter Brett Associates LLP (PBA) has been commissioned by The Dorchester Group to provide highway and transport advice in support of a full planning application for up to 300 residential dwellings at land south of Camp Road (hereafter referred to as The Development), Former RAF Upper Heyford, Oxfordshire.

1.1.2. This Transport Assessment (TA) provides an overview of the proposed development, sets out an assessment of the transport issues associated with the site and identifies a package of transport measures aimed at encouraging sustainable travel, managing the existing transport networks and mitigating the residual transport impacts of the development.

1.1.3. This TA is prepared in the context of phased redevelopment of the Former RAF Upper Heyford site which has been on-going for a number of years with proposals being discussed with Oxfordshire County Council (OCC) and Cherwell District Council (CDC).

1.2 Development Proposals

1.2.1 The site is located on the Former RAF Upper Heyford site and lies in a rural area of Oxfordshire situated approximately 20km north of Oxford town centre. The nearest towns to the site are Bicester, approximately 10km to the south east, Brackley approximately 13km to the north east, and Banbury 15km to the north.

1.2.2 The Development proposals considered within this TA comprise the following:

- Up to 300 new residential units;
- Residential parking provision;
- Two main points of vehicular access from Camp Road and one main point of vehicular access from Izzard Road, leading to Camp Road. A further 4 small cul-de-sac access points will provide access to 6 dwellings each; and
- Public open spaces.

1.2.3 A copy of the proposed development's Parameter Plan is contained at **Appendix A** and the Planning Layout is at **Appendix B**.

1.2.4 The development site is bound to the west by Kirtlington Road and to the north by Camp Road. To the east the land adjoins some school-owned land with sports pitches. The proposed development area is approximately 11.81 hectares.

1.3 Development Planning Context

1.3.1 The Former RAF Upper Heyford Airbase was used by the United States Air Force for many years and housed some 12,000 American servicemen and their families. The airbase closed in 1994, and some of the former military buildings are now used for commercial purposes. There are also a number of existing residential dwellings on site which are still occupied.

1.3.2 In 1998 the Oxfordshire Structure Plan adopted policy H2 which limited future development on the Former RAF Upper Heyford to around 1,000 dwellings. The reasons given for the limit cited proximity to Bicester and the anticipated need for local road access improvements.

1.3.3 The first planning application for circa 1,000 dwellings was heard at public inquiry and refused in 2003 by the Secretary of State.

1.3.4 The whole site was subsequently designated as a conservation area in 2006 due to the significance of the historical military use of the site including a number of listed buildings and scheduled ancient monuments.

1.3.5 A further application was submitted in 2008 which went to Public Inquiry in 2010 (APP C3105/A/08/2080594) when the Secretary of State granted planning consent for development to a maximum of 1,075 dwellings, around 1,000 jobs and the following retail, education and community facilities:

- Retail (743 sqm);
- Church (680 sqm)
- Community Centre;
- Bar/Restaurant (340 sqm);
- Nursery; and
- Primary School (the nursery and Primary School elements were subsequently replaced by the Heyford Park Free School application – see below)

1.3.6 Subsequent revisions to the consented internal Masterplan layout were submitted when The Dorchester Group acquired the site. The site gained planning permission in December 2011 still for 1,075 residential units, however with 315 existing units retained and refurbished (10/01642/OUT).

1.3.7 This planning consent for the residential development is currently in the process of being implemented with commencement of the refurbishment of the existing dwellings underway and the construction and occupation of new dwellings and associated ancillary development in progress. To date, 198 new units have been occupied as well as 315 refurbished units.

1.3.8 In addition to 1,075 residential units, the wider Former RAF Upper Heyford site also gained planning permission for a Free School accommodating primary, secondary and sixth form pupils, appropriate community and recreational opportunities (13/00197/DISC). The Free School opened in temporary accommodation in September 2013 with a temporary permission for one year whilst the former officers' mess (building 74) was restored and is now operational.

1.3.9 In July 2015 the Cherwell Local Plan (2011-2031) allocated 1,600 additional dwellings and 1,500 jobs in the Heyford Park area. This application for up to 300 dwellings forms part of that allocation.

1.3.10 To date a number of applications have been submitted that fall within this allocation. These include:

- An outline application for 60 residential dwellings south of Camp Road was submitted in November 2013 (13/01811/OUT). This application was given approval in March 2016, a Section 106 has been signed, and reserved matters have been submitted but are yet to be determined.
- A full application for 43 residential dwellings south of Camp Road was submitted in February 2016 (16/00263/F). This application is yet to be determined.

- A full application for increased village centre provision over that already consented as part of the 1,075 dwelling allocation, was submitted in May 2016 (16/01000/F). This application is proposed to include a Hotel (C1), associated D2 uses, pub/restaurant/hot food takeaway (A3-A5) and a market (A1-A5). This application is ancillary to the existing and proposed development at Heyford and the estimated daily traffic generated by this application lies within the levels of traffic permitted for the Village Centre as part of the 1,075 allocation.

1.4 Content of TA Report

1.4.1 This Transport Assessment will seek to assess the transport and traffic implications of providing the proposed residential site. The content of this report is summarised below:

- Section 2 sets out the planning and policy context for the site in transport terms at a national and local level;
- Section 3 presents analysis of the existing and consented transport conditions relative to the site in relation to access and accessibility;
- Section 4 describes development proposal and access arrangements to the site;
- Section 5 presents the multi-modal development travel demand;
- Section 6 presents the assumptions of the traffic impact assessment;
- Section 7 considers the results of the traffic impact assessment through junction capacity modelling;
- Section 8 presents the Residential Travel Plan for the proposed development; and
- Section 9 presents the conclusions.

2 Policy Review

2.1 Introduction

2.1.1 Transport policy is detailed within a comprehensive national and local planning and transport policy framework. This section of the TA provides a review of the planning policy context relevant to transport in the area around the proposed site.

2.2 National Planning and Transport Policy Context

National Planning Policy Framework (NPPF)

2.2.1 The National Planning Policy Framework (NPPF, Department for Communities and Local Government, 2012) sets out the Government's economic, environmental and social planning policies for the country. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations.

2.2.2 The NPPF sets out the Government's commitment to ensuring that the planning system does everything it can to support sustainable economic growth. A positive planning system is essential because, without growth, a sustainable future cannot be achieved. Planning must operate to encourage growth and not act as an impediment. Therefore, significant weight should be placed on the need to support economic growth through the planning system.

2.2.3 The NPPF sets out 12 Core Planning Principles at paragraph 17. With regards to the principles that Authorities should consider in determining planning applications (rather than those which specifically relate to plan making), these state that planning should:

2.2.4 "*3. Pro-actively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business, and other development needs of an area, and respond positively to wider opportunities for growth.*

2.2.5 *9. Promote mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas*

2.2.6 *11. Actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable*".

2.2.7 The NPPF recognises the importance transport policies have in facilitating development but also in contributing to wider sustainability and health objectives. The Framework identifies at paragraph 32, that "*all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment… Plans and decisions should take account of whether:*

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

2.2.8 NPPF, in paragraphs 34 to 36, identifies that "*Local Authority plans and decisions should ensure developments that generate significant movements are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised… Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods and people. Therefore, developments should be located and designed where practical to:*

- *Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;*
- *Create safe and secure layouts which minimise the conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;*
- *Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and*
- *Consider the needs of people with disabilities by all modes of transport."*

2.2.9 NPPF recognises that a key tool to facilitate this will be a Travel Plan such that all developments which generate significant amounts of movement should be required to provide a Travel Plan.

2.2.10 The proposed development complies with the NPPF as it aims to deliver needed homes on a brownfield site. The proposed development is the subject of this TA as required; and also a Residential Travel Plan is attached to this application which states that the proposed development site falls under the existing Full Travel Plan for Heyford Park in order to encourage more sustainable transport measures.

National Planning Practice Guidance

2.2.11 The Government has recently adopted the National Planning Practice Guidance (NPPG), which provides comprehensive guidance *Transport evidence bases in Plan making*, compatible with the NPPF, superseding much previous guidance, such as Department for Transport's *Guidance on Transport Assessment* (2007).

2.2.12 This NPPG includes a section dedicated *to "why are Travel Plans, Transport Assessment and Statements important"*, citing the following points:

- Encouraging sustainable travel;
- Lessening traffic generation and its detrimental impacts;
- Reducing carbon emissions and climate impacts;
- Creating accessible, connected, inclusive communities;
- Improving health outcomes and quality of life;
- Improving road safety; and
- Reducing the need for new development to increase existing road capacity or provide new roads.

2.2.13 The guidance specifies that it is linked directly to paragraphs 17 (bullet point 11), 39 and 40 of the NPPF and explains that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are, or can be made, sustainable.

2.2.14 Under the section *"What key principles should be taken into account in preparing a Travel Plan, Transport Assessment or Statement?"*, the guidance states that Travel Plans, Transport Assessments and Statements should be:

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

2.2.15 The guidance also sets out the ways in which these documents can be made to be as useful and accessible as possible – by ensuring that any information or assumptions should be set out clearly and be publicly accessible.

2.2.16 The proposed Development presents a Travel Plan detailing sustainable transport measures to be incorporated as part of the development.

2.2.17

2.3 Local Planning and Transport Policy Context

Oxfordshire Local Transport Plan: Connecting Oxfordshire 2015- 2031

2.3.1 The current Oxfordshire Local Transport Plan: Connecting Oxfordshire 2015-2031 (LTP4) sets out OCC's policy and strategy for developing the transport system in Oxfordshire to 2031. The LTP4 was adopted as policy in September 2015.

2.3.2 Connecting Oxfordshire has these transport goals:

1. To support jobs and housing growth and economic vitality;
2. To support the transition to a low carbon future;
3. To support social inclusion and equality of opportunity;
4. To protect, and where possible enhance Oxfordshire¡¦s environment and improve quality of life; and
5. To improve public health, safety and individual wellbeing.

2.3.3 A set of ten objectives form the basis for achieving these goals, and have been grouped under three themes:

Theme 1: Supporting growth and economic vitality (Goal 1)

- Maintain and improve transport connections to support economic growth and vitality across the county;
- *Make most effective use of all available transport capacity through innovative management of the network;*
- *Increase journey time reliability and minimise end-to-end public transport journey times on main routes; and*
- *Develop a high quality, innovative and resilient integrated transport system that is attractive to customers and generates inward investment.*

Theme 2: Reducing Emissions (Goal 2)

- *Minimise the need to travel;*
- *Reduce the proportion of journeys made by private car by making the use of public transport, walking and cycling more attractive;*
- *Influence the location and layout of development to maximise the use and value of existing and planned sustainable transport investment; and*
- *Reduce per capita carbon emissions from transport in Oxfordshire in line with UK Government targets.*

Theme 3: Improving quality of life (Goals 3, 4 and 5)

- *Mitigate and wherever possible enhance the impacts of transport on the local built, historic and natural environment; and*
- *Improve public health and wellbeing by increasing levels of walking and cycling, reducing transport emissions, reducing casualties, and enabling inclusive access to jobs, education, training and services.*

2.3.4 The LTP4 Volume 2 Area Strategies states the following under the Bicester Area Strategy with regards to development at Heyford Park:

*"BIC1 – **Improve access and connections between key employment and residential sites and the strategic transport system by**:*
- ***Reviewing key county road links out of Bicester, including those that cross the county boundary**….The interrelationship of development at Upper Heyford with that of Bicester, connected by the B4030, will be considered carefully."*

*"BIC2 – **We will work to reduce the proportion of journeys made by private car by implementing a Sustainable Transport Strategy by**:*
- ***Growth at Upper Heyford** will need to be considered in terms of improved public transport frequency and connectivity with Bicester."*

2.3.5 The LTP4 recognises the importance of Travel Planning to encourage people to change their travel habits to ones which will cause fewer environmental problems. Travel Planning provides initiatives to increase levels of walking, cycling and use of public transport as appropriate, to bring about improved health and help towards the goal of reducing peak time traffic congestion.

2.3.6 Policy 34 of the LTP4 requires *"the layout and design of new developments to proactively encourage walking and cycling, especially for local trips, and allow developments to be served by frequent, reliable and efficient public transport."* This will be supported by the preparation of effective travel plans.

Cherwell Local Plan 2011-2031

2.3.7 The Cherwell Local Plan sets out how the district will grow and change up to 2031. It sets out the proposals for how they will develop and support the local economy, protect villages and strengthen town centres.

2.3.8 Section A sets out objectives for 'Ensuring Sustainable Development' and lists Strategic Objectives such as:

"Strategic Objective 13. To reduce the dependency on the private car as a mode of travel, increase the attraction of and opportunities for travelling by public transport, cycle and on foot, and to ensure high standards of accessibility for people with impaired mobility.

Strategic Objective 14. To create more sustainable communities by providing high quality, locally distinctive and well-designed environments which increase the attractiveness of Cherwell's towns and villages as places to live and work and which contribute to the well-being of residents."

2.3.9 The adopted Cherwell Local Plan lists former RAF Upper Heyford under 'Section C.5 Our Villages and Rural Areas' and specifically in 'Policy Villages 5: Former RAF Upper Heyford'. Policy Villages 5 states that Heyford Park as a whole will to provide a new settlement of approximately 1,600 dwellings (in addition to the 761 dwellings (net) already permitted) together with additional employment and supporting social and physical infrastructure, including the need to provide a local centre/hotel. Some of the key specific design and place shaping principles required of the development are:

"The settlement should be designed to encourage walking, cycling and use of public transport rather than travel by private car, with the provision of footpaths and cycleways that link to existing networks.

Improvements to bus and rail facilities and measures to minimise the impact of traffic generated by the development on the surrounding road network will be required.

Development should provide for good accessibility to public transport services.

A Travel Plan should accompany any development proposals."

2.4 Relevance to the Proposed Development

2.4.1 The proposed residential development takes full account of the planning and transport policies identified above and the rest of this report demonstrates how the proposed development responds positively to these policies.

3 Existing Transport Conditions

3.1 Introduction

3.1.1 This section considers the existing transport conditions in the vicinity of the development site. It provides details of the site's location, its proximity to local facilities and amenities and its accessibility by walking, cycling and public transport. Finally, it provides an overview of the operation of the local highway network and a review of local Personal Injury Collision data.

3.2 Strategic Site Location and Description

3.2.1 Former RAF Upper Heyford is located within a network of predominately rural roads, many of which are unclassified, although Junction 10 of the M40 motorway is located 6.1km to the east of The Development, and the A4260 Banbury to Oxford Road runs from north to south some 4.7km to the west.

3.2.2 The M40 forms part of the strategic route to London to the southeast and Birmingham to the northwest.

3.2.3 The potential application site is approximately 11.81 hectares in size and is located south of Camp Road towards the western corner of the wider Former RAF Upper Heyford site.

3.2.4 **Figure 3.1** illustrates the site location at a strategic level.

3.3 Local Highway Network

3.3.1 The wider Former RAF Upper Heyford site is largely contained between Camp Road to the south, Somerton Road to the north and west, and B430 Station Road to the east.

3.3.2 **Figure 3.2** illustrates the site within the context of its local environs.

Camp Road

3.3.3 Camp Road is an arterial route through the southernmost part of Former RAF Upper Heyford. The former runway, taxiway and employment buildings lie to the north of Camp Road and the existing residential and auxiliary buildings lie to the south. The consented housing will be located both to the north and south of Camp Road. The residential units associated with this TA are located to the south of Camp Road in the southwest corner of Former RAF Upper Heyford. The Development will have three main points of access, two onto Camp Road and one onto Izzard Road, leading to Camp Road with a further 4 small cul-de-sac access points which provide access to 6 dwellings each.

3.3.4 Camp Road connects the site to Upper Heyford village, and the north-south route of Somerton Road / Station Road in the west, through to the junctions with Chilgrove Drive and the B340 in the east.

3.3.5 Currently, Camp Road is approximately 6m wide where it passes through the existing development, with one lane in either direction for the majority of the carriageway, and reduction to single-lane operation at 5 locations to provide traffic calming features i.e. kerb extensions. Camp Road is restricted to a 30mph speed limit along its length. Street lighting is provided and pedestrian footpaths are present along its length, although not all of the footways have been formally adopted and are therefore not maintained at public expense by the local authority.

3.3.6 Camp Road is in the process of being improved as part of work associated with the consented development. These works are shown on Woods Hardwick plans at **Appendix C**. These improvements include a shared surface area in close proximity to the existing main gate, which will be adjacent to the village centre in the future. The junction will provide bus and vehicular access to the housing area and include two proposed bus stops.

3.3.7 As part of the consented works, three additional priority junctions along Camp Road are to be formed on raised tables providing access to the new housing, and, as existing, at various points the road will be narrowed to a single lane with priority to westbound traffic at some points and eastbound at others.

Somerton Road

3.3.8 Somerton Road provides connections to the village of Somerton and is subject to a 30mph speed limit through Upper Heyford which increases to national speed limit when leaving the village in either direction.

3.3.9 Somerton Road links to Station Road at the junction with Camp Road which continues to the B4030 which runs parallel to Camp Road and onwards to the A4260 to the west.

B430

3.3.10 The B430 forms a north-south link between the M40 and the A34 Trunk Road at Weston-on-the-Green, providing access to other key destinations including Bicester and Oxford. To the north the B430 terminates at Junction 10 of the M40 immediately north of the village of Ardley. The road is subject to a 60mph speed limit which decreases to 40mph through Ardley. To the south the B430 terminates at the A34 Trunk Road. The road is subject to a 60mph speed limit until it reaches the village of Weston-on-the-Green where it decreases to 40mph through the village. The B340 meets the B4030 at a staggered crossroads in Middleton Stoney, located around 3.0 kilometres to the south east of former RAF Upper Heyford.

3.4 Existing Traffic Flows

3.4.1 In order to establish the baseline traffic conditions and to enable junction capacity analysis to be carried out, traffic flow information has been obtained.

3.4.2 PBA commissioned Community Systems Limited (CSL) to carry out Manual Classified Counts (MCC) at the following locations in June 2013:

- Somerton Road / Camp Road Junction;
- Camp Road / Kirtlington Road Junction;
- Camp Road / Chilgrove Drive / Minor Road Junction;
- B430 / B4030 Junction “Middleton Stoney”; and
- A4260 Oxford Road / B4030 Junction.

3.4.3 PBA subsequently commissioned Advanced Transport Research (ATR) to carry out Manual Classified Counts (MCC) at the following locations in June 2014:

- M40 Junction 10 Southern Roundabout;
- B430 / Camp Road Junction; and
- B4030 Lower Heyford Road / Port Way Staggered Crossroads.

3.4.4 The locations of these traffic surveys are identified in **Figure 3.3**. The turning counts obtained in both the 2013 and 2014 surveys are shown in **Figures 3.4** (AM peak) and **3.5** (PM peak).

3.5 Local Facilities and Amenities

3.5.1 The existing settlement at Former RAF Upper Heyford benefits from an established community which is supported by a range of facilities. These include local retail, ecclesiastical and community buildings. The consented wider scheme proposed an enhancement of community facilities to include a Heritage Centre, a pub/restaurant, community centre and retail area. **Figure 3.6** illustrates the existing and consented facilities and amenities.

Local Amenities

3.5.2 The nearest post office, bank, doctor's surgery, library and Co-op food store to the site is 10km south east in Bicester.

Employment

3.5.3 Heyford Park which is a business and commercial hub lies 1.1km to the east of the site on Camp Road. This is the nearest employment opportunity to the site. Other employment areas are in Bicester, Banbury and Oxford.

Education

3.5.4 The main building of Heyford Park Free School is situated approximately 1.1km miles from the site, with specialist teaching buildings being located immediately to the east of the site. Heyford Park Free School provides education to children aged 4-19 years old. Other schools close by are Dr. Radcliffe's CE Primary School, 5km from the site and Fritwell C of E Primary School 8km from the site. There are two pre-schools, Park Keeps Pre-School, approximately 0.8km east of the site and Steeple-Aston Pre-School, approximately 5km west of the site. The nearest alternative secondary school to Heyford Park Free School is Bicester Community College, approximately 10km from the site in Bicester town.

Leisure

3.5.5 The Barley Mow public house is located less than a kilometre north of the site on Somerton Road. Other existing public houses close by are The Bell Inn Lion (Lower Heyford, 2.4km away) and Horse & Groom (Caulcott 3.7km). The nearest leisure centre is Bicester and Ploughly Sports Centre, approximately 10km from the site in Bicester town. As part of the consented scheme the school gym buildings would be used for sports and leisure for the community in the evenings.

Consented Facilities and Amenities

3.5.6 It is important to consider the sustainability of the site as part of the wider consented development at the Former RAF Upper Heyford.

3.5.7 The consented wider scheme proposed an enhancement of community facilities which include the following:

- Retail (743 sqm);
- Church (680 sqm);
- Community Centre;

- Bar/Restaurant (340 sqm);
- Nursery; and
- Primary School (the nursery and Primary School elements were subsequently replaced by the Heyford Park Free School application, which also accommodates Secondary aged children).

3.5.8 These consented amenities will benefit the proposed site and will be within approximately 12 minutes' walk and 4 minutes cycle time from the site, providing potential for a higher number of walk/cycle trips to and from the site.

3.5.9 A full planning application for further local facilities in the form of a Village Centre was submitted in May 2016. The Village Centre South will largely be developed using existing buildings which were part of the previously consented scheme, The Village Centre proposals are to provide:

- A boutique hotel (1,642m^2);
- A small cinema (25 seats);
- A 2-lane bowling alley; and
- Pub and Restaurant.

3.5.10 It is intended that a further planning application is submitted for the Village Centre North to provide food and non-food retail.

3.5.11 If consented, these facilities will provide further opportunity for local sustainable leisure travel to residents of the proposed site.

Distances to Key Facilities

3.5.12 **Table 3.1** provides a summary of the local facilities available close to the development site. The distances are taken from a notional centroid for the development site. The journey times provided in the table have been based on guidance from DfT's Core National Accessibility Statistics, CIHT's 'Providing for Journeys on Foot', and Manual for Streets. These documents suggest that an 800 metre walk can be achieved by an average person in around 10 minutes. In addition, average cycling speed has been suggested as 16 km/h.

Table 3.1: Distance to Key Facilities

Facility / Destination	Location / Street	Distance (km/m)	Journey Time on Foot (mins / secs)	Journey Time on Bicycle (mins / secs)
Local Amenities / Community				
Church	Camp Road	900m	11mins	3mins
Consented retail	Camp Road	1km	12mins	4mins
Post office/Bank	Bicester Town	10km	125mins	37mins
Healthcare				
Surgery	Bicester Town	10km	125mins	37mins
Employment				
Heyford Park	Camp Road	1.1km	14mins	4mins
Education				
Heyford Park Free School	Camp Road	1.1km	14mins	4mins
Park Keeps Pre-School	Camp Road	850m	11mins	3mins
Leisure				
The Barley Mow Public House	Somerton Road	700m	9mins	3mins
Submitted Village Centre Pub & Restaurant	Camp Road	1km	12mins	4mins

3.5.13 In considering the proximity of these key facilities and amenities with regards to walking distances, the most recent transport statistics are set out within the DfT's *National Travel Survey: 2015* (NTS).

3.5.14 This indicates that 22% of all journeys and 76% of journeys under one mile (1.6km) are made by foot. Table NTS0306 within the NTS also indicates that the average walking trip length is 0.8miles (1.3km).

3.5.15 The NPPF now supersedes the Planning Policy Guidance (PPG), however PPG13 stated that:

- *"Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2 kilometres."*

3.5.16 In addition, the most recent guidance on this issue is provided by Manual for Streets (MfS) which, at Paragraph 4.4.1, states that:

- *"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' [up to about 800m] 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 2km."*

3.5.17 Whilst these documents suggest that the greatest potential to replace short car trips is for those under 2km, this is not a maximum distance to which pedestrians are willing to walk. The NTS (at Table NTS0308) also identifies that 36% of walking trips are over 1 mile (1.6km) and 4% over 2 miles (3.2km) in length.

3.5.18 PPG13 also identified the contribution that cycling can make to transport sustainability and accessibility, identifying this mode of travel as a good substitute for short car trips, particularly those under 5km. *PPG13: A Guide to Better Practice* builds on this concept indicating that in actuality, this threshold could be higher at 8km for cycle trips.

3.5.19 Again, this is reiterated and substantiated in the recent NTS, which identifies that the average trip length by bicycle is 3.1 miles (5.0km). Furthermore, Table NTS0308 identifies that 82% of all cycle trips are over 1 mile (1.6km) and 53% over 2 miles (3.2km). A total of 82% of all cycle journeys are made over distances less than 5 miles (8km).

3.5.20 Together, these statistics demonstrate that 78% of all trips under 1 mile (1.6km) are by walking and cycling, and indeed, over half (57%) of all trips under 2 miles are by walking and cycling.

3.5.21 These statistics would indicate, therefore, that trips to existing and consented facilities and services on Camp Road could reasonably be expected to be undertaken on foot or by cycle.

3.6 Site Accessibility by Non-Car Modes

3.6.1 **Figure 3.7** illustrates the existing and consented pedestrian and cycling routes, along with the location of the nearest bus-stops to the site and Heyford Rail Station.

Walking and Cycling

3.6.2 Camp Road provides walk and cycle access from the main entrance of the site towards Upper Heyford to the west, and commuting, education and leisure opportunities to the east.

3.6.3 There is a footpath running adjacent to Camp Road on the south side. This starts at the junction with Larsen Road, on the eastern extent of the wider Heyford Park development, and runs all the way to the Kirtlington Road junction, just west of the proposed 300 units. Along its length the footpath is separated from the carriageway by verge, hedgerow and in some areas security fencing. Beyond Kirtlington Road, the path adjoins the southern side of Camp Road to become a footway, approximately 0.5m to 1m wide.

3.6.4 For the final 120m of Camp Road, towards Somerton Road and Upper Heyford, there are footways on both sides of the road of between 0.5 and 1m width. It is therefore possible to walk from the proposed development site to the bus stops on Camp Road close to the Somerton Road junction, approximately 500m to the west. Dropped kerbs and tactile paving are provided to enable uncontrolled crossing of Camp Road to access the eastbound bus service.

3.6.5 To the east of the site, no footway is currently provided on the north side of Camp Road until the Main Gate (approximately. 800m east of the site). From Main Gate, a 2m wide footway is provided up to Larsen Road. There are no controlled pedestrian crossing points on Camp Road however dropped kerbs and tactile paving are provided to enable uncontrolled crossing via the splitter islands on the approaches to the Main Gate roundabout. This provides access to the main employment area and Heyford Park Free School. Street lighting is provided on Camp Road for its entire length.

3.6.6 There is a consented S278 scheme, currently under construction along Camp Road, which is set out in Woods Hardwick plans at **Appendix C**. This scheme will provide a 1.8m wide footway on the northern side of Camp Road, separated from the road along much of its length

by an approximately 3m wide verge retaining existing hedgerows. On the southern side of Camp Road a 3m wide shared footway/cycleway is to be provided, separated from the carriageway in most places by an approximately 3m wide verge with trees planted.

3.6.7 To the west of Heyford Park, in Upper Heyford Village, there is a footway of about 0.5m width on the east side of Somerton Road where it meets Camp Road. This runs for about 60 metres in a northerly direction, and then switches to the other side of the road. The footway / footpath runs to the end of the village of Upper Heyford in a northerly direction for another 300m. This provides access to The Barley Mow Public House and village allotments. There are no footways/footpaths along Somerton Road in a southerly direction from the junction with Camp Road.

3.6.8 There are a number of existing PRoWs criss-crossing the local area and these existing rural links are made up of the following:

- A network of public footpaths and bridleways to the south and east of the site linking Camp Road to Caulcott to the south, and Ardley at the northeast of the site;
- A network of public footpaths and bridleways to the northern perimeter of Heyford Park linking Fritwell with Somerton; and
- A network of public footpaths and bridleways to the south and west of the site linking Upper Heyford, Lower Heyford and Steeple Aston.

3.6.9 Historically, there were a number of PRoWs crossing Heyford Park, but some of these were curtailed when the site came into military use, circa 1915.

3.6.10 The key routes which were curtailed when the site came into military use include:

- Portway – a bridleway to the west of the runway running in a north – south direction and
- Aves Ditch – a bridleway to the east of the runway running in a north – south direction.

3.6.11 In addition, there were two further historical routes crossing Heyford Park, one running in a southwest – northeast direction (on the approximate alignment of the existing runway) and one running in a northwest – southeast direction crossing the runway.

3.6.12 As part of the consented development at the Former RAF Upper Heyford some of the original PRoWs on the site will be reinstated as well as improving connections to existing PRoWs elsewhere. In addition, the consented housing will be connected by a network of walk and cycle links penetrating the residential areas and providing a permeable site which facilitates and encourages walking and cycling within the local area. The existing and consented walking and cycling provision is shown at **Figure 3.7**.

3.6.13 As well as the off-road PRoWs, low levels of traffic in the predominantly rural area currently allow the potential for additional routes for walkers, cyclists and equestrians along the highway network.

3.6.14 There are no dedicated cyclepaths or cycleways in the local area, other than that proposed along the north side of Camp Road as part of the consented scheme. The closest National Cycle Network (NCN) route is NCN 5, the West Midlands Cycle Route which connects Reading to Bangor through Oxford. The route can be accessed off A4260 Banbury Road, about 7.5km west of the proposed development site. However, being a rural area, traffic is light and therefore most cyclists use the local road network.

Public Transport

Bus

3.6.15 The nearest bus stops to the proposed development site are at the western end of Camp Road close to the junction with Somerton Road, approximately 500m from one of the proposed site accesses. The bus stops are on both sides of the road. The stops are served by bus services 25A and 90 which are operated by Thames Travel and Oxfordshire County Council respectively. These services and frequencies are set out in **Table 3.2** and shown on **Figure 3.7**.

Table 3.2: Local Bus Services and Frequencies

Service/ Operator	Route	Frequency			
		Monday – Friday Daytime	Saturday Daytime	Sunday Daytime	Evenings
25A Thames Travel	Oxford – Kirtlington – Upper Heyford – Bicester	Hourly	Hourly	No service	One service. Friday – Saturday additional service to Bicester only.
90 Oxfordshire County Council	Upper Heyford – Deddington – Banbury	One journey per week (Thursday) in each direction Outward journey departs 09.30 Return journey departs 13.15	No service	No service	No service

Note: Bus routes and frequencies correct as at June 2016.

3.6.16 **Table 3.2** indicates that the local area is served by a limited number of bus routes with the route 90 operating only one day a week. The 25A operates an hourly service during Monday-Saturday daytime, between Oxford and Bicester. There is also a late journey from Oxford at 2320 on Friday and Saturday. There is no Sunday service.

3.6.17 OCC has recently tendered the contract for service 25A for a further six years, maintaining the existing service pattern and hours of operation, except for the late Friday and Saturday journey which would be withdrawn.

Rail

3.6.18 The nearest railway stations are Heyford, located in the village of Lower Heyford (2.8km from the site), and Bicester (10km from the site). Heyford rail station is within walking distance of the Lower Heyford bus stop opposite Kingdom Hall served by both bus services shown in **Table 3.2**. Heyford station also has 10 sheltered cycle parking spaces.

3.6.19 Heyford rail station is served by direct trains to key destinations, notably Banbury, Oxford and London Paddington with typical service frequencies of between 90 minutes and 150 minutes on weekdays and Saturdays. On Sundays there are three direct journeys between Heyford and Banbury and Oxford.

3.7 Personal Injury Collision Data

3.7.1 In order to establish the existing highway safety record within the vicinity of the site an assessment has been carried out of Personal Injury Collision (PIC) data.

3.7.2 PIC data was obtained from OCC for the latest available five year period, from 01/01/11 to 30/04/16. The study area includes the local road network surrounding the site. It comprises of:

- Camp Road;
- The B430 - Middleton Stoney to M40 Junction 10;
- The B4030 - Middleton Stoney to A4260 Hopscroft Holt;
- Station Road - Upper Heyford to Lower Heyford; and
- Somerton Road - Camp Road to Somerton.

3.7.3 The collisions in the study area are shown within the accident plot provided by OCC. The following section summarises the PIC data analysis. The complete set of data received is available at **Appendix D**.

3.7.4 The PIC data received shows that within the five year study period a total of 46 collisions were recorded Out of these collisions none were fatal, 9 were serious and 37 were slight in severity.

3.7.5 One serious collision has been recorded on Camp Road over the five year period. This collision involved a motorcycle and a minibus, where the motorcycle appears to have been following the minibus too closely as it made a manoeuvre.

3.7.6 **Table 3.3** is a summary of the serious accidents in the wider study area.

Table 3.3: Summary of Five Years Collision Data

No.	Date	Location	Causes
1	01/02/2013	B4030 at bend approx. 75m east of access to Lime Hollow	Motorcyclist lost control at bend and slid on road onto path of oncoming light goods vehicle.
2	21/04/2013	B4030 Station Road junction with Freehold Street	Elderly driver overshot junction and hit wall of adjacent property. Driver appeared fatigued.
3	09/09/2013	B4030 at bend by access to Park Farm Middleton Stoney	Motorcyclist lost control round bend in wet conditions and fell off.
4	06/01/2014	B4030 Heyford Road junction with Bullmarsh Close	Car failed to give way to motorcyclist when turning causing a collision.
5	09/01/2014	A4260 junction with B4030 at Hopscrofts Holt	Motorcyclist travelled through a red signal and collision with a car.
6	08/03/2014	Camp Road junction with Larsen Road	Motorcyclist following vehicle too closely, and tried overtaking but vehicle was turning right causing a collision.
7	22/11/2014	B4030 at bend by access to Park Farm	Appears that one of the vehicles lost control at the bend in wet conditions causing a collision.
8	05/02/15	A4260 junction with B4030 at Hopscrofts Holt	Car turning right failed to give way to car travelling in opposite direction.
9	04/12/15	B430 Station Road approx. 200m south of rail bridge	Car driver lost control of vehicle after a large stone hit the windscreen of the car and their head. Car collided with another car.

3.7.7 As can be seen from the summary above no vulnerable road users (walkers or cyclists) were involved in any serious collisions and none of the collisions were clustered or suggest a pattern related to existing highway safety issues in the study area. The slight accidents also do not show any serious road safety issues on the local network surrounding the development site.

4 Development Proposals

4.1 The Proposals

4.1.1 The proposed development comprises:

- Up to 300 new residential units. The Cherwell District Local Plan requires that at least 30% of new dwellings are affordable;
- Residential parking provision;
- Two main points of vehicular access from Camp Road and one main point of vehicular access from Izzard Road, leading to Camp Road. A further 4 small cul-de-sac access points will provide access to 6 dwellings each; and
- Public open spaces.

4.1.2 A copy of the proposed development's Planning Layout is contained at **Appendix B**.

4.2 Walking and Cycling Strategy

4.2.1 The proposed residential site is well placed near existing and proposed employment, education and retail, providing opportunity to live and work locally and enhance opportunities to travel by sustainable modes.

4.2.2 Pedestrian and cycle activity is given a high priority in the access strategy and this is to be reflected in the standard of provision.

4.2.3 There is an existing footpath running parallel to Camp Road inside the boundary of the former RAF facility. It is proposed to maintain this, with some realignment, to form a pedestrian link from the development to the wider Heyford Park area This is shown in the Planning Layout in **Appendix B**. Beyond the development, to the east, the footpath will connect to the shared foot/cycleway currently under construction as part of the consented works along Camp Road.

4.2.4 The proposed internal network is based on clear, convenient and safe connections for pedestrians and cyclists. A 3.0m shared footway/cycleway will be provided along the principle internal highway network to facilitate pedestrian and cycle movement through The Development and to the aforementioned existing footpath running parallel to Camp Road near the site accesses.

4.2.5 Cycle parking at the development will be provided in line with the following criteria:

- All affordable houses are provided with a shed suitable for cycle storage
- All affordable flats are provided with communal cycle storage facilities
- All houses with garages can store cycles within the garages, and additionally have sheds available.

4.3 Public Transport Strategy

4.3.1 As previously set out in **Section 3**, the site is accessible by bus with the existing service 25A offering an hourly service to Oxford and Bicester (Monday- Saturday daytime).

4.3.2 Bus stops exist on both sides of Camp Road near the junction with Somerton Road within 500m of the proposed development. It is proposed that the waiting areas associated with these stops are enhanced as part of the Development. This could include clearer signage (such as a pole and flag) and timetable information.

4.4 Vehicular Access Strategy

4.4.1 There is an existing access serving the site on Camp Road to the east of Kirtlington Road, known as Eglin Street. This access will be closed and redeveloped as a green corridor for pedestrian access only.

4.4.2 Three new main site accesses will serve the site. Two will be located on Camp Road to the east and west of Eglin Street, and the third will be located off Izzard Road on the eastern extent of the Development, which will also lead to Camp Road. Two of the main accesses will take the form of priority T-junctions and the most western access will take the form of a cross roads with the existing Gate 7 flying field access.

4.4.3 In addition to the main site accesses, a further 4 small cul-de-sac access points will provide access to 6 dwellings each.

4.4.4 A layout of the proposed access arrangement and vehicle tracking drawing is shown at **Appendix E**. The tracking drawing indicates that a refuse vehicle can adequately access the development.

4.4.5 OCC design standards recommend a loop for the internal road network in order to serve up to 300 units. This is illustrated in the Planning Layout shown in **Appendix B**.

4.5 Vehicular Parking Strategy

4.5.1 Vehicular parking will be provided in accordance with the latest OCC parking standards (maximum) which were provided to PBA by OCC in April 2016. The parking standards and proposed car park spaces for the development are described in **Table 4.2**.

Table 4.2: OCC Car Parking Provision - Maximum

No. of bedrooms per dwelling	Max. No. of Allocated Spaces	No. of units in the Development
1	1	27
2/3	2	332
4 +	2+ based on merit	208

4.5.2 The Parking Matrix at **Appendix F** shows the allocated parking for each residential unit. It shows the following:

- each 1 bed unit has 1 allocated parking bay;
- 2 bed units have 1 or 2 allocated spaces comprising of parking bays, garages or car ports;
- 3 bed units have 2 allocated parking bay spaces and, for some units, a garage space;
- 4 bed units have between 2 and 6 allocated parking spaces in parking bays and garages;
- 5 bed units have between 3 and 6 allocated spaces in parking bays and garages.

4.5.3 In total, 727 parking spaces have been provided, comprising of bays, garages and car ports. In addition a total of 51 visitor parking spaces have been provided.

4.5.4 The parking strategy for the site will ensure that vehicles which are associated with the development proposals will be contained within the site and not park on street on the adjacent highway network.

5 Development Travel Demand

5.1.1 This section provides an overview of the likely travel demand resulting from the proposed development by all modes of travel including walking, cycling, public transport and private car trips. The predicted person trip generation has been generated by land use and the modal split of those journeys has been considered.

5.1.2 The AM and PM peak hours have been assessed and, whilst it is recognised that these periods do not represent the entire travel demand resulting from development proposals, they do provide a recognised benchmark from which to consider the access and movement needs of future occupants of the site.

5.2 Development Proposals & Construction Traffic

5.2.1 The masterplan proposal is for a residential development of up to 300 dwellings. The following trip generation, and the associated assessment works contained in **Sections 6** & **7** has been based on the maximum development of 300 dwellings.

5.2.2 The transport and access effects of the construction phase of the development will be consistent with the current situation on site, as the consented 1075 dwellings are currently being built out and the build-out rates per year will remain constant subject to market influences. A Construction Environmental Management (CEMP) plan is already in place for the ongoing development of the consented scheme and the same principles will be extended to The Development. The traffic impact of construction traffic will fall outside of the peak periods assessed in this TA.

5.3 Person Trip Generation

5.3.1 The TRICS database has been interrogated in order to derive multi-modal trip rates for the proposed development. Sites in the database were selected on the basis of a set of criteria that best reflect the development type, size and location as set out below. Results from Greater London, Scotland and Ireland have been removed.

5.3.2 Whilst in definition, the Heyford Park site would most suitably be described as ‘Neighbourhood Centre’ or ‘Free Standing Site’ location categories within TRICS, no sites were returned under these categories for any of the required land uses once a site size similar to that of the proposed development was set.

5.3.3 Therefore, PBA consulted the TRICS User Guide prepared by JMP to understand what other location categories are considered appropriate comparisons to ‘Neighbourhood Centre’ and ‘Free Standing Sites’. **Table 5.1** below from the TRICS User Guide confirms that both ‘Edge of Town’ and ‘Suburban Area’ location categories are ‘possibly compatible’ with the ‘Neighbourhood Centre’, and that the ‘Edge of Town’ location category is ‘possibly compatible’ to ‘Free Standing’.

Table 5.1: TRICS User Guide Extract (JMP)

Location Type	Town Centre	Edge of Town Centre	Suburban Area	Edge of Town	Neighbourhood Centre	Free Standing
Town Centre	-	Possibly compatible	Not compatible	Not compatible	Not compatible	Not compatible
Edge of Town Centre	Possibly compatible	-	Possibly compatible	Possibly compatible	Not compatible	Not compatible
Suburban Area	Not compatible	Possible compatible	-	Possibly compatible	Possibly compatible	Not compatible
Edge of Town	Not compatible	Possibly compatible	Possibly compatible	-	Possibly compatible	Possibly compatible
Neighbourhood Centre	Not compatible	Not compatible	Possibly compatible	Possibly compatible	-	Not compatible
Free Standing	Not compatible	Not compatible	Not compatible	Possibly compatible	Not compatible	-

5.3.4 Using the table above, sites have been taken from the location types which are 'possibly compatible' with the 'Free Standing' and 'Neighbourhood Centre' sites. On this basis, trip rates were obtained under the 'Suburban Area' and 'Edge of Town' location categories.

5.3.5 The following TRICS land use categories were chosen for the 300 residential development:

- Residential: 'Houses, Privately Owned' (03/A).

5.3.6 Details of the resulting TRICS sites associated with this search are summarised in **Appendix G**.

5.3.7 The person trip rates derived from TRICS are shown in **Table 5.2** below.

Table 5.2: TRICS Residential Person Trip Rates (per dwelling)

Land use	Time period	Arrivals	Departures	Total
C3	AM Peak Hour	0.200	0.674	0.874
	PM Peak Hour	0.484	0.322	0.806

5.3.8 The mode share associated with the proposed development has been calculated for each journey purpose based on:

- Residential to employment: 2011 Census data for residents in the MSOA which includes the majority of Heyford Park and Camp Road (E02005930: Cherwell 010);
- Residential to education & other: Data from TEMPro for rural Cherwell (38UC0).

5.3.9 A weighted average mode split has then been calculated based on the share of each purpose from TEMPro for rural Cherwell (38UC0). This is shown in **Table 5.3**.

Table 5.3: Weighted average mode split

Mode	AM		PM	
	IN	OUT	IN	OUT
Car Driver	55%	56%	54%	56%
Car Passengers	19%	17%	21%	21%
Cyclists	1%	1%	1%	1%
Pedestrians	17%	17%	18%	17%
Public Transport	8%	9%	6%	5%
Total	100%	100%	100%	100%

5.3.10 Using the proposed person trip rate and weighted average mode split, multi-modal trip rates have been derived.

5.3.11 The resulting multi-modal trip rates are shown in **Table 5.4** below. The table includes the predicted person trips generated by the development proposals.

Table 5.4: Residential Multi Modal Trip Rates and Resulting Person Trips – 300 dwellings

Mode		Person Trip Rate			Person Trips		
		Arrivals	Departures	Total	Arrivals	Departures	Total
Car Driver	AM	0.110	0.378	0.488	33	113	146
	PM	0.262	0.179	0.441	79	54	132
Car Passengers	AM	0.038	0.114	0.153	12	34	46
	PM	0.100	0.067	0.167	30	20	50
Cyclists	AM	0.002	0.008	0.011	1	2	3
	PM	0.007	0.004	0.011	2	1	3
Pedestrians	AM	0.034	0.114	0.149	10	34	45
	PM	0.085	0.054	0.140	26	16	42
Public Transport	AM	0.015	0.059	0.074	5	18	22
	PM	0.029	0.017	0.046	9	5	14
Total Person	**AM**	**0.200**	**0.674**	**0.874**	**60**	**202**	**262**
	PM	**0.484**	**0.322**	**0.806**	**145**	**97**	**242**

5.3.12 **Table 5.4** predicts that the site is expected to generate 146 two-way vehicle trips in the AM peak and 132 in the PM peak. The corresponding number of two-way total person trips is 262 and 242 respectively.

6 Traffic Impact Assumptions

6.1 Introduction

6.1.1 This section of the TA considers the assumptions made in helping to determine the level of traffic impact upon the local highway network as result of the proposed development. This includes the test years adopted, the factors used to growth traffic, the factors used to determine development traffic, and the distribution and assignment of traffic in the local area and road network.

6.2 Base Year Traffic Flows

6.2.1 Base year traffic flows were obtained from traffic count surveys conducted within the local area in June 2013 for five junctions and in June 2014 for a further three. The access junction turning flows are determined from the traffic generated by the proposed development to and from the site and also the flows along Camp Road. Manual Classified Counts (MCCs) were undertaken at each of the junctions in the study area. Peak hour flows were determined to be 07:30hrs – 08:30hrs for the AM and 17:00hrs – 18:00hrs for the PM. The locations of these traffic surveys are identified in **Figure 3.3**.

6.2.2 The 2013 and 2014 survey results captured the *"background traffic"* passing through former RAF Upper Heyford as well as all the site traffic currently originating / terminating at former RAF Upper Heyford – (i.e. traffic associated with the 315 existing dwellings as well as employment traffic associated with the site).

6.2.3 The full 2013 and 2014 survey results are included at **Appendix H** of this report. The surveyed traffic flows are shown diagrammatically on **Figure 3.4** for the AM peak hour and **Figure 3.5** for the PM peak hour.

6.3 Traffic Growth Factors

6.3.1 The assessment years adopted for this TA are:

- Base year 2016 – existing situation; and
- Future year 2021 - full completion and five years after submission.

6.3.2 To derive base year and future year flows, local growth factors have been extracted from the industry standard TEMPRO dataset 7.0 for years 2013 – 2016, 2014 – 2016 and 2016 – 2021 (TEMPRO zone Cherwell 010, E02005930).

6.3.3 From a review of housing and job numbers within the TEMPRO database (version 7) it appears that the consented development of 1,075 dwelling units and employment uses are included in the database for 2013/2014-2016 and 2016-2021.

6.3.4 To better reflect the impact of the consented development on the local highway network the number of consented residential units built out, and jobs occupied, or forecast to be built out/occupied, since the 2013/2014 traffic surveys have been removed from TEMPRO and manually added on the local highway network. Thus, the local growth factors have been adjusted within the TEMPRO software.

6.3.5 The adjusted TEMPRO factors, excluding consented development units/jobs, which have been used for the assessment, are shown in **Table 6.1**.

Table 6.1: TEMPRO 7 Average Growth Factors

Years	Growth Factors	
	AM Peak Hour	PM Peak Hour
2013 – 2016	1.0016	1.0080
2014 – 2016	1.0018	1.0061
2016 – 2021	1.0257	1.0242

6.3.6 **Table 6.2** provides a summary of the number of units / jobs that were, or are assumed to be, built-out / occupied at Heyford Park for each assessment scenario.

6.3.7 Information for occupation of the consented scheme in 2013, 2014 and 2016 was provided by Dorchester Group and it was assumed that full build-out of the 1075 units would take place by 2021. The traffic associated with the additional build out between each assessment year has been added onto the local highway network. 315 residential units, and a number of employment units, were occupied at the time of the 2013/2014 traffic surveys, such that the traffic associated with these has not been double counted and added on to the network again.

Table 6.2: Consented Development Build-Out Assumptions

Years	Residential Units	Jobs
2013 - 2016	198	492
2014 - 2016	198	328
2016 - 2021	562	289
Total additional build-out by 2021	**760**	**781**

6.3.8 **Table 6.2** shows that, in total, the traffic associated with 760 consented residential units, and 780 consented jobs were added onto the local highway network by 2021. This reflects all of the consented units/jobs that were not present during the 2013/2014 traffic surveys.

6.3.9 The traffic associated with the consented residential development has been distributed to and from the development based on the 2011 Census Travel to work data (resident based) for E02005930: Cherwell 010 (2011 super output area - middle layer, MSOA). This area includes the residential element of Heyford Park. Traffic has then been assigned to the local highway network based on the fastest route methodology. The assignment is shown on **Figure 6.1**.

6.3.10 The traffic associated with the consented employment development has been distributed to and from the development based on the Census 2011 Travel to work data (workplace based) for E02005931: Cherwell 011.

6.3.11 Employment traffic has been assigned to the local highway network based on the fastest route methodology. The assignment of traffic in all scenarios routes consented flying field employment traffic via Gate 7.The assignment is shown on **Figure 6.2**.This assignment applies to the great majority of consented employment which is located on the flying field. A small amount of employment is located along Camp Road between Chilgrove Drive and Kirtlington Road. As such the assignment shown on **Figure 6.2** should be taken as

representative of the assignment from individual employment plots. Beyond the extent of Camp Road, the assignment of employment traffic is the same across all employment plots.

6.3.12 The TEMPRO growth factors set out in **Table 6.1** along with the manually added consented development traffic has been applied to the observed flows to form the 2016 Base and 2021 Reference Case scenarios. The 2016 Base flows for the AM and PM periods are illustrated on **Figures 6.3 – 6.8** for vehicles, HGVs and PCUs. Committed development traffic is also added to 2021 Reference Case flows as set out below.

6.4 Committed Development

6.4.1 In addition to the consented development set out in the previous section, the following committed developments have been taken into account in the assessment and included within the 2021 Reference Case traffic flows:

- 60 residential dwellings south of Camp Road – an outline application was submitted in November 2013 (13/01811/OUT). This application was given approval in March 2016, a Section 106 has been signed, and reserved matters have been submitted but are yet to be determined.

- 43 residential dwellings south of Camp Road – a full application was submitted in February 2016 (16/00263/F). This application is yet to be determined.

6.4.2 As with the consented development, the traffic associated with the residential committed development is based on the 2011 Census Journey to Work Data for E02005930: Cherwell 010 (2011 super output area - middle layer, MSOA) in the Census data. The assignment is the same as that shown on **Figure 6.1**.

6.4.3 As these developments have not yet been constructed they have not been included within the 2016 Base flows.

6.4.4 The resulting 2021 Reference Case Flows for the AM and PM periods are illustrated on **Figures 6.9 – 14** for vehicles, HGVs and PCUs.

6.5 Development Flows

6.5.1 The development traffic generation set out in **Section 5** resulted in the following number of vehicle trips:

Table 6.3: Residential Development Vehicle Trips

	Person Trips		
	Arrivals	Departures	Total
AM	33	113	146
PM	79	54	132

6.5.2 **Table 6.3** predicts that the site is expected to generate 146 two-way vehicle trips in the AM peak and 132 in the PM peak from the development.

6.6 Development Traffic Assignment and Distribution

6.6.1 As with the consented residential uses, Census 2011 Travel to work data for Middle Layer Super Output Area (MSOA) E02005930: Cherwell 010, was used to derive the distribution of development trips. Traffic has then been assigned to the local highway network based on the fastest route methodology. The assignment is the same as that shown on **Figure 6.1** and the resulting development trips are shown on the local highway network at **Figures 6.15** and **6.16** for the AM and PM peak respectively.

6.6.2 The 2021 Test Case (including The Development) for the AM and PM periods are illustrated on **Figures 6.17 – 6.22** for vehicles, HGVs and PCUs.

6.7 Traffic Impact Study Area

6.7.1 The extent of the traffic impact study area has been determined from previous work undertaken in the area including previous work for the committed 1,075 dwelling application. Consideration has also been taken of the local junctions experiencing the highest impact due to the proposed development.

6.7.2 As shown on the development traffic figures (**Figure 6.15** & **6.16**) there is only 1 two-way development trip anticipated to route through the following junction in each peak period, therefore it has been excluded from the study area.

- B4030 Lower Heyford Road / Port Way Staggered Crossroads.

6.7.3 The likely traffic impact of the development proposals has been assessed at the following local junctions/links:

- The three main site access junctions;
- Camp Road / Kirtlington Road Junction;
- Camp Road / Somerton Road Junction;
- Camp Road / Chilgrove Drive / Minor Road Junction;
- Minor Road / B430 Junction;
- Middleton Stoney Junction (B430 / B4030);
- M40 Junction 10 Southern Roundabout; and
- Hopcrofts Holt Junction.

6.7.4 The proposed site accesses are shown in the Focus Drawing at **Appendix E** whereas the rest of the junctions are shown in **Figure 3.3**.

7 Traffic Impact Assessment

7.1 Introduction

7.1.1 The following eight junctions have been assessed for capacity given that they are the closest to the development and are also known to be key points in the local network. As part of the historical work done within the wider site including the 1,075 residential application, these are deemed to form the study area:

- The three main site access junctions;
- Camp Road / Kirtlington Road Junction;
- Camp Road / Somerton Road Junction;
- Chilgrove Drive / Minor Road Junction;
- Minor Road / B430 Junction;
- Middleton Stoney Junction (B430 / B4030);
- M40 Junction 10 Southern Roundabout; and
- Hopscroft Holt Junction.

7.1.2 Standard industry software was used to assess the performance of each of the junctions shown above in the 2016 Base, 2021 Reference Case and 2021 Test Case scenarios. For priority junctions, Junctions 9 was used, and for signalised junctions, the software used was LINSIG.

7.1.3 A full copy of the junction modelling reports is included at **Appendix I**.

7.2 Site Accesses

7.2.1 The three main site accesses for The Development have been assessed in the 2021 Test Case scenario only. Each of the junction's access onto Camp Road and their layout is shown in the Focus Drawing at **Appendix E**.

7.2.2 The Western Site Access takes the form of a crossroads with Camp Road and the existing Gate 7 flying field access. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.2.3 The outputs of the Western Site Access model are detailed in **Table 7.1**.

Table 7.1: Western Site Access – 2021 Test Case assessment

2021 Test Case	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Delay (sec)	Max RFC	MMQ	Delay (sec)
Camp Road (E)	0.11	0.1	9.08	0.05	0.1	8.37
Western Site Access	0.13	0.2	5.43	0.01	0.0	4.89
Gate 7 (Left)	0.02	0.0	6.13	0.08	0.1	5.97
Gate 7 (Right)	0.00	0.0	0.00	0.01	0.0	8.37
Camp Road (W)	0.00	0.0	4.9	0.01	0.0	4.76

7.2.4 The table above shows that the junction is predicted to operate well within capacity in the 2021 Test Case with minor queues and delays to traffic in both peak periods. The junction is predicted to operate with a maximum RFC of 0.13 in the 2021 Test Case and a delay of 5.43 seconds on the Western Site Access arm in the AM peak.

7.2.5 The Central Site Access takes the form of a priority T-junction with Camp Road. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.2.6 The outputs of the Central Site Access model are detailed in **Table 7.2** below.

Table 7.2: Central Site Access – 2021 Test Case assessment

2021 Test Case	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Delay (sec)	Max RFC	MMQ	Delay (sec)
Central Site Access	0.10	0.1	9.26	0.05	0.1	8.45
Camp Road (W)	0.00	0.0	4.76	0.01	0.0	4.61

7.2.7 The table above shows that the junction is predicted to operate well within capacity in the 2021 Test Case with minor queues and delays to traffic in both peak periods. The junction is predicted to operate with a maximum RFC of 0.10 in the 2021 Test Case and a delay of 9.26 seconds on the Central Site Access arm in the AM peak.

7.2.8 The Eastern Site Access also takes the form of a priority T-junction with Camp Road. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.2.9 The outputs of the Eastern Site Access model are detailed in **Table 7.3** below.

Table 7.3: Eastern Site Access – 2021 Test Case assessment

2021 Test Case	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Delay (sec)	Max RFC	MMQ	Delay (sec)
Eastern Site Access	0.11	0.1	9.29	0.05	0.1	8.42
Camp Road (W)	0.0	0.0	4.67	0.1	0.0	4.60

7.2.10 The table above shows that the junction is predicted to operate well within capacity in the 2021 Test Case with minor queues and delays to traffic in both peak periods. The junction is

predicted to operate with a maximum RFC of 0.11 in the 2021 Test Case and a delay of 9.29 seconds on the Eastern Site Access arm in the AM peak.

7.3 Camp Road / Kirtlington Road Junction

7.3.1 The Camp Road / Kirtlington Road junction is a priority T-junction on Camp Road slightly to the west of the existing site access. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.3.2 A calibrated model has been prepared using 2013 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.4** below.

Table 7.4: Camp Road / Kirtlington Road junction – model calibration

Base Year 2013	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Observed queue	Max RFC	MMQ	Observed queue
Kirtlington Road	0.0	0.0	0	0.06	0.1	0
Camp Road West	0.01	0.0	0	0.01	0.0	0

7.3.3 **Table 7.4** shows that the calibrated junction replicates observed queues of zero in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site.

7.3.4 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for the base case and 'with development' scenarios are presented in **Table 7.5**.

Table 7.5: Camp Road / Kirtlington Road Junction – assessment results

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
2016 Base	Kirtlington Road	0.03	0.0	8.87	0.06	0.1	8.39
	Camp Rd West	0.01	0.0	6.08	0.01	0.0	6.23
2021 Reference Case	Kirtlington Road	0.04	0.0	9.08	0.07	0.1	8.52
	Camp Rd West	0.01	0.0	6.15	0.01	0.0	6.28
2021 Test Case (with 300 Development	Kirtlington Road	0.04	0.0	9.18	0.07	0.1	8.58
	Camp Rd West	0.01	0.0	6.20	0.01	0.0	6.30

7.3.5 The table above shows that the existing Camp Road /Kirtlington Road junction is predicted to operate well within capacity and with minimum queues in all the years and scenarios tested. Therefore it is deemed that no mitigation measures would be needed for this junction post development.

7.4 Camp Road / Somerton Road Junction

7.4.1 The Camp Road / Somerton Road junction is a priority T-junction on Camp Road to the west of the existing site access. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.4.2 A calibrated model has been prepared using 2013 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.6** below.

Table 7.6: Camp Road / Somerton Road junction – model calibration

Base Year 2013	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Observed queue	Max RFC	MMQ	Observed queue
Camp Road - Somerton Road S	0.13	0.1	0	0.11	0.1	0
Camp Road - Somerton Road N	0.07	0.1		0.18	0.2	
Somerton Road South	0.11	0.1	0	0.06	0.1	0

7.4.3 **Table 7.6** shows that the calibrated junction replicates observed queues of zero in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site.

7.4.4 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for the 2016 Base case and 2021 Reference and Test Case scenarios are presented in **Table 7.7**.

Table 7.7: Camp Road / Somerton Road Junction – assessment results

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
2016 Base	Camp Road - Somerton Road S	0.14	0.2	7.41	0.12	0.1	6.41
	Camp Road - Somerton Road N	0.07	0.1	8.98	0.19	0.2	9.90
	Somerton Road South	0.12	0.1	6.97	0.07	0.1	6.51
2021 Reference Case	Camp Road - Somerton Road S	0.19	0.2	7.67	0.14	0.2	6.80
	Camp Road - Somerton Road N	0.08	0.1	9.00	0.21	0.3	10.30
	Somerton Road South	0.14	0.2	7.14	0.10	0.1	6.51
2021 Test Case (with 300 Developm ent)	Camp Road - Somerton Road S	0.21	0.3	7.86	0.17	0.2	7.46
	Camp Road - Somerton Road N	0.08	0.1	9.03	0.19	0.2	9.02
	Somerton Road South	0.15	0.2	7.20	0.12	0.2	6.60

7.4.5 The table above shows that the existing Camp Road / Somerton Road junction operates well within capacity and with minimal queues in all the scenarios tested. Therefore it is deemed that no mitigation measures would be needed for this junction post development.

7.5 Camp Road / Minor Road Junction

7.5.1 The Camp Road / Minor Road junction is a priority T-junction. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.5.2 A calibrated model has been prepared using 2013 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.8** below.

Table 7.8: Camp Road / Minor Road junction – Model Calibration

Base Year 2013	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Observed queue	Max RFC	MMQ	Observed queue
Minor Road to Camp Road South	0.02	0.0	0	0.01	0.0	0
Minor Road to Camp Road West	0.23	0.3		0.10	0.1	
Camp Road South	0.01	0.0	0	0.01	0.0	0

7.5.3 **Table 7.8** shows that the calibrated junction closely replicates observed queues of zero in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site.

7.5.4 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for the 2016 Base case are presented below.

Table 7.9: Camp Road / Minor Road Junction – 2016 Base

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
2016 Base Flows	Minor Road to Camp Road South	0.02	0.0	7.26	0.01	0.0	6.64
	Minor Road to Camp Road West	0.37	0.6	10.88	0.19	0.2	8.53
	Camp Road South	0.01	0.0	6.16	0.01	0.0	6.32

7.5.5 The table above shows that the junction operates well with minimal queues and delays to vehicles in 2016.

7.5.6 As part of the consented development for Heyford Park the Camp Road / Minor Road / Chilgrove Drive junction was proposed as a four arm compact roundabout (28 ICD). A plan of this consented junction is included at **Appendix J**. The consented junction has been tested for the 2021 future year scenarios.

Table 7.10: Consented Camp Road / Minor Road/Chilgrove Drive Junction – 2021 Scenarios

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
2021 Reference Case	Chilgrove Drive	0.00	0.0	0.0	0.00	0.0	0.00
	Minor Road	0.26	0.3	4.26	0.18	0.2	3.82
	Camp Road S	0.12	0.1	3.09	0.09	0.1	2.74
	Camp Road W	0.32	0.5	3.83	0.34	0.5	3.94
2021 Test Case (with 300 Development)	Chilgrove Drive	0.00	0.0	0.00	0.00	0.0	0.00
	Minor Road	0.28	0.4	4.43	0.23	0.3	4.10
	Camp Road S	0.12	0.1	3.15	0.10	0.1	2.84
	Camp Road W	0.39	0.6	4.23	0.37	0.6	4.16

7.5.7 The table above shows that the consented Camp Road / Minor Road / Chilgrove Drive junction is predicted to operate well within capacity and with minimal queues in the 2021 Reference Case and Test Case. The maximum RFC is predicted on Camp Road (W) in the AM peak at 0.39. Therefore it is deemed that no mitigation measures would be needed for this junction post development.

7.6 B430 / Minor Road Junction

7.6.1 The B430 / Minor Road junction is a priority T-junction which has a ghost island on the B430. It has been assessed using the industry standard Junctions 9 (PICADY) software.

7.6.2 A calibrated model has been prepared using 2014 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.11** below.

Table 7.11 B430 / Minor Road junction – Model Calibration

Base Year 2014	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Observed queue	Max RFC	MMQ	Observed queue
Minor Road – B430 North	0.15	0.2	1	0.20	0.2	1
Minor Road – B430 South	0.01	0.0		0.01	0.0	
B430 North	0.28	0.4	0	0.13	0.1	0

7.6.3 **Table 7.11** shows that the calibrated junction closely replicates the minimal observed queues in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site.

7.6.4 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for the 2016 Base case and 2021 scenarios are presented below

Table 7.12: Minor Road / B430 Junction – Assessment Results

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
2016 Base	Minor Road – B430 North	0.22	0.3	7.51	0.26	0.3	7.89
	Minor Road – B430 South	0.06	0.1	10.71	0.04	0.0	8.90
	B430 North	0.34	0.5	9.12	0.18	0.2	7.31
2021 Reference Case	Minor Road – B430 North	0.39	0.6	9.70	0.39	0.6	9.81
	Minor Road – B430 South	0.21	0.3	13.83	0.13	0.2	10.68
	B430 North	0.45	0.8	10.84	0.29	0.4	8.54
2021 Test Case (with 300 Development)	Minor Road – B430 North	0.49	1.0	12.09	0.44	0.8	10.88
	Minor Road –	0.31	0.4	16.55	0.18	0.2	11.80

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		RFC	Queue (veh)	Delay (secs)	RFC	Queue (veh)	Delay (secs)
	B430 South						
	B430 North	0.48	0.9	11.48	0.36	0.6	9.42

7.6.5 The table above shows that the junction is predicted to operate within capacity in all scenarios and with minor queues and delays to traffic in both peak periods. The junction is predicted to operate with a maximum RFC of 0.49 and delay of 12.09 seconds in the 2021 Test Case on the Minor Road to B430 North movement in the AM peak.

7.7 B430 / B4030 Junction (Middleton Stoney Junction)

7.7.1 The B430 / B4030 Middleton Stoney junction is a signalised junction with four arms. It has been assessed using the industry standard LINSIG (V3) software and modelled using signal specification information obtained from OCC in September 2016.

A calibrated model has been prepared using 2013 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.13** below.

Table 7.13: B430 / B4030 Middleton Stoney Junction – Model Calibration

Base Year 2013	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	DoS	MMQ	Observed queue	DoS	MMQ	Observed queue
B4030 (W/B)	83.6	11.0	7	75.3	9.9	6
B430 Oxford Road (S)	57.6	5.0	5	73.4	12.7	7
B4030 (E/B)	84.4	10.9	8	72.4	9.8	7
B430 Ardley Road (N)	79.4	14.6	8	61.4	8.3	4

7.7.2 **Table 7.13** shows that the calibrated junction slightly over estimates the observed queues in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site and is robust to model the impact of the development in future year scenarios.

7.7.3 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for each assessment scenario are presented in **Table 7.14**.

Table 7.14: B430 / B4030 Middleton Stoney – Future Year Assessment

Scenario	Arm	AM Peak (07:30-08:30)			PM Peak (17:00-18:00)		
		Deg Sat (%)	MMQ	Av. Delay (secs/PCU)	Deg Sat (%)	MMQ	Av. Delay (secs/PCU)
2016 Base Flows	B4030 (W/B)	84.7	11.7	69.2	76.7	10.2	68.7
	B430 Ardley Road South	80.5	6.8	51.6	78.4	13.7	39.3
	B4030 (E/B)	82.9	10.9	68.0	76.3	10.6	66.8
	B430 Ardley Road North	87.6	17.2	55.5	69.4	9.5	47.4
2021 Reference Case	B4030 (W/B)	94.4	16.0	100.3	85.3	11.6	81.7
	B430 Ardley Road South	93.4	10.2	85.2	85.9	15.6	44.3
	B4030 (E/B)	96.6	16.5	117.1	88.2	13.0	85.9
	B430 Ardley Road North	91.1	20.7	61.9	82.7	11.6	58.3
2021 Test Case (with 300 Development)	B4030 (W/B)	99.2	19.3	133.7	90.5	13.0	97.4
	B430 Ardley Road South	96.8	12.2	105.2	89.2	17.0	48.8
	B4030 (E/B)	99.5	19.0	138.6	89.7	13.6	89.9
	B430 Ardley Road North	92.2	22.0	63.7	86.2	12.7	64.0

7.7.4 The table above shows that the junction is predicted to operate near capacity in the 2021 Reference Case scenario and at capacity in the 2021 Test Case with 300 Development in the AM peak. The maximum Degree of Saturation is predicted for B4030 (E/B) in the AM peak at 99.5%.

7.7.5 Since the junction is predicted to operate at capacity, a mitigation scheme is proposed as shown at **PBA Drawing 33374/5511/002**. This scheme includes a right turn bay for traffic turning from the B430 South to B4030 east (Bicester Road).

7.7.6 **Table 7.15** presents the modelling results of the proposed mitigation scheme in the 2021 Test Case scenario.

Table 7.15: B430 / B4030 Middleton Stoney - Proposed Junction Results

Scenario	Arm	AM Peak (07:30-08:30)			PM Peak (17:00-18:00)		
		Deg Sat (%)	MMQ	Av. Delay (secs/PCU)	Deg Sat (%)	MMQ	Av. Delay (secs/PCU)
2021 Test Case (with 300 Development)	B4030 (W/B)	94.7	16.2	101.6	78.7	10.7	68.7
	B430 Ardley Road South	40.5	5.9	25.9	72.1	15.2	34.8
	B4030 (E/B)	94.8	15.8	104.1	82.2	12.0	71.2
	B430 Ardley Road North	94.5	23.7	73.7	81.4	12.5	62.7

7.7.7 The table shows that with the proposed mitigation scheme in place, a maximum degree of saturation is predicted at 94.8% on B4030 (E/B) during the AM peak period. This arm is predicted to have more capacity than that predicted in the 2021 Reference Case shown in **Table 7.14** such that the mitigation scheme proposed for the development results in a level of operation at the junction commensurate with the without development scenario in the future year.

7.8 M40 Junction 10 Southern Roundabout

7.8.1 The M40 Junction 10 Southern Roundabout is a three arm roundabout. It has been assessed using the industry standard Junctions 9 (ARCADY) software.

7.8.2 A junction model has been prepared using 2014 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.16** below.

Table 7.16: M40 Junction 10 Southern Roundabout - Model Calibration

Base Year 2014	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	Max RFC	MMQ	Observed queue	Max RFC	MMQ	Observed queue
A43	0.47	0.9	2	0.35	0.5	0
M40 Off Slip Lane	0.76	3.1	15	0.71	2.4	6
B430	0.48	0.9	3	0.50	1.0	3

7.8.3 The results of **Table 7.16** show that the junction is predicted to operate within capacity. However, on comparing modelled queues with the surveyed queues, it is observed that modelled queues on the M40 off slip are less than surveyed queues, particularly in the AM peak. The observed queues during the AM peak period were 15 vehicles on M40 off slip arm whilst the model shows a queue of three vehicles.

7.8.4 To calibrate the model, the 'Entry Lane Simulation' tool has been used within ARCADY. In this method, the model assesses flows based on the lane configuration at the approach arm and does not assume that full entry width is available for all the traffic on that arm.

7.8.5 In an Entry Lane Simulation method, the B430 arm of the model was split into two lane levels. The A43 and M40 slip road was set to have one lane level. Using Google Earth and OS mapping data, lane storage and turning movements were allocated on all the lanes of approach arms. For the M40 northbound off slip arm, it is understood that both the lanes (nearside and offside) of the arm could turn right on the A43, as there are two lanes at the exit arm of the A43. The nearside lane at the approach arm is considered to be a secondary lane and assigned 37% lane usage for the right turn movement to the A43. This percentage lane usage has been set to best calibrate the model in each of the peak periods.

7.8.6 The results of the model using Entry Lane Simulation is shown using 2014 flows in **Table 7.14**. Note that no RFC values can be presented using Entry Lane Simulation.

Table 7.17 M40 Junction 10 Southern Roundabout 'Entry Lane Simulation' – Calibrated Model

Base Year 2014	AM Peak (07:30 - 08:30)		PM Peak (17:00 - 18:00)	
	MMQ	Observed queue	MMQ	Observed queue
A43	2.3	2	1.1	0
M40 Off Slip Lane	14.9	15	8.9	6
B430	2.1	3	3.0	3

7.8.7 **Table 7.17** shows that the calibrated junction more closely replicates the observed queues in each peak period. The level of operation predicted by this model is considered to adequately represent that observed on site.

7.8.8 The roundabout is predicted to operate with a queue of 14.9 on the M40 off slip in the AM peak. Using the standard ARCADY model (not Entry Lane Simulation), this queue length on this arm relates to an RFC of 0.95. These results suggest that in 2014, the off slip lane was already approaching capacity with the traffic volumes during peak times.

7.8.9 Using the calibrated Entry Lane Simulation model, the impact of the proposed development on the operation of the junction has been tested. Model results for the 2016 Base and 2021 scenarios are presented below.

Table 7.18: M40 Junction 10 Southern Roundabout 'Entry Lane Simulation' – Assessment Results

Scenario	Arm	AM Peak (07:30 - 08:30)		PM Peak (17:00 - 18:00)	
		Queue (veh)	Delay (secs)	Queue (veh)	Delay (secs)
2016 Base	A43	2.7	9.40	1.2	5.44
	M40 Off Slip Lane	15.0	41.31	10.0	26.82
	B430	2.4	16.33	3.9	23.87
2021 Reference Case	A43	3.3	11.27	1.4	5.82
	M40 Off Slip Lane	19.0	52.12	10.0	24.67
	B430	4.0	21.69	6.1	33.97
2021 Test Case (with 300 Development)	A43	3.6	12.06	1.5	6.05
	M40 Off Slip Lane	20.6	54.16	13.3	34.28
	B430	4.7	26.37	8.6	43.97

7.8.10 The results shown in the table above suggest that the junction is near or at capacity in each of the assessment scenarios. . A maximum modelled queue of 20.6 vehicles is predicted on M40 off slip in the 2021 Test Case, which is a slight increase (of 1.6 vehicles) compared to the 2021 Reference Case (AM peak).

7.8.11 Since the junction is predicted to operate near/at capacity, a mitigation scheme is proposed as shown at **PBA Drawing 33374/5511/001**. This scheme includes additional road markings providing lane destination and advanced direction signs on the M40 off slip and B430. This will encourage road users travelling towards the A43 to make better use of both lanes.

7.8.12 The ARCADY model has been modified to reflect equal lane usage of traffic on the M40 off slip. **Table 7.19** presents the modelling results of the proposed mitigation scheme in the 2021 Test Case scenario.

Table 7.19 Existing M40 Junction 10 Southern Roundabout 'Entry Lane Simulation' – Future Year Assessment

Scenario	Arm	AM Peak (07:30 - 08:30)		PM Peak (17:00 - 18:00)	
		Queue (veh)	Delay (secs)	Queue (veh)	Delay (secs)
2021 Test Case (with 300 Development)	A43	3.4	11.48	1.4	5.97
	M40 Off Slip Lane	6.4	17.06	4.5	11.54
	B430	5.3	26.27	3.4	16.64

7.8.13 The table shows that with the proposed mitigation scheme in place, a maximum queue is predicted at 6.4 on the M40 off slip in the AM peak. The corresponding delay is 17.06s. This shows that the impact of the development has been fully mitigated by the proposed mitigation with queues on this arm lower than in the 2016 Base scenario.

7.9 A4260 / B4030 Hopcrofts Holt Signal Controlled Junction

7.9.1 The A4260 / B4030 Hopcrofts Holt junction is a signalised junction with four arms to the west of Lower Heyford village. It has been assessed using the industry standard LINSIG software.

7.9.2 A calibrated model has been prepared using 2013 observed traffic flows and queues. The outputs of the calibrated model are detailed in **Table 7.20** below.

Table 7.20: A4260 / B4030 Hopcrofts Holt Junction– Model Calibration

Base Year 2013	AM Peak (07:30 - 08:30)			PM Peak (17:00 – 18:00)		
	DoS	MMQ	Observed queue	DoS	MMQ	Observed queue
A4260 South	42.2	5.4	4	70.5	12.4	8
B4030 West	78.7	6.4	3	65.2	4.1	3
A4260 North	86.4	18.8	8	32.1	3.7	4
B4030 East	80.7	6.4	3	67.7	3.8	5

7.9.3 **Table 7.20** shows that generally, the calibrated junction replicates the observed queues well. However the calibrated junction over estimates the observed queues in the AM peak on the A4260 North and in the PM peak on the A4260 South. Nonetheless the level of operation predicted by this model is considered to adequately represent that observed on site and is robust to model the impact of the development in future year scenarios.

7.9.4 Using the calibrated model, the impact of the proposed development on the operation of the junction has been tested. Model results for the 2016 Base case and 2021 scenarios are presented below.

Table 7.21: A4260 / B4030 Hopcrofts Holt Junction – Assessment Results

Scenario	Arm	AM Peak (07:30 - 08:30)			PM Peak (17:00 - 18:00)		
		DoS (%)	MMQ	Delay (secs/PCU)	DoS (%)	MMQ	Delay (secs/PCU)
2016 Base Flows	A4260 South	39.6	6.8	19.9	71.6	12.6	20.0
	B4030 West	79.1	8.0	75.8	65.6	4.2	55.2
	A4260 North	80.1	21.5	30.2	32.4	3.8	14.1
	B4030 East	78.3	8.3	67.5	70.3	4.0	53.4
2021 Reference Case	A4260 South	41.7	7.1	21.4	74.3	13.5	20.9
	B4030 West	81.4	8.4	79.1	75.3	4.8	67.1
	A4260 North	83.7	23.5	33.6	33.4	4.0	14.3
	B4030 East	82.9	9.6	71.7	70.8	4.3	51.9
2021 Test Case (with 300 Development)	A4260 South	42.8	7.3	22.4	74.9	13.6	21.1
	B4030 West	81.4	8.4	79.1	75.3	4.8	67.1
	A4260 North	85.2	24.2	35.6	34.2	4.1	14.3
	B4030 East	83.2	10.1	70.4	73.2	4.6	53.6

7.9.5 The table shows that the junction is operating within capacity in all scenarios. The maximum Degree of Saturation is predicted on the A4260 North at 85.2% in the 2021 Test Case AM peak. The maximum queue, predicted for the same arm, is 24.2 PCUs which is an increase of 0.7 PCUs compared to the 2021 Reference Case.

7.9.6 These results show that the impact of the proposed development on this junction is negligible and, since the junction is predicted to operate within capacity, no mitigation is considered necessary.

7.10 Summary

7.10.1 This section of the TA evaluates seven off site junctions to study the impact of development traffic in future years to the west and to the east of the site. In addition, three site access junctions have been modelled as priority junctions onto Camp Road.

7.10.2 It has been shown from the junction modelling results that the following junctions are predicted to operate within capacity in all scenarios:

- Camp Road / Kirtlington Road Junction;
- Camp Road / Somerton Road Junction;
- Minor Road / B430 Junction.
- Chilgrove Drive / Minor Road Junction; and
- Hopscroft Holt Junction.

7.10.3 The following two junctions are predicted to operate above capacity in the 2021 Test Case scenario including the Development traffic:

- Middleton Stoney Junction (B430 / B4030); and
- M40 Junction 10 Southern Roundabout.

7.10.4 Mitigation schemes have been proposed for these two junctions which have been shown to fully mitigate the impact of the development.

8 Residential Travel Plan

8.1.1 In accordance with the NPPF, NPPG and local guidance, the proposed development site would fall under the existing Full Travel Plan for the already-consented residential elements of the Heyford Park site.

8.1.2 A Travel Plan is defined as a long-term management strategy for an occupier or site that seeks to deliver sustainable transport objectives through positive action and is articulated in a document that is regularly reviewed. It involves the development of agreed explicit outcomes linked to an appropriate package of measures aimed at encouraging more sustainable travel, with an emphasis on reducing single occupancy car use.

8.1.3 Full Travel Plans are appropriate for full planning applications where the proposed use and accessibility needs are known. Wherever possible, a full Travel Plan should be developed rather than an interim plan. As such, the proposed 300 dwelling development will fall under the existing Full Residential Travel Plan.

8.1.4 Paragraph 1.1.6 of the Full Residential Travel Plan for Heyford Park states:

"In addition, once adopted, this Full Residential Travel Plan will be applied to any new residential dwellings delivered within Dorchester ownership at Heyford Park."

8.1.5 The proposed development site will link with and be subject to the principles set out in the Full Residential Travel Plan, in order to achieve a cohesive target reduction across the consented and proposed (300-dwelling) sites.

8.1.6 The target modal split has already been established for the wider housing uses at former RAF Upper Heyford within the Residential Travel Plan for the consented development. The new 300 dwellings will aim to adhere to these targets. The targets are as follows:

Table 8.1: Target Residential Mode Split

Mode	Target Modal Split
Car – Single Occupancy	46.88%
Car Sharing	36.34%
Walk	11.58%
Cycle	3.51%
Public Transport	0.96%
Other	0.24%
Reducing the need to travel	0.48%
Total	100%

8.1.7 The target mode split presented in **Table 8.1** is subject to review and changes as future monitoring surveys are undertaken. The Full Residential Travel Plan will be updated accordingly.

8.1.8 The Full Residential Travel Plan for the consented residential elements within Heyford Park identifies measures to promote non car travel which will be supported by targets for mode split and monitoring mechanisms. The proposed 300-dwelling site will benefit from the same suite of "hard" (infrastructure) and "soft" (marketing, awareness-raising and incentive-based) measures. The Full Residential Travel Plan provides full details of all measures that will be applicable to the 300-dwelling site.

8.1.9 The Full Residential Travel Plan is implemented and managed by the Travel Plan Co-ordinator (TPC) for the whole airfield, who has already been appointed (Karen Brock of Dorchester Group).

8.1.10 Additional "Individual Plot Travel Plan Co-ordinators" will also be appointed for other non-residential land uses to ensure a cohesive, combined effort to instil the ethos of the Travel Plans is maintained and that single-occupant vehicle trips are reduced across both residential and employment uses. The Travel Plan Co-ordinator ensures that both the Full Residential and Individual Occupier Travel Plans are prepared and reviewed annually, with targets being revised as necessary. The residential and individual plot TPCs will promote and raise the profile and awareness amongst employees of the measures adopted and travel choices available as part of the Travel Plan.

8.1.11 The underlying objectives of the Full Residential Travel Plan for the consented employment development in the wider former RAF Upper Heyford include:

- Reduce reliance on single occupancy cars;
- Promote change in travel behaviour and travel awareness;
- Minimising car travel and congestion in the area, reducing associated environmental, financial and health costs; and
- Meeting Government objectives for transport and health.

8.2 Measures

8.2.1 In order ensure that the target reductions set out in the wider existing Full Residential Travel Plan are met, a series of measures have been set. These measures also ensure the objectives set out at **Section 8.1.10** are met. The Full Residential Travel Plan include such measures as:

Information Sharing

8.2.2 The presentation of publicly accessible sustainable travel information will serve to ensure residents are aware of up-to-date travel information to allow them to make sustainable travel choices. Measures that may be included are as follows:

- Provision of Residents' Travel Information Packs (one per household, to be provided at time of occupation);
- The provision of an on-site Travel Information Centre; and
- Public notice boards.

Measures to Encourage Walking and Cycling

8.2.3 The vision for the wider former RAF Upper Heyford site is to increase the already high proportion of people who live and work on site and this may be achieved in part by focusing on provision for local and home working as well as providing good quality footway and cycle links

within the site to further encourage increased uptake of these modes. Measures to encourage residents to take up these modes include:

- Physical infrastructure improvements to walking and cycling links within the site, connecting to surrounding former RAF Upper Heyford area and wider local communities;
- Sufficient safe and secure cycling parking;
- The provision of a bike-hire, or bike-pool scheme will be considered to encourage those that live and work within the site to potentially borrow a bike and cycle to their work place, then return the bike to the pool at the end of the day, where the resident can then continue on to their homes by foot;
- Provision of an on-site cycle purchase and repair scheme for residents;
- The promotion of local/national walking and cycling events;
- Advertising of and help booking of adult cycle training; and
- The promotion of health, time and money saving benefits of walking and cycling.

Measures to Encourage Public Transport Use

8.2.4 Bus stops will be provided on Camp Road as part of the consented development and all new bus passenger infrastructures, including vehicles and stops will be DDA/Equality Act compliant. The bus stops will provide shelter, seating and timetable information, and will be designed to the relevant guidance available at the time. Real Time Passenger information will be provided for the new bus services and main bus stops on site, as soon as practicable. Bus and rail timetables and route maps will be publicly available to all residents.

Measures to Encourage Car-Sharing

8.2.5 The Travel Plan Co-ordinator is responsible for setting up and maintaining a Car Sharing Database for all residents to use. The Travel Plan Co-ordinator will encourage new residents to register their home and place-of-work postcodes, as well as the times/frequencies they are willing to offer a lift to other residents on the site, or are looking for a lift. Details of this Car Sharing Database will be made known to residents through the Travel Information Packs, which will also include statistics about car sharing and how much money could be saved by car sharing which would act as a motivator.

Measures to Reduce the Need to Travel

8.2.6 The development site will be equipped with broadband connection capabilities to allow for home-working and home deliveries. Information on home-working and alternative working arrangements (longer working days that allow for 4-day weeks, or 9-day fortnights for example) will be provided within the Resident's Travel Information Packs.

8.3 Monitoring and Review

8.3.1 An essential part of the Full Residential Travel Plan is its review and monitoring process and that it is updated following the first new-build occupation. Site-wide residential travel surveys will be undertaken every two years thereafter. These surveys include the undertaking of fully-classified multi-modal traffic surveys at access points to pockets of residential development (such as the 300-dweling site) as they come forward. The Travel Plan Co-ordinator will prepare Monitoring Reports following the surveys as well as updating the Full Residential Travel Plan itself and this will continue for the duration of the monitoring regime. Remedial

measures that would come into effect should target reductions not be achieved will be set out in the Full Residential Travel Plan.

8.4 Funding

8.4.1 The measures outlined above from the Full Residential Travel Plan will be funded and implemented by the developer and secured through a planning condition as part of any consent. The Full Residential Travel Plan for the wider consented residential elements of the airfield states that the developer will therefore fund the following:

- On-site highway improvements, including walking and cycling facilities, implemented by the Developer;
- Off-site highway works including walking and cycling facilities, funded by the Developer and implemented by the Local Highway Authority as per the Highway Agreement;
- Bus stop infrastructure, carried out by the Local Highway Authority for stops on Camp Road and by the Developer for stops within the site boundaries;
- Enhance bus service provision, provided by OCC and funded by the Developer; and
- Travel Plan measures, including Travel Information Packs, Travel Information Centre, Bicycle User Groups and Information Communication Technology connections, will be approved by the local Highway Authority and funded by the Developer.

9 Conclusions

9.1.1 Peter Brett Associates LLP (PBA) has been commissioned by Dorchester Group to provide transport and highways advice in support of their full planning application for development of up to 300 residential units to the south of Camp Road on part of the site previously occupied by RAF Upper Heyford.

9.1.2 The assessment has been prepared in accordance with national planning policy and guidance, including the National Planning Practice Guidance and the National Planning Policy Framework; and local policy and guidance adopted by Cherwell District Council and Oxfordshire County Council in their respective roles as Planning and Highway authorities.

9.1.3 There are a number of extant planning consents at Heyford Park for new residential dwellings, employment uses and associated community and infrastructure facilities.

9.1.4 The proposed residential site is well placed near existing and consented employment and leisure uses, providing opportunity to live and work locally and enhance opportunities to travel by sustainable modes.

9.1.5 The site is located to the west of the existing settlement which is being redeveloped. The consented mixed use redevelopment and associated transport infrastructure improvements will further enhance facilities and opportunities for sustainable travel.

9.1.6 The former RAF Upper Heyford is served by an hourly bus service to Bicester and Oxford, and a weekly bus service to Banbury.

9.1.7 The proposed development of up to 300 residential dwellings is considered policy compliant in planning terms as it forms part of the identified requirement for a further 1,600 dwellings on the wider former RAF Upper Heyford site.

9.1.8 This Transport Assessment (TA) presents a comprehensive analysis of the transport issues arising from the proposed development and sets out details of access, which for vehicles will primarily be taken via two points on Camp Road and one point on Izzard Road. A further 4 small cul-de-sac access points will provide access to 6 dwellings each Parking will be provided in line with OCC parking guidance.

9.1.9 Analysis of vehicular trip generation associated with the development proposals has been presented.

9.1.10 Manual Classified Counts undertaken at 8 key junctions in 2013 and 2014 were growthed using adjusted growth rates from the industry standard software TEMPRO 7.0 to derive 2016 Base year flows. The traffic associated with committed development traffic for residential and employment elements of Heyford Park have been fully taken into account in the assessment.

9.1.11 The assessments made in this report confirms that the proposals are predicted to generate 146 two-way vehicle trips in the AM peak and 132 two-way vehicle trips in the PM peak period.

9.1.12 The resultant development vehicle trips have been assigned on the local highway network and the impact analysed for future years 2016 and 2021 on seven off site junctions and three site access junctions.

9.1.13 Modelling tests of the proposed access junctions show that they perform well with plenty of capacity and little queuing.

9.1.14 It has also been shown from the junction modelling results that the following off-site junctions are predicted to operate within capacity in all scenarios:

- Camp Road / Kirtlington Road Junction;
- Camp Road / Somerton Road Junction;
- Minor Road / B430 Junction.
- Chilgrove Drive / Minor Road Junction; and
- Hopscroft Holt Junction.

9.1.15 The following two junctions are predicted to operate above capacity in the 2021 Test Case scenario including the Development traffic:

- Middleton Stoney Junction (B430 / B4030); and
- M40 Junction 10 Southern Roundabout.

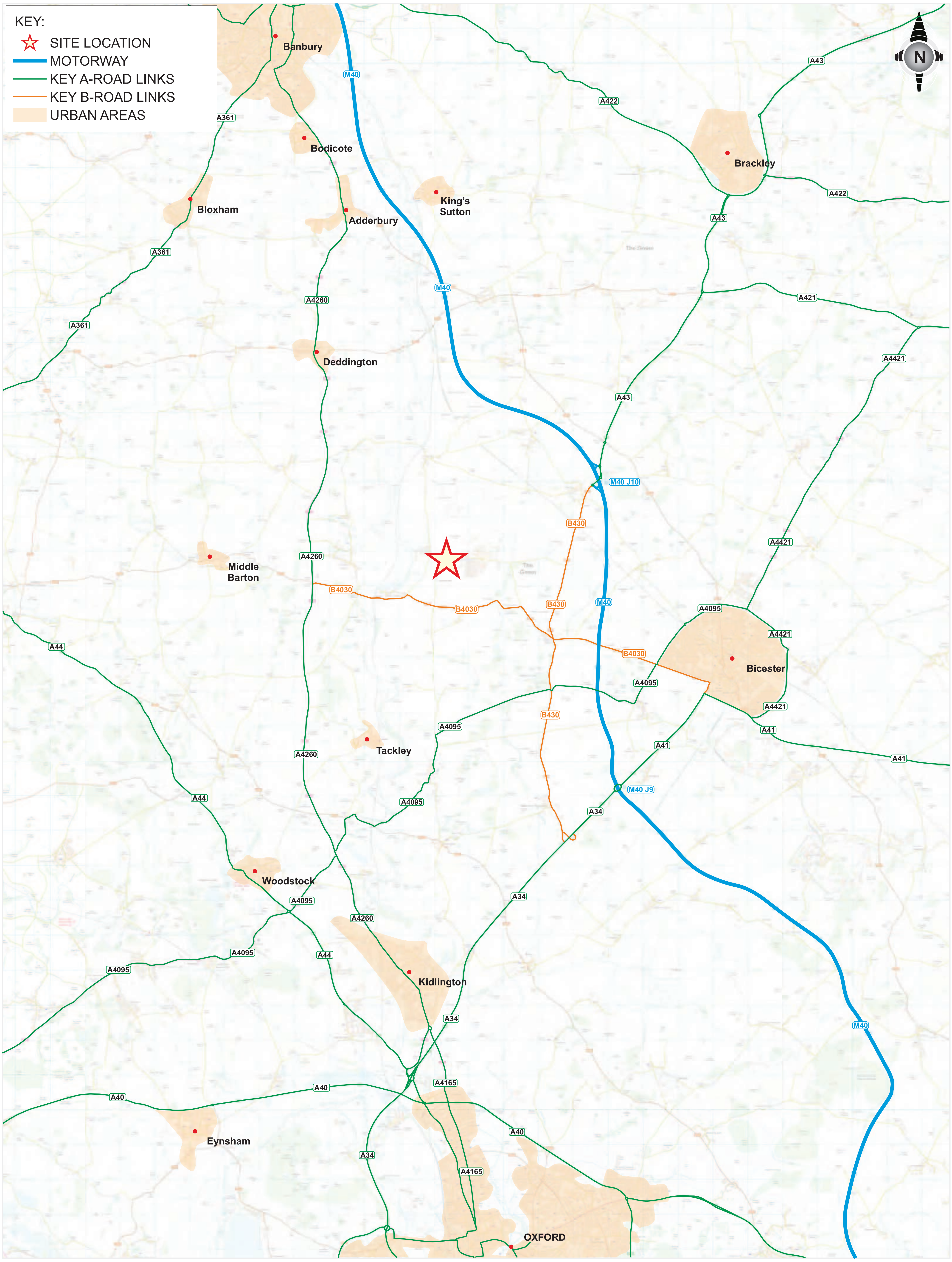
9.1.16 Mitigation schemes have been proposed for these two junctions which have been shown to fully mitigate the impact of the development.

9.1.17 A Residential Travel Plan strategy has been presented which confirms that the proposed development falls under the existing Full Residential Travel Plan for Heyford Park.

9.1.18 There are already measures proposed within the consented scheme for the wider site as a whole which will enhance and promote sustainable travel through proposed improvements to walking and cycling. In addition, a shared foot/cycleway network is proposed within The Development as well as bus stop enhancements on Camp Road to provide accessibility to future residents of the site.

9.1.19 This TA concludes that the traffic associated with the proposals for up to 300 residential units at former RAF Upper Heyford would not have a severe impact on the operation of the local highway network with the appropriate mitigation measures identified in place.

Figures



Client

DORCHESTER GROUP

LAND SOUTH-WEST OF CAMP ROAD, HEYFORD PARK
TRANSPORT ASSESSMENT
STRATEGIC SITE LOCATION PLAN

Mark	Revision	Drawn	Date	Chkd

Date	02/11/2016
Scale	A3 - N.T.S
Drawn by	AE
Checked by	EK

FIGURE 3.1 -

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J:\33374 Heyford Park 400 dwelling application\Technical\Corel\Transport Assessment\Figure 3.1 - Site Location & Wider Highway Network.cdr

SOMERTON
MIDDLE ASTON ROAD
RAGHOUSE LANE
M40
M40 J10
ARDLEY
MIDDLE ASTON
B430
FIR LANE
UPPER HEYFORD
CHILGROVE DRIVE
STEEPLE ASTON
SOMERTON ROAD
CAMP ROAD
HEYFORD ROAD
LOWER HEYFORD
B4030
M40
ROUSHAM
CAULCOTT
MIDDLETON STONEY
B4030
B4030

KEY:
- INDICATIVE SITE BOUNDARY
- MOTORWAY
- KEY A-ROADS
- OTHER KEY ROUTES

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LAND SOUTH-WEST OF CAMP ROAD, HEYFORD PARK
TRANSPORT ASSESSMENT
LOCAL SITE PLAN

Mark	Revision	Drawn	Date	Chkd

Date	02/11/2016
Scale	A3 - N.T.S
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FIGURE 3.2 -

J:\33374 Heyford Park 400 dwelling application\Technical\Corel\Transport Assessment\Figure 3.2 - Local Site Location.cdr

KEY:

INDICATIVE SITE BOUNDARY

SURVEYS TAKEN IN 2013:

1 A4260/B4030 'HOPCROFTS'

2 SOMERTON ROAD/CAMP ROAD

3 CAMP ROAD/KIRTLINGTON ROAD

4 CAMP ROAD/CHILGROVE DRIVE

5 MIDDLETON STONEY JUNCTION

SURVEYS TAKEN IN 2014:

6 PORT WAY/B4030

7 MINOR ROAD/B430

8 M40 JUNCTION 10 SOUTHERN ROUNDABOUT

SOMERTON

RAGHOUSE LANE

M40

8

M40 J10

ARDLEY

B430

FIR LANE

UPPER HEYFORD

2

3

CHILGROVE DRIVE

4

SOMERTON ROAD

CAMP ROAD

7

STEEPLE ASTON

HEYFORD ROAD

1

LOWER HEYFORD

B4030

6

B4030

ROUSHAM

CAULCOTT

B4030

MIDDLETON STONEY

5

B4030

M40

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LAND SOUTH-WEST OF CAMP ROAD, HEYFORD PARK
TRANSPORT ASSESSMENT
TRAFFIC SURVEY LOCATIONS

Mark	Revision	Drawn	Date	Chkd

Date	02/11/2016
Scale	A3 - N.T.S
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FIGURE 3.3 -

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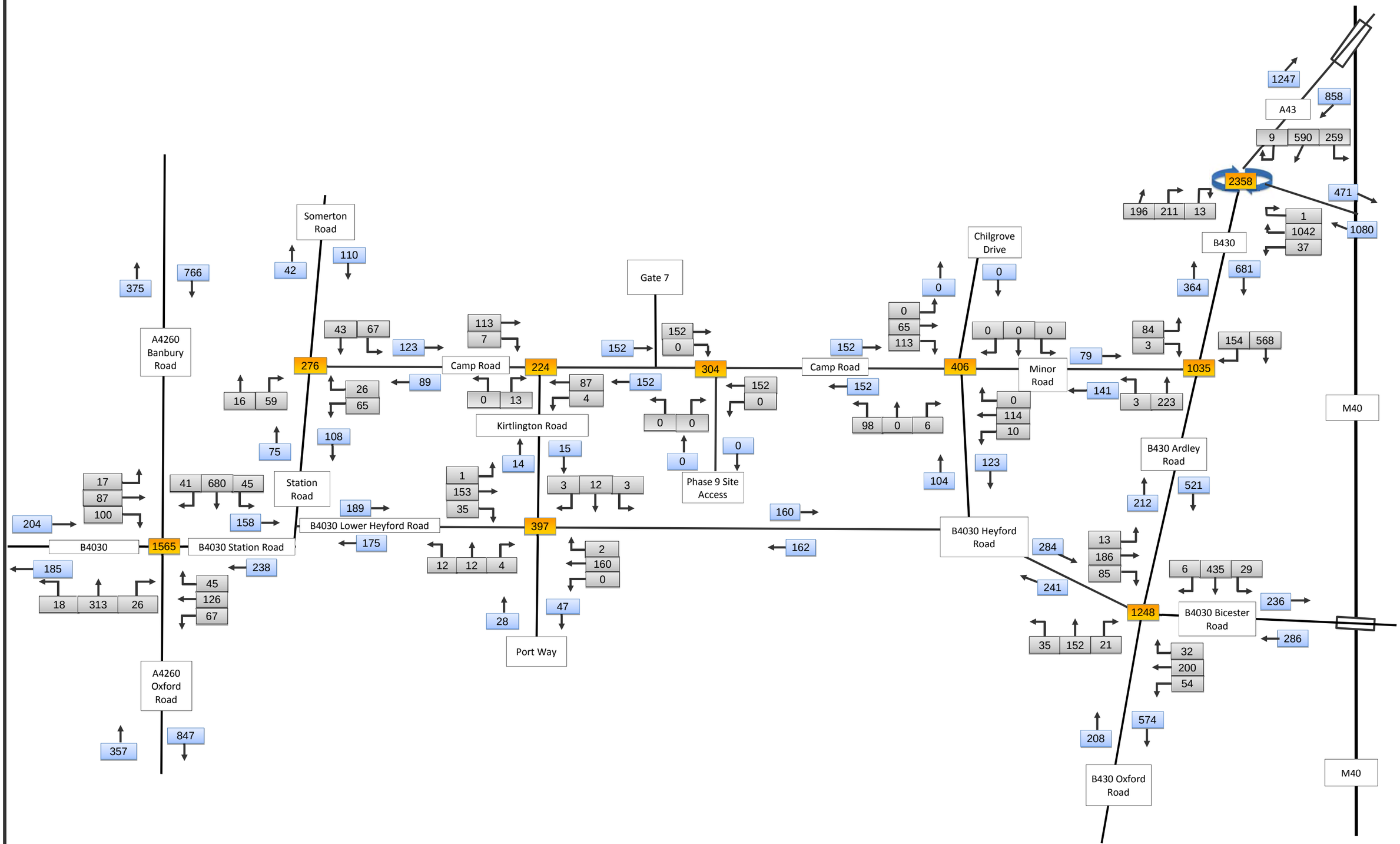
\\BRI-PMFS-001\projects\33374 Heyford Park 400 dwelling application\Technical\Corel\Transport Assessment\Figure 3.3 - Traffic Survey Locations.cdr



pba peterbrett	Client: Dorchester Group	Land South-West of Camp Road, Heyford Park Transport Assessment	Date: 02/11/2016
			Scale: N.T.S
			Drawn: NK
		2013 / 2014 Observed Traffic Flows AM Peak Period	Checked: PR
			Figure 3.4

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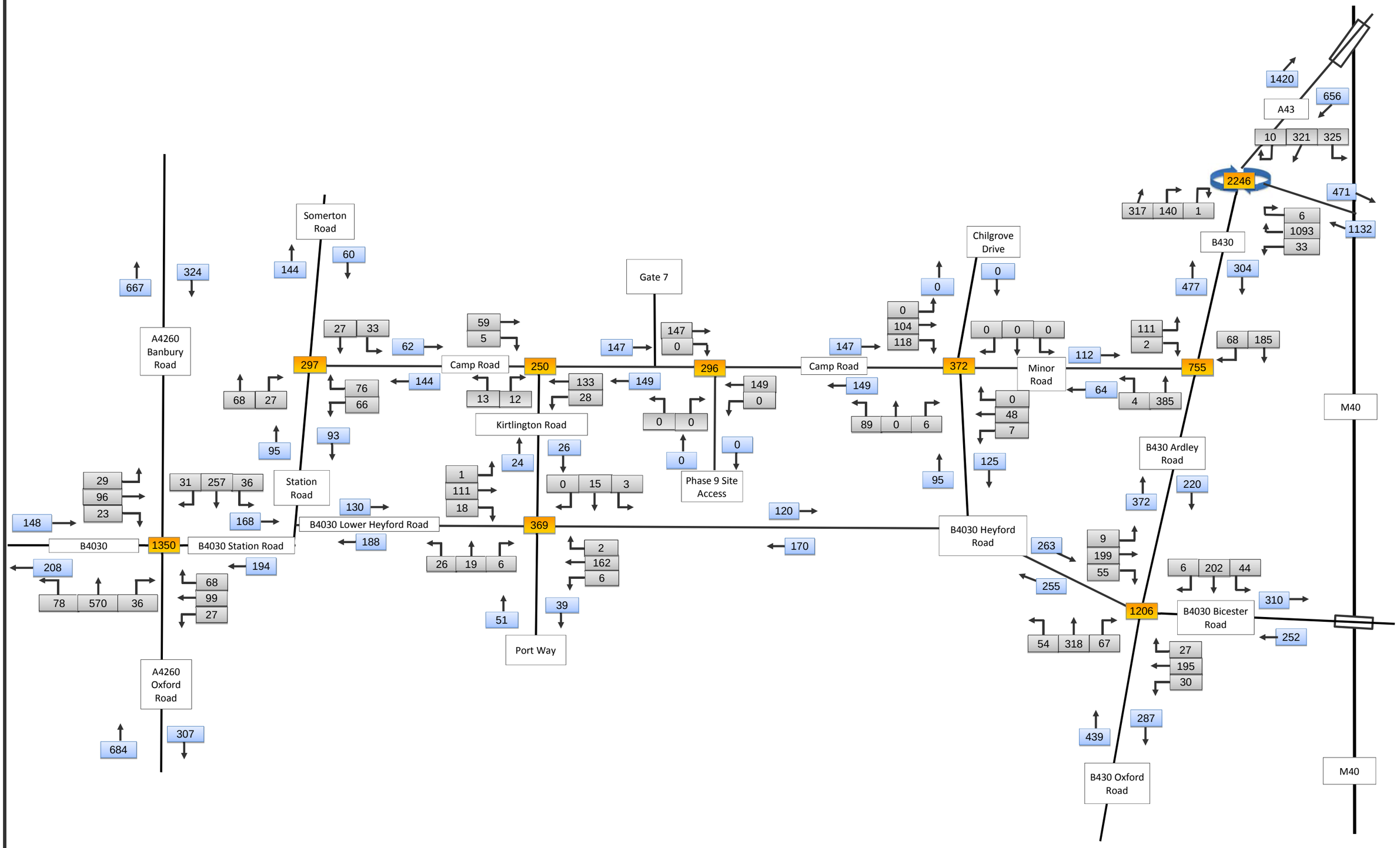

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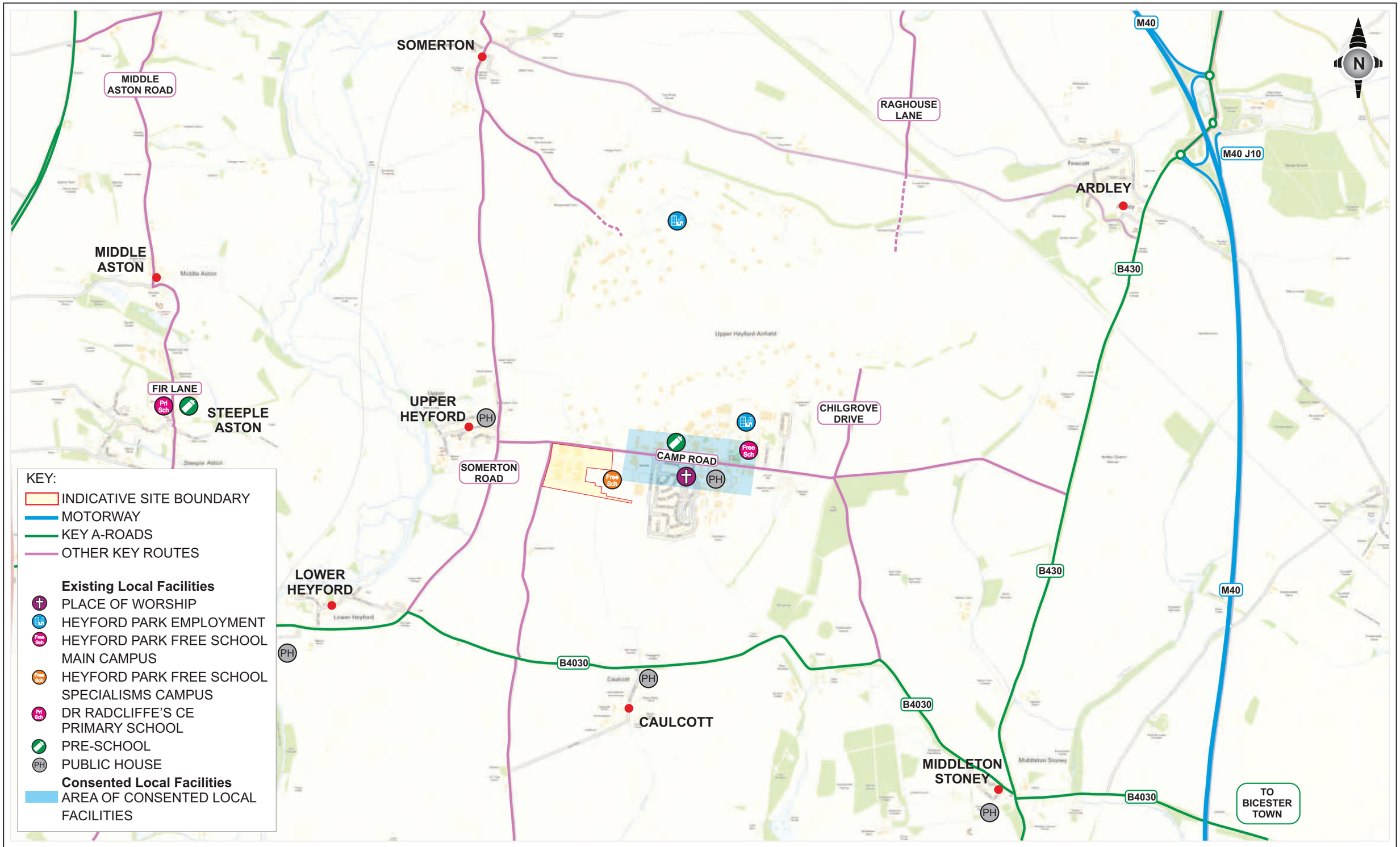

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LAND SOUTH-WEST OF CAMP ROAD, HEYFORD PARK
TRANSPORT ASSESSMENT
EXISTING & CONSENTED LOCAL FACILITIES & AMENITIES

Mark	Revision	Drawn	Date	Chkd

Date	02/11/2016
Scale	A3 - N.T.S
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FIGURE 3.6 -

\\BRI-PMFS-001\projects\33374 Heyford Park 400 dwelling application\Technical\Corel\Transport Assessment\Figure 3.6 - Existing and Consented Local Facilities.cdr

KEY:

- INDICATIVE SITE BOUNDARY
- EXISTING FOOTPATHS
- EXISTING BRIDLEWAYS
- EXISTING UNKNOWN/TRACK
- CONSENTED PEDESTRIAN ROUTES
- CONSENTED SHARED FOOT/CYCLE ROUTE
- OTHER CONSENTED LINKS
- PROPOSED SHARED FOOT/CYCLE ROUTE
- BUS ROUTE 25A (OXFORD TO BICESTER)
- BUS ROUTE 90 (UPPER HEYFORD TO BANBURY)
- EXISTING BUS STOPS
- HEYFORD RAIL STATION

INDICATIVE ALIGNMENT

Upper Heyford Airfield

Upper Heyford

Lower Heyford

Fewcott

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DORCHESTER GROUP

LAND SOUTH-WEST OF CAMP ROAD, HEYFORD PARK
TRANSPORT ASSESSMENT
EXISTING, CONSENTED & PROPOSED PUBLIC TRANSPORT, WALKING AND CYCLING PROVISION

Mark	Revision	Drawn	Date	Chkd

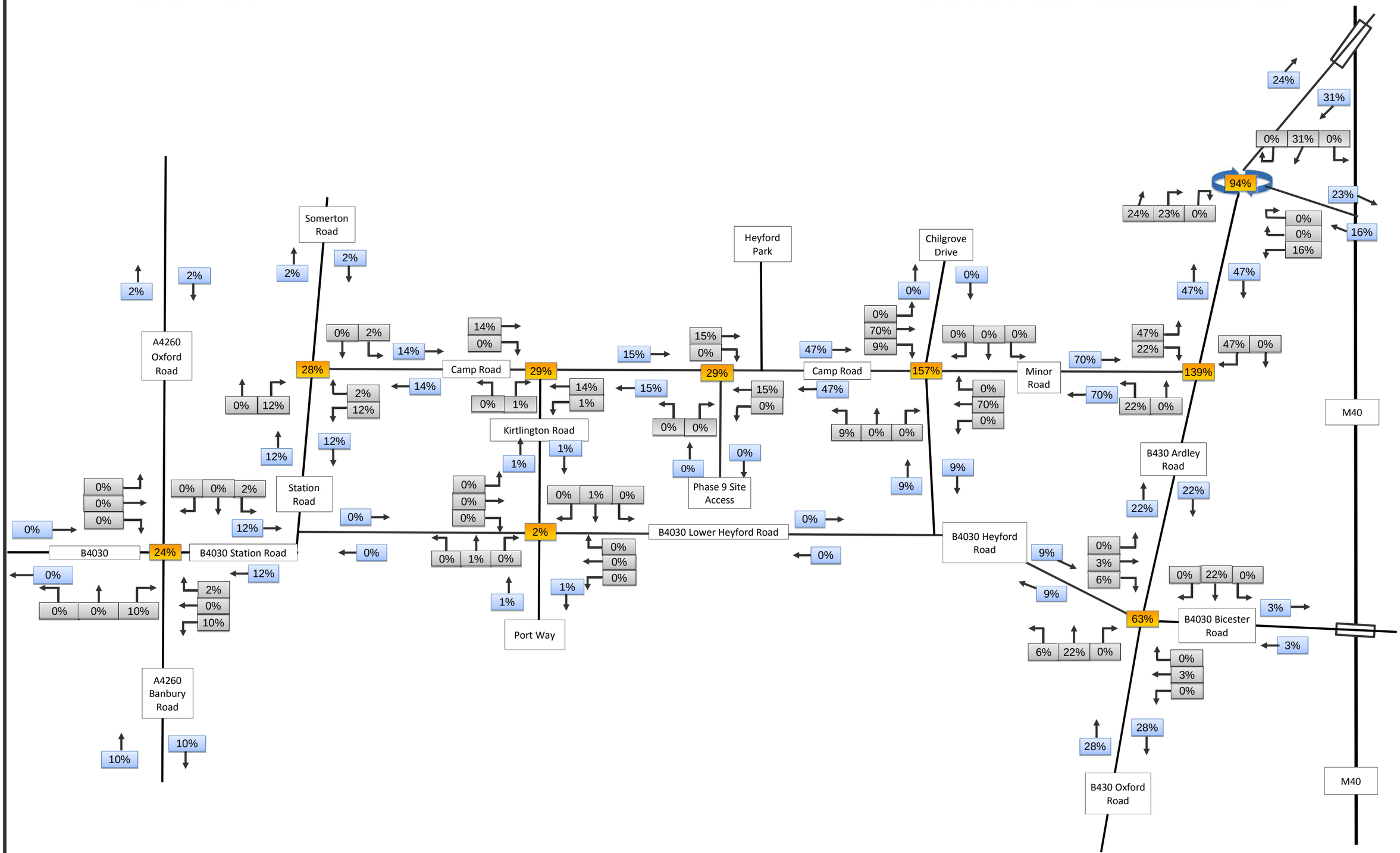
Date	02/11/2016
Scale	A3 - N.T.S
Drawn by	AE
Checked by	EK

FIGURE 3.7 -

\\BRI-PMFS-001\projects\33374 Heyford Park 400 dwelling application\Technical\Corel\Transport Assessment\Figure 3.7 - Existing, Consented & Proposed Public Transport, Walking And Cycling Provision .cdr.cdr

OPTION 294

2011 Census travel to work Distribution TOTAL



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Land South-West of Camp Road, Heyford Park
Transport Assessment

2011 Census Travel to Work Distribution - Resident Based

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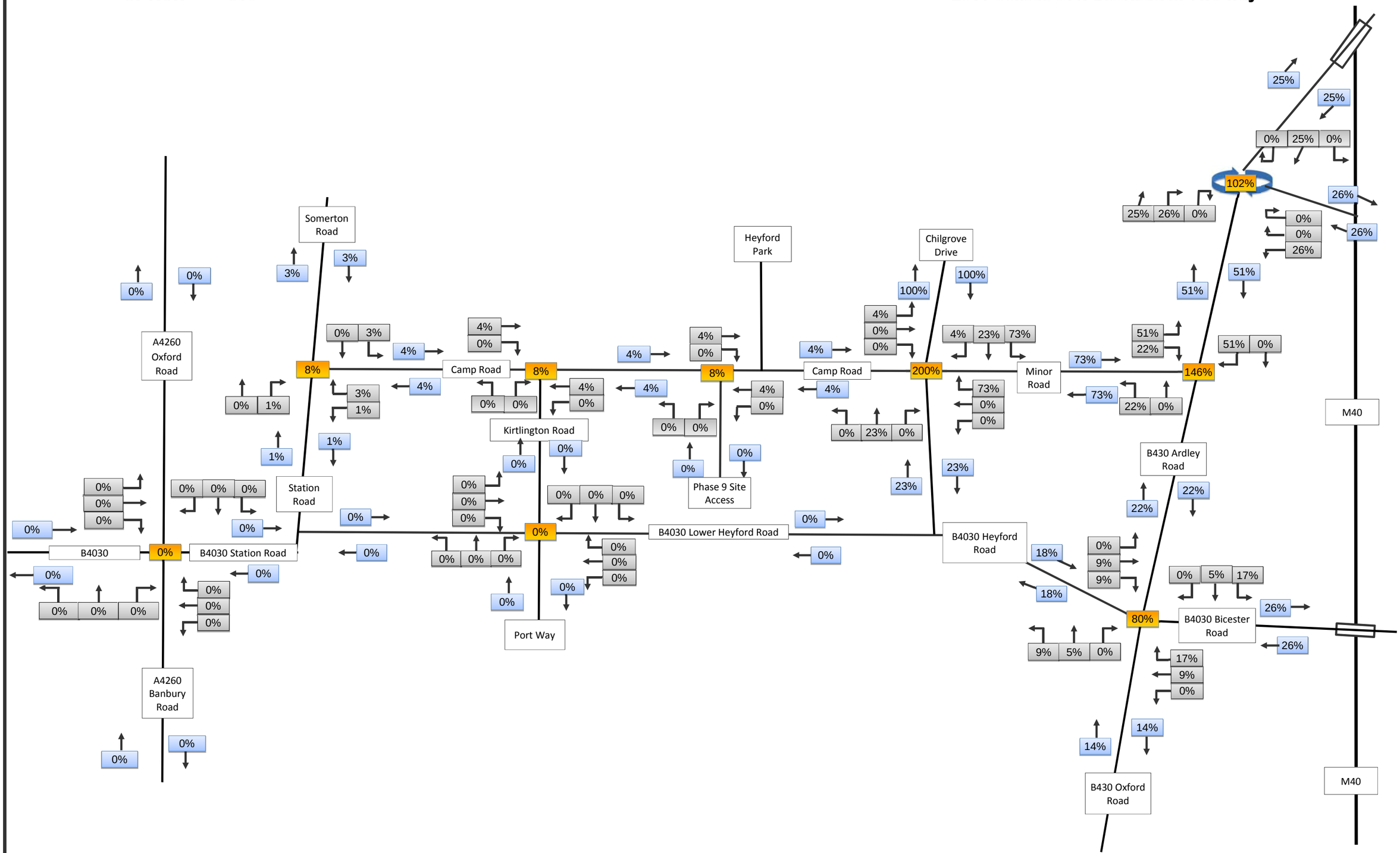
Figure 6.1

OPTION 316

2011 Census JTW Distribution Two-way



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Land South-West of Camp Road, Heyford Park
Transport Assessment

2011 Census Travel to Work Distribution - Workplace Based

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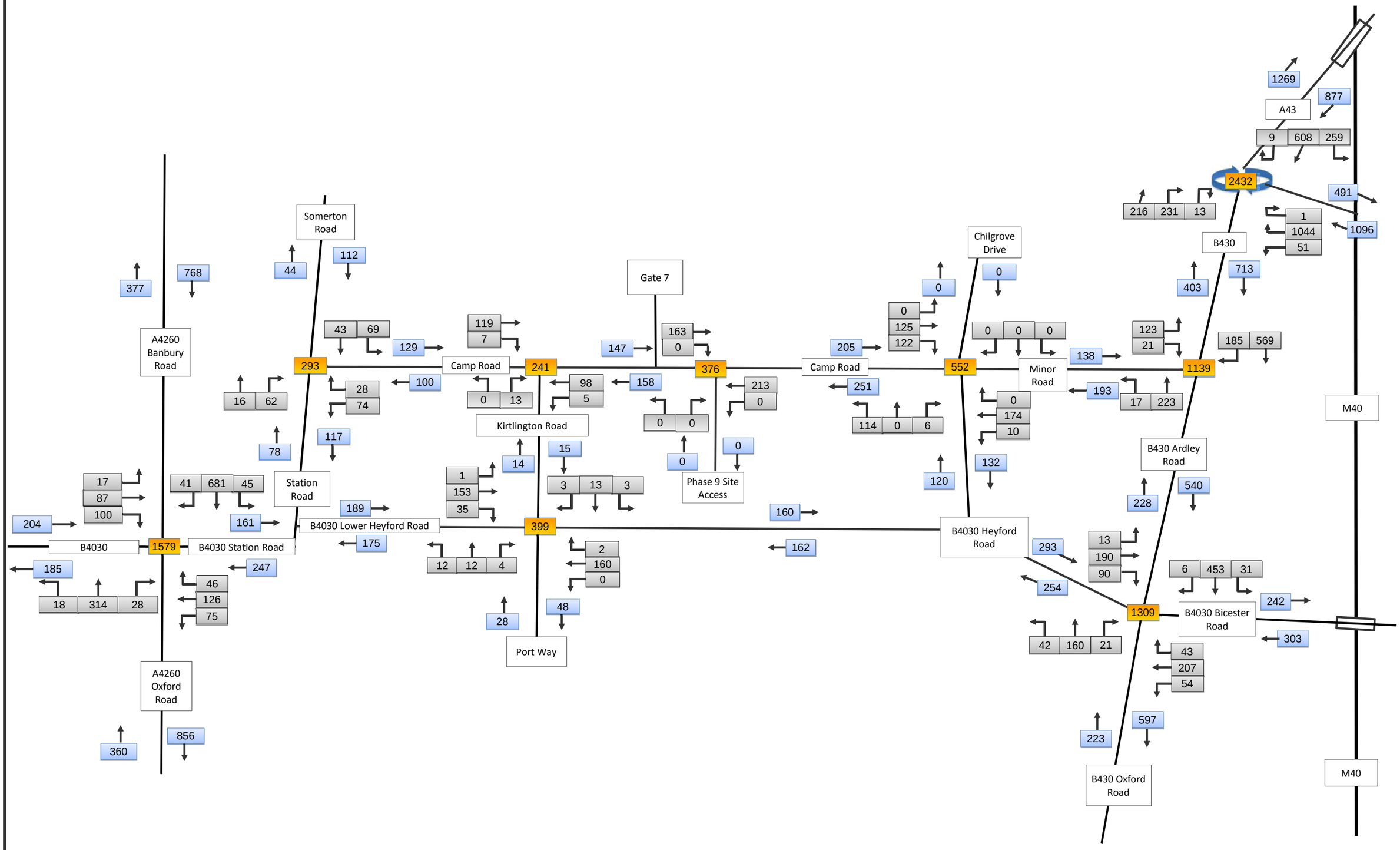
Figure 6.2



pba peterbrett	Client: Dorchester Group	Land South-West of Camp Road, Heyford Park Transport Assessment	Date: 02/11/2016
			Scale: N.T.S
			Drawn: NK
		2016 Base Flows - Vehicles - AM	Checked: PR
			Figure 6.3

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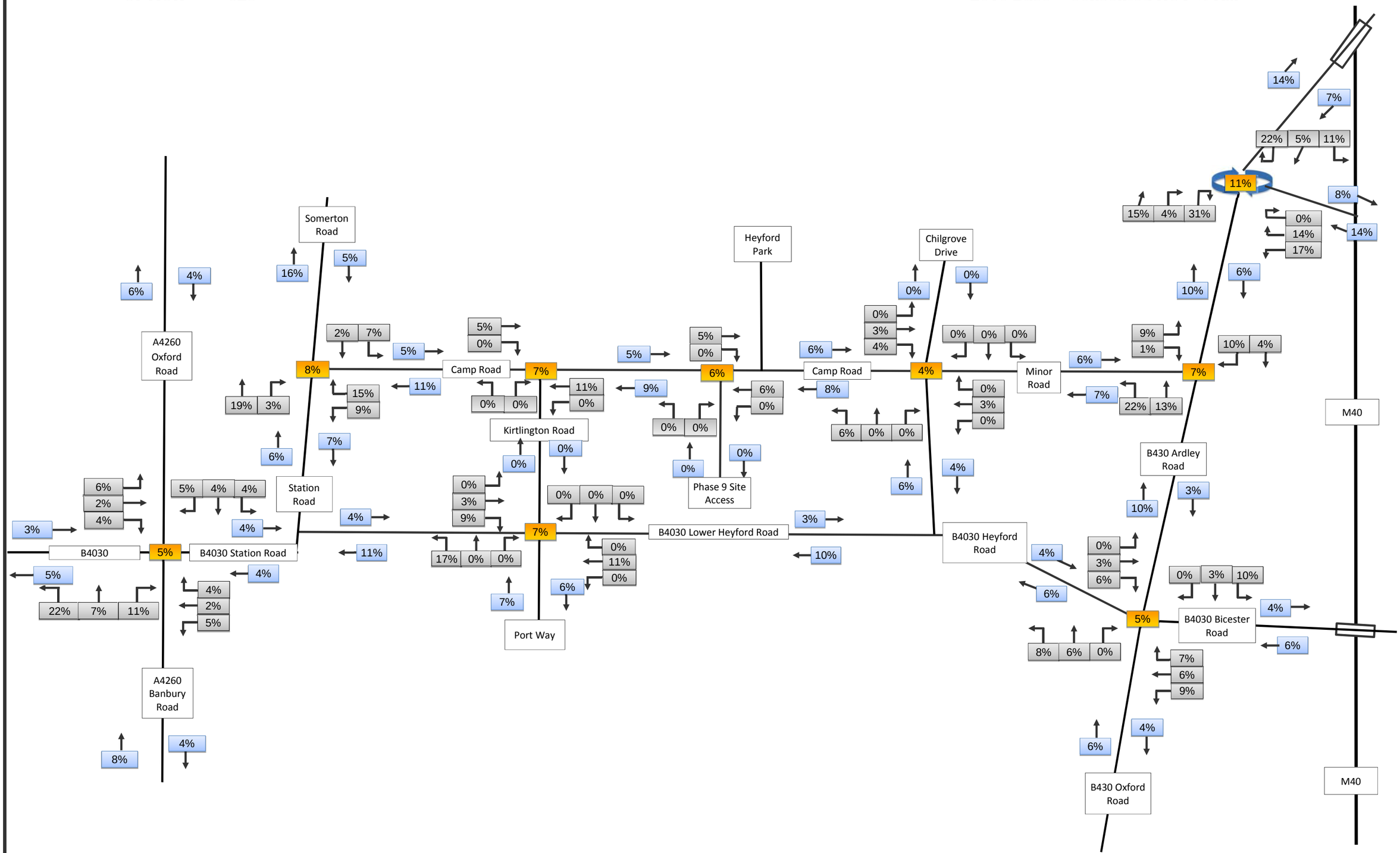
OPTION 328

2016 Base + Consented HGV % AM



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Land South-West of Camp Road, Heyford Park
Transport Assessment

2016 Base Flows - HGV % - AM

Date:	23/06/2015
Scale:	N.T.S
Drawn:	NK
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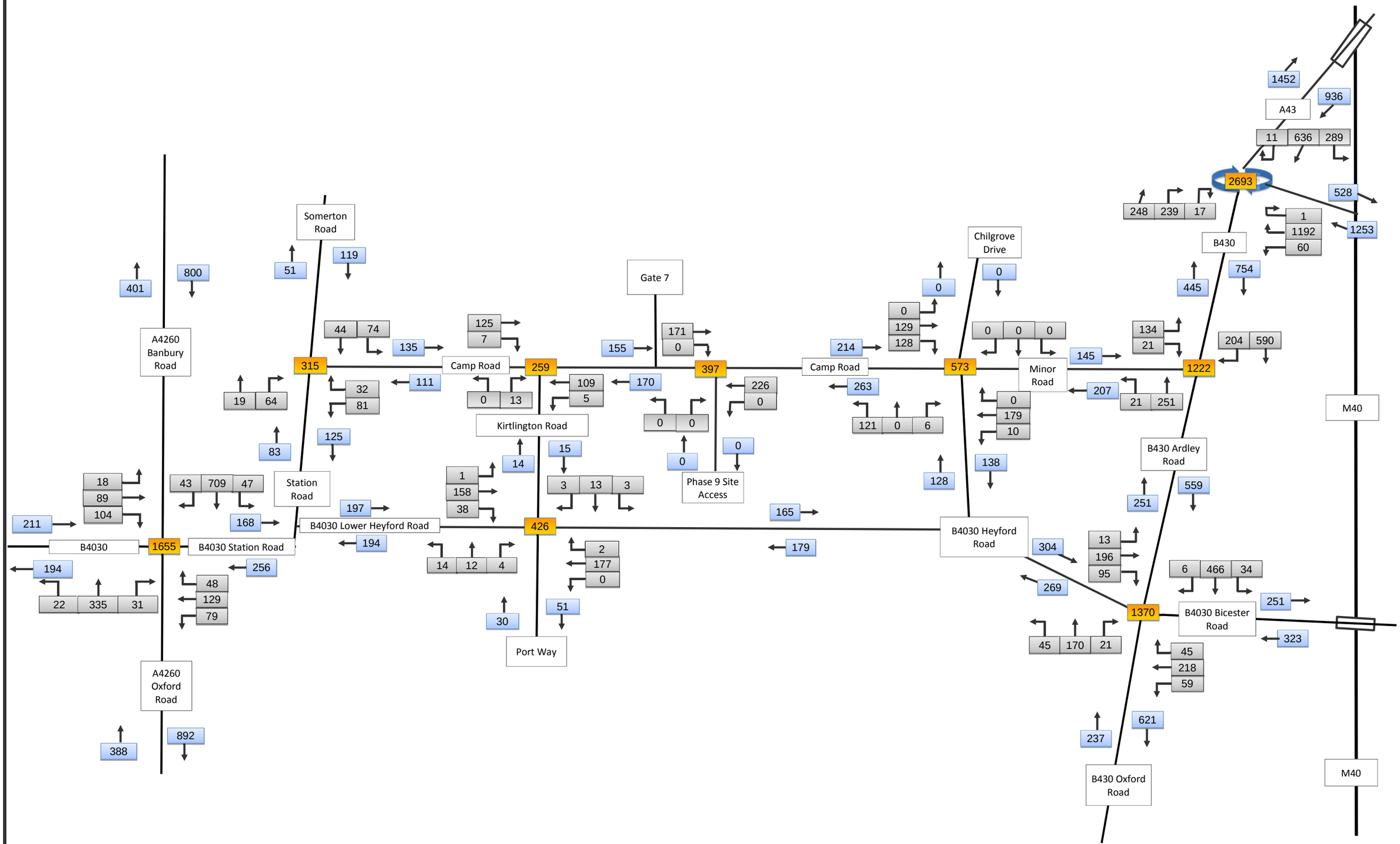
Figure 6.4



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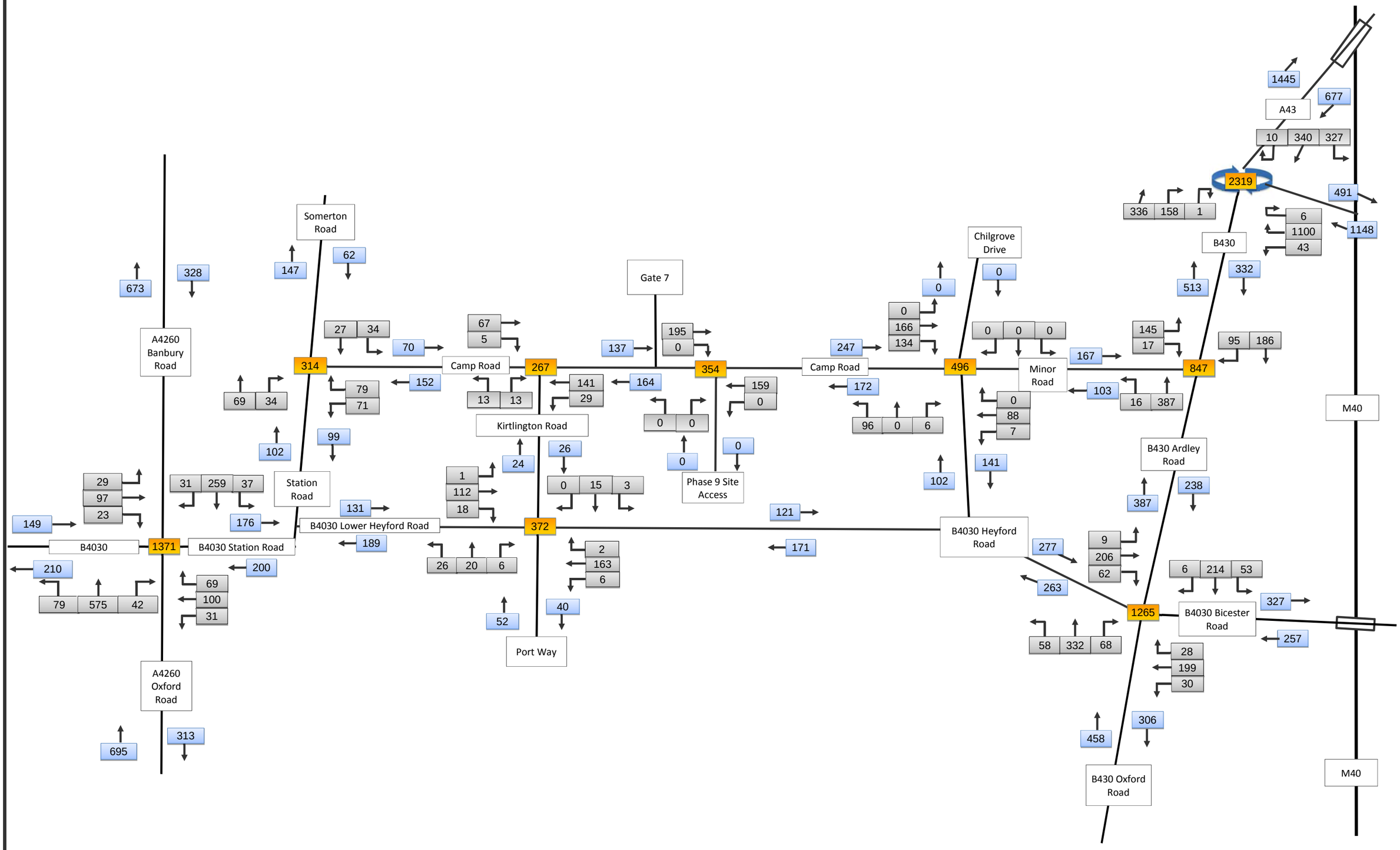

pba peterbrett	Client: Dorchester Group	Land South-West of Camp Road, Heyford Park Transport Assessment	Date: 02/11/2016
			Scale: N.T.S
			Drawn: NK
		2016 Base Flows - Vehicles - PM	Checked: PR
			Figure 6.6

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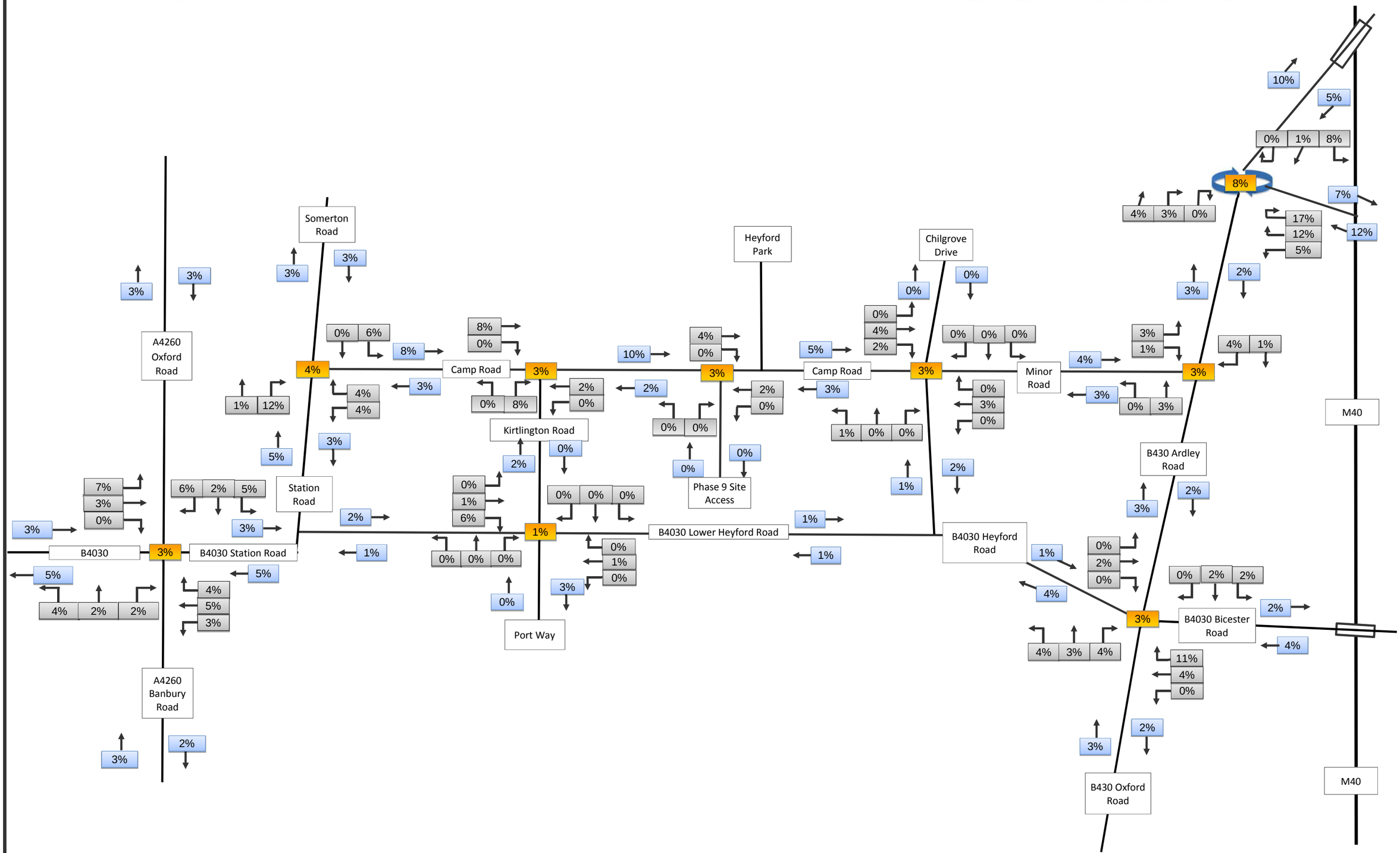
OPTION 333

2016 Base + Consented HGV % PM



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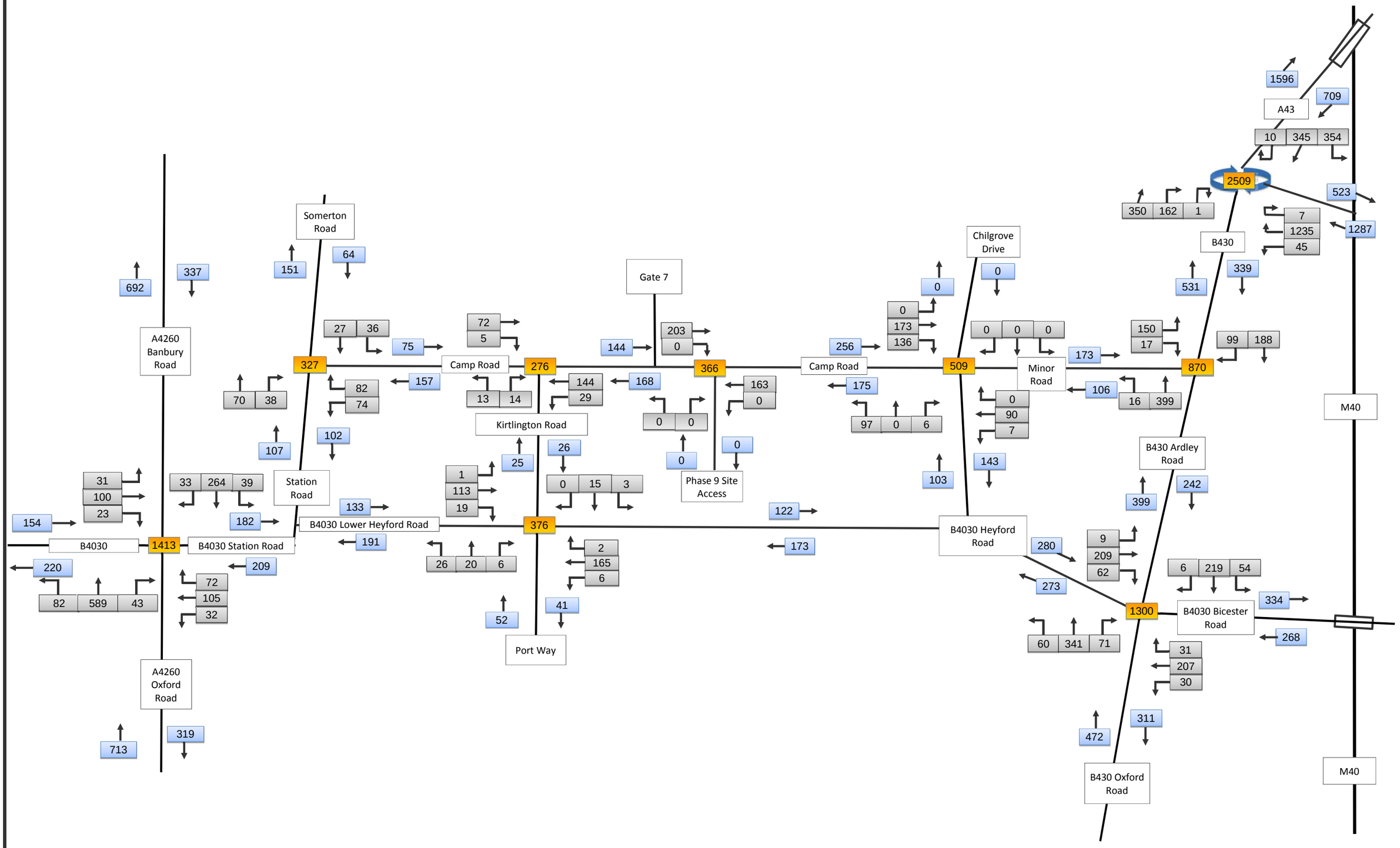
Land South-West of Camp Road, Heyford Park
Transport Assessment

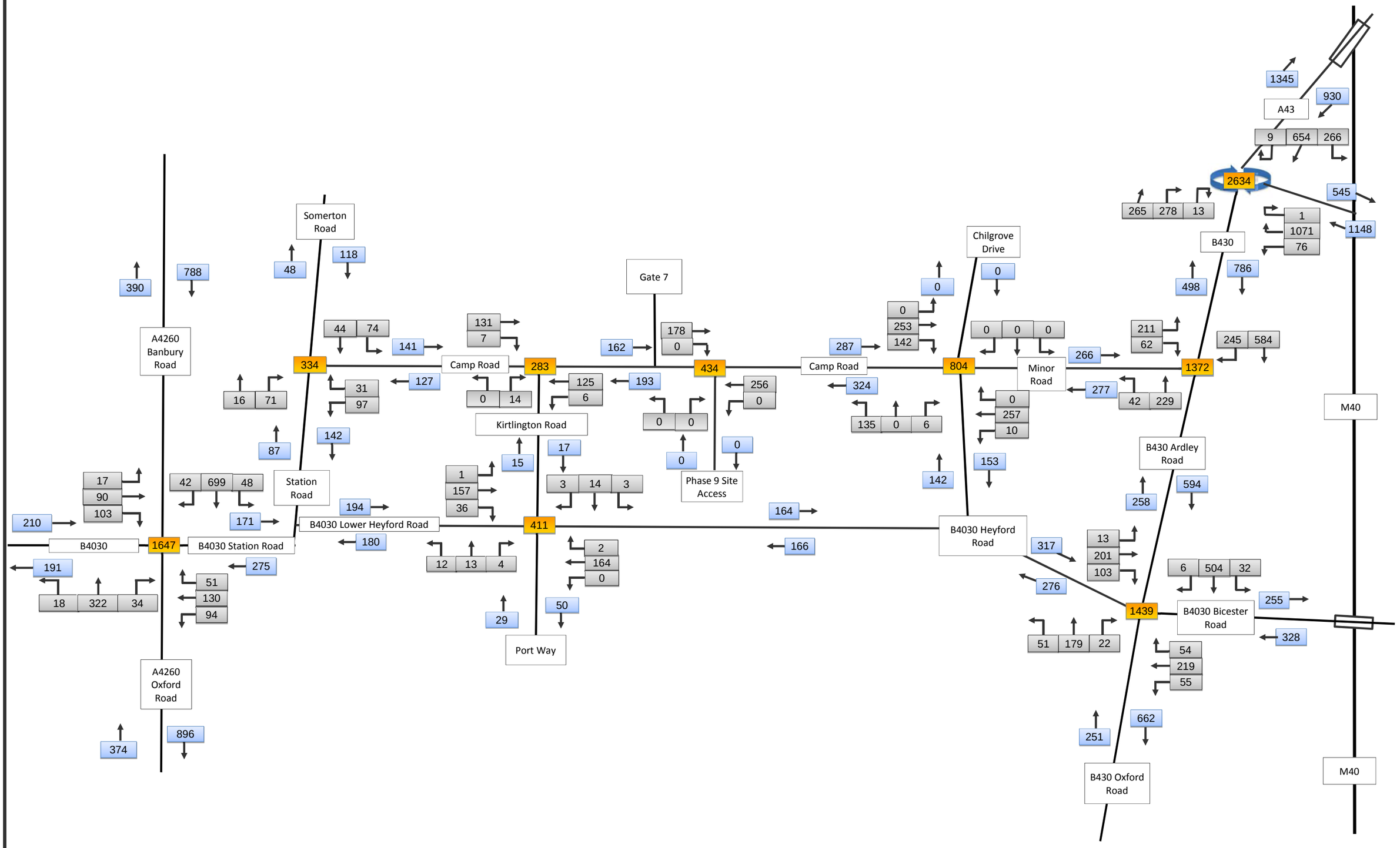
2016 Base Flows - HGV % - PM

Date:	23/06/2015
Scale:	N.T.S
Drawn:	NK
Checked:	PR

Figure 6.7



pba peterbrett	Client: Dorchester Group	Land South-West of Camp Road, Heyford Park Transport Assessment	Date: 02/11/2016 Scale: N.T.S Drawn: NK Checked: PR
PETER BRETT ASSOCIATES LLP 10 QUEEN SQUARE, BRISTOL, BS1 4NT Tel: 0117 928 1560 Fax: 0117 928 1570 E-mail: bristol@pba.co.uk Website: www.pba.co.uk © Peter Brett Associates LLP		2016 Base Flows - PCUs - PM	Figure 6.8



pba peterbrett	Client: Dorchester Group	Land South-West of Camp Road, Heyford Park Transport Assessment	Date: 02/11/2016 Scale: N.T.S Drawn: NK Checked: PR
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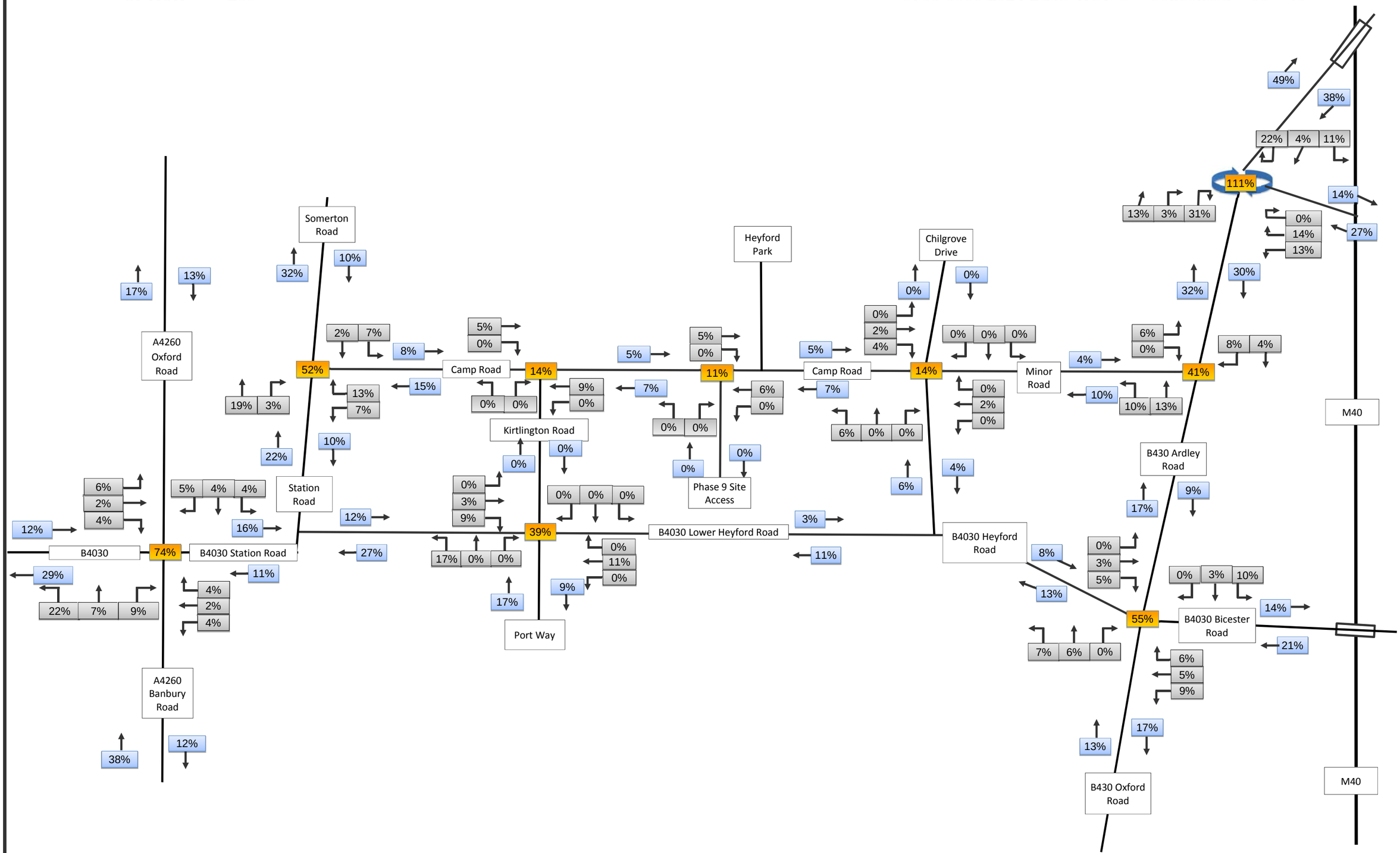
OPTION 283 **0730-0830 2021 Base HGV % + Consented + 60 + 43**



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Land South-West of Camp Road, Heyford Park
Transport Assessment

2021 Reference Case Flows - HGV % - AM

Date:	23/06/2015
Scale:	N.T.S
Drawn:	NK
Checked:	PR

Figure 6.10